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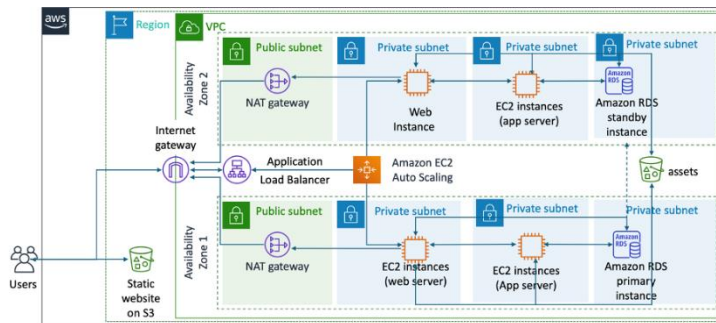
# Rapport de projet Cloud :

Traité par :

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## 1-Objectif :

Le but de ce TP est de réaliser une architecture AWS pour déployer sur laquelle une application à 3 niveaux



## 2-Création du VPC :

Pour cette étape on accède au VPC management console et on crée une nouvelle VPC sous le nom de « atef-vpc » et on lui associe une adresse Ipv4 10.0.0.0/16.

L'étape suivante consiste à créer les subnets publics et privés dans deux AZ (east1a-east1b). Notre architecture comporte 8 subnets en totalité divisé sur deux AZ la première AZ contient les Subnets suivantes :

- Public-subnet-az1 10.0.1.0/24
- Private-web-subnet-az1 10.0.2.0/24
- Private-app-subnet- az1 10.0.3.0/24
- Private-db-subnet-az 1 10.0.4.0/24

La deuxième AZ contient les Subnets suivantes :

- Public-subnet-az2 10.0.5.0/24
- Private-web-subnet-az2 10.0.6.0/24
- Private-app-subnet-az2 10.0.7.0/24

- Private-db-subnet-az2 10.0.8.0/24

**Create subnet** Info

**VPC**

VPC ID  
Create subnets in this VPC.  
vpc-0329db115c9b56389 (atef-vpc)

**Associated VPC CIDRs**

IPv4 CIDRs  
10.0.0.0/16

**Subnet settings**  
Specify the CIDR block and Availability Zone for the subnet.

**Subnet 1 of 2**

Subnet name  
Create a tag with a key of 'Name' and a value that you specify.  
public-subnet-az1

Availability Zone Info  
Choose the zone in which your subnet will reside, or let Amazon choose one for you.  
US East (N. Virginia) / us-east-1a

IPv4 VPC CIDR block Info  
Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.  
10.0.0.0/16

IPv4 subnet CIDR block  
10.0.1.0/24 256 IPs

**Tags - optional**

Key Value - optional  
Name public-subnet-az1 Remove

Add new tag  
You can add 49 more tags.

Remove

création du subnet public

**Subnet 2 of 2**

Subnet name  
Create a tag with a key of 'Name' and a value that you specify.  
private-web-subnet-az1

Availability Zone Info  
Choose the zone in which your subnet will reside, or let Amazon choose one for you.  
US East (N. Virginia) / us-east-1a

IPv4 VPC CIDR block Info  
Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.  
10.0.0.0/16

IPv4 subnet CIDR block  
10.0.2.0/24 256 IPs

**Tags - optional**

Key Value - optional  
Name private-web-subnet-az1 Remove

Add new tag  
You can add 49 more tags.

Remove

Add new subnet

Création du subnet privé web az1

Name	Subnet ID	State	VPC	IPv4 CIDR
private-db-subnet-az2	subnet-07f2a9eabff85f205	Available	vpc-0329db115c9b56389   atef...	10.0.8.0/24
private-web-subnet-az1	subnet-05d1749cc42502bf8	Available	vpc-0329db115c9b56389   atef...	10.0.2.0/24
public-subnet-az2	subnet-0a12442496d72ad61	Available	vpc-0329db115c9b56389   atef...	10.0.5.0/24
private-web-subnet-az2	subnet-001f7699a550caec7	Available	vpc-0329db115c9b56389   atef...	10.0.6.0/24
private-db-subnet-az1	subnet-08f61e0fb9c72453e	Available	vpc-0329db115c9b56389   atef...	10.0.4.0/24
public-subnet-az1	subnet-0a7ea7fcd06aea319	Available	vpc-0329db115c9b56389   atef...	10.0.1.0/24
private-app-subnet-az1	subnet-0e2b69a2696bcf2b4	Available	vpc-0329db115c9b56389   atef...	10.0.3.0/24
private-app-subnet-az2	subnet-04c394daad9e2f7f3	Available	vpc-0329db115c9b56389   atef...	10.0.7.0/24

Création de tous subnets de la même manière

**Notifications** 0 0 2 0 0

VPC > Internet gateways > igw-0d277c8bff7265cde

**igw-0d277c8bff7265cde / atef-intgw** Actions

**Details** Info

Internet gateway ID  
igw-0d277c8bff7265cde

State  
Attached

VPC ID  
vpc-0329db115c9b56389 | atef-vpc

Owner  
882978482200

**Tags**

Search tags

Manage tags

1

Key	Value
Name	atef-intgw

Création de l'internet Gateway et son attachement à « atef-vpc »

## 3-Création des Nat Gateways:

VPC > NAT gateways > Create NAT gateway

### Create NAT gateway [Info](#)

A highly available, managed Network Address Translation (NAT) service that instances in private subnets can use to connect to services in other VPCs, on-premises networks, or the internet.

**NAT gateway settings**

**Name - optional**  
Create a tag with a key of 'Name' and a value that you specify.  
natgtw-az1  
The name can be up to 256 characters long.

**Subnet**  
Select a subnet in which to create the NAT gateway.  
subnet-0a7ea7fcd06aea319 (public-subnet-az1)

**Connectivity type**  
Select a connectivity type for the NAT gateway.  
☒ Public  
☐ Private

**Elastic IP allocation ID [Info](#)**  
Assign an Elastic IP address to the NAT gateway.  
eipalloc-0bc284e72379729e5 [Allocate Elastic IP](#)

**Additional settings [Info](#)**

**Tags**  
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.

Key	Value - optional	
Q Name	Q natgtw-az1	<a href="#">Remove</a>

[Add new tag](#)  
You can add 49 more tags.

[Cancel](#) [Create NAT gateway](#)

Création du Nat Gateway pour l'az1

VPC > NAT gateways > Create NAT gateway

### Create NAT gateway [Info](#)

A highly available, managed Network Address Translation (NAT) service that instances in private subnets can use to connect to services in other VPCs, on-premises networks, or the internet.

**NAT gateway settings**

**Name - optional**  
Create a tag with a key of 'Name' and a value that you specify.  
natgtw-az2  
The name can be up to 256 characters long.

**Subnet**  
Select a subnet in which to create the NAT gateway.  
subnet-0a12442496d72ad61 (public-subnet-az2)

**Connectivity type**  
Select a connectivity type for the NAT gateway.  
☒ Public  
☐ Private

**Elastic IP allocation ID [Info](#)**  
Assign an Elastic IP address to the NAT gateway.  
eipalloc-0034635cd9035deb [Allocate Elastic IP](#)

**Additional settings [Info](#)**

**Tags**  
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.

Key	Value - optional	
Q Name	Q natgtw-az2	<a href="#">Remove</a>

[Add new tag](#)  
You can add 49 more tags.

[Cancel](#) [Create NAT gateway](#)

Création du Nat Gateway pour l'az2

## 4-Tables de routage :

Create route table [Info](#)

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

**Route table settings**

**Name - optional**  
Create a tag with a key of 'Name' and a value that you specify.  
public-rt

**VPC**  
The VPC to use for this route table.  
vpc-0329db115c9b56389 (atef-vpc)

**Tags**  
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.

Key	Value - optional	
Q Name	Q public-rt	<a href="#">Remove</a>

[Add new tag](#)  
You can add 49 more tags.

[Cancel](#) [Create route table](#)

Création table de routage (public-RT)

## Edit routes

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
0.0.0.0/0	Internet Gateway	-	No
	lgw-0d277c8bff7265cd4		

Add route

Cancel Preview Save changes

Diriger le trafic vers l'intgtw

VPC > Route tables > rtb-0bda414055d423f6f > Edit subnet associations

## Edit subnet associations

VPC > Route tables > rtb-00f34d725ce3d491a > Edit routes

## Edit routes

**Route 1**

Destination: 10.0.0.0/16

Target: local

Status: Active

Propagated: No

**Route 2**

Destination: 0.0.0.0/0

Target: NAT Gateway

Status: -

Propagated: No

Remove

Add route

Cancel Preview Save changes

Save associations

Associer les deux subnets publics

VPC > Route tables > Create route table

VPC > Route tables > rtb-00f34d725ce3d491a > Edit subnet associations

## Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (2/8)

Filter subnet associations

	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
<input type="checkbox"/>	private-db-subnet-az2	subnet-07f2a9eabff85f...	10.0.8.0/24	-	Main (rtb-077398f2502f45a0d)
<input checked="" type="checkbox"/>	private-web-subnet-az1	subnet-05d1749cc4250bf8...	10.0.2.0/24	-	Main (rtb-077398f2502f45a0d)
<input type="checkbox"/>	public-subnet-az2	subnet-0a12442496d7...	10.0.5.0/24	-	rtb-0bda414055d423f6f /
<input type="checkbox"/>	private-web-subnet-az2	subnet-001f7699a550c...	10.0.6.0/24	-	Main (rtb-077398f2502f45a0d)
<input type="checkbox"/>	private-db-subnet-az1	subnet-08f61e0fb9c72...	10.0.4.0/24	-	Main (rtb-077398f2502f45a0d)
<input type="checkbox"/>	public-subnet-az1	subnet-0a7ea7fcd06aea...	10.0.1.0/24	-	rtb-0bda414055d423f6f /
<input checked="" type="checkbox"/>	private-app-subnet-az1	subnet-0e2b69a2696bcf2b4...	10.0.3.0/24	-	Main (rtb-077398f2502f45a0d)
<input type="checkbox"/>	private-app-subnet-az2	subnet-04c394daad9e2...	10.0.7.0/24	-	Main (rtb-077398f2502f45a0d)

Selected subnets

subnet-05d1749cc4250bf8 / private-web-subnet-az1

subnet-0e2b69a2696bcf2b4 / private-app-subnet-az1

Associer les subnets privés appropriées

On termine l'autre table de routage « private-rt-az2 » de la même manière.

Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
public-rt	<a href="#">rtb-0bda414055d423f6f</a>	2 subnets	-	No	<a href="#">vpc-0329db115c9</a>
-	<a href="#">rtb-077398f2502f45a0d</a>	-	-	Yes	<a href="#">vpc-0329db115c9</a>
private-rt-az1	<a href="#">rtb-00f34d725ce5b491a</a>	2 subnets	-	No	<a href="#">vpc-0329db115c9</a>
private-rt-az2	<a href="#">rtb-0010f4bcd5c050e95</a>	2 subnets	-	No	<a href="#">vpc-0329db115c9</a>
-	<a href="#">rtb-01f63ada19e230873</a>	-	-	Yes	<a href="#">vpc-078c6ce4f651</a>

Vérifier la création de tous les tables de routage

## 5-Les groupes de sécurités :

### Create security group info

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

#### Basic details

Security group name info

Name cannot be edited after creation.

Description info

VPC info

#### Inbound rules Info

Inbound rule 1

Type info

SSH

Protocol info

TCP

Port range info

22

Source type info

My IP

Source info

196.178.161.230/32

Description - optional info

Add rule

sg de la machine bastion

### Create security group info

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

#### Basic details

Security group name info

Name cannot be edited after creation.

Description info

VPC info

#### Inbound rules Info

Inbound rule 1

Type info

HTTP

Protocol info

TCP

Port range info

80

Source type info

Anywhere-IPv4

Source info

0.0.0.0/0

Description - optional info

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 on...

sg de LB public(external)

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 new security group, complete the fields below.

### Basic details

Security group name [Info](#)  
web-instance-sg  
Name cannot be edited after creation.

Description [Info](#)  
sg for web instances

VPC [Info](#)  
vpc-0329db115c9b56389 (atef-vpc)

### Inbound rules [Info](#)

Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>	Source <a href="#">Info</a>	Description - optional <a href="#">Info</a>	
SSH	TCP	22	Cust... <input type="text" value="sg-03fc836fdd16dc4a1"/>		Delete
HTTP	TCP	80	Cust... <input type="text" value="sg-093f0f76243aa7f8c"/>		Delete

[Add rule](#)

### Outbound rules [Info](#)

Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>	Destination <a href="#">Info</a>	Description - optional <a href="#">Info</a>	
All traffic	All	All	Cust... <input type="text" value="0.0.0.0/0"/>		Delete

[Add rule](#)

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

*sg pour les instances web*

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 new security group, complete the fields below.

### Basic details

Security group name [Info](#)  
lb-app-sg  
Name cannot be edited after creation.

Description [Info](#)  
sg for internal lb

VPC [Info](#)  
vpc-0329db115c9b56389 (atef-vpc)

### Inbound rules [Info](#)

Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>	Source <a href="#">Info</a>	Description - optional <a href="#">Info</a>	
HTTP	TCP	80	Cust... <input type="text" value="sg-03101cecb01a3a4"/>		Delete
			Cust... <input type="text" value="sg-03101cecb01a3a4d2"/>		

[Add rule](#)

### Outbound rules [Info](#)

Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>	Destination <a href="#">Info</a>	Description - optional <a href="#">Info</a>	
All traffic	All	All	Cust... <input type="text" value="0.0.0.0/0"/>		Delete

[Add rule](#)

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

### Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

*SG pour le LB privé(internal)*

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 new security group, complete the fields below.

#### Basic details

Security group name Info

app-sg

Name cannot be edited after creation.

Description Info

sg for app instances

VPC Info

vpc-0329db115c9b56389 (atef-vpc)

#### 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>	
SSH	TCP	22	Cust... <input type="text" value="sg-03fc836fdd16dc4a1"/>		Delete
HTTP	TCP	80	Cust... <input type="text" value="sg-0283793124500187f"/>		Delete

Add rule

#### Outbound rules Info

Type <small>Info</small>	Protocol <small>Info</small>	Port range <small>Info</small>	Destination <small>Info</small>	Description - optional <small>Info</small>	
All traffic	All	All	Cust... <input type="text" value="0.0.0.0/0"/>		Delete

Add rule

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

sg pour les instances app

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 new security group, complete the fields below.

#### Basic details

Security group name Info

db-sg

Name cannot be edited after creation.

Description Info

sg for db

VPC Info

vpc-0329db115c9b56389 (atef-vpc)

#### 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>	
MySQL/Aurora	TCP	3306	Cust... <input type="text" value="sg-0a9cd1be3f0ff336"/>		Delete

Add rule

#### Outbound rules Info

Type <small>Info</small>	Protocol <small>Info</small>	Port range <small>Info</small>	Destination <small>Info</small>	Description - optional <small>Info</small>	
All traffic	All	All	Cust... <input type="text" value="0.0.0.0/0"/>		Delete

Add rule

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

#### Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

sg pour database(RDS)



Security Groups (8) Info				
<input type="text" value="Find resources by attribute or tag"/>				
Security group ID	Security group name	VPC ID	Description	
<a href="#">sg-03101cecb01a3a4d2</a>	web-instance-sg	<a href="#">vpc-0329db115c9b56389</a>	sg for web instances	
<a href="#">sg-050f7a641f130e637</a>	db-sg	<a href="#">vpc-0329db115c9b56389</a>	sg for db	
<a href="#">sg-0283793124500187f</a>	lb-app-sg	<a href="#">vpc-0329db115c9b56389</a>	sg for internal lb	
<a href="#">sg-0a9cd1be3f0ff336</a>	app-sg	<a href="#">vpc-0329db115c9b56389</a>	sg for app instances	
<a href="#">sg-03fc836fdd16dc4a1</a>	bastion-sg	<a href="#">vpc-0329db115c9b56389</a>	sg for bastion	
<a href="#">sg-019cd29e35bda2322</a>	default	<a href="#">vpc-0329db115c9b56389</a>	default VPC security group	
<a href="#">sg-093f0f76243aa7f8c</a>	lb-web-sg	<a href="#">vpc-0329db115c9b56389</a>	sg for external lb	
<a href="#">sg-0a23fa079f160e466</a>	default	<a href="#">vpc-078c6ce4f65114e58</a>	default VPC security group	

Vérifier la création de tous les sgs

## 6-Création de RDS :

RDS > Subnet groups > Create DB subnet group

### Create DB subnet group

To create a new subnet group, give it a name and a description, and choose an existing VPC. You will then be able to add subnets related to that VPC.

#### Subnet group details

**Name**  
You won't be able to modify the name after your subnet group has been created.

Must contain from 1 to 255 characters. Alphanumeric characters, spaces, hyphens, underscores, and periods are allowed.

**Description**

**VPC**  
Choose a VPC identifier that corresponds to the subnets you want to use for your DB subnet group. You won't be able to choose a different VPC identifier after your subnet group has been created.

#### Add subnets

**Availability Zones**  
Choose the Availability Zones that include the subnets you want to add.

Choose an availability zone

us-east-1a ✕
us-east-1b ✕

**Subnets**  
Choose the subnets that you want to add. The list includes the subnets in the selected Availability Zones.

Select subnets

subnet-07f2a9eabff85f205 (10.0.8.0/24) ✕
  
subnet-08f61e0fb9c72453e (10.0.4.0/24) ✕

For Multi-AZ DB clusters, you must select 3 subnets in 3 different Availability Zones.

Subnets selected (2)		
Availability zone	Subnet ID	CIDR block
us-east-1b	subnet-07f2a9eabff85f205	10.0.8.0/24
us-east-1a	subnet-08f61e0fb9c72453e	10.0.4.0/24

Cancel
Create

Création du subnet groupe de la bd

Successfully created the sub-group. View subnet group

Create database

Choose a database creation method

Standard create  
You set all of the configuration options, including ones for availability, security, backups, and maintenance.

Easy create  
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

Engine type

Aurora (MySQL Compatible)

Aurora (PostgreSQL Compatible)

MySQL

Microsoft SQL Server

PostgreSQL

Oracle

IBM Db2

Engine version

Aurora MySQL 5.7.2.11.5

Parallel query is off by default. To enable it, use a DB instance parameter group with the `aurora_parallel_query` parameter enabled. [Learn more](#)

Templates

Choose a sample template to meet your use case.

Production  
Use defaults for high availability and fast, consistent performance.

Dev/Test  
This instance is intended for development use outside of a production environment.

Settings

DB cluster identifier

Enter a name for your DB cluster. The name must be unique across all DB clusters owned by your AWS account in the current AWS Region.

database-1

The DB cluster identifier is case-insensitive, but is stored as all lowercase (as in "mydbcluster"). Constraints: 1 to 63 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

Credentials Settings

Master username

Type a login ID for the master user of your DB instance.

admin

1 to 32 alphanumeric characters. The first character must be a letter.

Credentials management

You can use AWS Secrets Manager or manage your master user credentials.

Managed in AWS Secrets Manager - most secure  
AWS generates a password for you and manages it throughout its lifecycle using AWS Secrets Manager.

Self managed  
Create your own password or have AWS create a password that you manage.

Auto generate password  
Amazon RDS can generate a password for you, or you can specify your own password.

Master password

Minimum constraints: At least 8 printable ASCII characters. Can't contain any of the following symbols: / " @

Confirm master password

Cluster storage configuration - new

Choose the storage configuration for the Aurora DB cluster that best fits your application's price, predictability and price performance needs.

Configuration options

Database instances, storage, and I/O charges vary depending on the configuration. [Learn more](#)

Aurora Standard

- Cost effective pricing for many applications with moderate I/O usage (I/O costs <20% of total database costs)
- Pay per request (I/O) charges apply. DB instance and storage prices don't include I/O usage.

Aurora IO-Optimized

- Predictable pricing for all applications. Improved price performance for I/O intensive applications (I/O costs <20% of total database costs)
- No additional charge for read/write I/O operations. DB instance and storage prices include I/O usage.

Selected Aurora MySQL version doesn't support the Aurora IO-Optimized configuration

Choose the latest version of Aurora MySQL (v 3.03.1 onwards) to use the new cluster configuration. [Learn more](#)

Instance configuration

The DB instance configuration options below are limited to those supported by the engine that you selected above.

DB instance class

Hide filters

Include previous generation classes

Memory optimized classes (includes r classes)

Burstable classes (includes t classes)

db.t3.small

2 vCPUs, 2 GB RAM, Network: 200 Mbps

Availability & durability

Multi-AZ deployment

Create an Aurora Replica or Reader node in a different AZ (recommended for scaled availability)  
Creates an Aurora Replica for fast failover and high availability.

Don't create an Aurora Replica

Connectivity

Compute resource

Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

Don't connect to an EC2 compute resource  
Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.

Connect to an EC2 compute resource  
Set up a connection to an EC2 compute resource for this database.

Network type

To use dual-stack mode, make sure that you associate an IPv6 CIDR block with a subnet in the VPC you specify.

IPv4  
Your resources can communicate only over the IPv4 addressing protocol.

Dual-stack mode  
Your resources can communicate over IPv4, IPv6, or both.

Virtual private cloud (VPC)

Choose the VPC. The VPC defines the virtual networking environment for this DB cluster.

atef-vpc (vpc-0329db115c9b56389)  
8 Subnets, 2 Availability Zones

Only VPCs with a corresponding DB subnet group are listed.

After a database is created, you can't change its VPC.

DB subnet group

Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB cluster can use in the VPC that you selected.

db-sub-grp  
2 Subnets, 2 Availability Zones

Public access

Yes  
RDS assigns a public IP address to the cluster. Amazon EC2 instances and other resources outside of the VPC can connect to your cluster. Resources inside the VPC can also connect to the cluster. Choose one or more VPC security groups that specify which resources can connect to the cluster.

No  
RDS doesn't assign a public IP address to the cluster. Only Amazon EC2 instances and other resources inside the VPC can connect to your cluster. Choose one or more VPC security groups that specify which resources can connect to the cluster.

Additional configuration

Database options

Initial database name

If you do not specify a database name, Amazon RDS does not create a database.

DB cluster parameter group

default:aurora-mysql5.7

DB parameter group

default:aurora-mysql5.7

Option group

default:aurora-mysql-5-7

Failover priority

No preference

Backup

Backup retention period

The number of days (1-35) for which automatic backups are kept.

1 day

Copy tags to snapshots

Encryption

Enable encryption  
Choose to encrypt the given instance. Master key IDs and aliases appear in the list after they have been created using the AWS Key Management Service console. [Info](#)

Backtrack

Backtrack lets you quickly rewind the DB cluster to a specific point in time, without having to create another DB cluster. [Info](#)

Enable Backtrack  
Enabling Backtrack will charge you for storing the changes you make for backtracking.

Log exports

Select the log types to publish to Amazon CloudWatch Logs

Audit log

Error log

General log

Slow query log

IAM role

The following service-linked role is used for publishing logs to CloudWatch Logs.

RDS service-linked role

Création du RDS dans les deux az

database-1

Modify Actions

Related

Filter by databases

DB identifier	Status	Role	Engine	Region & AZ	Size	Recommendations
database-1	Available	Regional cluster	Aurora MySQL	us-east-1	2 instances	
database-1-instance-1	Creating	Reader instance	Aurora MySQL	us-east-1b	db.t3.small	
database-1-instance-1-us-east-1a	Creating	Reader instance	Aurora MySQL	us-east-1a	db.t3.small	

Connectivity & security Monitoring Logs & events Configuration Zero-ETL integrations Maintenance & backups Tags

Endpoints (2)

Find resources

Endpoint name	Status	Type	Port
database-1.cluster-cmahgi5zy9pe.us-east-1.rds.amazonaws.com	Creating	Writer	3306
database-1.cluster-ro-cmahgi5zy9pe.us-east-1.rds.amazonaws.com	Creating	Reader	3306

*Celui de l'az1 est primary et celui de l'az2 est standby*

## 7-Création des instances :

Summary

Number of instances [Info](#)

1

Software Image (AMI)

Amazon Linux 2 Kernel 5.10 AMI...read more  
ami-0a699202e5027c10d

Virtual server type (instance type)

t2.micro

Firewall (security group)

bastion-sg

Storage (volumes)

1 volume(s) - 8 GiB

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

Cancel Launch instance

[Review commands](#)

*Création de l'instance bastion-az1*

## Détails sur la création de l'instance Bastion :

### Launch an instance Info

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

#### Name and tags Info

Name

 [Add additional tags](#)

#### ▼ Application and OS Images (Amazon Machine Image) Info

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

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

**Quick Start**

Amazon Linux

macOS

Ubuntu

Windows

Red Hat

SUSE

Browse more AMIs  
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type  
ami-0a699202e5027c10d (64-bit x86) / ami-0a660115243d1c4b6 (64-bit Arm)  
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2 Kernel 5.10 AMI 2.0.20240329.0 x86\_64 HVM gp2

Architecture

64-bit (x86)

AMI ID

ami-0a699202e5027c10d

Verified provider

Sélection de l'image appropriée-az1

### ▼ Instance type Info | [Get advice](#)

Instance type

t2.micro Free tier eligible

Family: t2 1 vCPU 1 GB Memory Current generation: true

On-Demand Windows base pricing: 0.0162 USD per Hour

On-Demand SUSE base pricing: 0.0116 USD per Hour

On-Demand RHEL base pricing: 0.0716 USD per Hour

On-Demand Linux base pricing: 0.0116 USD per Hour

Additional costs apply for AMIs with pre-installed software

[All generations](#)

[Compare instance types](#)

### ▼ 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

same-key

[Create new key pair](#)

Génération d'une key pour l'accès ssh

### ▼ Network settings Info

VPC - required Info

vpc-0329db115c9b56389 (atfep-vpc)  
10.0.0.0/16

Subnet Info

subnet-0a7ea7fcd06aea319 public-subnet-az1  
VPC: vpc-0329db115c9b56389 Owner: 882978482200  
Availability Zone: us-east-1a IP addresses available: 250 CIDR: 10.0.1.0/24

[Create new subnet](#)

Auto-assign public IP Info

Enable

Additional charges apply when outside of free tier allowance

Firewall (security groups) Info

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

[Create security group](#) [Select existing security group](#)

Common security groups Info

Select security groups

bastion-sg sg-03fc836fdd16dc4a1 X  
VPC: vpc-0329db115c9b56389

[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](#)

Choisir le VPC et le SG

### ▼ Configure storage Info Advanced

1x 8 GiB gp2 Root volume (Not encrypted)

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

[Add new volume](#)

[Click refresh to view backup information](#)  
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems [Edit](#)

### ▼ Advanced details Info

Domain join directory Info

Select [Create new directory](#)

IAM instance profile Info

LabInstanceProfile  
arn:aws:iam::882978482200:instance-profile/LabInstanceProfile

[Create new IAM profile](#)

Hostname type Info

IP name

DNS Hostname Info

☒ Enable IP name (IPv4 (A record) DNS requests)

☒ Enable resource-based IPv4 (A record) DNS requests

☐ Enable resource-based IPv6 (AAAA record) DNS requests

Instance auto-recovery Info

Select

Shutdown behavior Info

Stop

Stop - Hibernate behavior Info

Select

Termination protection Info

Select

Stop protection Info

Select

Activer le DNS hostname

On suit les même étapes pour créer l'instance bastion-az2

▼ Summary

Number of instances

Info

1

Software Image (AMI)

Amazon Linux 2 Kernel 5.10 AMI...read more

ami-0a699202e5027c10d

Virtual server type (instance type)

t2.micro

Firewall (security group)

bastion-sg

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes

750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel

Launch instance

Review commands

Creation de l'instance bastion-az2

▼ Summary

Number of instances

Info

1

Software Image (AMI)

Amazon Linux 2 Kernel 5.10 AMI...read more

ami-0a699202e5027c10d

Virtual server type (instance type)

t2.micro

Firewall (security group)

web-instance-sg

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes

750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel

Launch instance

Review commands

Creation de l'instance web-az1

On suit les mêmes étapes de la création de l'instance bastion sauf :

**Instance type**

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

Additional costs apply for AMIs with pre-installed software

**Key pair (login)** Info

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

Key pair name - required  
same-key Create new key pair

**Network settings** Info

VPC - required Info  
vpc-0329db115c9b56389 (atef-vpc) 10.0.0.0/16

Subnet Info  
subnet-05d1749cc42502bf8 private-web-subnet-az1  
VPC: vpc-0329db115c9b56389 Owner: 882978482200 Availability Zone: us-east-1a IP addresses available: 251 CIDR: 10.0.2.0/24

Auto-assign public IP Info  
Disable

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

Create security group Select existing security group

Common security groups Info  
Select security groups  
web-instance-sg sg-03101cecb01a3a4d2  
VPC: vpc-0329db115c9b56389

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

Advanced network configuration

Cette instance est privée donc l'auto assign public IP doit être (disable)

On suit les même étapes pour créer l'instance web-az2

**Summary**

Number of instances Info  
1

Software Image (AMI)  
Amazon Linux 2 Kernel 5.10 AML...read more  
ami-0a699202e5027c10d

Virtual server type (instance type)  
t2.micro

Firewall (security group)  
web-instance-sg

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

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

Cancel Launch instance  
Review commands

Pour créer les instances app ,on suit les mêmes étapes de la création des instance web,mais on change seulement la configuration réseau :

▼ **Network settings** [Info](#)

VPC - required [Info](#)

vpc-0329db115c9b56389 (atef-vpc)  
10.0.0.0/16

Subnet [Info](#)

subnet-0e2b69a2696bcf2b4 private-app-subnet-az1  
VPC: vpc-0329db115c9b56389 Owner: 882978482200  
Availability Zone: us-east-1a IP addresses available: 251 CIDR: 10.0.3.0/24

Auto-assign public IP [Info](#)

Disable

Firewall (security groups) [Info](#)

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

☐ Create security group ☒ Select existing security group

Common security groups [Info](#)

Select security groups

app-sg sg-0a9cd1be3f0ff336 X  
VPC: vpc-0329db115c9b56389

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

*Choisir le VPC et le SG appropriés pour app-az1*

▼ **Network settings** [Info](#)

VPC - required [Info](#)

vpc-0329db115c9b56389 (atef-vpc)  
10.0.0.0/16

Subnet [Info](#)

subnet-04c394daad9e2f7f3 private-app-subnet-az2  
VPC: vpc-0329db115c9b56389 Owner: 882978482200  
Availability Zone: us-east-1b IP addresses available: 251 CIDR: 10.0.7.0/24

Auto-assign public IP [Info](#)

Disable

Firewall (security groups) [Info](#)

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

☐ Create security group ☒ Select existing security group

Common security groups [Info](#)

Select security groups

app-sg sg-0a9cd1be3f0ff336 X  
VPC: vpc-0329db115c9b56389

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

*Choisir le VPC et le SG appropriés pour app-az2*

Instances (6) Info

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

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public
app-az2	I-0e902ee9726c463af	Running	t2.micro	Initializing	View alarms +	us-east-1b	-
bastion-az2	I-0b4b61b39af4c7be4	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1b	-
bastion-az1	I-0740d0bde5d551693	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	-
web-az1	I-027d4baa65afffae	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	-
app-az1	I-0e2e64b36fbf9638b	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	-
web-az2	I-0e14bb6239304c405	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1b	-

Vérifier la création de toutes les instances

## 8-Vérification de la connexion ssh :

```
Administrateur : Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. Tous droits réservés.

Installez la dernière version de PowerShell pour de nouvelles fonctionnalités et améliorations ! https://aka.ms/PSWindows

PS C:\Windows\system32> GET-service ssh-agent

Status  Name          DisplayName
-----
Running ssh-agent  OpenSSH Authentication Agent

PS C:\Windows\system32> Start-service ssh-agent
PS C:\Windows\system32>
```

Activer le service ssh-agent à travers le PowerShell

```
Administrateur : Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. Tous droits réservés.

Installez la dernière version de PowerShell pour de nouvelles fonctionnalités et améliorations ! https://aka.ms/PSWindows

PS C:\Windows\system32> GET-service ssh-agent

Status  Name          DisplayName
-----
Running ssh-agent  OpenSSH Authentication Agent

PS C:\Windows\system32> Start-service ssh-agent
PS C:\Windows\system32> ssh-add C:\Users\21697\same-key.pem
Identity added: C:\Users\21697\same-key.pem (C:\Users\21697\same-key.pem)
PS C:\Windows\system32>
```

Ajouter la clé « same-key »



```
ec2-user@ip-10-0-1-211:~
Microsoft Windows [version 10.0.22621.3296]
(c) Microsoft Corporation. Tous droits réservés.

C:\Users\21697>ssh -A ec2-user@34.204.89.40
The authenticity of host '34.204.89.40 (34.204.89.40)' can't be established.
ED25519 key fingerprint is SHA256:0s6Cl+rQQ6Bc9nnZOFk/Rr9dYqfSiESlPIJm7sbBPM.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '34.204.89.40' (ED25519) to the list of known hosts.

#_
~\ _ #####_ Amazon Linux 2
~~ \_#####\
~~ \###| AL2 End of Life is 2025-06-30.
~~ \#/ ---
~~ V~' '->
~~~ / A newer version of Amazon Linux is available!
~~._. _/_/
_/_/_/ Amazon Linux 2023, GA and supported until 2028-03-15.
_/_/_/ https://aws.amazon.com/linux/amazon-linux-2023/

[ec2-user@ip-10-0-1-211 ~]$
```

Connecter à la machine bastion-az1 en utilisant sa @ip public

```
ec2-user@ip-10-0-3-108:~
_/_/_/ Amazon Linux 2023, GA and supported until 2028-03-15.
_/_/_/ https://aws.amazon.com/linux/amazon-linux-2023/

[ec2-user@ip-10-0-1-211 ~]$ ssh 10.0.3.108
The authenticity of host '10.0.3.108 (10.0.3.108)' can't be established.
ECDSA key fingerprint is SHA256:rdmLUybfLQssiyD0lv7mJmgMZOHtaTc05tNfX3LxMCg.
ECDSA key fingerprint is MD5:f8:12:46:81:6d:60:c3:a0:fc:07:de:dd:24:7a:fa:60.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.0.3.108' (ECDSA) to the list of known hosts.

#_
~\ _ #####_ Amazon Linux 2
~~ \_#####\
~~ \###| AL2 End of Life is 2025-06-30.
~~ \#/ ---
~~ V~' '->
~~~ / A newer version of Amazon Linux is available!
~~._. _/_/
_/_/_/ Amazon Linux 2023, GA and supported until 2028-03-15.
_/_/_/ https://aws.amazon.com/linux/amazon-linux-2023/

[ec2-user@ip-10-0-3-108 ~]$
```

Connecter à l'instance app-az 1 en utilisant sa @ip privée

## 9-Création du s3 Bucket :

Amazon S3 > Buckets > Create bucket

### Create bucket [Info](#)

Buckets are containers for data stored in S3.

#### General configuration

AWS Region

US East (N. Virginia) us-east-1

Bucket type [Info](#)

☒ **General purpose**  
Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

☐ **Directory - New**  
Recommended for low-latency use cases. These buckets use only the S3 Express One Zone storage class, which provides faster processing of data within a single Availability Zone.

Bucket name [Info](#)

atef-bucket

Bucket name must be unique within the global namespace and follow the bucket naming rules. [See rules for bucket naming](#)

Copy settings from existing bucket - optional  
Only the bucket settings in the following configuration are copied.

[Choose bucket](#)

Format: s3://bucket/prefix

### Nommer le S3 bucket

#### Object Ownership [Info](#)

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

☒ **ACLs disabled (recommended)**  
All objects in this bucket are owned by this account. Access to this bucket and its objects is specified using only policies.

☐ **ACLs enabled**  
Objects in this bucket can be owned by other AWS accounts. Access to this bucket and its objects can be specified using ACLs.

Object Ownership  
Bucket owner enforced

#### Block Public Access settings for this bucket

Public access is granted to buckets and objects through access control lists (ACLs), bucket policies, access point policies, or all. In order to ensure that public access to this bucket and its objects is blocked, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to this bucket or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

☒ **Block all public access**  
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

☒ **Block public access to buckets and objects granted through new access control lists (ACLs)**  
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources.

### Bucket Versioning

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

#### Bucket Versioning

- ☒ Disable  
☐ Enable

### Tags - optional (0)

You can use bucket tags to track storage costs and organize buckets. [Learn more](#)

No tags associated with this bucket.

[Add tag](#)

### Default encryption [Info](#)

Server-side encryption is automatically applied to new objects stored in this bucket.

#### Encryption type [Info](#)

- ☒ Server-side encryption with Amazon S3 managed keys (SSE-S3)  
☐ Server-side encryption with AWS Key Management Service keys (SSE-KMS)  
☐ Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)  
Secure your objects with two separate layers of encryption. For details on pricing, see [DSSE-KMS pricing](#) on the [Storage](#) tab of the [Amazon S3 pricing page](#).

#### Bucket Key

Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. [Learn more](#)

- ☐ Disable

### Default encryption [Info](#)

Server-side encryption is automatically applied to new objects stored in this bucket.

#### Encryption type [Info](#)

- ☒ Server-side encryption with Amazon S3 managed keys (SSE-S3)  
☐ Server-side encryption with AWS Key Management Service keys (SSE-KMS)  
☐ Dual-layer server-side encryption with AWS Key Management Service keys (DSSE-KMS)  
Secure your objects with two separate layers of encryption. For details on pricing, see [DSSE-KMS pricing](#) on the [Storage](#) tab of the [Amazon S3 pricing page](#).

#### Bucket Key

Using an S3 Bucket Key for SSE-KMS reduces encryption costs by lowering calls to AWS KMS. S3 Bucket Keys aren't supported for DSSE-KMS. [Learn more](#)

- ☐ Disable  
☒ Enable

### ► Advanced settings

## Configuration du S3 Bucket

Upload succeeded  
View details below.

### Upload: status

The information below will no longer be available after you navigate away from this page.

**Summary**

Destination s3://atef-bucket	Succeeded 6 files, 48.8 KB (100.00%)	Failed 0 files, 0 B (0%)
---------------------------------	---	-----------------------------

**Files and folders** | Configuration

**Files and folders (6 Total, 48.8 KB)**

Find by name

Name	Folder	Type	Size	Status	Error
DbConfig.js	app-tier/	text/javascript	198.0 B	Succeeded	-
index.js	app-tier/	text/javascript	3.2 KB	Succeeded	-
package-loc...	app-tier/	application/...	42.9 KB	Succeeded	-
package.json	app-tier/	application/...	682.0 B	Succeeded	-
README.md	app-tier/	-	14.0 B	Succeeded	-
Transaction...	app-tier/	text/javascript	1.8 KB	Succeeded	-

Upload de la partie backend de l'application

Upload succeeded  
View details below.

### Upload: status

The information below will no longer be available after you navigate away from this page.

**Summary**

Destination s3://atef-bucket	Succeeded 27 files, 206.1 KB (100.00%)	Failed 0 files, 0 B (0%)
---------------------------------	---	-----------------------------

**Files and folders** | Configuration

**Files and folders (27 Total, 206.1 KB)**

Find by name

Name	Folder	Type	Size	Status	Error
package.json	web-tier/	application/...	986.0 B	Succeeded	-
README.md	web-tier/	-	14.0 B	Succeeded	-
.DS_Store	web-tier/src/	-	6.0 KB	Succeeded	-
App.css	web-tier/src/	text/css	602.0 B	Succeeded	-
App.js	web-tier/src/	text/javascript	1.3 KB	Succeeded	-
App.test.js	web-tier/src/	text/javascript	254.0 B	Succeeded	-
global.js	web-tier/src/	text/javascript	974.0 B	Succeeded	-
hooks.js	web-tier/src/	text/javascript	446.0 B	Succeeded	-
index.css	web-tier/src/	text/css	379.0 B	Succeeded	-
index.js	web-tier/src/	text/javascript	517.0 B	Succeeded	-

Upload de la partie frontend de l'application

atef-bucket Info

Objects | Properties | Permissions | Metrics | Management | Access Points

Objects (2) Info Refresh Copy S3 URI Copy URL Download Open Delete Actions Create folder Upload

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix

Name	Type	Last modified	Size	Storage class
app-tier/	Folder	-	-	-
web-tier/	Folder	-	-	-

Vérifier l'upload

Upload succeeded  
View details below.

Upload: status Close

The information below will no longer be available after you navigate away from this page.

Summary

Destination	Succeeded	Failed
s3://atef-bucket	1 file, 2.6 KB (100.00%)	0 files, 0 B (0%)

Files and folders | Configuration

Files and folders (1 Total, 2.6 KB)

Find by name

Name	Folder	Type	Size	Status	Error
nginx.conf	-	-	2.6 KB	Succeeded	-

Upload du fichier de configuration nginx

## 10-Configuration des instances app :

```
[ec2-user@ip-10-0-1-211 ~]$ ssh 10.0.3.108
The authenticity of host '10.0.3.108 (10.0.3.108)' can't be
established.
ECDSA key fingerprint is SHA256:rdmLUybfLQssiyD0lv7mJmgMZ0
HtaTc05tNfX3LxMCg.
ECDSA key fingerprint is MD5:f8:12:46:81:6d:60:c3:a0:fc:07
:de:dd:24:7a:fa:60.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.0.3.108' (ECDSA) to the list
of known hosts.

#_
~\_-####_      Amazon Linux 2
~~\_-#####\
~~\_-###|      AL2 End of Life is 2025-06-30.
~~\_-#/_--->
~~~\_-V~'!->
~~~~~/_/      A newer version of Amazon Linux is av
ailable!
~~~~~/_/_/_/_/
~~~~~/_/_/_/_/      Amazon Linux 2023, GA and supported u
ntil 2028-03-15.
~~~~~/_/_/_/_/      https://aws.amazon.com/linux/amazon
-linux-2023/
```

Se connecter à l'instance app-az1

## Configuration de la base de données :

```
[ec2-user@ip-10-0-3-108 ~]$ sudo yum install mysql -y
Loaded plugins: extras_suggestions, langpacks, priorities,
                : update-motd
> amzn2-core                               | 3.6 kB    00:00
Resolving Dependencies
--> Running transaction check
--> Package mariadb.x86_64 1:5.5.68-1.amzn2.0.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version Repository Size
=====
Installing:
mariadb x86_64 1:5.5.68-1.amzn2.0.1 amzn2-core 8.8 M

Transaction Summary
=====
Install 1 Package

Total download size: 8.8 M
Installed size: 49 M
Downloading packages:
mariadb-5.5.68-1.amzn2.0.1.x86_64.rpm | 8.8 MB 00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : 1:mariadb-5.5.68-1.amzn2.0.1.x86_64 1/1
  Verifying : 1:mariadb-5.5.68-1.amzn2.0.1.x86_64 1/1

Installed:
mariadb.x86_64 1:5.5.68-1.amzn2.0.1
```

### Installer MySQL

```
[ec2-user@ip-10-0-3-108 ~]$ mysql -h database-1-instance-1.cmahgi5zy9pe.us-east-1.
rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 227
Server version: 5.7.12 MySQL Community Server (GPL)

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]> |
```

### Connecter à MySQL

```
MySQL [(none)]> CREATE DATABASE webappdb;
Query OK, 1 row affected (0.01 sec)

MySQL [(none)]> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
| webappdb |
+-----+
5 rows in set (0.01 sec)
```

### Créer la base de données et vérifier sa création

```
MySQL [(none)]> USE webappdb;
Database changed
MySQL [webappdb]> CREATE TABLE IF NOT EXISTS transactions(id INT NOT NULL AUTO_INCREMENT, amount DECIMAL(10,2), description VARCHAR(100), PRIMARY KEY(id));
Query OK, 0 rows affected (0.05 sec)

MySQL [webappdb]> |
```

*Créer la table*

```
MySQL [webappdb]> SHOW TABLES;
+-----+
| Tables_in_webappdb |
+-----+
| transactions        |
+-----+
1 row in set (0.01 sec)
```

*Vérifier la création de la table*

```
MySQL [webappdb]> INSERT INTO transactions (amount,description) VALUES ('400','groceries');
Query OK, 1 row affected (0.01 sec)

MySQL [webappdb]> SELECT * FROM transactions;
+----+-----+-----+
| id | amount | description |
+----+-----+-----+
| 1  | 400.00 | groceries   |
+----+-----+-----+
1 row in set (0.00 sec)
```

*Insérer une ligne et tester*

```
JS DbConfig.js X
three-tier-web-architecture-workshop > application-code > app-tier > JS DbConfig.js > [?] <unknown>
1  module.exports = Object.freeze({
2    DB_HOST : 'database-1-instance-1.cmahgi5zy9pe.us-east-1.rds.
   amazonaws.com',
3    DB_USER : 'admin',
4    DB_PWD : 'atefatef',
5    DB_DATABASE : 'webappdb'
6  });
```

*Modifier les paramètres de connexion à la base de données*

```
MySQL [webappdb]> exit
Bye
[ec2-user@ip-10-0-3-108 ~]$ curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.38.0/install.sh | bash
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
100 14926  100 14926    0     0  520k      0 --:--:-- --:--:-- --:--:-- 539k
=> Downloading nvm as script to '/home/ec2-user/.nvm'

=> Appending nvm source string to /home/ec2-user/.bashrc
=> Appending bash_completion source string to /home/ec2-user/.bashrc
=> Close and reopen your terminal to start using nvm or run the following to use it now:

export NVM_DIR="$HOME/.nvm"
[ -s "$NVM_DIR/nvm.sh" ] && \. "$NVM_DIR/nvm.sh" # This loads nvm
[ -s "$NVM_DIR/bash_completion" ] && \. "$NVM_DIR/bash_completion" # This loads nvm bash_completion
```

```
[ec2-user@ip-10-0-3-108 ~]$ source ~/.bashrc
[ec2-user@ip-10-0-3-108 ~]$ |
```

```
[ec2-user@ip-10-0-3-108 ~]$ nvm install 16
Downloading and installing node v16.20.2...
Downloading https://nodejs.org/dist/v16.20.2/node-v16.20.2-linux-x64.tar.xz...
##### 100%
Computing checksum with sha256sum
Checksums matched!
Now using node v16.20.2 (npm v8.19.4)
Creating default alias: default -> 16 (-> v16.20.2)
[ec2-user@ip-10-0-3-108 ~]$ nvm use 16
Now using node v16.20.2 (npm v8.19.4)
[ec2-user@ip-10-0-3-108 ~]$ npm install -g pm2
npm WARN deprecated uuid@3.4.0: Please upgrade to version 7 or higher. Older versions may use Math.random() in certain circumstances, which is known to be problematic. See https://v8.dev/blog/math-random for details.

added 162 packages, and audited 163 packages in 8s

14 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
npm notice
npm notice New major version of npm available! 8.19.4 -> 10.5.1
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.5.1
npm notice Run `npm install -g npm@10.5.1` to update!
npm notice
```

### Installation de node.js



```
[ec2-user@ip-10-0-3-108 ~]$ cd ~/app-tier
[ec2-user@ip-10-0-3-108 app-tier]$ npm install

added 68 packages, and audited 69 packages in 2s

2 packages are looking for funding
  run `npm fund` for details

3 high severity vulnerabilities

To address all issues, run:
  npm audit fix

Run `npm audit` for details.
```

id	name	mode	g	status	cpu	memory
0	index	fork	0	online	0%	25.4mb

id	name	mode	u	status	cpu	memory
0	index	fork	0	online	0%	51.8mb

```
[ec2-user@ip-10-0-3-108 app-tier]$ pm2 logs
[TAILING] Tailing last 15 lines for [all] processes (change the value with --lines option)
/home/ec2-user/.pm2/pm2.log last 15 lines:
PM2 | 2024-04-04T04:40:27: PM2 log: PM2 version : 5.3.1
PM2 | 2024-04-04T04:40:27: PM2 log: Node.js version : 16.20.2
PM2 | 2024-04-04T04:40:27: PM2 log: Current arch : x64
PM2 | 2024-04-04T04:40:27: PM2 log: PM2 home : /home/ec2-user/.pm2
PM2 | 2024-04-04T04:40:27: PM2 log: PM2 PID file : /home/ec2-user/.pm2/pm2.pid
PM2 | 2024-04-04T04:40:27: PM2 log: RPC socket file : /home/ec2-user/.pm2/rpc.sock
PM2 | 2024-04-04T04:40:27: PM2 log: BUS socket file : /home/ec2-user/.pm2/pub.sock
PM2 | 2024-04-04T04:40:27: PM2 log: Application log path : /home/ec2-user/.pm2/logs
PM2 | 2024-04-04T04:40:27: PM2 log: Worker Interval : 30000
PM2 | 2024-04-04T04:40:27: PM2 log: Process dump file : /home/ec2-user/.pm2/dump.pm2
PM2 | 2024-04-04T04:40:27: PM2 log: Concurrent actions : 2
PM2 | 2024-04-04T04:40:27: PM2 log: SIGTERM timeout : 1600
PM2 | 2024-04-04T04:40:27: PM2 log: =====
PM2 | 2024-04-04T04:40:27: PM2 log: App [index:0] starting in -fork mode-
PM2 | 2024-04-04T04:40:27: PM2 log: App [index:0] online

/home/ec2-user/.pm2/logs/index-error.log last 15 lines:
/home/ec2-user/.pm2/logs/index-out.log last 15 lines:
0|index | AB3 backend app listening at http://localhost:4000
[ec2-user@ip-10-0-3-108 app-tier]$ sudo env PATH=$PATH:/home/ec2-user/.nvm/versions/node/v16.20.2/bin /home/ec2-user/.nvm/versions/node/v16.20.2/lib/node_modules/pm2/bin/pm2 startup systemd -u ec2-user --hp /home/ec2-user

Runtime Edition
PM2 is a Production Process Manager for Node.js applications
with a built-in Load Balancer.

Start and Daemonize any application:
$ pm2 start app.js

Load Balance 4 instances of api.js:
$ pm2 start api.js -i 4

Monitor in production:
$ pm2 monitor

Make pm2 auto-boot at server restart:
$ pm2 startup

To go further checkout:
http://pm2.io/

[PM2] Init System found: systemd
Platform systemd
Template
[Unit]
Description=PM2 process manager
Documentation=https://pm2.keymetrics.io/
After=network.target

[PM2] Init System found: systemd
Platform systemd
Template
[Unit]
Description=PM2 process manager
Documentation=https://pm2.keymetrics.io/
After=network.target

[Service]
Type=forking
User=ec2-user
LimitNOFILE=infinity
LimitPROC=infinity
LimitCORE=infinity
Environment=PATH=/home/ec2-user/.nvm/versions/node/v16.20.2/bin:/usr/local/bin:/usr/bin:/usr/local/sbin:/usr/sbin:/home/ec2-user/.local/bin:/home/ec2-user/bin:/home/ec2-user/.nvm/versions/node/v16.20.2/bin:/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin
Environment=PM2_HOME=/home/ec2-user/.pm2
PIDFile=/home/ec2-user/.pm2/pm2.pid
Restart=on-failure

ExecStart=/home/ec2-user/.nvm/versions/node/v16.20.2/lib/node_modules/pm2/bin/pm2 resurrect
ExecReload=/home/ec2-user/.nvm/versions/node/v16.20.2/lib/node_modules/pm2/bin/pm2 reload all
ExecStop=/home/ec2-user/.nvm/versions/node/v16.20.2/lib/node_modules/pm2/bin/pm2 kill

[Install]
WantedBy=multi-user.target

Target path
/etc/systemd/system/pm2-ec2-user.service
Command list
[ 'systemctl enable pm2-ec2-user' ]
[PM2] Writing init configuration in /etc/systemd/system/pm2-ec2-user.service
[PM2] Making script booting at startup...
[PM2] [-] Executing: systemctl enable pm2-ec2-user...
Created symlink from /etc/systemd/system/multi-user.target.wants/pm2-ec2-user.service to /etc/systemd/system/pm2-ec2-user.service.
[PM2] [v] Command successfully executed.
[PM2] Freeze a process list on reboot via:
$ pm2 save
[PM2] Remove init script via:
$ pm2 unstartup systemd
```

## Configuration et test

## 11-configuration des instances web :

### Ajouter le DNS de LB public

```
Amazon Linux 2
AL2 End of Life is 2025-06-30.

A newer version of Amazon Linux is available!

Amazon Linux 2023, GA and supported until 2028-03-15.
https://aws.amazon.com/linux/amazon-linux-2023/
```

## Connection à web-az1

```
[ec2-user@ip-10-0-2-170 ~]$ curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.38.0/install.sh | bash
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 14926 100 14926 0 0 569k 0 --:--:-- --:--:-- --:--:-- 583k
=> Downloading nvm as script to '/home/ec2-user/.nvm'
```

```
=> Appending nvm source string to /home/ec2-user/.bashrc
=> Appending bash_completion source string to /home/ec2-user/.bashrc
=> Close and reopen your terminal to start using nvm or run the following to use it now:
```

```
export NVM_DIR="$HOME/.nvm"
[ -s "$NVM_DIR/nvm.sh" ] && \. "$NVM_DIR/nvm.sh" # This loads nvm
[ -s "$NVM_DIR/bash_completion" ] && \. "$NVM_DIR/bash_completion" # This loads nvm bash_completion
```

```
[ec2-user@ip-10-0-2-170 ~]$ source ~/.bashrc
[ec2-user@ip-10-0-2-170 ~]$ nvm install 16
Downloading and installing node v16.20.2...
Downloading https://nodejs.org/dist/v16.20.2/node-v16.20.2-linux-x64.tar.xz...
##### 100.0%
Computing checksum with sha256sum
Checksums matched!
Now using node v16.20.2 (npm v8.19.4)
Creating default alias: default -> 16 (-> v16.20.2)
[ec2-user@ip-10-0-2-170 ~]$ nvm use 16
Now using node v16.20.2 (npm v8.19.4)
```

```
[ec2-user@ip-10-0-2-170 ~]$ cd ~/
[ec2-user@ip-10-0-2-170 ~]$ aws s3 cp s3://atef-bucket/web-tier/ web-tier --recursive
download: s3://atef-bucket/web-tier/public/index.html to web-tier/public/index.html
download: s3://atef-bucket/web-tier/src/components/DatabaseDemo/DatabaseDemo.css to web-tier/src/components/DatabaseDemo/DatabaseDemo.css
download: s3://atef-bucket/web-tier/README.md to web-tier/README.md
download: s3://atef-bucket/web-tier/public/robots.txt to web-tier/public/robots.txt
download: s3://atef-bucket/web-tier/package.json to web-tier/package.json
download: s3://atef-bucket/web-tier/src/components/DatabaseDemo/DatabaseDemo.js to web-tier/src/components/DatabaseDemo/DatabaseDemo.js
download: s3://atef-bucket/web-tier/src/.DS_Store to web-tier/src/.DS_Store
download: s3://atef-bucket/web-tier/src/components/Menu/Menu.styled.js to web-tier/src/components/Menu/Menu.styled.js
download: s3://atef-bucket/web-tier/src/App.css to web-tier/src/App.css
download: s3://atef-bucket/web-tier/src/components/Menu/index.js to web-tier/src/components/Menu/index.js
download: s3://atef-bucket/web-tier/src/components/index.js to web-tier/src/components/index.js
download: s3://atef-bucket/web-tier/src/components/Home/Home.js to web-tier/src/components/Home/Home.js
download: s3://atef-bucket/web-tier/src/components/.DS_Store to web-tier/src/components/.DS_Store
download: s3://atef-bucket/web-tier/src/components/Menu/Menu.js to web-tier/src/components/Menu/Menu.js
download: s3://atef-bucket/web-tier/src/components/Burger/index.js to web-tier/src/components/Burger/index.js
download: s3://atef-bucket/web-tier/src/hooks.js to web-tier/src/hooks.js
download: s3://atef-bucket/web-tier/src/App.js to web-tier/src/App.js
download: s3://atef-bucket/web-tier/src/index.js to web-tier/src/index.js
download: s3://atef-bucket/web-tier/src/components/Burger/Burger.styled.js to web-tier/src/components/Burger/Burger.styled.js
download: s3://atef-bucket/web-tier/src/index.css to web-tier/src/index.css
download: s3://atef-bucket/web-tier/src/theme.js to web-tier/src/theme.js
download: s3://atef-bucket/web-tier/src/App.test.js to web-tier/src/App.test.js
download: s3://atef-bucket/web-tier/src/components/Burger/Burger.js to web-tier/src/components/Burger/Burger.js
download: s3://atef-bucket/web-tier/src/reportWebVitals.js to web-tier/src/reportWebVitals.js
download: s3://atef-bucket/web-tier/src/assets/3TierArch.png to web-tier/src/assets/3TierArch.png
download: s3://atef-bucket/web-tier/src/setupTests.js to web-tier/src/setupTests.js
download: s3://atef-bucket/web-tier/src/global.js to web-tier/src/global.js
```

```
[ec2-user@ip-10-0-2-170 ~]$ cd ~/web-tier
[ec2-user@ip-10-0-2-170 web-tier]$ npm install
npm WARN deprecated source-map-codec@1.4.8: Please use @jridgewell/source-map-codec instead
npm WARN deprecated rollup-plugin-terser@7.0.2: This package has been deprecated and is no longer maintained. Please use @rollup/plugin-terser
npm WARN deprecated workbox-cacheable-response@6.6.0: workbox-background-sync@6.6.0
npm WARN deprecated stable@0.1.8: Modern JS already guarantees Array#sort() is a stable sort, so this library is deprecated. See the compatibility table on MDN: https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/sort#browser_compatibility
npm WARN deprecated workbox-google-analytics@6.6.0: It is not compatible with newer versions of GA starting with v4, as long as you are using GA v3 it should be ok, but the package is not longer being maintained
npm WARN deprecated w3c-hr-time@1.0.2: Use your platform's native performance.now() and performance.timeOrigin.
npm WARN deprecated domexception@2.0.1: Use your platform's native DOMException instead
npm WARN deprecated abab@2.0.6: Use your platform's native atob() and btoa() methods instead
npm WARN deprecated @babel/plugin-proposal-private-methods@7.18.6: This proposal has been merged to the ECMAScript standard and thus this plugin is no longer maintained. Please use @babel/plugin-transform-private-methods instead.
npm WARN deprecated @babel/plugin-proposal-optional-chaining@7.21.0: This proposal has been merged to the ECMAScript standard and thus this plugin is no longer maintained. Please use @babel/plugin-transform-optional-chaining instead.
npm WARN deprecated @babel/plugin-proposal-numeric-separator@7.19.6: This proposal has been merged to the ECMAScript standard and thus this plugin is no longer maintained. Please use @babel/plugin-transform-numeric-separator instead.
npm WARN deprecated @babel/plugin-proposal-nullish-coalescing-operator@7.18.6: This proposal has been merged to the ECMAScript standard and thus this plugin is no longer maintained. Please use @babel/plugin-transform-nullish-coalescing-operator instead.
npm WARN deprecated @babel/plugin-proposal-class-properties@7.18.6: This proposal has been merged to the ECMAScript standard and thus this plugin is no longer maintained. Please use @babel/plugin-transform-class-properties instead.
npm WARN deprecated svgo@1.3.2: This SVGO version is no longer supported. Upgrade to v2.x.x.

added 1513 packages, and audited 1514 packages in 1m

264 packages are looking for funding
  run 'npm fund' for details

8 vulnerabilities (2 moderate, 6 high)

To address all issues (including breaking changes), run:
  npm audit fix --force

Run 'npm audit' for details.
npm notice
npm notice New major version of npm available! 8.19.4 -> 10.5.1
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.5.1
npm notice Run npm install -g npm@10.5.1 to update!
npm notice
```

```
[ec2-user@ip-10-0-2-170 web-tier]$ npm run build
```

```
> aws-3tier-web-layer@0.1.0 build
> react-scripts build
```

Creating an optimized production build...

One of your dependencies, `babel-preset-react-app`, is importing the `"@babel/plugin-proposal-private-property-in-object"` package without declaring it in its dependencies. This is currently working because `"@babel/plugin-proposal-private-property-in-object"` is already in your `node_modules` folder for unrelated reasons, but it may break at any time.

`babel-preset-react-app` is part of the `create-react-app` project, which is not maintained anymore. It is thus unlikely that this bug will ever be fixed. Add `"@babel/plugin-proposal-private-property-in-object"` to your `devDependencies` to work around this error. This will make this message go away.

Compiled successfully.

File sizes after gzip:

```
74.86 kB build/static/js/main.3b141034.js
1.79 kB build/static/js/453.a4ec9c9e.chunk.js
493 B build/static/css/main.b20b6ac4.css
```

The project was built assuming it is hosted at `./`. You can control this with the `homepage` field in your `package.json`.

The `build` folder is ready to be deployed.

Find out more about deployment here:

<https://cra.link/deployment>

```
[ec2-user@ip-10-0-2-170 web-tier]$ sudo amazon-linux-extras install nginx1 -y
Installing nginx
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Cleaning repos: amzn2-core amzn2extra-docker amzn2extra-kernel-5.10 amzn2extra-nginx1
17 metadata files removed
6 sqlite files removed
0 metadata files removed
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core | 3.6 kB | 00:00:00
amzn2extra-docker | 2.9 kB | 00:00:00
amzn2extra-kernel-5.10 | 3.0 kB | 00:00:00
amzn2extra-nginx1 | 2.9 kB | 00:00:00
(1/9): amzn2-core/2/x86_64/group_gz | 2.7 kB | 00:00:00
(2/9): amzn2-core/2/x86_64/updateinfo | 832 kB | 00:00:00
(3/9): amzn2extra-docker/2/x86_64/updateinfo | 15 kB | 00:00:00
(4/9): amzn2extra-nginx1/2/x86_64/updateinfo | 3.0 kB | 00:00:00
(5/9): amzn2extra-docker/2/x86_64/primary.db | 106 kB | 00:00:00
(6/9): amzn2extra-nginx1/2/x86_64/primary.db | 55 kB | 00:00:00
(7/9): amzn2extra-kernel-5.10/2/x86_64/updateinfo | 55 kB | 00:00:00
(8/9): amzn2extra-kernel-5.10/2/x86_64/primary.db | 24 MB | 00:00:00
(9/9): amzn2-core/2/x86_64/primary.db | 73 MB | 00:00:01
Resolving Dependencies
--> Running transaction check
--> Package nginx.x86_64 1:1.22.1-1.amzn2.0.3 will be installed
--> Processing Dependency: nginx-core = 1:1.22.1-1.amzn2.0.3 for package: 1:nginx-1.22.1-1.amzn2.0.3.x86_64
--> Processing Dependency: nginx-filesystem = 1:1.22.1-1.amzn2.0.3 for package: 1:nginx-1.22.1-1.amzn2.0.3.x86_64
--> Running transaction check
--> Package nginx-core.x86_64 1:1.22.1-1.amzn2.0.3 will be installed
--> Processing Dependency: libcrypto.so.1.1(OPENSLL_1.1.0)(64bit) for package: 1:nginx-core-1.22.1-1.amzn2.0.3.x86_64
--> Processing Dependency: libssl.so.1.1(OPENSLL_1.1.0)(64bit) for package: 1:nginx-core-1.22.1-1.amzn2.0.3.x86_64
--> Processing Dependency: libssl.so.1.1(OPENSLL_1.1.0)(64bit) for package: 1:nginx-core-1.22.1-1.amzn2.0.3.x86_64
--> Processing Dependency: libcrypto.so.1.1(OPENSLL_1.1.0)(64bit) for package: 1:nginx-core-1.22.1-1.amzn2.0.3.x86_64
--> Processing Dependency: libssl.so.1.1(OPENSLL_1.1.0)(64bit) for package: 1:nginx-core-1.22.1-1.amzn2.0.3.x86_64
--> Package nginx-filesystem.noarch 1:1.22.1-1.amzn2.0.3 will be installed
--> Running transaction check
--> Package gperftools-libs.x86_64 0:2.6.1-1.amzn2 will be installed
--> Package openssl-libs.x86_64 1:1.1.1g-12.amzn2.0.20 will be installed
--> Processing Dependency: openssl11-pkcs11 for package: 1:openssl11-libs-1.1.1g-12.amzn2.0.20.x86_64
--> Running transaction check
--> Package openssl11-pkcs11.x86_64 0:0.4.10-6.amzn2.0.1 will be installed
--> Finished Dependency Resolution
```

Dependencies Resolved

Package	Arch	Version	Repository	Size
Installing:				
nginx	x86_64	1:1.22.1-1.amzn2.0.3	amzn2extra-nginx1	55 k
Installing for dependencies:				
gperftools-libs	x86_64	2.6.1-1.amzn2	amzn2-core	274 k
nginx-core	x86_64	1:1.22.1-1.amzn2.0.3	amzn2extra-nginx1	559 k
nginx-filesystem	noarch	1:1.22.1-1.amzn2.0.3	amzn2extra-nginx1	25 k
openssl11-libs	x86_64	1:1.1.1g-12.amzn2.0.20	amzn2-core	1.4 M
openssl11-pkcs11	x86_64	0.4.10-6.amzn2.0.1	amzn2-core	61 k

Transaction Summary

Install 1 Package (+5 Dependent packages)

Total download size: 2.4 M  
Installed size: 6.7 M



```
Total download size: 2.4 M
Installed size: 6.7 M
Downloading packages:
(1/6): nginx-1.22.1-1.amzn2.0.3.x86_64.rpm | 55 kB 00:00:00
(2/6): nginx-core-1.22.1-1.amzn2.0.3.x86_64.rpm | 559 kB 00:00:00
(3/6): gperf-tools-libs-2.6.1-1.amzn2.x86_64.rpm | 274 kB 00:00:00
(4/6): nginxfilesystem-1.22.1-1.amzn2.0.3.noarch.rpm | 25 kB 00:00:00
(5/6): openssl11-pkcs11-0.4.10-6.amzn2.0.1.x86_64.rpm | 61 kB 00:00:00
(6/6): openssl11-libs-1.1.1g-12.amzn2.0.20.x86_64.rpm | 1.4 MB 00:00:00
-----
Total | 6.4 MB/s | 2.4 MB 00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : openssl11-pkcs11-0.4.10-6.amzn2.0.1.x86_64 1/6
  Installing : 1:openssl11-libs-1.1.1g-12.amzn2.0.20.x86_64 2/6
  Installing : 1:nginxfilesystem-1.22.1-1.amzn2.0.3.noarch 3/6
  Installing : gperf-tools-libs-2.6.1-1.amzn2.x86_64 4/6
  Installing : 1:nginx-core-1.22.1-1.amzn2.0.3.x86_64 5/6
  Installing : 1:nginx-1.22.1-1.amzn2.0.3.x86_64 6/6
  Verifying : 1:nginx-1.22.1-1.amzn2.0.3.x86_64 1/6
  Verifying : gperf-tools-libs-2.6.1-1.amzn2.x86_64 2/6
  Verifying : 1:openssl11-libs-1.1.1g-12.amzn2.0.20.x86_64 3/6
  Verifying : openssl11-pkcs11-0.4.10-6.amzn2.0.1.x86_64 4/6
  Verifying : 1:nginxfilesystem-1.22.1-1.amzn2.0.3.noarch 5/6
  Verifying : 1:nginx-core-1.22.1-1.amzn2.0.3.x86_64 6/6

Installed:
nginx.x86_64 1:1.22.1-1.amzn2.0.3

Dependency Installed:
gperf-tools-libs.x86_64 0:2.6.1-1.amzn2 nginx-core.x86_64 1:1.22.1-1.amzn2.0.3 nginxfilesystem.noarch 1:1.22.1-1.amzn2.0.3
openssl11-libs.x86_64 1:1.1.1g-12.amzn2.0.20 openssl11-pkcs11.x86_64 0:0.4.10-6.amzn2.0.1

Complete!
 2 httpd_modules available [ =1.0 =stable ]
 3 memcached1.5 available \
  [ =1.5.1 =1.5.16 =1.5.17 ]
 9 R3.4 available [ =3.4.3 =stable ]
10 rust1 available \
  [ =1.22.1 =1.26.0 =1.26.1 =1.27.2 =1.31.0 =1.38.0
  =stable ]
18 libreoffice available \
  [ =5.0.6.2.15 =5.3.6.1 =stable ]
19 gimp available [ =2.8.22 ]
20 *docker=latest enabled \
  [ =17.12.1 =18.03.1 =18.06.1 =18.09.9 =stable ]
21 mate-desktop1.x available \
  [ =1.19.0 =1.20.0 =stable ]
22 GraphicsMagick1.3 available \
  [ =1.3.29 =1.3.32 =1.3.34 =stable ]
24 epel available [ =7.11 =stable ]
25 testing available [ =1.0 =stable ]
26 ecs available [ =stable ]
27 *corretto8 available \
  [ =1.8.0.192 =1.8.0.202 =1.8.0.212 =1.8.0.222 =1.8.0.232
  =1.8.0.242 =stable ]
32 lustre2.10 available \
  [ =2.10.5 =2.10.8 =stable ]
33 *java-openjdk11 available [ =11 =stable ]
34 lynix available [ =stable ]
36 BCC available [ =0.x =stable ]
37 mono available [ =5.x =stable ]
38 nginx1=latest enabled [ =stable ]
40 mock available [ =stable ]
43 livepatch available [ =stable ]
44 *python3.8 available [ =stable ]
45 haproxy2 available [ =stable ]
46 collectd available [ =stable ]
47 aws-nitro-enclaves-cli available [ =stable ]
48 R4 available [ =stable ]
_ kernel-5.4 available [ =stable ]
50 selinux-ng available [ =stable ]
52 tomcat9 available [ =stable ]
53 unbound1.13 available [ =stable ]
54 *mariadb10.5 available [ =stable ]
55 kernel-5.10=latest enabled [ =stable ]
56 redis6 available [ =stable ]
58 *postgres112 available [ =stable ]
59 *postgres113 available [ =stable ]
60 mock2 available [ =stable ]
61 dnsmasq2.85 available [ =stable ]
62 kernel-5.15 available [ =stable ]
63 *postgres114 available [ =stable ]
64 firefox available [ =stable ]
65 lustre available [ =stable ]
66 *php8.1 available [ =stable ]
67 awscli1 available [ =stable ]
68 *php8.2 available [ =stable ]
69 dnsmasq available [ =stable ]
70 unbound1.17 available [ =stable ]
72 collectd-python3 available [ =stable ]

+ Note on end-of-support. Use 'info' subcommand.
```

```
[ec2-user@ip-10-0-6-50 web-tier]$ cd /etc/nginx
[ec2-user@ip-10-0-6-50 nginx]$ ls
conf.d      fastcgi.conf.default  koi-utf      mime.types.default  scgi_params      uwsgi_params.default
default.d   fastcgi_params        koi-win      nginx.conf           scgi_params.default  win-utf
fastcgi.conf fastcgi_params.default  mime.types   nginx.conf.default  uwsgi_params
```

```
[ec2-user@ip-10-0-6-50 nginx]$ sudo rm nginx.conf
[ec2-user@ip-10-0-6-50 nginx]$ sudo aws s3 cp s3://atef-bucket/nginx.conf .
download: s3://atef-bucket/nginx.conf to ./nginx.conf
```

```
[ec2-user@ip-10-0-6-50 nginx]$ chmod -R 755 /home/ec2-user
[ec2-user@ip-10-0-6-50 nginx]$ sudo chkconfig nginx on
Note: Forwarding request to 'systemctl enable nginx.service'.
Created symlink from /etc/systemd/system/multi-user.target.wants/nginx.service to /usr/lib/systemd/system/nginx.service.
```

```
[ec2-user@ip-10-0-6-50 nginx]$ sudo service nginx restart
Redirecting to /bin/systemctl restart nginx.service
```

## 12-Création de l'APP Load Balancer et de l'auto scaling:

EC2 > Instances > i-Oe2e4b356f9638b > Create image

Create image [info](#)

An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID  
i-Oe2e4b356f9638b (app-az1)

Image name  
image-app  
Maximum 127 characters. Can't be modified after creation.

Image description - optional  
image-app  
Maximum 255 characters

No reboot  
☐ Enable

Instance volumes

Storage type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encrypted
EBS	/dev/...	Create new snapshot fr...	8	EBS General Purpose S...	100		<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> Enable

Add volume

During the image creation process, Amazon EC2 creates a snapshot of each of the above volumes.

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.

☒ Tag image and snapshots together  
Tag the image and the snapshots with the same tag.

☐ Tag image and snapshots separately  
Tag the image and the snapshots with different tags.

No tags associated with the resource.

Add new tag  
You can add up to 50 more tags.

Cancel Create image

*Création de l'image app*

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 action 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 IP and on-premise resources.
- Facilitates routing to multiple IP addresses and network interfaces on the same instance.
- Offers flexibility with microservices-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.
- Accommodates 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  
app-target-gip

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

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

HTTP 4000  
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.

atf-vpc  
vpc-0328db115c965389  
IPv4 VPC CIDR: 10.0.0.0/16

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.

/health

Up to 1024 characters allowed.

Advanced health check settings

Attributes

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 (6)

Filter instances

Instance ID	Name	State	Security groups
i-Oe902ee9726c463af	app-az2	Running	app-sg
i-Oe2e64b36fb9638b	app-az1	Running	app-sg
i-Oe14bb6239304c405	web-az2	Running	web-instance-sg
i-O27d4baa65afffae	web-az1	Running	web-instance-sg
i-Ob4b61b39af4c7be4	bastion-az2	Running	bastion-sg
i-0740d0bde5d551693	bastion-az1	Running	bastion-sg

0 selected

Ports for the selected instances  
Ports for routing traffic to the selected instances.

4000  
1-65535 (separate multiple ports with commas)

Include as pending below

2 selections are now pending below. Include more or register targets when ready.

Review targets

Targets (2)

Filter targets

Show only pending

Remove all pending

Instance ID	Name	Port	State	Security groups	Zone	Private IPv4 address	Subnet ID
i-Oe902ee9726c463af	app-az2	4000	Running	app-sg	us-east-1b	10.0.7.65	subnet-04c39
i-Oe2e64b36fb9638b	app-az1	4000	Running	app-sg	us-east-1a	10.0.3.108	subnet-0e2b6

2 pending

Cancel Previous Create target group

## Création de Target groupe



### Basic configuration

#### Load balancer name

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

lb-app

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

An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. [Learn more](#)

☒ Internal

An internal load balancer routes requests from clients to targets using private IP addresses.

#### IP address type

Select the type of IP addresses that your subnets use.

☒ IPv4

Includes only IPv4 addresses.

☐ Dualstack

Includes IPv4 and IPv6 addresses.

### Network mapping

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

#### VPC

Select the virtual private cloud (VPC) for your targets or you can [create a new VPC](#). The selected VPC can't be changed after the load balancer is created. To confirm the VPC for your targets, view your [target groups](#).

atef-vpc  
vpc-0329db115c9b56389  
IPv4 VPC CIDR: 10.0.0.0/16

#### Mappings

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.

☒ us-east-1a (use1-az6)

Subnet

subnet-0e2b69a2696bcf2b4

private-app-subnet-az1

IPv4 address

Assigned from CIDR 10.0.3.0/24

☒ us-east-1b (use1-az1)

Subnet

subnet-04c394daad9e2f7f3

private-app-subnet-az2

IPv4 address

Assigned from CIDR 10.0.7.0/24

### Security groups

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

lb-app-sg  
sg-0283793124500187f VPC: vpc-0329db115c9b56389

### Listeners and routing

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

#### Listener HTTP:80

Remove

Protocol

HTTP

Port

80

1-65535

Default action

Forward to

app-target-grp

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

## Configuration de Load Balancer interne

### Launch template name and description

Launch template name - required

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

Template version description

Max 255 chars

Auto Scaling guidance [Info](#)

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

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

► Template tags

► Source template

### Launch template contents

Specify the details of your launch template below. Leaving a field blank will result in the field not being included in the launch template.

#### ▼ Application and OS Images (Amazon Machine Image) [Info](#)

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

Recents | **My AMIs** | Quick Start

☐ Don't include in launch template
 ☒ Owned by me

☐ Shared with me

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

image-app

ami-0cc17d73a96cb6d3f

2024-04-04T05:37:30.000Z

Virtualization: hvm

ENA enabled: true

Root device type: ebs

Description

image-app

Architecture

x86\_64

AMI ID

ami-0cc17d73a96cb6d3f

▼ Sum

Software  
image-ap  
ami-0cc17c

Virtual se  
-

Firewall (
  
-

Storage (
  
1 volume

Fn  
75  
th  
un  
tie  
pu  
mi  
10  
int

Cancel

### ▼ Instance type [Info](#) | [Get advice](#)

[Advanced](#)

Instance type

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

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

### ▼ Network settings [Info](#)

Subnet [Info](#)

When you specify a subnet, a network interface is automatically added to your template.

Firewall (security groups) [Info](#)

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

☒ Select existing security group
 ☐ Create security group

Security groups [Info](#)

app-sg sg-0a9cd1be3f0fff536

VPC: vpc-0329db115c9b56389

► Advanced network configuration

## Création du launch template

## Choose launch template or configuration [Info](#)

Specify a launch template that contains settings common to all EC2 instances that are launched by this Auto Scaling group. If you currently use launch configurations, you might consider migrating to launch templates.

### Name

Auto Scaling group name

Enter a name to identify the group.

app-auto-scale

Must be unique to this account in the current Region and no more than 255 characters.

### Launch template [Info](#)

[Switch to launch configuration](#)

#### 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.

app-template

[Create a launch template](#)

Version

Default (1)

[Create a launch template version](#)

Description

app-template

AMI ID

ami-0cc17d73a96cb6d3f

Key pair name

-

Launch template

app-template

lt-0d1d89498219f8c77

Security groups

-

Security group IDs

sg-0a9cd1be3f0fff336

Instance type

t2.micro

Request Spot Instances

No

#### Additional details

Storage (volumes)

-

Date created

Thu Apr 04 2024 06:51:01  
GMT+0100 (heure normale d'Afrique  
de l'Ouest)

Cancel

Next

## Choose instance launch options [Info](#)

Choose the VPC network environment that your instances are launched into, and customize the instance types and purchase options.

### Instance type requirements [Info](#)

[Override launch template](#)

You can keep the same instance attributes or instance type from your launch template, or you can choose to override the launch template by specifying different instance attributes or manually adding instance types.

Launch template

app-template

lt-0d1d89498219f8c77

Version

Default

Description

app-template

Instance type

t2.micro

### Network [Info](#)

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

#### VPC

Choose the VPC that defines the virtual network for your Auto Scaling group.

vpc-0329db115c9b56389 (atef-vpc)

10.0.0.0/16

[Create a VPC](#)

#### Availability Zones and subnets

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

Select Availability Zones and subnets

us-east-1b | subnet-04c394daad9e2f7f3 (private-

app-subnet-az2)

10.0.7.0/24

us-east-1a | subnet-0e2b69a2696bcf2b4 (private-

app-subnet-az1)

10.0.3.0/24

[Create a subnet](#)

Cancel

Skip to review

Previous

Next

### Load balancing [Info](#)

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

- ☐ No load balancer  
Traffic to your Auto Scaling group will not be fronted by a load balancer.
- ☒ Attach to an existing load balancer  
Choose from your existing load balancers.
- ☐ Attach to a new load balancer  
Quickly create a basic load balancer to attach to your Auto Scaling group.

### Attach to an existing load balancer

Select the load balancers that you want to attach to your Auto Scaling group.

- ☒ Choose from your load balancer target groups  
This option allows you to attach Application, Network, or Gateway Load Balancers.
- ☐ Choose from Classic Load Balancers

#### Existing load balancer target groups

Only instance target groups that belong to the same VPC as your Auto Scaling group are available for selection.

app-target-grp | HTTP

Application Load Balancer: lb-app

### VPC Lattice integration options [Info](#)

To improve networking capabilities and scalability, integrate your Auto Scaling group with VPC Lattice. VPC Lattice facilitates communications between AWS services and helps you connect and manage your applications across compute services in AWS.

#### Select VPC Lattice service to attach

- ☒ No VPC Lattice service  
VPC Lattice will not manage your Auto Scaling group's network access and connectivity with other services.
- ☐ Attach to VPC Lattice service  
Incoming requests associated with specified VPC Lattice target groups will be routed to your Auto Scaling group.

[Create new VPC Lattice service](#)

### Health checks

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

#### EC2 health checks

☒ Always enabled

#### Additional health check types - optional [Info](#)

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

## Configure group size and scaling - optional [Info](#)

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

### Group size [Info](#)

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

#### Desired capacity type

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

Units (number of instances)

#### Desired capacity

Specify your group size.

### 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

Equal or less than desired capacity

Max desired capacity

Equal or greater than desired capacity

#### Automatic scaling - optional

Choose whether to use a target tracking policy [Info](#)

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

- ☒ No scaling policies  
Your Auto Scaling group will remain at its initial size and will not dynamically resize to meet demand.
- ☐ Target tracking scaling policy  
Choose a CloudWatch metric and target value and let the scaling policy adjust the desired capacity in proportion to the metric's value.

### Instance maintenance policy [Info](#)

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

Choose a replacement behavior depending on your availability requirements

- Mixed behavior**

☒ No policy  
For rebalancing events, new instances will launch before terminating others. For all other events, instances terminate and launch at the same time.
- Prioritize availability**

☐ Launch before terminating  
Launch new instances and wait for them to be ready before terminating others. This allows you to go above your desired capacity by a given percentage and
- Control costs**

☐ Terminate and launch  
Terminate and launch instances at the same time. This allows you to go below your desired capacity by a given percentage and may temporarily reduce
- Flexible**

☐ Custom behavior  
Set custom values for the minimum and maximum amount of available capacity. This gives you greater flexibility in setting how far below and over your desired capacity EC2

Création de l'auto-scaling-grp-app

On suit les mêmes étapes pour le load balancer extérieur :

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

lb-web

- Internet-facing
- IPv4

#### Security groups

- lb-web-sg  
[sg-093f0f76243aa7f8c](#)

#### Network mapping

VPC [vpc-0329db115c9b56389](#)  
atef-vpc

- us-east-1a  
[subnet-05d1749cc42502bf8](#)  
private-web-subnet-az1
- us-east-1b  
[subnet-001f7699a550caec7](#)  
private-web-subnet-az2

#### Listeners and routing

- HTTP:80 defaults to [web-target-grp](#)

#### Service integrations

AWS WAF: None  
AWS Global Accelerator: None

#### Tags

None

#### Attributes

① 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

**Launch Templates (2)** [Info](#) Refresh Actions Create launch template

Search

	Launch Template ID	Launch Template Name	Default Version	Latest Version	Create Time	Create...
<input type="radio"/>	lt-0c6ff197d7a9b18ab	web-template	1	1	2024-04-04T07:29:45.000Z	arn:aws:ec2:us-east-1:123456789012:launch-template/lt-0c6ff197d7a9b18ab
<input type="radio"/>	lt-0d1d89498219f8c77	app-template	1	1	2024-04-04T05:51:01.000Z	arn:aws:ec2:us-east-1:123456789012:launch-template/lt-0d1d89498219f8c77

[EC2](#) > Auto Scaling groups

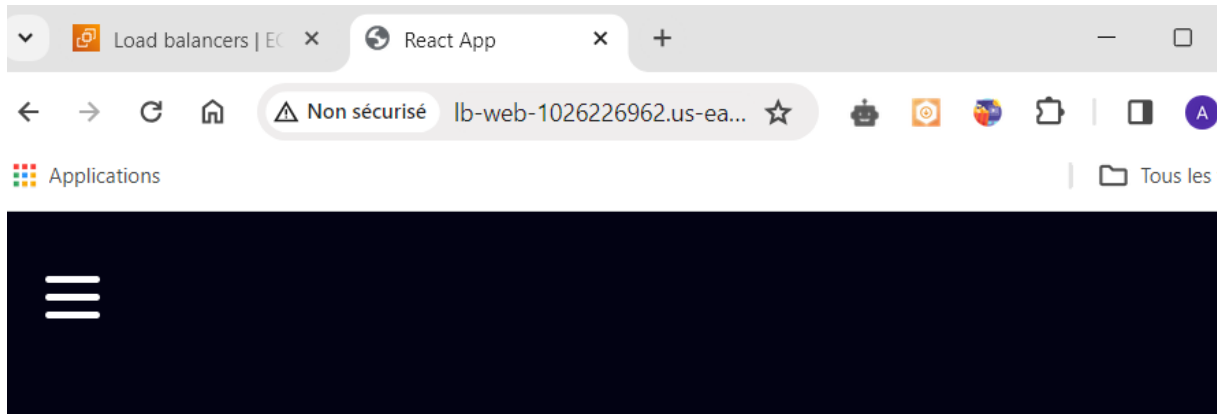
**Auto Scaling groups (2)** [Info](#) Refresh Launch configurations

Search your Auto Scaling groups

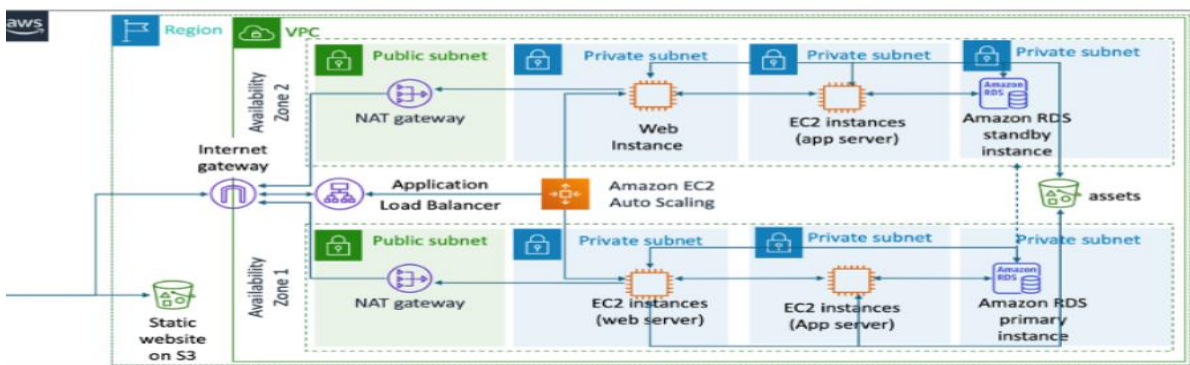
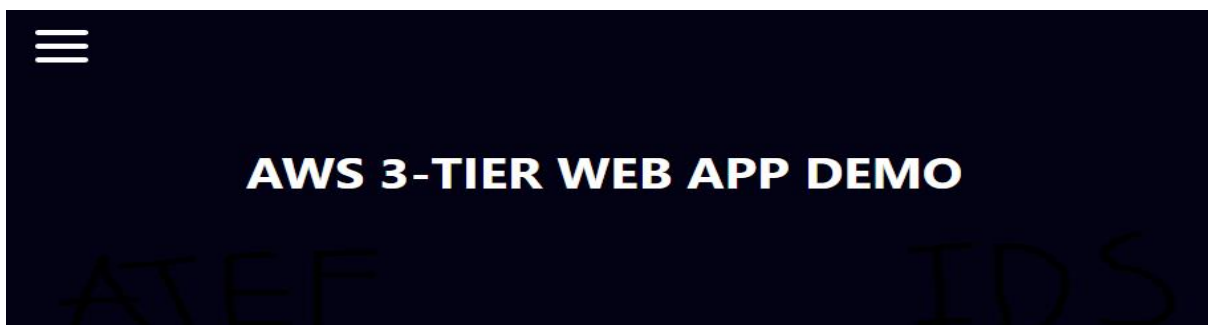
<input type="checkbox"/>	Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones
<input type="checkbox"/>	<a href="#">web-auto-scale</a>	<a href="#">web-template</a>   Version Default	0	Updating capacity...	2	2	2	us-east-1a, us-east-1b
<input type="checkbox"/>	<a href="#">app-auto-scale</a>	<a href="#">app-template</a>   Version Default	2	-	2	2	2	us-east-1a, us-east-1b

## 13-Test :

On prend le DNS name du LB externe et on le copie dans une nouvelle fenêtre du navigateur :



L'application apparait :



## AURORA DATABASE DEMO PAGE

DEL

ID	AMOUNT	DESC
ADD		
1	400	groceries

ON ajoute une ligne :

## AURORA DATABASE DEMO PAGE

DEL

ID	AMOUNT	DESC
ADD		
1	400	groceries
2	200	karweya

## AURORA DATABASE DEMO PAGE

DEL

ID	AMOUNT	DESC
ADD	800	kakaweya
1	400	groceries
2	200	karweya

On reconnecte sur l'app instance et on examine la base de données :

```
[ec2-user@ip-10-0-1-211 ~]$ ssh 10.0.3.108
Last login: Thu Apr  4 08:06:10 2024 from 10.0.1.211

#_
##### Amazon Linux 2
#####\
#####| AL2 End of Life is 2025-06-30.
#####|
#####| \#/
#####|  V~'  -->
#####|
#####| A newer version of Amazon Linux is available!
#####|
#####| Amazon Linux 2023, GA and supported until 2028-03-15.
#####| https://aws.amazon.com/linux/amazon-linux-2023/
#####|
#####|
#####|

[ec2-user@ip-10-0-3-108 ~]$ mysql -h database-1-instance-1.cmahgi5zy9pe.us-east-1.rds.amazonaws.com
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 5164
Server version: 5.7.12 MySQL Community Server (GPL)

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
| webappdb |
+-----+
5 rows in set (0.00 sec)

MySQL [(none)]> use webappdb;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MySQL [webappdb]> show tables;
+-----+
| Tables_in_webappdb |
+-----+
| transactions |
+-----+
1 row in set (0.00 sec)

MySQL [webappdb]> select * from transactions;
+----+-----+-----+
| id | amount | description |
+----+-----+-----+
| 1 | 400.00 | groceries |
| 2 | 200.00 | karweya |
| 3 | 800.00 | kakaweya |
+----+-----+-----+
3 rows in set (0.01 sec)
```

Yup la base de données a été modifiée