

# Assignment 2

## Cloud Server Project

## Documentation

Global IP Address: 34.57.158.185

DNS: [www.tangled.live](http://www.tangled.live)

Video Explainer Link:

<https://drive.google.com/drive/folders/1802EVldOrbVuOZvNxhx7imvitlxtHslv?usp=sharing>

Parth Kotak

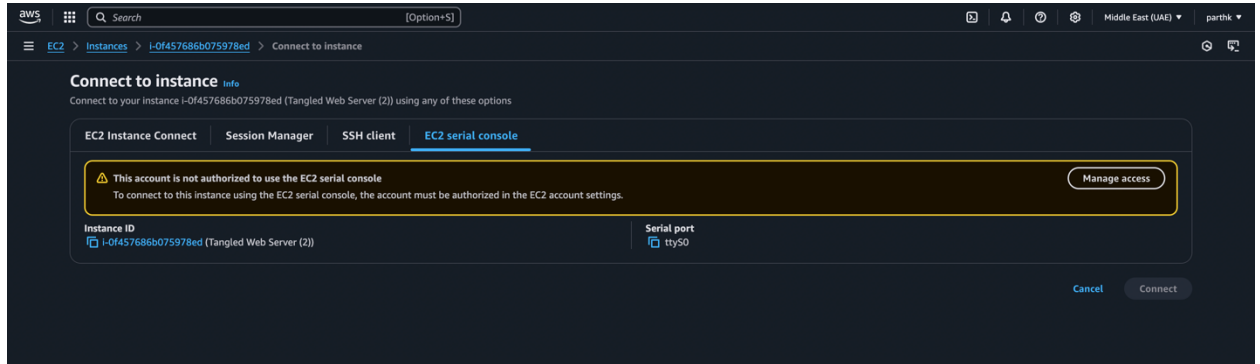
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# Setting Up Web Server

- Connect to Instance



```
cd ~/Downloads
```

```
chmod 400 parthisgoat.pem
```

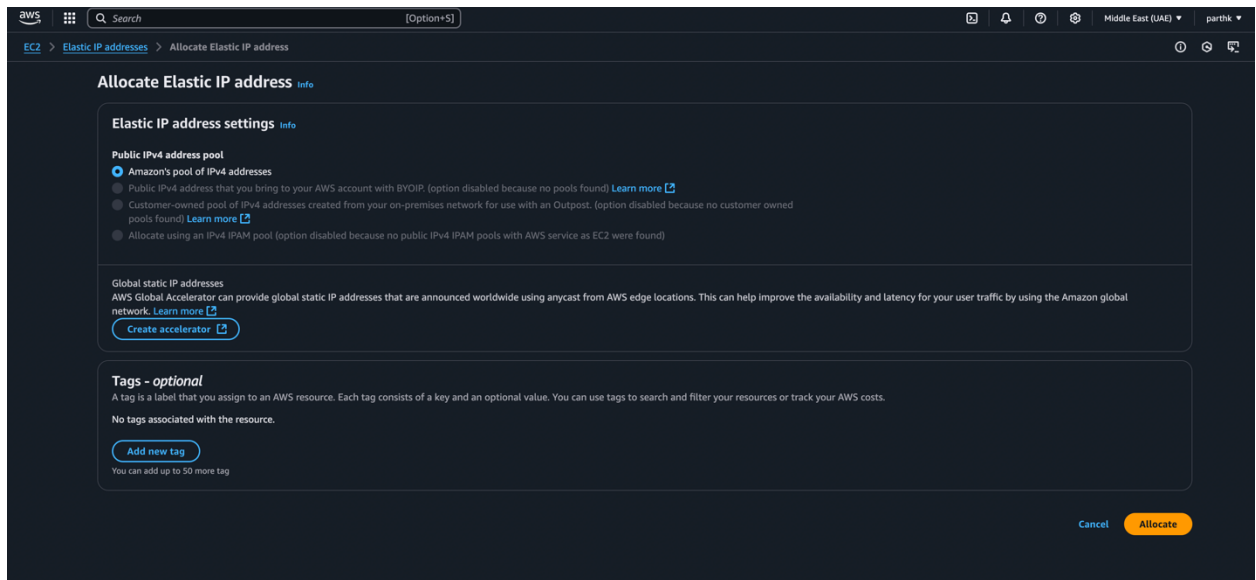
- Install Apache

```
sudo apt update
sudo apt install apache2 -y
sudo systemctl start apache2
sudo systemctl enable apache2
```

- Configure Firewall

```
sudo ufw allow ssh
sudo ufw allow http
sudo ufw allow https
sudo ufw enable
```

- Associate Elastic IP



```
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1026-aws x86_64)

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

System information as of Tue Apr  8 18:19:39 UTC 2025

System load:  0.02           Temperature:    -273.1 C
Usage of /:   34.4% of 8.65GB Processes:      128
Memory usage: 63%           Users logged in: 0
Swap usage:   0%            IPv4 address for ens5: 172.31.10.20

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

Last login: Sat Apr  5 17:39:52 2025 from 87.201.99.103
```

## Setting Wordpress on Webserver

- Make directory where we'll host the wordpress files

```
sudo mkdir -p /var/www/html
```

- Change the directory's ownership to the user www-data

```
sudo chown www-data: /var/www/html
```

- Initiate zip files from the wordpress site, and unzip in our created directory

```
curl https://wordpress.org/latest.tar.gz | sudo -u www-data tar zx -C /var/www/html
```

- Create wordpress configuration

```
sudo touch /etc/apache2/sites-available/wordpress.conf
```

- Tee command to drop text into our configuration file

```
sudo tee /etc/apache2/sites-available/wordpress.conf << EOF
<VirtualHost *:80>
    DocumentRoot /var/www/html/wordpress
    <Directory /var/www/html/wordpress>
        Options FollowSymLinks
        AllowOverride Limit Options FileInfo
        DirectoryIndex index.php
        Require all granted
    </Directory>
    <Directory /var/www/html/wordpress/wp-content>
        Options FollowSymLinks
        Require all granted
    </Directory>
</VirtualHost>
EOF
```

- Enable wordpress site, disable default apache site, and enable rewrites

```
sudo a2ensite wordpress
sudo a2dissite 000-default
sudo a2enmod rewrite
```

- Install PHP and MySQL (LAMP Stack)

```
sudo apt install apache2 ghostscript libapache2-mod-php mysql-server php php-bcmath
php-curl php-imagick php-intl php-json php-mbstring php-mysql php-xml php-zip -y
```

- Log into MySQL server

```
sudo mysql -u root
```

- Create Database

```
CREATE DATABASE wordpress;
```

- MySQL Setup:

```

Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
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 (0.04 sec)

mysql> CREATE USER admin@localhost IDENTIFIED BY 'admin';
Query OK, 0 rows affected (0.04 sec)

mysql> GRANT ALL PRIVILEGES ON *.* TO admin@localhost;
Query OK, 0 rows affected (0.02 sec)

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

mysql> EXIT;
Bye

```

- Start the MySQL Database

```
sudo service mysql start
```

- Connecting the wordpress sample configuration

```
sudo -u www-data cp /var/www/html/wordpress/wp-config-sample.php
/var/www/html/wordpress/wp-config.php
```

- Copy and paste wordpress api keys in /var/www/html/wordpress/wp-config.php file.

```

define('AUTH_KEY',         '%6{<iq?fGY=0N>_I?47_gR^@3VGV/c80n0sR^f$?MQ#.$rhk^s1~$t|eIy[Y.:+g');
define('SECURE_AUTH_KEY',  'Tz(#*@07@N8t#&a73jbm|l>mm~`8suktI?09!eXfY<tdjQjm}|)?zv/<l]Xpe?:a');
define('LOGGED_IN_KEY',    'EWKwtS(H+W!&.Npa7yiCt3:+}ntI~)19{r*Txfm?Ms}%YwZ|NJJ-Ry-:rWR@c{7a');
define('NONCE_KEY',        '@d=n+Q6-3twA|4?hQvTBgnvzXD @2(~=,v~&|08lvmQx@SVBNnVdYFoZQ1W8b|d%');
define('AUTH_SALT',        '{r/^~yd4+%-#N-,~Y0G3`MZb|9X(?l-u-FqXE~^~ULi-x:oV)>?d>&k2(>nI,u-c');
define('SECURE_AUTH_SALT', 'UTb=V`L[+^KiWC2_f/&n(;QLZ0:aR/&VeTUp|_XF=(+0&.nTg]5zYG4me3kuHh*');
define('LOGGED_IN_SALT',   'Sz)qi R<D_Rd3^6/gB,yumCP[ex%@F khY-e|1fhR@C-ar+6Qv-n)LZ (pSp+HfK');
define('NONCE_SALT',       'zM&T|9aINY +9)i5@06s34#+L&?)K,k-2)gNh!)VyV0G=-K2D/ ,tK()FGhKDU`~');

```

- GUI installation

```
sudo apt install phpmyadmin php-mbstring php-zip php-gd php-json php-curl -y
```

- Wordpress Installed

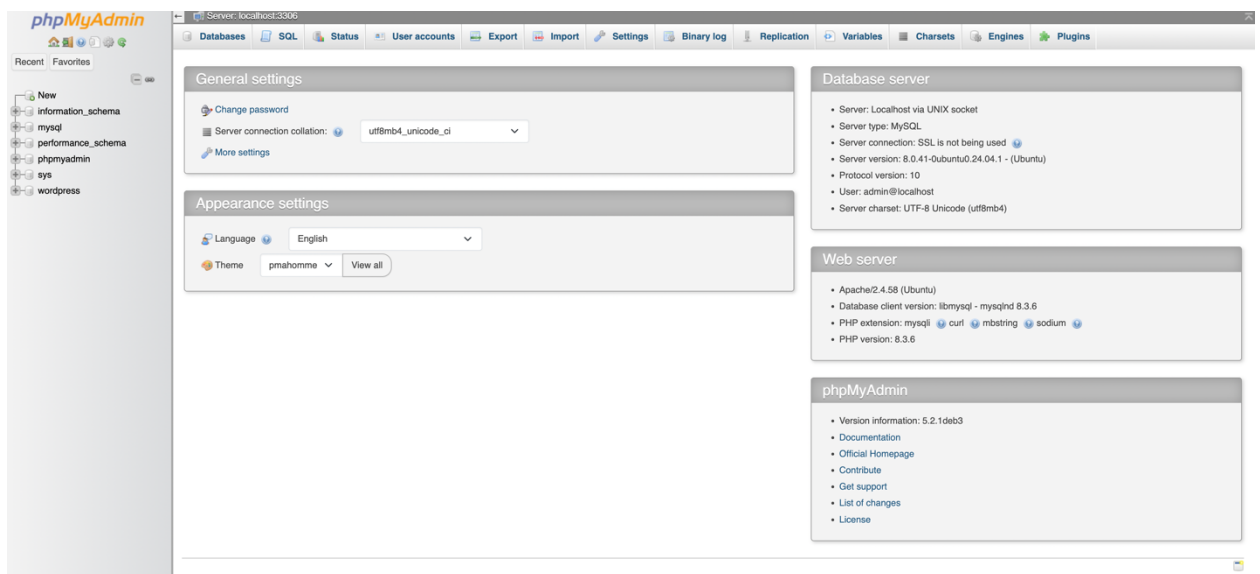


## Welcome

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

- PhpMyAdmin Installed



## Setting up Nginx as a reverse proxy for Apache

- This setup lets Nginx handle client requests and proxy dynamic content to Apache. It also improves performance and reduces server load



- Install Nginx

```
sudo apt update && sudo apt install nginx
```

- Edit Apache's ports config:

```
sudo nano /etc/apache2/ports.conf
```

- Update virtual host to use port 8080

```
# If you just change the port or add more ports here, you will likely also
# have to change the VirtualHost statement in
# /etc/apache2/sites-enabled/000-default.conf

Listen 8080

<IfModule ssl_module>
    Listen 8080
</IfModule>

<IfModule mod_gnutls.c>
    Listen 8080
</IfModule>
```

- Create a New Nginx Configuration File

```
sudo nano /etc/nginx/sites-available/tangled.live.conf
```

- Add the Reverse Proxy Configuration

```

GNU nano 7.2 /etc/nginx/sites-available/tangled.live.conf *
server {
    listen 80;
    server_name tangled.live www.tangled.live;

    location / {
        proxy_pass http://localhost:8080;
        proxy_set_header Host $host;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header X-Forwarded-Proto $scheme;
    }

    location ~* \.(jpg|jpeg|png|gif|ico|css|js|html)$ {
        root /var/www/html;
        expires 30d;
        access_log off;
    }

    location ~ /\. {
        deny all;
    }
}

```

- Enable the Configuration

```
sudo ln -s /etc/nginx/sites-available/tangled.live.conf /etc/nginx/sites-enabled/
```

## Setting Up Let's Encrypt SSL with Certbot

- Install Certbot & Nginx Plugin

```

sudo apt update
sudo apt install certbot python3-certbot-nginx -y

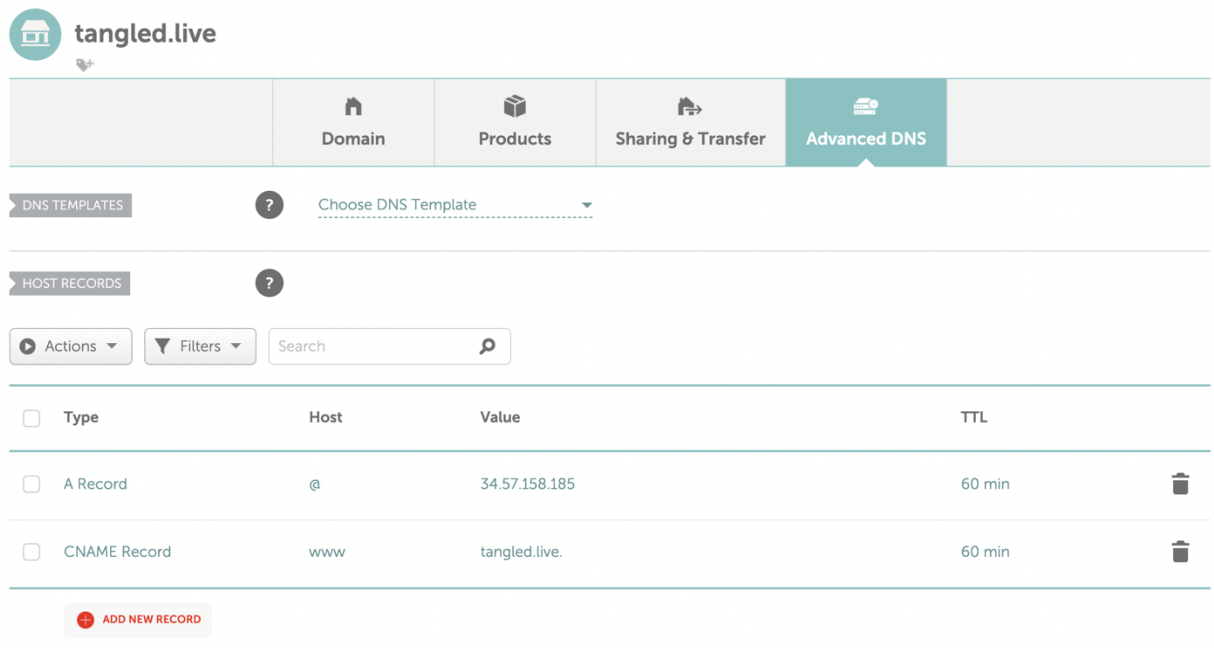
```

- Get SSL Certificate

```
sudo certbot --nginx -d tangled.live -d www.tangled.live
```

## Linking with DNS Entry

- Using the Namecheap Dashboard to Link DNS Entry



The screenshot shows the Namecheap dashboard for the domain 'tangled.live'. The 'Advanced DNS' tab is selected. Below the navigation bar, there are sections for 'DNS TEMPLATES' and 'HOST RECORDS'. The 'HOST RECORDS' section contains a table with the following data:

Type	Host	Value	TTL
A Record	@	34.57.158.185	60 min
CNAME Record	www	tangled.live.	60 min

At the bottom of the 'HOST RECORDS' section, there is a button labeled 'ADD NEW RECORD'.

Now you can login using domainName/wp-admin

[www.tangled.live/wp-admin](http://www.tangled.live/wp-admin)