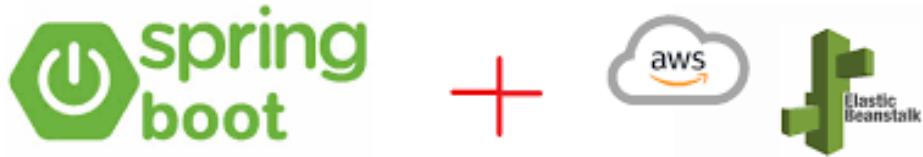


Deploy your Project using AWS



ما هي الحوسبة السحابية ؟

الحوسبة السحابية هي نموذج يقدم الوصول السريع والمبادر إلى موارد الحوسبة مثل الخوادم والتخزين والتطبيقات، من خلال شبكة الانترنت وبرونة عالية.

ما هي خدمات أمازون السحابية (AWS) ؟

Amazon Web Services (AWS) هي منصة تقدم خدمات الحوسبة السحابية من خلال بنية تحتية قوية ومرنة.

كما أن الحوسبة السحابية عبر AWS تتيح لك:

1. **الوصول عند الطلب**: استخدام موارد الحوسبة (خوادم، تخزين، قواعد بيانات) عند الحاجة دون الاستثمار في بنية تحتية.
2. **التوسيع السريع**: يمكنك زيادة الموارد أو تقليلها بناءً على احتياجاتك الفعلية.
3. **الدفع حسب الاستخدام**: تدفع فقط مقابل الموارد التي تستخدمها. (Pay-as-you-go).

ولكي نقوم بنشر مشروعنا بنجاح من خلال خدمات AWS سنقوم بالخطوات التالية

أولاً : إنشاء قاعدة بيانات سحابية عن طريق Amazon RDS (Relational Database Service)

ثانياً : رفع المشروع عن طريق AWS Elastic Beanstalk

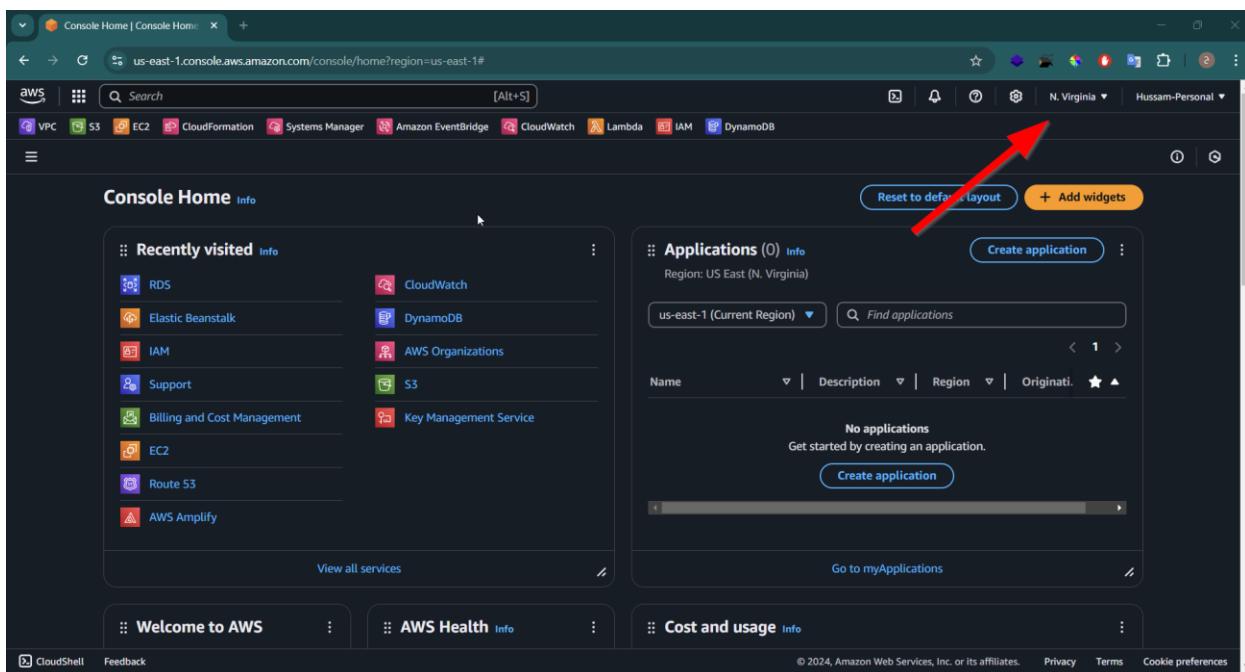
أولاً : إنشاء قاعدة Amazon RDS (Relational Database Service) البيانات

هي خدمة قاعدة بيانات مُدارة تقدمها AWS وهي تبسيط إعداد قواعد البيانات العلائقية وتشغيلها وتوسيع نطاقها في السحابة. تدعم RDS محرّكات قواعد البيانات الشائعة مثل MySQL , PostgreSQL , Oracle , MariaDB . تولى الخدمة المهام الإدارية مثل النسخ الاحتياطية والتصحيح والتلوّس، مما يسمح للمطوريين بالتركيز على تطوير التطبيقات. وهي مصممة لتوفير توافر عالي وأداء وقابلية للتوسيع، مما يجعلها مثالية للتطبيقات الحديثة المستندة إلى السحابة.

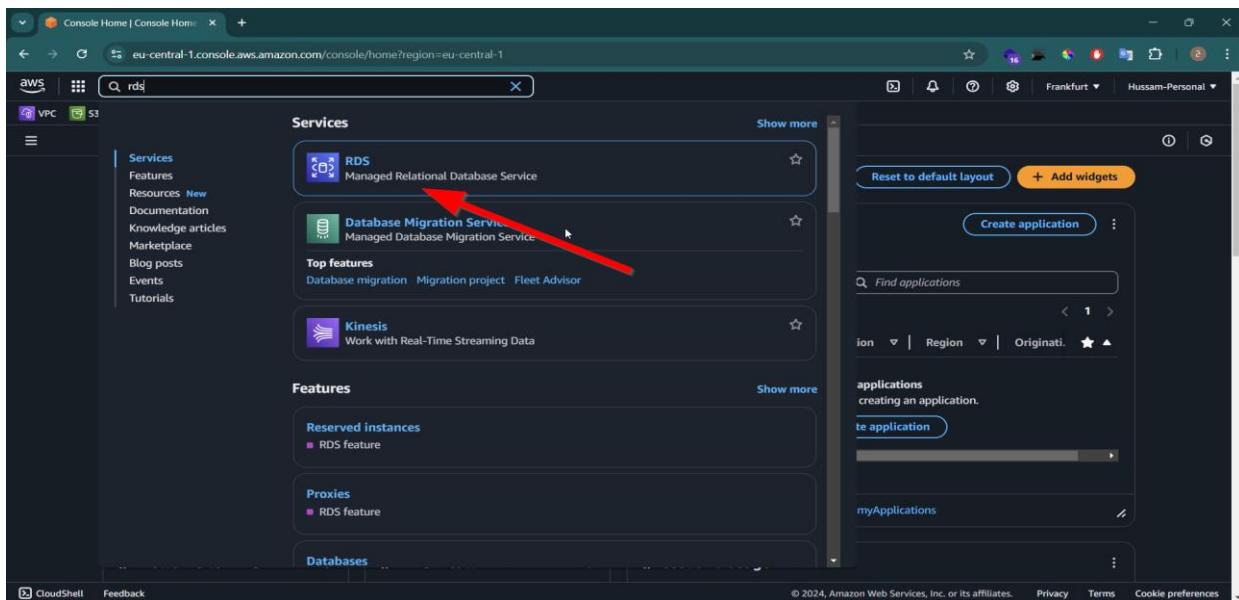
وعليك القيام بالخطوات التالية لاستخدام هذه الخدمة :

دخولك على الرابط التالي

<https://eu-central-1.console.aws.amazon.com/rds/home?region=eu-central-1#>



تغيير الريجن الى أقرب ريجن في السعودية ، سوف اختيار فرانكفورت



The screenshot shows the Amazon RDS service dashboard. The left sidebar includes links for Dashboard, Databases, Query Editor, Performance insights, Snapshots, Exports in Amazon S3, Automated backups, Reserved instances, and Proxies. The main area features a 'Create database' button and information about restoring from S3. A sidebar on the right provides links to various AWS services like AppFlow, Migration Hub, EC2 Image Builder, and Cloud9. The bottom right corner contains standard AWS navigation links: CloudShell, Feedback, and a copyright notice for 2024.

النقر على **Create database** لإنشاء قاعدة بيانات خاصة بنا .

Screenshot of the AWS RDS 'Create database' wizard, step 1: Choose a database creation method.

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.

Configuration

Engine type [Info](#)

- Aurora (MySQL Compatible)
- Aurora (PostgreSQL Compatible)
- MySQL
- PostgreSQL
- MariaDB
- Oracle

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

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Screenshot of the AWS RDS 'Create database' wizard, step 2: Set instance configuration.

Edition

MySQL Community

DB instance size

- Production
db.r6g.xlarge
4 vCPUs
32 GiB RAM
500 GiB
1.225 USD/hour
- Dev/Test
db.r6g.large
2 vCPUs
16 GiB RAM
100 GiB
0.279 USD/hour
- Free tier
db.t1g.micro
2 vCPUs
1 GiB RAM
20 GiB
0.023 USD/hour

DB instance identifier

Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

Master username [Info](#)

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

1 to 16 alphanumeric characters. The first character must be a letter.

Credentials management

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The screenshot shows the 'Create database' step in the AWS RDS console. The 'Master username' field contains 'admin'. The 'Master password' field is empty. The 'Password strength' section indicates a 'Weak' password. The 'Confirm master password' field is also empty. On the right, a sidebar titled 'MySQL' lists its features, including support for up to 64 TiB and various instance classes.

هذا نقوم بإدخال : اسم المستخدم و كلمة المرور (احفظها لتنذكرها فيما بعد)

على سبيل المثال وضعنا اسم المستخدم admin و كلمة المرور admin1234

The screenshot shows the 'Create database' step in the AWS RDS console. The 'Master password' field contains '*****'. The 'Confirm master password' field is empty. Below these fields are two optional sections: 'Set up EC2 connection - optional' and 'View default settings for Easy create'. A note at the bottom states: 'You are responsible for ensuring that you have all of the necessary rights for any third-party products or services that you use with AWS services.' The 'Create database' button is visible at the bottom right.

نضغط على زر Create database وننتظر بضع دقائق حتى الانتهاء من إنشائها .

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

- Summary:**
 - DB Identifier: database-1
 - Status: Available
 - Role: Instance
 - Engine: MySQL Community
 - Region & AZ: eu-central-1c
- Connectivity & security:**
 - Endpoint & port:** Endpoint: database-1.czkmiiwyymqhe.eu-central-1.rds.amazonaws.com, Port: 3306
 - Networking:** Availability Zone: eu-central-1c, VPC: vpc-06af969c5824570d3, Subnet group: default-vpc-06af969c5824570d3
 - Security:** VPC security groups: default (sg-0d9e981eacf67a24) (Active), Publicly accessible: No, Certificate authority: Info

بعد الانتهاء من انشاء قاعدة البيانات بنجاح ، سنتأك أن قاعدة البيانات Public لكي نستطيع وصلها ببرنامج DataGrip من خلال الخطوات التالية:

The screenshot shows the AWS RDS console for the eu-central-1 region. On the left, there's a navigation sidebar with options like Dashboard, Databases, Query Editor, and Performance insights. The main area displays a summary for a database named 'database-1'. The summary includes details such as DB Identifier (database-1), Status (Available), CPU usage (3.59%), Role (Instance), Engine (MySQL Community), and Region & AZ (eu-central-1c). Below the summary, there are tabs for Connectivity & security, Monitoring, Logs & events, Configuration, Zero-ETL integrations, Maintenance & backups, and Data. The Connectivity & security tab is selected. It contains sections for Endpoint & port, Networking, and Security. Under Endpoint & port, it shows the endpoint as database-1.czkmiiwyymqhe.eu-central-1.rds.amazonaws.com and port 3306. Under Networking, it shows the availability zone as eu-central-1c and VPC as vpc-06af969c5824570d3. Under Security, it shows the VPC security group as default (sg-0d9e981ecfd67a24) and Publicly accessible as No. At the bottom right of the summary page, there is a 'Modify' button, which is highlighted with a red arrow.

. بعد الانتظار قليلاً ، نضغط على زر التعديل . Modify

The screenshot shows the 'Modify DB instance' page for the database-1 instance. The top navigation bar shows the URL eu-central-1.console.aws.amazon.com/rds/home?region=eu-central-1#modify-instance.id=database-1. The main form is titled 'Connectivity'. It has several sections: 'Network type' (Info) with options for IPv4 (selected) and Dual-stack mode, 'DB subnet group' (default-vpc-06af969c5824570d3), 'Security group' (Choose security groups, default selected), and 'Certificate authority' (Info) showing rds-ca-rsa2048-g1 (default) with an expiration date of May 22, 2061. At the bottom of the form, there is a section titled 'Additional configuration' with a red arrow pointing to it. The status bar at the bottom indicates the page was last updated on 12/8/2024 at 6:25 PM.

ثم ننزل و نضغط على additional configuration

The screenshot shows the AWS RDS console with the URL eu-central-1.console.aws.amazon.com/rds/home?region=eu-central-1#modify-instance:id=database-1. The page is titled 'Modify DB instance: database-1'. Under the 'Additional configuration' section, there is a 'Public access' group with two options: 'Publicly accessible' (selected) and 'Not publicly accessible'. A red arrow points to the 'Publicly accessible' option.

نقر على خانة publicly accessible

The screenshot shows the continuation of the 'Modify DB instance' process. At the bottom right, there is a large orange 'Continue' button. The rest of the page contains various configuration options like log settings, IAM roles, maintenance windows, and deletion protection.

ثم نضغط على continue

The screenshot shows the 'Modify DB instance: database-1' page in the AWS RDS console. In the 'Schedule modifications' section, there are two options: 'Apply during the next scheduled maintenance window' (radio button is unselected) and 'Apply immediately' (radio button is selected). A red arrow points to the 'Apply immediately' option. Below the radio buttons, there is a note: 'The modifications in this request and any pending modifications will be asynchronously applied as soon as possible, regardless of the maintenance window setting for this database instance.' At the bottom right of the page are 'Cancel', 'Back', and 'Modify DB instance' buttons.

نضغط على التعديل الان (Apply immediately) و من ثم على modify DB instance وسيأخذ التعديل بضع ثوان حتى يتم بنجاح

The screenshot shows the 'Databases' page in the AWS RDS console. On the left is a sidebar with 'Amazon RDS' and various navigation links. The main area displays a green success message: 'Successfully modified database-1.' Below it are two informational boxes: 'Consider creating a Blue/Green Deployment to minimize downtime during upgrades' and 'Easy path homogeneous data migrations from EC2 database to RDS'. At the bottom, the 'Databases (1)' section shows a table with one row for 'database-1'. The table columns include 'DB identifier', 'Status', 'Role', 'Engine', 'Region ...', 'Size', and 'Recommendations'. The 'Status' column for 'database-1' shows 'Available'. Other columns show 'Instance: MySQL Co...', 'Region: eu-central...', and 'Size: db.t4g.mi...'. At the top of the 'Databases' section are buttons for 'Group resources', 'Actions', 'Restore from S3', 'Create database', and a search bar.

و الآن تم التعديل .

بعد القيام من تعديل الـ public accessible لابد أن نقوم بصناعة security group مفتوحة لكي نتمكن من الوصول الى عن طريق DataGrip من خلال الخطوات التالية :

نعود إلى صفحة Database مرة أخرى و ننزل للأسفل إلى security group

The screenshot shows the AWS RDS console for the eu-central-1 region. On the left, the navigation menu includes 'Dashboard', 'Databases' (selected), 'Query Editor', 'Performance insights', 'Snapshots', 'Exports in Amazon S3', 'Automated backups', 'Reserved instances', and 'Proxies'. Under 'Databases', 'database-1' is selected. In the main content area, there are two sections: 'Security group rules (2)' and 'Replication (1)'. A red arrow points to the first row in the 'Security group rules' table, which lists a default security group rule.

Security group	Type	Rule
default (sg-0d9e981eacf67a24)	EC2 Security Group - Inbound	sg-0d9e981eacf67a24
default (sg-0d9e981eacf67a24)	CIDR/IP - Outbound	0.0.0.0/0

The screenshot shows the AWS EC2 console for the eu-central-1 region. The left sidebar includes 'Dashboard', 'EC2 Global View', 'Events', 'Instances' (selected), 'Images', 'Elastic Block Store', and 'CloudShell'. In the main area, the 'Security Groups' section is displayed with one entry: 'sg-0d9e981eacf67a24'. A red arrow points to the 'Create security group' button at the top right of the table.

Name	Security group ID	Security group name	VPC ID
-	sg-0d9e981eacf67a24	default	vpc-06af969c5824570d3

The screenshot shows the 'Create security group' page in the AWS Management Console. The 'Basic details' section contains fields for the security group name ('RDS security') and a description ('allow all traffic for RDS'). A dropdown menu for the VPC is set to 'vpc-06af969c5824570d3'. Below this, the 'Inbound rules' section indicates 'This security group has no inbound rules.' and features an 'Add rule' button.

نقوم بكتابة اسم ووصف يمثل ال security group

The screenshot shows the same 'Create security group' page. A red arrow points to the 'Add rule' button in the 'Inbound rules' section. The 'Outbound rules' section is also visible at the bottom.

اضغط على add rule للإضافة .

eu-central-1.console.aws.amazon.com/ec2/home?region=eu-central-1#CreateSecurityGroup:

Name cannot be edited after creation.

Protocol: All traffic

Type: All traffic

Outbound rules

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نختار all traffic

eu-central-1.console.aws.amazon.com/ec2/home?region=eu-central-1#CreateSecurityGroup:

VPC info

Inbound rules

Type: All traffic

Source: Anywhere-IPv4

Outbound rules

© 2024, Amazon Web Services, Inc. or its affiliates.

والمصدر anywhere -ipv4

The screenshot shows the AWS EC2 console with the path: EC2 > Security Groups > Create security group. The 'Inbound rules' section is visible, featuring a table with columns: Type, Protocol, Port range, Source, and Description - optional. A red arrow points to the 'Add rule' button at the bottom left of this section. Below the table is a warning message: '⚠ 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.' At the bottom right of the page, there is a note: '© 2024, Amazon Web Services, Inc. or its affiliates.'

ثم نضيف بالنقر على Add role

The screenshot shows the continuation of the AWS EC2 Security Group creation process. The 'Tags - optional' section is displayed, which includes a note about tags being labels for AWS resources and a button to 'Add new tag'. Below this, it says 'No tags associated with the resource.' and 'You can add up to 50 more tags.' At the bottom right, there are 'Cancel' and 'Create security group' buttons. The status bar at the bottom indicates: '© 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences'

بعد إضافة inbound role سنقوم بإنشاء security group بضغط على Create security group

eu-central-1.console.aws.amazon.com/ec2/home?region=eu-central-1#SecurityGroup:groupId=sg-095135ef7485086aa

Security group (sg-095135ef7485086aa | RDS security) was created successfully

sg-095135ef7485086aa - RDS security

Details

Security group name RDS security	Security group ID sg-095135ef7485086aa	Description allow all traffic for RDS	VPC ID vpc-06af969c5824570d3
Owner 707020299554	Inbound rules count 1 Permission entry	Outbound rules count 1 Permission entry	

Inbound rules | Outbound rules | Sharing - new | VPC associations - new | Tags

Inbound rules (1)

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-03761f1fa9222ac5a	IPv4	All traffic	All	All

تم إنشاؤه بنجاح

eu-central-1.console.aws.amazon.com/ec2/home?region=eu-central-1#SecurityGroup:groupId=sg-095135ef7485086aa

sg-095135ef7485086aa - RDS security

Details

Security group name RDS security	Security group ID sg-095135ef7485086aa	Description allow all traffic for RDS	VPC ID vpc-06af969c5824570d3
Owner 707020299554	Inbound rules count 1 Permission entry	Outbound rules count 1 Permission entry	

Inbound rules | Outbound rules | Sharing - new | VPC associations - new | Tags

Outbound rules (1)

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-0a6c78a03e9fb3424	IPv4	All traffic	All	All

ثم سنضغط على **security group** هنا لتأكد أن security group أضفناها موجودة

The screenshot shows the AWS EC2 Security Groups page. On the left, there's a navigation sidebar with sections like Dashboard, Instances, Images, and Elastic Block Store. The main area is titled "Security Groups (3) Info". It lists three security groups:

Name	Security group ID	Security group name	VPC ID
Aws-test-env	sg-08c350a89699acaad	awseb-e-bb8bilkggn-stack-AWSEBSecur...	vpc-06af969c5824570d3
-	sg-095135ef7485086aa	RDS security	vpc-06af969c5824570d3
-	sg-0d9e981eacf67a24	default	vpc-06af969c5824570d3

The "RDS security" row is highlighted with a red box. At the top right of the main area, there are buttons for "Actions", "Export security groups to CSV", and "Create security group".

نعم موجودة ، الأن فلنقوم بتنغير ال security group الخاصة Database بهذه التي أنشأناها من خلال الخطوات التالية .

The screenshot shows the AWS RDS Databases page for a database named "database-1". The left sidebar has sections like Dashboard, Databases, Query Editor, and Connectivity & security. The main area shows the database details:

Summary	Status	Role	Engine	Recommendations
DB identifier: database-1	Available	Instance	MySQL Community	
CPU: 3.72%	Class: db.t4g.micro	Current activity: 0 Connections	Region & AZ: eu-central-1c	

Below the summary, there are tabs for Connectivity & security, Monitoring, Logs & events, Configuration, Zero-ETL integrations, Maintenance & backups, and Data. The Connectivity & security tab is active. It contains sections for Endpoint, Networking, and Security. The "Endpoint" section shows the endpoint as "database-1.czkmwiwyqmhe.eu-central-1.rds.amazonaws.com" and the port as "3306". The "Networking" section shows the Availability Zone as "eu-central-1c" and the VPC as "vpc-06af969c5824570d3". The "Security" section shows the VPC security groups as "default (sg-0d9e981eacf67a24)" and the status as "Active".

. **تعديل Database** نضغط على زر التعديل

The screenshot shows the 'Modify DB instance' page for 'database-1'. In the 'Network type' section, there are two options: 'IPv4' (selected) and 'Dual-stack mode'. Below these, the 'DB subnet group' is set to 'default-vpc-06af969c5824570d3'. The 'Security group' section contains a dropdown labeled 'Choose security groups' which has 'default' selected. A red arrow points to this dropdown. The 'Certificate authority' section shows 'rds-ca-rsa2048-g1 (default)' with an expiration date of 'May 22, 2061'. At the bottom, there is a 'Additional configuration' section.

This screenshot shows the same 'Modify DB instance' page as above, but the 'Choose security groups' dropdown is now expanded. It lists several security groups: 'rds security', 'awseb-e-bb8biikgn-stack-AWSEBSecurityGroup-Vm0zzn9vPQbX', 'default', and 'RDS security'. The 'RDS security' checkbox is checked and highlighted with a red arrow. The rest of the page content remains the same as the first screenshot.

نزيـل الـ security group السابقة ونختار الجديـدة التي أنشـانـاها ، ثم نـنزل للأـسفل و نـضـغـط continue ، ونـتـبع بـقـية الـ خطـوات

Modify DB instance: database-1

Summary of modifications
You are about to submit the following modifications. Only values that will change are displayed. Carefully verify your changes and click Modify DB Instance.

Attribute	Current value	New value
Security group	default	RDS security

Schedule modifications

When to apply modifications

Apply during the next scheduled maintenance window
Current maintenance window: Dec 09, 2024 01:54 - 02:24 (UTC+03:00)

Apply immediately
The modifications in this request and any pending modifications will be asynchronously applied as soon as possible, regardless of the maintenance window setting for this database instance.

Cancel Back **Modify DB instance**

Amazon RDS

Successfully modified database-1.

Consider creating a Blue/Green Deployment to minimize downtime during upgrades
You may want to consider using Amazon RDS Blue/Green Deployments and minimize your downtime during upgrades. A Blue/Green Deployment provides a staging environment for changes to production databases. [RDS User Guide](#) [Aurora User Guide](#)

Easy path homogeneous data migrations from EC2 database to RDS
With integrated homogenous data migration powered by AWS DMS, the Amazon RDS console leverages simple and performant data migration from EC2 database to equivalent RDS database. To get started, select an existing RDS database and choose the **Migrate data from EC2 database** in the Actions menu. Make sure you check the supported engine types and feature limitations. [Learn more](#)

Databases (1)

DB identifier	Status	Role	Engine	Region ...	Size	Recommendations
database-1	Available	Instance	MySQL Co...	eu-central...	db.t4g.mi...	

تم التعديل بنجاح.

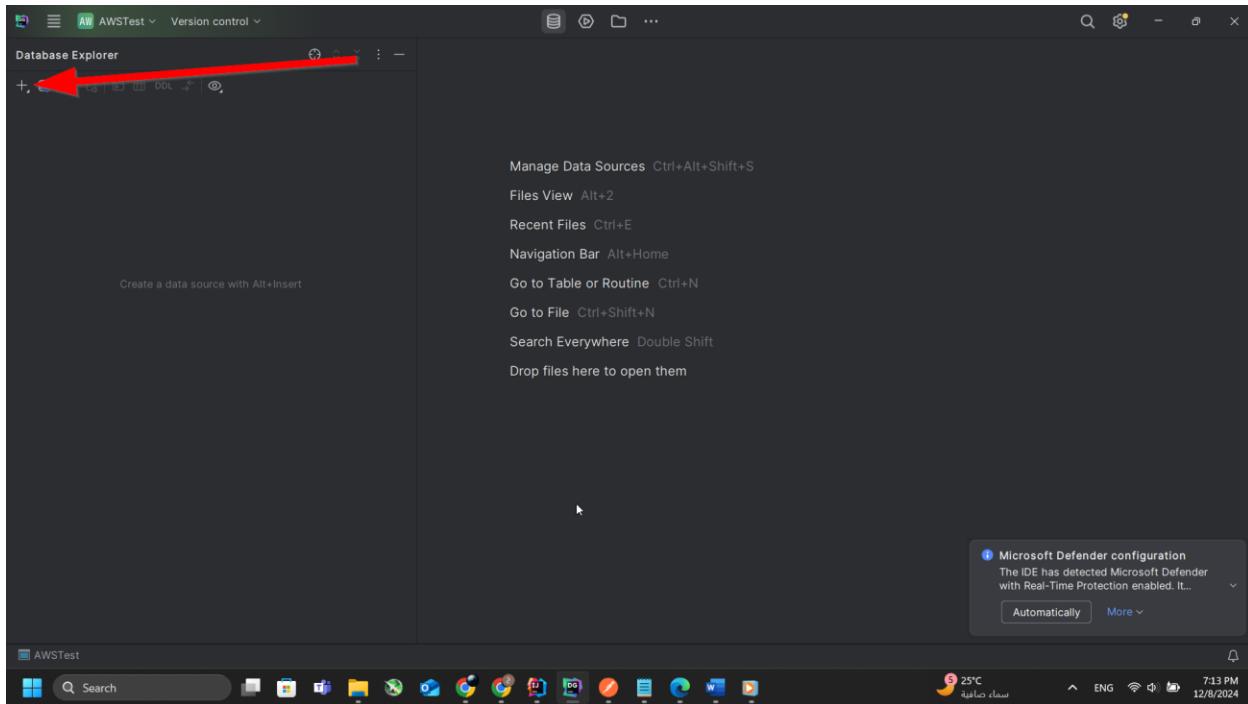
The screenshot shows the AWS RDS console for the eu-central-1 region. The left sidebar lists various database management options like Dashboard, Databases, and Proxies. The main area displays three sections: 'Proxies (0)', 'Security group rules (2)', and 'Replication (1)'. The 'Proxies' section shows a table with one row: 'No proxies' and 'You don't have any proxies.' The 'Create proxy' button is visible. The 'Security group rules' section shows two entries for 'RDS security (sg-095135ef7485086aa)'. The first is 'CIDR/IP - Inbound' with rule '0.0.0.0/0'. The second is 'CIDR/IP - Outbound' with rule '0.0.0.0/0'. The 'Replication' section shows one entry. The bottom right corner includes standard AWS links for 2024, Privacy, Terms, and Cookie preferences.

هذا الشكل الجديد Database بعد تغيير .security group

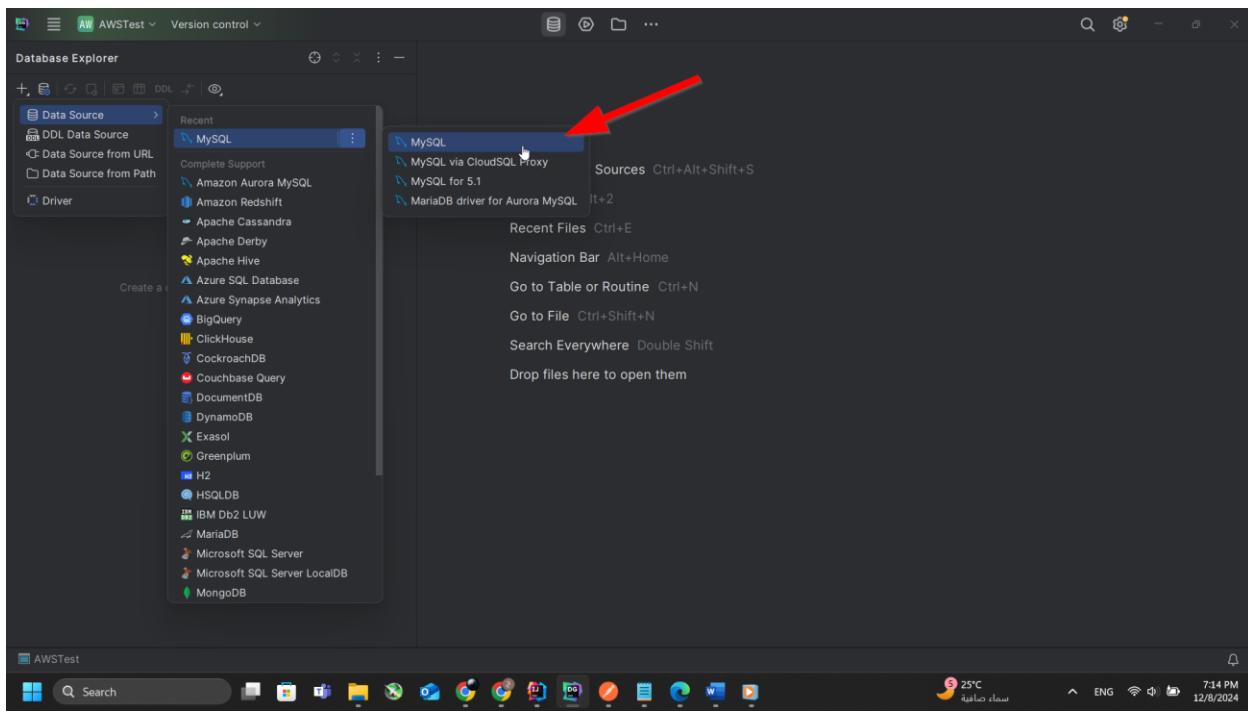
بعد الانتهاء من إنشاء الـ Database والإعدادات ستدهب الآن إلى برنامج DataGrip لوصلك بقاعدة البيانات التي أنشأناها من خلال الخطوات التالية :

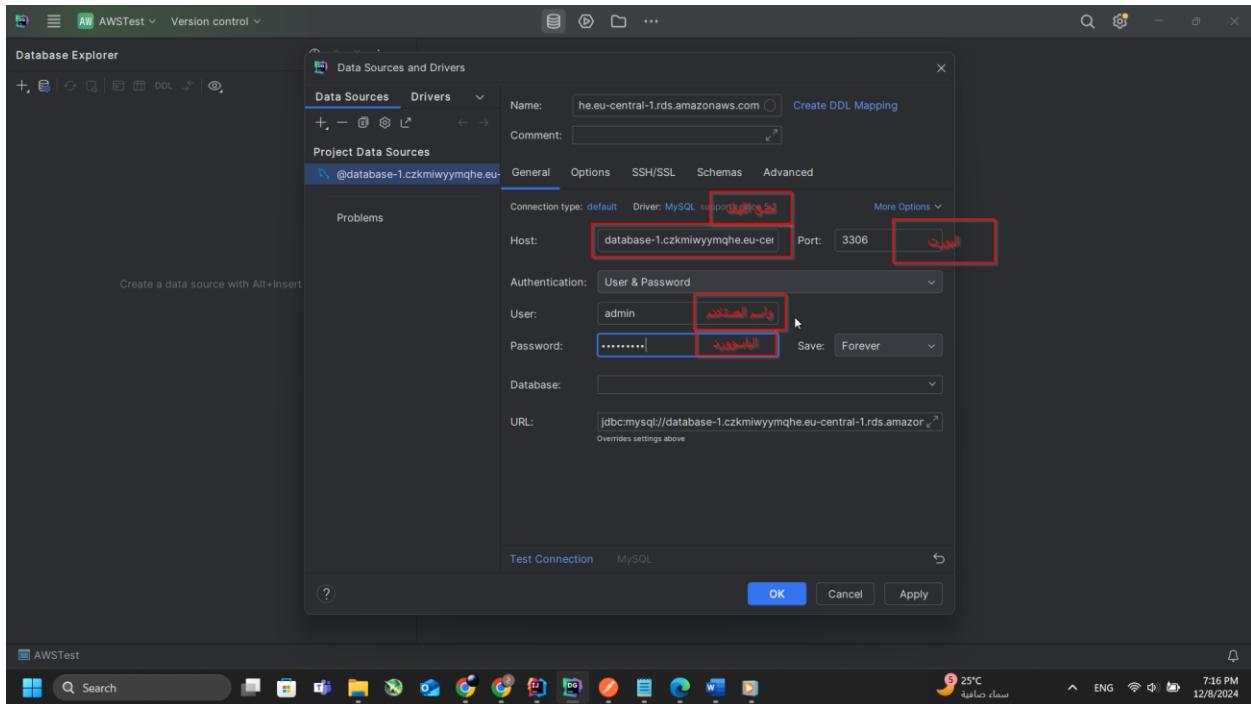
The screenshot shows the AWS RDS console for the eu-central-1 region, specifically for the 'database-1' database. The left sidebar shows the database identifier as 'database-1'. The main area has tabs for Summary, Connectivity & security, Monitoring, Logs & events, Configuration, Zero-ETL integrations, Maintenance & backups, and Data. The 'Connectivity & security' tab is active. It contains three sections: 'Endpoint & port', 'Networking', and 'Security'. The 'Endpoint' section shows the endpoint as 'database-1.czkmwyymqhe.eu-central-1.rds.amazonaws.com'. A red arrow points to this endpoint address. The 'Networking' section shows the Availability Zone as 'eu-central-1c', VPC as 'vpc-06af969c5824570d3', and Subnet group as 'default-vpc-06af969c5824570d3'. The 'Security' section shows the VPC security groups as 'RDS security (sg-095135ef7485086aa)' with status 'Active', and Publicly accessible set to 'Yes'. The bottom right corner includes standard AWS links for 2024, Privacy, Terms, and Cookie preferences.

سنقوم بنسخ هذا الرابط

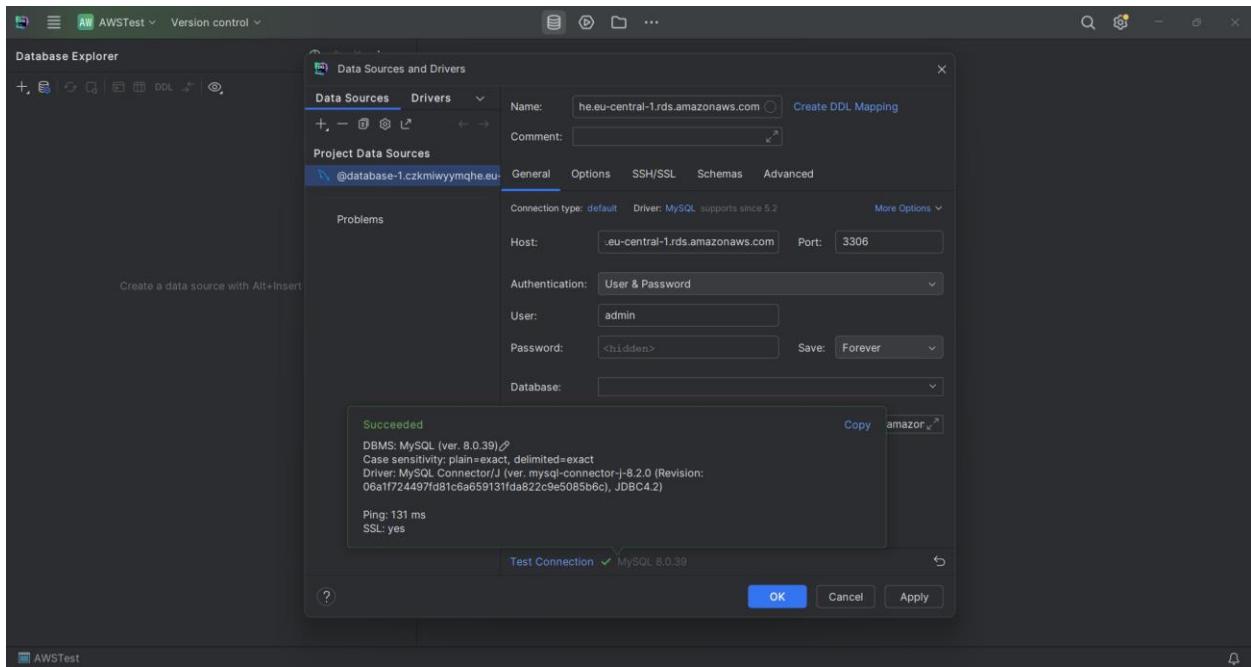


نقوم بفتح مشروع جديد في DataGrip





سنقوم بوضع قاعدة البيانات التي أنشأناها ، ثم نختبر الاتصال .



تم اختبار الاتصال بنجاح

The screenshot shows the AWS Database Migration Service (DMS) console interface. In the top navigation bar, it says "AWSTest" and "Version control". The main area has a "Database Explorer" sidebar on the left showing a connection to "SimpleShop" at "database-1.czkmwyymqhe.eu-central-1.rds.amazonaws.com". The main workspace is titled "console" and contains the following SQL code:

```
CREATE DATABASE SimpleShop;
USE SimpleShop;

-- Step 2: Create Tables (DDL)

-- Customers Table
CREATE TABLE customers (
    customer_id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(50) NOT NULL,
    email VARCHAR(100) NOT NULL UNIQUE
);
```

The "customers" table is highlighted with a green border. Below the code, the "Services" sidebar shows a transaction (Tx) and a database node expanded to show the "SimpleShop" database with a "tables" folder containing "customers". The bottom status bar indicates "Performing incremental introspection (MySQL)" and the time "7:10 CRLF UTF-8 4 spaces".

This screenshot shows the continuation of the AWS DMS console session. The "Database Explorer" sidebar now shows the "SimpleShop" database with the "tables" folder expanded, and the "customers" table is selected. The main workspace "console" now includes the following SQL code:

```
CREATE TABLE customers (
    customer_id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(50) NOT NULL,
    email VARCHAR(100) NOT NULL UNIQUE
);

INSERT INTO customers (name, email)
VALUES
    ('Hussam', 'Hussam@example.com'),
    ('Majd', 'Majd@example.com'),
    ('ghalia', 'ghalia@example.com');
```

The "customers" table is highlighted again. The "Services" sidebar shows the same transaction and database structure. The bottom status bar indicates "Performing incremental introspection (MySQL)" and the time "7:22 PM".

سنقوم بإنشاء قاعدة بيانات وجدول ، والتأكد من أن جميع الأوامر تعمل على قاعدة البيانات

The screenshot shows the AWS RDS MySQL Workbench interface. On the left, the Database Explorer pane displays a connection to a database named 'SimpleShop' containing a single table called 'customers'. A red arrow points to this table entry. The main workspace shows the results of a SELECT query on the 'customers' table, ordered by customer ID. The results are as follows:

customer_id	name	email
1	Hussam	Hussam@example.com
2	Majd	Majd@example.com
3	ghalia	ghalia@example.com

Below the results, the Services pane shows the transaction history, which includes connecting to the database, selecting the 'SimpleShop' schema, and executing the query. The transaction log ends with a message indicating 3 rows were retrieved.

. تم الاستعلام عن البيانات بنجاح ، وهذا يعني أنه تم الإنتهاء من إنشاء قاعدة البيانات الخاصة بنا بإستخدام AWS RDS

ثانياً : نشر المشروع

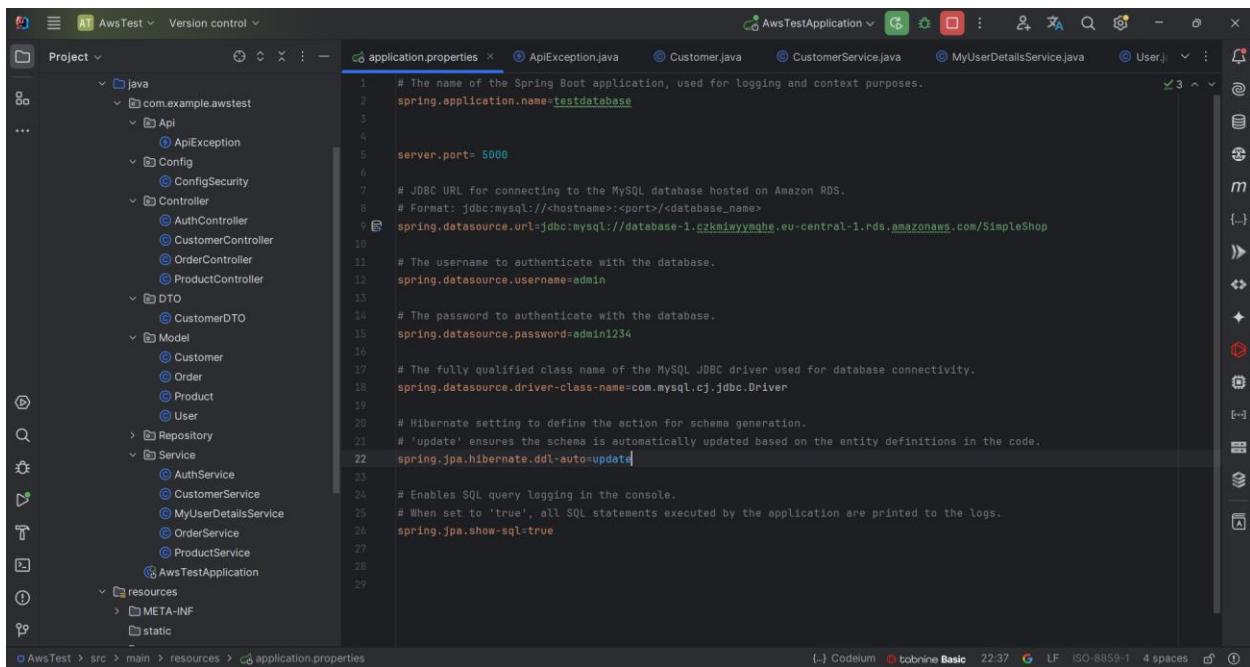
AWS Elastic Beanstalk

AWS Elastic Beanstalk هي خدمة مُدارة بالكامل من Amazon Web Services ومصممة لتبسيط نشر وتوسيع نطاق تطبيقات وخدمات الويب. فهي تعمل على أتمتة مهام إدارة البنية الأساسية مثل توفير الخوادم وموازنة التحميل والتوزع والمراقبة. يحتاج المطورون فقط إلى تحميل كود التطبيق الخاص بهم، ويتولى Elastic Beanstalk بقية المهمة. وهي تدعم لغات برمجة مختلفة، بما في ذلك Java وPython وPHP و.NET وNode.js، مما يجعلها مثالية لتسريع التطوير مع تقليل النفقات التشغيلية.

ويمكننا استخدام الخدمة من خلال الرابط :

<https://eu-central-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-central-1#/welcome>

ستتبع الخطوات التالية لرفع مشروع Spring Boot



```
# The name of the Spring Boot application, used for logging and context purposes.
spring.application.name=testdatabase

# server.port= 5000

# JDBC URL for connecting to the MySQL database hosted on Amazon RDS.
# Format: jdbc:mysql://<hostname>:<port>/<database_name>
spring.datasource.url=jdbc:mysql://database-1.czkmivymqhe.eu-central-1.rds.amazonaws.com/SimpleShop

# The username to authenticate with the database.
spring.datasource.username=admin

# The password to authenticate with the database.
spring.datasource.password=admin1234

# The fully qualified class name of the MySQL JDBC driver used for database connectivity.
spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver

# Hibernate setting to define the action for schema generation.
# 'update' ensures the schema is automatically updated based on the entity definitions in the code.
spring.jpa.hibernate.ddl-auto:update

# Enables SQL query logging in the console.
# When set to 'true', all SQL statements executed by the application are printed to the logs.
spring.jpa.show-sql=true
```

سنقوم الآن برفع مشروع بسيط فيه أربعة كلاسات (User) الخاص بـ Spring Security (User Class)

قمنا بوضع الإعدادات نفسها الخاصة بـ Database التي أنشأناها سابقاً

(الابد من تغيير الپورت الى 5000 لأن هذا الإعداد الافتراضي الخاص بـ Elastic Beanstalk)

```
CREATE DATABASE SimpleShop;
USE SimpleShop;
-- Step 2: Create Tables (DDL)
INSERT INTO user (username, password, role)
VALUES ('admin', '$2a$12$oNuyDjuLatixFvVyZerv3uUgomoLHNxe/c03uZF8cd/.CfsNVck4W', 'ADMIN');
```

سوف ننشئ عن طريق DataGrip بوزر (admin) لكي نتمكن من الوصول الى البيانات المنشاة له (لابد من تشفير كلمة المرور عن طريق Bcrypt).

The screenshot shows the AWS Test API tool interface. A GET request is being sent to `http://localhost:5000/api/v1/customers`. The request is set up with Basic Auth credentials: Username `admin` and Password `hussam121`. The response status is `401 Unauthorized`, indicating that the credentials provided were incorrect.

ختبر الـ Security من خلال ادخال كلمة مرور خاطئة .

The screenshot shows the Postman application interface. At the top, there's a navigation bar with various tabs like 'GET Untitled', 'GET New', 'PUT New', etc., and a dropdown for 'No environment'. Below the header, the URL 'aws test / get' is entered, and the method 'GET' is selected. The request URL is 'http://localhost:5000/api/v1/customers'. On the right side, there are 'Save' and 'Share' buttons, and a large blue 'Send' button. Below the URL input, there are tabs for 'Params', 'Authorization', 'Headers (9)', 'Body', 'Scripts', and 'Settings'. The 'Authorization' tab is active, showing 'Auth Type' set to 'Basic Auth'. A note in a callout box says: 'Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about [variables](#).'. The 'Username' field contains 'admin' and the 'Password' field contains 'hussam123'. In the bottom left, there are tabs for 'Body', 'Cookies (1)', 'Headers (12)', and 'Test Results'. The 'Body' tab is selected. On the right, the response status is '200 OK', time is '1.44 s', size is '411 B', and there's a 'Save Response' button. Below the status, there are buttons for 'Pretty', 'Raw', 'Preview', 'Visualize', and 'JSON'. The JSON response body is shown as a single item: '1 []'.

كلمة مرور صحيحة ، تم التأكيد من أن ملف المشروع يعمل بشكل سليم من خلال الاتصال بقاعدة البيانات .
والآن فلنقوم برفعه من خلال الخطوات التالية :

application.properties

```

spring.datasource.password=admin1234
# The fully qualified class name of the MySQL JDBC driver used for database connectivity.
spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver
# Hibernate setting to define the action for schema generation.
# 'update' ensures the schema is automatically updated based on the entity definitions in the code.
spring.jpa.hibernate.ddl-auto:update
# Enables SQL query logging in the console.
# When set to 'true', all SQL statements executed by the application are printed to the console.
spring.jpa.show-sql=true

```

Run AwsTestApplication

Console

```

Database driver: undefined/unknown
Database version: 8.0.39
Autocommit mode: undefined/unknown
Isolation level: undefined/unknown
Minimum pool size: undefined/unknown
Maximum pool size: undefined/unknown
2024-12-14T17:26:52.184+03:00 INFO 5476 --- [testdatabase] [main] o.h.e.t.j.p.i.JtaPlatformInitiator : HHH000489: No JTA platform available (set 'hibernate.transaction.manager_lookup_class' or 'hibernate.transaction.factory_class' to use JTA)
Hibernate: alter table user modify column password varchar(128) not null not null
Hibernate: alter table user modify column role varchar(120) not null
Hibernate: alter table user modify column username varchar(120) not null not null
2024-12-14T17:26:54.419+03:00 INFO 5476 --- [testdatabase] [main] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for persistence unit 'test'
2024-12-14T17:26:54.753+03:00 WARN 5476 --- [testdatabase] [main] JpaBaseConfiguration$JpaWebConfiguration : spring.jpa.open-in-view is enabled by default. Therefore, non-named entities will be rendered with a JPA EntityManager
2024-12-14T17:26:54.779+03:00 INFO 5476 --- [testdatabase] [main] e.AuthenticationProviderManagerConfigurer : Global AuthenticationManager configured with AuthenticationProviderManager
2024-12-14T17:26:54.780+03:00 WARN 5476 --- [testdatabase] [main] r$InitializeUserDetailsManagerConfigurer : Global AuthenticationManager configured with an AuthenticationDetailsManager
2024-12-14T17:26:55.236+03:00 INFO 5476 --- [testdatabase] [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 5000 (http) with context path ''
2024-12-14T17:26:55.242+03:00 INFO 5476 --- [testdatabase] [main] com.example.awstest.AwsTestApplication : Started AwsTestApplication in 24.633 seconds (process info)
2024-12-14T17:27:02.380+03:00 INFO 5476 --- [testdatabase] [nio-5000-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'
2024-12-14T17:27:02.380+03:00 INFO 5476 --- [nio-5000-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Servlet 'dispatcherServlet'
2024-12-14T17:27:02.380+03:00 INFO 5476 --- [nio-5000-exec-1] o.a.c.c.C.[Tomcat].[localhost].[/] : Starting Servlet 'dispatcherServlet'

```

AwsTest > src > main > resources > application.properties

سنقوم بعمل Package خاص بمشروعنا من خلال استخدام maven للوصول إلى ملف jar.

application.properties

```

server.port= 5000
# JDBC URL for connecting to the MySQL database hosted on Amazon RDS.
# Format: jdbc:mysql://<hostname>:<port>/<database_name>
spring.datasource.url=jdbc:mysql://database-1.czkhmeyymqhe.eu-central-1.rds.amazonaws.com:3306/test
# The username to authenticate with the database.
spring.datasource.username=admin
# The password to authenticate with the database.
spring.datasource.password=admin1234
# The fully qualified class name of the MySQL JDBC driver used for database connectivity.
spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver
# Hibernate setting to define the action for schema generation.
# 'update' ensures the schema is automatically updated based on the entity definitions in the code.
spring.jpa.hibernate.ddl-auto:update
# Enables SQL query logging in the console.
# When set to 'true', all SQL statements executed by the application are printed to the console.
spring.jpa.show-sql=true

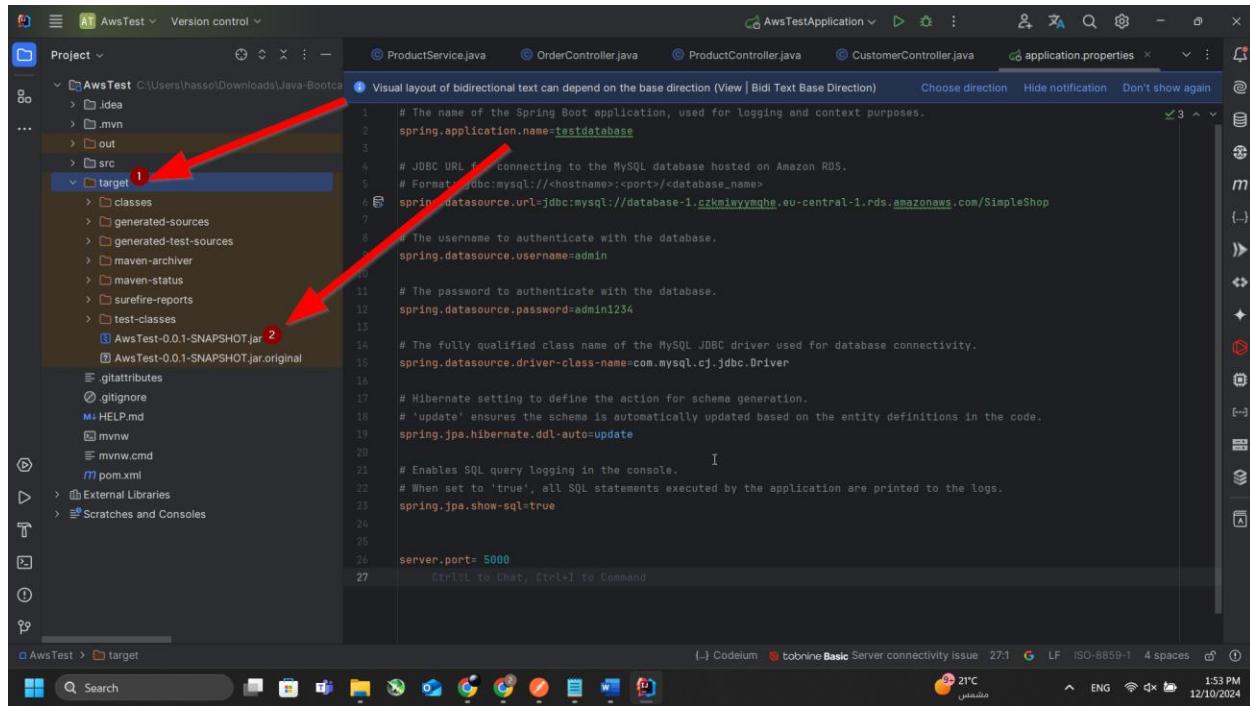
```

Maven

- 1 clean
- 2 package

AwsTest > pom.xml

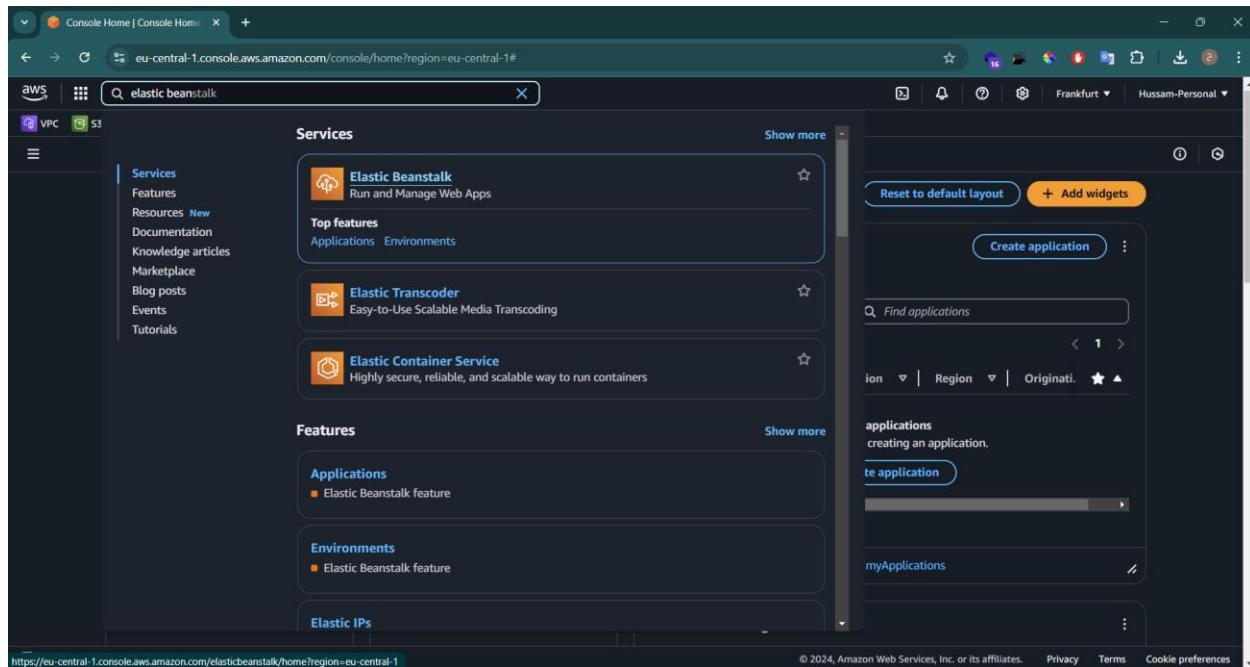
نقوم بعمل package ثم عمل clean للملف



بعد الانتهاء من عمل package سوف نلاحظ وجود ملف جديد بصيغة jar و هذا الملف الذي سوف نقوم برفعه .

الآن بعد تجهيز ملف jar سنذهب الى AWS من خلال الرابط

<https://eu-central-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-central-1#/welcome>



نقوم بالبحث عن خدمة Elastic Beanstalk

Welcome | Elastic Beanstalk | eu-central-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-central-1#/welcome

Compute

Amazon Elastic Beanstalk

End-to-end web application management.

Amazon Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

Get started

You simply upload your code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, and automatic scaling to web application health monitoring, with ongoing fully managed patch and security updates.

[Learn more](#)

Pricing

There's no additional charge for Elastic Beanstalk. You pay for Amazon Web Services resources that we create to store and run your web application, like Amazon S3 buckets and Amazon EC2 instances.

[Getting started](#)

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نختار **Create application** ثم نكمل إعدادات التطبيق من خلال الخطوات التالية :

Configure environment | Elastic eu-central-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-central-1#/create-environment

aws VPC S3 EC2 CloudFormation Systems Manager Amazon EventBridge CloudWatch Lambda IAM DynamoDB

Step 1 Configure environment **Info**

Step 2 Configure service access

Step 3 - optional Set up networking, database, and tags **Web server environment** Run a website, web application, or web API that serves HTTP requests. [Learn more](#)

Step 4 - optional Configure instance traffic and scaling **Worker environment** Run a worker application that processes long-running workloads on demand or performs tasks on a schedule. [Learn more](#)

Step 5 - optional Configure updates, monitoring, and logging

Step 6 Review

Configure environment [Info](#)

Environment tier [Info](#)

Amazon Elastic Beanstalk has two types of environment tiers to support different types of web applications.

Web server environment Run a website, web application, or web API that serves HTTP requests. [Learn more](#)

Worker environment Run a worker application that processes long-running workloads on demand or performs tasks on a schedule. [Learn more](#)

Application information [Info](#)

Application name hussam-test-application Maximum length of 100 characters.

▶ Application tags (optional)

Environment information [Info](#)

Choose the name, subdomain and description for your environment. These cannot be changed later.

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Configure environment | Elastic Beanstalk

eu-central-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-central-1#/create-environment

aws Search [Alt+S]

VPC S3 EC2 CloudFormation Systems Manager Amazon EventBridge CloudWatch Lambda IAM DynamoDB

Environment information Info

Choose the name, subdomain and description for your environment. These cannot be changed later.

Environment name

Hussam-test-application-env

Must be from 4 to 40 characters in length. The name can contain only letters, numbers, and hyphens. It can't start or end with a hyphen. This name must be unique within a region in your account.

Domain

Leave blank for autogenerated value .eu-central-1.elasticbeanstalk.com

Check availability

Environment description

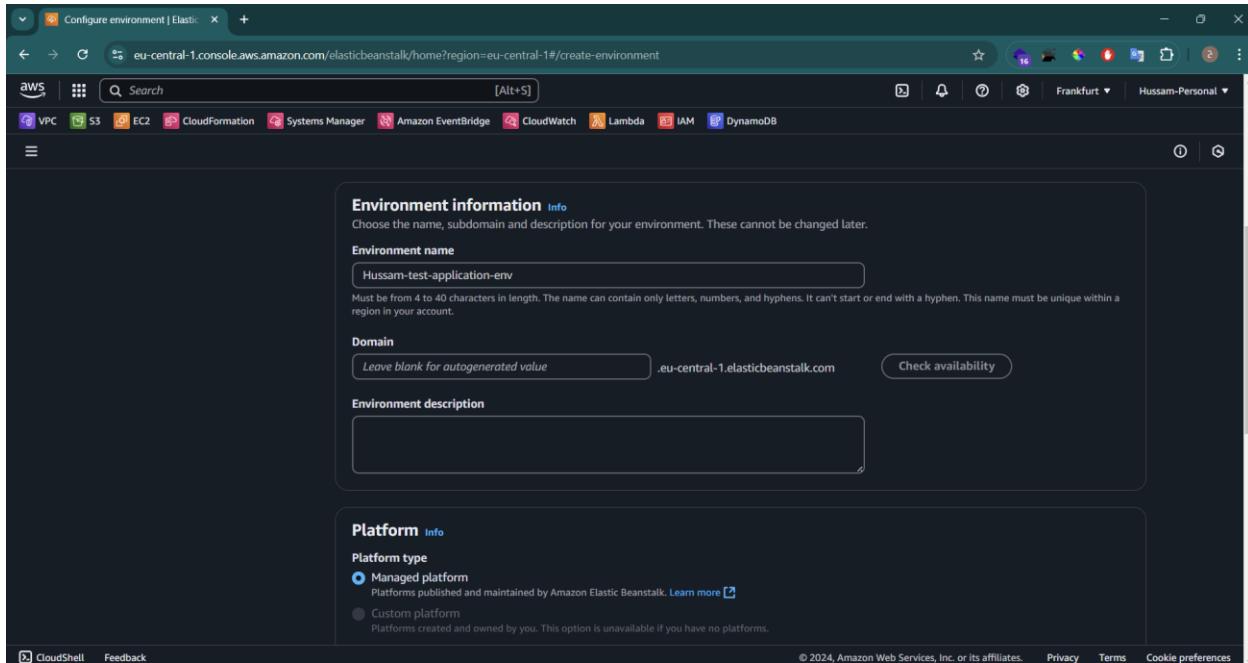
Platform Info

Platform type

Managed platform Platforms published and maintained by Amazon Elastic Beanstalk. Learn more ↗

Custom platform Platforms created and owned by you. This option is unavailable if you have no platforms.

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Configure environment | Elastic Beanstalk

eu-central-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-central-1#/create-environment

aws Search [Alt+S]

VPC S3 EC2 CloudFormation Systems Manager Amazon EventBridge CloudWatch Lambda IAM DynamoDB

Platform Info

Platform type

Managed platform Platforms published and maintained by Amazon Elastic Beanstalk. Learn more ↗

Custom platform Platforms created and owned by you. This option is unavailable if you have no platforms.

Platform

Java

Platform branch

Corretto 21 running on 64bit Amazon Linux 2023

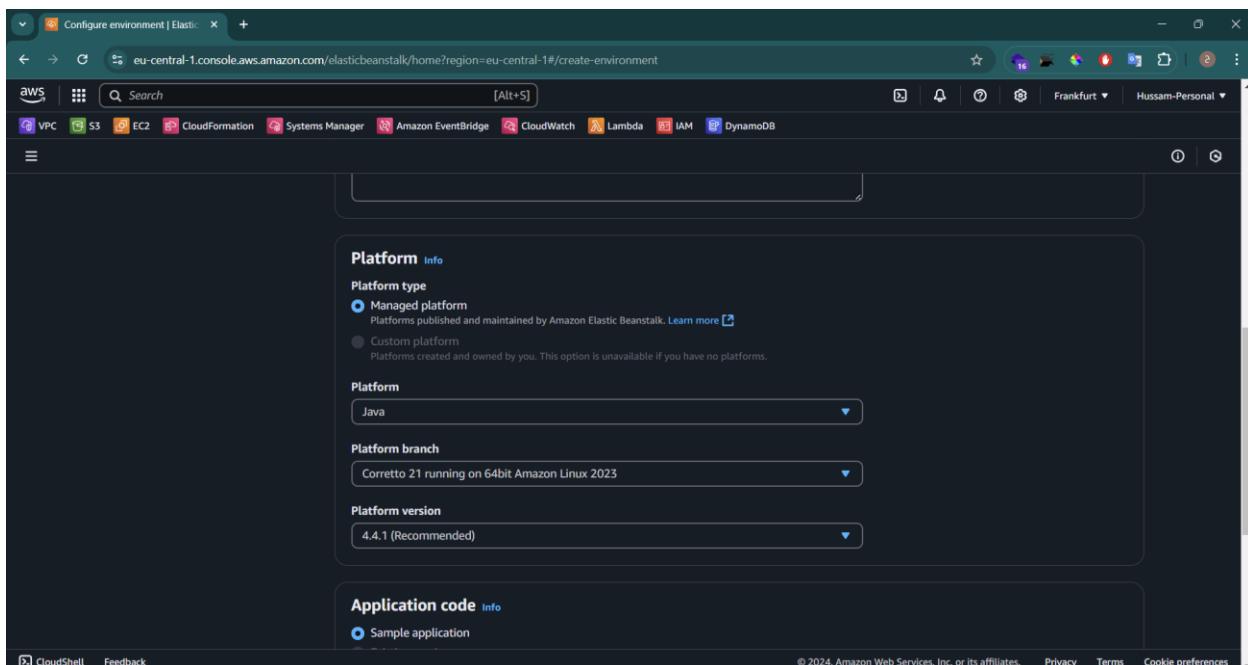
Platform version

4.4.1 (Recommended)

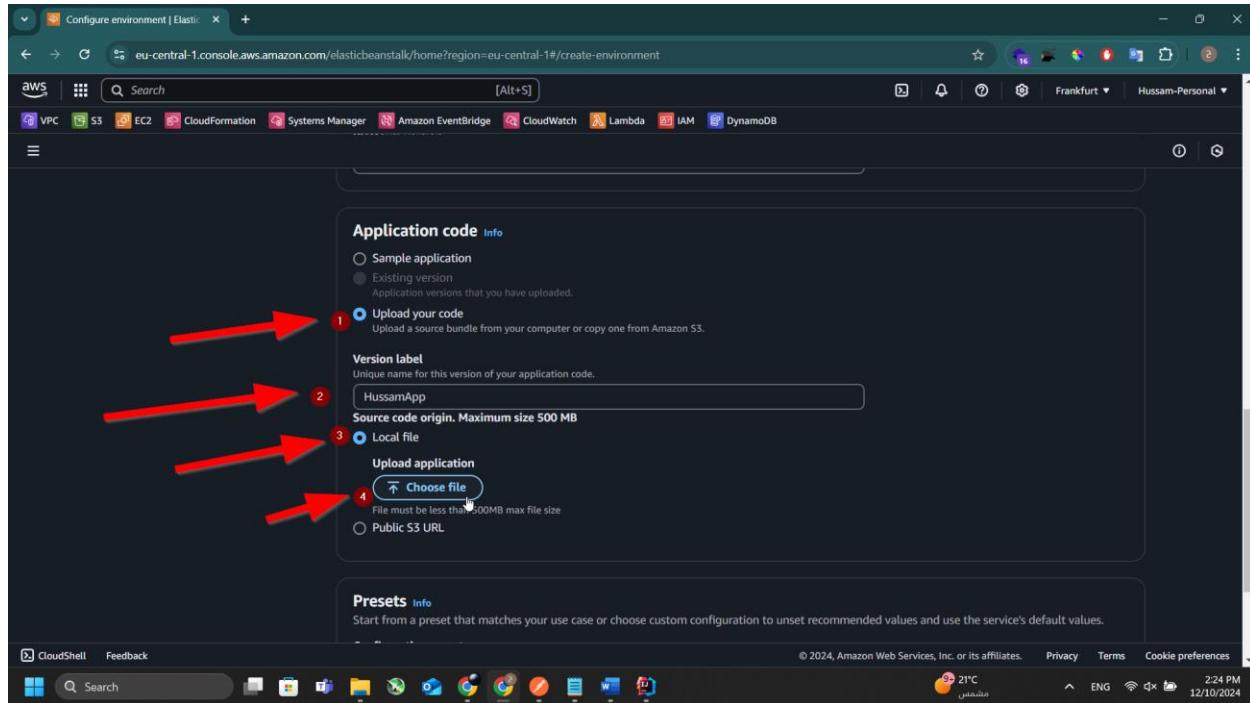
Application code Info

Sample application

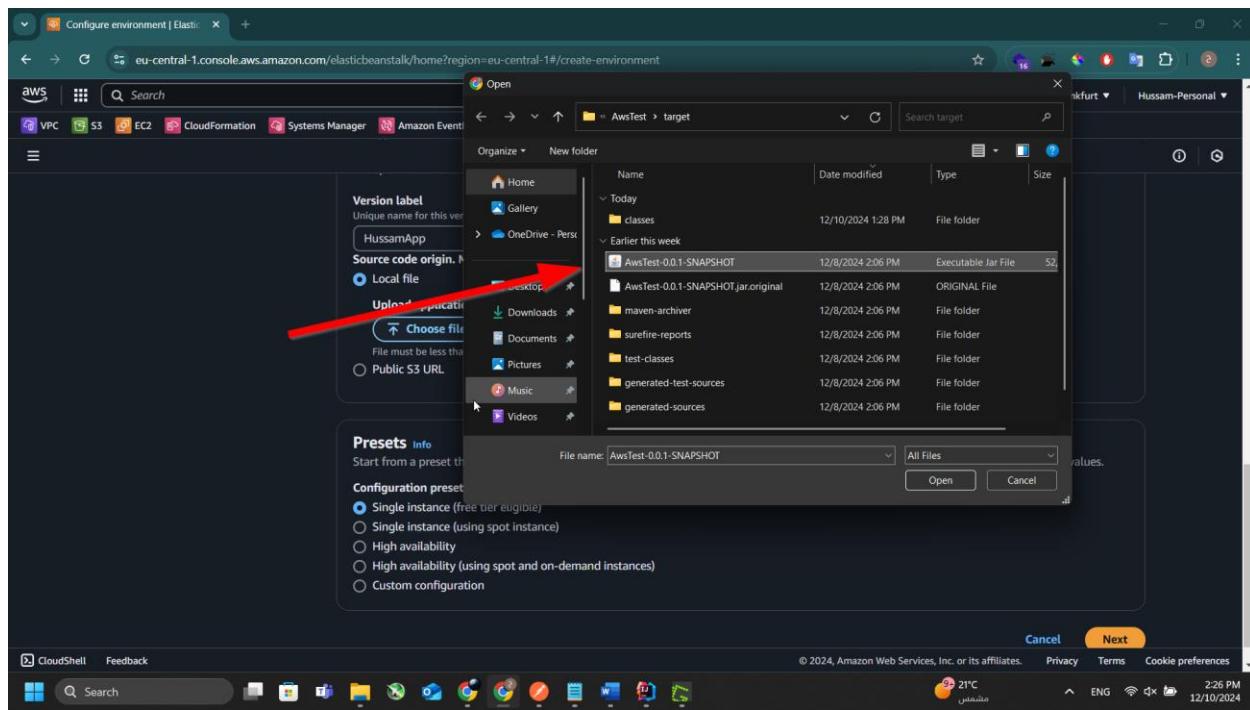
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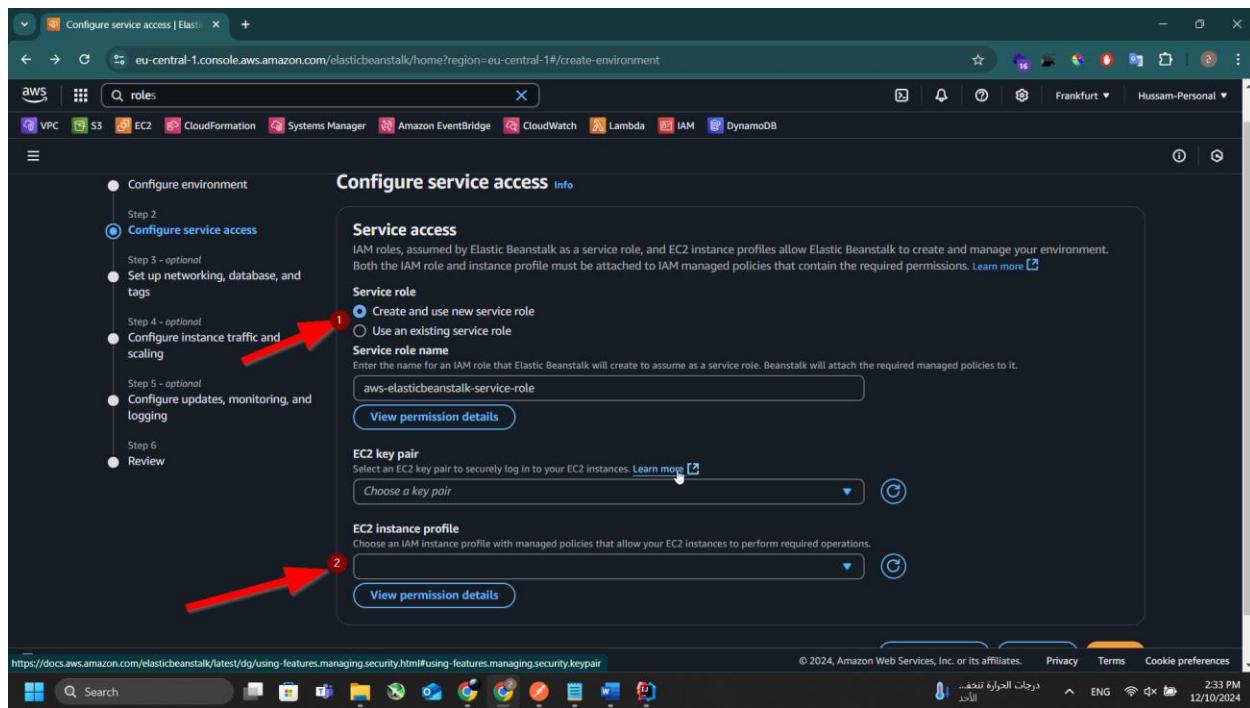
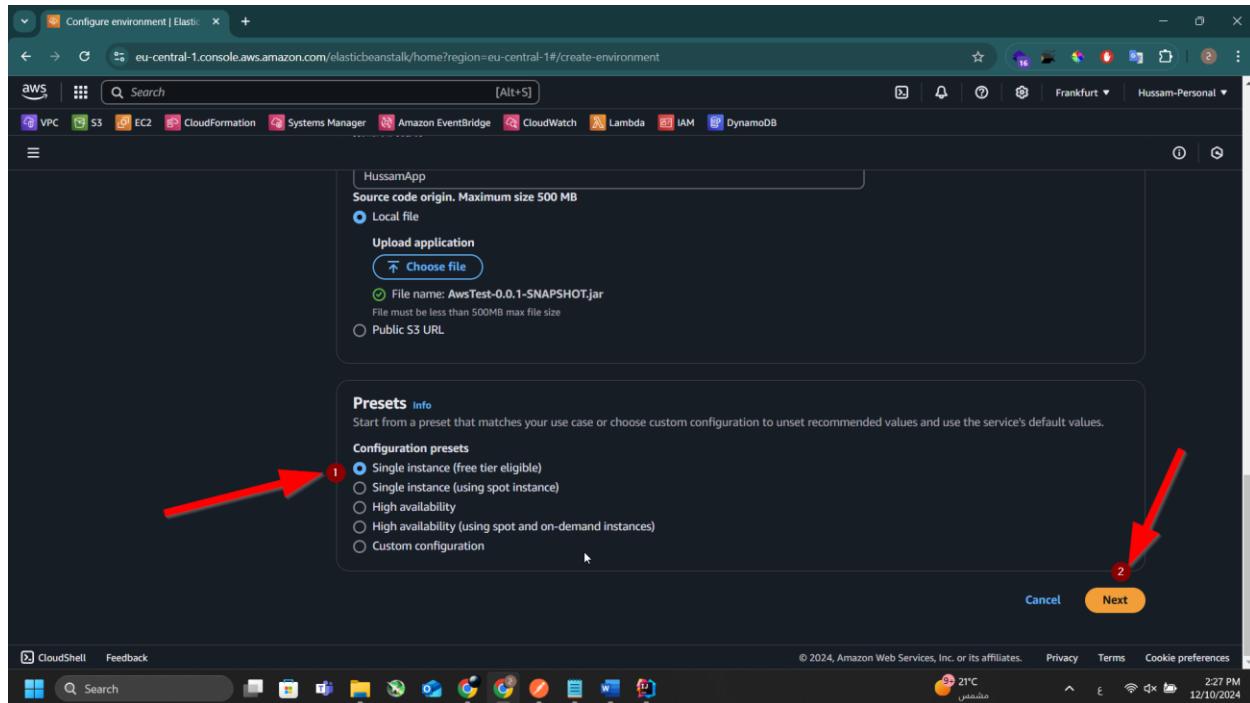


من Platform java سنختار

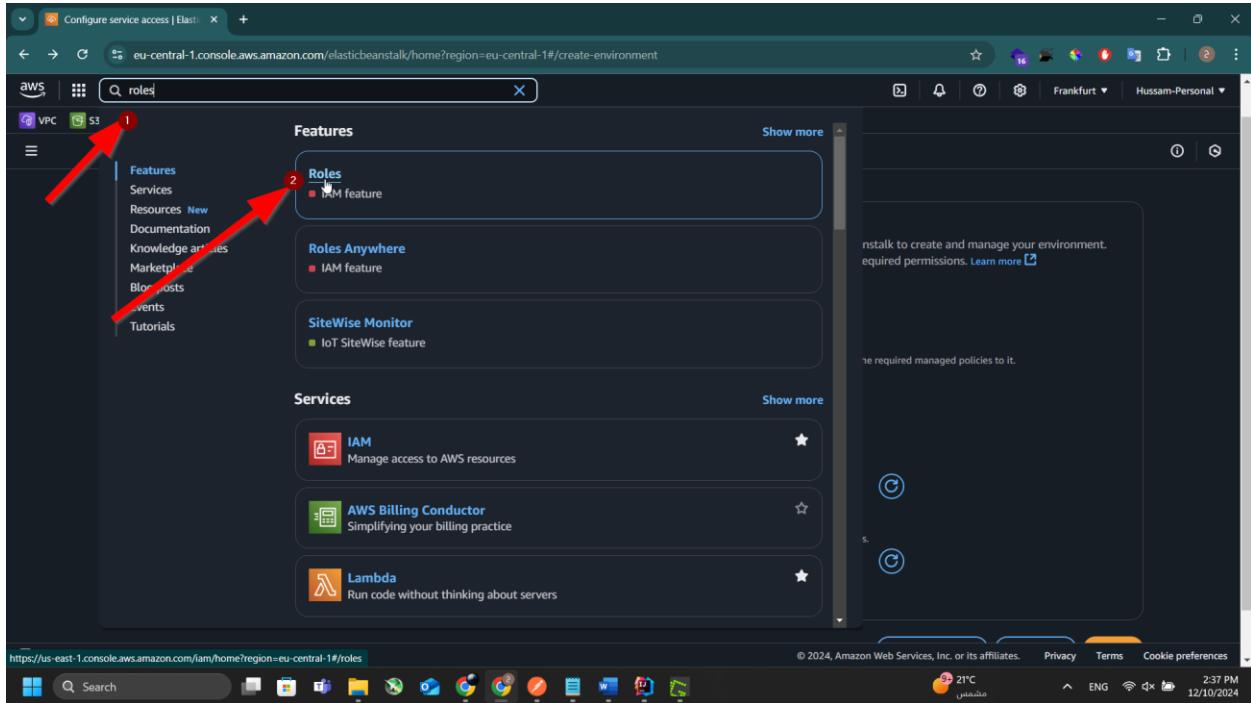


سوف نرفع ملف ال jar. الذي أنشأناه مسبقاً

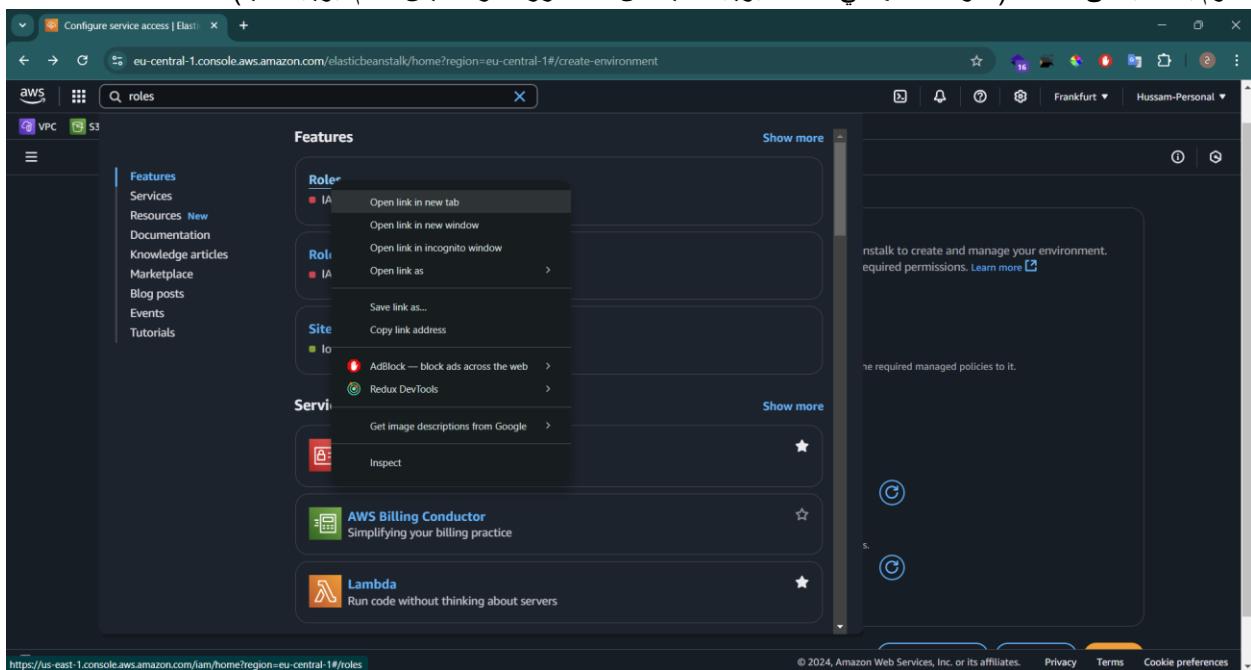




هنا سوف نضع Use an new service role create and use new service role , اذا ثانى مرة سوف نستخدم existing service role في خانة EC2 instance profile . فلنذهب بإنشاء roles بالبحث عن roles



فلنقوم بالذهاب الى roles (سوف نفتحها في علامة تبويب جديدة من خلال زر الفأرة اليمين > ثم تبويب جديد)

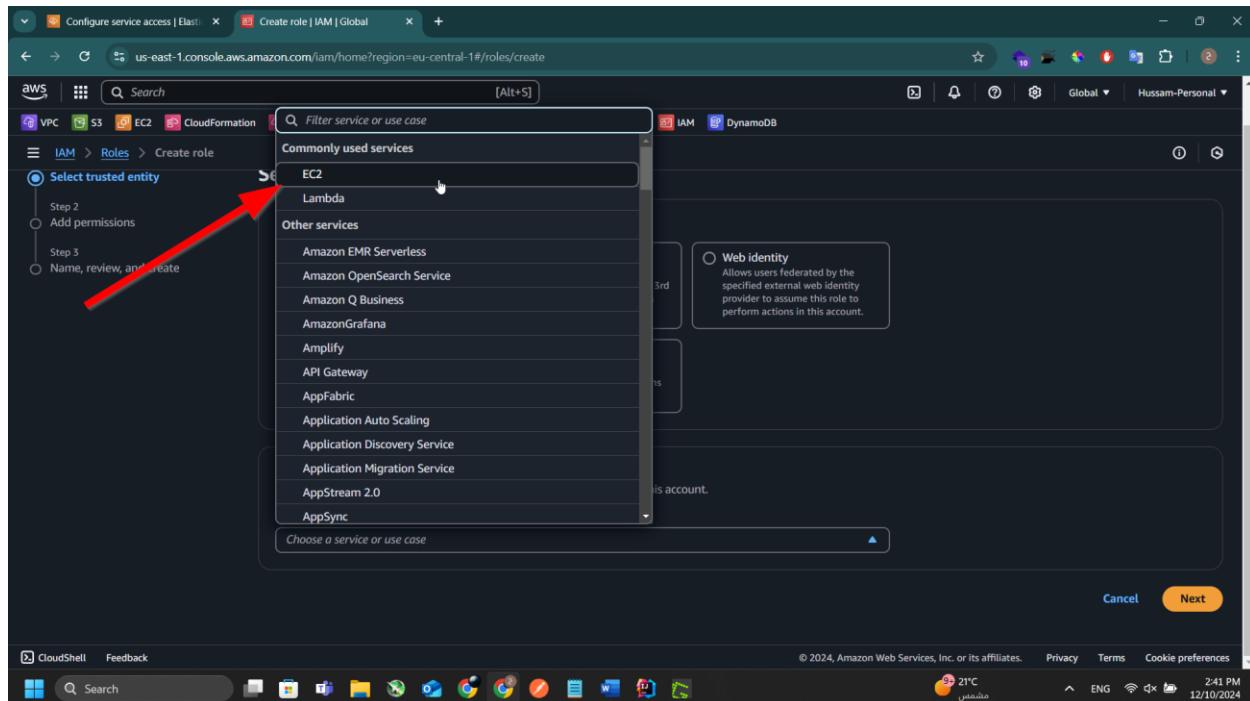


The screenshot shows the AWS IAM Roles page. On the left, there's a sidebar with navigation links like Dashboard, Access management, Policies, and Access reports. The main area displays a table titled 'Roles (36) Info' with columns for Role name, Trusted entities, and Last activity. The table lists various roles, such as '2-role-vjfv382j' (AWS Service: lambda), '2-role-wdufogmb' (AWS Service: lambda), and several roles under 'Amazon_EventBridge_Invoke_Create_Ops_Item'. At the top right, there are 'Delete' and 'Create role' buttons.

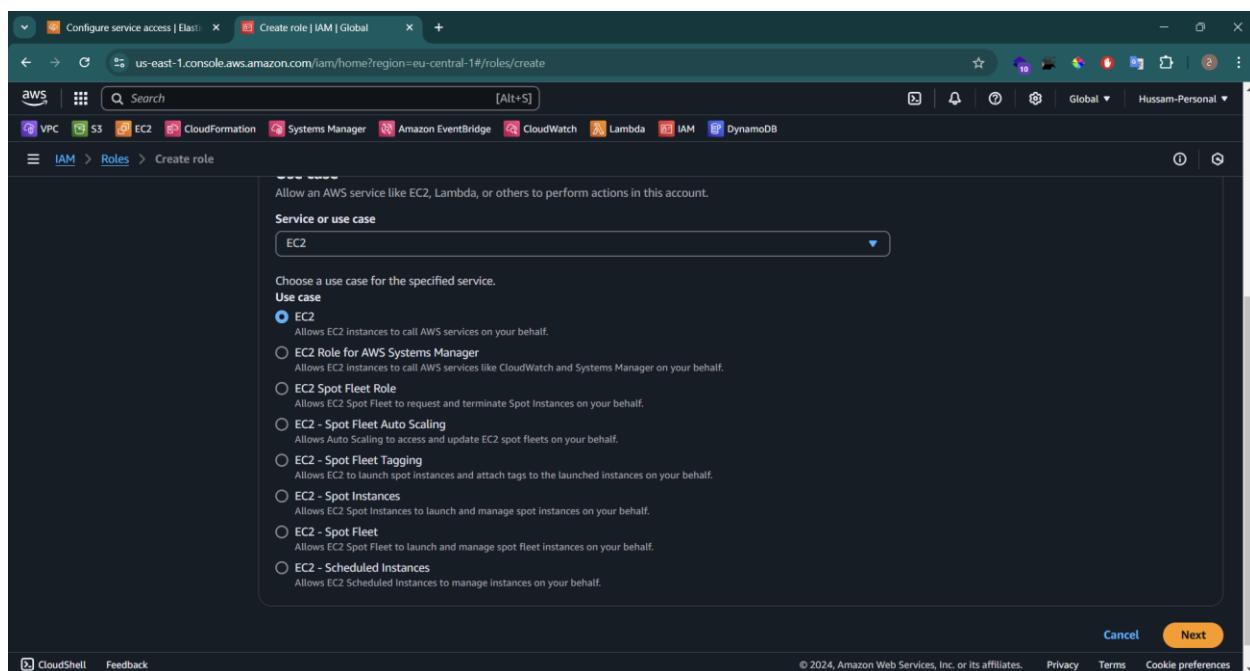
هذه صفحة الـ Roles سوف نقوم بناء role جديدة

The screenshot shows the 'Create role' wizard, Step 1: Select trusted entity. It has three tabs: 'Select trusted entity' (selected), 'Add permissions', and 'Name, review, and create'. Under 'Select trusted entity', it says 'Trusted entity type' and lists five options: 'AWS service' (selected), 'AWS account', 'Web identity', 'SAML 2.0 federation', and 'Custom trust policy'. Below this is a 'Use case' section with a dropdown menu labeled 'Choose a service or use case'. At the bottom right are 'Cancel' and 'Next' buttons.

نستخدم AWS service



The screenshot shows the 'Create role' wizard in the AWS IAM console. The current step is 'Select trusted entity'. A red arrow points to the 'EC2' option in the dropdown menu, which is highlighted. Other options listed include Lambda, Amazon EMR Serverless, Amazon OpenSearch Service, Amazon Q Business, Amazon Grafana, Amplify, API Gateway, AppFabric, Application Auto Scaling, Application Discovery Service, Application Migration Service, AppStream 2.0, and AppSync. To the right of the dropdown, there is a detailed description of the 'Web identity' feature.



The screenshot shows the 'Create role' wizard in the AWS IAM console, progressing to 'Step 2: Add permissions'. The 'Service or use case' dropdown is set to 'EC2'. Below it, a list of EC2 use cases is shown, with 'EC2' selected. Other options include 'EC2 Role for AWS Systems Manager', 'EC2 Spot Fleet Role', 'EC2 - Spot Fleet Auto Scaling', 'EC2 - Spot Fleet Tagging', 'EC2 - Spot Instances', 'EC2 - Spot Fleet', and 'EC2 - Scheduled Instances'. A detailed description of each use case is provided. The 'Next' button is visible at the bottom right.

Step 1 Select trusted entity

Step 2 Add permissions

Step 3 Name, review, and create

Add permissions Info

Permissions policies (1030) Info

Choose one or more policies to attach to your new role.

Filter by Type

Search All types

Policy name	Type	Description
AdministratorAccess	AWS managed - job function	Provides full access to AWS services an...
AdministratorAccess-Amplify	AWS managed	Grants account administrative permissi...
AdministratorAccess-AWSElasticBeanstalk	AWS managed	Grants account administrative permissi...
AIOpsAssistantPolicy	AWS managed	Provides ReadOnly permissions requir...
AIOpsConsoleAdminPolicy	AWS managed	Grants full access to Amazon AI Opera...
AIOpsOperatorAccess	AWS managed	Grants access to the Amazon AI Opera...
AIOpsReadOnlyAccess	AWS managed	Grants ReadOnly permissions to the A...
AlexaForBusinessDeviceSetup	AWS managed	Provide device setup access to AlexaFo...

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نقوم بالبحث عن AWSElasticBeanstalkCustomPlatformforEC2Role تسمى ب Perissions.

Step 1 Select trusted entity

Step 2 Add permissions

Step 3 Name, review, and create

Add permissions Info

Permissions policies (1/1030) Info

Choose one or more policies to attach to your new role.

Filter by Type

Search All types 1 match

Policy name	Type	Description
AWSElasticBeanstalkCustomPlatformforEC2Role	AWS managed	Provide the instance in your custom pl...

Set permissions boundary - optional

Cancel Previous Next

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next نصف

Configure service access | Elastic Beanstalk | Create role | IAM | Global

Name, review, and create

Role details

Role name
Enter a meaningful name to identify this role.
Maximum 64 characters. Use alphanumeric and '+_-' characters.

Description
Add a short explanation for this role.
Allows EC2 instances to call AWS services on your behalf.
Maximum 1000 characters. Use letters (A-Z and a-z), numbers (0-9), tabs, new lines, or any of the following characters: '_+=. @/\[\]#\$%^&`~`-

Step 1: Select trusted entities

Trust policy

```
1 | [ { "Version": "2012-10-17", "Statement": [ { "Effect": "Allow" } ] } ]
```

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نرم بتسییتها ب aws-elasticbeanstalk-ec2-role

Configure service access | Elastic Beanstalk | Create role | IAM | Global

Name, review, and create

Role details

Role name
Enter a meaningful name to identify this role.
aws-elasticbeanstalk-ec2-role
Maximum 64 characters. Use alphanumeric and '+_-' characters.

Description
Add a short explanation for this role.
Allows EC2 instances to call AWS services on your behalf.
Maximum 1000 characters. Use letters (A-Z and a-z), numbers (0-9), tabs, new lines, or any of the following characters: '_+=. @/\[\]#\$%^&`~`-

Step 1: Select trusted entities

Trust policy

```
1 | [ { "Version": "2012-10-17", "Statement": [ { "Effect": "Allow" } ] } ]
```

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Step 2: Add permissions

Policy name	Type	Attached as
AWSLambdaBasicExecutionRole	AWS managed	Permissions policy

Step 3: Add tags

Add tags - *optional* Info
Tags are key-value pairs that you can add to AWS resources to help identify, organize, or search for resources.

No tags associated with the resource.

[Add new tag](#)
You can add up to 50 more tags.

[Cancel](#) [Previous](#) [Create role](#)

Create role

Role aws-elasticbeanstalk-ec2-role created.

Roles (37) Info

An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

Role name	Trusted entities	Last activity
AWSServiceRoleForAmazonSSM_OpsInsights	AWS Service: opsinsights.ssm [Service]	-
AWSServiceRoleForAPIGateway	AWS Service: ops.apigateway [Service]	-

Roles Anywhere Info
Authenticate your non AWS workloads and securely provide access to AWS services.

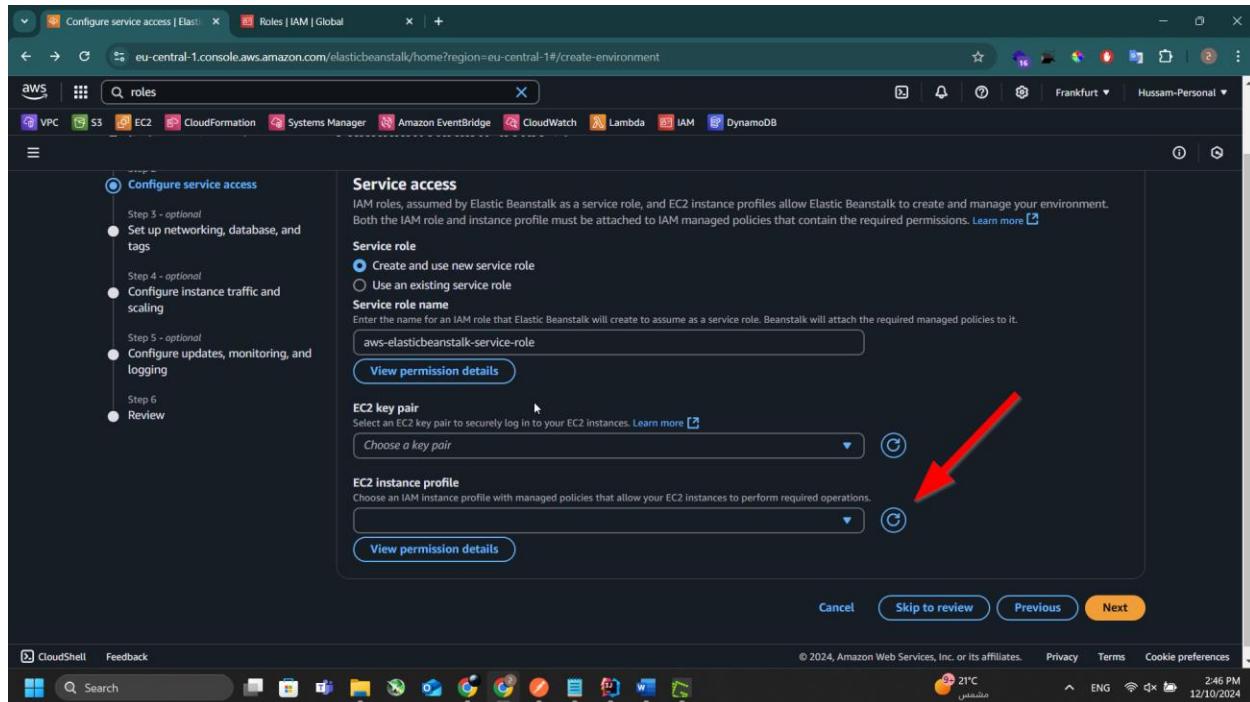
Access AWS from your non AWS workloads
Operate your non AWS workloads using the same authentication and authorization strategy that you use within AWS.

X.509 Standard
Use your own existing PKI infrastructure or use AWS Certificate Manager Private Certificate Authority [\[Service\]](#) to authenticate identities.

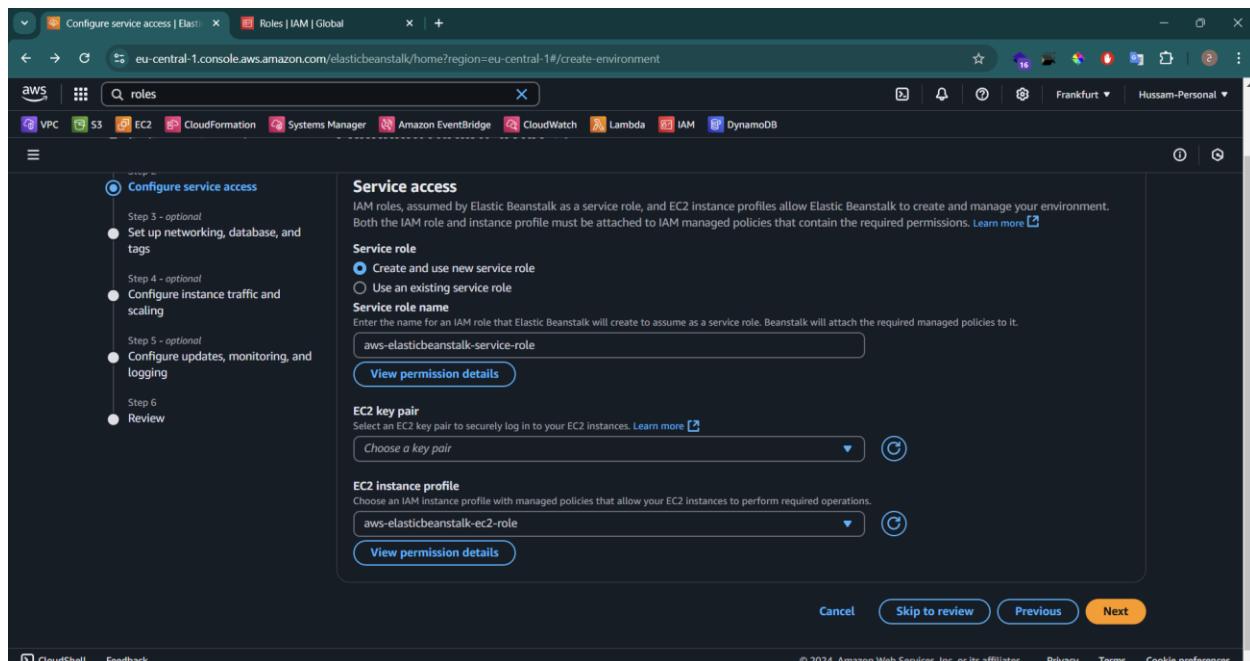
Temporary credentials
Use temporary credentials with ease and benefit from the enhanced security they provide.

[View role](#) [Delete](#) [Create role](#)

تم الإنشاء ، سنتخدمها في الـ elastic beanstalk



إذا حدثنا البروفايل سوف يقوم بشكل تلقائي بوضع role التي أنشأناها .



فلنذهب الى التالي

Set up networking, database, and tags - *optional* Info

Virtual Private Cloud (VPC)

Step 1 Configure environment

Step 2 Configure service access

Step 3 - optional

Step 4 - optional

Step 5 - optional

Step 6 Review

Virtual Private Cloud (VPC)

Launch your environment in a custom VPC instead of the default VPC. You can create a VPC and subnets in the VPC management console. [Learn more](#)

Create custom VPC [Edit](#)

Instance settings

Choose a subnet in each AZ for the instances that run your application. To avoid exposing your instances to the Internet, run your instances in private subnets and load balancer in public subnets. To run your load balancer and instances in the same public subnets, assign public IP addresses to the instances. [Learn more](#)

Public IP address

Assign a public IP address to the Amazon EC2 instances in your environment.

Activated

Instance subnets

Filter instance subnets

Availability Zone	Subnet	CIDR	Name
eu-central-1a	Subnet-A	172.31.0.0/16	Subnet-A
eu-central-1a	Subnet-B	172.31.1.0/16	Subnet-B
eu-central-1b	Subnet-C	172.31.2.0/16	Subnet-C
eu-central-1b	Subnet-D	172.31.3.0/16	Subnet-D

ثم نذهب لل التالي .

Configure instance traffic and scaling - *optional* Info

Step 1 Configure environment

Step 2 Configure service access

Step 3 - optional

Step 4 - optional

Step 5 - optional

Step 6 Review

Instances Info

Configure the Amazon EC2 instances that run your application.

Root volume (boot device)

Root volume type

(Container default) 1

(Container default) 2

Magnetic

General Purpose (SSD)

General Purpose 3(SSD)

Provisioned IOPS (SSD)

100 GB

Throughput

The desired throughput to provision for the Amazon EBS root volume attached to your environment's EC2 instance

125 MiB/s

ختار هذه للتخلص (مهم جدا)

The screenshot shows the AWS Elastic Beanstalk environment creation wizard. In the 'Instance metadata service (IMDS)' section, there is a note: 'Your environment's platform supports both IMDSv1 and IMDSv2. To enforce IMDSv2, deactivate IMDSv1.' Below this, a checkbox labeled 'Deactivated' is checked. A red arrow points to this checkbox. The 'EC2 security groups' section shows two groups: 'default' and 'RDS security'. The 'Monitoring interval' is set to '5 minute'.

نعدل على IMDSv1 ونذهب إلى التالي .

The screenshot shows the 'Add instance types' section of the wizard. It includes fields for 'Choose x86 instance types' (with 't3.micro' and 't3.small' selected), 'AMI ID' (set to 'ami-04a995f3372712927'), 'Availability Zones' (set to 'Any'), 'Placement' (specifying 'Choose Availability Zones (AZs)'), and 'Scaling cooldown' (set to '360 seconds'). At the bottom are 'Cancel', 'Skip to review', 'Previous', and 'Next' buttons.

The screenshot shows the 'Configure updates, monitoring' step of the AWS Elastic Beanstalk environment creation wizard. On the left, a sidebar lists steps: Step 2 (Configure service access), Step 3 - optional (Set up networking, database, and tags), Step 4 - optional (Configure instance traffic and scaling), Step 5 - optional (Configure updates, monitoring, and logging), and Step 6 (Review). The current step is Step 5. The main area is titled 'Monitoring' and contains sections for 'Health reporting' (which includes a note about enhanced health reporting and CloudWatch Pricing), 'System' (with 'Basic' selected over 'Enhanced'), 'Health event streaming to CloudWatch Logs' (with a note about configuring logs and retention), 'Log streaming' (with a note about activated log streaming), 'Retention' (set to 7 days), and 'Lifecycle' (set to 'Keep logs after terminating environment').

The screenshot shows the 'Configure updates, monitoring' step of the AWS Elastic Beanstalk environment creation wizard. The main area is titled 'Managed platform updates' and contains sections for 'Managed updates' (with 'Activated' checked), 'Weekly update window' (set to Sunday at 13:05 UTC), 'Update level' (set to 'Minor and patch'), 'Instance replacement' (with a note about scheduled replacement if no other updates are available and 'Activated' checked), and 'Email notifications' (with a note about receiving email notifications and an input field for 'user@example.com').

نذهب إلى التالي

Configure updates, monitoring. Roles | IAM | Global eu-central-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-central-1#/create-environment

Activated

Retention
7

Lifecycle
Keep logs after terminating environment...

Environment properties
The following properties are passed in the application as environment properties. Learn more ↗

Name	Value	Remove
GRADLE_HOME	/usr/local/gradle	Remove
M2	/usr/local/apache-maven/bin	Remove
M2_HOME	/usr/local/apache-maven	Remove

Add environment property

Cancel Previous Next

Configure environment - review. Roles | IAM | Global eu-central-1.console.aws.amazon.com/elasticbeanstalk/home?region=eu-central-1#/create-environment

aws VPC S3 EC2 CloudFormation Systems Manager Amazon EventBridge CloudWatch Lambda IAM DynamoDB

600 AllAtOnce Ok

Ignore health check Instance replacement
false false

Platform software

Setting	Value	Description
Lifecycle	Log streaming Deactivated	Logs retention 7
Rotate logs	Update level Deactivated	X-Ray enabled Deactivated

Environment properties

Key	Value
GRADLE_HOME	/usr/local/gradle
M2	/usr/local/apache-maven/bin
M2_HOME	/usr/local/apache-maven

Cancel Previous Submit

هذه صفحة المراجعة ، بعد التأكد من الإعدادات يمكننا الان رفع الملف بضغط على submit

Elastic Beanstalk is launching your environment. This will take a few minutes.

Hussam-test-env

Environment overview

Health: Pending

Domain: -

Environment ID: e-nxgybpkkp9

Application name: hussam-test

Platform

Platform: Corretto 21 running on 64bit Amazon Linux 2023/4.4.1

Running version: -

Platform state: Supported

Events (3) Info

Time	Type	Details
December 10, 2024 14:58:28 (UTC+3)	INFO	Created security group named: awseb-e-nxgybpkkp9-stack-AWSEBSecurityGroup-OdlAJCrkZE90
December 10, 2024 14:59:41 (UTC+3)	INFO	Instance deployment completed successfully.
December 10, 2024 14:59:37 (UTC+3)	INFO	Instance deployment successfully generated a 'Procfile'.

تم الإنشاء ، سنتظر قليلاً حتى ينتهي .

Elastic Beanstalk is launching your environment. This will take a few minutes.

Events (10) Info

Time	Type	Details
December 10, 2024 14:59:54 (UTC+3)	INFO	Added instance [i-0a9f5a1d9ad88fc73] to your environment.
December 10, 2024 14:59:41 (UTC+3)	INFO	Instance deployment completed successfully.
December 10, 2024 14:59:37 (UTC+3)	INFO	Instance deployment successfully generated a 'Procfile'.
December 10, 2024 14:59:37 (UTC+3)	INFO	Instance deployment successfully detected a JAR file in your source bundle.
December 10, 2024 14:58:59 (UTC+3)	INFO	Waiting for EC2 instances to launch. This may take a few minutes.
December 10, 2024 14:58:54 (UTC+3)	INFO	Environment health has transitioned to Pending. Initialization in progress (running for 13 seconds). There are no instances.
December 10, 2024 14:58:43 (UTC+3)	INFO	Created EIP: 18.153.250.237
December 10, 2024 14:58:28 (UTC+3)	INFO	Created security group named: awseb-e-nxgybpkkp9-stack-AWSEBSecurityGroup-OdlAJCrkZE90
December 10, 2024 14:58:05 (UTC+3)	INFO	Using elasticbeanstalk-eu-central-1-707020299554 as Amazon S3 storage bucket for environment data.
December 10, 2024 14:58:04 (UTC+3)	INFO	createEnvironment is starting.

قام بإنشاء بعض الأعدادات ، فلننتظر إلى أن يكتمل .

Environment successfully launched.

Test-test-env

Environment overview

Health: Pending | Environment ID: e-zvmpvpibph | Application name: test-test

Events (11) Info

Time: December 10, 2024 15:41:29 (UTC+3) | Type: INFO | Details: Successfully launched environment: Test-test-env

Platform

Platform: Corretto 21 running on 64bit Amazon Linux 2023/4.4.1 | Running version: testtesttest | Platform state: Supported

بعد الانتهاء سوف يظهر لنا إشعار أنه تم بنجاح.

Environment successfully launched.

Test-test-env

Environment overview

Health: Pending | Environment ID: e-zvmpvpibph | Application name: test-test

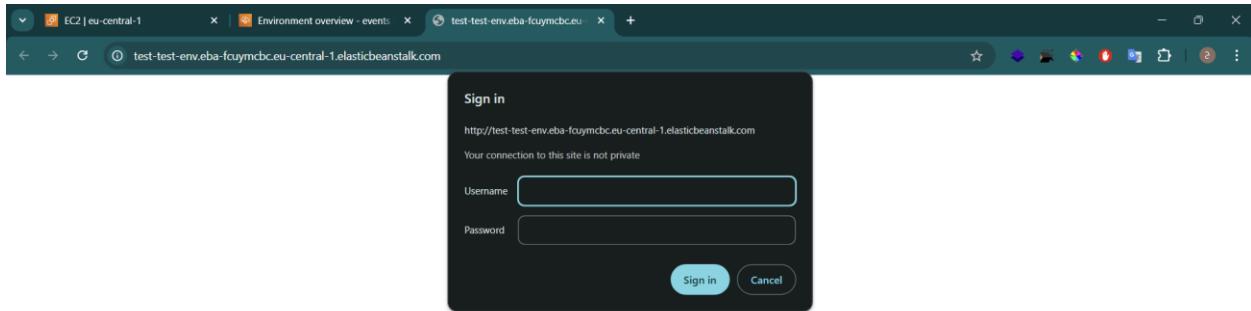
Events (11) Info

Time: December 10, 2024 15:41:29 (UTC+3) | Type: INFO | Details: Successfully launched environment: Test-test-env

Platform

Platform: Corretto 21 running on 64bit Amazon Linux 2023/4.4.1 | Running version: testtesttest | Platform state: Supported

هذا هو API الخاص بمشروعنا ، سنضغط عليه لنجربه .



ظهور هذه الصفحة يعني انه تم رفع المشروع بنجاح ، سنقوم بإختباره Postman

The screenshot shows the Postman interface with a dark theme. A GET request is being made to the URL `http://Test-test-env.eba-fcuymcbc.eu-central-1.elasticbeanstalk.com/api/v1/customers`. The 'Authorization' tab is active, displaying 'Basic Auth' as the selected type. The 'Username' field is filled with 'admin' and the 'Password' field is filled with 'hussam121'. A tooltip message states: 'Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about [variables](#)'.

At the bottom of the interface, the response status is shown as **401 Unauthorized**, with a timestamp of 1.16 s and a size of 333 B. There are also buttons for 'Save Response' and other options.

كما نرى ، لقد اعطانا رد 401 فهذا يعني بأن السيرفر يعمل لكن كلمة المرور خاطئة ، فنضع الصحيح ونرى

The screenshot shows a Postman collection named "aws test". A GET request is made to the URL `http://Test-test-env.eba-fcuymcbc.eu-central-1.elasticbeanstalk.com/api/v1/customers`. The response status is 200 OK, and the body is empty. The "Body" tab is selected, showing the JSON response:

```
1 []
```

لقد أعطانا رد ب 200 ، هذا يعني أنه السيرفر يعمل كما نريده ، سنضيف الآن بيانات جديدة ونرى

The screenshot shows a Postman collection named "aws test". A POST request is made to the URL `http://Test-test-env.eba-fcuymcbc.eu-central-1.elasticbeanstalk.com/api/v1/customers/add`. The response status is 201 Created, and the body is a new customer object. The "Body" tab is selected, showing the JSON response:

```
1 {
2   "firstName": "mohammedd",
3   "lastName": "mohsen",
4   "phoneNumber": "0540218038",
5   "email": "mohammedd@example.com",
6   "username": "mohammedd-32",
7   "password": "mohammedd-32"
8 }
```

1 {"customerID": 8, "firstName": "mohammedd", "lastName": "mohsen", "phoneNumber": "0540218038", "email": "mohammedd@example.com"} 7

لقد أضافنا مستخدم جديد بنجاح .

The screenshot shows the AWS Lambda Test API interface. A GET request is made to the endpoint `http://Test-test-env.eba-fcuymcbc.eu-central-1.elasticbeanstalk.com/api/v1/customers`. The response status is 200 OK, with a response time of 152 ms and a size of 446 B. The response body is displayed in JSON format:

```

1  [
2    {
3      "customerId": 8,
4      "firstName": "mohammed",
5      "lastName": "mohsen",
6      "phoneNumber": "0540218038",
7      "email": "mohammed@example.com"
8    }
9  ]

```

لقد ظهر لنا المستخدم الجديد بنجاح ، فنرى اذا كان موجوداً في Database .

The screenshot shows the AWS Database Explorer. The user table in the SimpleShop database is selected. The table has columns: id, password, role, and username. There are two rows of data:

	id	password	role	username
1	2	\$2a\$12\$eNoyDJulAtix...	ADMIN	admin
2	8	\$2a\$10\$eQbJ1Cye208z...	USER	mohammed-32

The screenshot shows the AWS Database Explorer. The customers table in the SimpleShop database is selected. The table has columns: email, first_name, last_name, phone_number, and user_id. There is one row of data:

	email	first_name	last_name	phone_number	user_id
1	mohammed@example.com	mohammed	mohsen	0540218038	8

كما نرى السيرفر قد أضاف البيانات بشكل سليم و مشفر بنجاح .

ما هي مجموعة الأمان (AWS Security Group)؟

مجموعة الأمان (Security Group) في AWS تعمل كجدار حماية افتراضي للموارد الخاصة بك. فهي تتحكم في حركة المرور الواردة والصادرة إلى ومن الموارد مثل مثيلات EC2 وقواعد بيانات RDS وبيانات Elastic Beanstalk.

:<https://eu-central-1.console.aws.amazon.com/ec2/home?region=eu-central-1#SecurityGroups>

المميزات الرئيسية لمجموعات الأمان:

(Stateful Rules): القواعد ذات الحالة

مجموعات الأمان تعتبر ذات حالة، مما يعني أنه إذا سمحت قاعدة واردة بحركة المرور، فإن الرد الصادر المقابل يُسمح به تلقائياً، والعكس صحيح.

القواعد الواردة والصادرة:

القواعد الواردة تحدد المصادر عنوانين IP ، نطاقات CIDR ، أو مجموعات أمان أخرى والمنفذ المسموح بها للاتصال بالموارد.

القواعد الصادرة تحدد الوجهات والمنفذ التي يمكن للموارد الاتصال بها.

(Allow Rules Only): السماح فقط

مجموعات الأمان تسمح فقط بتحديد القواعد التي "تسمح" بحركة المرور. لا توجد قواعد "حظر" صريحة، لأن AWS تعتمد على سياسة الحظر الافتراضي.

(Resource Association): ارتباط الموارد

يمكن ربط مجموعات الأمان بموارد متعددة. ويمكن أيضاً ربط المورد الواحد بعدة مجموعات أمان.

(Granular Control): التحكم الدقيق

يمكن تعريف الوصول بناءً على:

عناوين IP أو نطاقات CIDR مثل 24/192.168.0.0

مجموعات أمان أخرى مثل السماح بحركة المرور من مثيلات EC2 في مجموعة محددة.

البروتوكولات (مثل ICMP ، UDP ، TCP)

. المنفذ (مثلاً 22 لـ SSH، 80 لـ HTTP، و 3306 لـ MySQL).

مميزات إضافية :

فعدل على سبيل المثال على security group الخاصة بالبيانات ، بحيث أنه لا يمكن أن يصل إليها أحد إلا من خلال الـ Backend

The screenshot shows the AWS Console Home page. At the top, there's a navigation bar with links for VPC, S3, EC2, CloudFormation, Systems Manager, Amazon EventBridge, CloudWatch, Lambda, IAM, and DynamoDB. Below the navigation bar is a search bar and a "Reset to default layout" button. The main content area is divided into several sections: "Recently visited" (EC2, Elastic Beanstalk, IAM, RDS, Support, Billing and Cost Management, Route 53, AWS Amplify), "Applications (0)" (Create application), "Welcome to AWS", "AWS Health", and "Cost and usage". A red arrow points from the "Recently visited" section towards the search bar.

This screenshot is similar to the one above, but with a search query "security groups" entered into the search bar. A red arrow points from the search bar towards the "Recently visited" section. The rest of the interface is identical to the first screenshot, showing the same navigation bar, service links, and main dashboard sections.

The screenshot shows the AWS EC2 Security Groups page. The left sidebar includes sections for Instances, Images, and Elastic Block Store. The main area displays a table of security groups:

Name	Security group ID	Security group name	VPC ID	Description
Test-test-env	sg-0c76ab5342e92e8e8	awseb-e-zvmpvpibph-stack-AWSEB... RDS security	vpc-06af969c5824570d3	allow: default
RDS	sg-095135ef7485086aa	RDS security	vpc-06af969c5824570d3	allow: default
-	sg-0d9e981eacf67a24	default	vpc-06af969c5824570d3	default

فلنذهب الى مجموعة الأمان الخاصة بالبيانات بيس.

The screenshot shows the same AWS EC2 Security Groups page as the first one. A red arrow points to the second row, which corresponds to the 'RDS' security group. This group has a red box drawn around its 'Security group name' column, specifically highlighting the text 'RDS security'.

Details

Security group name RDS security	Security group ID sg-095135ef7485086aa	Description allow all traffic for RDS	VPC ID vpc-06af969c5824570d3
Owner 707020299554	Inbound rules count 1 Permission entry	Outbound rules count 1 Permission entry	

Inbound rules | Outbound rules | Sharing - new | VPC associations - new | Tags

Inbound rules (1)

Name	Security group rule ID	IP version	Type	Protocol	Port range
-	sgr-01edff0898711eb44f	IPv4	All traffic	All	All

سوف نعدل على الـ Inbound group بحيث أنها الان مفتوحة للجميع ، نريد فقط ان نجعل الـ backend هو من يوصلها .

Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Security group rule ID	Type <small>Info</small>	Protocol <small>Info</small>	Port range <small>Info</small>	Source <small>Info</small>	Description - optional <small>Info</small>
sgr-01edff0898711eb44f	All traffic	All	All	Cu... <input type="text"/>	<input type="text"/> 0.0.0.0/0 <input type="button" value="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.

Cancel

فناحذف هذه الـ role .

The screenshot shows the AWS EC2 ModifyInboundSecurityGroupRules interface. The URL is eu-central-1.console.aws.amazon.com/ec2/home?region=eu-central-1#ModifyInboundSecurityGroupRules:securityGroupId=sg-095135ef7485086aa. The page title is "Edit inbound rules". It displays a message: "Inbound rules control the incoming traffic that's allowed to reach the instance." Below this, a section titled "Inbound rules" shows a message: "This security group has no inbound rules." A blue "Add rule" button is visible. At the bottom right are "Cancel", "Preview changes", and "Save rules" buttons.

نقوم بإضافة role جديدة .

The screenshot shows the same AWS EC2 ModifyInboundSecurityGroupRules interface. The URL is eu-central-1.console.aws.amazon.com/ec2/home?region=eu-central-1#ModifyInboundSecurityGroupRules:securityGroupId=sg-095135ef7485086aa. The "Type" dropdown menu is open, showing options like MySQL/Aurora, IMAPS, POP3S, MSSQL, NFS, RDP, Redshift, PostgreSQL, and Oracle-RDS. "MySQL/Aurora" is selected. The rest of the interface remains the same, including the "Add rule" button and the "Preview changes" and "Save rules" buttons at the bottom right.

سوف نختار MySQL/Aurora

The screenshot shows the 'Edit inbound rules' page for a security group. The 'Source' dropdown menu is open, displaying several options: 'Custom' (selected), 'Anywhere-IPv4', 'Anywhere-IPv6', and 'My IP'. Other visible fields include 'Type' (MySQL/Aurora), 'Protocol' (TCP), and 'Port range' (3306). Buttons for 'Add rule', 'Delete', 'Preview changes', and 'Save rules' are also present.

The screenshot shows the 'Edit inbound rules' page for a security group. The 'Source' dropdown menu is open, displaying options such as '::/64', 'Security Groups', and 'Prefix lists'. The 'Security Groups' section is expanded, showing three entries: 'awsb-e-zvmpvibph-stack-AWSEBSecurityGroup-bU52OgQqrl | sg-0c76ab3342e92e8e8 Test-test-env', 'RDS security | sg-095135ef7485086aa RDS', and 'default | sg-0d9e981eacf67a24'. Other visible fields include 'Type' (MySQL/Aurora), 'Protocol' (TCP), and 'Port range' (3306).

هنا سوف نبحث على ال security group الخاصة بالمشروع المعرف بحيث انه لا يمكن أن يوصل الى الداتا بيس الا هو .

The screenshot shows the AWS EC2 ModifyInboundSecurityGroupRules interface. A new inbound rule has been added:

- Type: Custom TCP
- Protocol: TCP
- Port range: 5000
- Source: sg-0c76ab3342e8 (selected from a dropdown)
- Description: 8

At the bottom right, the "Save rules" button is highlighted.

فانحظر الان.

The screenshot shows the AWS EC2 ModifyInboundSecurityGroupRules interface. Another new inbound rule has been added:

- Type: MySQL/Aurora
- Protocol: TCP
- Port range: 3306
- Source: sg-0c76ab3342e8 (selected from a dropdown)
- Description: 8

At the bottom right, the "Save rules" button is highlighted.

تمت العملية ، الان فلنقم بعملية الاختبار ، سوف نذهب للبوست مان و الداتا قريب لكي نختبر .

The screenshot shows the AWS Cloud9 IDE interface. In the top navigation bar, it says "AWS Test" and "Version control". Below the bar, there's a "Database Explorer" section with tabs for "console", "user", "orders", "customers", and "products". The "console" tab is active, displaying a SQL script for creating a database and tables. A specific line of code, `INSERT INTO user (username, password, role) VALUES ('ali', '\$2a\$12\$oNuyDJulAt1xFvVyZerv3uWgomoLHNxe/c03uZF8cd/.CfsNVck4W', 'ADMIN')`, is highlighted with a red border and has a small error icon next to it. A status bar at the bottom of the code editor says "Connection timed out: connect". On the left side, under "Services", there's a tree view of database connections and their metrics. On the right, a message box shows an error: "console INSERT INTO user (username, p... failed.".

هنا أردنا ان نضيف ادمي جديد كما فعلنا في السابق ، لكن الداتا قريب اعطانا خطأ connection timed out لأنه لم ينستطع الوصول الى الداتا بيس بحكم أننا أغلقنا عليه في security group .

The screenshot shows the AWS Lambda Test API interface. At the top, there are several buttons for different HTTP methods: GET Untilt, GET New, PUT New, GET Get d, GET Post, POST Post, GET get, GET get p, POST New, and a "aws test" button. The "POST" button is currently selected. Below the buttons, the URL is set to "http://Test-test-env.eba-fcuymcbe.eu-central-1.elasticbeanstalk.com/api/v1/customers/add". On the right, there are "Save" and "Share" buttons. The main area is divided into sections: "Params", "Authorization", "Headers (10)", "Body", "Scripts", and "Settings". The "Body" section is active and contains raw JSON data:

```

1 {
2   "firstName": "sara",
3   "lastName": "mohammed",
4   "phoneNumber": "0509318998",
5   "email": "sara@example.com",
6   "username": "sara-32",
7   "password": "sarasara-32"
8 }
9

```

Below the body, there are tabs for "Body", "Cookies (1)", "Headers (11)", "Test Results", and a refresh icon. The "Test Results" tab is active and shows a successful response: "201 Created" with a duration of "450 ms" and a size of "442 B". There are also "Save Response" and "..." buttons. At the bottom, there are tabs for "Pretty", "Raw", "Preview", "Visualize", and "JSON". The "Pretty" tab is active, showing the same JSON data as the body. To the right of the results, there are icons for copy, save, and search.

. لكن عندما أضفنا يوزر في السيرفر قد قبلت الداتا بيس الطلب ، لأننا جعلنا فقط الوصول لها عن طريق server .

وهنا نكون انتهينا من عملية نشر المشروع بشكل كامل .

مصادر

[/https://aws.amazon.com/rds](https://aws.amazon.com/rds)

[/https://aws.amazon.com/elasticbeanstalk](https://aws.amazon.com/elasticbeanstalk)

https://www.youtube.com/watch?v=Kh8bdsi6m3o&t=922s&ab_channel=JamesKodes

https://www.youtube.com/watch?v=Pa-YrTEzxZA&t=177s&ab_channel=BeABetterDev