

# Week 1 Task- Cloud (AWS) Submission

## Introduction

This report details the step-by-step process followed to complete the AWS-based task assigned as part of the Techplement Internship. The document includes explanations, references used, and screenshots of the AWS services configured.

## Steps Followed for monolithic

### Step 1: Setting Up the Environment

- Created an AWS account and configured IAM roles.
- Launched an EC2 instance (Ubuntu) and set up the security groups.

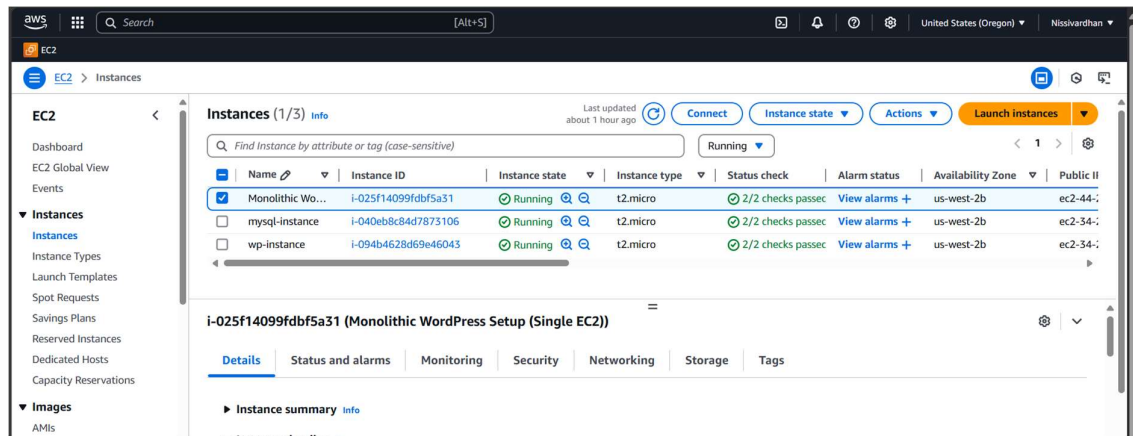
The screenshot displays the 'Inbound Security Group Rules' configuration in the AWS Management Console. It shows two rules for a security group.

**Security group rule 1 (TCP, 22, 49.43.232.130/32)**

Type	Protocol	Port range	Source type	Name	Description - optional
ssh	TCP	22	My IP	49.43.232.130/32	e.g. SSH for admin desktop

**Security group rule 2 (TCP, 80, 0.0.0.0/0)**

Type	Protocol	Port range	Source type	Source	Description - optional
HTTP	TCP	80	Anywhere	0.0.0.0/0	e.g. SSH for admin desktop



- Connected to the instance via SSH.

```
ubuntu@ip-172-31-39-209: ~
nissi@VardhanBrothers MINGW64 ~
$ ssh -i nissi.pem ubuntu@44.245.163.25
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1024-aws x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:        https://ubuntu.com/pro

System information as of Fri Mar 28 11:50:20 UTC 2025

System load: 0.0          Processes:              120
Usage of /:  40.9% of 6.71GB Users logged in:          1
Memory usage: 68%         IPv4 address for enx0: 172.31.39.209
Swap usage:  0%

* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.

  https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

*** System restart required ***
Last login: Fri Mar 28 09:44:13 2025 from 49.43.232.130
ubuntu@ip-172-31-39-209:~$
```

## Installing Required Packages

- Installed Apache2 web server and MySQL database.
- Configured necessary firewall rules.

## Configuring MySQL Server

- Created a MySQL database for WordPress.
- Created a user and granted privileges.

```
ubuntu@ip-172-31-39-209:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 12
Server version: 8.0.41-0ubuntu0.24.04.1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> CREATE DATABASE wordpress;
Query OK, 1 row affected (0.01 sec)

mysql> CREATE USER 'wpuser'@'localhost' IDENTIFIED BY 'StrongP@ssword123';
Query OK, 0 rows affected (0.02 sec)

mysql> GRANT ALL PRIVILEGES ON wordpress.* TO 'wpuser'@'localhost';
Query OK, 0 rows affected (0.00 sec)

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.00 sec)

mysql> EXIT;
Bye
ubuntu@ip-172-31-39-209:~$ |
```

## Deploying WordPress

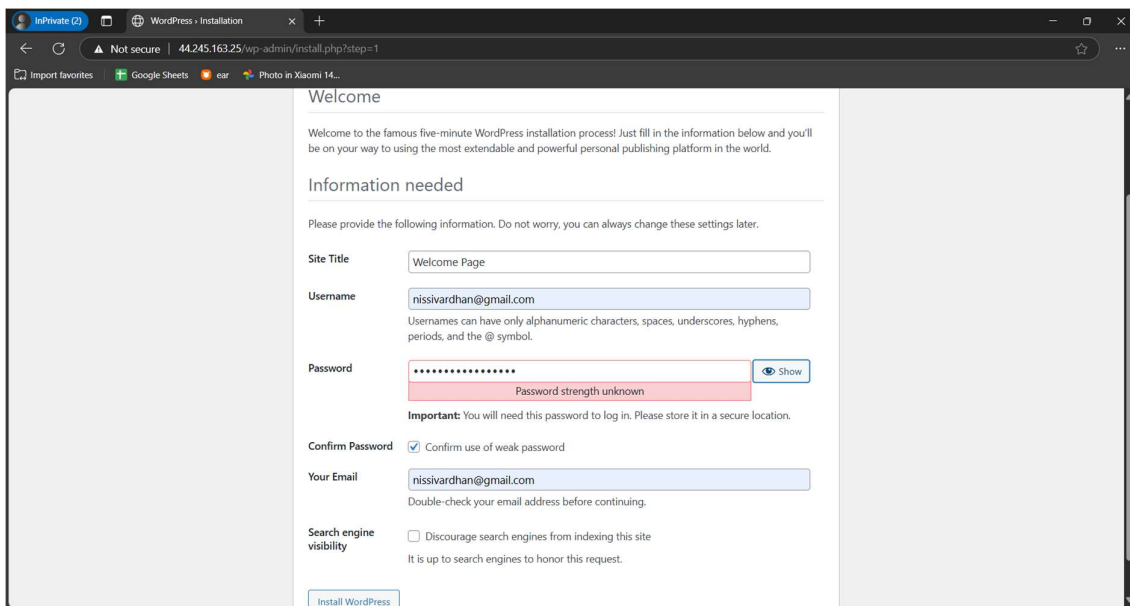
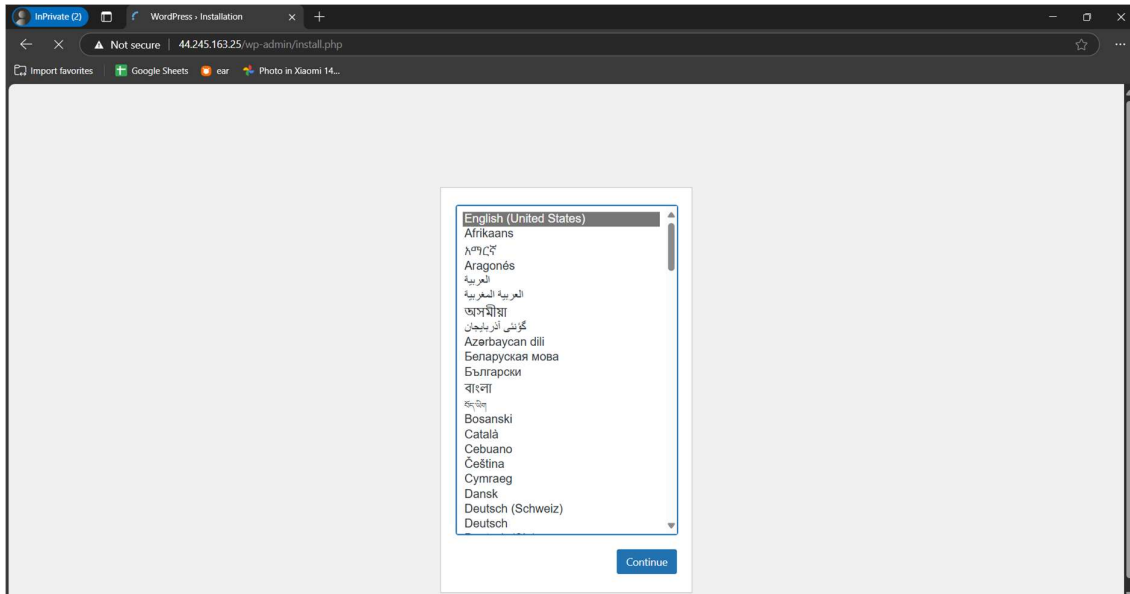
- Downloaded and extracted WordPress.
- Configured the wp-config.php file to connect to the database.

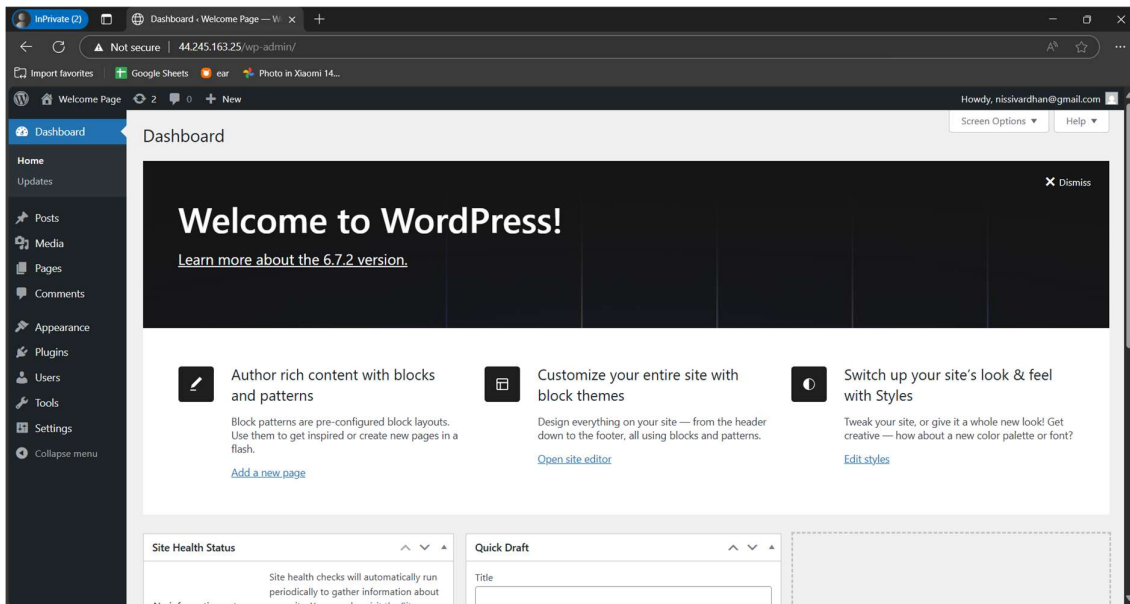
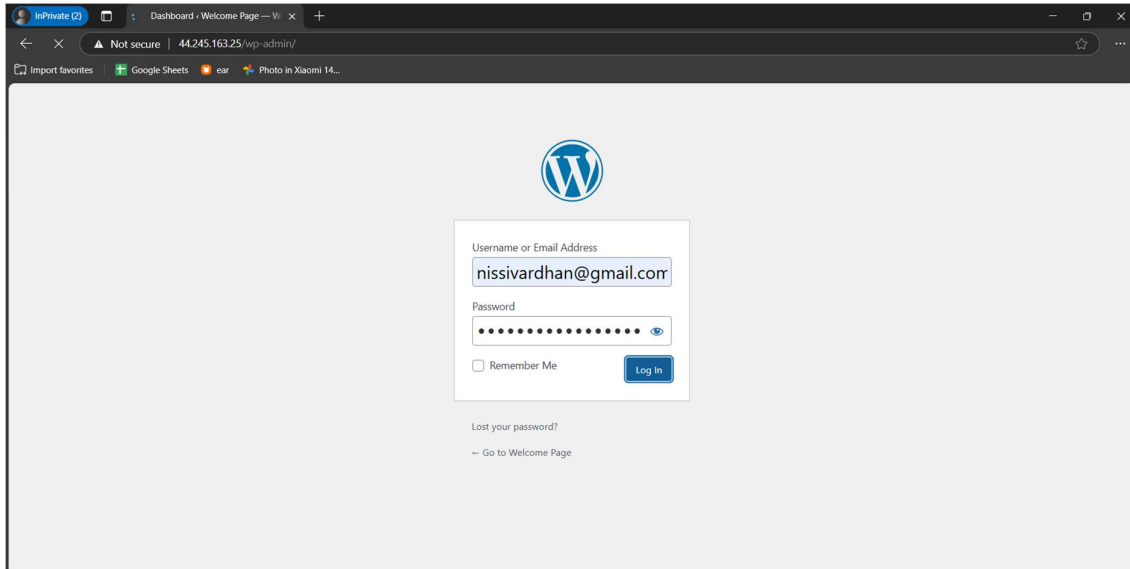
```
// ** Database settings - You can get this info from your web host ** //  
/** The name of the database for WordPress */  
define( 'DB_NAME', 'wordpress' );  
  
/** Database username */  
define( 'DB_USER', 'wpuser' );  
  
/** Database password */  
define( 'DB_PASSWORD', 'StrongP@ssword123' );  
  
/** Database hostname */  
define( 'DB_HOST', 'localhost' );
```

## History of commands used on Single Instance

```
ubuntu@ip-172-31-39-209: /var/www/html  
ubuntu@ip-172-31-39-209:/var/www/html$ history  
1  clear  
2  sudo apt update && sudo apt upgrade -y  
3  sudo apt install apache2 -y  
4  sudo apt install mysql-server -y  
5  sudo apt install php php-mysql libapache2-mod-php -y  
6  sudo mysql_secure_installation  
7  sudo mysql -u root -p  
8  cd /var/www/html  
9  sudo rm index.html  
10 sudo wget https://wordpress.org/latest.tar.gz  
11 sudo tar -xvzf latest.tar.gz  
12 sudo mv wordpress/* .  
13 sudo rm -rf wordpress latest.tar.gz  
14 sudo chown -R www-data:www-data /var/www/html  
15 sudo chmod -R 755 /var/www/html  
16 sudo cp wp-config-sample.php wp-config.php  
17 sudo nano wp-config.php  
18 sudo systemctl restart apache2  
19 clear  
20 history  
ubuntu@ip-172-31-39-209:/var/www/html$
```

Accessed the WordPress site through the public IP.





## Introduction

This report details the step-by-step process followed to deploy a **WordPress application** using a **microservices architecture** on AWS. The deployment is structured with separate instances handling the application, database, and other services independently.

## Steps Followed

### Setting Up AWS Infrastructure

- Launched multiple EC2 instances for different services:
  - **Application Server (WordPress)**
  - **Database Server (MySQL)**
- Configured Security Groups:
  - Allowed HTTP/HTTPS for the application instance.
  - Allowed MySQL port (3306) **only for the WordPress instance.**
  - Allowed SSH access **only from a specific IP** (for security).

## WordPress SG

EC2 > Security Groups > sg-0a26310ffcaf51629 - launch-wizard-3 > Edit inbound rules

### 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-00ea70029c4d6d35b	SSH	TCP	22	Custom	Q	49.43.232.130/32 X	Delete
sgr-0e91c9692b4e9d14e	MySQL/Aurora	TCP	3306	Custom	Q	172.31.40.235/32 X	Delete
sgr-00f1f7d04c4b3e189	HTTP	TCP	80	Custom	Q	0.0.0.0/0 X	Delete

[Add rule](#)

## MySQL SG

### Inbound rules Info

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-0a80f24aa790b87f4	HTTP	TCP	80	Custom	Q	0.0.0.0/0 X	Delete
sgr-0c4d66a3af5d9678f	MySQL/Aurora	TCP	3306	Custom	Q 172.31.38.93/32 X	172.31.38.93/32 X	Delete
sgr-03de177829fa4f62b	SSH	TCP	22	Custom	Q	49.43.232.130/32 X	Delete

[Add rule](#)

## Setting Up MySQL Server (Database Instance)

```
ubuntu@ip-172-31-40-235: ~
GNU nano 7.2 /etc/mysql/mysql.conf.d/mysqld.cnf
#
# The MySQL database server configuration file.
#
# One can use all long options that the program supports.
# Run program with --help to get a list of available options and with
# --print-defaults to see which it would actually understand and use.
#
# For explanations see
# http://dev.mysql.com/doc/mysql/en/server-system-variables.html
#
# Here is entries for some specific programs
# The following values assume you have at least 32M ram
#

[mysqld]
#
# * Basic Settings
#
user                = mysql
pid-file            = /var/run/mysqld/mysqld.pid
socket              = /var/run/mysqld/mysqld.sock
port                = 3306
datadir             = /var/lib/mysql
#
# If MySQL is running as a replication slave, this should be
# changed. Ref https://dev.mysql.com/doc/refman/8.0/en/server-system-variables.html#sysvar_tmpdir
tmpdir              = /tmp
#
# Instead of skip-networking the default is now to listen only on
# localhost which is more compatible and is not less secure.
bind-address        = 0.0.0.0
mysqlx-bind-address = 127.0.0.1
#
# * Fine Tuning
#
```



```

ubuntu@ip-172-31-40-235:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.41-0ubuntu0.24.04.1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql>
mysql> CREATE DATABASE wordpress;
Query OK, 1 row affected (0.01 sec)

mysql> CREATE USER 'wpuser'@'%' IDENTIFIED BY 'StrongP@ssword123';
Query OK, 0 rows affected (0.03 sec)

mysql> GRANT ALL PRIVILEGES ON wordpress.* TO 'wpuser'@'%';
Query OK, 0 rows affected (0.01 sec)

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.01 sec)

mysql> EXIT;
Bye
ubuntu@ip-172-31-40-235:~$

```

## History of commands of MySql Instance

```

ubuntu@ip-172-31-40-235:~$ history
 1  clear
 2  sudo apt update && sudo apt install mysql-server -y
 3  sudo mysql_secure_installation
 4  sudo nano /etc/mysql/mysql.conf.d/mysqld.cnf
 5  sudo mysql -u root -p
 6  sudo ufw allow 3306
 7  sudo systemctl restart mysql
 8  clear
 9  history
ubuntu@ip-172-31-40-235:~$ |

```

## Setting Up the Application Server (WordPress Instance)

```

//
// ** Database settings - You can get this info from your web host ** //
/** The name of the database for WordPress */
define( 'DB_NAME', 'wordpress' );

/** Database username */
define( 'DB_USER', 'wpuser' );

/** Database password */
define( 'DB_PASSWORD', 'StrongP@ssword123' );

/** Database hostname */
define( 'DB_HOST', '172.31.40.235' );

/** Database charset to use in creating database tables. */
define( 'DB_CHARSET', 'utf8' );

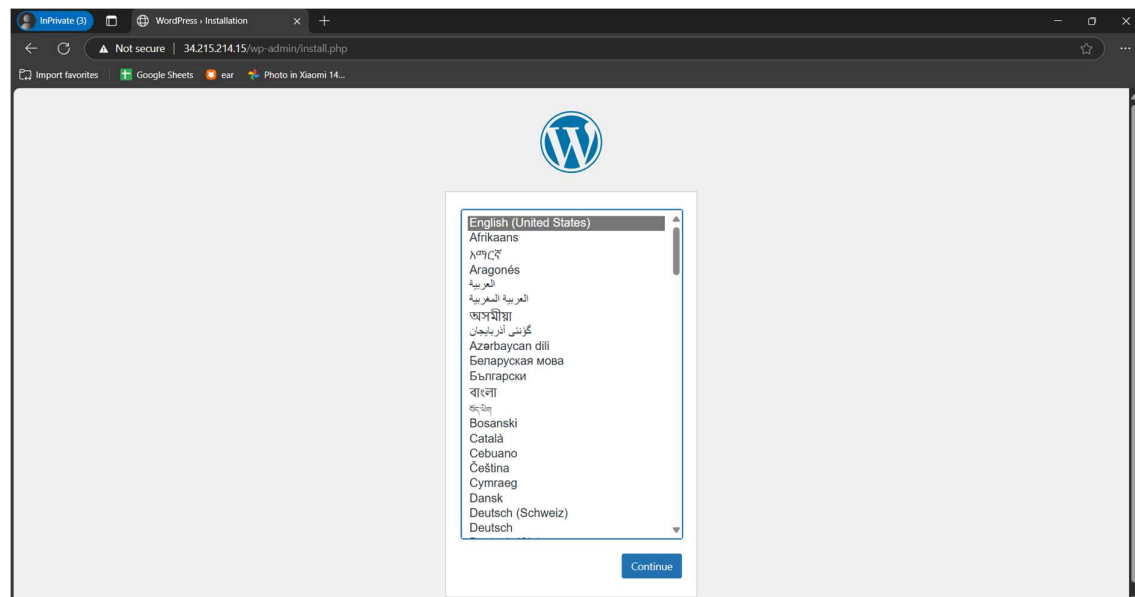
/** The database collate type. Don't change this if in doubt. */

```

# History of commands of WordPress Instance

```
ubuntu@ip-172-31-38-93: /var/www/html
ubuntu@ip-172-31-38-93:/var/www/html$ history
 1 clear
 2 sudo apt update
 3 sudo apt install apache2 php php-mysql libapache2-mod-php -y
 4 cd /var/www/html
 5 ls
 6 sudo rm index.html
 7 ls
 8 sudo wget https://wordpress.org/latest.tar.gz
 9 sudo tar -xvzf latest.tar.gz
10 sudo mv wordpress/* .
11 sudo rm -rf wordpress latest.tar.gz
12 sudo chown -R www-data:www-data /var/www/html
13 sudo chmod -R 755 /var/www/html
14 sudo cp wp-config-sample.php wp-config.php
15 sudo nano wp-config.php
16 sudo systemctl restart apache2
17 clear
18 mysql -u wpuser -h MYSQL-PRIVATE-IP -p
19 sudo apt update
20 sudo apt install mysql-client -y
21 mysql -u wpuser -h MYSQL-PRIVATE-IP -p
22 mysql -u wpuser -h 172.31.40.235 -p
23 history
24 clear
25 history
ubuntu@ip-172-31-38-93:/var/www/html$
```

Accessed WordPress using **public IP/domain**.



WordPress - Installation

Not secure | 34.215.214.15/wp-admin/install.php?step=1

## Welcome

Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.

### Information needed

Please provide the following information. Do not worry, you can always change these settings later.

**Site Title**

**Username**   
Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol.

**Password**  [Show](#)  
Strong

**Important:** You will need this password to log in. Please store it in a secure location.


**Your Email**   
Double-check your email address before continuing.

**Search engine visibility** ☐ Discourage search engines from indexing this site  
It is up to search engines to honor this request.

[Install WordPress](#)

Log In - Welcome Page - WordPress

Not secure | 34.215.214.15/wp-login.php



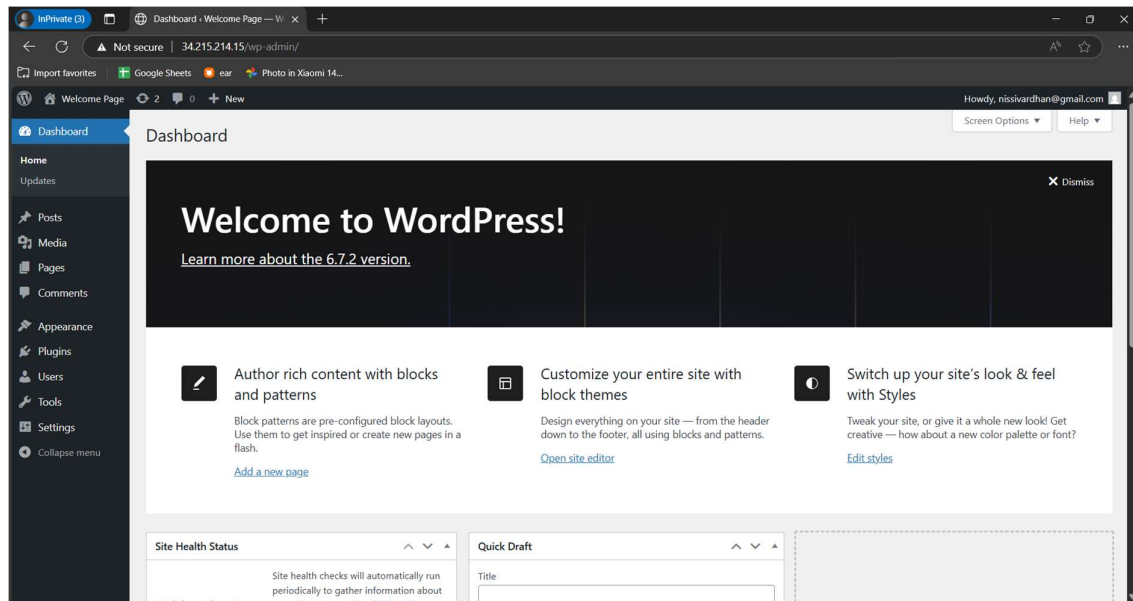
**Username or Email Address**

**Password**  [Show](#)

☐ Remember Me [Log In](#)

[Lost your password?](#)

[Go to Welcome Page](#)



## References Used

- AWS Documentation
- WordPress Setup Guide
- ChatGPT