

CLOUD SERVER PROJECT

ICT171

Introduction to Server Environments and Architectures

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Global IP address : 13.51.132.65

Domain: <https://store24.click>

GitHub Repository link: https://github.com/mohameds267/ICT171_Assignment2

STEP 1: AMAZON EC2 (CHOSEN IAAS SERVER)

1. Create an account in AWS
2. In the search bar, type EC2 and select EC2 Dashboard.
3. Click "Launch Instance".
4. Chose Ubuntu Server 22.04 LTS (HVM), SSD Volume Type (Free tier eligible)
5. Selected t2.micro (1 vCPU, 1 GiB RAM) – Free Tier Eligible.
6. Created a new key pair and save it to computer for SSH access
7. Configure Network Settings (Security Group)
Created a new security group:
 - Allow SSH (Port 22) – for remote access.
 - Allow HTTP (Port 80) – for regular web traffic.
 - Allow HTTPS (Port 443) – for secure connections (SSL/TLS).
- Set the source to Anywhere (0.0.0.0/0) during development.
8. Assign and associate a public elastic IP to the instance.
9. Now the instance is running

The screenshot displays the AWS Management Console interface. At the top, the 'Instances (1/1)' section shows a table with one instance: 'ICT171-WebS...' with ID 'i-Oe8fa3149bf66d0c9', state 'Running', type 't3.micro', and availability zone 'eu-north-1a'. Below this, the 'Details' tab for the instance 'i-Oe8fa3149bf66d0c9 (ICT171-WebServer)' is selected. The details panel shows the instance is 'Running' and provides key information: Public IPv4 address '13.51.132.65', Private IPv4 address '172.31.23.78', and Public IPv4 DNS 'ec2-13-51-132-65.eu-north-1.compute.amazonaws.com'.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
ICT171-WebS...	i-Oe8fa3149bf66d0c9	Running	t3.micro	3/3 checks passed	View alarms +	eu-north-1a

Instance summary	Public IPv4 address	Private IPv4 addresses
Instance ID i-Oe8fa3149bf66d0c9	13.51.132.65 open address	172.31.23.78
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-13-51-132-65.eu-north-1.compute.amazonaws.com open address

STEP 2: CONNECT TO THE CREATED INSTANCE

1. Connect through PuTTY by entering public IP address and going to connection > SSH > Auth > Credentials here in the first box click on Browse and choose the converted KeyPair.

After giving these click “Open”, it will now ask for a username, usually for Amazon ec2, the username is “ec2-user”.

2. Install Apache

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

STEP 3: DOMAIN NAME REGISTRATION AND DNS ENTRY

1. Search Route 53 and find a domain. I bought store24.click for 3\$.
2. Link the domain by creating a new record in hosted zones and adding record.
3. Add the public IP address of the instance and add record as shown in picture

The screenshot displays the AWS Management Console interface for the EC2 service. At the top, a green notification bar indicates the successful initiation of starting for instance `i-0e8fa3149bf66d0c9`. Below this, the 'Instances (1)' section shows a table with one instance:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
ICT171-WebS...	i-0e8fa3149bf66d0c9	Running	t3.micro	Initializing	View alarms +	eu-north-1a

The left sidebar contains navigation links for various AWS services, including EC2, IAM, S3, and others. The main content area below the table shows a 'Select an instance' prompt.

4. also add www as alias so the site still opens when entered with www.

Public

store24.click

Info

Delete zone

Test record

Configure query logging

► Hosted zone details

Edit hosted zone

Records (4)

DNSSEC signing

Hosted zone tags (0)

Records (4)

Info

Refresh

Delete record

Import zone file

Create record

Automatic mode is the current search behavior optimized for best filter results. [To change modes go to settings.](#)

Filter records by property or value

Type

Routing p...

Alias

< 1 >

⚙

<input type="checkbox"/>	Record name	Type	Routin...	Differ...	Alias	Value/Route traffic to	TTL (s...	Health ...	Evalu...	Record ID
<input type="checkbox"/>	store24.click	A	Simple	-	No	13.51.132.65	300	-	-	-
<input type="checkbox"/>	store24.click	NS	Simple	-	No	ns-1502.awsdns-59.org. ns-453.awsdns-56.com. ns-1612.awsdns-09.co.uk. ns-720.awsdns-26.net.	172800	-	-	-
<input type="checkbox"/>	store24.click	SOA	Simple	-	No	ns-1502.awsdns-59.org. aws...	900	-	-	-
<input type="checkbox"/>	www.store24.click	A	Simple	-	No	13.51.132.65	300	-	-	-

The site is now available by entering the domain.

STEP 4: INSTALLING WORDPRESS ON EC2

1. Connect to Instance
2. Install LAMP Stack (Apache, MySQL, PHP)

Run these commands:

```
sudo apt update
sudo apt install apache2 mysql-server php libapache2-mod-php php-
mysql -y
```

3. Install WordPress

```
cd /var/www/html
sudo wget https://wordpress.org/latest.tar.gz
sudo tar -xvzf latest.tar.gz
sudo mv wordpress/* .
sudo rm -r wordpress latest.tar.gz
```

4. Set File Permissions

```
sudo chown -R www-data:www-data /var/www/html
sudo chmod -R 755 /var/www/html
```

5. Create a MySQL Database for WordPress

```
sudo mysql -u root -p
```

In MySQL, run:

```
CREATE DATABASE wordpress;
CREATE USER 'wpuser'@'localhost' IDENTIFIED BY 'yourpassword';
GRANT ALL PRIVILEGES ON wordpress.* TO 'wpuser'@'localhost';
FLUSH PRIVILEGES;
EXIT;
```

6. Configure WordPress

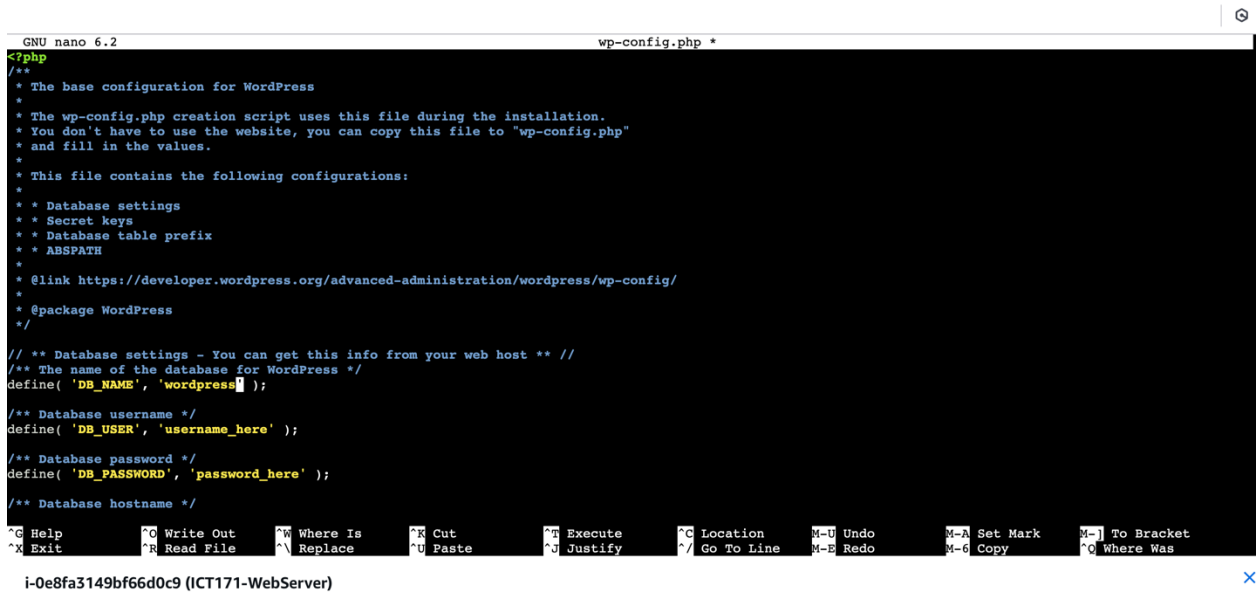
```
sudo cp wp-config-sample.php wp-config.php
sudo nano wp-config.php
```

Find this section and update it:

```
define('DB_NAME', 'wordpress');
define('DB_USER', 'wpuser');
define('DB_PASSWORD', 'yourpassword');
```

```
define('DB_HOST', 'localhost');
```

Save and exit



```
GNU nano 6.2 wp-config.php *
<?php
/**
 * The base configuration for WordPress
 *
 * The wp-config.php creation script uses this file during the installation.
 * You don't have to use the website, you can copy this file to "wp-config.php"
 * and fill in the values.
 *
 * This file contains the following configurations:
 *
 * * Database settings
 * * Secret Keys
 * * Database table prefix
 * * ABSPATH
 *
 * @link https://developer.wordpress.org/advanced-administration/wordpress/wp-config/
 *
 * @package WordPress
 */

// ** 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', 'username_here' );

/** Database password */
define( 'DB_PASSWORD', 'password_here' );

/** Database hostname */

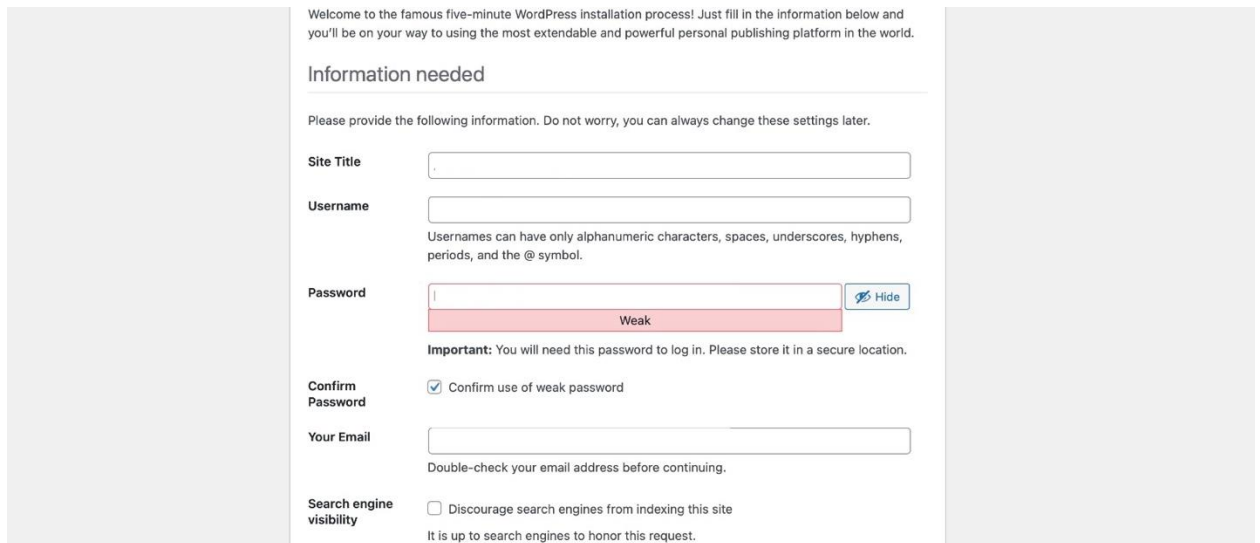
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^N Execute    ^C Location   M-U Undo     M-A Set Mark  M-I To Bracket
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^/_ Go To Line  M-E Redo     M-6 Copy      ^Q Where Was
i-0e8fa3149bf66d0c9 (ICT171-WebServer)
```

7. Restart Apache

```
sudo systemctl restart apache2
```

STEP 5: ACCESSING WORDPRESS SETUP WIZARD

1. Open a browser and go to your public domain (e.g., <http://store24.click> or <https://store24.click> if SSL is enabled).
2. The WordPress installation wizard will appear.
3. Choose your language and click Continue.
4. Fill in your website details:



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

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

Password [Hide](#)

Weak

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

Confirm Password ☒ Confirm use of weak password

Your Email

Double-check your email address before continuing.

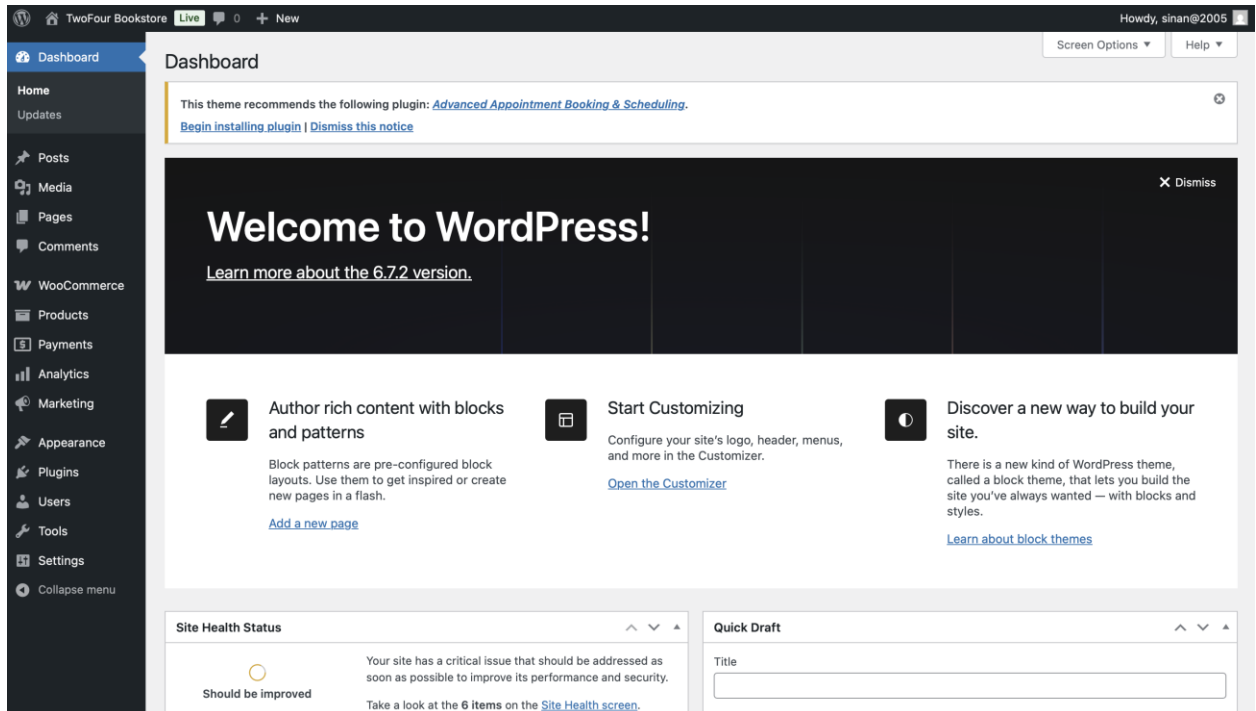
Search engine visibility ☐ Discourage search engines from indexing this site

It is up to search engines to honor this request.

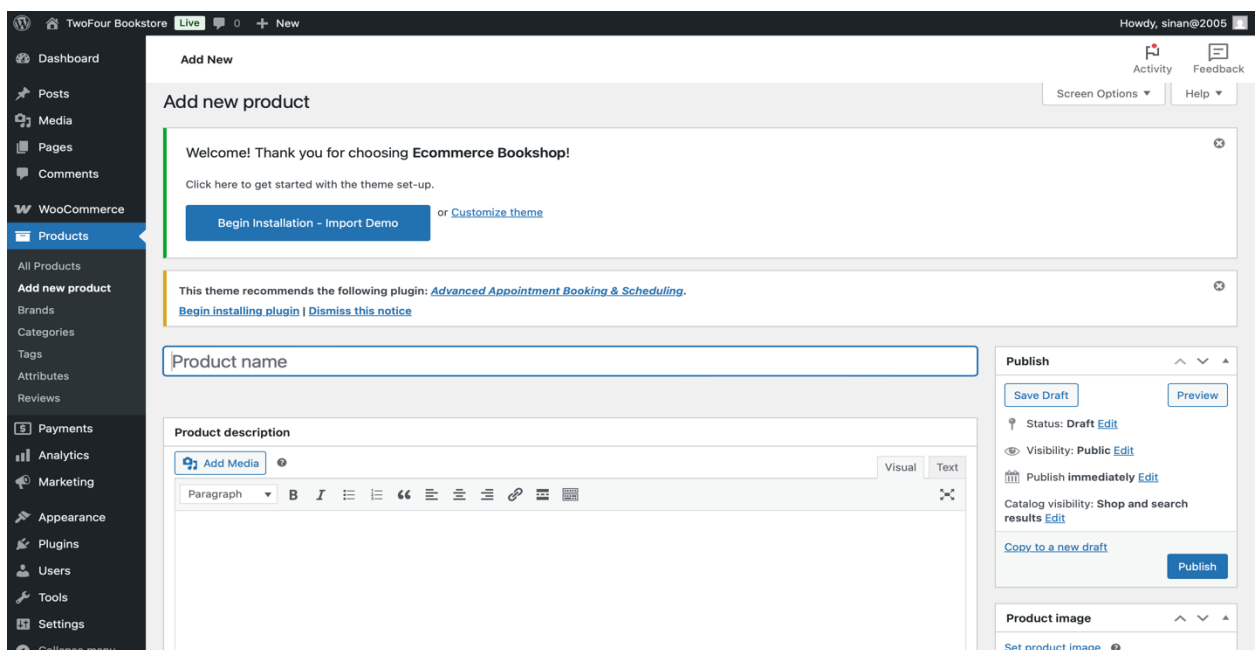
5. Click Install WordPress.
6. Once installed, click Log In to access the WordPress admin dashboard.

STEP 6: SETTING UP YOUR WEBSITE

1. **Login** to the WordPress dashboard (<https://store24.click/wp-admin>).

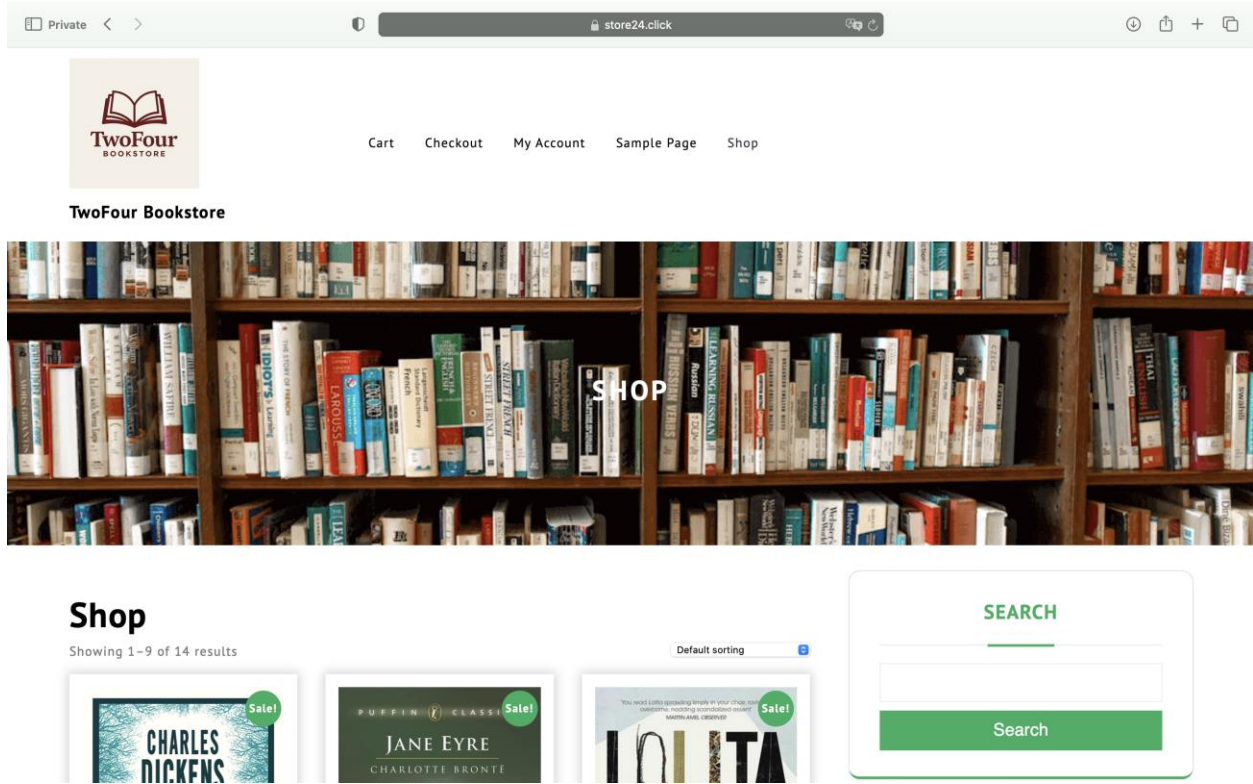


2. Go to **Appearance → Themes** and choose or install a theme (e.g., Astra, Storefront).
3. Go to **Plugins → Add New** and install the following:
 - **WooCommerce** (to manage products and shopping cart)
4. Configure WooCommerce (Currency, Payment, Shipping).
5. Add product categories (e.g., Novel, Fiction, Educational).
6. Go to **Products → Add New** to list your bookstore items



7. Publish and go live
8. Go to settings -> reading and set static page as shop to ensure the shop shows up when the site is searched.

Now the site is up and running!



STEP 7: SECURING YOUR WEBSITE WITH SSL

Use **Certbot** to install a free SSL certificate.

1. Install Certbot:

```
sudo apt install certbot python3-certbot-apache -y
```

2. Run Certbot:

```
sudo certbot --apache
```

3. Follow the prompts to enable HTTPS for store24.click.

The site is now secure and certified.

You can test SSL by visiting: <https://store24.click>

```
Run 'do-release-upgrade' to upgrade to it.

Last login: Fri Apr  4 11:37:24 2025 from 13.48.4.203
ubuntu@ip-172-31-23-78:~$ certbot --version
certbot 1.21.0
ubuntu@ip-172-31-23-78:~$ sudo certbot --apache
Saving debug log to /var/log/letsencrypt/letsencrypt.log
Enter email address (used for urgent renewal and security notices)
(Enter 'c' to cancel): mohamxdsi@gmail.com

-----
Please read the Terms of Service at
https://letsencrypt.org/documents/LE-SA-v1.5-February-24-2025.pdf. You must
agree in order to register with the ACME server. Do you agree?
-----
(Y)es/(N)o: y

-----
Would you be willing, once your first certificate is successfully issued, to
share your email address with the Electronic Frontier Foundation, a founding
partner of the Let's Encrypt project and the non-profit organization that
develops Certbot? We'd like to send you email about our work encrypting the web,
EFF news, campaigns, and ways to support digital freedom.
-----
(Y)es/(N)o: y
Account registered.

Which names would you like to activate HTTPS for?
-----
1: store24.click

-----
ubuntu@ip-172-31-23-78:~$ sudo certbot --apache
Saving debug log to /var/log/letsencrypt/letsencrypt.log

Which names would you like to activate HTTPS for?
-----
1: store24.click
2: www.store24.click
-----
Select the appropriate numbers separated by commas and/or spaces, or leave input
blank to select all options shown (Enter 'c' to cancel): 1
Requesting a certificate for store24.click

Successfully received certificate.
Certificate is saved at: /etc/letsencrypt/live/store24.click/fullchain.pem
Key is saved at: /etc/letsencrypt/live/store24.click/privkey.pem
This certificate expires on 2025-07-03.
These files will be updated when the certificate renews.
Certbot has set up a scheduled task to automatically renew this certificate in the background.

Deploying certificate
Successfully deployed certificate for store24.click to /etc/apache2/sites-available/000-default-le-ssl.conf
Congratulations! You have successfully enabled HTTPS on https://store24.click

-----
If you like Certbot, please consider supporting our work by:
 * Donating to ISRG / Let's Encrypt: https://letsencrypt.org/donate
 * Donating to EFF: https://eff.org/donate-le
-----
ubuntu@ip-172-31-23-78:~$
```

References:

1. <https://developer.wordpress.org/advanced-administration/before-install/howto-install/>
2. <https://docs.aws.amazon.com/ec2/>
3. <https://certbot.eff.org>