

## Installing OptiRain Open on Raspbian

This document shows how to install OptiRain Open 2 on a Raspberry Pi running Raspbian Version 9 (stretch). This note assumes you have a fresh Raspbian install on a Raspberry Pi board.

Since Raspbian is a Linux distribution based on Debian, this note also applies to Linux systems, though some of the install folders and owners may be different on different Linux distributions.

OptiRain Open is a web application that uses Apache, PHP, and SQLITE. Even if your Raspberry Pi already has these packages installed you should NOT skip step 3. You will most likely need to install PHP extensions for XML and for CURL.

You will also need an FTP package installed on your Pi. Installing an optional email transfer agent allows email alerts.

### Step 1. Open a Terminal

SSH into your Raspberry Pi and log in.

### Step 2. Update your Pi.

Make sure the packages on your Pi are up to date:

```
sudo apt-get update
sudo apt-get upgrade
```

### Step 3. Install support software

OptiRain Open requires Apache, PHP, and SQLite. OptiRain Open was written for PHP7 and above. Install Apache, PHP, required PHP extensions, and SQLite using the following commands:

```
sudo apt-get install apache2 -y

sudo apt-get install php7.0 libapache2-mod-php7.0 php7.0-sqlite3 -y
sudo apt-get install php7.0-xml
sudo apt-get install php7.0-curl
```

Then restart apache:

```
sudo service apache2 restart
```

#### **Step 4. Check Web Server**

After above, use a browser and type in the name of your Raspberry Pi. For example, for a Pi named "rpi3" enter:

```
http://rpi3/
```

The default index.html page should be displayed. When the page has been displayed move to the next step.

#### **Step 5. Install and Configure FTP Server**

An FTP server might already be installed on your Pi. If so, skip this step.

Install an FTP server:

```
sudo apt-get install vsftpd
```

Configure the FTP server:

```
sudo nano /etc/vsftpd.conf
```

Search through the file and change the following lines with in the file:

Check that disable anonymous is uncommented:

```
anonymous_enable=NO
```

Uncomment:

```
local_enable=YES
```

Uncomment:

```
write_enable=YES
```

Uncomment:

```
local_umask=022
```

Uncomment: (allow ascii mode transfer):

```
ascii_upload_enable=YES
```

```
ascii_download_enable=YES
```

Uncomment:

```
ls_recurse_enable=YES
```

Insert the following new lines anywhere if not found in file:

```
file_open_mode=0777
```

```
text_userdb_names=YES
```

Save the file:

If using nano, hold the Ctrl key and press "x", then "y", then the Return / Enter key.

Restart the FTP server:

```
sudo service vsftpd restart
```

## Step 6. Configure the WWW Directory

After performing the above, navigate (in SSL terminal) to:

```
/var/www/html
```

Set up permissions to be able to FTP into the `/var/www` directory.

This directory is initially owned by root, so change it to the httpd user `www-data`.

```
sudo chown -R www-data /var/www/html
sudo chgrp -R www-data /var/www/html
sudo chmod -R 4775 /var/www/html
```

(the `chmod` commands sets the group sticky bit so new directories inherit the existing group)

Put the raspberry pi ftp user (pi or whatever user you will ftp in as) into the `www-data` group

```
usermod -a -G www-data pi
```

Change ownership of the `html` directory to the ftp user:

```
sudo chown -R pi /var/www/html
```

## Step 7. Transfer the OptiRain Open Files

Open your FTP client (FileZilla or equivalent) and navigate to:

```
/var/www/html
```

Transfer the file “`index.htm`” and the folder “`optirain`” from your computer to the following folder on your Pi:

```
/var/www/html
```

After transferring all of the files, check the group owner of the “`optirain`” folder. The group owner of the OptiRain directory should be `www-data`. If it is not (it might be the ftp owner) then execute this command:

```
sudo chgrp -R www-data /var/www
```

(optional change owner: `sudo chown -R www-data /var/www`)

after all of the files have been transferred, execute the following command:

```
sudo chmod -R 775 optirain
```

This will allow apache to write to files as needed.

### **Step 8. Test via Browser**

From a browser, enter the name of the Raspberry Pi, example:

```
http://rpi3/
```

The OptiRain main page should display. Click continue. If all of the permissions are correct then the main page should display. If the page doesn't display, recheck the owners of all of the files in each directory:

```
/html  
/html/optirain  
/html/optirain/devlogs  
/html/optirain/ images  
/html/optirain/dbdir  
/html/optirain/phpincludes  
/html/optirain/wwwcron
```

Ownership should be www-data for all.

### **Step 9. Configure your OptiRain Open Installation**

OptiRain Open 2 has a default setup for Linux. For Raspberry Pi you generally won't need to make further configuration changes. But you may want to set up email notifications, test to ensure the scheduler is working, and set up message delivery to the system. This can be done from the System Configure option on the left nav.

### **Step 10. Configure and Setup your OptiRain Open Controllers**

OptiRain open allows you to create up to five separate irrigation controllers. Each controller can be configured to manage or operate from one to five EtherRain modules. So each controller can be configured to control 8, 16, 24, 32, or 40 zones. Irrigation programs that run under each controller will automatically run zones in sequence just like a traditional irrigation controller.

Controllers are added from the main page by selecting "Define Controller." Once a controller is created it can always be reconfigured later by selecting "Modify Controller."

## **Step 11. Setup Irrigation Programs for your Controller(s)**

After your controller(s) have been defined it is time to add irrigation programs. This can be accomplished from the main page by selection the “View/Edit Schedule” option and clicking “Begin.”

Each controller can run up to 5 fully independent irrigation programs. Each program can be configured to run or not run based on weather conditions. See OptiRain Open 2 Help (link on left nav) for more information.

Your OptiRain Open installation is now complete.

2-10-2019

JL