

PATIENT QUEUE DASHBOARD SETUP GUIDE

FOR LINUX SYSTEMS:

To setup the patient queue dashboard on an Ubuntu/Debian based Linux operating system, follow the steps below

Step 1: Install Apache web server

The Apache web server is a popular open-source web server that can be used along with PHP to host dynamic websites. To install Apache web server, follow the steps below

1. Carry out system update and upgrade operations

\$ sudo apt update && sudo apt upgrade -y

2. Install Apache web server using the apt repository

\$ sudo apt install apache2

After entering this command, apt will tell you which packages it plans to install and how much extra disk space they'll take up. Press "Y" and hit "ENTER" to confirm, and the installation will proceed.

To confirm that the Apache webserver has been installed, run the command below:

\$ sudo systemctl status apache2

After entering this command, you should see a log showing the package status as active (running). Type 'Ctrl + c' to go back to the interactive terminal.

3. Adjust firewall to allow web traffic

\$ sudo ufw allow "Apache Full"

4. Verify that the installation has been carried out by visiting the system's public IP address in your web browser

Note: You can check your IP address by running the command below

\$ ip addr show

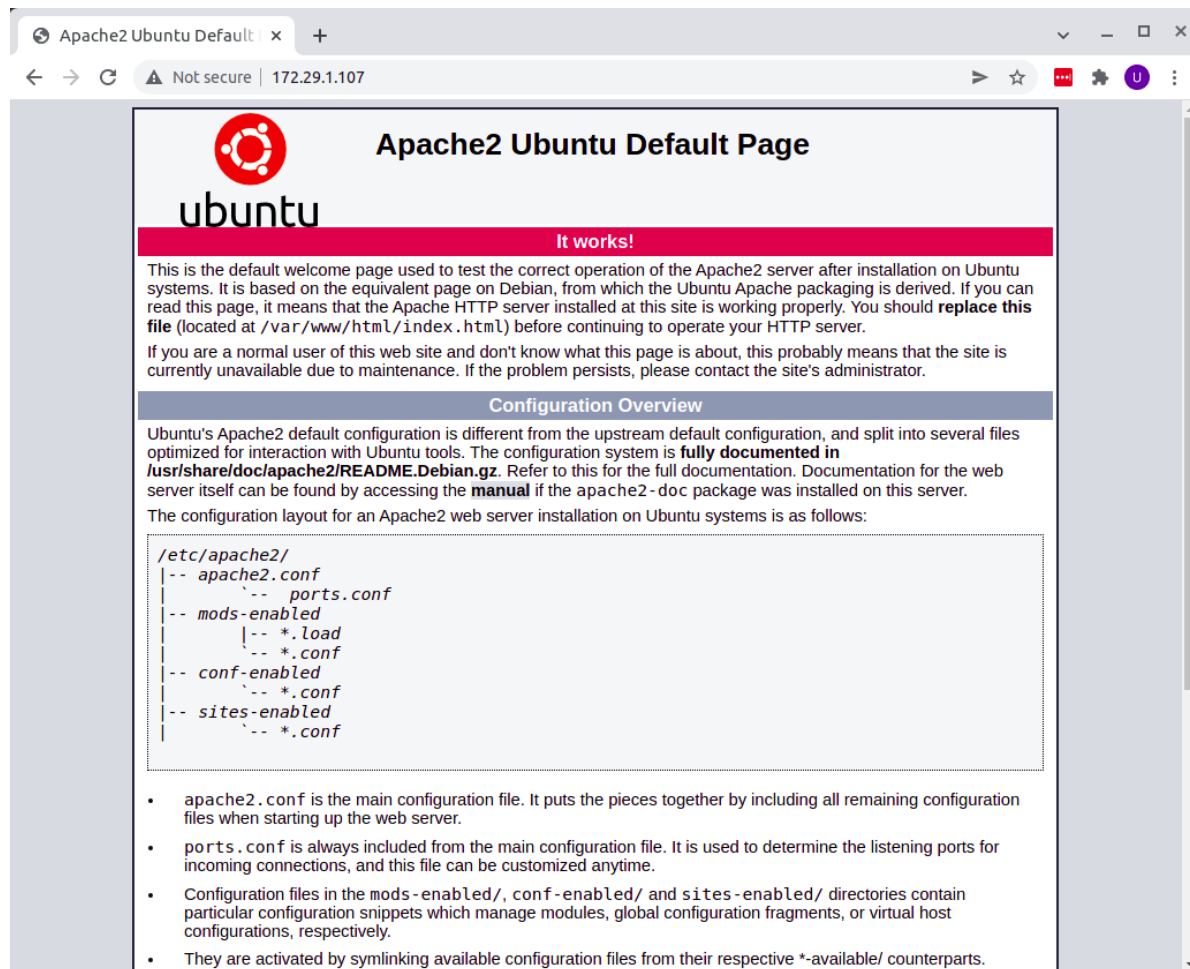
To verify the installation, run the command below

\$ http://system_ip ###replace system_ip with your ip address

OR

\$ <http://127.0.0.1>

You will see the default Ubuntu Apache web page, which is there for informational and testing purposes. It should look something like this:



Step 2: Install PHP

PHP is the component of your setup that will process code to display dynamic content. It can run scripts, connect to a database to get information, and hand the processed content over to your web server so that it can display the results to your visitors. Run the following command to install the PHP package and its dependencies:

```
$ sudo apt install -y php libapache2-mod-php php-mysql php-cli
```

This will install PHP on your Linux system.

Step 3: Setup a virtual host

After setting up the web server and PHP, the next step will be to setup a virtual host to encapsulate configuration details and host a resource on the web server. Follow the steps below to setup a virtual host on the web server:

1. Download the compressed patient queue dashboard file (https://apinnigeria-my.sharepoint.com/:u:/g/personal/hisupport_phis3project_org_ng/EXZEY88j9O9Pi-j9zCmg5KABhW-NwyGaiWtUXhWg3g8ByA?e=agW6jX)

2. Create a new directory in the web server directory and extract the contents of the compressed queue dashboard file to it

```
$ sudo mkdir /var/www/dashboard
```

```
$ sudo unzip ~/Downloads/patient-queue-dashboard.zip -d /var/www/dashboard/
```

3. Next, assign ownership of the directory with the \$USER environment variable, which references the current logged user:

```
$ sudo chown -R $USER:$USER /var/www/dashboard
```

4. Update the permissions for the web server directory

```
$ sudo chmod -R 755 /var/www/dashboard
```

5. Update the Apache2 web server virtual host file to point to the patient queue dashboard directory

```
$ sudo nano /etc/apache2/sites-enabled/000-default.conf
```

Update the "DocumentRoot" from `'/var/www/html'` to `'/var/www/dashboard'`

```
<VirtualHost *:80>
```

```
ServerAdmin webmaster@localhost
```

```
DocumentRoot /var/www/dashboard
```

```
ErrorLog ${APACHE_LOG_DIR}/error.log
```

```
CustomLog ${APACHE_LOG_DIR}/access.log combined
```

```
</VirtualHost>
```

Save and close the file when you are finished.

NOTE: If the system is already using port 80, you can update the Apache2 webserver port from 80 to another free port by editing the first line on the `/etc/apache2/sites-enabled/000-default.conf` file and replacing `*:80` with the new port number eg. `*:90`

```
uche@uche-ThinkPad-T490: /var/www/dashboard
GNU nano 4.8 /etc/apache2/sites-enabled/000-default.conf
<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/dashboard

# 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
</VirtualHost>

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet

[ Read 31 lines ]
^G Get Help  ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos
^X Exit      ^R Read File  ^\ Replace    ^U Paste Text ^T To Spell   ^_ Go To Line
```

6. Test the webserver for configuration issues

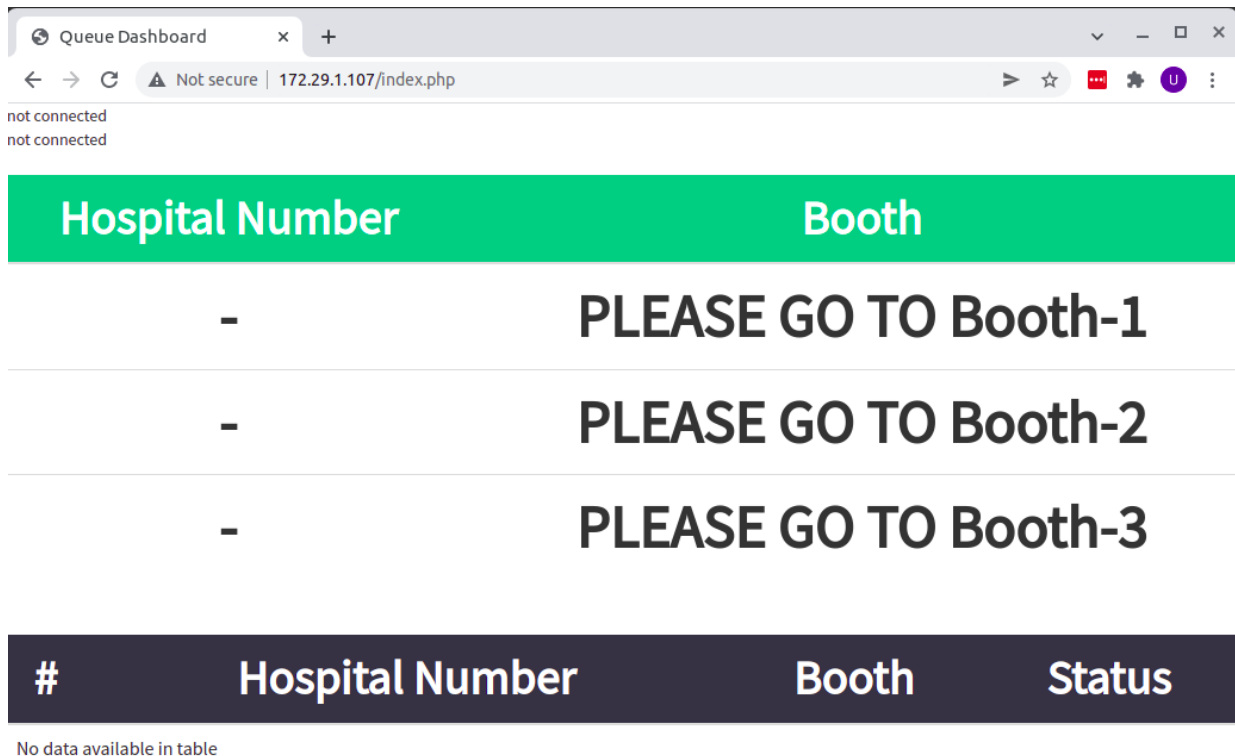
\$ sudo apachectl configtest

You should get an output 'Syntax OK'

7. Restart the Apache2 webserver to implement the changes

\$ sudo systemctl restart apache2

You can test this by navigating to **http://your_ip_address/index.php**, where you should see something like this:



Hospital Number		Booth
-		PLEASE GO TO Booth-1
-		PLEASE GO TO Booth-2
-		PLEASE GO TO Booth-3

#	Hospital Number	Booth	Status
No data available in table			

Step 4: Connect dashboard to NMRS database

After setting up the dashboard, the next step will be to connect the dashboard to the NMRS database. The dashboard fetches patient's queue data from the NMRS database and is configured to update the records every 30 seconds. To connect the dashboard to the database, follow these steps;

1. Go to the web directory where the codebase of the dashboard is stored

```
$ cd /var/www/dashboard
```

2. Edit the contents of the config.php file with the NMRS MySQL database credentials

```
$ nano config.php
```

Update the mysqli_connect variables with the database credentials where

'db_host' = database hostname/ip address eg. 127.0.0.1

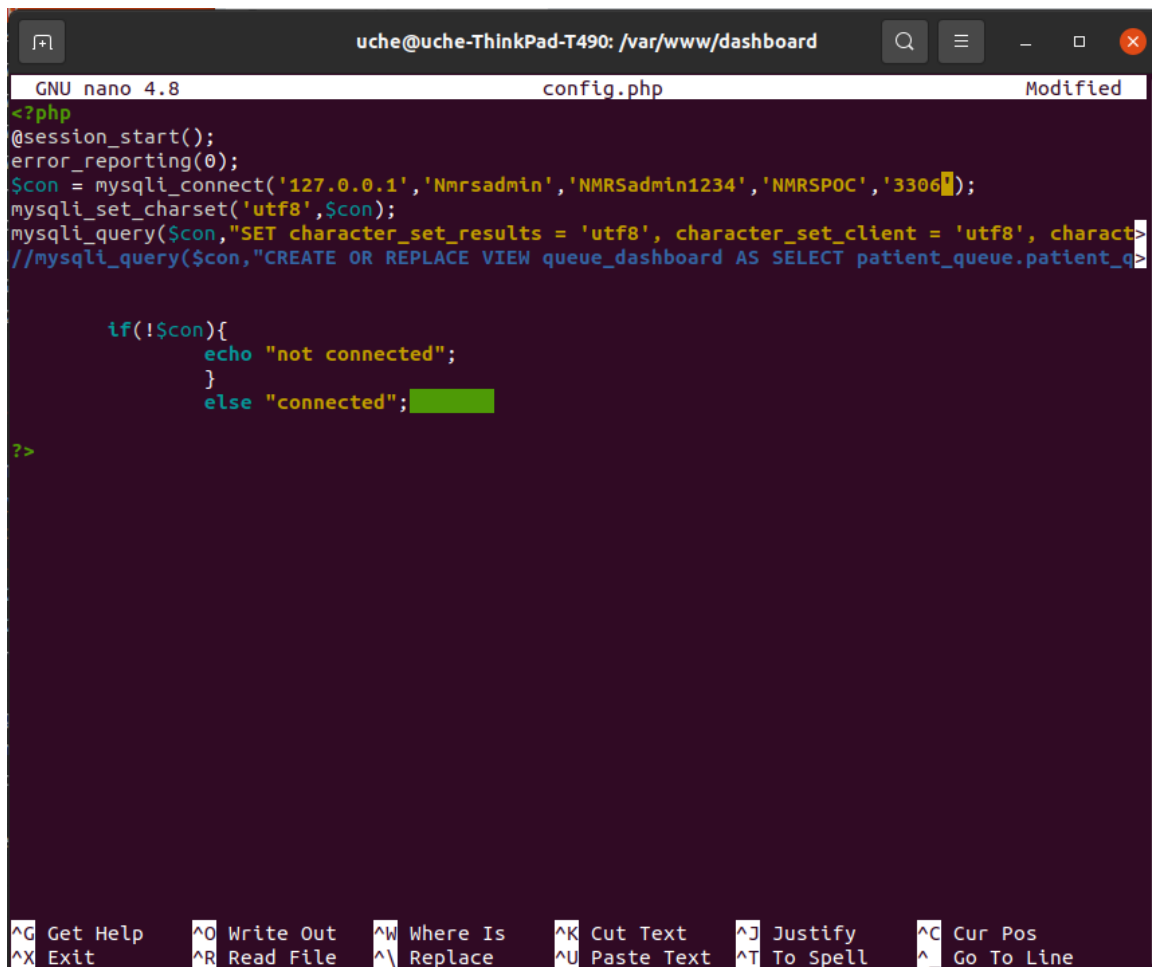
'db_user' = database username eg. Nmrsadmin

'db_user_pass' = password for database user eg. NMRSadmin1234

'db_name' = database name eg. NMRSPOC

3306 = database port number (3306 is the default port number for MySQL)

Save and close the file when you are finished.



```
uचे@uचे-ThinkPad-T490: /var/www/dashboard
GNU nano 4.8 config.php Modified
<?php
@session_start();
error_reporting(0);
$con = mysqli_connect('127.0.0.1','Nmradmin','NMRSadmin1234','NMRSP0C','3306');
mysqli_set_charset('utf8',$con);
mysqli_query($con,"SET character_set_results = 'utf8', character_set_client = 'utf8', character_set_server = 'utf8'");
//mysqli_query($con,"CREATE OR REPLACE VIEW queue_dashboard AS SELECT patient_queue.patient_queue_id, patient_queue.patient_name, patient_queue.patient_age, patient_queue.patient_gender, patient_queue.patient_phone, patient_queue.patient_email, patient_queue.patient_address, patient_queue.patient_city, patient_queue.patient_state, patient_queue.patient_zip, patient_queue.patient_created_at, patient_queue.patient_updated_at FROM patient_queue");

if(!$con){
    echo "not connected";
}
else "connected";

?>
```

3. Restart the Apache2 webserver to implement the changes

\$ sudo systemctl restart apache2


NOTE: You can test this by navigating to http://your_ip_address/index.php, where you should see something like this:

Hospital Number		Booth	
HB-17-0001		PLEASE GO TO Booth-1	
HB-17-0029		PLEASE GO TO Booth-2	
HB-17-0023		PLEASE GO TO Booth-3	

#	Hospital Number	Booth	Status
1	HB-17-0014	Booth-1	QUEUED
2	HB-17-0001	Booth-2	QUEUED
3	HB-17-0001	Booth-3	QUEUED
4	HB-17-0029	Booth-3	QUEUED

Step 5: Setup the web dashboard

After the patient queue dashboard has been setup and configured, the public dashboard can now be displayed. To open the public dashboard, navigating to **http://your_ip_address/dashboard/index.html**, where you should see something like this:



COVID-19, Be aware
Let's SWAG to end COVID -19

S
STAY AT HOME
No Party, No Gathering

W
WASH YOUR HANDS WITH SOAP & WATER


A
ALWAYS SNEEZE IN YOUR ELBOW

G
GIVE SPACE
IT IS THE NEW GLOBAL CULTURE. IT IS CALLED SOCIAL DISTANCING

Hospital Number		Booth	
HBP-19-0001		PLEASE GO TO Booth-1	
HB-19-0005		PLEASE GO TO Booth-2	
HS-10-0989		PLEASE GO TO Booth-3	

#	Hospital Number	Booth	Status
1	HB-19-0004	Booth-2	QUEUED
2	HS-10-0989	Booth-2	QUEUED
3	HB-19-0005	Booth-1	QUEUED
4	HB-19-0004	Booth-1	QUEUED
5	HB-17-0016	Booth-2	QUEUED
6	HB-17-0001	Booth-2	QUEUED
7	HB-17-0001	Booth-3	QUEUED

To access the dashboard in full screen mode, type the f11 key on your keyboard.



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S STAY AT HOME
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Hospital Number	Booth
HBP-19-0001	PLEASE GO TO Booth-1
HB-19-0005	PLEASE GO TO Booth-2
HS-10-0989	PLEASE GO TO Booth-3

#	Hospital Number	Booth	Status
1	HB-19-0004	Booth-2	QUEUED
2	HS-10-0989	Booth-2	QUEUED
3	HB-19-0005	Booth-1	QUEUED
4	HB-19-0004	Booth-1	QUEUED
5	HB-17-0016	Booth-2	QUEUED
6	HB-17-0001	Booth-2	QUEUED
7	HB-17-0001	Booth-3	QUEUED

Multiple dashboard interfaces were setup for the different service areas in a facility. The following are the links to the dashboards for each location”

1. Accidents and emergencies (A and E):

<http://127.0.0.1/dashboard/aande.html>

or

http://your_ip_address/dashboard/aande.html

2. Anti-Retroviral Therapy (ART) service area

<http://127.0.0.1/dashboard/art.html>

or

http://your_ip_address/dashboard/art.html

3. DOT

<http://127.0.0.1/dashboard/dot.html>

or

http://your_ip_address/dashboard/dot.html

4. General Out Patient Department (GOPD)

<http://127.0.0.1/dashboard/gopd.html>

or

http://your_ip_address/dashboard/gopd.html

5. Prevention of Mother To Child Transmission

<http://127.0.0.1/dashboard/pmtct.html>

or

http://your_ip_address/dashboard/pmtct.html

To display the combined patient queue records across all service areas, use this link

<http://127.0.0.1/dashboard/index.html>

or

http://your_ip_address/dashboard/index.html

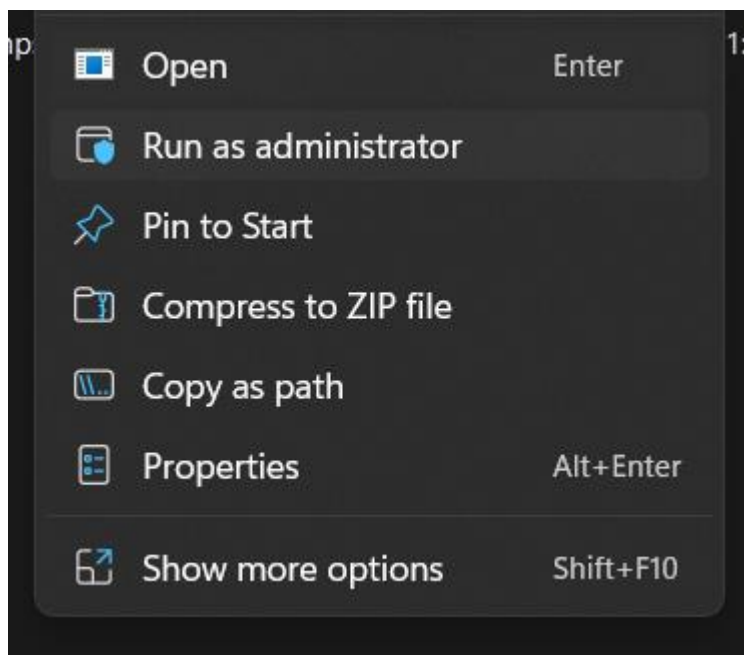
FOR WINDOWS SYSTEMS:

Step 1: Install WAMP server

WAMP is a free and open-source tool most commonly used by php developers in the Windows family and other platforms to set up the development and testing environment. WAMP server comes with the WAMP control panel to manage all its components easily.

WAMP stands for (W) Windows, (A) Apache, (M) MySQL, (P) PHP and some additional modules including phpmyadmin (for the database). To install WAMP server on a machine, follow the steps below

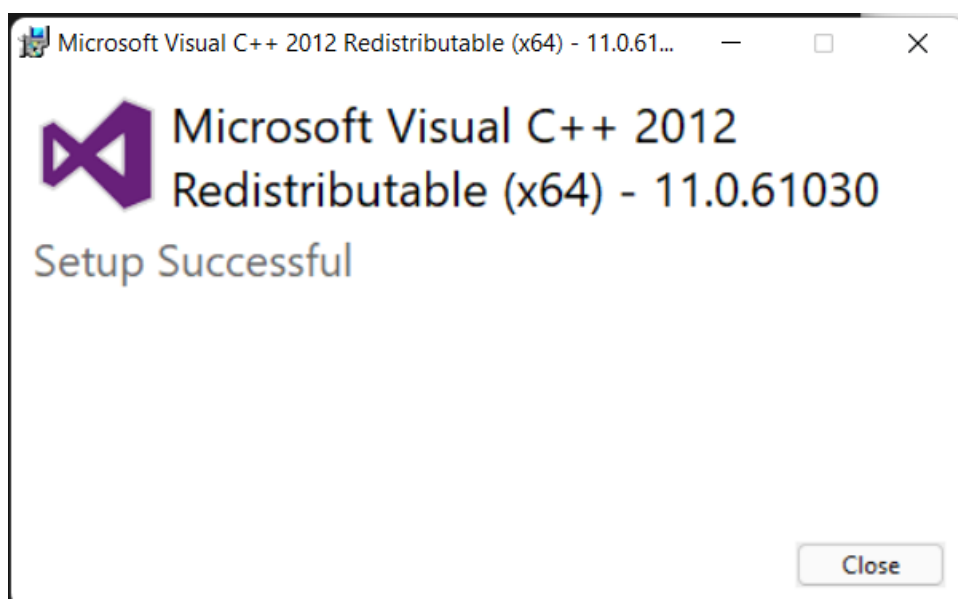
1. Download the WAMP server installation files: On a web browser, go to this link (https://apinnigeria-my.sharepoint.com/:u:/g/personal/hisupport_phis3project_org_ng/EZCwZ6-ekMlNmDSwiVafrM0BJtUrJ_ozNaRXgVzjarB37w?e=UxZsmd) And download the compressed file.
2. Extract the contents of the compressed file by right-clicking on the file and selecting extract all. This will create a folder called '**setup-files**' storing the installations files
3. On the folder, install the WAMP dependency package by right-clicking on the **vcredist_x64** file and selecting "Run as administrator"



4. Click on the "**I agree to the license terms and conditions**" checkbox and then the "**Install**" button to continue with the installation shown below

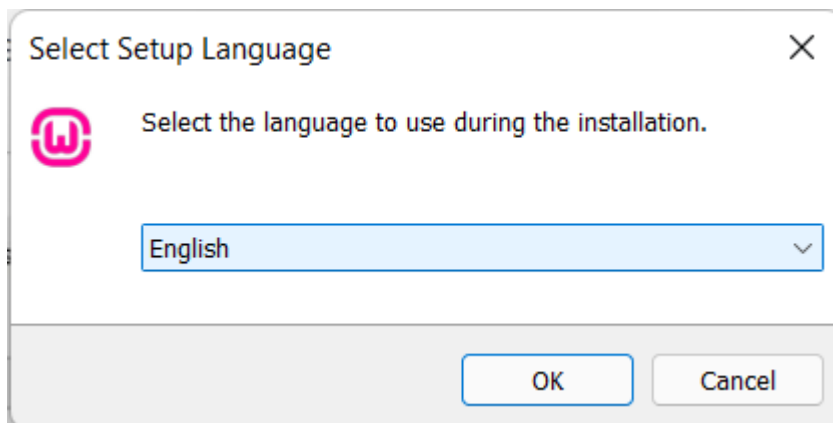


5. After the installation process has been completed, you should get a **“Setup Successful”** message box

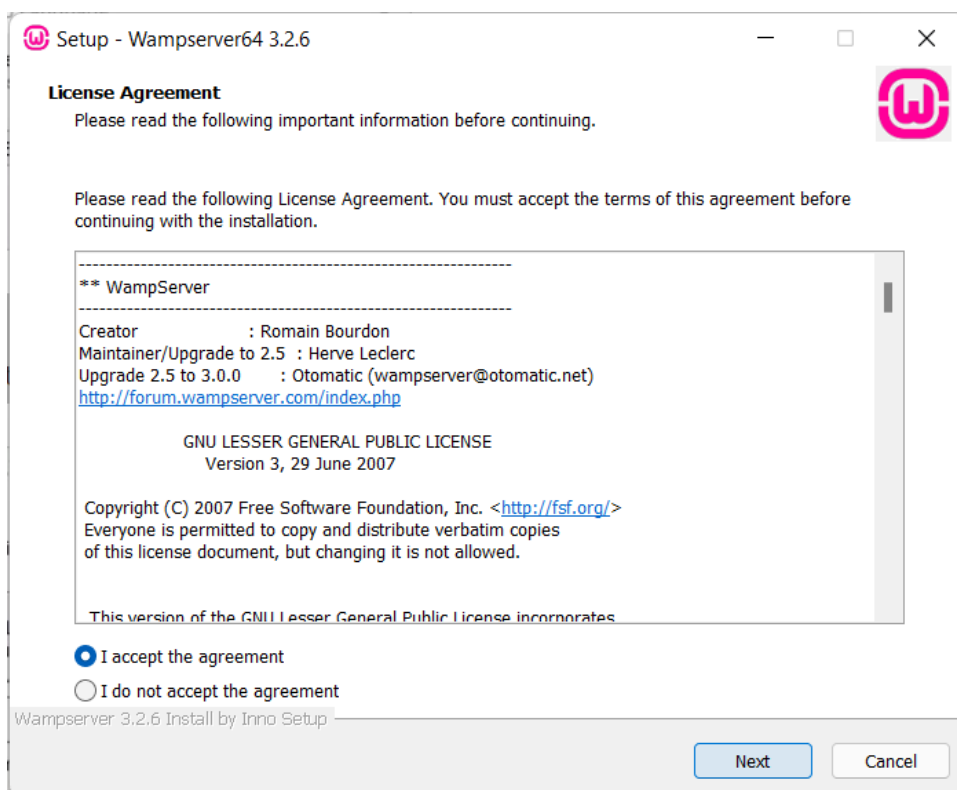


After this has been done, click the **“Close”** button and proceed to install the WAMP server application.

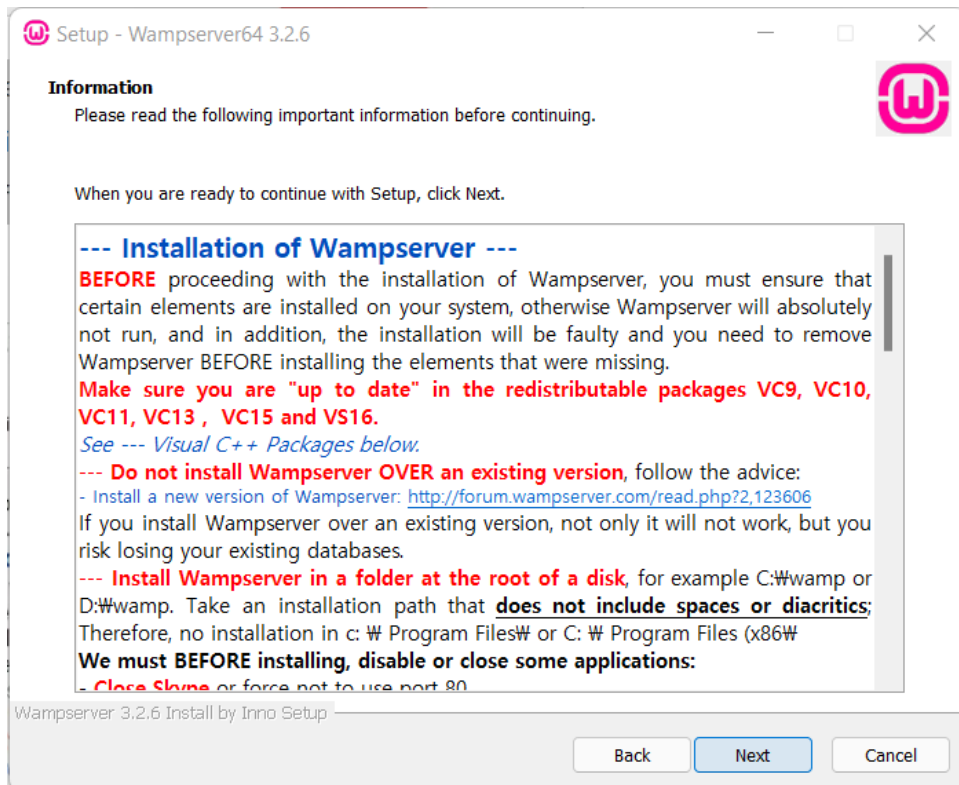
6. To initiate the WAMP server installation process, right-click on the wampserver3.2.6_x64 executable file and select **“Run as administrator”**. you will be asked to choose your preferred language and click the **“Ok”** button.



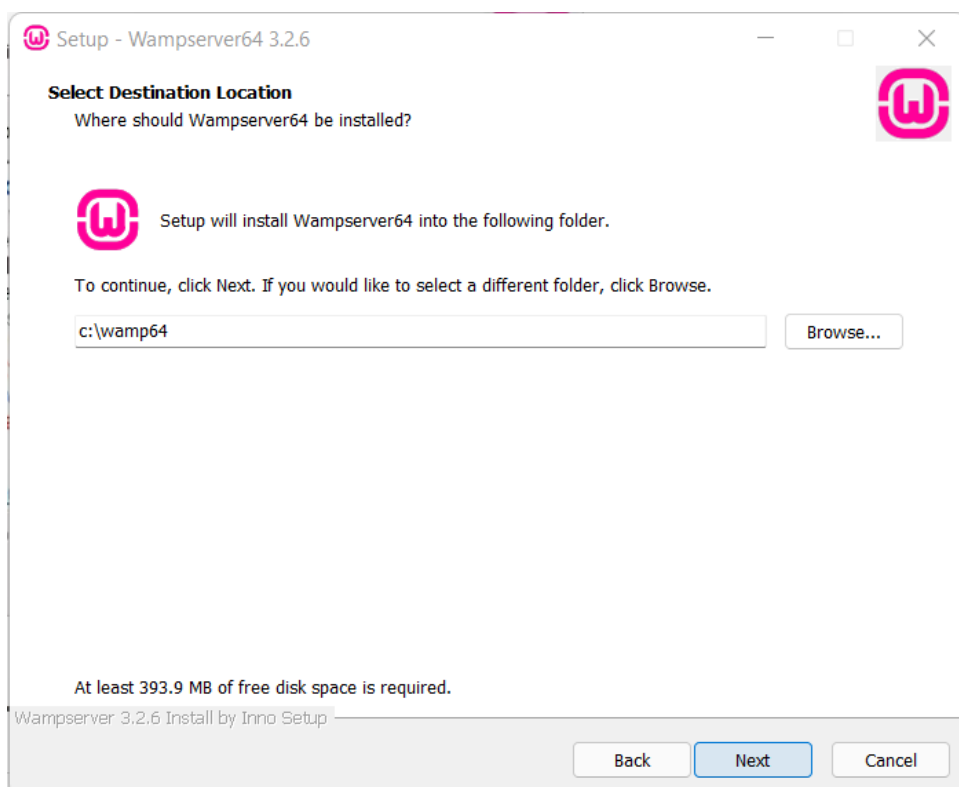
The next screen you will see is about the license agreement. Click on the **“I accept the agreement”** radio button and then the **“Next”** button to continue with the installation shown below.



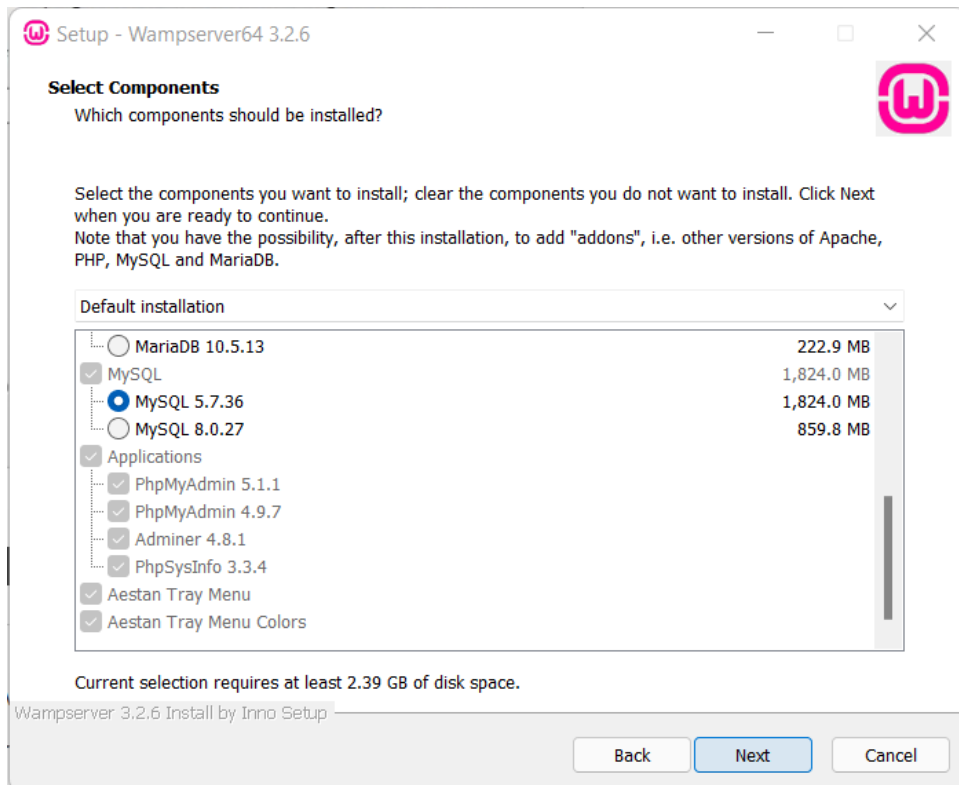
The next screen will inform you about the required components that have to be present in your computer system for the proper functioning of the WAMPServer. The main purpose of this step is to check for the suitable version of Microsoft VC++ re-distributable package. Click on the **‘Next’** to continue



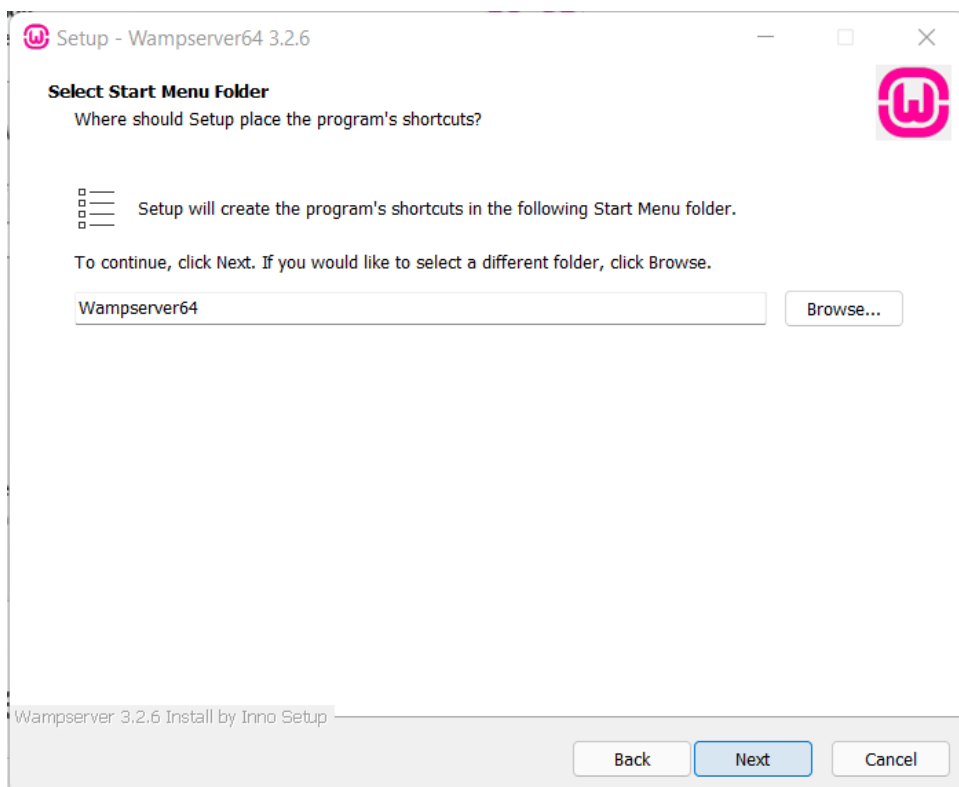
7. Select the location to install WAMP and hit the 'Next' button



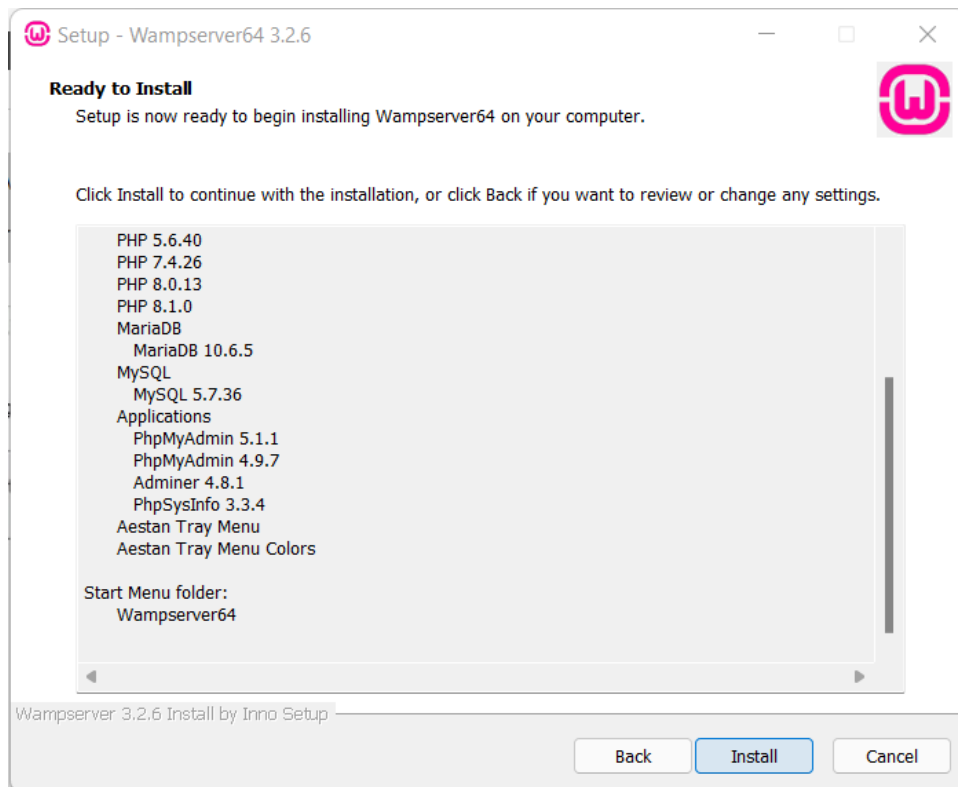
8. On the components page, select Default installation and click the 'Next' button



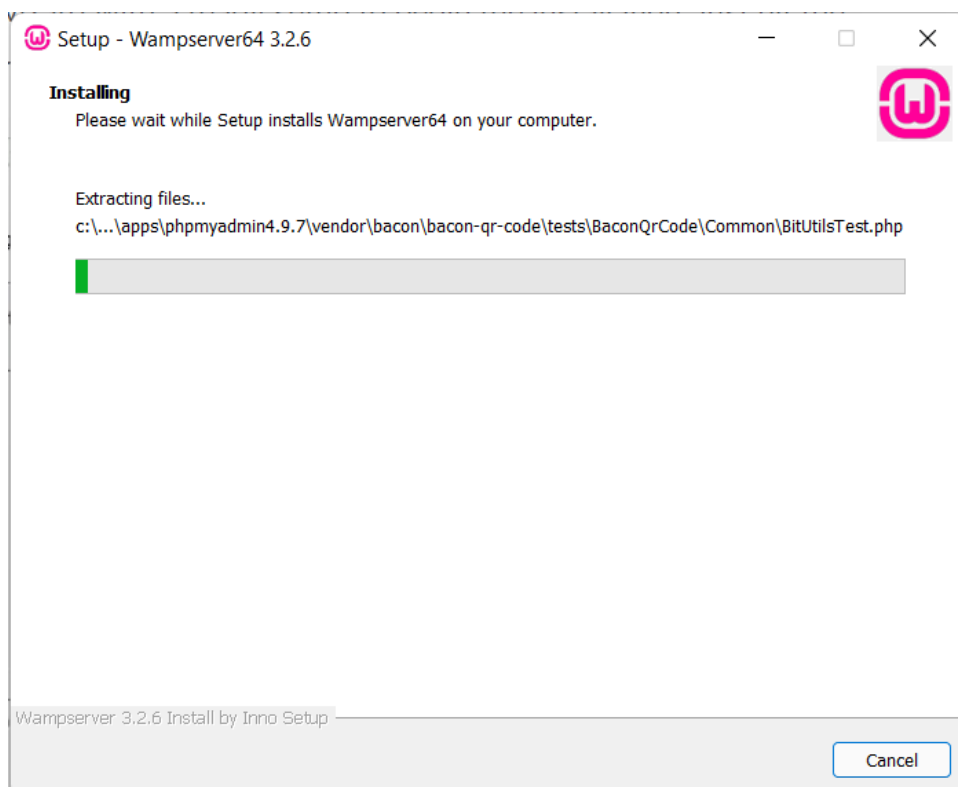
9. Now, you need to select the folder where you wish to create the program's shortcut. You can select any folder of your choice or you can continue with the default option. You can easily access this folder from the Windows start button. Choose the folder and click '**Next**' to continue.



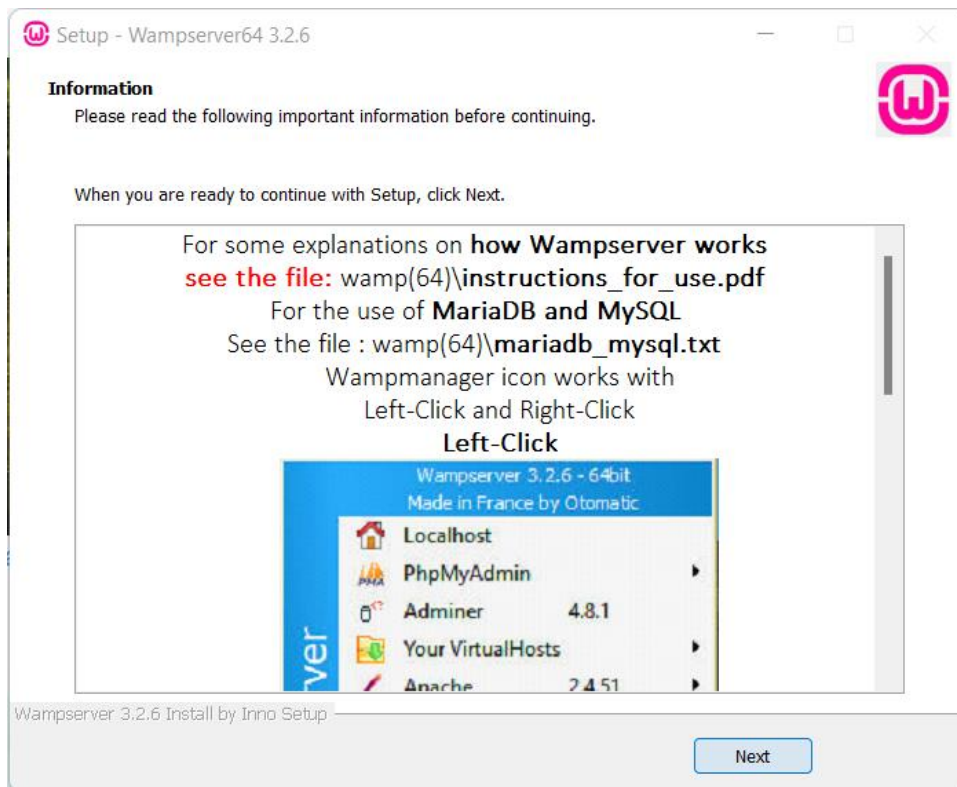
10. Finally, you would see a ready to install wizard with a ready setup to begin the installation. Just hit the '**Install**' button to begin the installation procedure.



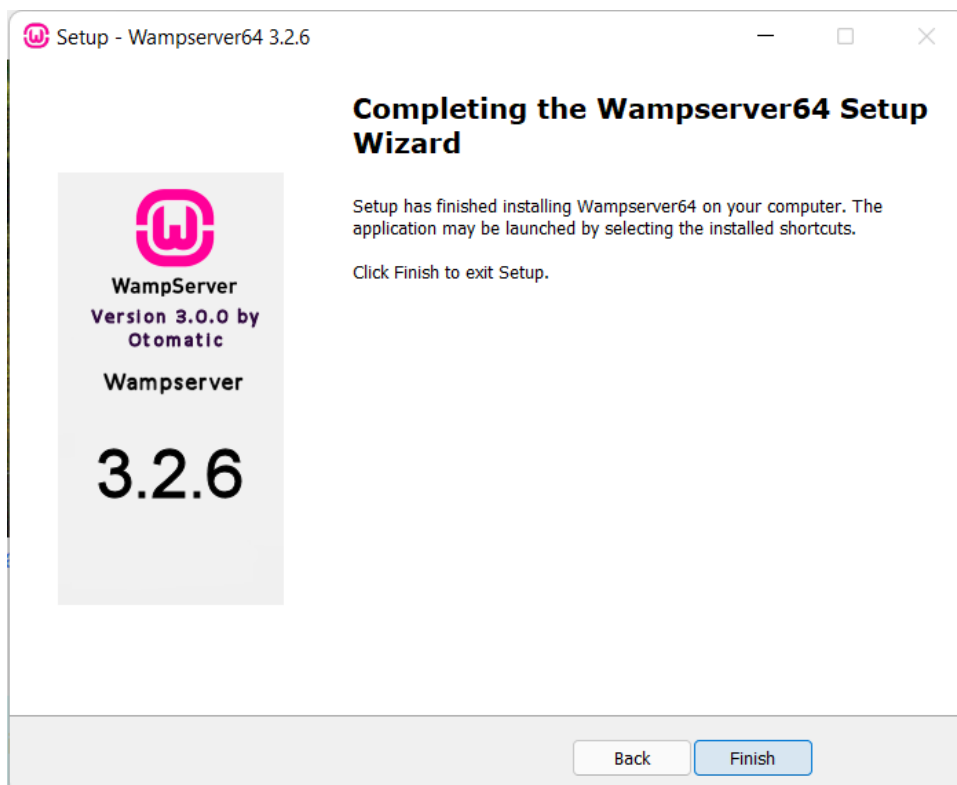
Now, just be patient as the WAMPServer is extracting files to your selected location. Let the process complete.



Once the status bar is turned fully green, an information screen will appear like the one shown below. Click **'Next'** to continue.



The installation is almost done now simply click **'Finish'** to exit the setup.



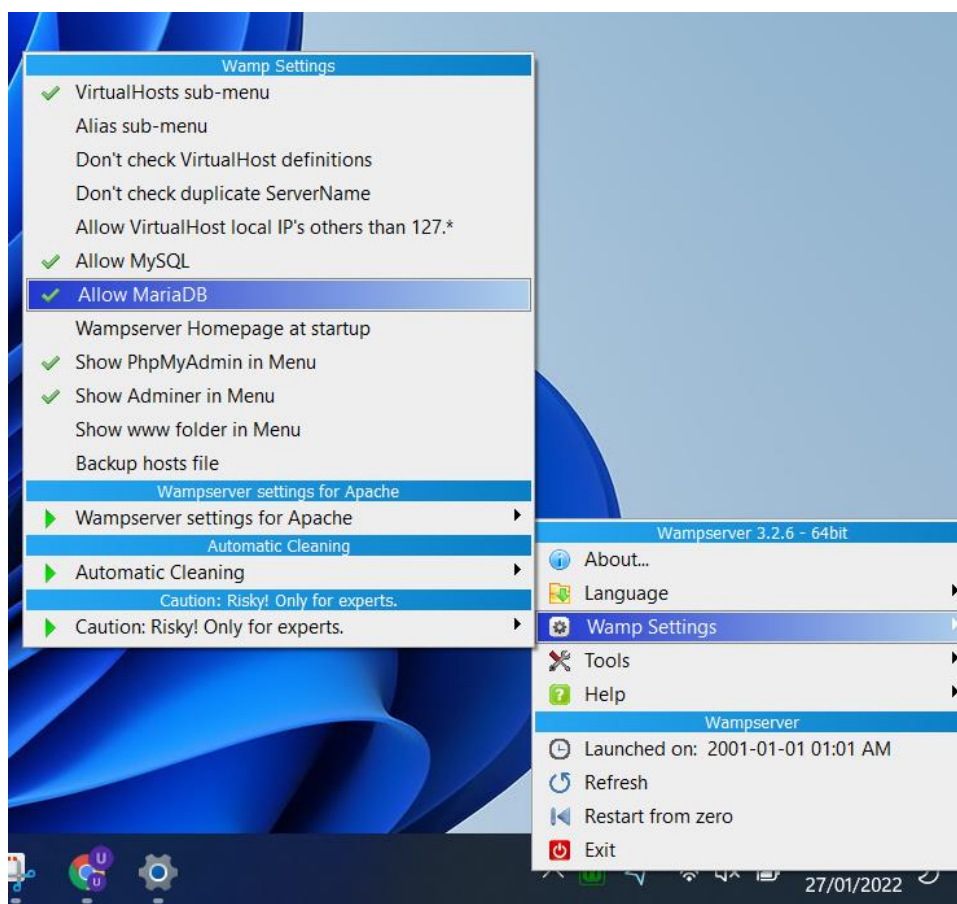
Step 2: Configure WAMP server

By default, WAMP server installs Apache2 web server, MySQL database system and PHP. To ensure that there is no conflict with the OpenMRS database system, we have to disable and remove all unneeded applications on the WAMP server. To do this, follow the steps below:

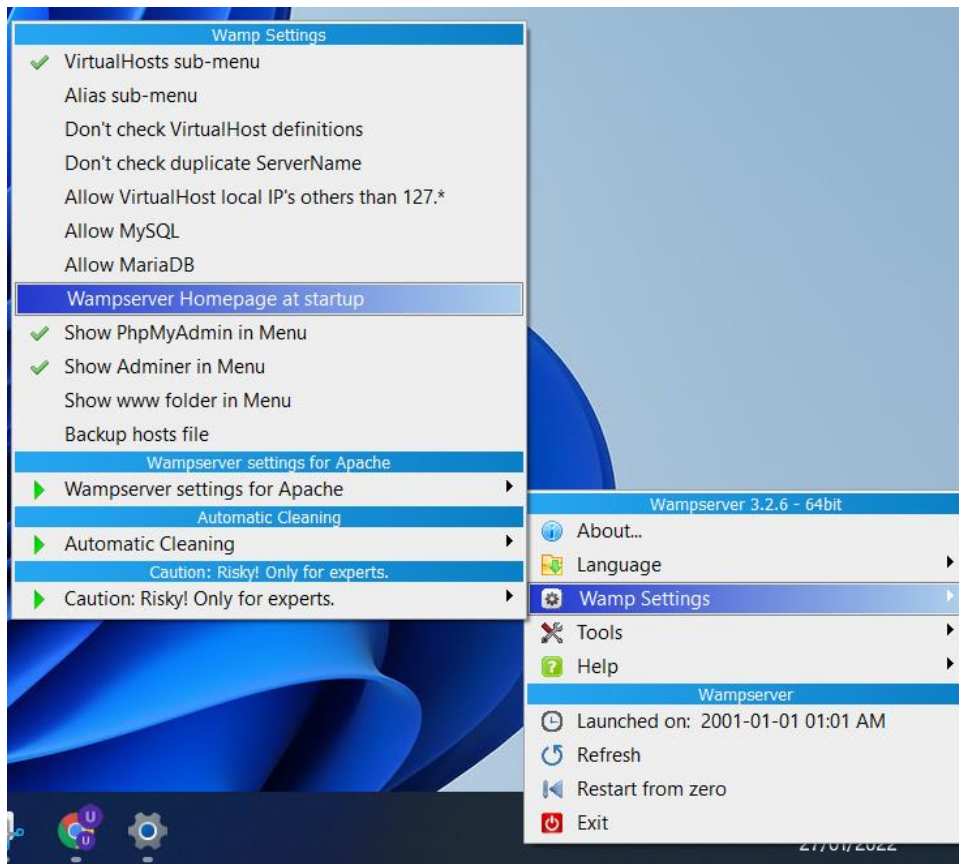
1. Open the WAMP server application by double-clicking the icon on your Desktop or start menu
2. Deactivate the database system by right-clicking on the WAMPmanager tray icon, hovering on WAMP settings and unchecking “**Allow MariaDB**” and “**Allow MySQL**”

wampmanager tray icon -> Wamp settings -> Allow MariaDB (to uncheck it)

wampmanager tray icon -> Wamp settings -> Allow MySQL (to uncheck it)



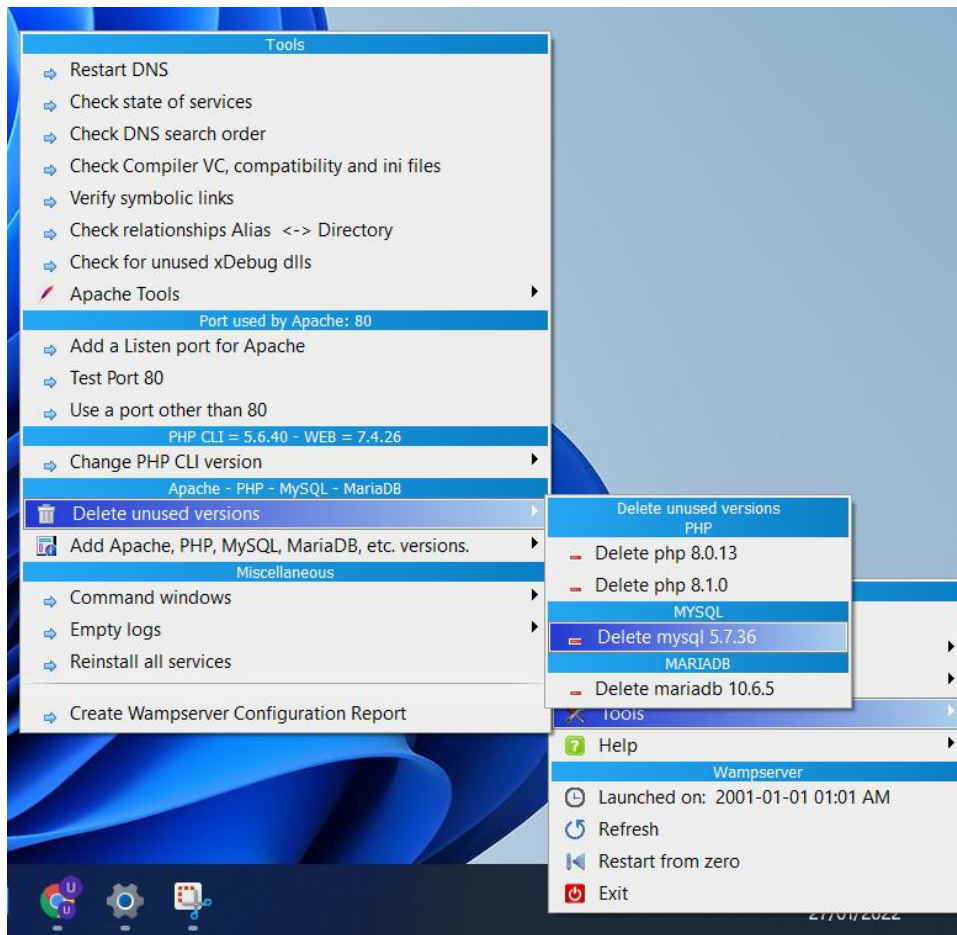
After unchecking the MySQL and MariaDB services, check the WAMP settings to confirm that the two services are not active. The WAMP settings should look like this



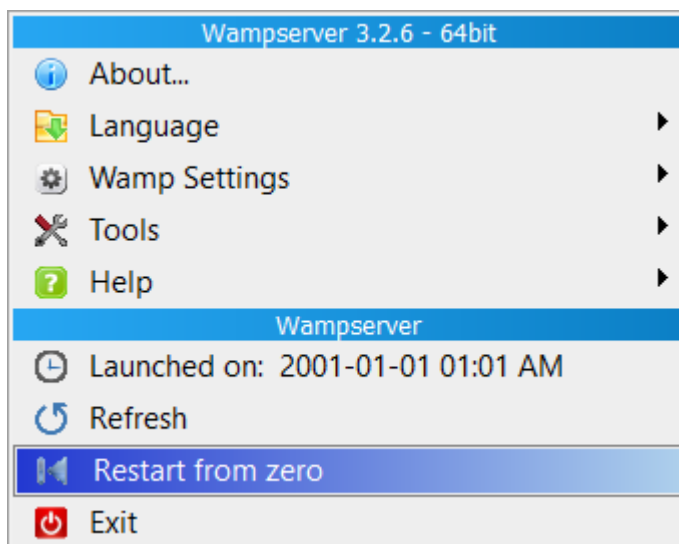
3. Delete the MySQL and MariaDB service by right-clicking on the wampmanager tray icon, hovering on Tools, selecting Delete unused versions and clicking on **"Delete mysql 5.7.36"** and **"Delete mariadb 10.6.5"**

wampmanager tray icon -> Tools -> Delete unused versions -> Delete mysql 5.7.36 (to delete it)

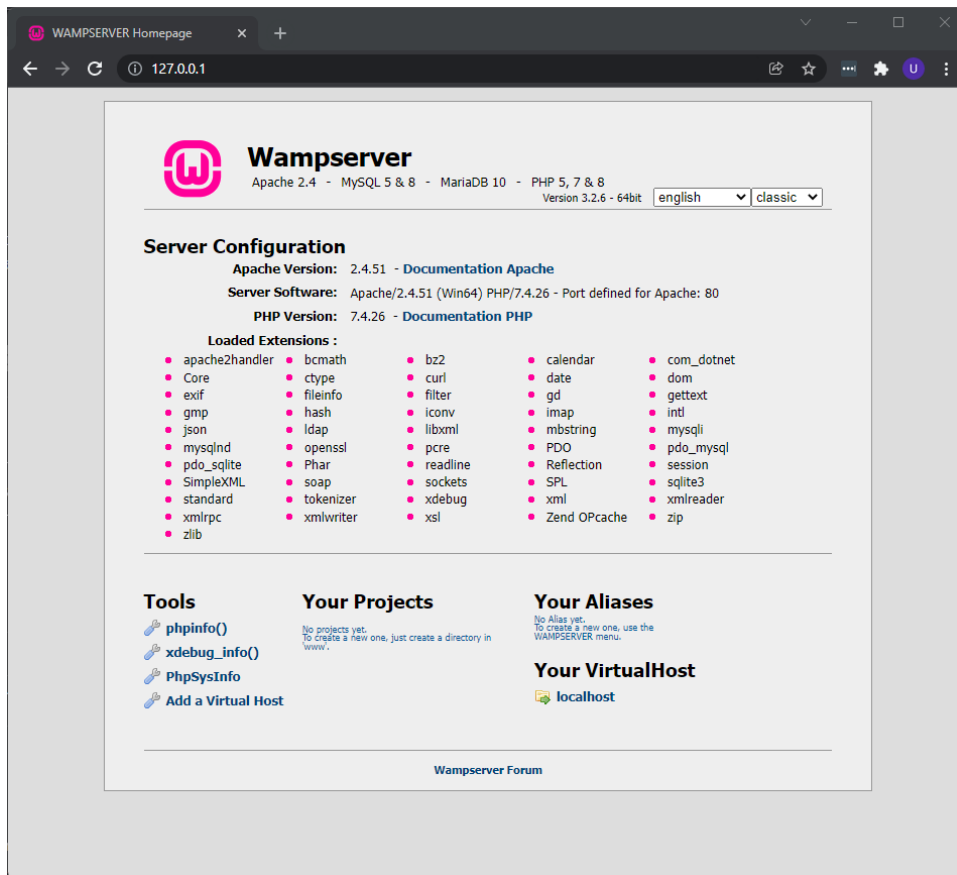
wampmanager tray icon -> Tools -> Delete unused versions -> Delete mariadb 10.6.5 (to delete it)



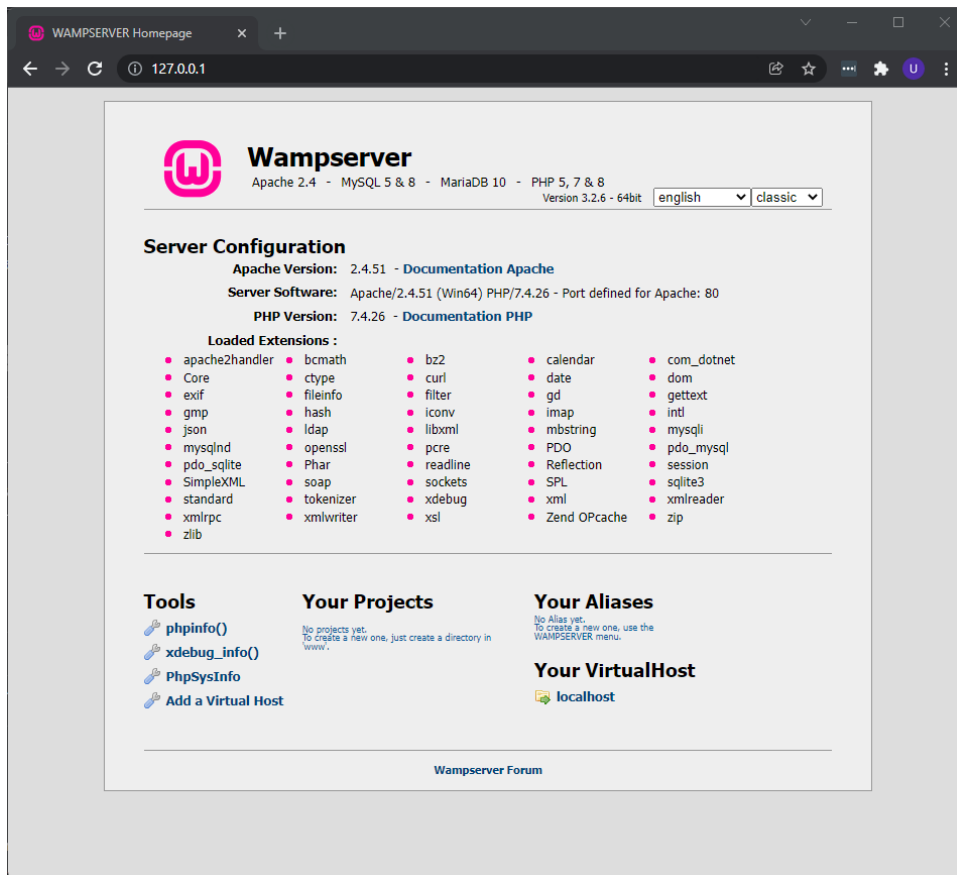
4. Restart the WAMP server to implement the changes made. To do this, navigate to the WAMP system tray icon, right-click on the icon and select '**Restart from zero**'



5. Confirm that the WAMPserver is running by going to <http://127.0.0.1/> on a web browser. It should display a homepage like this



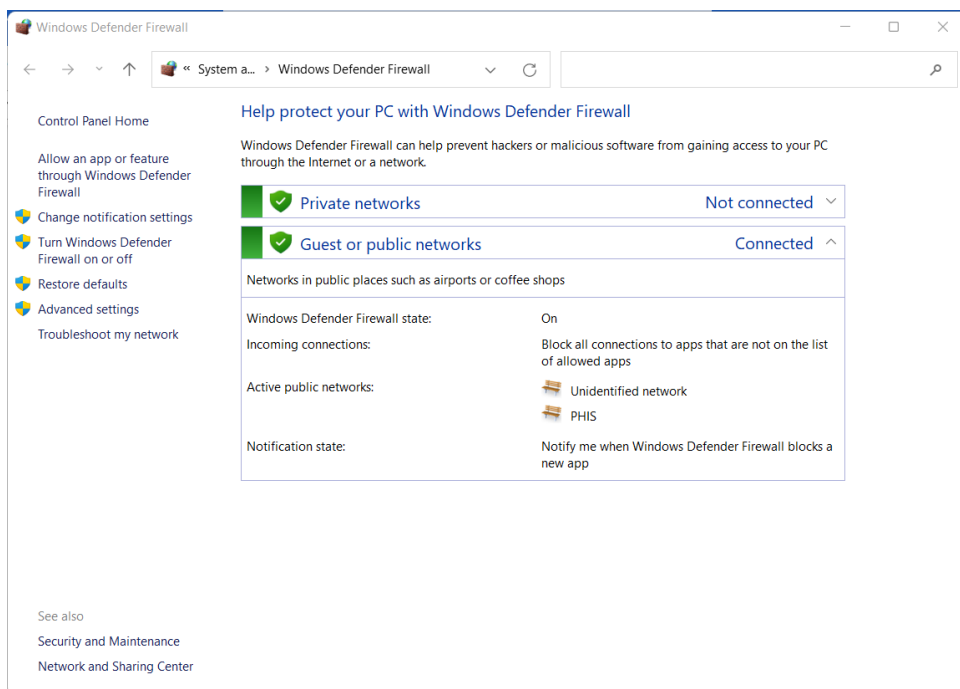
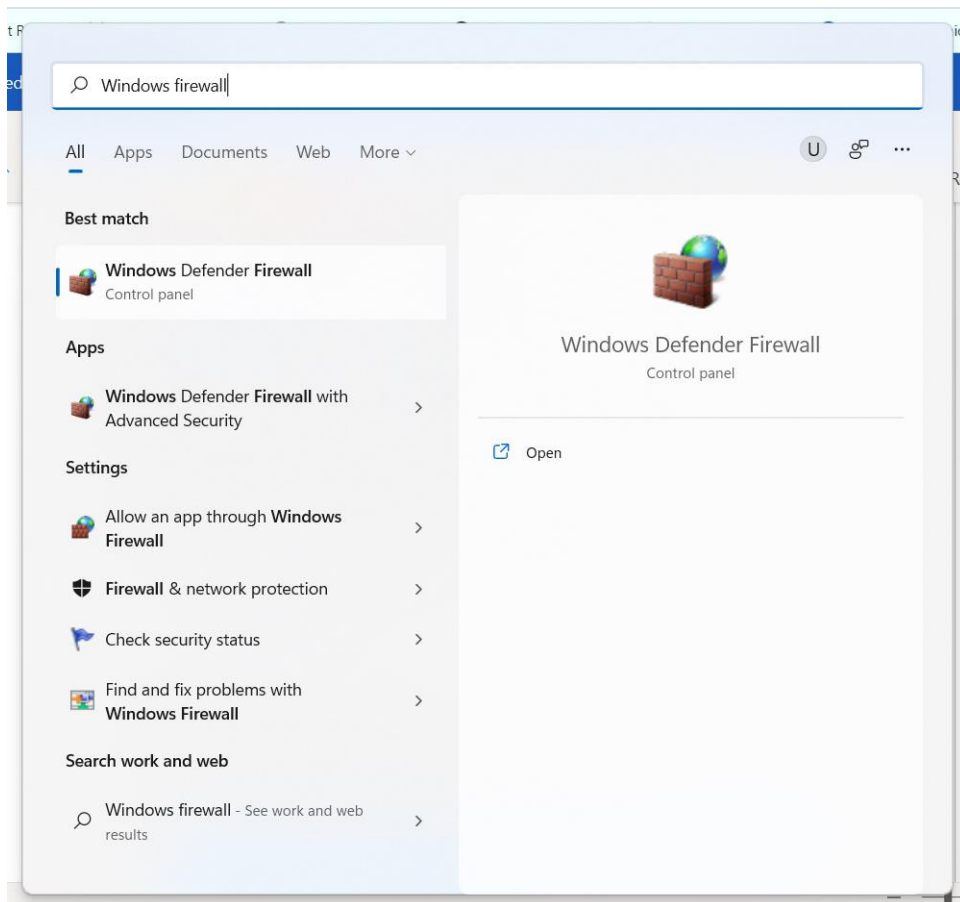
6. After the configurations have been carried out, restart the computer system
7. Upon system startup, open the WAMP server application by **double-clicking** the icon on your Desktop or start menu and confirm that the WAMP server is running by going to <http://127.0.0.1/> on a web browser.



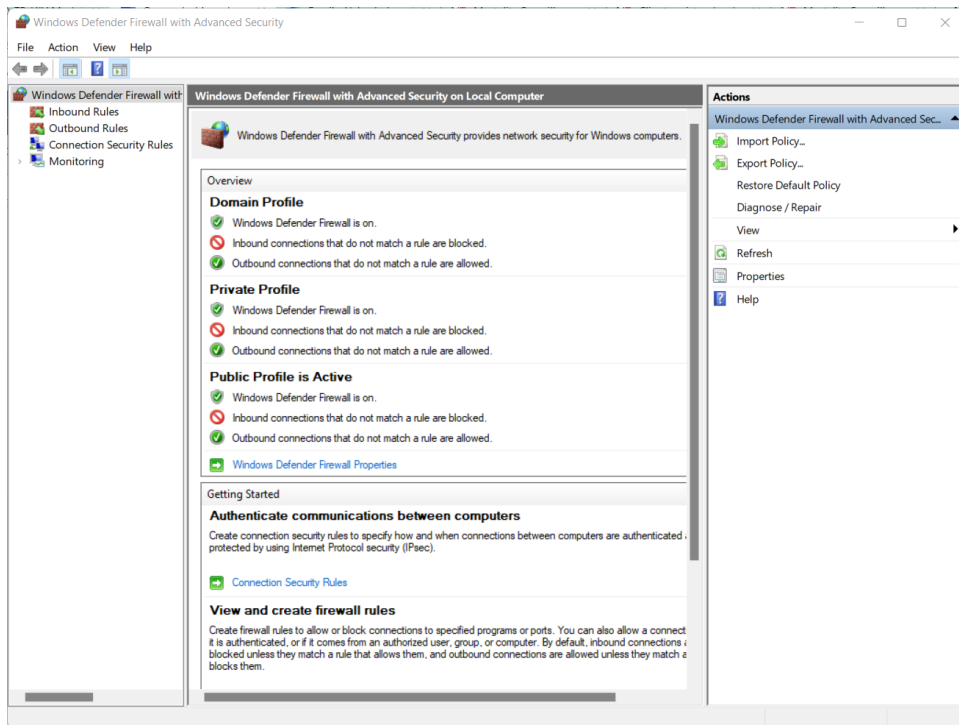
Step 3: Open WAMP server port on windows firewall

To ensure that all users in a local network can access the contents of the WAMP Apache2 web server, the web port has to be opened on the windows firewall tool. To do this, follow the steps below

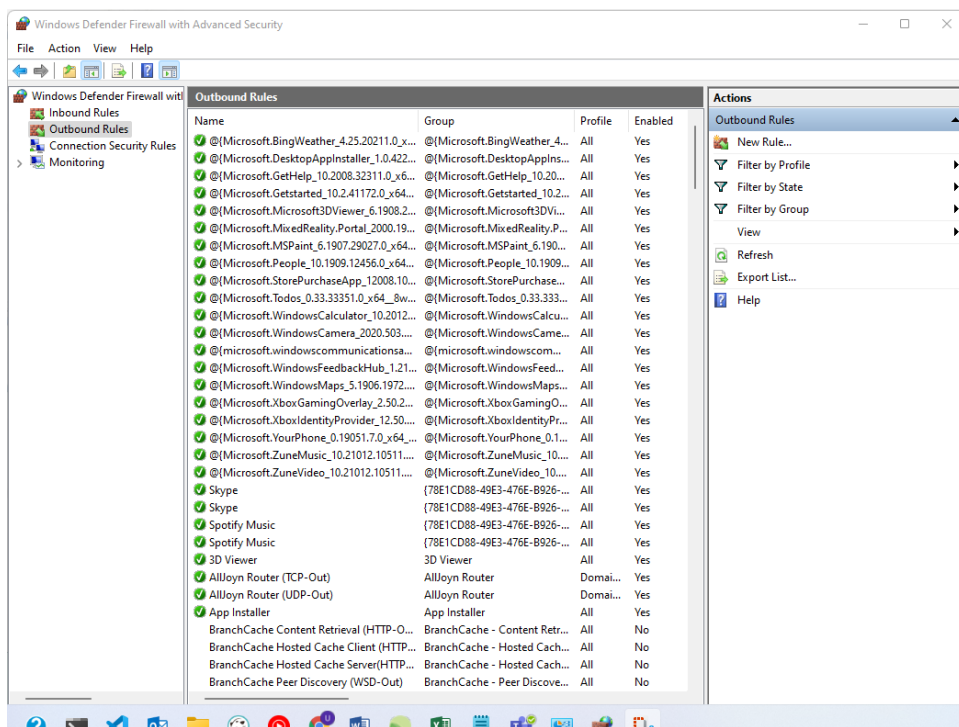
1. Open the windows firewall application by clicking on the search button (or typing Win key + s) and type **"Windows firewall"** and click **"Open"** to start the application.



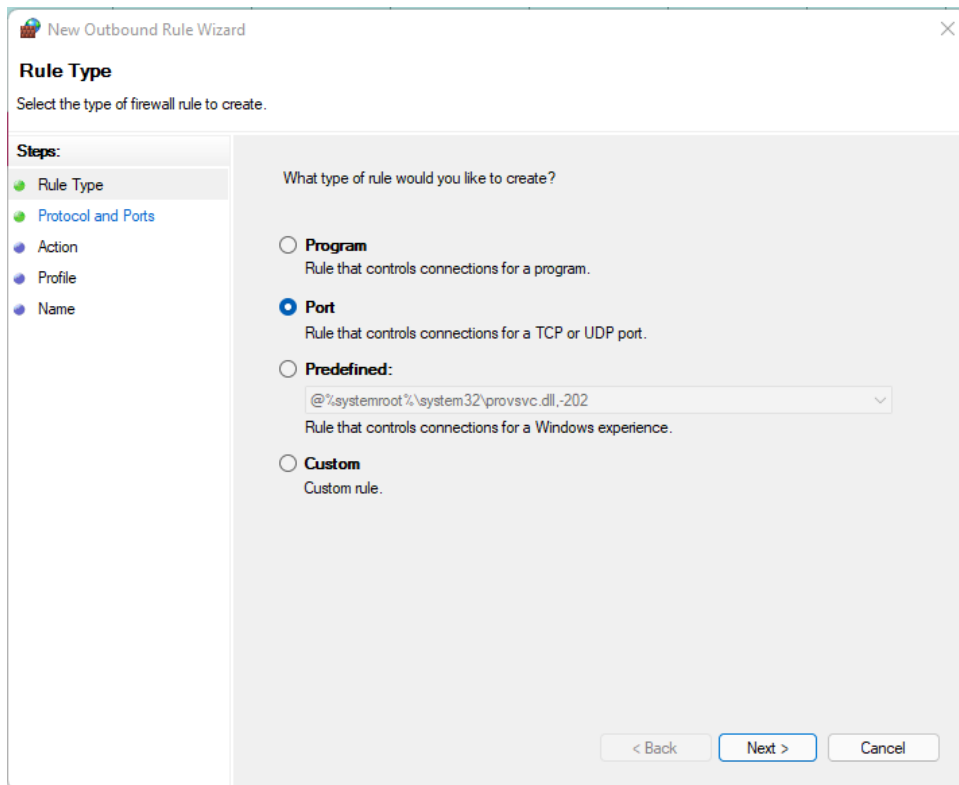
2. After the Windows Defender Firewall application has been opened, click “Advanced settings” located on the left-side of the app window to open the firewall configuration page



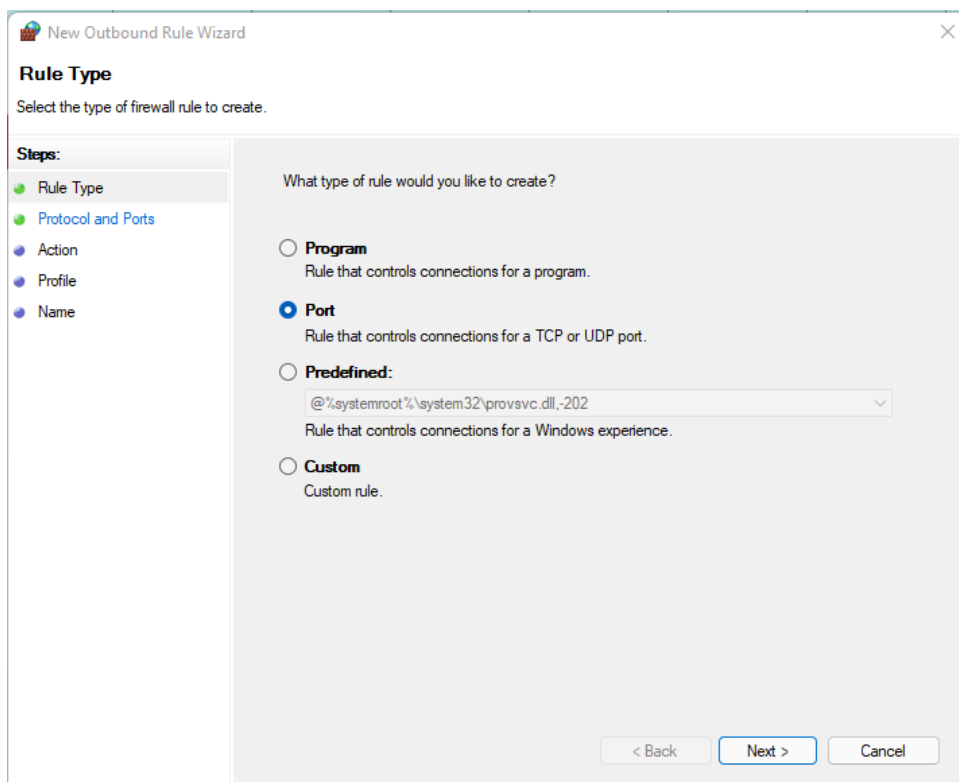
3. Click Outbound Rules in the left frame of the window.



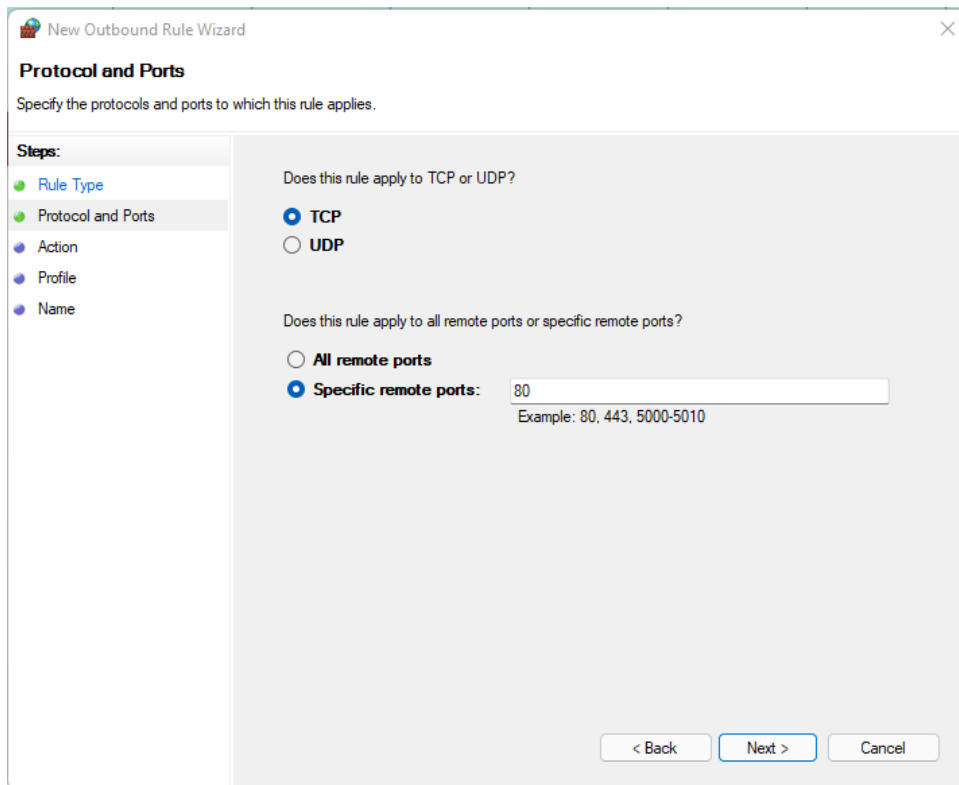
4. Click "New Rule..." in the right frame of the window.



5. Click “Port” and click “Next”



6. Click “TCP” and type a port number. (In this case, we will open port 80)



New Outbound Rule Wizard

Protocol and Ports

Specify the protocols and ports to which this rule applies.

Steps:

- Rule Type
- Protocol and Ports
- Action
- Profile
- Name

Does this rule apply to TCP or UDP?

☒ TCP

☐ UDP

Does this rule apply to all remote ports or specific remote ports?

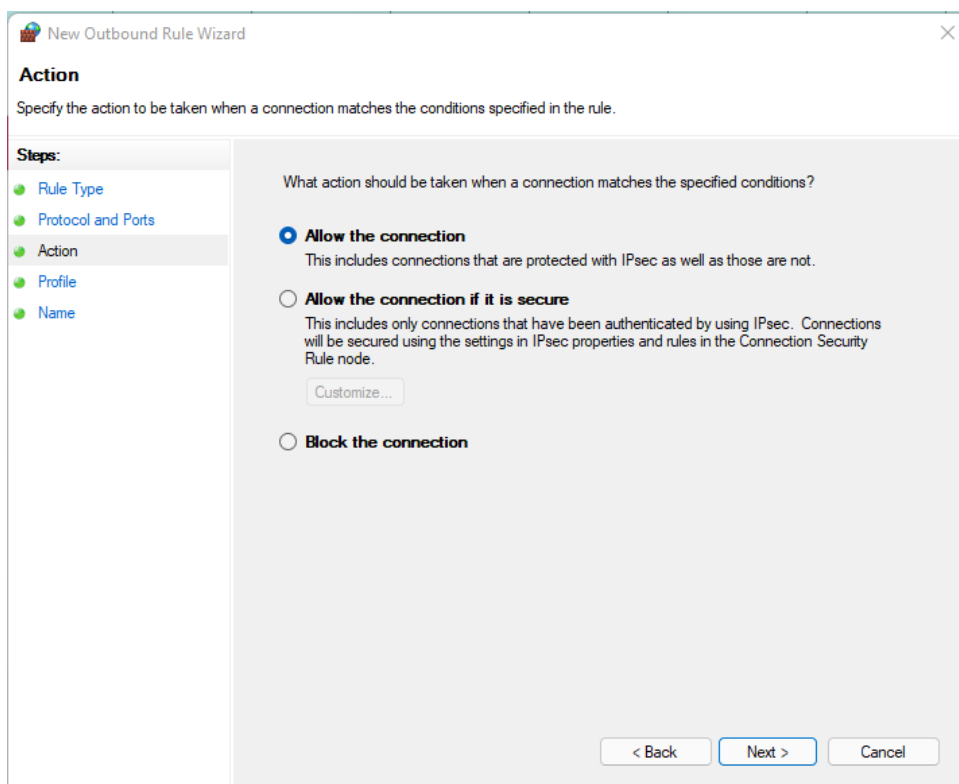
☐ All remote ports

☒ Specific remote ports:

Example: 80, 443, 5000-5010

< Back Next > Cancel

- Click **"Next"**
- Select **"Allow the connection."** and click **"Next"**



New Outbound Rule Wizard

Action

Specify the action to be taken when a connection matches the conditions specified in the rule.

Steps:

- Rule Type
- Protocol and Ports
- Action
- Profile
- Name

What action should be taken when a connection matches the specified conditions?

☒ **Allow the connection**

This includes connections that are protected with IPsec as well as those are not.

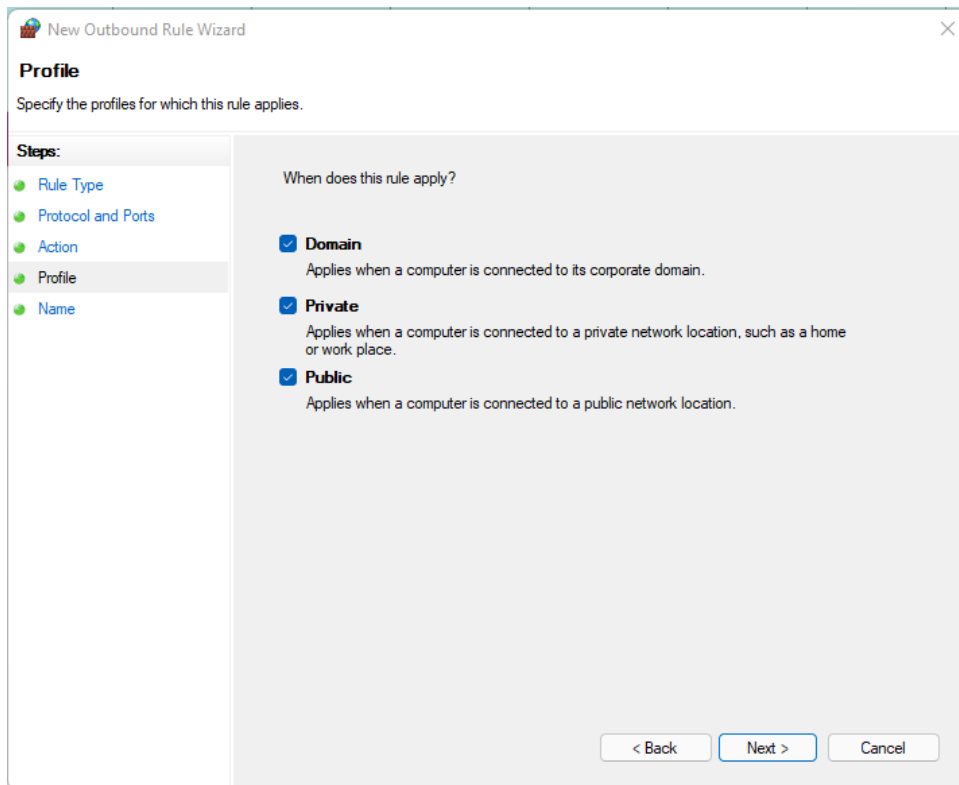
☐ **Allow the connection if it is secure**

This includes only connections that have been authenticated by using IPsec. Connections will be secured using the settings in IPsec properties and rules in the Connection Security Rule node.

☐ **Block the connection**

< Back Next > Cancel

- Select the checkbox for **Domain, Private and Public** and click **"Next"**



New Outbound Rule Wizard

Profile

Specify the profiles for which this rule applies.

Steps:

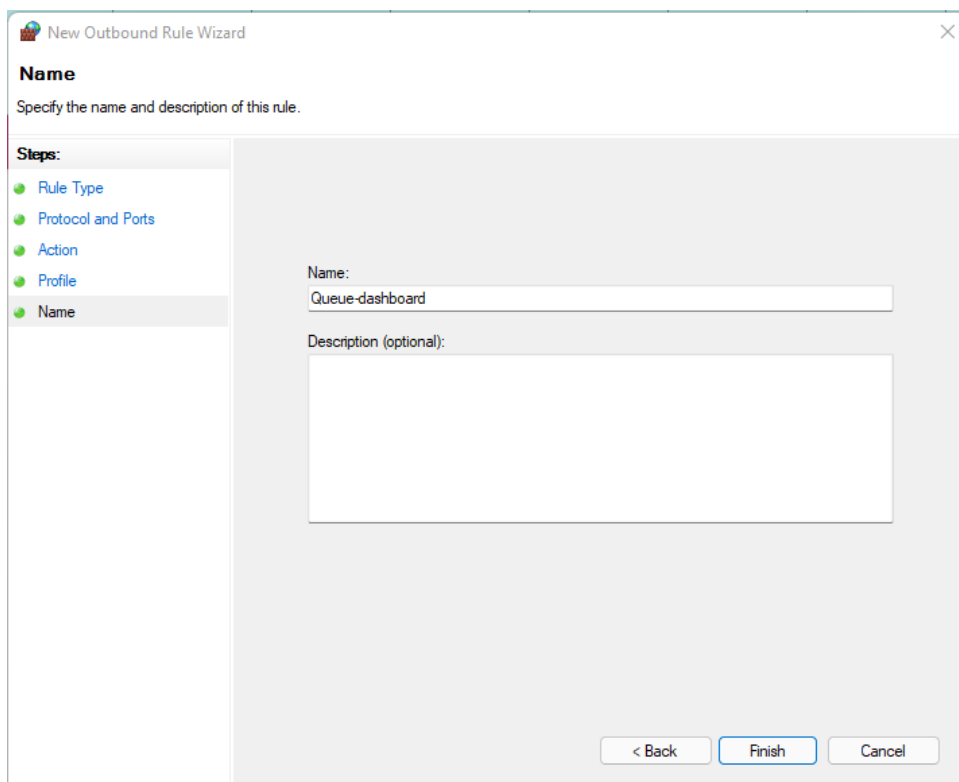
- Rule Type
- Protocol and Ports
- Action
- Profile
- Name

When does this rule apply?

- ☒ **Domain**
Applies when a computer is connected to its corporate domain.
- ☒ **Private**
Applies when a computer is connected to a private network location, such as a home or work place.
- ☒ **Public**
Applies when a computer is connected to a public network location.

< Back Next > Cancel

10. Type a name for the rule, and click “**Finish**”



New Outbound Rule Wizard

Name

Specify the name and description of this rule.

Steps:

- Rule Type
- Protocol and Ports
- Action
- Profile
- Name

Name:

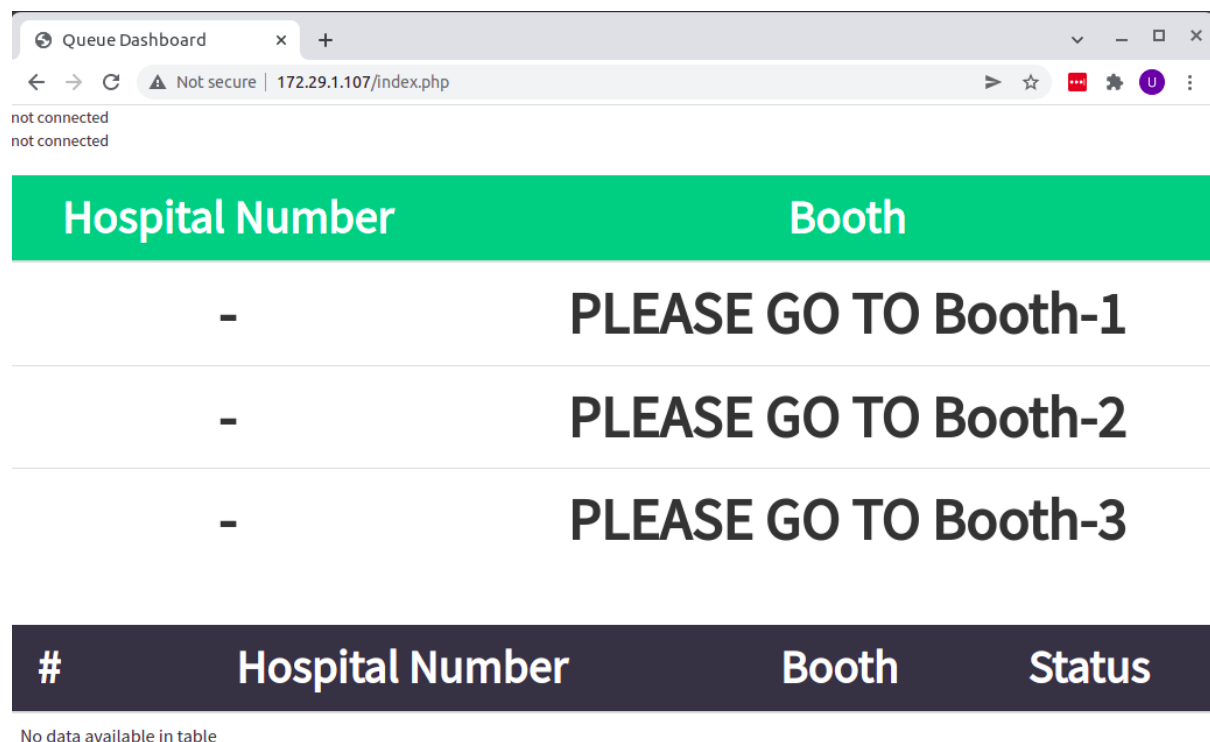
Description (optional):

< Back Finish Cancel

Step 4: Setup dashboard app on web server

After setting up the WAMP server, the next step will be to host the dashboard resource on the web server. Follow the steps below to setup a virtual host on the web server:

1. Delete the contents of the WAMP apache2 web directory located at 'C:\wamp64\www'
2. Download the compressed patient queue dashboard file from this link: https://apinnigeria-my.sharepoint.com/:u:/g/personal/hisupport_phis3project_org_ng/EXZEY88j9O9Pi-j9zCmg5KABhW-NwyGaiWtUXhWg3g8ByA?e=agW6jX
3. Extract the contents of the compressed queue dashboard file to the WAMP apache2 web directory located at 'C:\wamp64\www'
4. Confirm that the dashboard app has been setup on the web host server by navigating to a web browser and opening <http://127.0.0.1/index.php>



Hospital Number	Booth
-	PLEASE GO TO Booth-1
-	PLEASE GO TO Booth-2
-	PLEASE GO TO Booth-3

#	Hospital Number	Booth	Status
No data available in table			

Step 4: Connect dashboard to NMRS database

After setting up the dashboard, the next step will be to connect the dashboard to the NMRS database. The dashboard fetches patient's queue data from the NMRS database and is configured to update the records every 30 seconds. To connect the dashboard to the database, follow these steps;

1. Go to the web directory where the codebase of the dashboard is stored
'C:\wamp64\www'
2. Edit the contents of the **config.php** file with the NMRS MySQL database credentials on a text editor

Update the mysqli_connect variables with the database credentials where

'db_host' = database hostname/ip address eg. 127.0.0.1

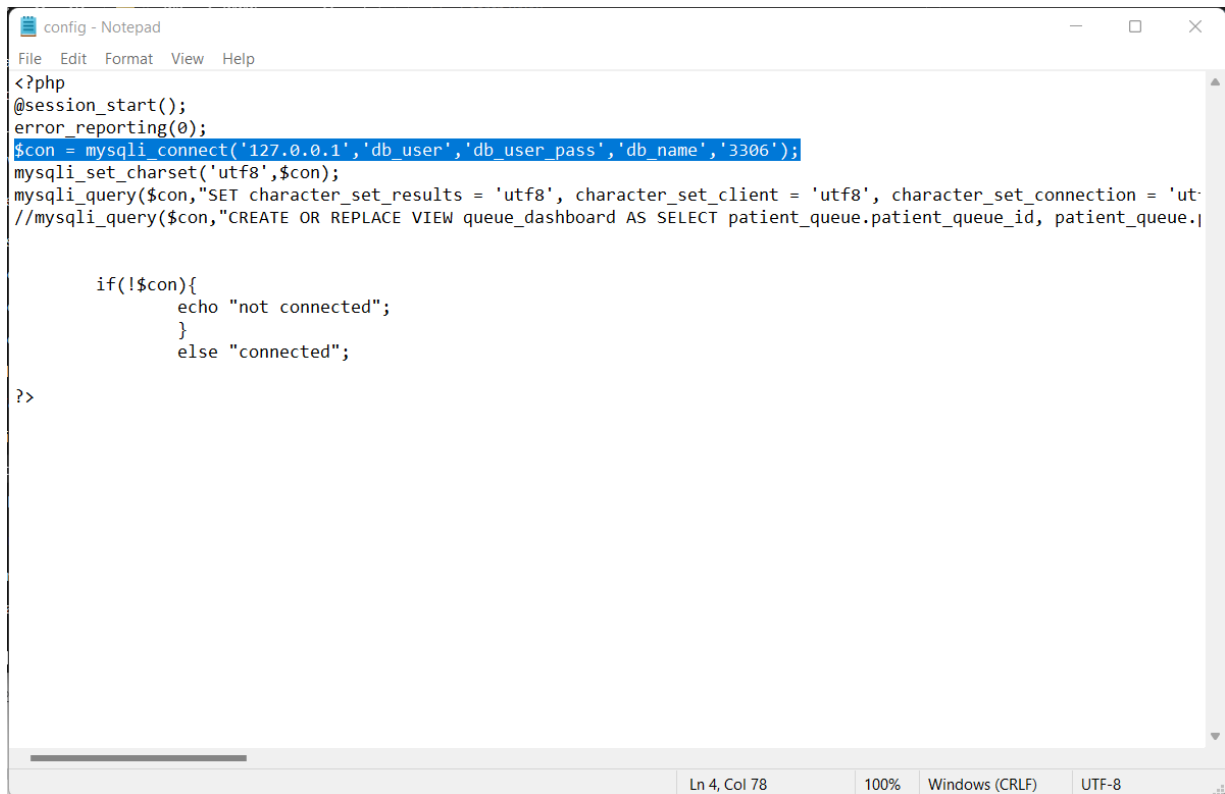
'db_user' = database username eg. Nmrsadmin

'db_user_pass' = password for database user eg. NMRSadmin1234

'db_name' = database name eg. NMRSP0C

3306 = database port number (3306 is the default port number for MySQL)

Save and close the file when you are finished.



```
config - Notepad
File Edit Format View Help
<?php
@session_start();
error_reporting(0);
$con = mysqli_connect('127.0.0.1','db_user','db_user_pass','db_name','3306');
mysqli_set_charset('utf8',$con);
mysqli_query($con,"SET character_set_results = 'utf8', character_set_client = 'utf8', character_set_connection = 'ut-
//mysqli_query($con,"CREATE OR REPLACE VIEW queue_dashboard AS SELECT patient_queue.patient_queue_id, patient_queue.

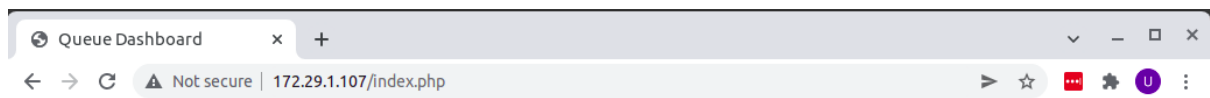
    if(!$con){
        echo "not connected";
    }
    else "connected";

?>
```

Ln 4, Col 78 100% Windows (CRLF) UTF-8

3. Restart the WAMP server to implement the changes. To do this, navigate to the WAMP system tray icon, right-click on the icon and select '**Restart from zero**'

NOTE: You can test this by navigating to **http://your_ip_address/index.php**, where you should see something like this:



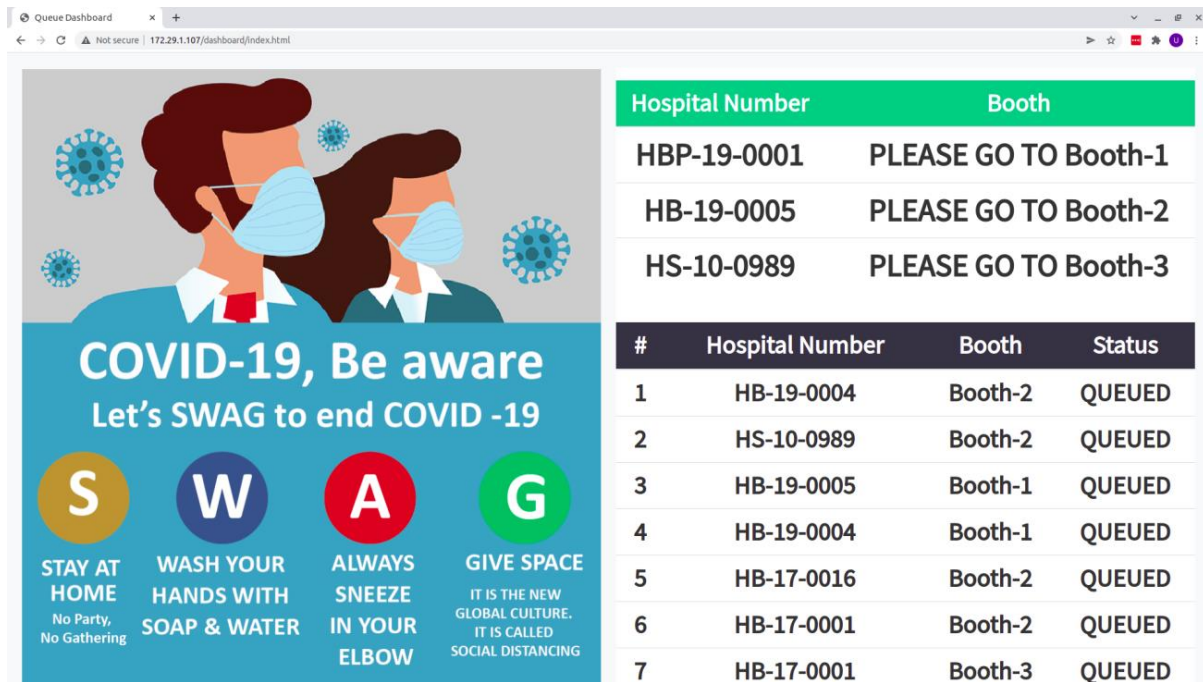
Hospital Number	Booth
HBP-19-0001	PLEASE GO TO Booth-1
HB-19-0005	PLEASE GO TO Booth-2
HS-10-0989	PLEASE GO TO Booth-3

#	Hospital Number	Booth	Status
1	HB-19-0004	Booth-2	QUEUED
2	HS-10-0989	Booth-2	QUEUED
3	HB-19-0005	Booth-1	QUEUED
4	HB-19-0004	Booth-1	QUEUED

Step 5: Setup the web dashboard

After the patient queue dashboard has been setup and configured, the public dashboard can now be displayed. To open the public dashboard, navigating to

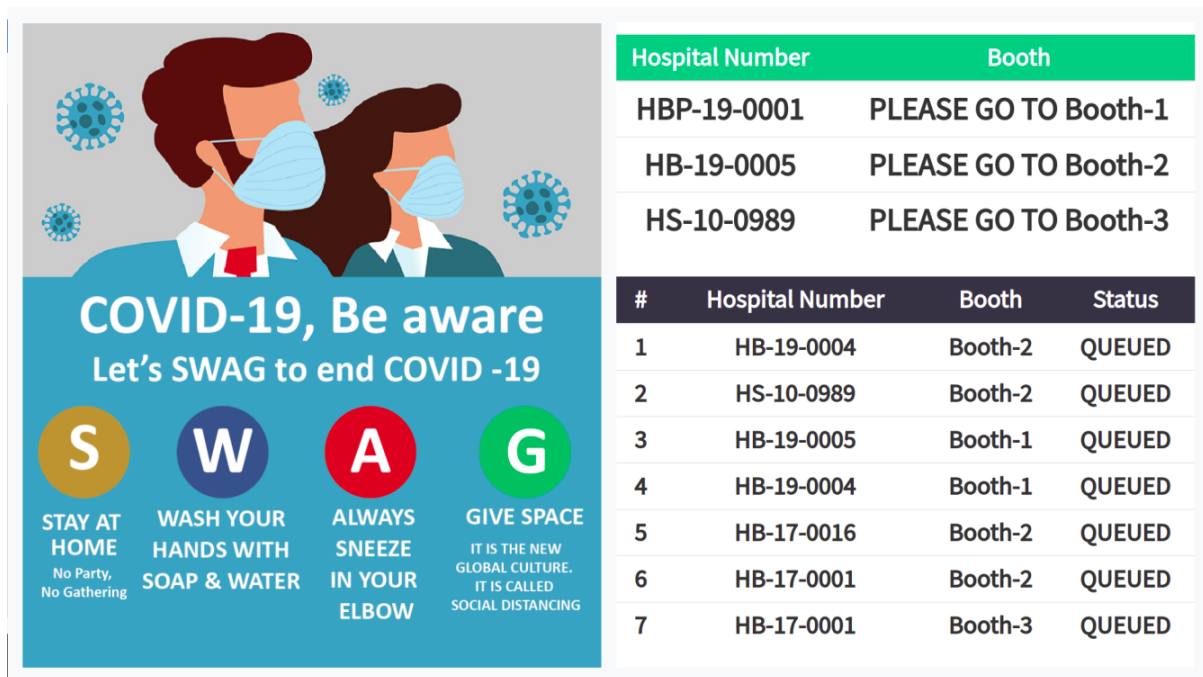
http://your_ip_address/dashboard/index.html, where you should see something like this:



Hospital Number	Booth
HBP-19-0001	PLEASE GO TO Booth-1
HB-19-0005	PLEASE GO TO Booth-2
HS-10-0989	PLEASE GO TO Booth-3

#	Hospital Number	Booth	Status
1	HB-19-0004	Booth-2	QUEUED
2	HS-10-0989	Booth-2	QUEUED
3	HB-19-0005	Booth-1	QUEUED
4	HB-19-0004	Booth-1	QUEUED
5	HB-17-0016	Booth-2	QUEUED
6	HB-17-0001	Booth-2	QUEUED
7	HB-17-0001	Booth-3	QUEUED

To access the dashboard in full screen mode, type the f11 key on your keyboard.



Hospital Number	Booth
HBP-19-0001	PLEASE GO TO Booth-1
HB-19-0005	PLEASE GO TO Booth-2
HS-10-0989	PLEASE GO TO Booth-3

#	Hospital Number	Booth	Status
1	HB-19-0004	Booth-2	QUEUED
2	HS-10-0989	Booth-2	QUEUED
3	HB-19-0005	Booth-1	QUEUED
4	HB-19-0004	Booth-1	QUEUED
5	HB-17-0016	Booth-2	QUEUED
6	HB-17-0001	Booth-2	QUEUED
7	HB-17-0001	Booth-3	QUEUED

Multiple dashboard interfaces were setup for the different service areas in a facility. The following are the links to the dashboards for each location”

1. Accidents and emergencies (A and E):

<http://127.0.0.1/dashboard/aande.html>

or

http://your_ip_address/dashboard/aande.html

2. Anti-Retroviral Therapy (ART) service area

<http://127.0.0.1/dashboard/art.html>

or

http://your_ip_address/dashboard/art.html

3. Directly Observed Therapy (DOT) service area

<http://127.0.0.1/dashboard/dot.html>

or

http://your_ip_address/dashboard/dot.html

4. General Out Patient Department (GOPD) service area

<http://127.0.0.1/dashboard/gopd.html>

or

http://your_ip_address/dashboard/gopd.html

5. Prevention of Mother To Child Transmission service area

<http://127.0.0.1/dashboard/pmtct.html>

or

http://your_ip_address/dashboard/pmtct.html

To display the combined patient queue records across all service areas, use this link

<http://127.0.0.1/dashboard/index.html>

or

http://your_ip_address/dashboard/index.html