

CS-4075 Cloud Computing

Application deployment on AWS infrastructure

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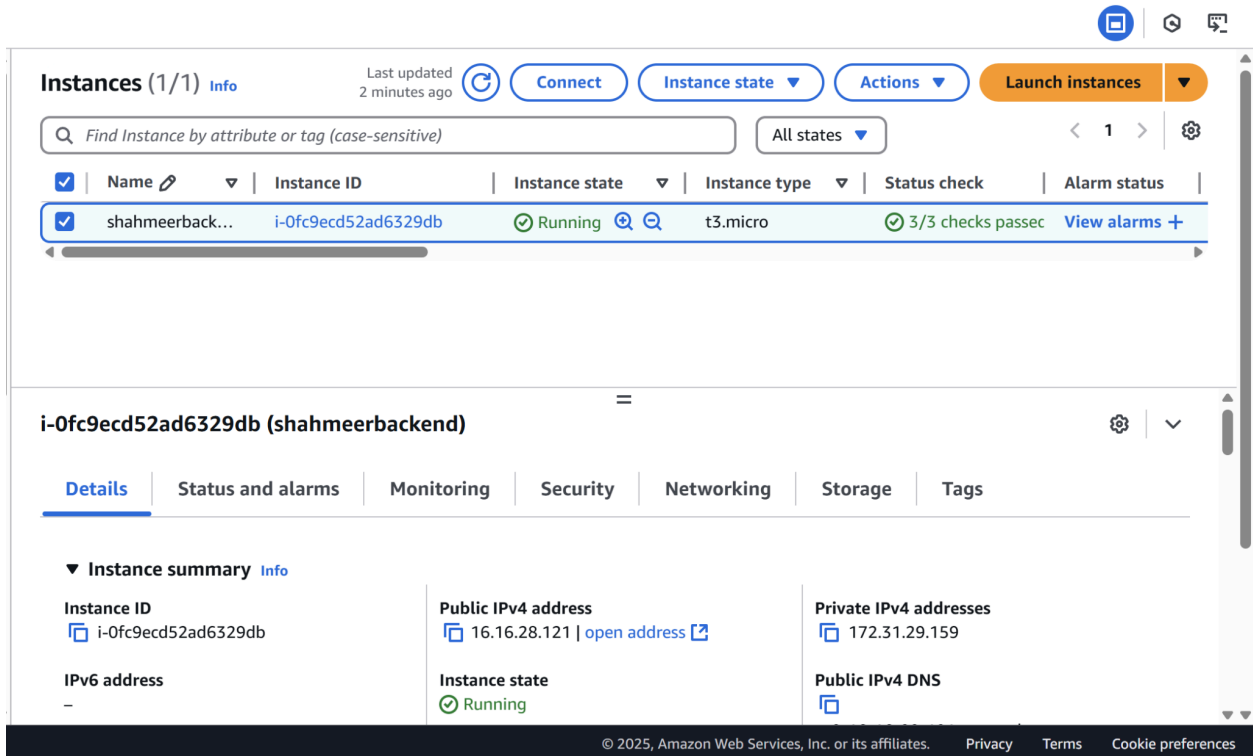
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GitHub Repo Link: <https://github.com/Refaat0/full-stack-crud-auth-web-app.sern>

AWS Deployment and Configurations:

EC2 Instance:



The screenshot displays the AWS Management Console interface for EC2 instances. At the top, there's a header with 'Instances (1/1)' and 'Info'. Below this, a search bar and a filter dropdown set to 'All states' are visible. A table lists the instance details:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
shahmeerback...	i-0fc9ecd52ad6329db	Running	t3.micro	3/3 checks passed	View alarms

Below the table, the details for the selected instance 'i-0fc9ecd52ad6329db (shahmeerbackend)' are shown. The 'Details' tab is active, displaying the following information:

- Instance ID:** i-0fc9ecd52ad6329db
- Public IPv4 address:** 16.16.28.121 | [open address](#)
- Private IPv4 addresses:** 172.31.29.159
- Instance state:** Running
- Public IPv4 DNS:** [Link]

The footer of the console shows the copyright notice: '© 2025, Amazon Web Services, Inc. or its affiliates.' along with links for 'Privacy', 'Terms', and 'Cookie preferences'.

eu-north-1.console.aws.amazon.com/rds/home?region=eu-north-1#database:id=serndb;is-cluster=false

Search [Alt+S]

Europe (Stockholm) Shahmeer1504

Aurora and RDS > Databases > serndb

serndb

Available

Instance

PostgreSQL

CPU 3.22%

Class db.t4g.micro

Current activity 0.00 sessions

Region & AZ eu-north-1a

Connectivity & security

Monitoring

Logs & events

Configuration

Maintenance & backups

Data migrations - new

Tags

Connectivity & security

Endpoint & port

Endpoint serndb.c3os2642schv.eu-north-1.rds.amazonaws.com

Port 5432

Endpoint copied

Networking

Availability Zone eu-north-1a

VPC vpc-01d84fb824b66a0c9

Subnet group default-vpc-01d84fb824b66a0c9

Subnets subnet-0796a006697f90cb8 subnet-07fe2d85e0ee6dd97 subnet-08932ce3857f1670c

Security

VPC security groups default (sg-00700aa50086fd19a) Active

Publicly accessible No

Certificate authority rds-ca-rsa2048-g1

Certificate authority date May 25, 2061, 02:59 (UTC+05:00)

DB instance certificate expiration date May 11, 2026, 03:35 (UTC+05:00)

CloudShell Feedback

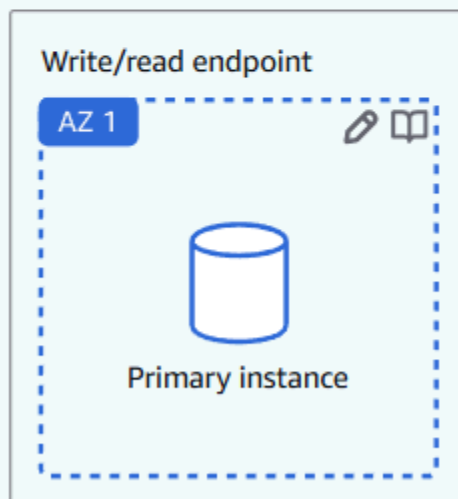
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DB initialization:

● Single-AZ DB instance deployment (1 instance)

Creates a single DB instance without standby instances. This setup provides:

- 99.5% uptime
- No data redundancy



EC2 Console:

```
[aws] [CloudShell] Search [Alt+S]
```

```
>> [internal] load metadata for docker.io/library/node:16      0.0s  
>> [internal] load .dockerignore                                0.0s  
>> => transferring context: 2B                                    0.0s  
>> [1/4] FROM docker.io/library/node:16@sha256:f77a1aeef2da8d8  0.0s  
>> [internal] load build context                               0.0s  
>> => transferring context: 4.00kB                              0.0s  
>> CACHED [2/4] WORKDIR /app                                   0.0s  
>> [3/4] COPY . .                                              0.0s  
>> [4/4] RUN npm install                                       3.3s  
>> exporting to image                                           0.2s  
>> => exporting layers                                          0.2s  
>> => writing image sha256:ada9867291e91fbc6ad435190459die123   0.0s  
>> => naming to docker.io/library/sern-backend                 0.0s
```

```
[ec2-user@ip-172-31-29-159 backend]$ sudo docker run -d --name sern-backend node:16  
38b0b1b08798f3e432be7e98168e85bf13bfc75d0fe05a4c9f8a5a5ab740f3a4  
docker: Error response from daemon: driver failed programming external connectivity on endpoint serene_brattain (b6c96d67c6fac033db8ad8a56ac9b8b927a9cdcb6c651279dad2ccac4aad5e01a): Bind for 0.0.0.0:3000 failed: port is already allocated.  
[ec2-user@ip-172-31-29-159 backend]$ docker stop $(docker ps -q)  
elaae73619dd
```

```
[ec2-user@ip-172-31-29-159 backend]$ docker run -d --name sern-backend node:16  
4cee6dc409fceec7c463b07309d4a2ebf7391abf7727999b69b665db208522b9
```

```
[ec2-user@ip-172-31-29-159 backend]$ docker ps
```

CONTAINER ID	IMAGE	CMD	CREATED	STATUS	PORTS	NAMES
4cee6dc409f	sern-backend	"docker-entrypoint.s..."	6 seconds ago	Up 5 seconds	0.0.0.0:3000->3333/tcp, :::3000->3333/tcp	brave_cheyshvev

```
[ec2-user@ip-172-31-29-159 backend]$
```

i-Ofc9ecd52ad6329db (shahmeerbackend)

PublicIPs: 16.16.28.121 PrivateIPs: 172.31.29.159

CloudShell Feedback

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S3 Bucket:

Static website hosting

Use this bucket to host a website or redirect requests. [Learn more](#)

We recommend using AWS Amplify Hosting for static website hosting

Deploy a fast, secure, and reliable website quickly with AWS Amplify Hosting. Learn more about [Amplify Hosting](#) or [View your existing Amplify apps](#)

Create Amplify app

S3 static website hosting

Enabled

Hosting type

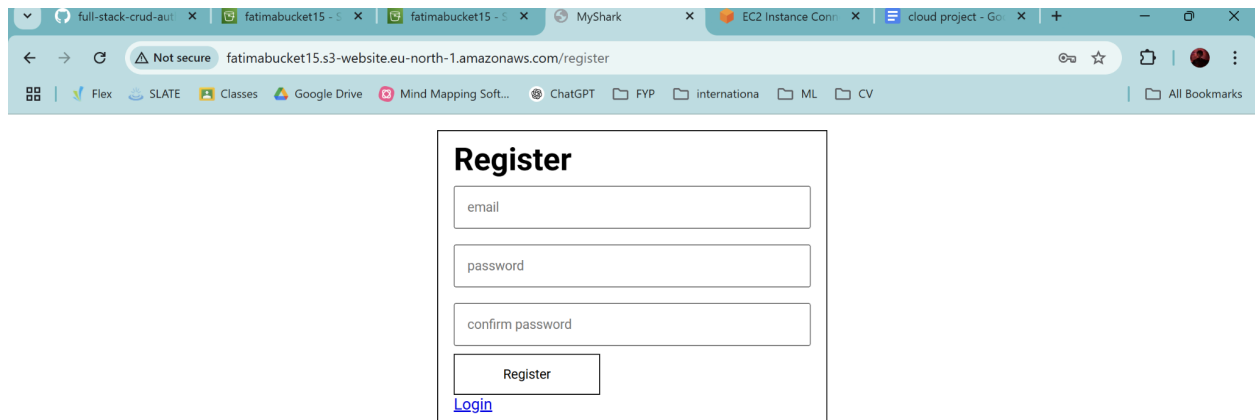
Bucket hosting

Bucket website endpoint

When you configure your bucket as a static website, the website is available at the AWS Region-specific website endpoint of the bucket. [Learn more](#)

<http://fatimabucket15.s3-website.eu-north-1.amazonaws.com>

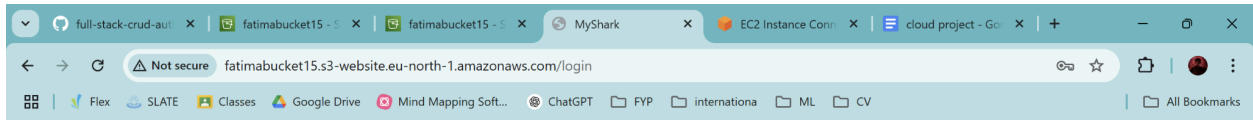
FrontEnd:



The screenshot shows a web browser window with multiple tabs. The active tab is titled "fatimabucket15.s3-website.eu-north-1.amazonaws.com/register". The address bar shows the URL "fatimabucket15.s3-website.eu-north-1.amazonaws.com/register" with a "Not secure" warning. The browser's bookmark bar is visible with various links like "Flex", "SLATE", "Classes", "Google Drive", "Mind Mapping Soft...", "ChatGPT", "FYP", "internationa", "ML", and "CV".

The registration form is titled "Register" and contains the following fields and elements:

-
-
-
-
- [Login](#)



Login

[Register](#) [MySharks](#)

S3 Bucket Objects:

The screenshot shows the Amazon S3 console interface for a bucket named 'fatimabucket15'. The left sidebar contains navigation options for 'Amazon S3', 'General purpose buckets', and 'Storage Lens'. The main content area is titled 'fatimabucket15' and has tabs for 'Objects', 'Properties', 'Permissions', 'Metrics', 'Management', and 'Access Points'. The 'Objects' tab is active, displaying a list of three objects: 'asset-manifest.json' (369.0 B), 'index.html' (661.0 B), and 'static/' (Folder). Each object has a checkbox for selection and a set of action buttons (Copy S3 URI, Copy URL, Download, Open, Delete, and Actions). A search bar at the top of the object list allows finding objects by prefix. The bottom of the console shows a footer with 'CloudShell', 'Feedback', and copyright information.

eu-north-1.console.aws.amazon.com/s3/buckets/fatimabucket15?region=eu-north-1&tab=objects&bucketType=general

Amazon S3 > Buckets > fatimabucket15

fatimabucket15 Info

Objects (3)

Copy S3 URI Copy URL Download Open Delete Actions

Create folder Upload

Find objects by prefix

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	asset-manifest.json	json	May 11, 2025, 20:55:27 (UTC+05:00)	369.0 B	Standard
<input type="checkbox"/>	index.html	html	May 11, 2025, 20:55:27 (UTC+05:00)	661.0 B	Standard
<input type="checkbox"/>	static/	Folder	-	-	-

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eu-north-1.console.aws.amazon.com/rds/home?region=eu-north-1#databases:

Aurora and RDS > Databases

Aurora and RDS

- Dashboard
- Databases**
- Query editor
- Performance insights
- Snapshots
- Exports in Amazon S3
- Automated backups
- Reserved instances
- Proxies

Subnet groups

Parameter groups

Option groups

Custom engine versions

Zero-ETL integrations [New](#)

Events

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](#)

Notifications 0 0 0 3 0

Databases (1) ☒ Group resources [Modify](#) [Actions](#) [Create database](#)

Filter by databases

DB identifier	Status	Role	Engine	Region ...	Size
serndb	Available	Instance	PostgreSQL	eu-north-1a	db.t3.micro

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IAM policy:

Step 2: Add permissions

Edit

Permissions policy summary

Policy name	Type	Attached as
AmazonRDSFullAccess	AWS managed	Permissions policy
AmazonS3FullAccess	AWS managed	Permissions policy
CloudWatchLogsFullAccess	AWS managed	Permissions policy

Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

Access reports

User groups

Users

Roles

Policies

Identity providers

Account settings

Root access management

Access Analyzer

External access

Unused access

Analyzer settings

Roles (5)

Info

Delete

Create role

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.

Search

Role name	Trusted entities	Last activity
AmazonS3FullAccess	AWS Service: ec2	-
AWSServiceRoleForRDS	AWS Service: rds (Service-Linked Rol	10 minutes
AWSServiceRoleForSupport	AWS Service: support (Service-Linker	-
AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service	-
rds-monitoring-role	AWS Service: monitoring.rds	5 minutes a

Roles Anywhere

Info

Manage

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

Access AWS from your non AWS

X.509 Standard

Temporary credentials

CloudShell

Feedback

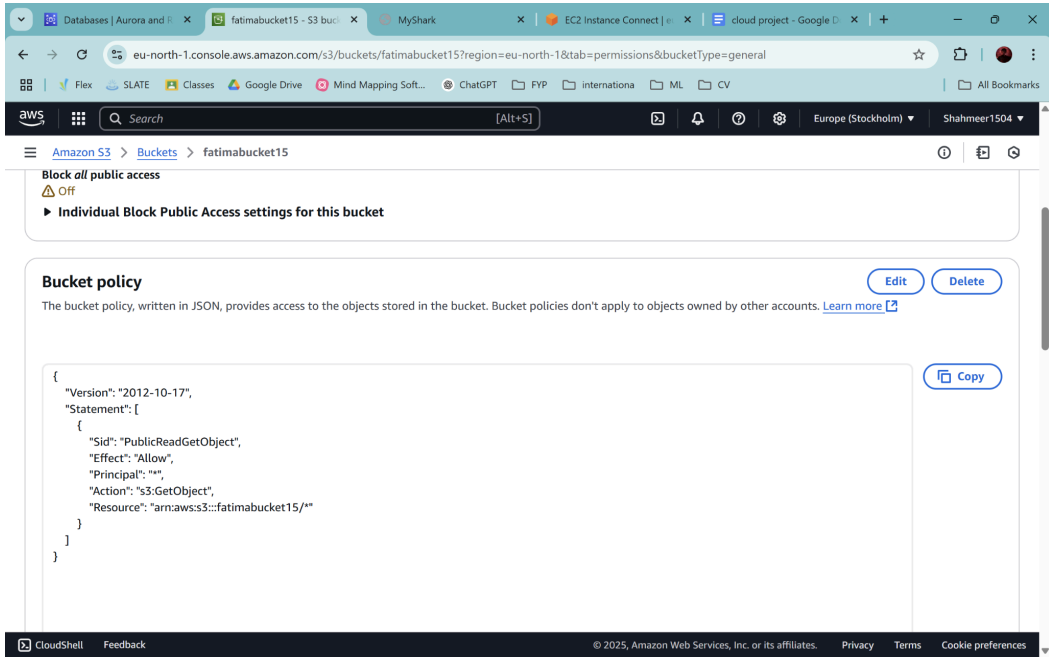
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Bucket Policy:



Security Groups

Inbound Rules:

i-0fc9ecd52ad6329db (shahmeerbackend) ⚙️ ⌵

🔍 Filter rules

< 1 >

Security group rule ID	Port range	Protocol	Source	Security groups
sgr-0201861653004aeaa	22	TCP	0.0.0.0/0	Shahmeer-haha 🔗
sgr-062d9a5b17ff8a1af	3000	TCP	0.0.0.0/0	Shahmeer-haha 🔗

Outbound Rules:

▼ Outbound rules

🔍 Filter rules

< 1 >

Security group rule ID	Port range	Protocol	Destination	Security groups
sgr-07697fd3efebb44b0	All	All	0.0.0.0/0	Shahmeer-haha 🔗

Architectural Diagram:

