

Internship Report: Deploying WordPress and MySQL on AWS EC2 Instances

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Chapter 1

Introduction

This report details the tasks undertaken during the internship to deploy WordPress and MySQL in both monolithic and microservices architectures using AWS EC2 instances. The primary objectives include setting up the required infrastructure, configuring security groups, and creating a welcome page in WordPress.

Chapter 2

Project Overview

The project involves the following key points:

1. Deploying WordPress and MySQL on a single EC2 instance (monolithic architecture).
2. Deploying WordPress and MySQL on separate EC2 instances (microservices architecture).
3. Configuring the necessary security groups for the instances.
4. Using t2-micro EC2 instances with an Ubuntu AML.
5. Creating a welcome page in WordPress that will be the homepage.

Chapter 3

Monolithic Architecture Deployment

3.1 Launching an EC2 Instance

To launch an EC2 instance for the monolithic architecture:

1. Log in to the AWS Management Console.
2. Navigate to the EC2 Dashboard and click "Launch Instance".
3. Select an Ubuntu AMI and choose the t2.micro instance type.
4. Configure the security group to allow HTTP (port 80), HTTPS (port 443), MySQL (port 3306), and SSH (port 22).
5. Launch the instance.

3.2 Setting Up the Instance

Connect to the EC2 instance using SSH and install Apache, MySQL, and PHP:

```
ssh -i "your-key-pair.pem" ubuntu@your-ec2-instance-public-ip
sudo apt update
sudo apt upgrade -y
sudo apt install apache2 mysql-server php libapache2-mod-php php-mysql -y
```

3.3 Configuring MySQL

Secure the MySQL installation and create a database and user for WordPress:

```
sudo mysql_secure_installation
sudo mysql -u root -p
CREATE DATABASE wordpress_db;
CREATE USER 'wordpress_user'@'localhost' IDENTIFIED BY 'your_password';
GRANT ALL PRIVILEGES ON wordpress_db.* TO 'wordpress_user'@'localhost';
FLUSH PRIVILEGES;
EXIT;
```

3.4 Installing WordPress

Download and configure WordPress:

```
wget https://wordpress.org/latest.tar.gz
tar -xvf latest.tar.gz
sudo mv wordpress /var/www/html/
sudo cp /var/www/html/wordpress/wp-config-sample.php /var/www/html/wordpress/
sudo nano /var/www/html/wordpress/wp-config.php
```

Update the database settings in 'wp-config.php':

```
define( 'DB_NAME', 'wordpress_db' );
define( 'DB_USER', 'wordpress_user' );
define( 'DB_PASSWORD', 'your_password' );
define( 'DB_HOST', 'localhost' );
```

Set proper permissions and restart Apache:

```
sudo chown -R www-data:www-data /var/www/html/wordpress
sudo chmod -R 755 /var/www/html/wordpress
sudo systemctl restart apache2
```

3.5 Accessing WordPress

Open your web browser and navigate to 'http://your-ec2-instance-public-ip/wordpress' to complete the WordPress setup and create a welcome page.

Chapter 4

Microservices Architecture Deployment

4.1 Launching EC2 Instances

To launch two EC2 instances for the microservices architecture:

1. Launch a MySQL instance and configure the security group to allow MySQL (port 3306) from the WordPress instance and SSH (port 22).
2. Launch a WordPress instance and configure the security group to allow HTTP (port 80), HTTPS (port 443), and SSH (port 22).

4.2 Setting Up the MySQL Instance

Connect to the MySQL EC2 instance using SSH and install MySQL:

```
ssh -i "your-key-pair.pem" ubuntu@your-mysql-instance-public-ip
sudo apt update
sudo apt install mysql-server -y
```

Secure MySQL and create a database and user for WordPress:

```
sudo mysql_secure_installation
sudo mysql -u root -p
CREATE DATABASE wordpress_db;
CREATE USER 'wordpress_user' '@%' IDENTIFIED BY 'your_password';
GRANT ALL PRIVILEGES ON wordpress_db.* TO 'wordpress_user' '@%';
FLUSH PRIVILEGES;
EXIT;
```

Configure MySQL to accept remote connections:

```
sudo nano /etc/mysql/mysql.conf.d/mysqld.cnf
# Change bind-address to 0.0.0.0
sudo systemctl restart mysql
```

4.3 Setting Up the WordPress Instance

Connect to the WordPress EC2 instance using SSH and install Apache, PHP, and WordPress:

```
ssh -i "your-key-pair.pem" ubuntu@your-wordpress-instance-public-ip
sudo apt update
sudo apt install apache2 php libapache2-mod-php php-mysql -y
wget https://wordpress.org/latest.tar.gz
tar -xvf latest.tar.gz
sudo mv wordpress /var/www/html/
sudo cp /var/www/html/wordpress/wp-config-sample.php /var/www/html/wordpress/wp-config.php
sudo nano /var/www/html/wordpress/wp-config.php
```

Update the database settings in 'wp-config.php':

```
define( 'DB_NAME', 'wordpress_db' );
define( 'DB_USER', 'wordpress_user' );
define( 'DB_PASSWORD', 'your_password' );
define( 'DB_HOST', 'mysql-instance-private-ip' );
```

Set proper permissions and restart Apache:

```
sudo chown -R www-data:www-data /var/www/html/wordpress
sudo chmod -R 755 /var/www/html/wordpress
sudo systemctl restart apache2
```

4.4 Accessing WordPress

Open your web browser and navigate to 'http://your-wordpress-instance-public-ip/wordpress' to complete the WordPress setup and create a welcome page.

Chapter 5

Conclusion

This report details the successful deployment of WordPress and MySQL in both monolithic and microservices architectures using AWS EC2 instances. The tasks involved launching EC2 instances, configuring security groups, setting up the necessary software, and creating a welcome page in WordPress.

Chapter 6

Screenshots

6.1 AWS Services Used

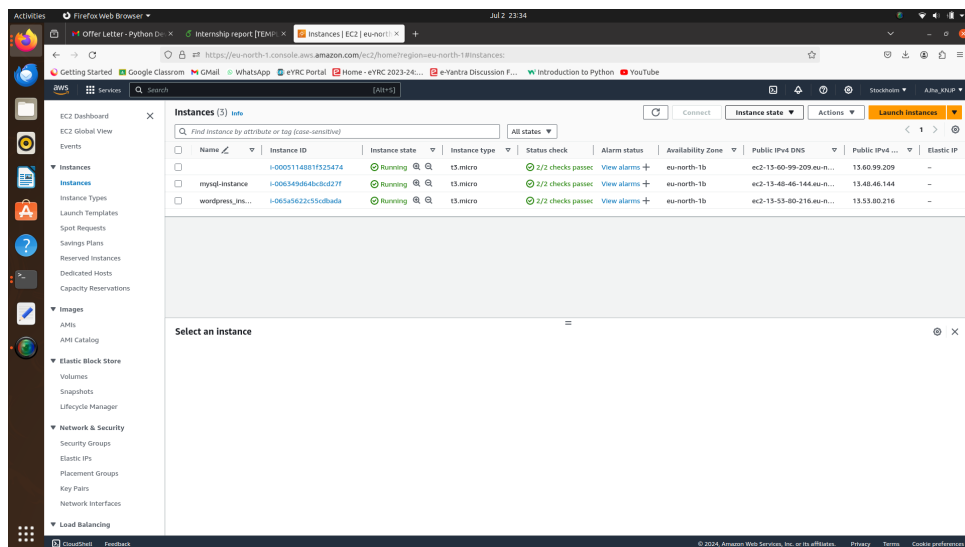


Figure 6.1: Screenshot of EC2 Instances Dashboard

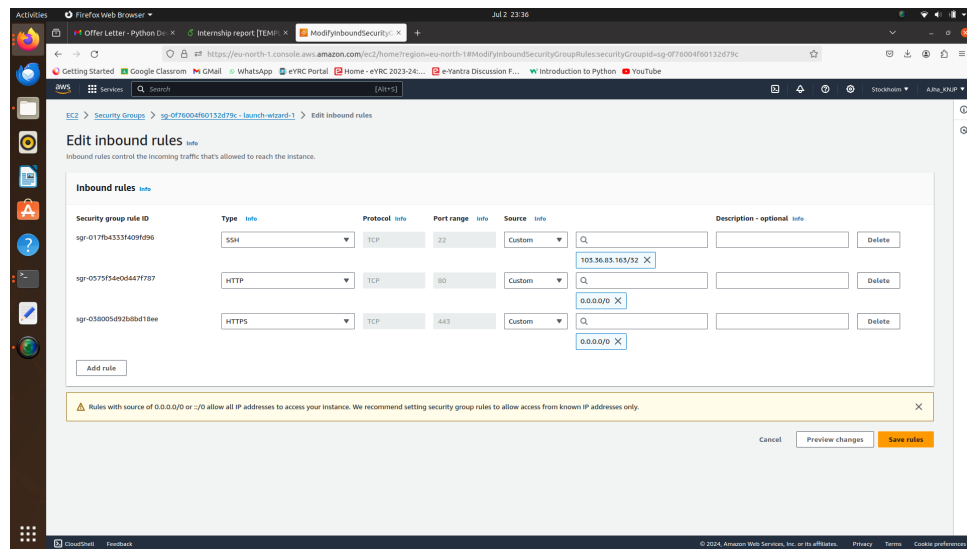


Figure 6.2: Screenshot of Security Groups Configuration

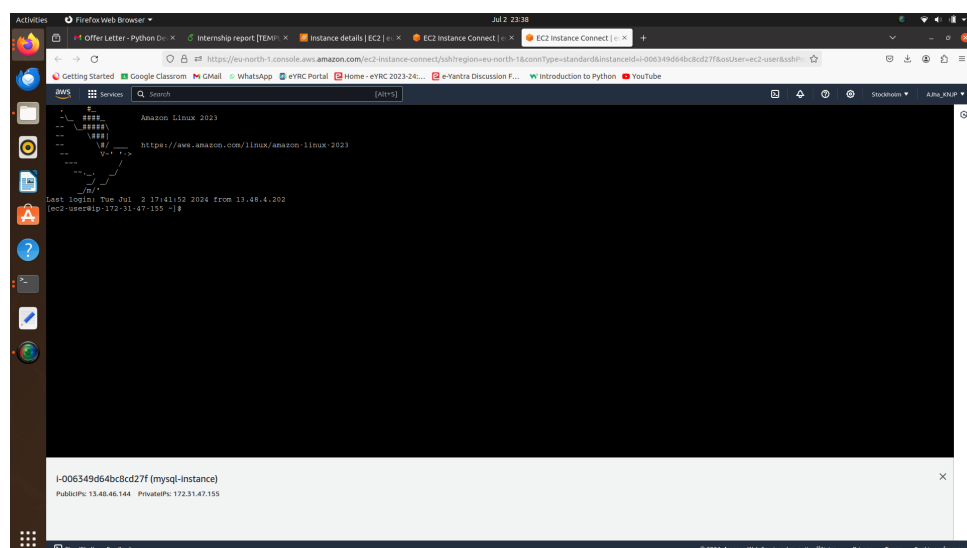


Figure 6.3: Screenshot of MySQL Instance

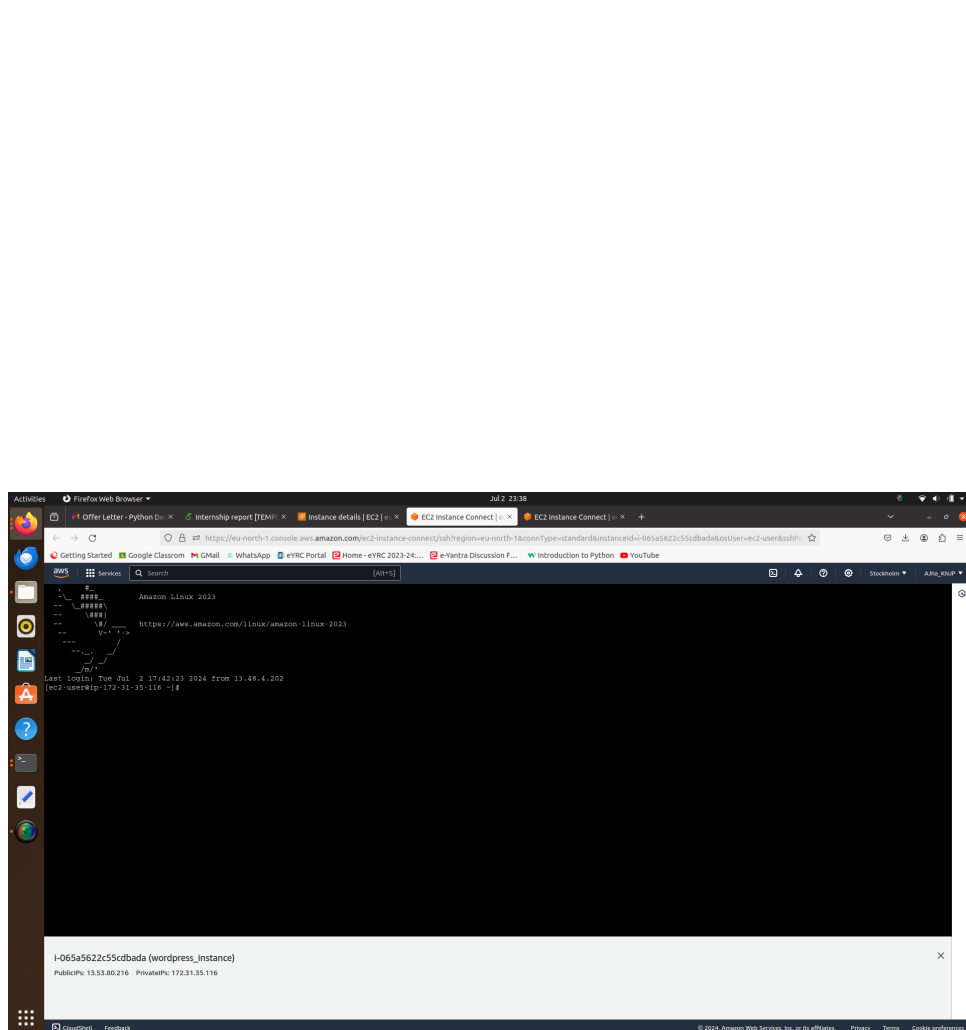


Figure 6.4: Screenshot of WordPress Instance

Chapter 7

References

- <https://aws.amazon.com/documentation/>
- <https://wordpress.org/documentation/>
- <https://www.mysql.com/documentation/>

Chapter 8

Appendix

8.1 List of Commands

- Launch EC2 instance:

```
aws ec2 run-instances --image-id ami-xxxxxxx --count 1 --  
instance-type t2.micro --key-name your-key-pair --  
security-groups your-security-group
```

- Connect to EC2 instance:

```
ssh -i "your-key-pair.pem" ubuntu@your-ec2-instance-public-ip
```