



An open source project powered by IOTGEMINI

How to install manually the RFPI software on you Raspberry Pi

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Introduction

This manual installation will give you a better idea how the RFPI software works and how then you can modify knowing where the source files are.

To make work the software you have to care about dependences of the RFPI software. Thus, you have to be connected to internet with your Raspberry Pi in order to install other software indispensable for the RFPI software.

1 –Requirements

1.1 –Operating System

The RFPI software has been programmed and compiled under the Raspbian Operating System.

Here the link to download the Raspbian Operating System for the Raspberry Pi:

<http://www.raspberrypi.org/downloads/>

Or the direct download from our website,

For the Raspberry Pi and Raspberry Pi B+:

<http://>

For the Raspberry Pi 2 and 3:

<http://>

As soon you have this operating system installed on your SD memory then you are sure the RFPI software can work.

1.2 – PHP Web Server

Now to run the GUI of the RFPI software you need to install a PHP Web Server. To install the Apache Web Server, you need open the Linux Terminal and type the following commands:

```
sudo apt-get update
```

```
sudo apt-get install apache2 php7.0
```

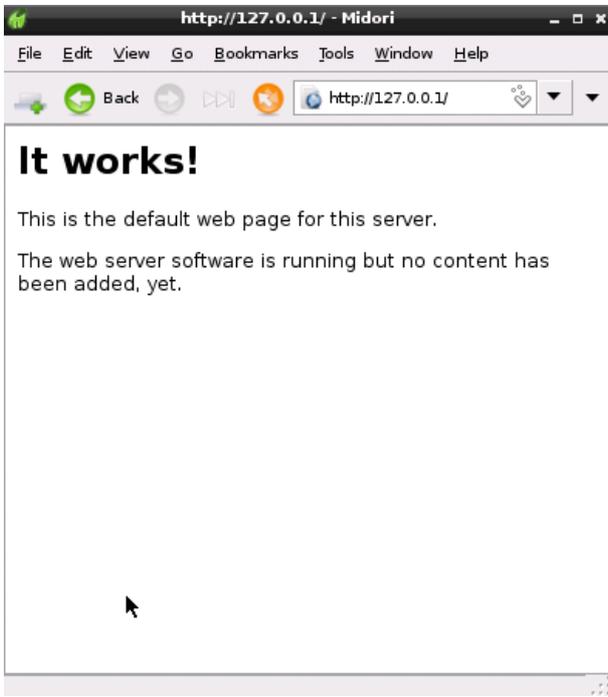
Now opening the browser and typing on the address bar

`http://localhost`

or

`http://127.0.0.1`

Should appear the following page:



Brilliant! Now you can copy the GUI under the path: `/var/www`

1.3 – Share files with SAMBA

Installing SAMBA on the Raspberry Pi it is possible to see remotely the website (the GUI).

To install SAMBA type the following commands on the Linux Terminal:

```
sudo apt-get update
```

```
sudo apt-get install samba samba-common-bin
```

Opening a browser on another computer (connected at the same network where your Raspberry Pi is connected) and typing on the address bar the IP of your Raspberry Pi you should see the page of the website running on your Raspberry Pi. Because probably you did not have installed yet the GUI then you would see the same page seen in the previous chapter (page with the written: "It works!").

If you want modify remotely the webpage or the application RFPI then you have to modify the configuration file of samba.

On the Linux Terminal type the following commands:

```
sudo nano /etc/samba/smb.conf
```

You will see all SAMBA configurations, so go to the end of the file, pressing on your keyboard the down arrows, then write the following lines at the end of the file:

```
[www]  
comments = www share  
path = /var/www  
read only = no  
guest ok = yes  
force user = root
```

```
[rfpi]  
comments = rfpi share  
path = /etc/rfpi  
read only = no  
guest ok = yes  
force user = root
```

Now on your keyboard press “**CTRL + X**”, the editor ask if you want save the file, type “**Y**” and then press “**ENTER**”.

The /etc/rfpi path still does not exist, create that with this command:

```
sudo mkdir /etc/rfpi
```

You have to restart SAMBA with the following commands:

```
sudo service samba restart
```

From another computer you can search on the network your Raspberry Pi and you will see the two folders “www” and “rfpi” shared.

2 –Download and Install

2.1 –Download the .zip

Download the RFPIsoftware from

http://www....RFPI_software.zip

Now extract the content in a folder, you will see 2 folder and 2 files.

The “read_me.txt” will say to read this guide.

Into “Release X.X.txt” you will find the history of the software.

2.2 – Installing the rfpi.c

Take the folder “rfpi” (from the “RFPI Software zip”) and copy it into the path:

```
/etc
```

If you have installed SAMBA and created the folder “rfpi” then you have to copy all files into the “rfpi” folder (from the “RFPI Software zip”) into the path:

```
/etc/rfpi
```

Or you can reach your raspberry from the network typing the address of you Raspberry Pi (example from window: \\192.168.x.x). If you do not know the address of your Raspberry Pi use the command **ifconfig** on the terminal.

It is advised now to compile the the rfpi.c. Here follows the instruction to compile.

Open the Linux Terminal then type the following command:

```
cd /etc/rfpi  
sudo chmod 777 -R ./  
sudo ./buildrfpi.sh
```

A new compiled file has been created under the folder /etc/rfpi/bin with name “rfpi”. This file should running because executing the bash file “buildrfpi.sh” there is written inside to compile and execute the “rfpi”, so you just miss the GUI to begin to use you RFPI.

2.3 – Installing the GUI

Take all files (from the “RFPI Software zip”) into the “www” folder and copy all them into the path:

```
/var/www
```

If you have installed SAMBA as showed before then you can reach your raspberry from the network typing the address of you Raspberry Pi (example from window: \\192.168.x.x). If you do not know the address of your Raspberry Pi use the command **ifconfig** on the terminal.

Remember to delete the default page “index.html” before to copy all files!

In some cases the default path for website is not /var/www but could be the /var/www/html, thus we have to modify the configuration of the Apache2. Go to the directory:

```
cd /etc/apache2/sites-enabled
```

Now edit the config file:

```
sudo nano 000-default.conf
```

Find the line:

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

And change with this:

```
DocumentRoot /var/www
```

Restart Apache2 webserver with the following command

```
sudo service apache2 restart
```

Now the GUI is installed and should be visible with the browser at the address:

```
http://localhost
```

Before to use you have to follow all instructions listed in the next chapter.

After a reboot, you will be able to use your RFPI.

3 – Execute the RFPI routine when powering up the Raspberry Pi

3.1 – Edit the file “autostart”

Under the path:

```
/etc/xdg/lxsession/LXDE
```

There is a file with name “autostart”, you have to edit it:

Use this path for the old Raspbian:

```
sudo nano /etc/xdg/lxsession/LXDE/autostart
```

Or this path for the new Raspbian:

```
sudo nano /etc/xdg/lxsession/LXDE-pi/autostart
```

If you use Midori browser then write at the end the following lines:

```
@xset s off
```

```
@xset -dpms
```

```
@xset s noblank
```

```
#@midori -e Fullscreen -a http://localhost
```

```
@midori -a http://localhost
```

This will start the browser with the address <http://localhost> and so will run the GUI to manage the RFPI. If you want start the Midori browser in full screen mode then take off the “#” in front of the 4th line and delete the last line.

If you use Epiphany browser then write at the end the following lines:

```
@xset s off
```

```
@xset -dpms
```

```
@xset s noblank
```

```
@epiphany http://localhost
```

If you use Chromium browser then write at the end the following lines:

```
@ chromium-browser --app=http://localhost --start-fullscreen
```

3.2 – Run at the boot the RFPI routine

Copy the “rfpi” file from the path:

```
/etc/rfpi/install
```

To the path:

```
/etc/init.d
```

Use this command:

```
sudo cp /etc/rfpi/install/rfpi /etc/init.d/
```

Now you need to add the file to the startup sequence using this command:

```
cd /etc/init.d
```

```
sudo update-rc.drfpi defaults
```

3.2 – Edit the file “inittab” - Disable the getty

Under the path:

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/etc

There is a file with name “inittab”, edit it:

sudo nano /etc/inittab

You have to find the line:

TO:23:respawn:/sbin/getty -L ttyAMA0 115200 vt100

Now comment this line as follow:

#TO:23:respawn:/sbin/getty -L ttyAMA0 115200 vt100

Exit and save it. Now there is no a terminal waiting for commands on the serial port.

4 – Useful Links

Where to find the tutorials, helpful help from the developers/community and the open source software downloadable:

<http://www.iotgemini.com>