



Connection to the WiFlip module

INITIAL CONFIGURATION

Start by switching on the pinball machine and entering the connection data for your access point (box or router) so that the WiFlip module can connect to it.

To do this, from a computer or smartphone, first find the access point for the WiFlip module. It is called WIFLIP_XYZT (XYZT varies from a device to another) It is a wifi access point without internet access. If your computer or smartphone cannot see it, you are too far from the WiFlip module. Move closer to it with your computer or smartphone. You can also switch the pinball machine off and on again to restart the WiFlip module.

As your computer or smartphone does not yet know WiFlip, it will ask for a password. This



password is : shootagain

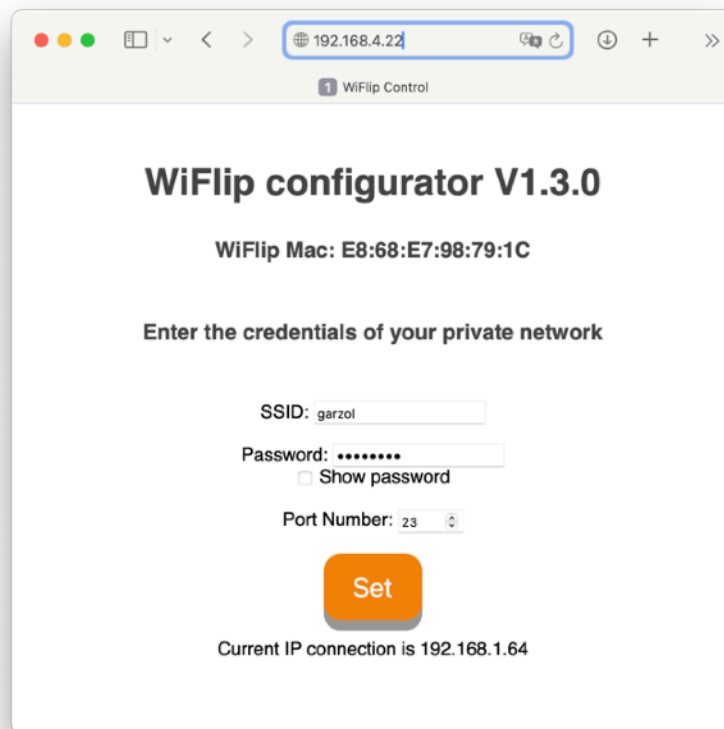
Wait for the connection to be established. Then, in a browser of your choice (Firefox, Safari, etc.), enter the following address in the address bar:

`http://192.168.4.22`

The address starts with http (not https). The connection is therefore not secure.

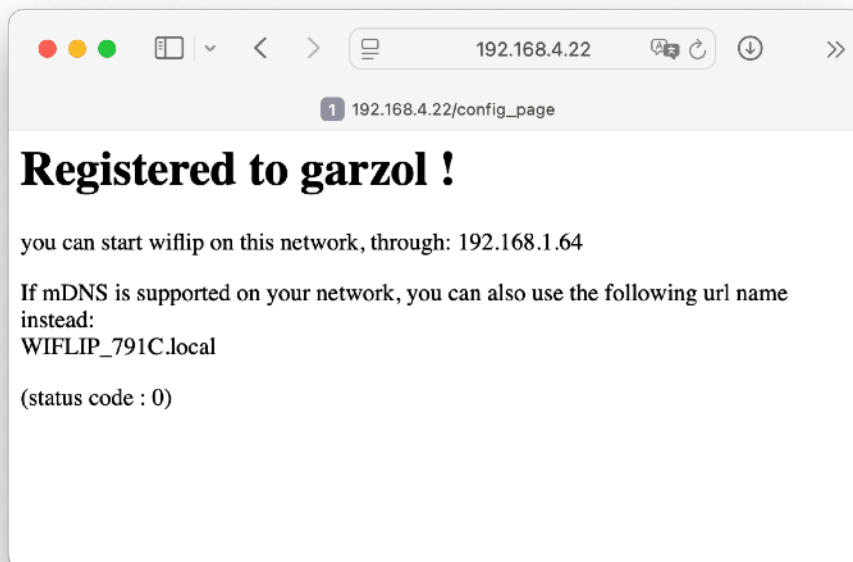
The following page should appear:

Enter the connection details (SSID/Password) for your box and click on the Set button. After a few



The screenshot shows a web browser window with the address bar set to 192.168.4.22. The page title is "WiFlip Control". The main heading is "WiFlip configurator V1.3.0". Below this, it displays "WiFlip Mac: E8:68:E7:98:79:1C". The instruction "Enter the credentials of your private network" is followed by three input fields: "SSID:" with the value "garzol", "Password:" with masked characters "*****" and a "Show password" checkbox, and "Port Number:" with the value "23". A large orange "Set" button is centered below these fields. At the bottom, it states "Current IP connection is 192.168.1.64".

moments you should see the following screen:



The screenshot shows a web browser window with the address bar set to 192.168.4.22. The page title is "192.168.4.22/config_page". The main heading is "Registered to garzol !". Below this, it says "you can start wiflip on this network, through: 192.168.1.64". It then provides an alternative URL: "If mDNS is supported on your network, you can also use the following url name instead: WIFLIP_791C.local". At the bottom, it shows "(status code : 0)".

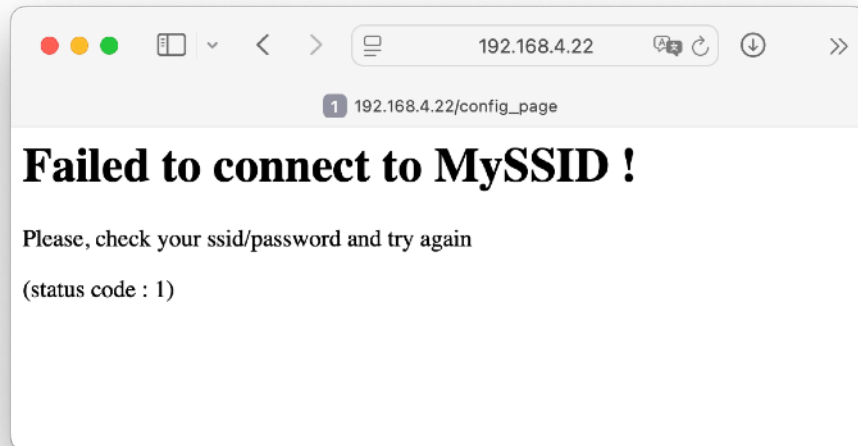
If you have changed the port number you will need to restart the WiFlip module. before the change can be taken into account. Unless you have a good reason for doing so, you should not change this setting.

The login page gives you 2 indications:

1. 192.168.1.64 is the IP address that was given by your DHCP box/router to your WiFlip.
2. WIFLIP_791C.local is the equivalent name in a more friendly manner. It will never change, while the numeric value is susceptible to change after a box reset for example.

The IP address is susceptible to change. The name in clear will not.

In case of an error, you will see the following page:



Most of the time, this error page indicates that a wrong SSID or password has been entered. The error may also occur if your box does not support wifi on the 2.4GHz frequency band, which is extremely rare, or, more frequently, if the box, although compatible with 2.4GHz, tries to connect in priority to 5GHz, or 6GHz, by default. WiFlip only supports the 2.4GHz frequency band.

LAUNCH OF WIFLIP

From a computer or smartphone wifi connected to your box on the same network as the one you chose to configure the WiFlip device, in a browser of your choice, connect to :

<http://garzol.free.fr/wswiflip/>

Control

Connection:

Signal strength:

Status **Reprog** System Settings Game Settings

Active Game

Name

#Model

CRC

Active Boot

Name

CRC

Displays

Freeplays

P1 1 . 8 . 8 . 8 . 8 . 8 . 0

P2 1 . 8 . 8 . 8 . 8 . 8 . 0

Once again, the connection is not secure. It's up to you to protect your private network with a firewall, for example.

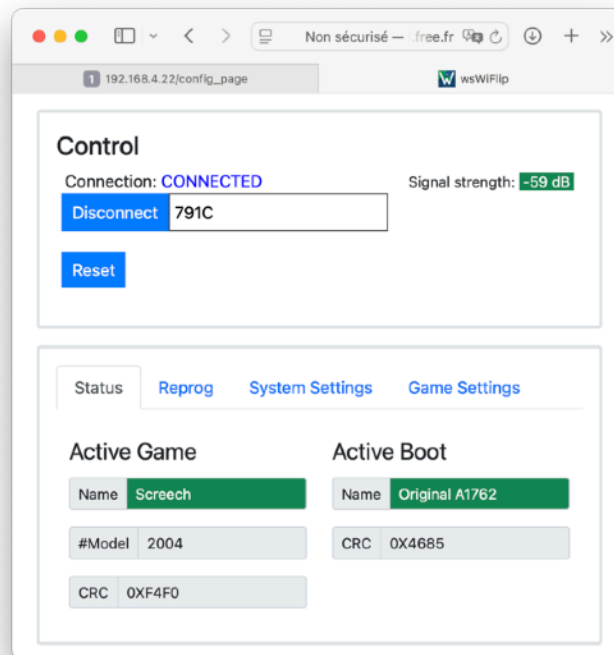
You can open up to 2 simultaneous connections.

You must operate on the same network as the one to which the WiFlip module is connected.

It is perfectly possible to use a wifi hotspot offered by your smartphone.

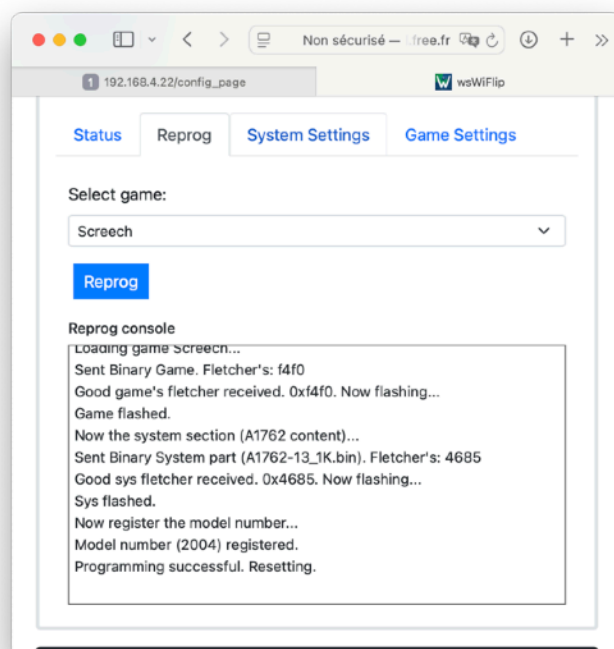
You can now connect to your WiFlip module. Fill in the connection field, either with the raw IP address (such as 192.168.4.22), or with its pretty name (such as WIFLIP_791C), or just with the last 4 characters (here: 791C). Click the Connect button.

The *Status* tab gives information about the game variant currently running.



The *Reprog* tab lets you choose a new game variant. Simply select the game you want from the list and click Reprog.

After a few seconds, the new game is in place and the MPU reboots. It's ready to go.



The *System Settings* tab lets you configure certain system parameters. For example, you can permanently disable the coin rejector coil. These coils often make an annoying noise, and are not very useful for private use.

Factory reset resets the pinball machine to factory conditions. All your settings will be lost.

The screenshot shows a web browser window with the address bar displaying "Non sécurisé - .free.fr" and the URL "192.168.4.22/config_page". The page title is "wsWiFiFlip". The main content area is titled "Control" and shows a connection status of "CONNECTED" with a signal strength of "-58 dB". Below this, there is a "Disconnect" button and a text input field containing "791C". A "Reset" button is also present. The page has four tabs: "Status", "Reprog", "System Settings" (which is active), and "Game Settings". Below the tabs, a message states: "Click the button Apply&Reset to get your changes applied." There are four checkboxes: "Coin rejector off", "Skip coils self-test", "Stand alone switch matrix", and "Unprotect coil channels". To the right of these checkboxes are three buttons: "Apply&Reset" (blue), "Cancel" (green), and "Factory reset" (red).

Control

Connection: **CONNECTED** Signal strength: **-58 dB**

Disconnect 791C

Reset

Status **Reprog** **System Settings** **Game Settings**

Click the button Apply&Reset to get your changes applied.

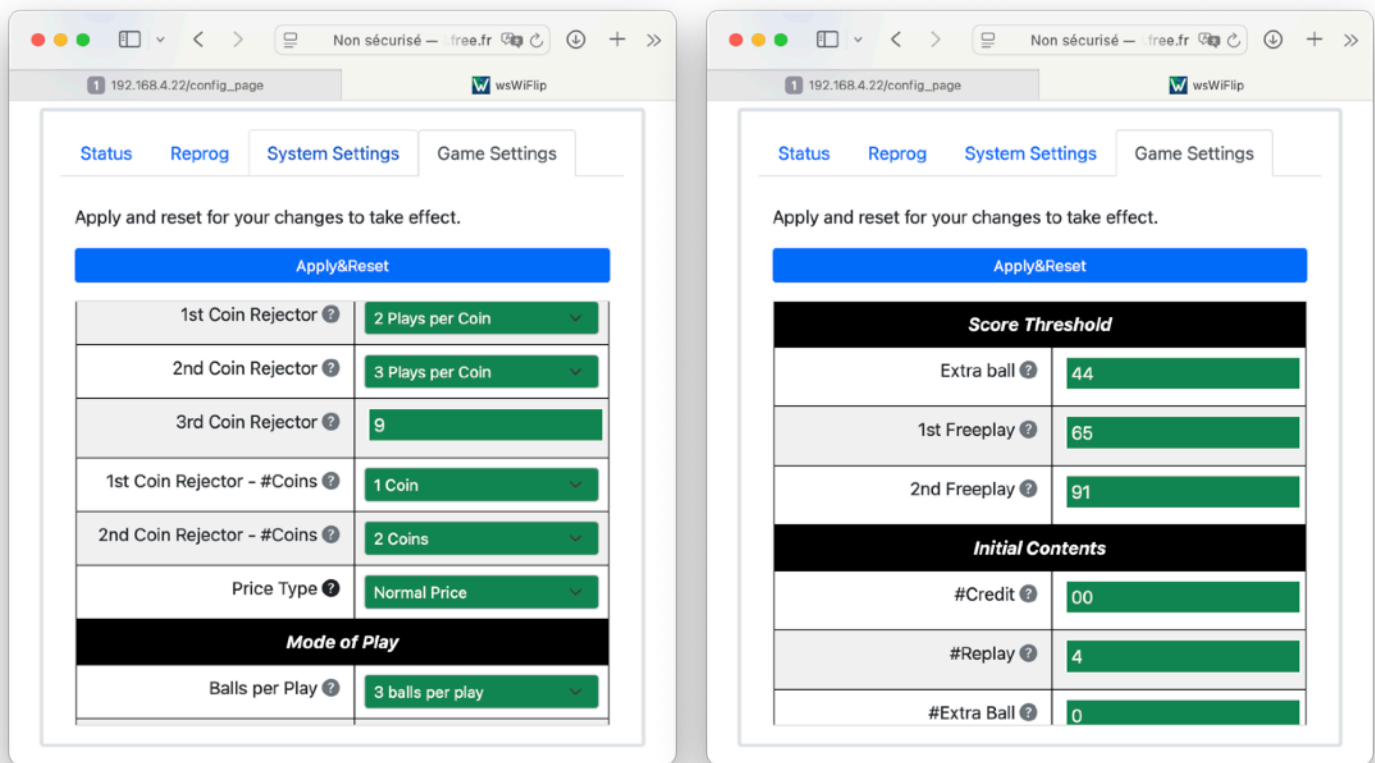
☐ Coin rejector off **Apply&Reset**

☐ Skip coils self-test **Cancel**

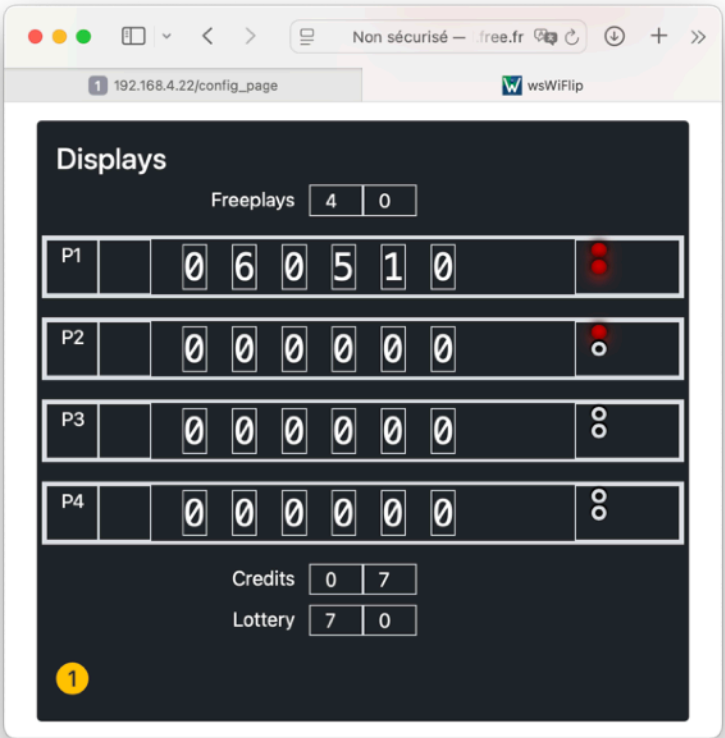
☐ Stand alone switch matrix **Factory reset**

☐ Unprotect coil channels

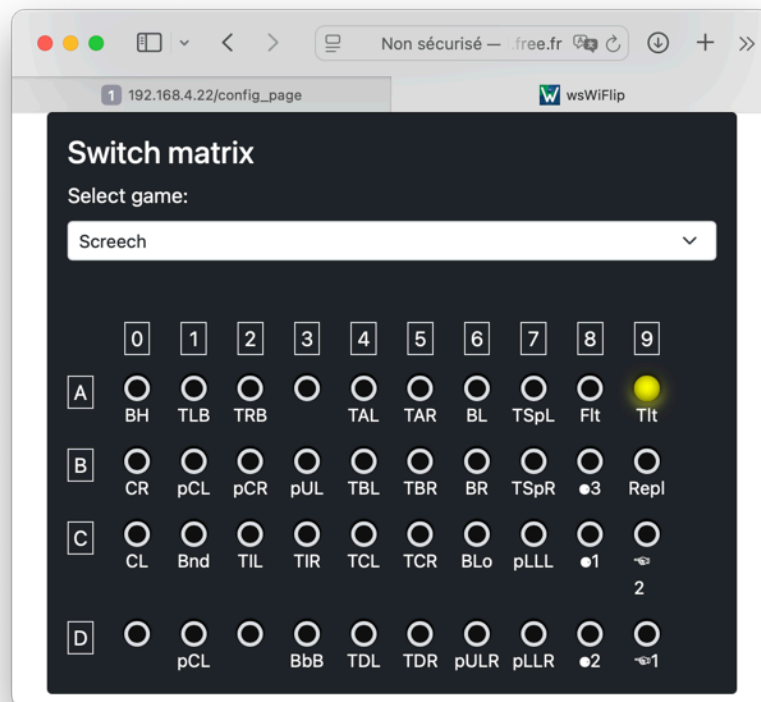
In the Game settings tab, you can change the game settings, such as number of balls per game, high score to date (handicap), etc...



Display replication



Switch matrix emulation



You can emulate the activation of a switch by clicking on it. The corresponding action is then executed on the pinball machine as if the real switch had been set to the on position.

A double click puts the switch in the on position permanently (in the case of a downed target, for example).

CONSIDÉRATIONS DE SÉCURITÉ

It is your responsibility to block incoming connections to the network from outside. Ports 80, 81 and 23 in particular must be protected, otherwise anyone from the Internet will be able to access your pinball machine. Typically, you need to make sure that the port forwarding on your box blocks these ports. You still need to have quite a lot of information about your network before you can hack a WiFlip. But you should know that it's not too difficult to do if you don't take the port protection measures mentioned.

We haven't put in any protection such as certificates or other encryption of the data exchanged to make sure that over time the solution will remain functional (problems with certificate expiry dates, etc...), and to limit unexpected connection problems.

If you want to make absolutely sure that no one will access your machine, just configure the WiFlip device with a non existing WiFi access point. Later, once you need to access it again, reconfigure it with a valid access point. That's it, and safe.

LINKS.

Find out more about WiFlip below:

General infos on the PC or Mac app:
<https://www.pps4.fr/wiflip/>

Online tool address (http only):

<http://garzol.free.fr/wswiflip/index.html>

Address of this document:

https://github.com/garzol/wiflip/blob/d47fb4541a0c8fcbba58d1dcc2129f8233b90994/wswiflip/Doc/userman_wiflip.pdf

CONTACT

phd@pps4.fr

NOTES