

(Any code that is displayed is *italicized* to keep it distinct from other text. Troubleshooting steps will be indented with a '-' at the start)

Deploying OpenSource Application on Ubuntu.

1. Download, extract and move the WordPress files to the root apache directory.

- 1a. `wget https://wordpress.org/latest.tar.gz`
- 1b. `tar -xvzf latest.tar.gz`
- 1c. `sudo mv wordpress/* /var/www/html/`

2. Set permissions.

- 2a. `sudo chown -R www-data:www-data /var/www/html/`
`sudo chmod -R 755 /var/www/html/`

3. Create a WordPress database.

- 3a. Login - `sudo mysql -u root -p`
- 3b. New database - `CREATE DATABASE wordpress;`
- 3c. Create new user and grant privileges to database -
`CREATE USER 'wordpressuser'@'localhost' IDENTIFIED BY 'password';`
`GRANT ALL PRIVILEGES ON wordpress.* TO 'wordpressuser'@'localhost';`
 - At this point I was getting the following error: ERROR 1410 (42000): You are not allowed to create a user with GRANT.

```
mysql> GRANT ALL PRIVILEGES ON wordpress.* TO 'wordpress'@'localhost';  
ERROR 1410 (42000): You are not allowed to create a user with GRANT
```

- Found that creating a user and granting permissions are two different operations, no need for the `IDENTIFIED BY` portion.
- Tried again by running this instead: `GRANT ALL ON wordpress.* TO 'wordpressuser'@'localhost';` > this worked.

```
mysql> GRANT ALL ON wordpress.* TO 'wordpressuser'@'localhost';  
Query OK, 0 rows affected (0.01 sec)
```

3d. Force reload the grant tables - `FLUSH PRIVILEGES`

3e. `EXIT;`

4. Configure WordPress.

- 4a. Going to document root directory - `cd /var/www/html/`
- 4b. Moving and renaming the config file - `sudo mv wp-config-sample.php wp-config.php`
- 4c. Editing the file to add database details - `sudo nano wp-config.php`
- 4d. Making sure the following lines match the database details I set.
`define('DB_NAME', 'wordpress');`
`define('DB_USER', 'wordpressuser');`
`define('DB_PASSWORD', 'password');`
`define('DB_HOST', 'localhost');`

```
define( 'DB_NAME', 'wordpress' );

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

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

/** Database hostname */
define( 'DB_HOST', 'localhost' );
```

5. Complete installation through web interface.

5a. Go to server ip in the browser to continue. When I get there it still shows the apache2 default page.

 **Apache2 Default Page**

Ubuntu

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in `/usr/share/doc/apache2/README.Debian.gz`**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
|   |-- ports.conf
|-- mods-enabled
|   |-- *.load
|   |-- *.conf
|-- conf-enabled
|   |-- *.conf
|-- sites-enabled
|   |-- *.conf
```

5b. Double checked the config file and all the information is correct.

- Checked the files in the root directory and they look fine:

```
ubuntu@ubuntu: /var/www/html$ ls -l
total 220
-rw-r--r-- 1 www-data www-data 10671 Jul  2 21:28 index.html
-rw-r--r-- 1 www-data www-data  405 Feb  6 2020 index.php
-rw-r--r-- 1 www-data www-data 19915 Jan  1 2024 license.txt
-rw-r--r-- 1 www-data www-data  7401 Dec  8 2023 readme.html
-rw-r--r-- 1 www-data www-data  7387 Feb 13 14:19 wp-activate.php
drwxr-xr-x 9 www-data www-data  2040 Jun 24 17:16 wp-admin
-rw-r--r-- 1 www-data www-data   351 Feb  6 2020 wp-blog-header.php
-rw-r--r-- 1 www-data www-data  2323 Jun 14 2023 wp-comments-post.php
-rw-r--r-- 1 www-data www-data  2994 Jul  2 22:23 wp-config.php
drwxr-xr-x 4 www-data www-data   100 Jun 24 17:16 wp-content
-rw-r--r-- 1 www-data www-data  5638 May 30 2023 wp-cron.php
drwxr-xr-x 30 www-data www-data  5320 Jun 24 17:16 wp-includes
-rw-r--r-- 1 www-data www-data  2502 Nov 26 2022 wp-links-opml.php
-rw-r--r-- 1 www-data www-data  3927 Jul 16 2023 wp-load.php
-rw-r--r-- 1 www-data www-data 50917 Jan 16 17:31 wp-login.php
-rw-r--r-- 1 www-data www-data  8525 Sep 16 2023 wp-mail.php
-rw-r--r-- 1 www-data www-data 28427 Mar  2 10:47 wp-settings.php
-rw-r--r-- 1 www-data www-data 34385 Jun 19 2023 wp-signup.php
-rw-r--r-- 1 www-data www-data  4885 Jun 22 2023 wp-trackback.php
-rw-r--r-- 1 www-data www-data  3246 Mar  2 13:49 xmlrpc.php
```

- Clearing the browser cache in Firefox and tried again but it showed the same page.
- Confirmed apache is running.

```
ubuntu@ubuntu: /var/www/html$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Tue 2024-07-02 21:31:53 UTC; 59min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 17192 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
  Main PID: 17197 (apache2)
    Tasks: 7 (limit: 9207)
   Memory: 17.8M (peak: 19.3M)
      CPU: 527ms
   CGroup: /system.slice/apache2.service
           └─17197 /usr/sbin/apache2 -k start
             └─17200 /usr/sbin/apache2 -k start
               └─17201 /usr/sbin/apache2 -k start
                 └─17202 /usr/sbin/apache2 -k start
                   └─17203 /usr/sbin/apache2 -k start
                     └─17204 /usr/sbin/apache2 -k start
                       └─17252 /usr/sbin/apache2 -k start

Jul 02 21:31:53 ubuntu systemd[1]: Starting apache2.service - The Apache HTTP Server...
Jul 02 21:31:53 ubuntu apachectl[17196]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, please see the /usr/sbin/apachectl(8) man page.
Jul 02 21:31:53 ubuntu systemd[1]: Started apache2.service - The Apache HTTP Server.
lines 1-21/21 (END)
```

- Enabled debugging - `define('WP_DEBUG', true);`
- Checked - `/var/log/apache2/error.log` and found an error that says: script `'/var/www/html/info.php'` not found or unable to stat
- Created an info.php file.

- Logged into MySQL as the 'wordpressuser' - `mysql -u wordpressuser -p`
- Checking the database - `USE wordpress;` then `SHOW TABLES;`

```
mysql> USE wordpress;
Database changed
mysql> SHOW TABLES;
Empty set (0.00 sec)
```

- Checking the socket path - `sudo nano /etc/mysql/mysql.conf.d/mysqld.cnf`
- Socket value- `/var/run/mysqld/mysqld.sock` needs to match the `DB_HOST` value in `wp-config.php`

```
# pid-file           = /var/run/mysqld/mysqld.pid
# socket             = /var/run/mysqld/mysqld.sock
# port               = 3306
# datadir            = /var/lib/mysql
```

- Changed the host name to match:

```
/** Database hostname */
define( 'DB_HOST', 'localhost:/var/run/mysqld/mysqld.sock' );
```

- Restarting apache and MySQL - `sudo systemctl restart apache2`
`sudo systemctl restart mysql`
- Checking errors in logs - `sudo tail -f /var/log/apache2/error.log` and `sudo tail -f /var/log/mysql/error.log`. No errors in those outputs.
- Checking apache config file - `sudo nano /etc/apache2/sites-available/000-default.conf`.
- Missing <Directory>

```
<VirtualHost *:80>
    # The ServerName directive sets the request scheme, hostname and port that
    # the server uses to identify itself. This is used when creating
    # redirection URLs. In the context of virtual hosts, the ServerName
    # specifies what hostname must appear in the request's Host: header to
    # match this virtual host. For the default virtual host (this file) this
    # value is not decisive as it is used as a last resort host regardless.
    # However, you must set it for any further virtual host explicitly.
    #ServerName www.example.com

    ServerAdmin webmaster@localhost
    DocumentRoot /var/www/html

    # Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
    # error, crit, alert, emerg.
    # It is also possible to configure the loglevel for particular
    # modules, e.g.
    #LogLevel info ssl:warn

    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined

    # For most configuration files from conf-available/, which are
    # enabled or disabled at a global level, it is possible to
    # include a line for only one particular virtual host. For example the
    # following line enables the CGI configuration for this host only
    # after it has been globally disabled with "a2disconf".
    #Include conf-available/serve-cgi-bin.conf
```

- Added the following:
`<Directory /var/www/html/>`
`Options Indexes FollowSymLinks`
`AllowOverride All`
`Require all granted`
`</Directory>`
- Enable Apache modules - `sudo a2enmod rewrite` and restarted apache.
- Tested the apache config - `sudo apache2ctl configtest` and got the following message:

```
ubuntu@ubuntu:/var/www/html$ sudo apache2ctl configtest
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Set the 'ServerName' directive globally to suppress this message
Syntax OK
```

- Default apache page was already disabled -

```
ubuntu@ubuntu:/var/www/html$ sudo a2dissite 000-default.conf
Site 000-default already disabled
```

- Added 'ServerName localhost' to the Apache config file - `sudo nano /etc/apache2/apache2.conf`
- Restarted apache and ran the config test again - `sudo apache2ctl configtest` and the warning was gone:

```
ubuntu@ubuntu:/var/www/html$ sudo apache2ctl configtest
Syntax OK
```

- Tried to go to the localhost site and it still displays the Apache2 Default Page.
- Checked the document root being used by Apache and they are all correct:

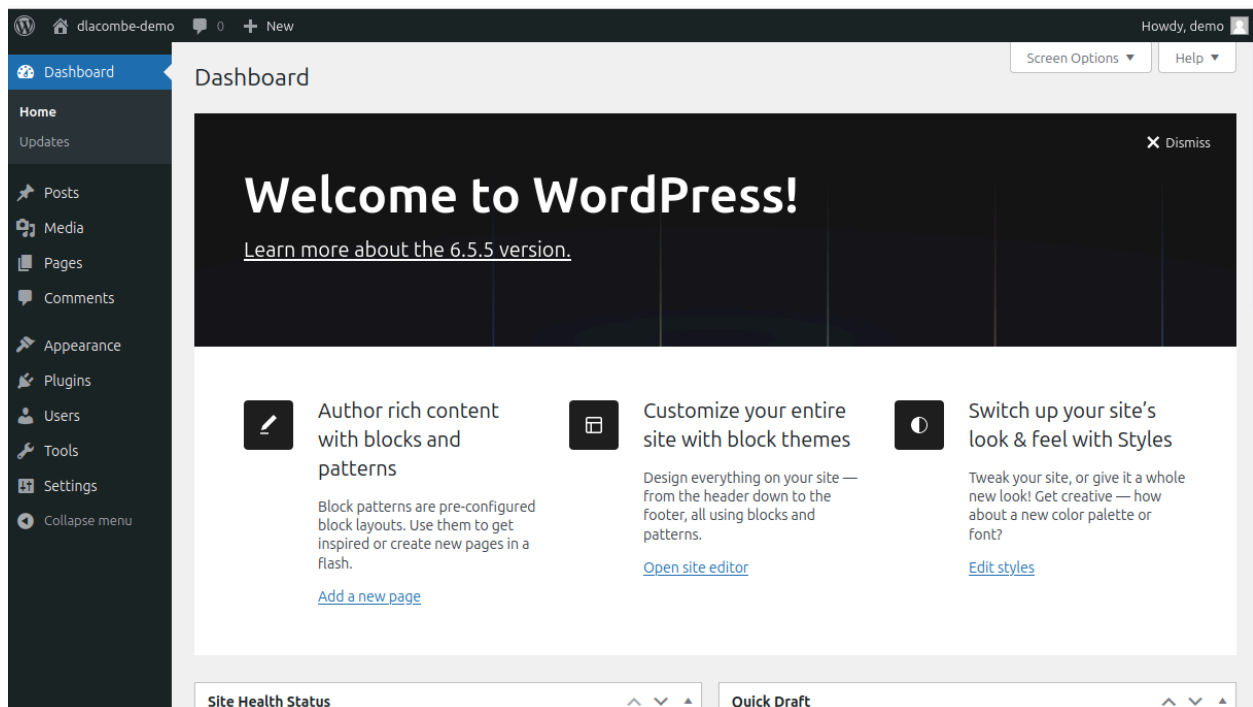
```
ubuntu@ubuntu:/var/www/html$ sudo grep -Ri 'DocumentRoot' /etc/apache2
/etc/apache2/sites-available/000-default.conf: DocumentRoot /var/www/html
/etc/apache2/sites-available/default-ssl.conf: DocumentRoot /var/www/html
/etc/apache2/sites-enabled/000-default.conf: DocumentRoot /var/www/html
```

After running through all the steps I'm not sure what else to try, going to start fresh. Going to just include commands ran to keep it short.

I went through the following steps in this order:

1. Installed WordPress
 - a. `cd /var/www/html`
 - b. `sudo nano -c http://wordpress.org/latest.tar.gz`
 - c. `sudo tar -xzf latest.tar.gz`
 - d. `ls -l`
 - e. `sudo chown -R www-data:www-data /var/www/html/wordpress`
2. Created WordPress database
 - a. `/var/www/html$ sudo mysql -u root -p`
 - b. `CREATE DATABASE demo_db;`
 - c. `CREATE USER demo_user@localhost IDENTIFIED BY 'demo-password';`

- d. GRANT ALL PRIVILEGES ON demo_db. * TO demo_user@localhost;
 - e. FLUSH PRIVILEGES;
 - f. Exit;
 - g. /var/www/html\$ sudo chmod -R 777 wordpress/
 - h. /var/www/html\$ cd wordpress/
3. Setup and configured Wordpress
 - a. /var/www/html/wordpress\$ mv wp-config-sample.php wp-config.php
 - b. /var/www/html/wordpress\$ gedit wp-config.php
4. Successfully logged into account



After looking over it, it looks like I originally didn't create a dedicated WordPress directory in /var/www/html on the second try I had the /var/www/html/wordpress directory. Instead of having the WordPress page override the Apache2 default page, I just made a new page, instead of going to http://localhost . I set it to <http://localhost/wordpress> which seemed to do the trick.