

Task- Dockerize a simple PHP application and deploy it on an AWS EC2 instance. This application will interact with a MySQL database hosted on AWS-RDS.

Github Link- https://github.com/SAARA213/PHP_app_deployment.git

1. Create a PHP Web Application

2. Dockerize the PHP Application

Use an official PHP runtime as a base image
FROM php:7.4-apache

Install mysqli extension
RUN docker-php-ext-install mysqli

Set the working directory in the container
WORKDIR /var/www/html

Copy the PHP script and database configuration file
COPY html/index.php /var/www/html/
COPY inc/dbinfo.inc /var/www/inc/

Set permissions (adjust as needed)
RUN chown -R www-data:www-data /var/www/html

Expose port 80 for the web server
EXPOSE 80

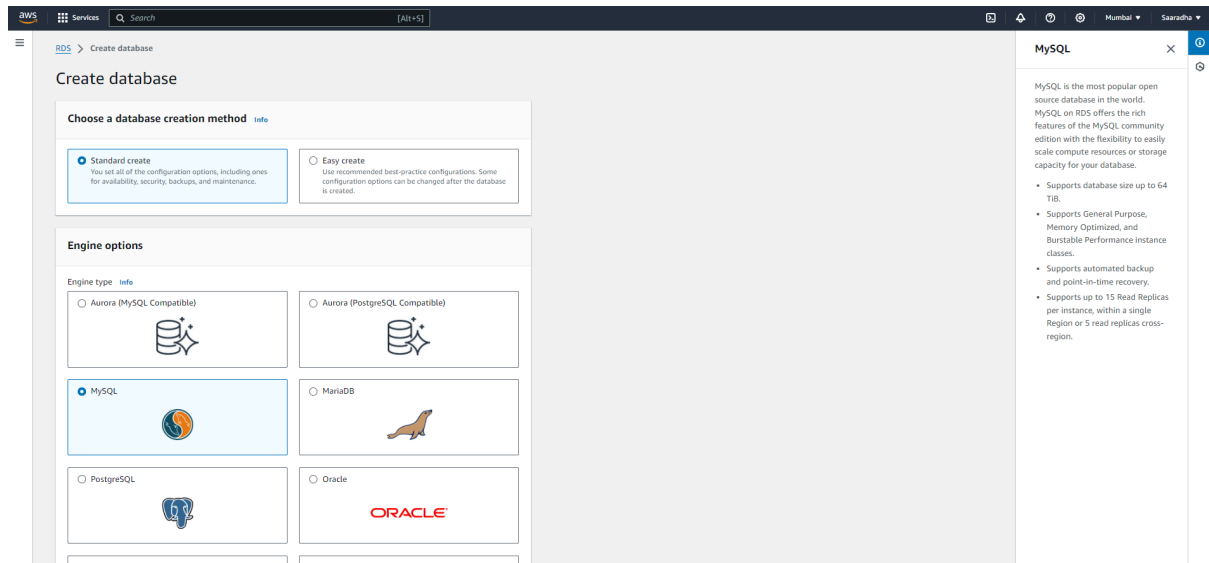
Start Apache in the foreground
CMD ["apache2-foreground"]

3.Set Up MySQL Database on AWS RDS:

4. Manual Deployment to EC2

5. Testing

6. Set Up CI\CD (Use AWS Codepipeline or Jenkins):



Edition

☒ MySQL Community

Engine version [Info](#)

View the engine versions that support the following database features.

▼ Hide filters

- ☐ Show versions that support the Multi-AZ DB cluster [Info](#)
Create a Multi-AZ DB cluster with one primary DB instance and two readable standby DB instances. Multi-AZ DB clusters provide up to 2x faster transaction commit latency and automatic failover in typically under 35 seconds.
- ☐ Show versions that support the Amazon RDS Optimized Writes [Info](#)
Amazon RDS Optimized Writes improves write throughput by up to 2x at no additional cost.

Engine Version

MySQL 8.0.35

- ☐ Enable RDS Extended Support [Info](#)
Amazon RDS Extended Support is a [paid offering](#). By selecting this option, you consent to being charged for this offering if you are running your database major version past the RDS end of standard support date for that version. Check the end of standard support date for your major version in the [RDS for MySQL documentation](#).

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.

☒ Free tier
Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS. [Info](#)

Settings

DB instance identifier [Info](#)

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.

▼ Credentials Settings

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

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

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

☒ **Self managed**
Create your own password or have RDS 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 [Info](#)

Password strength **Strong**

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

Confirm master password [Info](#)

Instance configuration

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

DB instance class [Info](#)

▼ Hide filters

☒ Show instance classes that support Amazon RDS Optimized Writes [Info](#)
Amazon RDS Optimized Writes improves write throughput by up to 2x at no additional cost.

☐ Include previous generation classes

☐ Standard classes (includes m classes)

☐ Memory optimized classes (includes r and x classes)

☒ Burstable classes (includes t classes)

db.t3.micro

2 vCPUs 1 GiB RAM Network: 2,085 Mbps



Storage

Storage type [Info](#)

Provisioned IOPS SSD (io2) storage volumes are now available.

General Purpose SSD (gp2)

Baseline performance determined by volume size





Allocated storage [Info](#)

20

GiB

The minimum value is 20 GiB and the maximum value is 6,144 GiB

 After you modify the storage for a DB instance, the status of the DB instance will be in storage-optimization. Your instance will remain available as the storage-optimization operation completes. [Learn more](#) 

► Storage autoscaling

Connectivity [Info](#)



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.

Virtual private cloud (VPC) [Info](#)

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

Default VPC (vpc-06c90347bba60fbb5)
3 Subnets, 3 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 [Info](#)

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

default-vpc-06c90347bba60fbb5
3 Subnets, 3 Availability Zones

Public access [Info](#)

- ☒ **Yes**
RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to the database. Choose one or more VPC security groups that specify which resources can connect to the database.
- ☐ **No**
RDS doesn't assign a public IP address to the database. Only Amazon EC2 instances and other resources inside the VPC can connect to your database. Choose one or more VPC security groups that specify which resources can connect to the database.

VPC security group (firewall) [Info](#)

Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.

- ☒ **Choose existing**
Choose existing VPC security groups

- ☐ **Create new**
Create new VPC security group

DB instance	18.25 USD
Storage	2.62 USD
Total	20.87 USD

Estimate your monthly costs for the DB Instance using the [AWS Simple Monthly Calculator](#).

- 750 hrs of Amazon RDS in a Single-AZ db.t2.micro, db.t3.micro or db.t4g.micro Instance.
- 20 GB of General Purpose Storage (SSD).
- 20 GB for automated backup storage and any user-initiated DB Snapshots.

When your free usage expires or if your application use exceeds the free usage tiers, you simply pay standard, pay-as-you-go service rates as described in the [Amazon RDS Pricing page](#).

Create database

Introducing Aurora I/O-Optimized

Aurora's I/O-Optimized is a new cluster storage configuration that offers predictable pricing for all applications and improved price-performance, with up to 40% costs savings for I/O-intensive applications.

RDS > Databases

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](#)

Databases (1)

☒ Group resources [Cancel] [Modify] [Actions ▼] [Restore from S3] Create database

< 1 >

	DB Identifier ▲	Status ▼	Role ▼	Engine ▼	Region & AZ ▼	Size ▼	Recommendations ▼	CPU ▼	Current activity ▼	Maintenance ▼	VPC
<input type="radio"/>	php-database	✔ Available	Instance	MySQL Community	ap-south-1c	db.t3.micro	3 Informational	<div style="width: 2.24%;"></div> 2.24%	<div style="width: 0%;"></div> 0 Connections	none	vpc-06c93034

SAMPLE PHP DEPLOYMENT PAGE

←

→

🔄

⚠ Not secure 13.232.250.90

☆

⏸ Paused

⋮

Sample Page

PHP APPLICATION INTERACTS WITH MYSQL DATABASE

←

→

🔄

⚠ Not secure 13.232.250.90/sample.php

☆

⏸ Paused

⋮

Sample page

NAME

ADDRESS

Add Data

ID	NAME	ADDRESS
1	Saaradha	Pondy
2	Saaradha	Pondy
3	Lohi	Pondy
4	Lohi	Pondy

[Alt+S]

Instances (1/2) info

Find instance by attribute or tag (case-sensitive)

Instance state = running

Clear filters

All states

Connect

Instance state

Actions

Launch instances

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP	IPv6 IPs
<input type="checkbox"/>	Jenkins	i-073ca6d0ceb66e002	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-127-206-119.ap...	13.127.206.119	-	-
<input checked="" type="checkbox"/>	PHP	i-06e458621fb9dc085	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-232-250-90.ap...	13.232.250.90	-	-

i-06e458621fb9dc085 (PHP)

DetailsStatus and alarmsMonitoringSecurityNetworkingStorageTags

Instance summary info

Instance ID

i-06e458621fb9dc085 (PHP)

IPv6 address

-

Hostname type

IP name: ip-172-31-36-2.ap-south-1.compute.internal

Answer private resource DNS name

IPv4 (A)

Auto-assigned IP address

13.232.250.90 [Public IP]

IAM Role

-

IMDSv2

Required

Public IPv4 address

13.232.250.90 | open address

Instance state

Running

Private IP DNS name (IPv4 only)

ip-172-31-36-2.ap-south-1.compute.internal

Instance type

t2.micro

VPC ID

vpc-06c90347bba60fbb5

Subnet ID

subnet-0afba0e4e6eab9d7f

Instance ARN

arn:aws:ec2:ap-south-1:637423411572:instance/i-06e458621fb9dc085

Private IPv4 addresses

172.31.36.2

Public IPv4 DNS

ec2-13-232-250-90.ap-south-1.compute.amazonaws.com | open address

Elastic IP addresses

-

AWS Compute Optimizer finding

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

Auto Scaling Group name

-

Jenkins

Search (CTRL+K)

Saaradha

log out

DashboardPHPConfiguration

Configure

General

Advanced Project Options

Pipeline

General

Enabled

Description

PHP deployment

Plain text

Preview

☐ Discard old builds

☐ Do not allow concurrent builds

☐ Do not allow the pipeline to resume if the controller restarts

☒ GitHub project

Project url

https://github.com/SAARA213/PHP_app_deployment.git/

Advanced

Save

Apply

SCM ?

Git ?

Repositories ?

Repository URL ? ✕

https://github.com/SAARA213/PHP_app_deployment.git

Credentials ?

- none -

+ Add

Advanced

Add Repository

Branches to build ?

Branch Specifier (blank for 'any') ? ✕

*/main

Script Path ?

Jenkinsfile

☒ Lightweight checkout ?

[Pipeline Syntax](#)

Save Apply

☒ Environment variables

List of variables ?

Name ✕

DOCKER_BPHP_IMAGE

Value

saaradhakumar/myphpapp

Name ✕

DOCKER_REGISTRY_CREDS

Value

dockerhub

← → ↺

Not secure 13.127.206.119:8080/job/PHP/3/console

🔍 ☆ ⌵ Paused

Jenkins

🔍 Search (CTRL+K)

🔒 Saaradha

🚪 log out

Dashboard > PHP > #3

Status

<> Changes

📄 Console Output

📄 Edit Build Information

🗑️ Delete build '#3'

🕒 Timings

🔗 Git Build Data

🔗 Pipeline Overview

📄 Pipeline Console

🔄 Restart from Stage

🔄 Replay

📋 Pipeline Steps

📁 Workspaces

⬅️ Previous Build

✅ Console Output

Download Copy View as plain text

Started by user Saaradha

Obtained Jenkinsfile from git https://github.com/SAARA213/PHP_app_deployment.git

[Pipeline] Start of Pipeline

[Pipeline] node

Running on Jenkins in /var/lib/jenkins/workspace/PHP

[Pipeline] {

[Pipeline] stage

[Pipeline] { (Declarative: Checkout SCM)

[Pipeline] checkout

Selected Git installation does not exist. Using Default

The recommended git tool is: NONE

No credentials specified

> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/PHP/.git # timeout=10

Fetching changes from the remote Git repository

> git config remote.origin.url https://github.com/SAARA213/PHP_app_deployment.git # timeout=10

Fetching upstream changes from https://github.com/SAARA213/PHP_app_deployment.git

> git --version # timeout=10

> git --version # 'git version 2.43.0'

> git fetch --tags --force --progress -- https://github.com/SAARA213/PHP_app_deployment.git +refs/heads/*:refs/remotes/origin/* # timeout=10

> git rev-parse refs/remotes/origin/main^{commit} # timeout=10

Checking out Revision cd358273f6f36969665c1e13187f181fedc867b (refs/remotes/origin/main)

> git config core.sparsecheckout # timeout=10

> git checkout -f cd358273f6f36969665c1e13187f181fedc867b # timeout=10

Commit message: "Delete docker-compose.yaml"

> git rev-list --no-walk cd358273f6f36969665c1e13187f181fedc867b # timeout=10

[Pipeline] }

[Pipeline] // stage

Dashboard > PHP > #3

34b40ccc1c4: Mounted from library/php

0be1ec4fbfd4: Mounted from library/php

28192e867e79: Mounted from library/php

d173e78df32e: Mounted from library/php

30fa8c430434: Mounted from library/php

a538c5a6e4e0: Mounted from library/php

e5d40f64dc4b4: Mounted from library/php

44148371c697: Mounted from library/php

797a7c0590e0: Mounted from library/php

f60117696410: Mounted from library/php

ec4a38999118: Mounted from library/php

latest: digest: sha256:fb743e75f79dd6b1898a3579466973ac31d77be0279d8f041d1720ba06fee747 size: 3867

[Pipeline] }

[Pipeline] // withCredentials

[Pipeline] }

[Pipeline] // stage

[Pipeline] stage

[Pipeline] { (Declarative: Post Actions)

[Pipeline] sh

+ docker logout

Removing login credentials for <https://index.docker.io/v1/>

[Pipeline] }

[Pipeline] // stage

[Pipeline] }

[Pipeline] // withEnv

[Pipeline] }

[Pipeline] // node

[Pipeline] End of Pipeline

Finished: SUCCESS

Search (CTRL+K)

Saaradha

log out

Dashboard

+ New Item

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

1 Idle

2 Idle

All

+

S	W	Name ↓	Last Success	Last Failure	Last Duration
		PHP	11 hr #3	11 hr #2	31 sec

Icon:

S

M

L

Add description

DOCKER HUB REGISTRY

hub.docker.com

Search Docker Hub

CTRL+K

saaradhakumar

Search by repository name

All Content

Create repository

saaradhakumar / myphpapp

Contains: Image • Last pushed: about 12 hours ago

☆ 0

↓ 5

Public

Scout Inactive

saaradhakumar / dev_repo

Contains: Image • Last pushed: 2 months ago

☆ 0

↓ 2

Public

Scout Inactive

saaradhakumar / prod_repo

Contains: Image • Last pushed: 2 months ago

☆ 0

↓ 0

Private

Scout Inactive

saaradhakumar / flaskimage

Contains: Image • Last pushed: 4 months ago

☆ 0

↓ 3

Public

Scout Inactive

saaradhakumar / my_nginx

Contains: Image • Last pushed: 4 months ago

☆ 0

↓ 3

Public

Scout Inactive

Create An Organization

Create and manage users and grant access to your repositories.