MONOLITHIC ARCHITECTURE

Deploying WordPress and MySQL on an Ubuntu EC2 Instance

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1.Introduction:

To deploy WordPress and MySQL on an Ubuntu EC2 instance using monolithic architecture, you would install both the WordPress and MySQL on the same server.

2.Prerequisites:

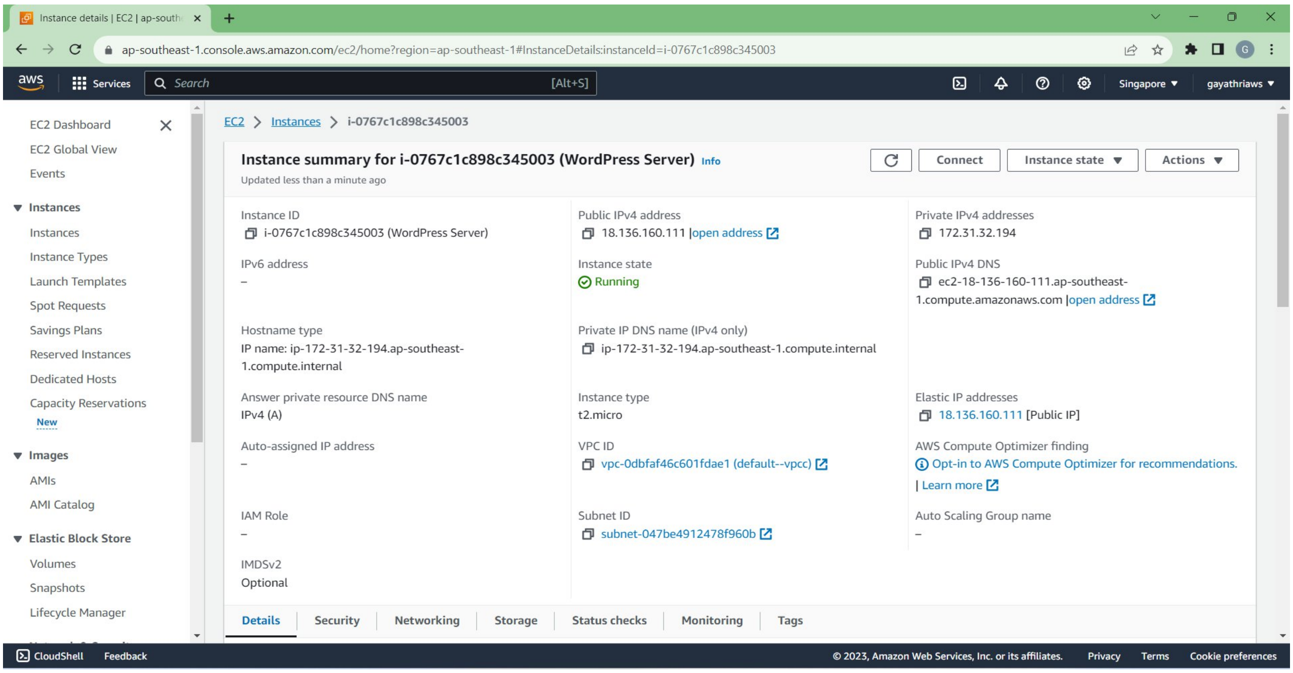
AWS Account : You need an active AWS account with administrator rights to create and manage EC2 instances.

Key Pair : Create or import an key pair to access the EC2 instance securely.

3. Launching an EC2 Instance:

Launch an EC2 instance with the "Ubuntu" AMI and a "t2.micro" instance type on AWS Management Console.

Create or choose an existing security group that allows HTTP and HTTPS traffic (port 80 and 443) for the instance.



Instance summary for i-0767c1c898c345003 (WordPress Server)

Updated less than a minute ago

Instance ID
i-0767c1c898c345003 (WordPress Server)

Public IPv4 address
18.136.160.111 |open address

Private IPv4 addresses
172.31.32.194

IPv6 address
–

Instance state
Running

Public IPv4 DNS
ec2-18-136-160-111.ap-southeast-1.compute.amazonaws.com |open address

Hostname type
IP name: ip-172-31-32-194.ap-southeast-1.compute.internal

Private IP DNS name (IPv4 only)
ip-172-31-32-194.ap-southeast-1.compute.internal

Answer private resource DNS name
IPv4 (A)

Instance type
t2.micro

Elastic IP addresses
18.136.160.111 [Public IP]

Auto-assigned IP address
–

VPC ID
vpc-0dbfaf46c601fdae1 (default--vpcc)

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

IAM Role
–

Subnet ID
subnet-047be4912478f960b

Auto Scaling Group name
–

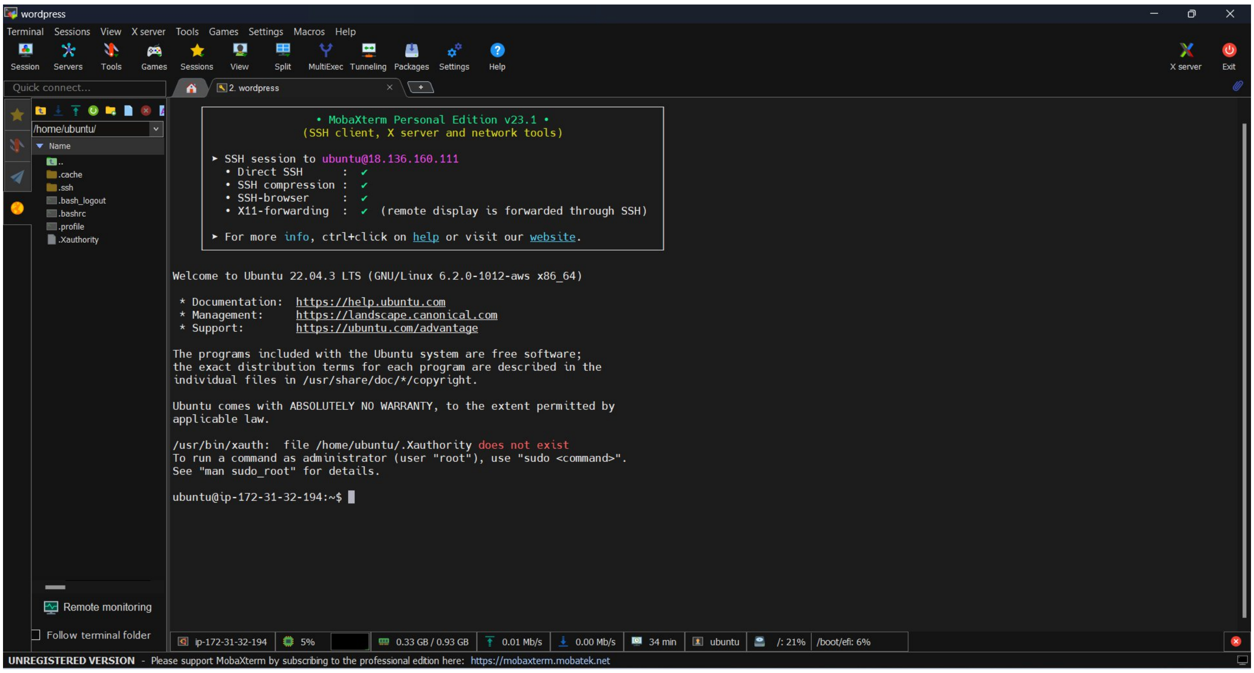
IMDSv2
Optional

4. Connecting to the EC2 Instance:

To SSH into an EC2 instance using MobeXterm, Make sure you have the private key file (.pem) associated with the key pair used when launching the EC2 instance.

Create a new ssh session , enter the public ip and username as ubuntu and choose the ssh key for authentication.

You are now connected to your EC2 instance via SSH, and you can interact with it using the terminal interface provided by MobaXterm.



```
              • MobaXterm Personal Edition v23.1 •
            (SSH client, X server and network tools)

  ➤ SSH session to ubuntu@18.136.160.111
    • Direct SSH      :  ✓
    • SSH compression :  ✓
    • SSH-browser     :  ✓
    • X11-forwarding  :  ✓  (remote display is forwarded through SSH)

  ➤ For more info, ctrl+click on help or visit our website.

Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 6.2.0-1012-aws x86_64)

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

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

/usr/bin/xauth:  file /home/ubuntu/.Xauthority does not exist
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-32-194:~$
```

5. Installing Apache Web Server:

To install the Apache web server on the Ubuntu instance.

```sudo apt install apache2```

6. Installing PHP:

Install php runtime and php mysql connector

```sudo apt install php libapache2-mod-php php-mysql```

7. Installing MySQL:

Install MySQL server

```sudo apt update

sudo apt install mysql-server```

Login to MySQL server

```sudo mysql –u root```

## 8. Configuring MySQL:

Change authentication plugin to mysql_native_password

ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password by 'Password';

Create a new database user for wordpress (change the password)

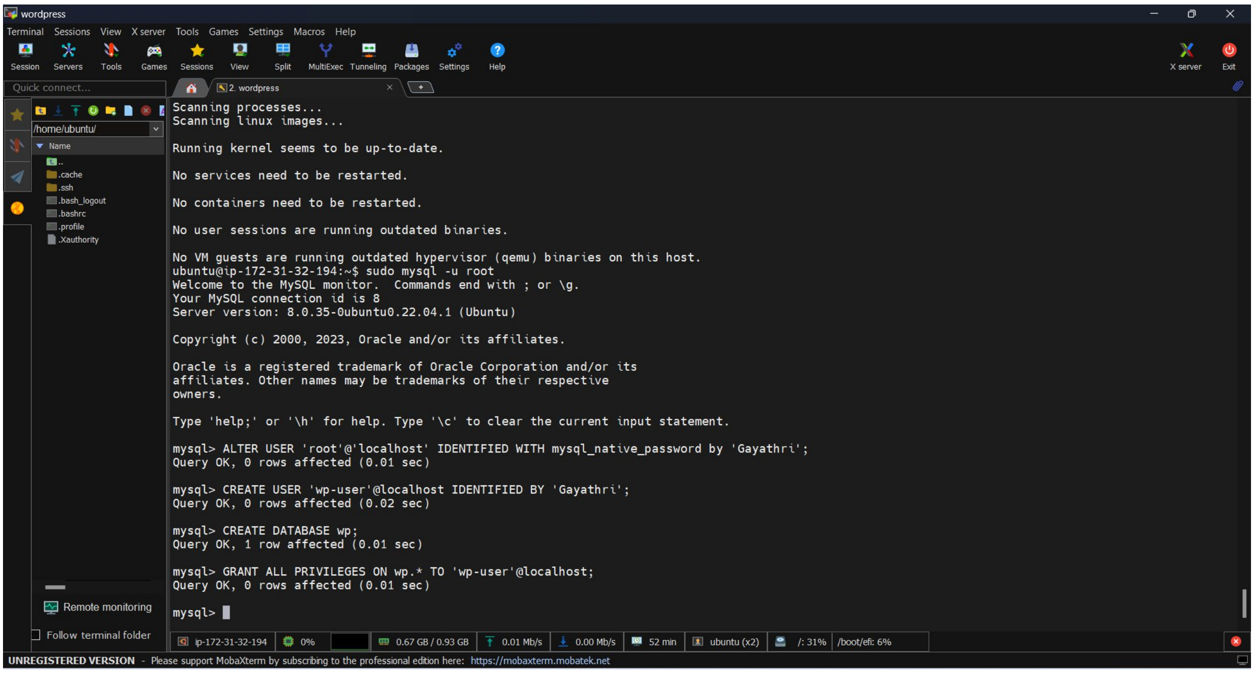
CREATE USER 'wp-user'@localhost IDENTIFIED BY 'Password';

Create a database for wordpress

CREATE DATABASE wordpress;

Grant all privilges on the database 'wp' to the newly created user

GRANT ALL PRIVILEGES ON wordpress.* TO 'wp-user'@localhost;



wordpress
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
X server Exit
Quick connect...
2. wordpress
/home/ubuntu/
Name
..
.cache
.ssh
.bash_logout
.bashrc
.profile
.Xauthority
Remote monitoring
Follow terminal folder
ip-172-31-32-194 0% 0.67 GB / 0.93 GB 0.01 Mb/s 0.00 Mb/s 52 min ubuntu (x2) /: 31% /boot/efi: 6%
UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net

```
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-32-194:~$ sudo mysql -u root
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)

Copyright (c) 2000, 2023, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
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> ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password by 'Gayathri';
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE USER 'wp-user'@localhost IDENTIFIED BY 'Gayathri';
Query OK, 0 rows affected (0.02 sec)

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

mysql> GRANT ALL PRIVILEGES ON wp.* TO 'wp-user'@localhost;
Query OK, 0 rows affected (0.01 sec)

mysql>
```

9. Downloading and Installing WordPress:

Use the ‘wget’ command to download the latest version of WordPress from the official website. You can get the download link from the WordPress website at https://wordpress.org

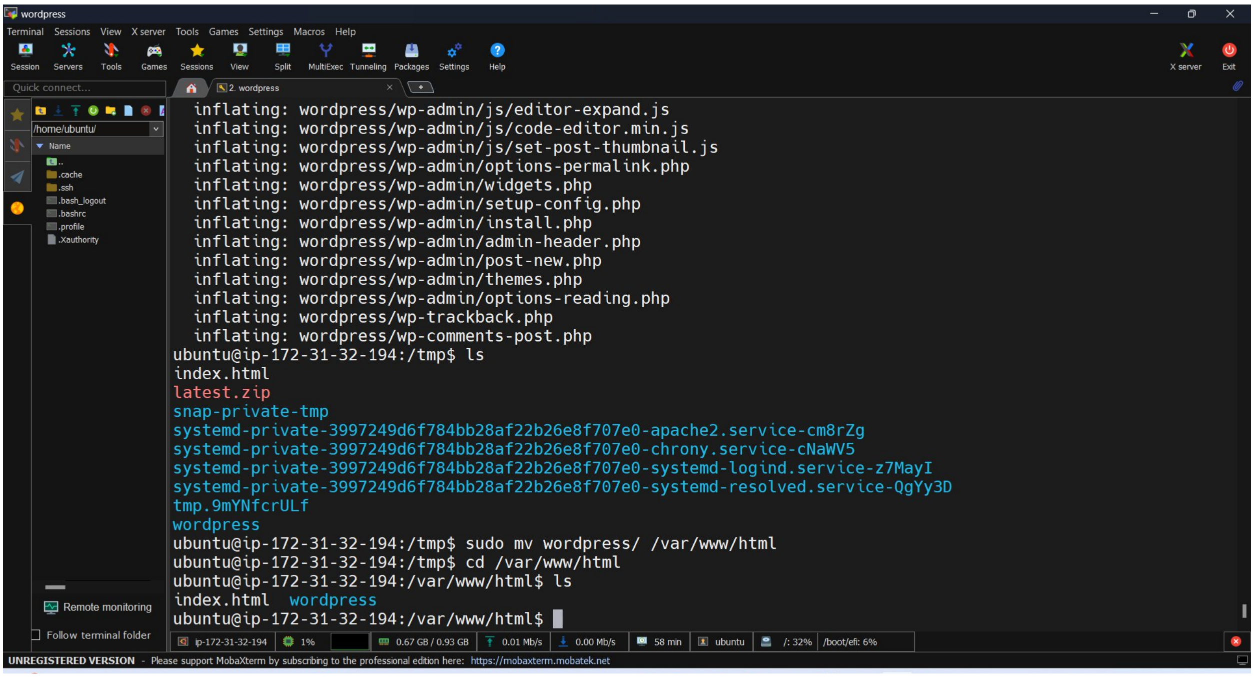
```wget https://wordpress.org/latest.zip```

You can extract the downloaded ‘ZIP’ file using the ‘unzip’ command.

```unzip latest.zip```

Move wordpress folder to apache document root.

```sudo mv wordpress/ /var/www/html```

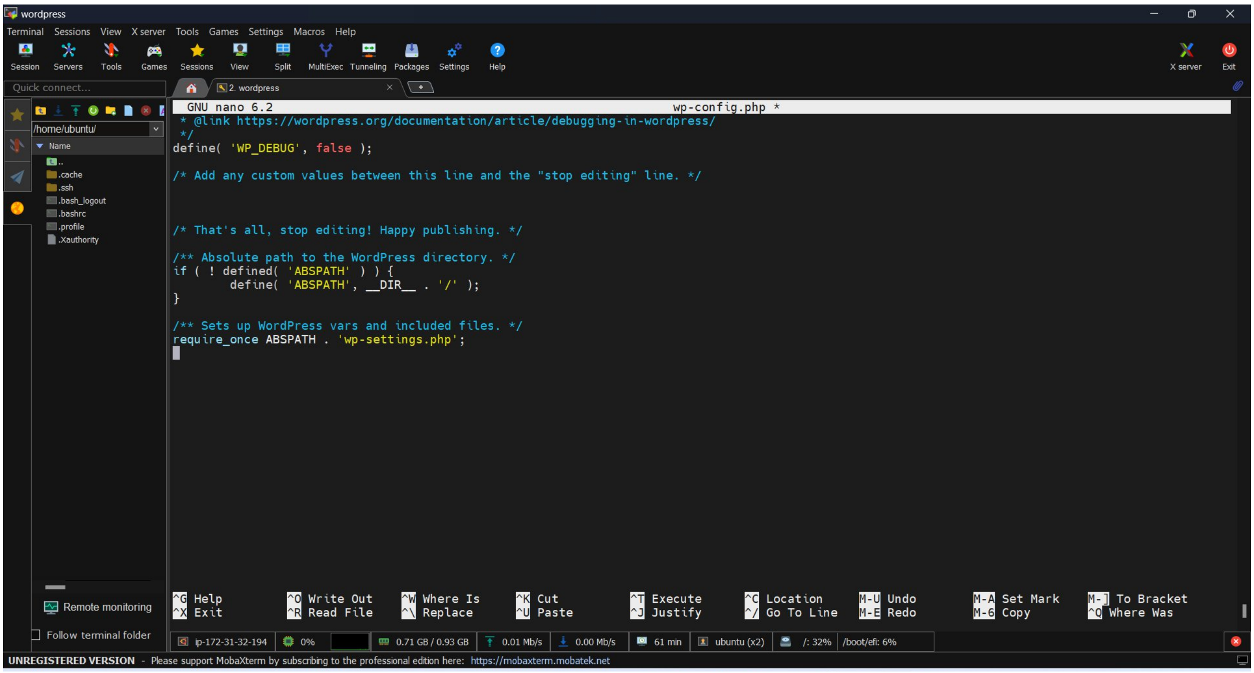


```
  inflating: wordpress/wp-admin/js/editor-expand.js
  inflating: wordpress/wp-admin/js/code-editor.min.js
  inflating: wordpress/wp-admin/js/set-post-thumbnail.js
  inflating: wordpress/wp-admin/options-permalink.php
  inflating: wordpress/wp-admin/widgets.php
  inflating: wordpress/wp-admin/setup-config.php
  inflating: wordpress/wp-admin/install.php
  inflating: wordpress/wp-admin/admin-header.php
  inflating: wordpress/wp-admin/post-new.php
  inflating: wordpress/wp-admin/themes.php
  inflating: wordpress/wp-admin/options-reading.php
  inflating: wordpress/wp-trackback.php
  inflating: wordpress/wp-comments-post.php
ubuntu@ip-172-31-32-194:/tmp$ ls
index.html
latest.zip
snap-private-tmp
systemd-private-3997249d6f784bb28af22b26e8f707e0-apache2.service-cm8rZg
systemd-private-3997249d6f784bb28af22b26e8f707e0-chrony.service-cNaWV5
systemd-private-3997249d6f784bb28af22b26e8f707e0-systemd-logind.service-z7MayI
systemd-private-3997249d6f784bb28af22b26e8f707e0-systemd-resolved.service-QgYy3D
tmp.9mYNfcrULf
wordpress
ubuntu@ip-172-31-32-194:/tmp$ sudo mv wordpress/ /var/www/html
ubuntu@ip-172-31-32-194:/tmp$ cd /var/www/html
ubuntu@ip-172-31-32-194:/var/www/html$ ls
index.html  wordpress
ubuntu@ip-172-31-32-194:/var/www/html$
```

10. Configuring WordPress:

Edit the wordpress configuration file

```sudo nano wp-config.php```



```
  GNU nano 6.2                                   wp-config.php *
 * @link https://wordpress.org/documentation/article/debugging-in-wordpress/
 */
define( 'WP_DEBUG', false );

/* Add any custom values between this line and the "stop editing" line. */



/* That's all, stop editing! Happy publishing. */

/** Absolute path to the WordPress directory. */
if ( ! defined( 'ABSPATH' ) ) {
        define( 'ABSPATH', __DIR__ . '/' );
}

/** Sets up WordPress vars and included files. */
require_once ABSPATH . 'wp-settings.php';

^G Help       ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo      M-A Set Mark  M-] To Bracket
^X Exit       ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^/ Go To Line M-E Redo      M-6 Copy      ^Q Where Was
```

wordpress
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help X server Exit
Quick connect...
2. wordpress
/home/ubuntu/
Name
..
.cache
.ssh
.bash_logout
.bashrc
.profile
.Xauthority
Remote monitoring
Follow terminal folder
ip-172-31-32-194 0% 0.71 GB / 0.93 GB 0.01 Mb/s 0.00 Mb/s 61 min ubuntu (x2) /: 32% /boot/efi: 6%
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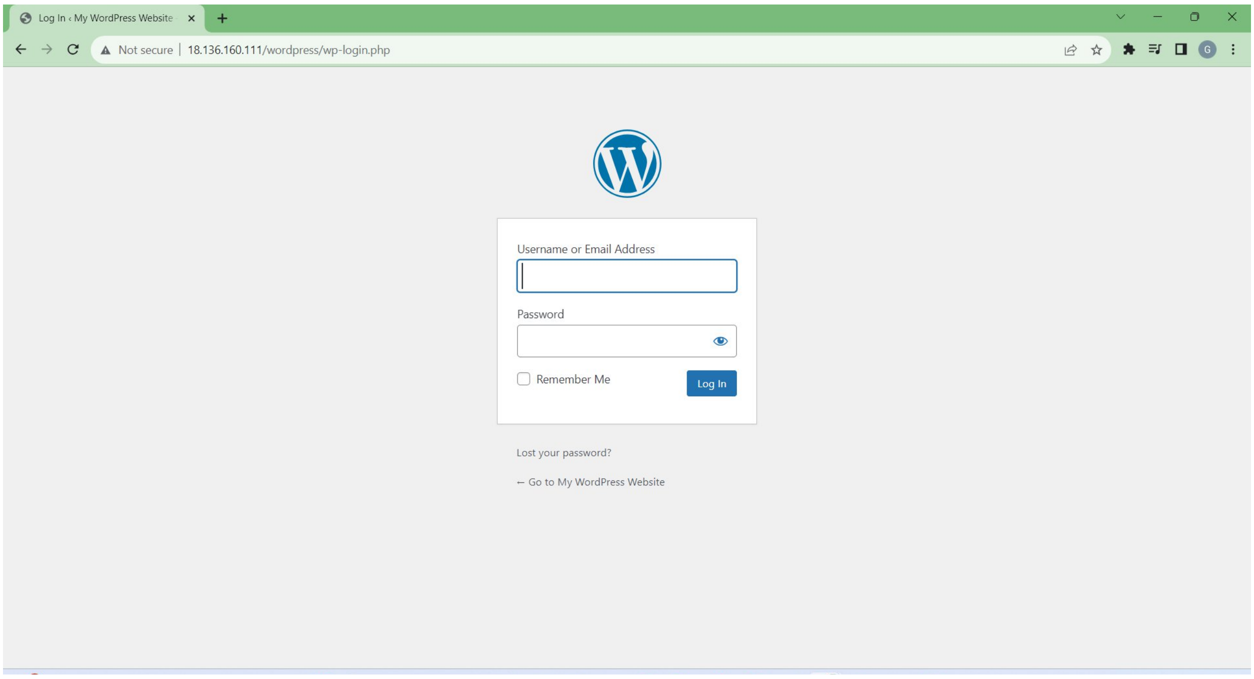
11. Accessing WordPress:

The URL to access the WordPress site.

http://18.136.160.111/wordpress/wp-admin/



Log In ‹ My WordPress Website

Not secure | 18.136.160.111/wordpress/wp-login.php

Username or Email Address

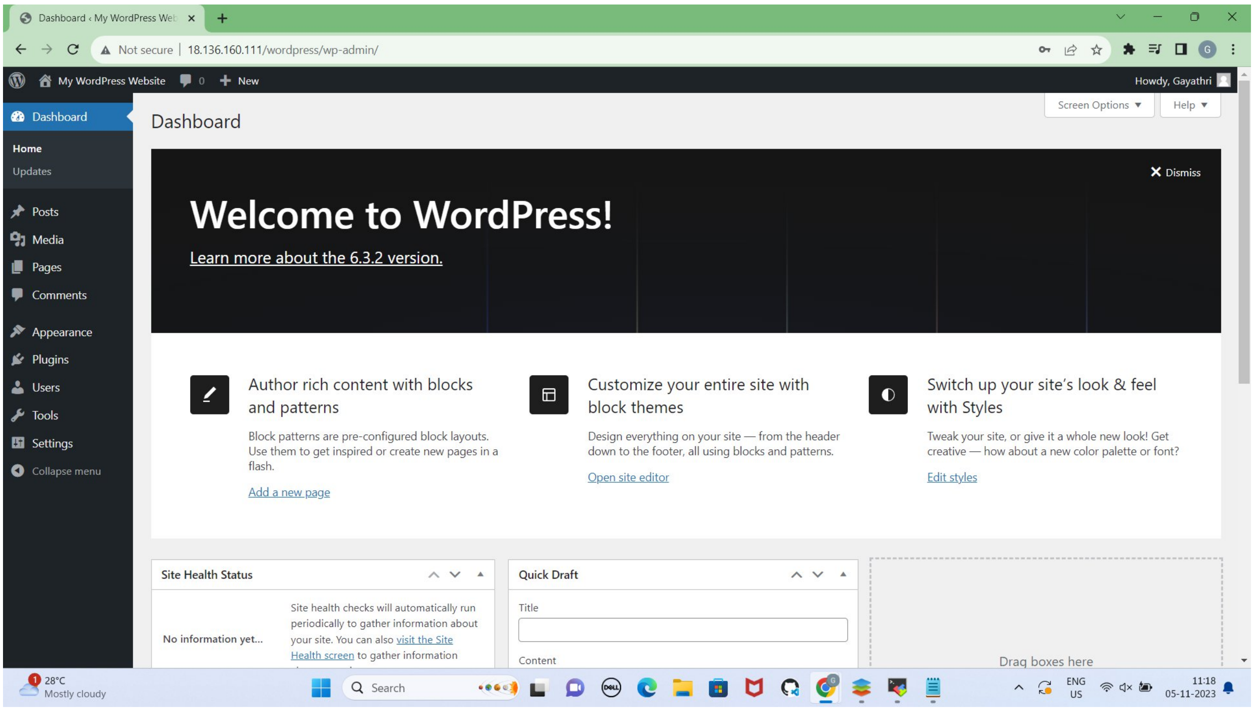
Password

☐ Remember Me

Log In

Lost your password?

← Go to My WordPress Website



Dashboard

Welcome to WordPress!

Learn more about the 6.3.2 version.

Author rich content with blocks and patterns

Block patterns are pre-configured block layouts. Use them to get inspired or create new pages in a flash.

Add a new page

Customize your entire site with block themes

Design everything on your site — from the header down to the footer, all using blocks and patterns.

Open site editor

Switch up your site's look & feel with Styles

Tweak your site, or give it a whole new look! Get creative — how about a new color palette or font?

Edit styles

No information yet...

Site health checks will automatically run periodically to gather information about your site. You can also visit the Site Health screen to gather information

12. Conclusion:

Deploying WordPress and MySQL on a single Ubuntu EC2 instance with a monolithic architecture offers simplicity , straight forward and cost-efficienct for smaller websites.