

# METRICI

# MULTICONTROLLER

## Table of Contents

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|  |    |
|--|----|
| 1. Introduction.....                                 | 2  |
| Technical Data.....                                  | 3  |
| 2. How it works.....                                 | 4  |
| 3. AP Mode vs Station Mode.....                      | 5  |
| 4. Access Point (AP) Settings.....                   | 7  |
| 4.1 Create User.....                                 | 9  |
| 4.2 Network Settings.....                            | 10 |
| DHCP IP.....   | 11 |
| Static IP.....                                       | 13 |
| 4.3 Configuration Files Import (Advanced Users)..... | 15 |
| 4.4 PC Uploading.....                                | 17 |
| 4.5 Upload files format.....                         | 19 |
| 4.6 network.txt format.....                          | 20 |
| WiFi DHCP IP:.....                                   | 20 |
| Ethernet DHCP IP.....                                | 21 |
| WiFi Static IP.....                                  | 21 |
| Ethernet Static IP:.....                             | 22 |
| 4.7 user.txt format.....                             | 22 |
| 4.8 inputs.txt format.....                           | 23 |
| 4.9 outputs.txt format.....                          | 24 |
| 4.10 configWiegandController.txt format.....         | 25 |
| 5. Station Mode (Working Mode).....                  | 26 |
| 5.1 Network Settings.....                            | 27 |
| 5.2 DHCP IP.....                                     | 29 |
| 5.3 Static IP.....                                   | 30 |

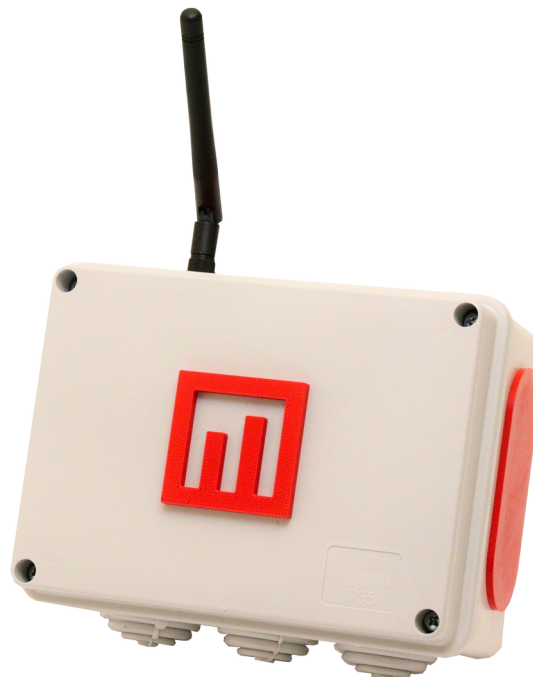
# METRICI MultiController User Guide

|   |    |
|---|----|
| 5.4 I/O Settings.....                         | 31 |
| 5.5 Input Settings.....                       | 32 |
| 5.6 Output Settings.....                      | 35 |
| 5.7 Wiegand Settings.....                     | 37 |
| 5.8 How to set up Wiegand (Step by Step)..... | 38 |
| 5.9 Import / Export Data.....                 | 42 |
| 5.10 Update firmware.....                     | 44 |
| 6. RFID Reader.....                           | 46 |
| rfid.txt format.....                          | 47 |
| 7. Factory Reset.....                         | 48 |
| 6.1 Restart Button.....                       | 49 |

## 1. Introduction

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The Metrici MultiController is a hardware product developed in house by Metrici. This all-in-one device was created as a multi-tool help. This piece of hardware is designed to work indoor and outdoor, to be wall mounted or placed into a small space, to act as an input or output controller for a range of devices, to work through WiFi or Ethernet, to emulate a Wiegand Card reader and to strengthen security and access control.



The controller has two digital inputs, two digital outputs and a 26bit Wiegand Interface. Its two inputs can be connected to two inductive loops or sensors and send triggers to Metrici Engine, while its two outputs can control up to two barriers, traffic lights or any relay actionable hardware. The novelty comes from the controller's Wiegand capabilities, making it a truly all-in-one capable hardware. It has 26bit Wiegand Interface integrated, giving the device the ability to emulate a 26bit Card Reader and send signals to a Wiegand Access Control Central.

### Technical Data

|                        |  |
|------------------------|--|
| Description            | Smart 'all in one' LAN controller  |
| Connectivity           | 2 digital inputs, 2 relay driven digital outputs, 1 Wiegand 26 bits interface  |
| Features               | Web interface for setup and monitoring; can send triggers to 2 Metrici engines, can open 2 barriers; can convert each license plate number into a Wiegand ID by connecting to Metrici2 database. |
| Networking             | WiFi 802.11 b/g/n and Ethernet 10/100 Mbps   |
| Protocols              | HTTP over TCP/IP, RAW over UDP/IP and Wiegand 26 bits  |
| Software compatibility | Metrici2 v3.3 and above  |
| Power requirements     | 12 to 38 Vcc, 5W   |
| Working temperature    | -20 to +50 Celsius degrees, IP65   |
| Dimensions             | 16 x 15 x 10 cm (WiFi antenna included)  |
| Weight                 | 0.2 Kg   |
| Case                   | ABS with 2 back brackets with mounting holes and 3 rubber protected holes for cables   |

## 2. How it works

---

The Metrici MultiController was built to fit multiple working scenarios. In a first scenario, Metrici MultiController can be connected to two inductive loops or sensors to trigger Metrici engine to make a detection. In this scenario, it can also command up to two barriers, two traffic lights or other external hardware via its two digital outputs.

As such, when communicating with the Metrici Database and Interface, it receives commands to take or not an action for specific license plates. For example, it may receive a command to make a traffic light red if a car doesn't have access rights in a parking lot or a street traffic light to change color when more than a set number of cars are waiting in queue.

In a second scenario, Metrici MultiController is used for its Wiegand capabilities. When a license plate is detected the Metrici Engine sends a Check Action to the controller. This, in turn asks Metrici Database for a Wiegand ID.

If a Wiegand ID was found for that particular license plate, the Controller receives and passes it to the Access Control Central which makes the call to take an action or not. This action can be opening a barrier, a door, enabling an external hardware or any other command.

If that particular license plate has no Wiegand ID or the ID has no rights in an area, no action will be completed.

The device can be also be used by companies as a timesheet for the employees.

The Wiegand ID used in Metrici can be imported as list or copied one by one from a Wiegand Access Control Central Command. It can also be generated by Metrici, becoming a virtual card assigned to a particular number plate.

As many companies are already using Wiegand based cards for employee access, the MultiController comes as a bonus for securing

the location even more and having a better and wider view of the movement in and out from the location. A single Wiegand interface can be used for the entire location.

## 3. AP Mode vs Station Mode

---

MultiController features a custom-made firmware with Wireless and Ethernet communication with a simplified, yet powerful, web interface. You can set it up using any device capable of wireless or wired communication such as a smartphone, a tablet or a laptop/PC, running on any OS.

Before beginning the actual set up, you need to understand the differences between the two available modes on the controller: the **AP Mode** and the **Station Mode**. Both modes feature their own web-pages used to make different settings. These web-pages are detailed throughout the manual.

The **AP Mode**'s main purpose is to offer the user a reliable and secure way of making the first-time network settings, for example: assigning the controller a static IP for it to be later accessible in **Station Mode**.

The **Station Mode** is the state in which the controller will be in most of the time. This mode makes the device accessible at any given time at a static IP for example, giving the user access to the main-functionality configurations of the controller, like setting up or changing the Inputs and Outputs details.

You need to go through AP Mode and set it in order to reach Station Mode. The first part of the configuration will be made in AP Mode and the second part will take place in Station Mode.

On the first boot the device will always be in AP Mode. **This mode makes the controller available only at the following address:** <http://192.168.100.10>.

The network settings made here will apply only for the Station Mode.

In **AP Mode** you can:

## METRICI MultiController User Guide

- create a **user** with username and password. If set, this is a security feature, and these credentials will be later used for authentication to enter Station Mode or to change different settings. This step is optional;
- configure the **network settings**. Here you can opt for a DHCP IP or a Static IP. This IP will be used as a link-local address at which you will find the main configuration page. This is a mandatory step whether it is done manually or by uploading configuration files;
- **import configuration files**. This gives the user the possibility of uploading configuration files, but also to download or delete them. .

After the AP mode settings were made and the MultiController was given an IP Address in the local network, it will restart and will enter Station Mode. This mode will be accessible at the given IP:  
[http://GIVEN\\_IP](http://GIVEN_IP) .

In **Station Mode** you can:

- change both of the Inputs IP Addresses and Ports. These are necessary in order to make a connection between a device that sends triggers and the MultiController;
- change both of the relays timers. A timer is the number of seconds that the relay will stay ON .
- change the Metrici Database URL needed to link the Metrici server to the MultiController;
- change the Pulse Width and Inter Pulse Gap. Their default value is set at 90 microseconds ( $\mu\text{s}$ ) but they can be unique for every Wiegand Central. You may have to change these values and test the desired Central with new values.
- import and export configuration files. Identical to the AP Mode;
- update the firmware of the device.
- reset the device

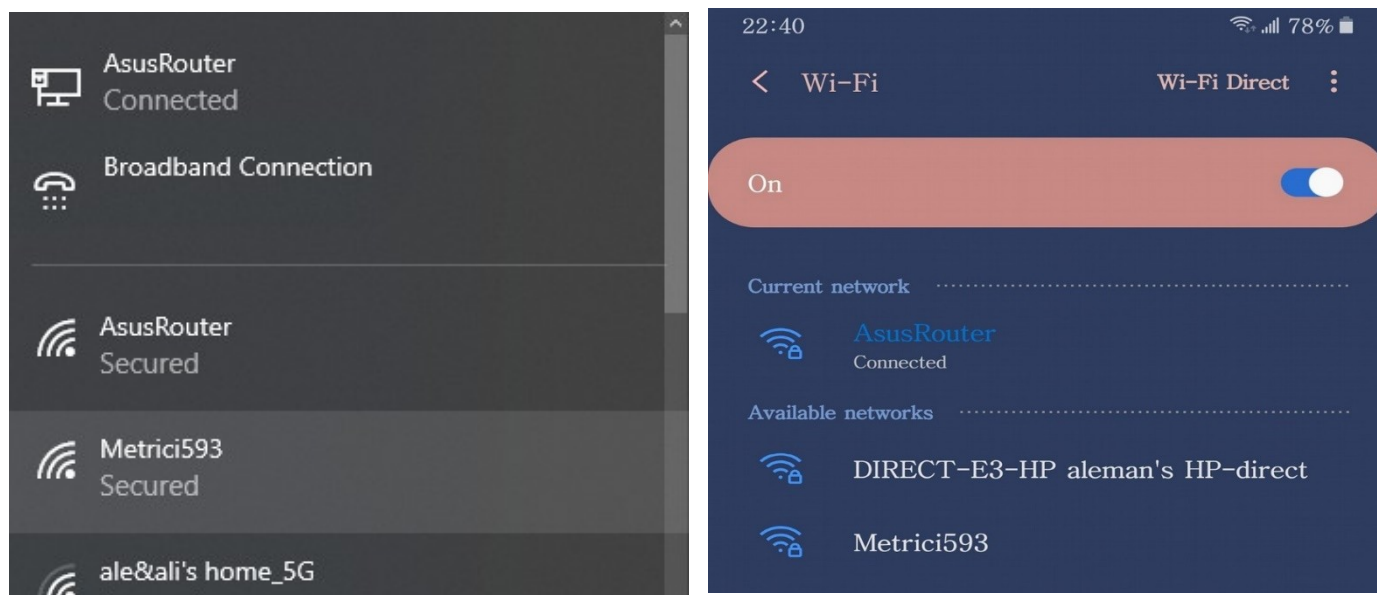
## 4. Access Point (AP) Settings

---

The first step that you have to take in order to set up the controller is to connect it to a power source. It was designed with a plug-and-play functionality in mind and all you have to do is to insert a UTP/FTP cable that comes from a POE switch capable of powering the device.

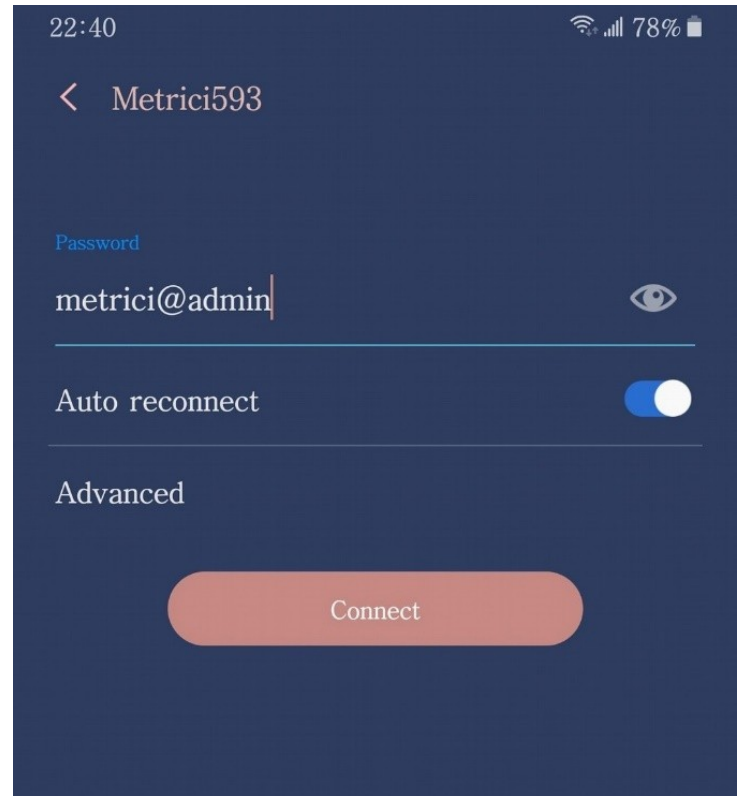
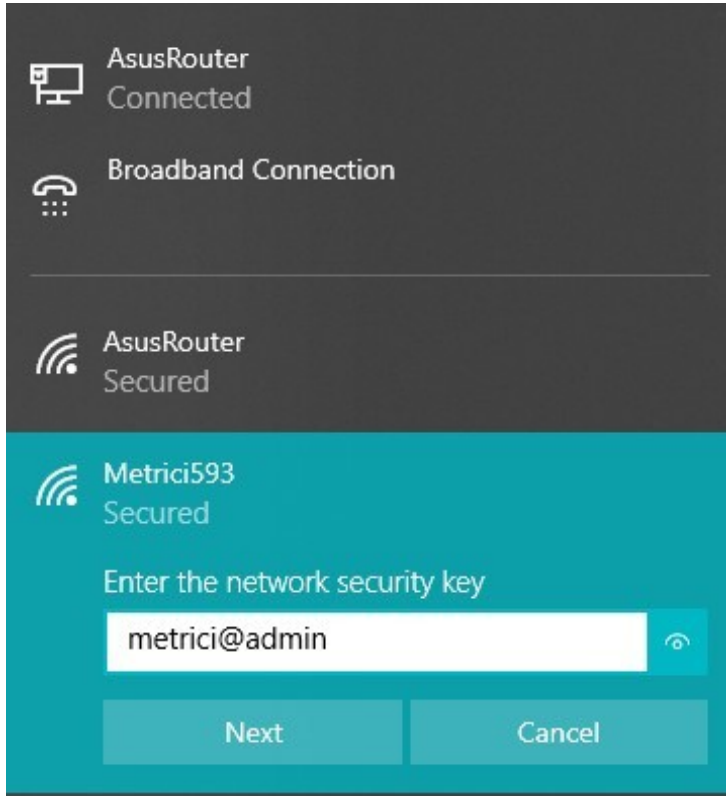
Now, using the device of your choice, please look for a wireless network name which begins with **Metrici** followed by a randomly generated 3-digit number.

Please note that the name of the wireless network will be different on each first-boot and on every device. **It will always be composed of Metrici followed by three random numbers.** In this example the network name is Metrici593.

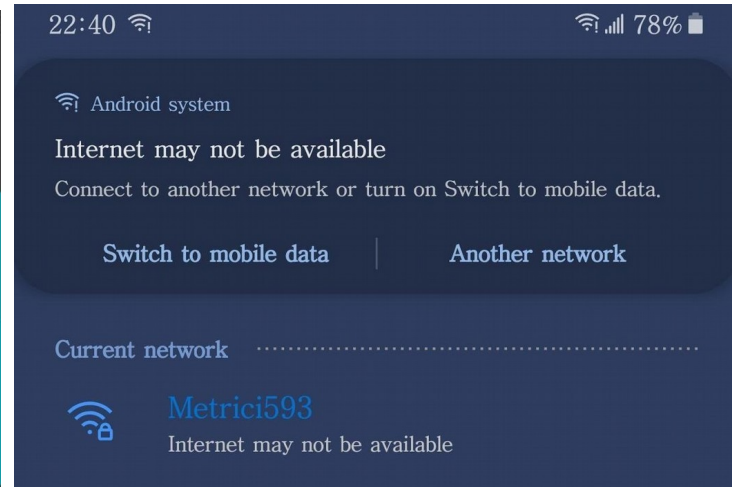
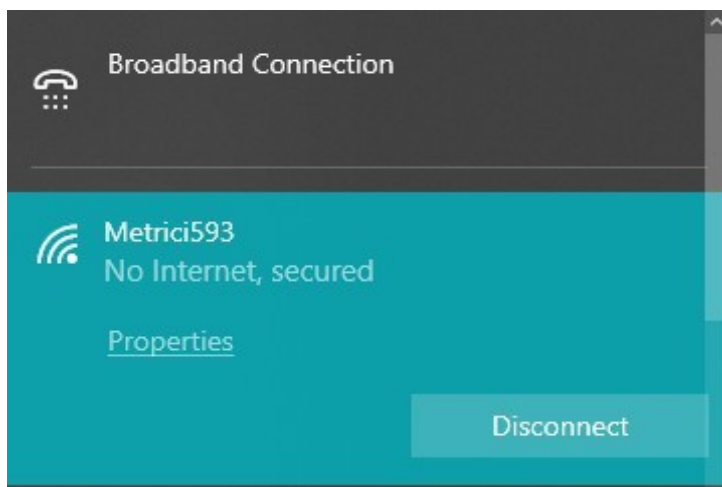


After selecting this network, you will be prompted to type in a password. The password is always:

**metrici@admin**



If you have entered the password correctly you will get a warning message saying that internet is not available or that there is no internet.



This is perfectly normal because, technically, you are not connected to the internet. You have actually linked to the Metrici Controller.



NOTE!

Please wait 10 seconds for the connection to establish, as the web-page found at [http:// 192.168.100.10](http://192.168.100.10) is NOT accessible until then. Trying to access it will either return HTTP 404 Page Not Found or it will make the page load indefinitely. This is easily fixed by refreshing the web-page / browser window after the 10 seconds have passed.

## 4.1 Create User

Open a browser on your device and type this IP Address: 192.168.100.10 in the address bar, press Enter and you will reach the MultiController's custom web-interface.

Please remember that its configuration pages and first settings are available only at the address [http:// 192.168.100.10](http://192.168.100.10).

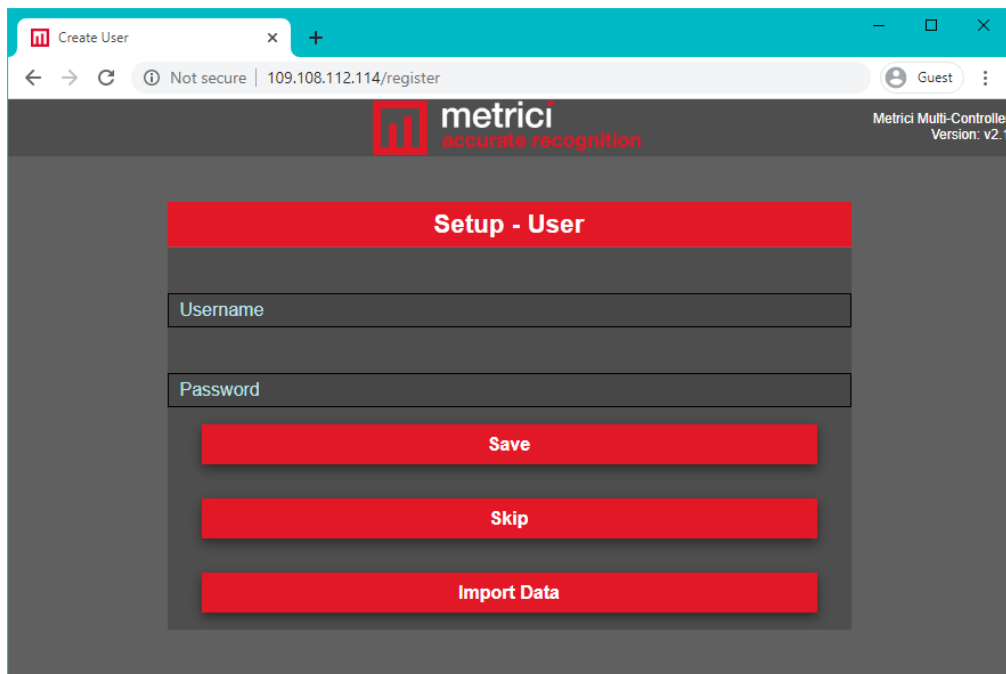
Later on, this address is replaced by the one you set it.

**Station Mode will be available at the address you set it up now. <http://192.168.100.10> will only be reactivated if you reset MultiController to factory settings, with Factory Reset button (chapter 6). Meaning, when you follow Factory Reset procedure, you will come back to this IP.**

The AP Mode is necessary so that you can connect the MultiController to the Access Point/Router/Modem of your network and to communicate with the **Metrici Server**.

First page will look like next image. You can define a username and a password to use when accessing the MultiController in STATION Mode. This step is optional and can be skipped by pressing the Skip button.

Metrici advises that MultiController to be more secure with a user and a password, so not to be accessible to anyone in the network

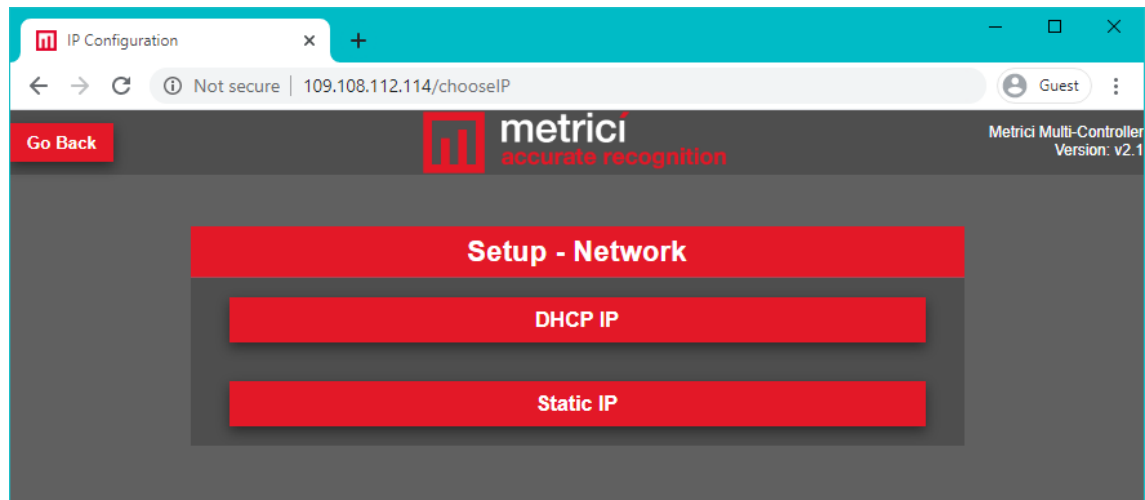


The IP address set in this module is ink-local. This means that the **Station Mode will work only in local network**. If no user is created, the MultiController's Station Mode can be accessed without any form of authentication. But, in order to access it, **apart from knowing the IP**, you will also have to be **connected to the same network**. The username with a password are a supplementary way of securing your device and network.

The first page also lets you **Import Data**. This feature will make the process of setting up more controllers several times faster because it offers you the possibility of skipping the manual configuration by uploading pre-made configuration files while you are in this **AP Mode**. Use importing files procedure only if you are familiar with the steps and please read this user guide before hand.

## 4.2 Network Settings

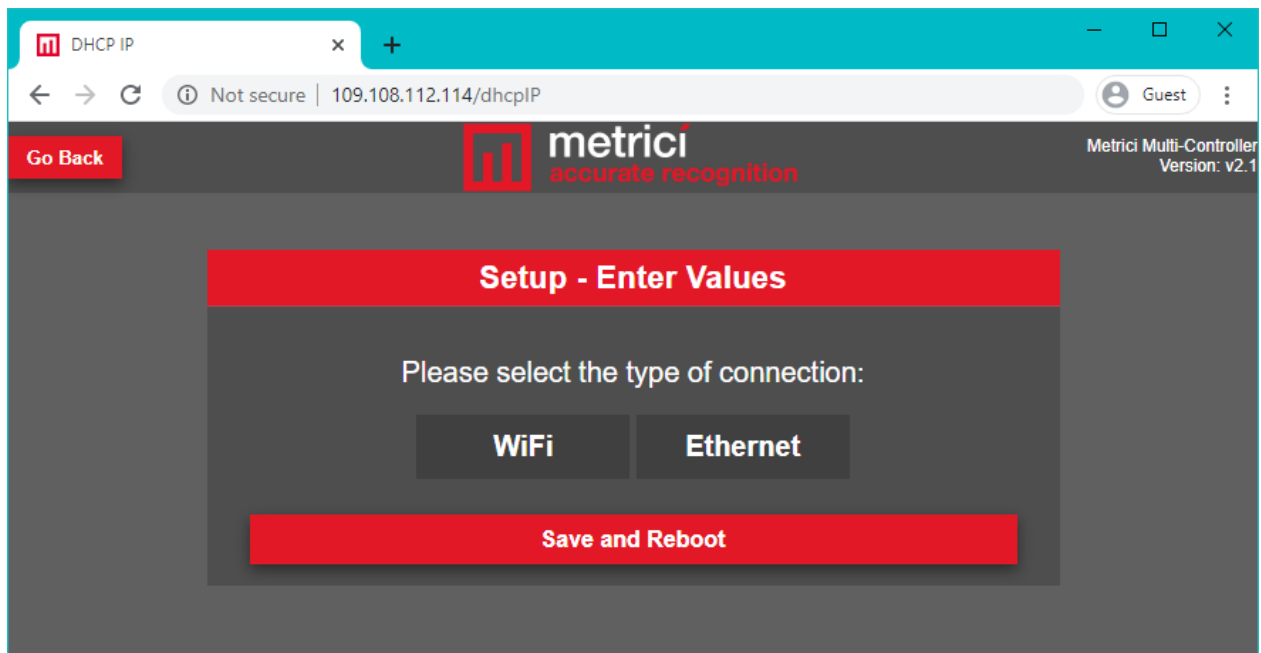
No matter what you chose in the previous chapter: create user or Skipped creating one, the next page will ask to choose the **type of IP** that you are going to use for the MultiController, namely DHCP or Static



## DHCP IP

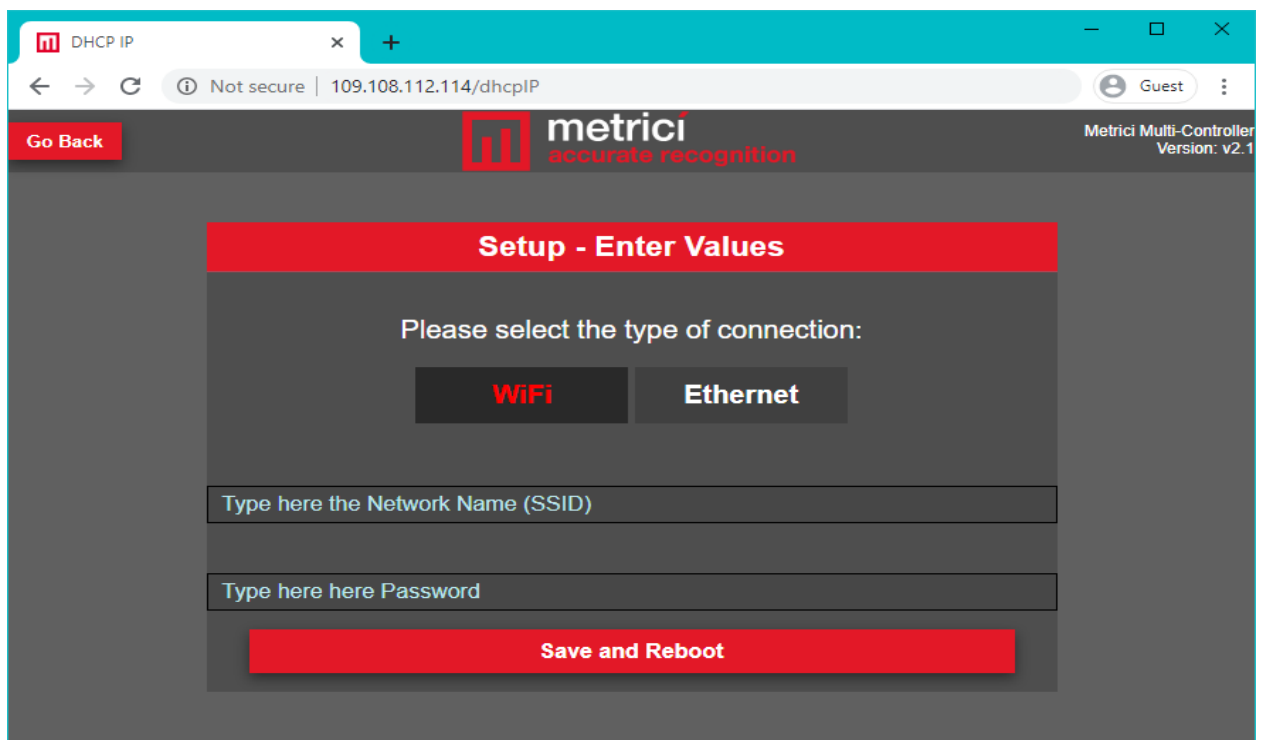
Choosing a DHCP IP means that the controller will get, in Station Mode, a random IP from your Access Point's DHCP Server.

**NOTE!** If you are to choose that working mode, you need to know that you have to make some changes in the local network for the MultiController to proper function every time it starts. If you choose DHCP but you don't make network settings there is a possibility that MultiController gets another IP when it reboots and to not work properly as the communication data are different. There is a way to link the router/server from the local network to the MAC address of the MultiController so that it gets the same IP every time it starts (power failure, communication failure etc. ) Be aware that this requires advanced networking knowledge.

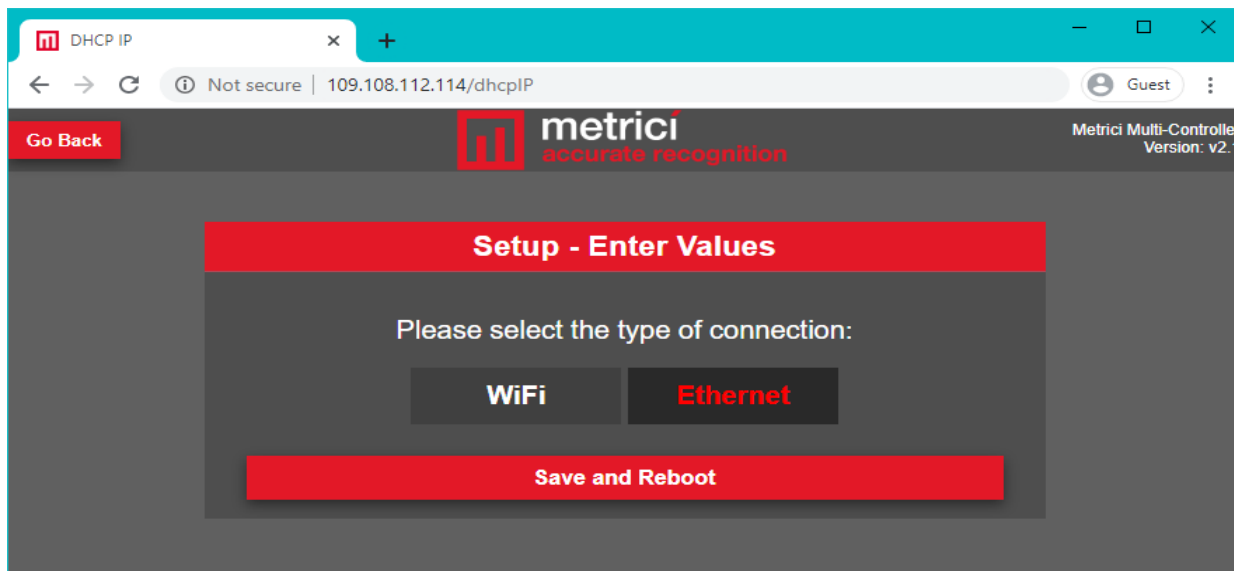


On this page you have the possibility of choosing the appropriate setting based on the type of connection found at your location.

If you need the MultiController to function in WiFi you will have to press on WiFi, input your Access Point's credentials: SSID and Password and then press on Save and Reboot.



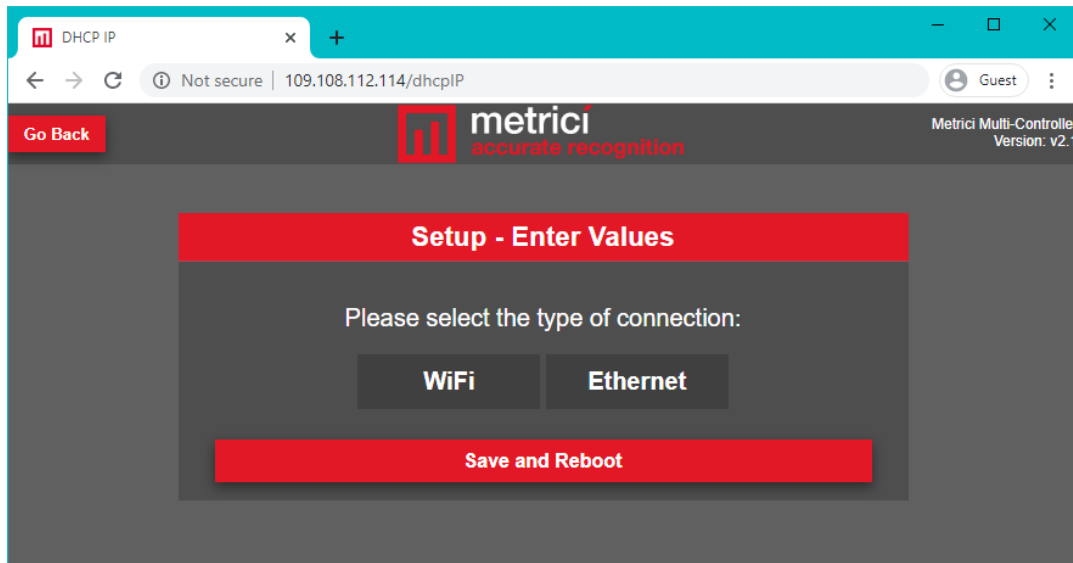
If you need an Ethernet connection you will have to press on Ethernet and then on Save and Reboot.



After you have clicked on the “Save and Reboot” button, wait around 10 seconds for the device to reboot and initialize the internet connection then **search for the device’s IP into your Access Point’s DHCP List.**

## Static IP

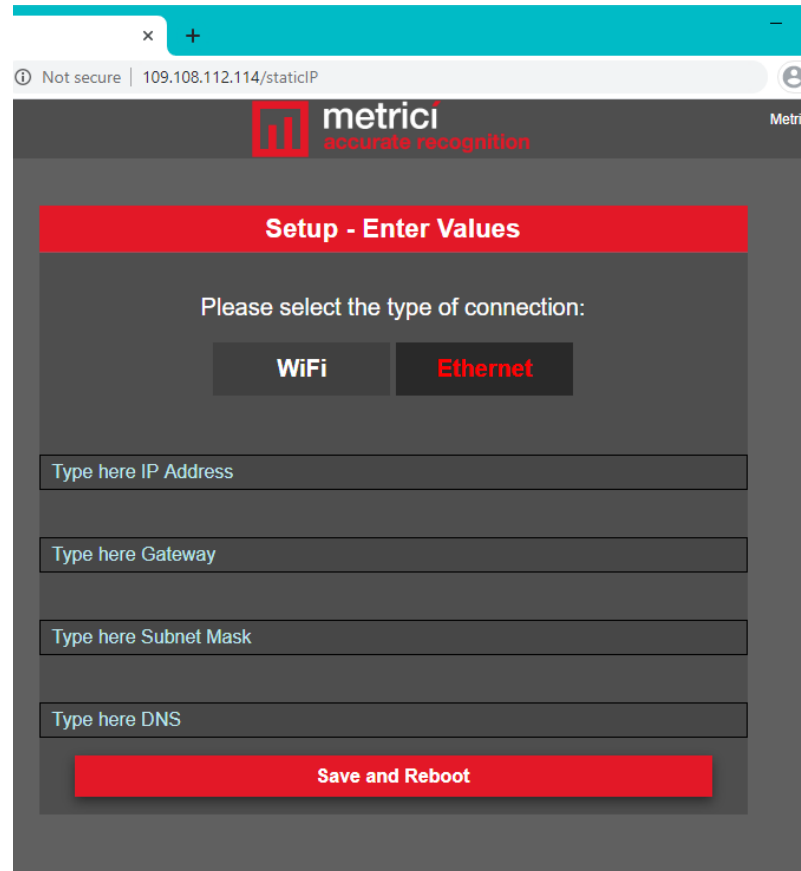
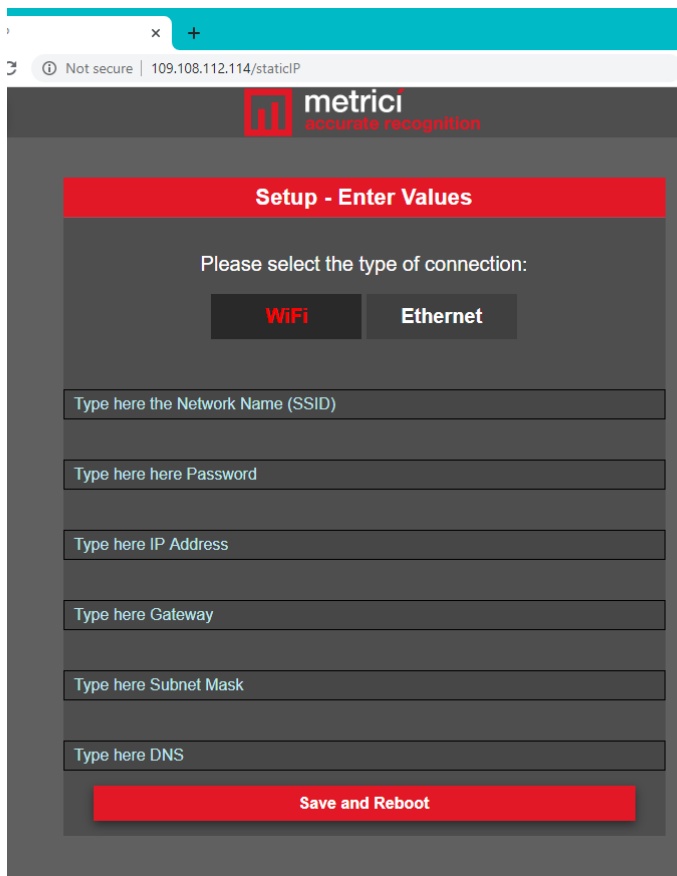
A Static IP means that you will be able to access the MultiController at the IP Address you choose. You will have to manually input the controller’s **IP Address, Gateway, Subnet Mask, DNS** and, based on the type of internet connection, **SSID and Password.**



If you choose WiFi connection for this Static IP, you will have to enter **SSID and Password** on top of the other details for your network, as any other wireless device.

## WiFi

## Ethernet



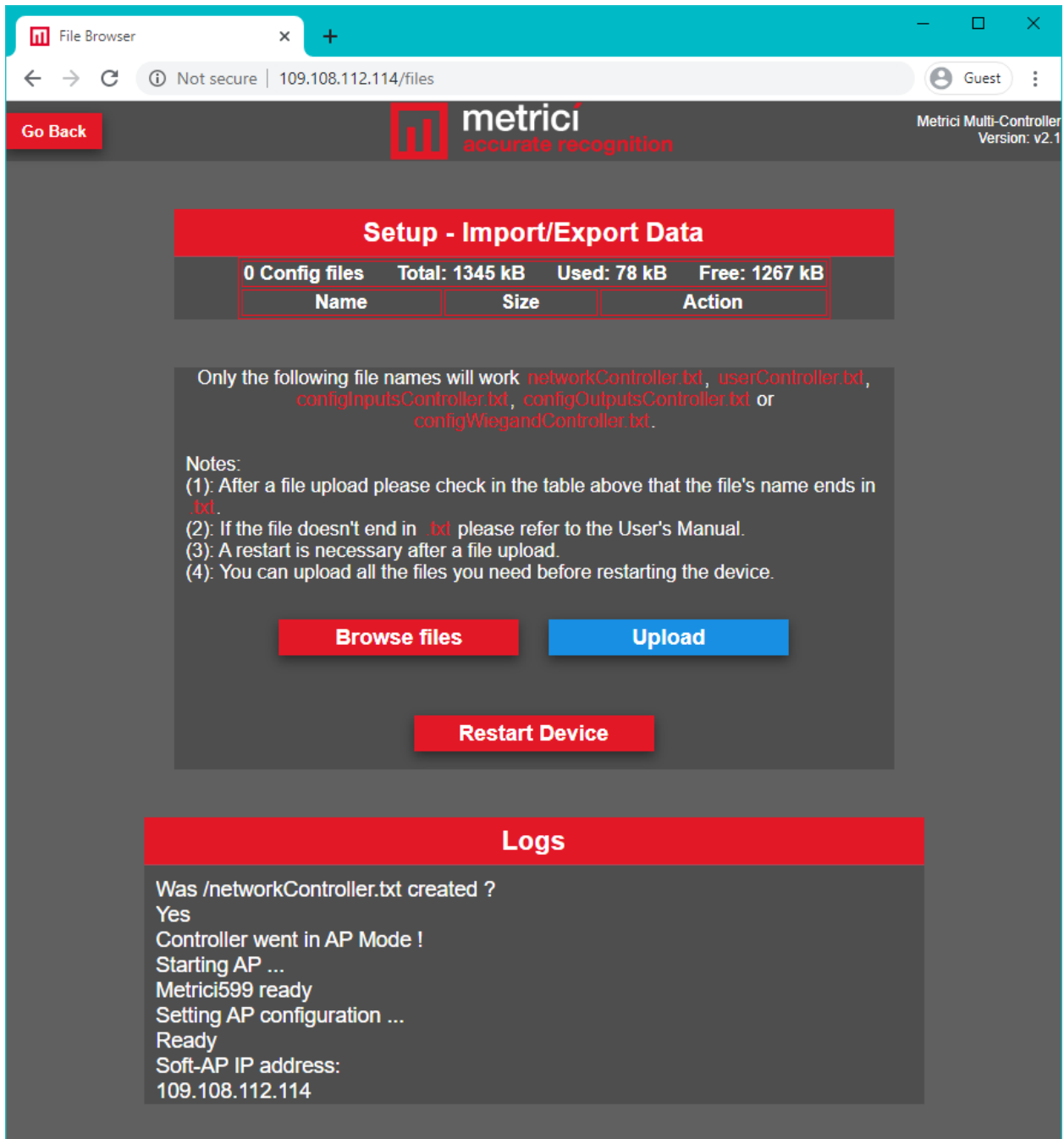
When pressing **Save and Reboot** button on either DHCP or STATIC IP configuration pages the device **will save** the Network Settings that you've typed in and will begin its restart sequence.

**This will complete the configuration for AP Mode and the controller will enter Station Mode settings.**

### **4.3 Configuration Files Import (Advanced Users)**

**As the procedure of uploading text files from mobile devices is different for every phone and operating system, and requires installing more applications, you are advised to use this procedure only with a laptop or if you are very familiar with your mobile device.**

As mentioned above, Importing Data is useful when you want to set up more than one MultiController. You access this page by pressing on Import Data button found on the **Create User** page when first accessing the AP Mode.



File Browser x +

Not secure | 109.108.112.114/files Guest

Go Back metrici accurate recognition Metrici Multi-Controller Version: v2.1

### Setup - Import/Export Data

| 0 Config files | Total: 1345 kB | Used: 78 kB | Free: 1267 kB |
|----------------|----------------|-------------|---------------|
| Name           | Size           | Action      |               |

Only the following file names will work `networkController.txt`, `userController.txt`, `configInputsController.txt`, `configOutputsController.txt` or `configWiegandController.txt`.

Notes:

- (1): After a file upload please check in the table above that the file's name ends in `.txt`.
- (2): If the file doesn't end in `.txt` please refer to the User's Manual.
- (3): A restart is necessary after a file upload.
- (4): You can upload all the files you need before restarting the device.

Browse files Upload

Restart Device

### Logs

```
Was /networkController.txt created ?
Yes
Controller went in AP Mode !
Starting AP ...
Metrici599 ready
Setting AP configuration ...
Ready
Soft-AP IP address:
109.108.112.114
```

This page lets you upload pre-made configuration files. Some quick tips inform on the restrictions of using this feature. The most important rule is that the **configuration files** you upload **must have one of the following names**, with each having a different role:

**network.txt**

**user.txt**

**inputs.txt**



**outputs.txt**  
**wiegand.txt.**

**IMPORTANT!!!!**These names are the only ones accepted.

If the uploaded file name or extension do not meet the above requirements, the files will not work. You are advised to change names or extension accordingly.

As an exception, the firmware update files will have other extensions, but those are files provided by Metrici (see chapter).

Also please note that any whitespace/empty spaces before or after a line of text will be ignored:

“ admin “ will be automatically converted to “admin” when read and used by the MultiController, but the space will remain inside the file. For more details about settings and files, you can also check next chapters.

#### **NOTE!**

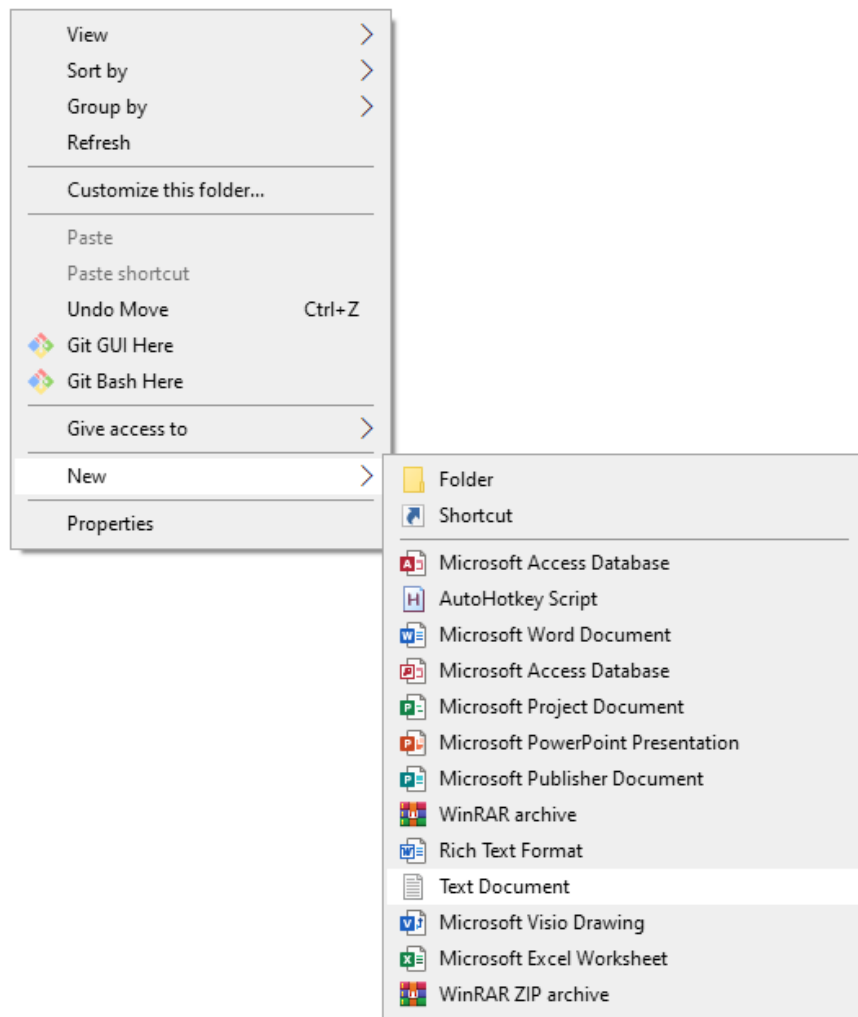
The only necessary file for the controller to enter Station Mode and its setting options is **network.txt**. Meaning the credentials for the network, the MultiController will work in. The other files are optional and will be created only if their functionality is needed.

For example, if you need to use the Wiegand Interface you will have to either create a **b**, add the wanted values and upload it or use the **Wiegand Settings** page found in **Station Mode**.

Using any of the Settings page will create a configuration file. For example, using **Wiegand Settings** page will save the entered values in a **wiegand.txt** file.

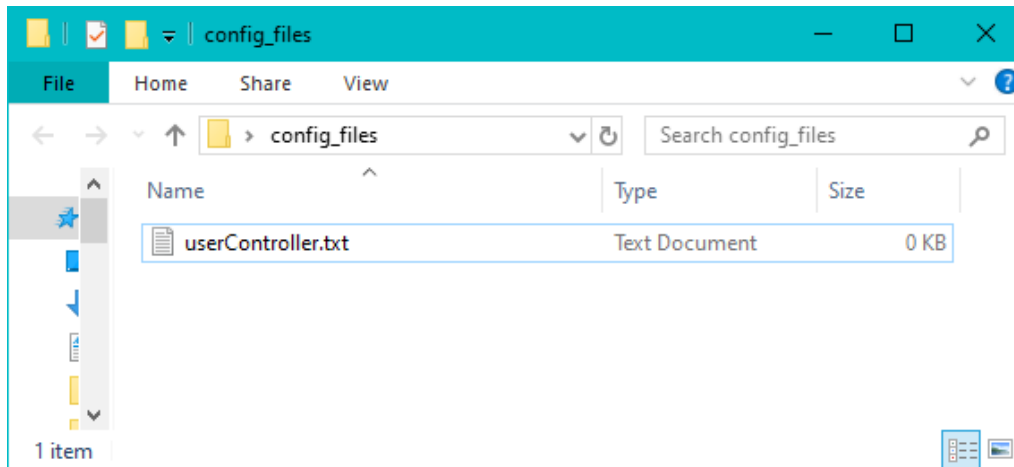
#### **4.4 PC Uploading**

To Upload a document on MultiController you will have to create it on a PC/laptop or other device. On Windows OS, right click on mouse and choose **New Text Document**.



This will create a file **New Text Document.txt**. The .txt can or can not be visible depending on your machine settings. If it is not visible, do not worry about it. If it is visible, **PLEASE DO NOT DELETE IT!**

Rename the file accordingly to the settings you want to make for MultiController. For example **user.txt**



Open the file and start introducing the access credentials or other data, as explained in this manual. In case of a user file, write a name and a password for it, each on its own row. The same for any file you would create.

To load the file on MultiController, open a browser on your PC, type down the address of the MultiController

**The standard one is <http://192.168.100.10>.**

**From MultiController interface choose Import/Export Data, then press Browse.** In the new window go to your file and click Open

**The name of the button in Metrici MultiController interface will be changed with the file name. If the procedure, name or extension of the file are not correct, nothing will change.**

**If all good press Upload, then Restart.**

## 4.5 Upload files format

To properly create a configuration file, you should first know how to fill in the data. The following images detail how the configuration files should look like.

Please note that:

- **network** refers to the local network settings;

- **user** refers to the user access credentials for the controller's interface;
- **inputs** refers to the input settings;
- **outputs** refers to the output settings;
- **wiegand** refers to the Wiegand settings.

**Each value you type must be placed on its own row in the files. Do not put any free spaces in the entered values and also, do not separate the values by entering more spaces between them.**

Example: As a rule, after you have entered a data. you will press Enter on your keyboard and that will send you to the next row. And so on until the final one. After you have entered the desired values you have to save, close and upload the file using the above Import Data page.

NOTE

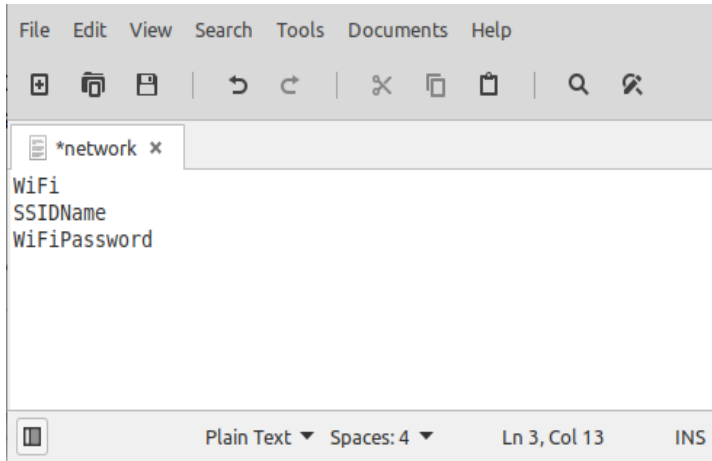
#### **4.6 network.txt format**

The **network.txt** file can contain settings made for either internet connection type: WiFi or Ethernet and either IP types: DHCP or Static. The file in question refers to the MultiController settings in the local network.

**The first line in every network.txt file will always be the type of connection: WiFi or Ethernet.**

##### **WiFi DHCP IP:**

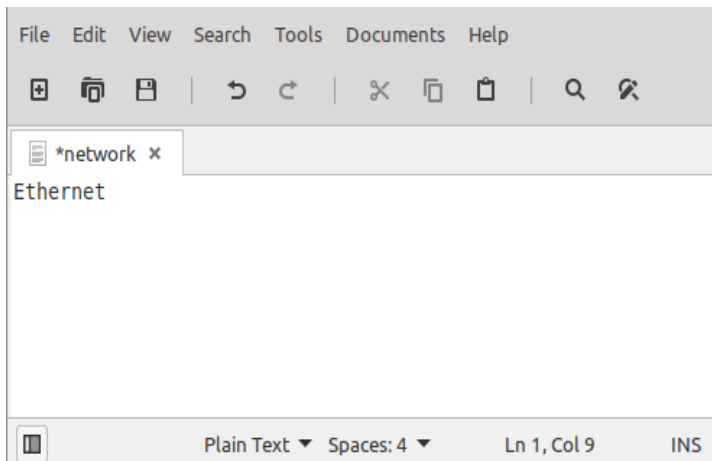
First line is the type of connection, in this case: WiFi. Second row is SSID name: Name of the local network, and third row, the password for that network.



1<sup>st</sup> line: **WiFi**  
2<sup>nd</sup> line: **SSID network name**  
3<sup>rd</sup> line: **Password for the network**

## Ethernet DHCP IP

You will only write one row and one word in the file: Ethernet



1<sup>st</sup> line: **Ethernet**

## WiFi Static IP

7 rows. Be aware that the IP must be unique for each MultiController you set. No two identical IP's can work in the same network.

```
File Edit View Search Tools Documents Help
WiFi
SSID NAME
WiFiPassword
192.168.1.150
192.168.1.1
255.255.255.0
8.8.8.8
```

- 1<sup>st</sup> line: **WiFi**
- 2<sup>nd</sup> line: **SSID**
- 3<sup>rd</sup> line: **Password**
- 4<sup>th</sup> line: **IP Address**
- 5<sup>th</sup> line: **Gateway**
- 6<sup>th</sup> line: **Subnet Mask**
- 7<sup>th</sup> line: **Primary DNS**

## Ethernet Static IP:

```
File Edit View Search Tools Documents Help
Ethernet
192.168.1.150
192.168.1.1
255.255.255.0
8.8.8.8
```

- 1<sup>st</sup> line: **Ethernet**
- 2<sup>nd</sup> line: **IP Address**
- 3<sup>rd</sup> line: **Gateway**
- 4<sup>th</sup> line: **Subnet Mask**
- 5<sup>th</sup> line: **Primary DNS**

### Note!

If you are trying to set up Static IP on more controllers, please be careful for each of them to have its own **UNIQUE IP Address**. No two devices can have the same IP Address. If you set two displays with the same IP, none of those displays will be accessible and you will have to RESET at factory settings one of them (see Chapter 6).

## 4.7 user.txt format

The **user.txt** file will have to include the a Username and a Password for that user for that controller to be accessible. As we have mentioned

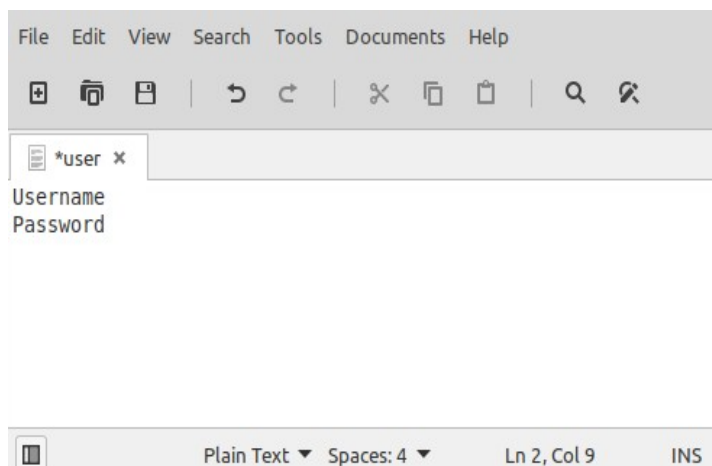
## METRICI MultiController User Guide

above, creating a user is an optional feature. The entered values must be placed each on their own row. For example the two rows might look like

### Metrici

#### admincontrol!123

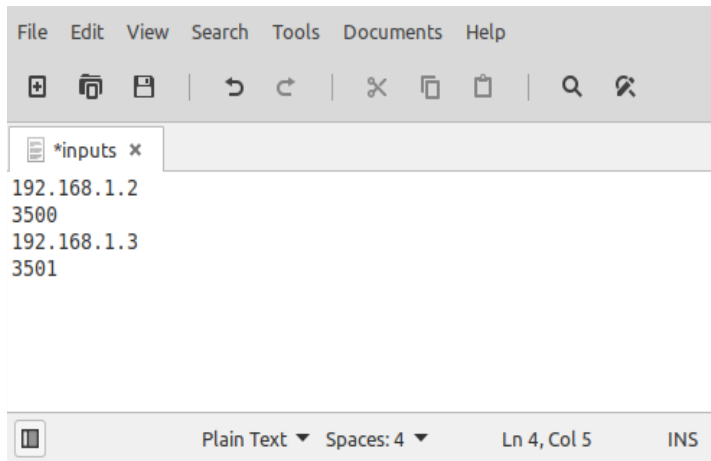
If you set these credentials, you will be asked to fill them in every time you log to the MultiController. Same file and access credentials can be used for more MultiControllers.



1<sup>st</sup> line: **Name of the user**  
2<sup>nd</sup> line: **Password for that user**

### 4.8 inputs.txt format

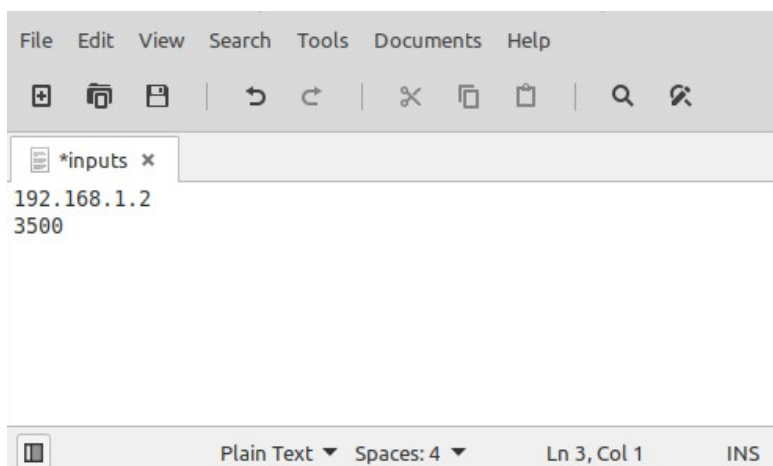
The **inputs.txt** file will include details about the first and the second Input. Each Input will have its own IP Address and Port. The file can contain values for one or for both inputs. In the following image we have completed the IP Addresses and Ports of both Inputs. These are values obtained in Metrici Control Panel for the engine that will make the detection. See **Chapter 5.4 and 5.5** for more details.



```
*inputs *
192.168.1.2
3500
192.168.1.3
3501
```

1<sup>st</sup> line: **Input 1 IP Address**  
2<sup>nd</sup> line: **Input 1 Port**  
3<sup>rd</sup> line: **Input 2 IP Address**  
4<sup>th</sup> line: **Input 2 Port**

Please note that if you want to complete the values of only one input in this file those values will always correspond to Input 1.



```
*inputs *
192.168.1.2
3500
```

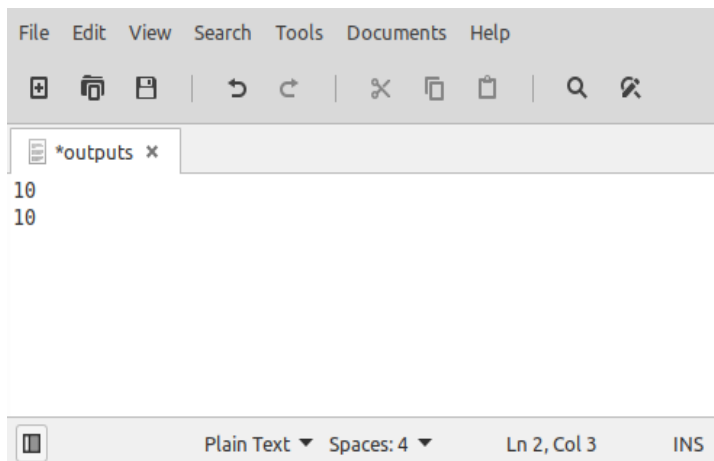
1<sup>st</sup> line: **Input 1 IP Address**  
2<sup>nd</sup> line: **Input 1 Port**

## 4.9 outputs.txt format

The **outputs.txt** file will always contain both timers of the relays no matter the value.

Please note that the values of the timer should be between the range of 0 and 99 seconds, although you could choose a bigger time interval. Nevertheless the interface limits you to 99 seconds.



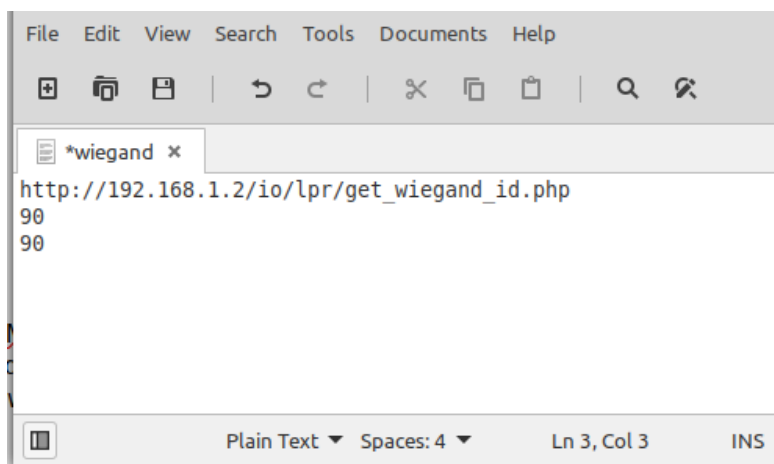


```
File Edit View Search Tools Documents Help
+ - [ ] | < > | ✂ [ ] [ ] | 🔍 [ ]
*outputs *
10
10
Plain Text Spaces: 4 Ln 2, Col 3 INS
```

1<sup>st</sup> line: **Timer 1**  
2<sup>nd</sup> line: **Timer 2**

## 4.10 configWiegandController.txt format

The **configWiegandController.txt** file must contain three lines: the Metrici server IP, the Pulse Width and the Inter Pulse Gap. The IP of Metrici is followed by the text /**io/lpr/get\_wiegand\_id.php**. With this command, the MultiController will ask for a Wiegand ID from Metrici Database every time a detection is made



```
File Edit View Search Tools Documents Help
+ - [ ] | < > | ✂ [ ] [ ] | 🔍 [ ]
*wiegand *
http://192.168.1.2/io/lpr/get_wiegand_id.php
90
90
Plain Text Spaces: 4 Ln 3, Col 3 INS
```

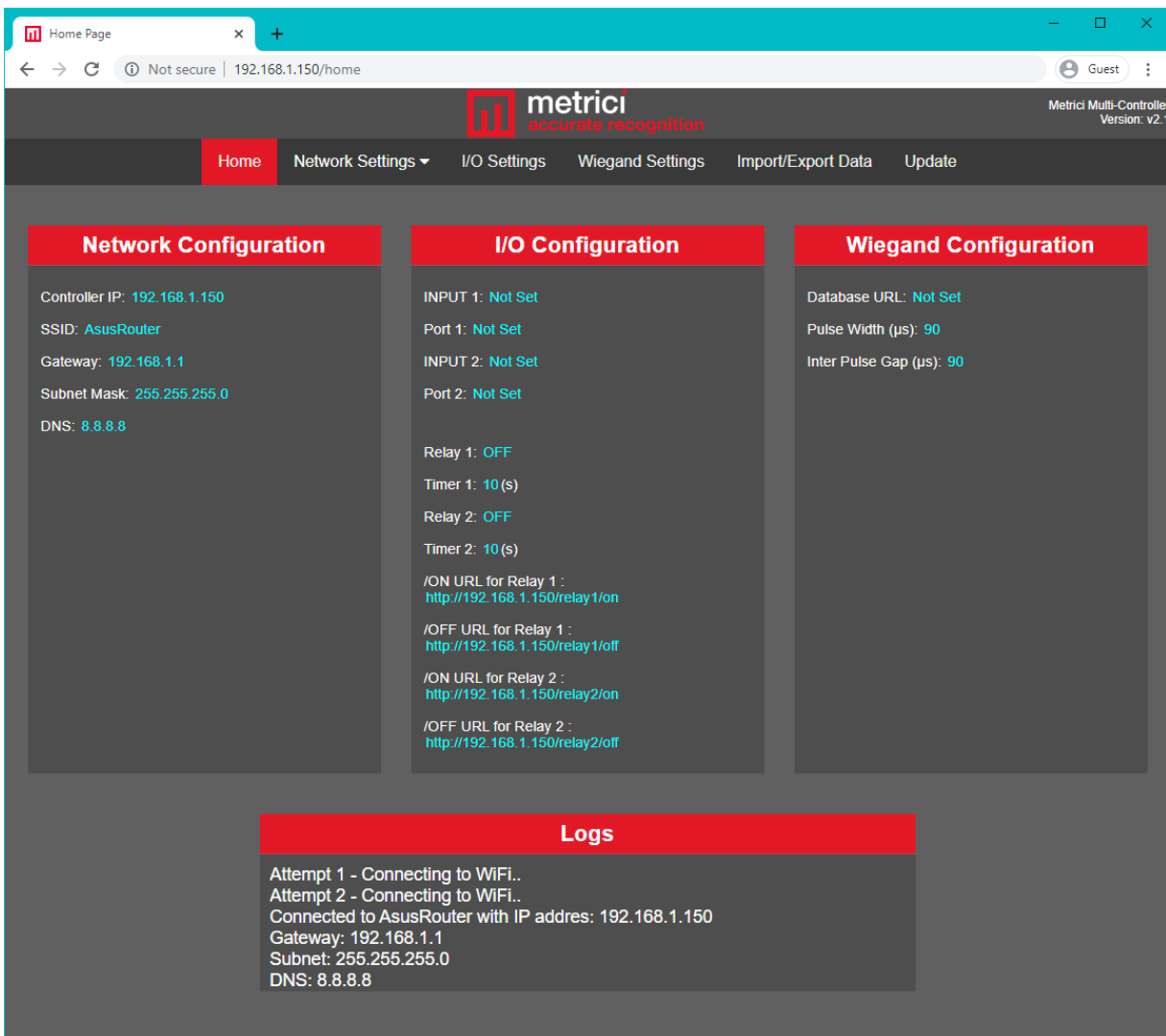
1<sup>st</sup> line: **Metrici Server URL**  
2<sup>nd</sup> line: **Pulse Width**  
3<sup>rd</sup> line: **Inter Pulse Gap**

For the changes to apply, after uploading a file or multiple files, you have to restart the display by pressing on the Restart Device button.

If you chose to upload more configuration files and all that you needed and the entered values are correct, then you can skip ahead to chapter 6 to read about restarting or reset, because the controller should work without a fault.

## 5. Station Mode (Working Mode)

After you have made the proper network settings and are able to access the controller, you enter its dedicated Home Page.



The screenshot shows the Metrici Multi-Controller Home Page in a browser. The address bar displays '192.168.1.150/home'. The page features a dark grey header with a red navigation bar containing 'Home', 'Network Settings', 'I/O Settings', 'Wiegand Settings', 'Import/Export Data', and 'Update'. The main content area is divided into three columns: 'Network Configuration', 'I/O Configuration', and 'Wiegand Configuration'. Below these is a 'Logs' section.

| Network Configuration  | I/O Configuration  | Wiegand Configuration   |
|--|--|---|
| Controller IP: 192.168.1.150<br>SSID: AsusRouter<br>Gateway: 192.168.1.1<br>Subnet Mask: 255.255.255.0<br>DNS: 8.8.8.8 | INPUT 1: Not Set<br>Port 1: Not Set<br>INPUT 2: Not Set<br>Port 2: Not Set<br><br>Relay 1: OFF<br>Timer 1: 10 (s)<br>Relay 2: OFF<br>Timer 2: 10 (s)<br><br>/ON URL for Relay 1 :<br><a href="http://192.168.1.150/relay1/on">http://192.168.1.150/relay1/on</a><br><br>/OFF URL for Relay 1 :<br><a href="http://192.168.1.150/relay1/off">http://192.168.1.150/relay1/off</a><br><br>/ON URL for Relay 2 :<br><a href="http://192.168.1.150/relay2/on">http://192.168.1.150/relay2/on</a><br><br>/OFF URL for Relay 2 :<br><a href="http://192.168.1.150/relay2/off">http://192.168.1.150/relay2/off</a> | Database URL: Not Set<br>Pulse Width (µs): 90<br>Inter Pulse Gap (µs): 90 |

**Logs**

```
Attempt 1 - Connecting to WIFI..
Attempt 2 - Connecting to WIFI..
Connected to AsusRouter with IP address: 192.168.1.150
Gateway: 192.168.1.1
Subnet: 255.255.255.0
DNS: 8.8.8.8
```

On the Home Page you will find all the current settings of the MultiController. These settings get automatically updated whenever a change is made. The page is split into three columns:

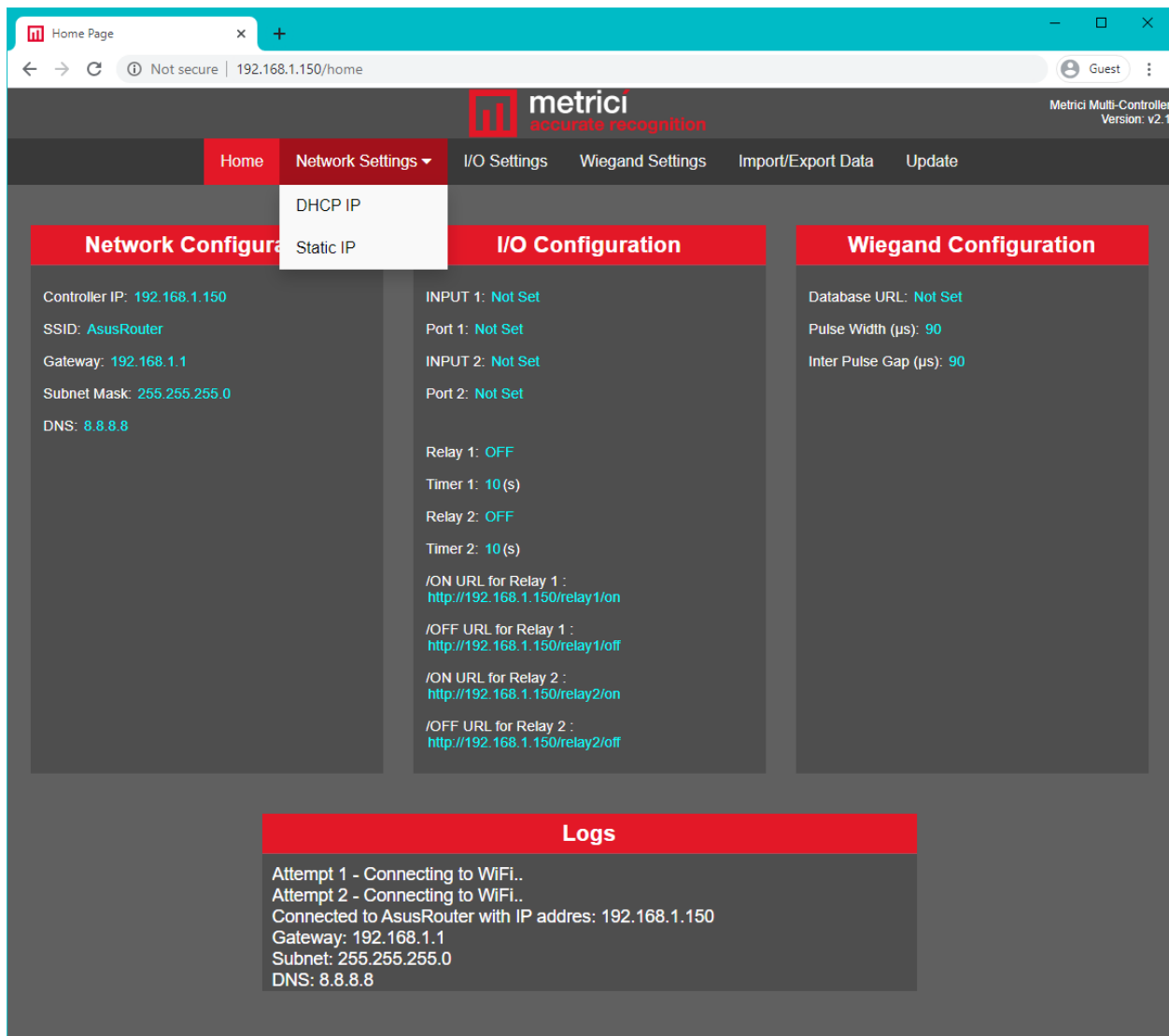
- on the left side of the page there is the current Network Configuration that was previously made on the MultiController

- in the middle of the page : Input/Output Configuration available for the controller. These settings will be detailed later on in this guide. One thing to notice here is that Relay 1 and Relay 2 will be updated in real time every time the controller will open or close any of the relays.
- on the right side of the page is found the current Wiegand Configuration

All of the previously mentioned settings can be changed from their respective web-page in this Interface. The navigation bar, upper page, contains every option available on the MultiController. This feature makes finding each configuration page much easier and intuitive.

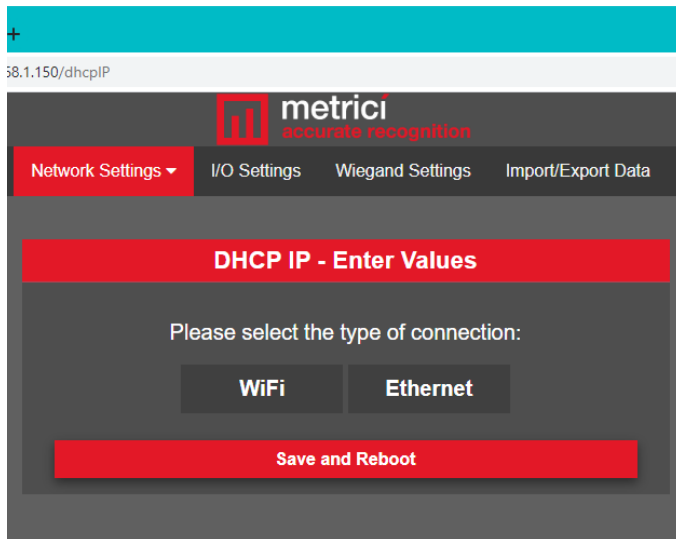
### **5.1 Network Settings**

You can choose the type of the desired IP by hovering over the Network Settings tab and choosing from the drop-down menu:



If you choose DHCP IP you will get to the following page which is similar to the one found previously in the AP Mode Configuration.

## 5.2 DHCP IP



38.1.150/dhcpIP

metrici accurate recognition

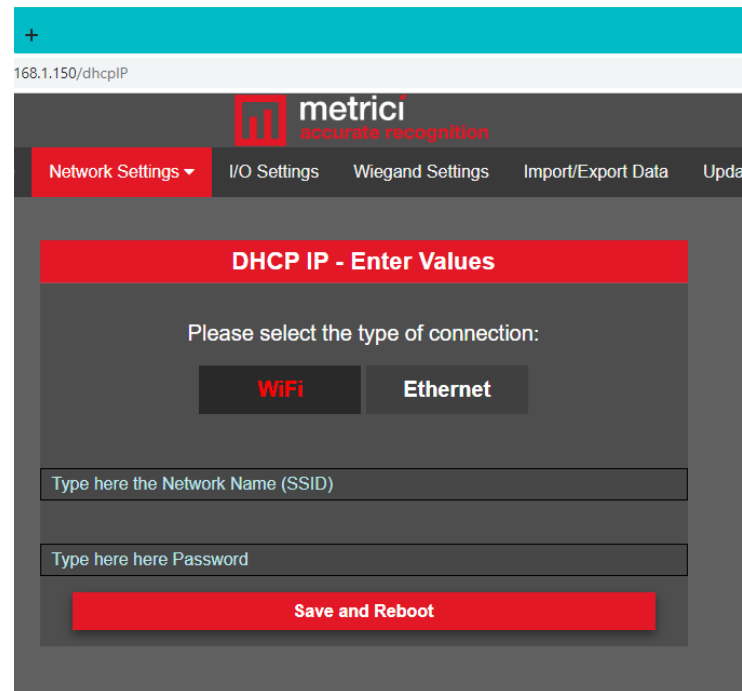
Network Settings ▾ I/O Settings Wiegand Settings Import/Export Data

**DHCP IP - Enter Values**

Please select the type of connection:

WiFi Ethernet

Save and Reboot



168.1.150/dhcpIP

metrici accurate recognition

Network Settings ▾ I/O Settings Wiegand Settings Import/Export Data Upda

**DHCP IP - Enter Values**

Please select the type of connection:

WiFi Ethernet

Type here the Network Name (SSID)

Type here here Password

Save and Reboot

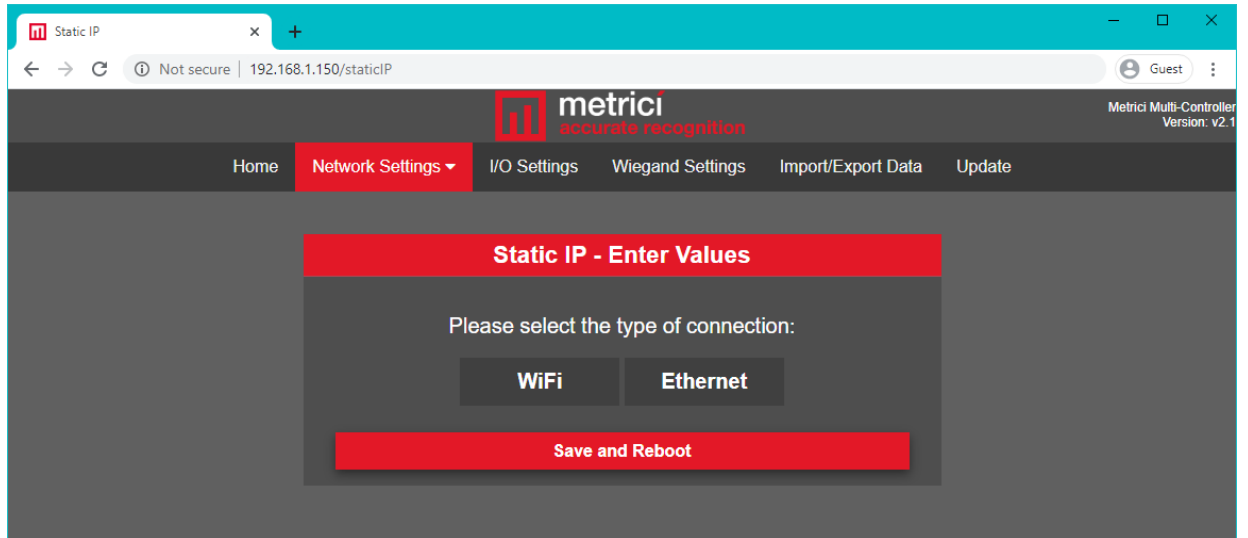
As before, you will have to select the desired connection type and fill in the required information, respectively Network's name and Password for that network.

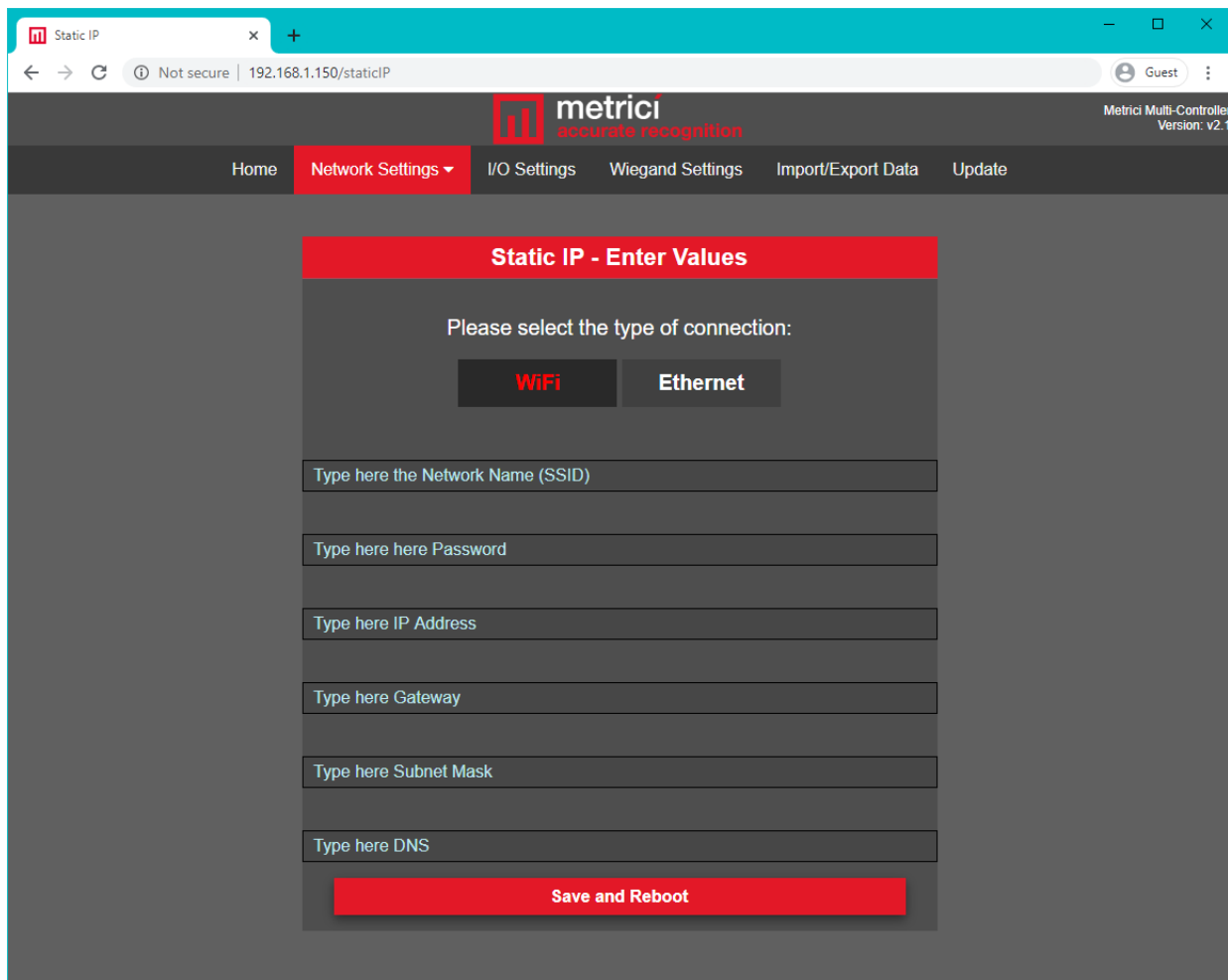
**NOTE!** As explained in the previous chapters

If you are to choose that working mode, you need to know that you have to make some changes in the local network for the MultiController to proper function every time it starts. If you choose DHCP but you don't make network settings there is a possibility that MultiController gets another IP when it reboots and to not work properly as the communication data are different. There is a way to link the router/server from the local network to the MAC address of the MultiController so that it gets the same IP every time it starts (power failure, communication failure etc. ) Be aware that this requires advanced networking knowledge.

## 5.3 Static IP

If you choose static IP , whether it is WiFi or Ethernet, you will have to enter some values: Network Name, Password to access it, the IP Address for the Multicontroller, Gateway, Subnetmask and DNS.





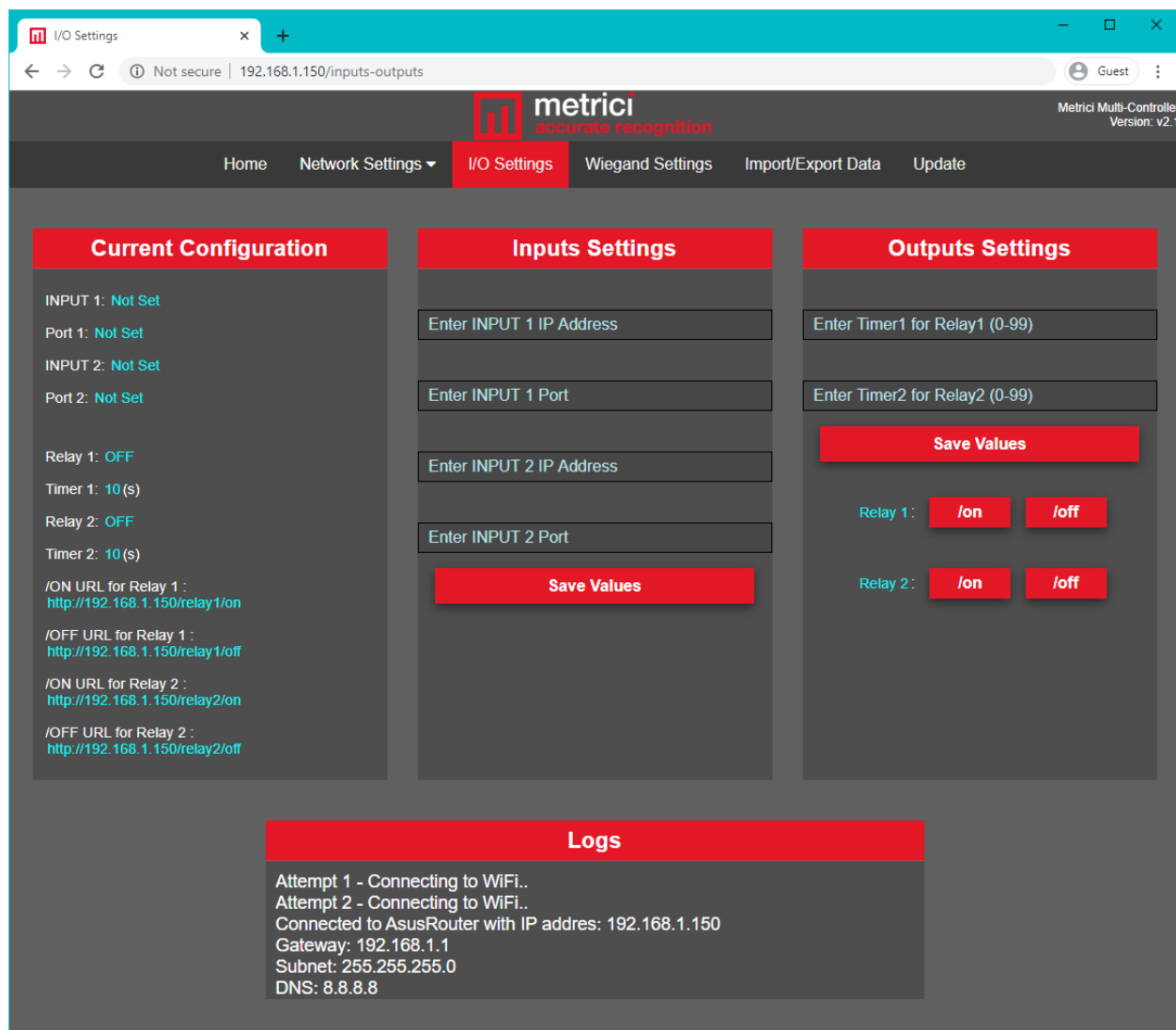
## 5.4 I/O Settings

On the Input/Output Settings page you can change settings regarding the 2 digital Inputs and 2 digital Outputs. The page also makes available the Current Configuration in real time.

This page also displays the URLs for the two available relays:

/ON URL for Relay 1 : <http://192.168.1.150/relay1/on>  
/OFF URL for Relay 1 : <http://192.168.1.150/relay1/off>  
/ON URL for Relay 2 : <http://192.168.1.150/relay2/on>  
/OFF URL for Relay 2 : <http://192.168.1.150/relay2/off>

See section **5.6 Output Settings**.



**Current Configuration**

INPUT 1: Not Set  
Port 1: Not Set  
INPUT 2: Not Set  
Port 2: Not Set

Relay 1: OFF  
Timer 1: 10 (s)  
Relay 2: OFF  
Timer 2: 10 (s)

/ON URL for Relay 1 :  
<http://192.168.1.150/relay1/on>

/OFF URL for Relay 1 :  
<http://192.168.1.150/relay1/off>

/ON URL for Relay 2 :  
<http://192.168.1.150/relay2/on>

/OFF URL for Relay 2 :  
<http://192.168.1.150/relay2/off>

**Inputs Settings**

Enter INPUT 1 IP Address

Enter INPUT 1 Port

Enter INPUT 2 IP Address

Enter INPUT 2 Port

**Save Values**

**Outputs Settings**

Enter Timer1 for Relay1 (0-99)

Enter Timer2 for Relay2 (0-99)

**Save Values**

Relay 1: **/on** **/off**

Relay 2: **/on** **/off**

**Logs**

Attempt 1 - Connecting to WiFi..  
Attempt 2 - Connecting to WiFi..  
Connected to AsusRouter with IP address: 192.168.1.150  
Gateway: 192.168.1.1  
Subnet: 255.255.255.0  
DNS: 8.8.8.8

## 5.5 Input Settings

Metrici MultiController is capable of sending two triggers to the Metrici engines. For example, the MultiController can be connected to two inductive loops or sensors to trigger Metrici engine to make a detection.

To be able to do this, we will have to properly configure the input's IP Address and Port.

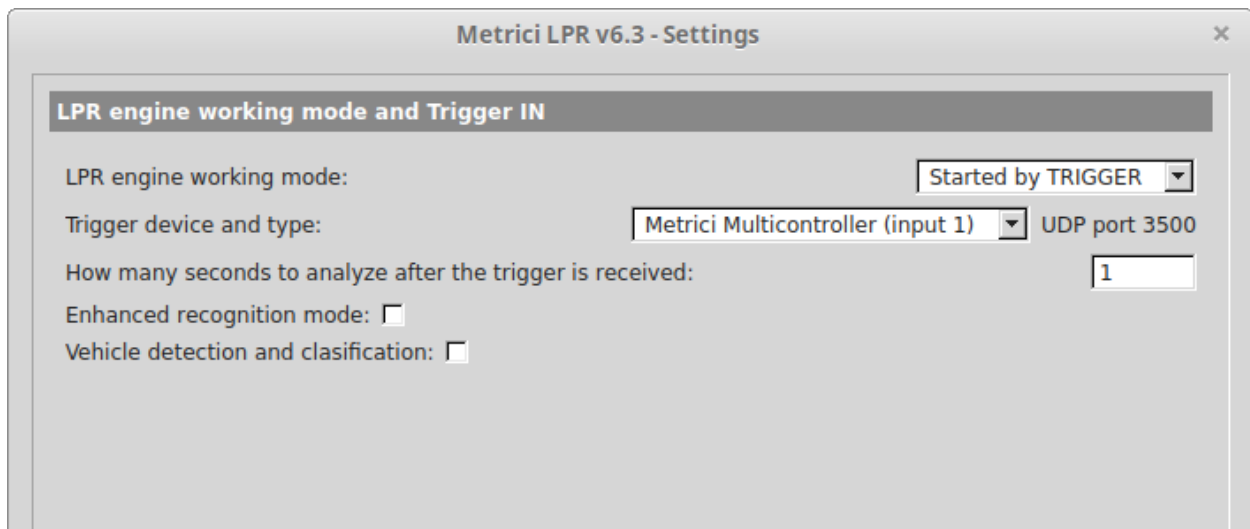
**The Input IP Address used in MultiController is the address of the Metrici Server that will be getting the triggers.**



## METRICI MultiController User Guide

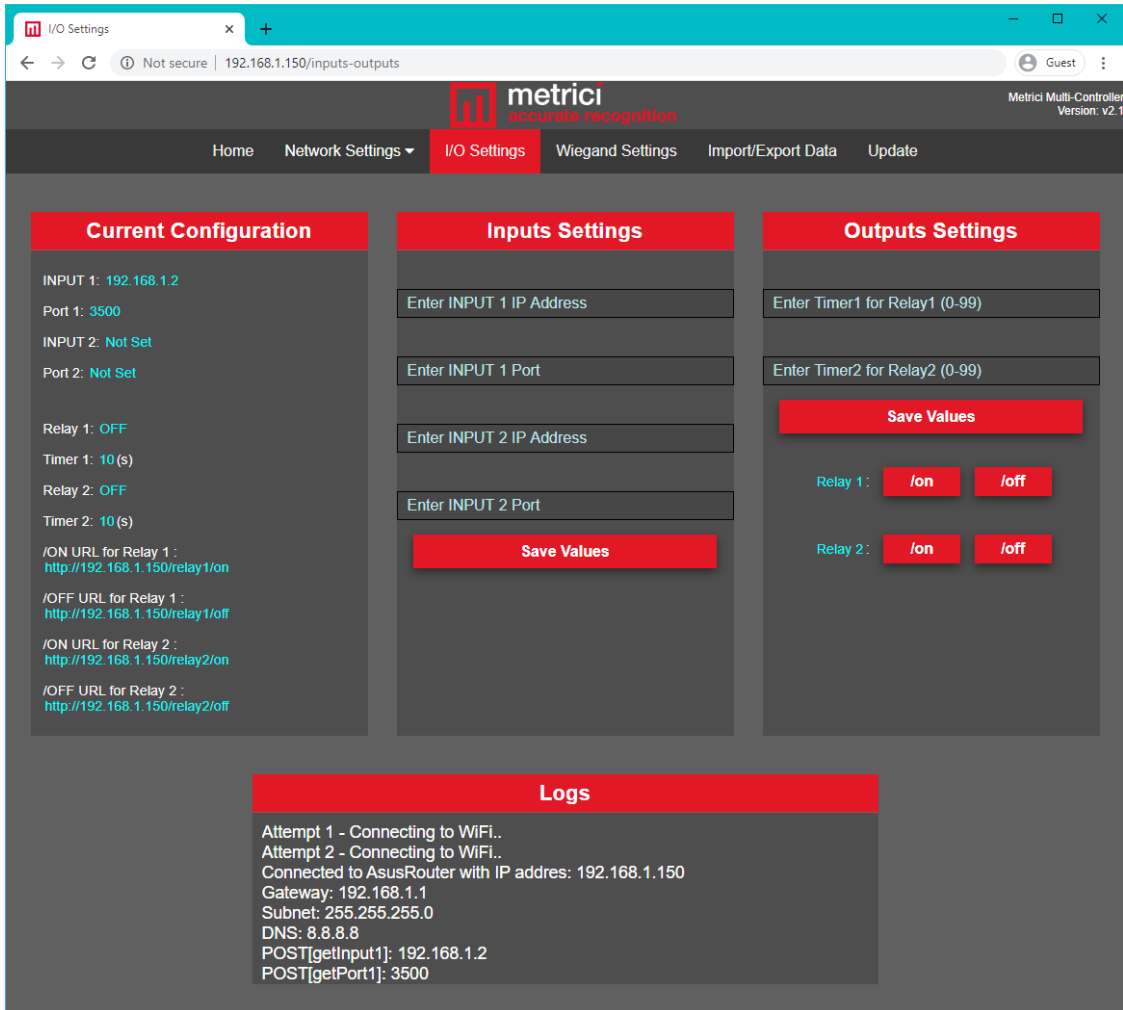
The Input Port is the port found in the Metricí Control Panel and it will be unique for every device linked to the server. The port will start from a value of 3500, this being the port of the first device found in Control Panel. The second device's port will be 3501 and so on. As many engines can be on same server, the same more MultiControllers can send triggers to them.

The first step in setting up an INPUT is to open the Metricí LPR Engine window and select LPR engine working mode and Trigger IN tab. From here you will want to change LPR engine working mode to "started by TRIGGER". Then from **Trigger device and type** select **Metricí Multicontroller (input 1) or Metricí Multicontroller (input 2)**. For this example, we will configure INPUT 1:



Metricí will automatically generate a port and the first one is Input Port 3500: This port and the servers's IP will be used in MultiController Interface

For the final step, you will have to return to the MultiController's **I/O Settings** web-page and type in the Metricí Server's IP and the port taken from Control Panel. Fill in **Input 1 Port** and press **Save Values**:



If all was well set, your I/O Settings page should look like the photo above.

## 5.6 Output Settings

In the Output Settings, you can control both of the controller's relays. You can link as such any hardware that is capable of being actioned through a relay, like a barrier or a traffic light to the MultiController and we will be able to control it from this page.

The first two fields are Timer1 and Timer2. **A timer is the number of seconds that the relay will stay ON .**

### NOTE!

If you would like for a relay to stay ON for an indefinite amount of time or until a user decides to manually close it, you will have to enter 0 in the respective relay's timer field. For example, if we want Relay1 to only be manually closed, we will set Timer1 to a value of 0.

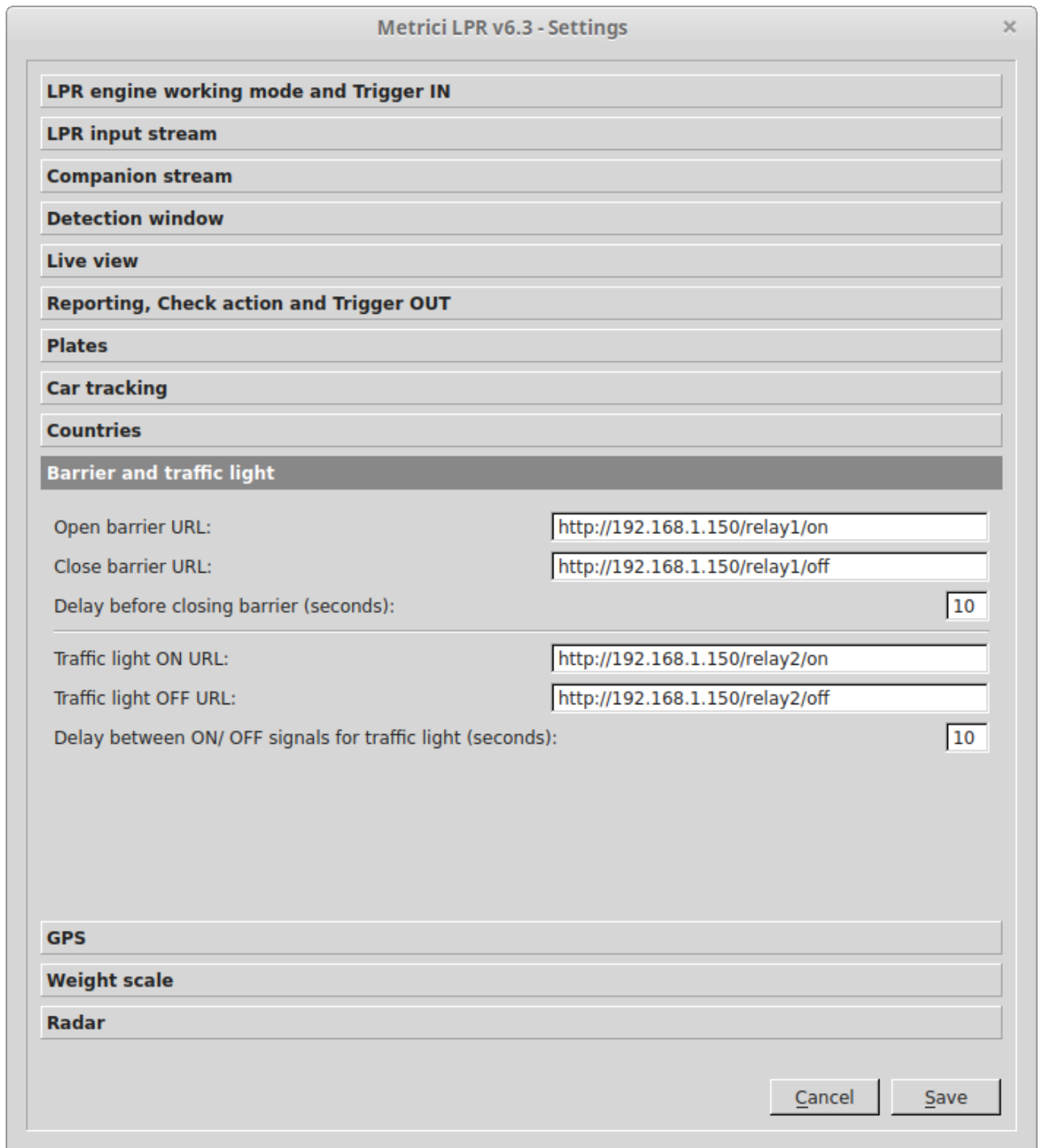
The action buttons for both the relays are also on this page. From here you can manually change the status of the relays. For example, if you would like to manually open a barrier that's connected to Relay1 you will simply click the /on button.

The relays can also be activated by the Metrici LPR Engine. Here come in play the four ON and OFF links from the left-side column of the page. Each link represents a command that can be given to one of the two relays. For example, <http://192.168.1.150/relay1/on> can be used in the LPR Engine window to open a barrier or turn a traffic light on.

**The IP in this example is the IP you set for the MultiController.**

Everytime you change the IP of the device will modify this address also. Be aware that if you change the MultiController's IP address, this will have to be also filled in the Control Panel, in case this functionality is used.

In order to do that, you will have to go to your Metrici LPR Engine Control Panel, select **Barrier and traffic light** and type-in or paste the link accordingly:



Metricí LPR v6.3 - Settings

LPR engine working mode and Trigger IN

LPR input stream

Companion stream

Detection window

Live view

Reporting, Check action and Trigger OUT

Plates

Car tracking

Countries

**Barrier and traffic light**

Open barrier URL:

Close barrier URL:

Delay before closing barrier (seconds):

Traffic light ON URL:

Traffic light OFF URL:

Delay between ON/ OFF signals for traffic light (seconds):

GPS

Weight scale

Radar

In the above example we have used Relay 1 to open and close a barrier and Relay 2 to command a traffic light. We have added:

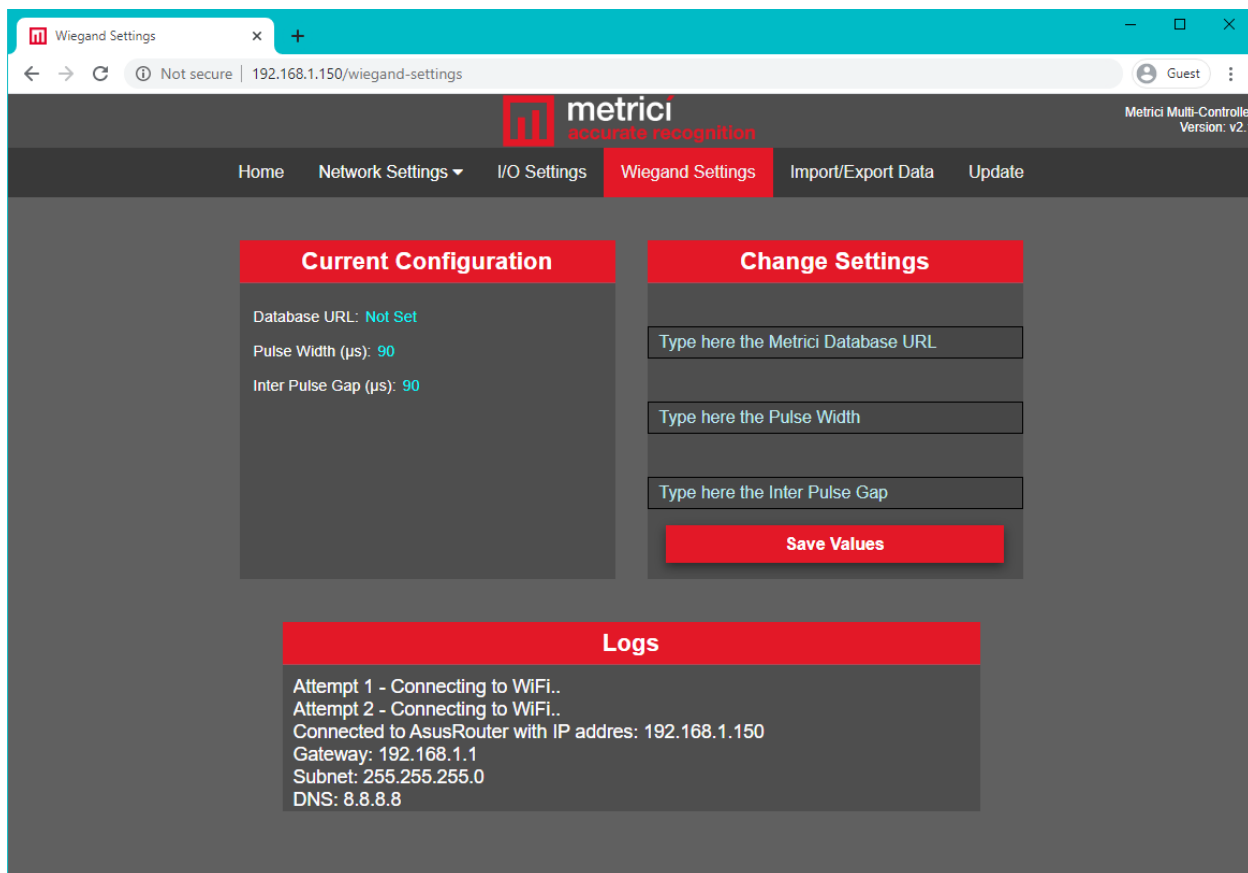
- <http://192.168.1.150/relay1/on> to **Open barrier URL**

- <http://192.168.1.150/relay1/off> to **Close barrier URL**
- <http://192.168.1.150/relay2/on> to **Traffic light ON URL**
- <http://192.168.1.150/relay2/off> to **Traffic light OFF URL**

As mentioned, this is for informative purposes, as, obviously, no two identical Ips can work in the same network.

## 5.7 Wiegand Settings

The MultiController was developed to also be capable of simulating a Wiegand Card Reader. For this go to **Wiegand Settings** tab.



This feature is linked to the Metrici Interface and it basically means that you will have another method of identifying and controlling the access. Each license plate can be associated with a Wiegand ID in the Metrici Interface.

## 5.8 How to set up Wiegand (Step by Step)

First thing that you will need is a Wiegand Central Command capable of receiving and interpreting a 26-bit Wiegand signal. As the 26-bit Wiegand Interface is the most common one, all the Wiegand Centrals should work with the proper adjustments.

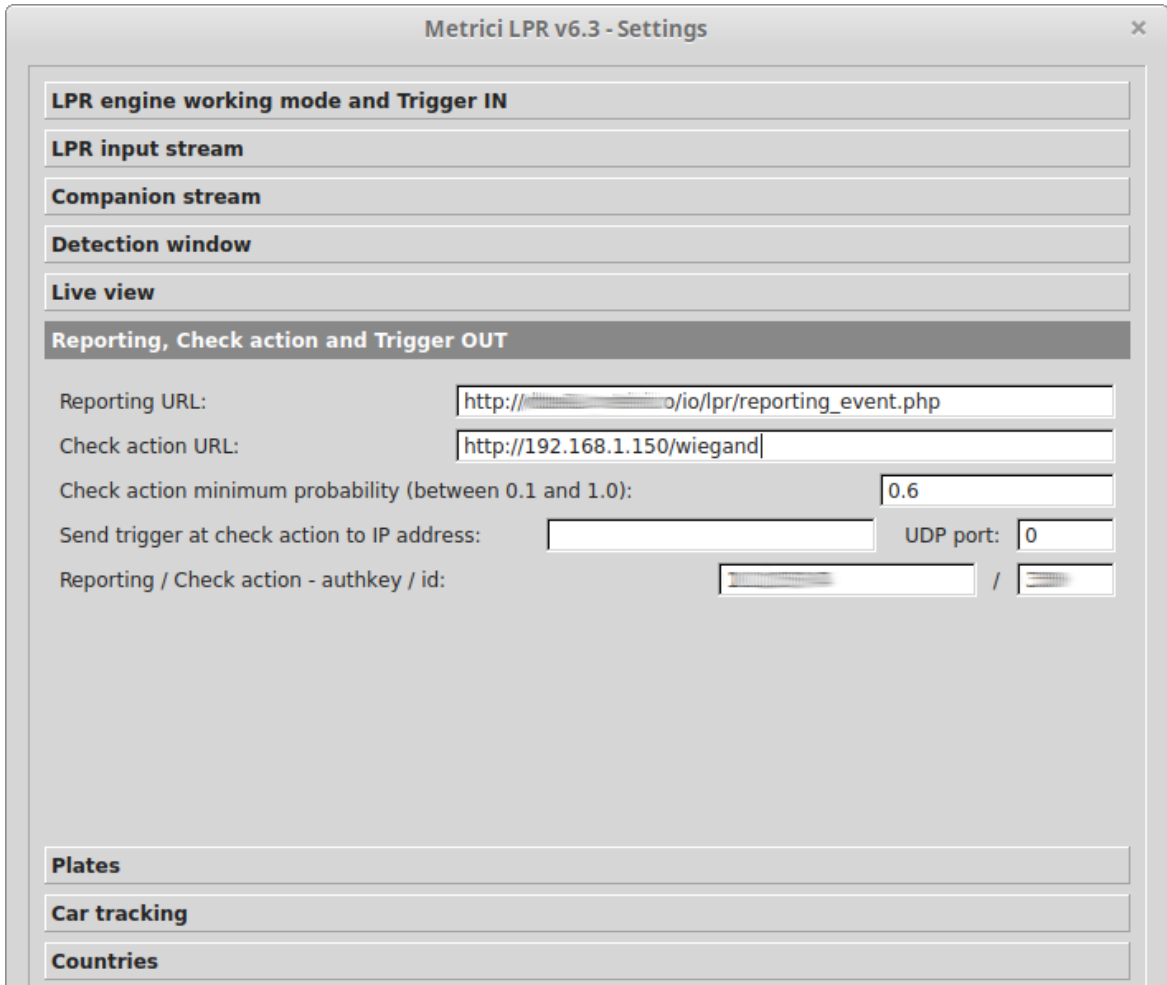
Secondly, you will have to connect the three wires necessary for the Wiegand Interface to work: Wiegand 0 (W0), Wiegand 1 (W1) and Ground (GND) from the MultiController to the Central:



Thirdly, you will have to link the Metrici Server with the MultiController. For this you will need to open the Metrici LPR Control Panel and select **Reporting, Check action and Trigger OUT** tab. In the **Check**

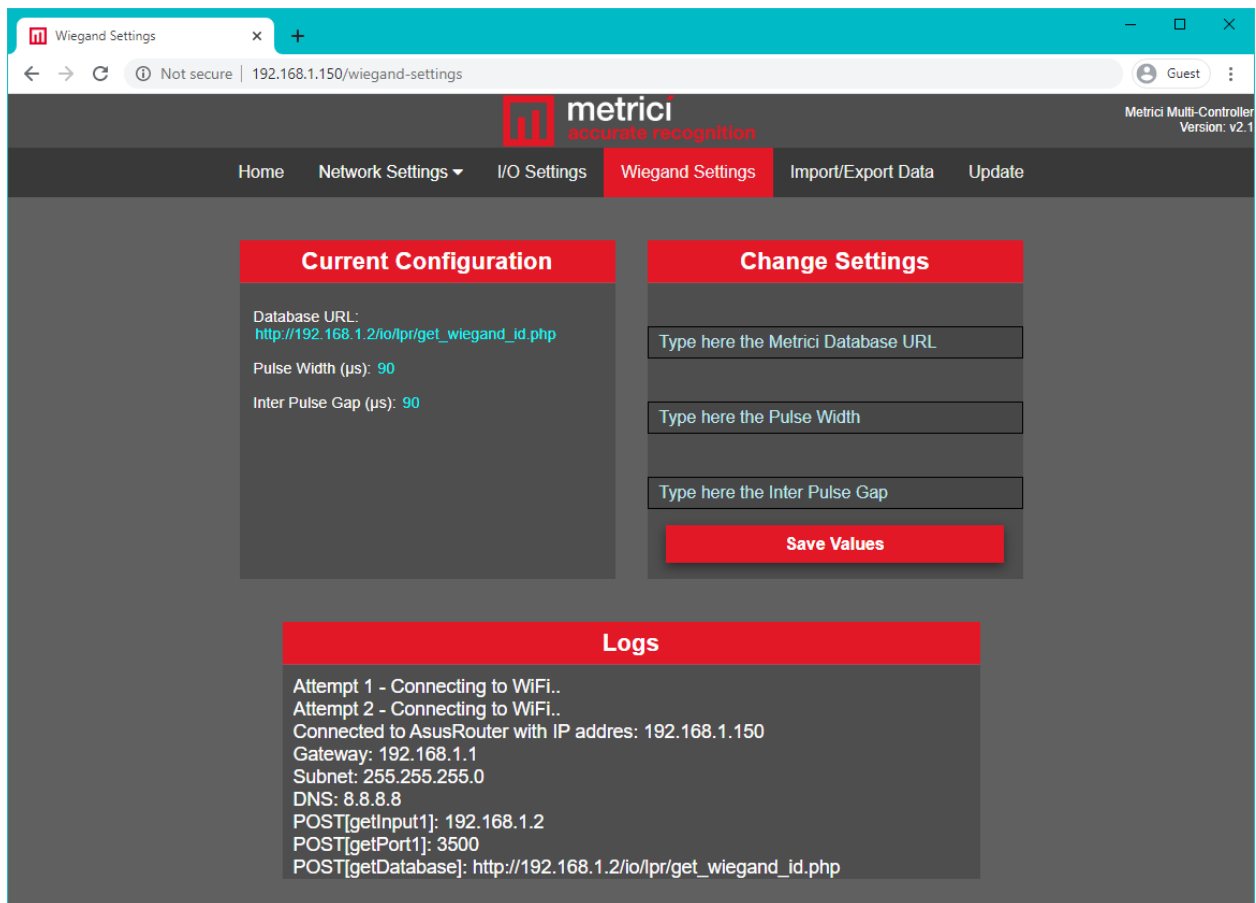
**action URL** field you will have to type the MultiController's IP Address followed by /wiegand :

- for example: 192.168.1.150/wiegand



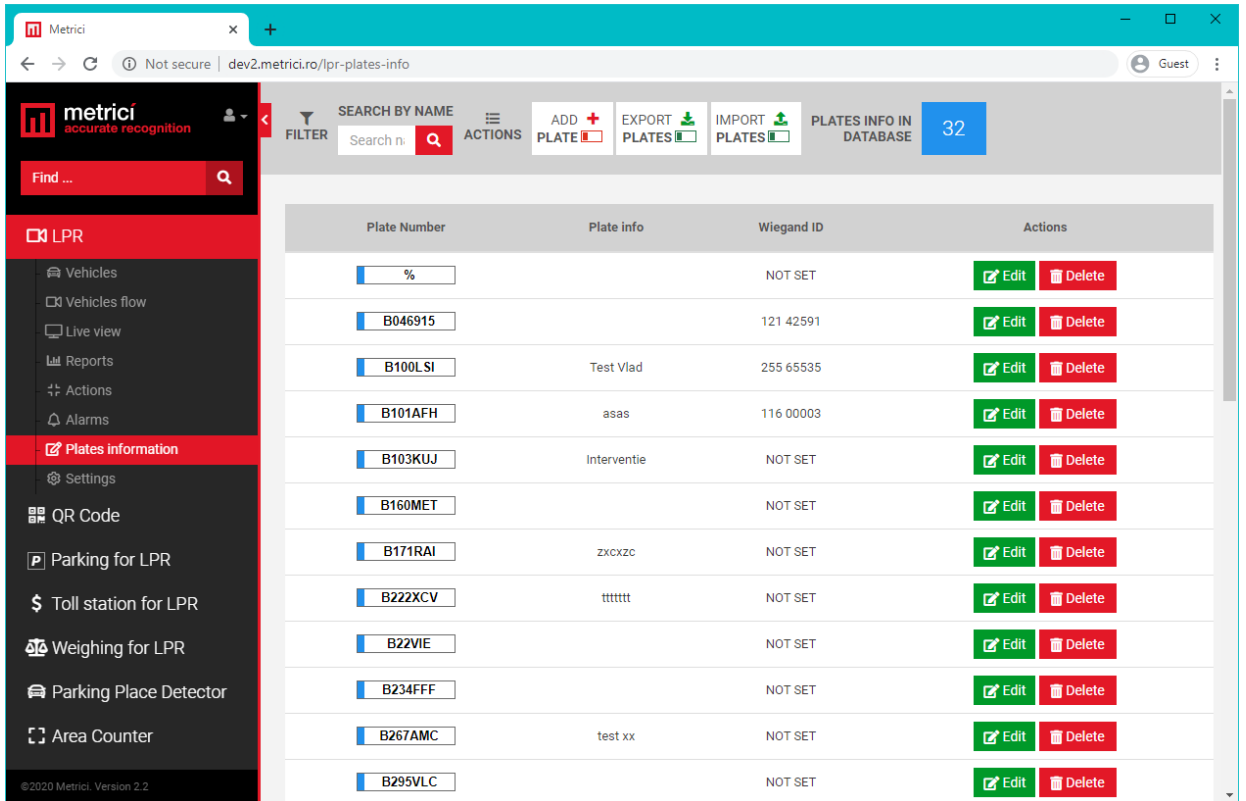
Fourthly, to finish up linking Metrici Server to the MultiController, you will need to go to the MultiController's Wiegand Settings web-page, to **Metrici Database URL** field and type in the Metrici server's IP followed by **/io/lpr/get\_wiegand\_id.php** :

- for example: [http://192.168.1.2/io/lpr/get\\_wiegand\\_id.php](http://192.168.1.2/io/lpr/get_wiegand_id.php)

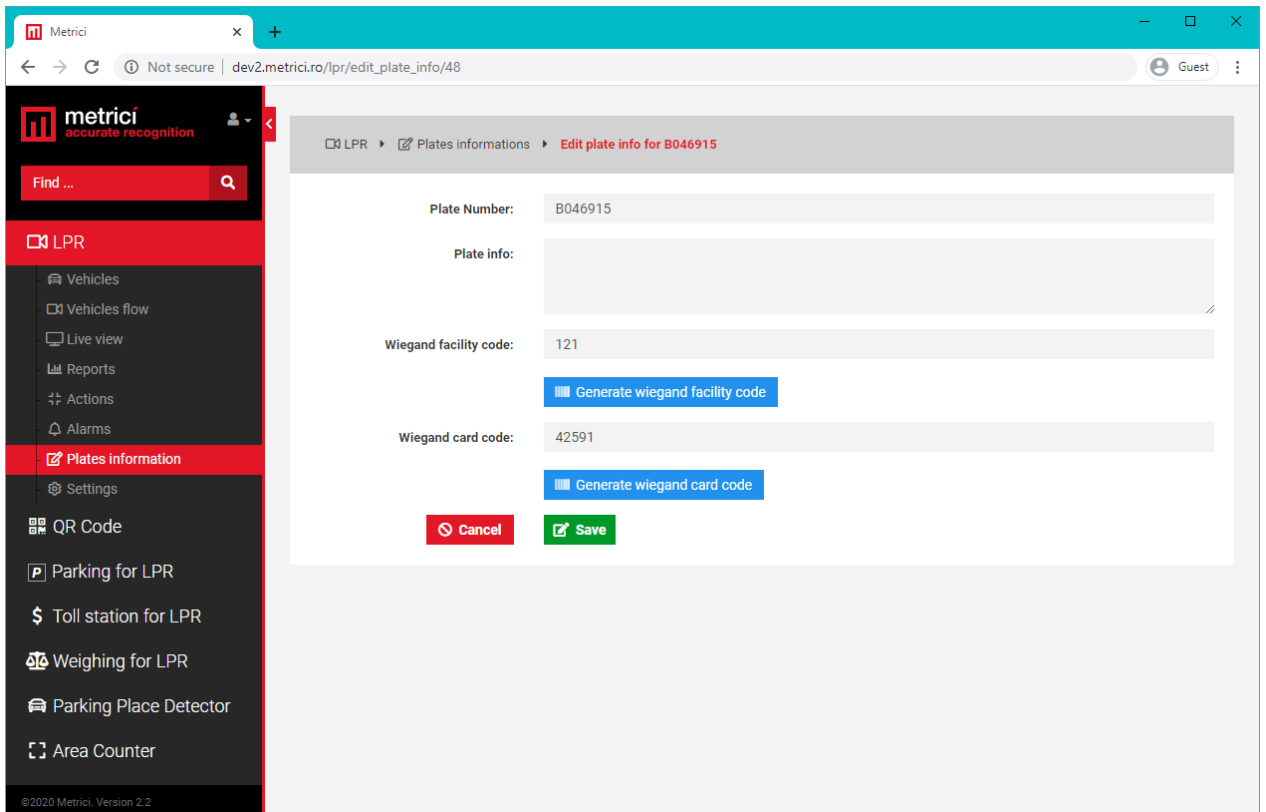


Finally, you will have to go to the Metrici Interface and generate a Wiegand ID for the vehicles or import a list. In order to do that, please access your Metrici's Interface and from the left-side menu choose LPR, then **Plates information**:





From here, choose the desired Plate Number and press EDIT:



Press on **Generate wiegand facility code** and **Generate wiegand card code** buttons respectively, then hit Save to save the settings made. This will create a unique number associated with the desired plate number, adding yet another way of identifying a car.

#### NOTES:

Metrici MultiController should be able to work with most of the Wiegand Centrals if proper adjustments would be made. But not all Wiegand Centrals know how to receive and interpret a Wiegand Signal the same way. For this to be fixed, on **Wiegand Settings** web-page, there are two more inputs beside **Database URL**, namely **Pulse Width** and **Inter Pulse Gap**. Their default value is set at 90 microseconds ( $\mu\text{s}$ ) but they can be unique for every Wiegand Central Command. You may have to change these values and test the desired Central with new values.

**Pulse Width** is the elapsed time between the rising and falling edges of a single pulse.

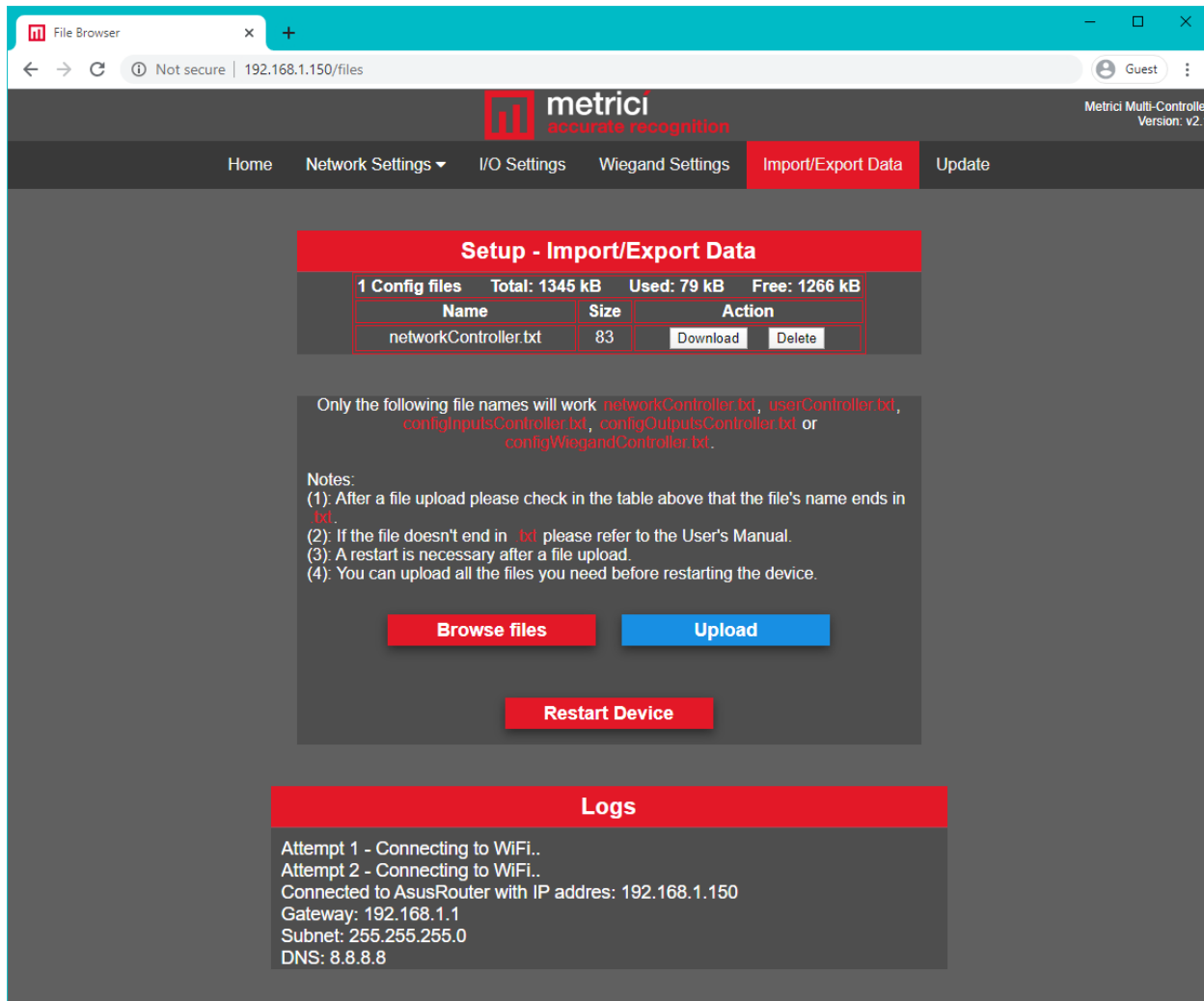
**Inter Pulse Gap** is the time gap between sent signals.

**NOTE!** Standard factory settings uploaded by Metrici for MultiController should work just fine with any Wiegand Central Command. However, for special projects was implemented this feature to change the communication parameters between the two. This requires however superior knowledge of the way the Wiegand Central Command works.

## 5.9 Import / Export Data

This feature works exactly the same as presented in the **Import Data section of the AP Mode**. You will be able to Download, Upload and Delete settings files. Further, since you now have configuration

files you can download them and use them to back-up the current controller or in future installs.



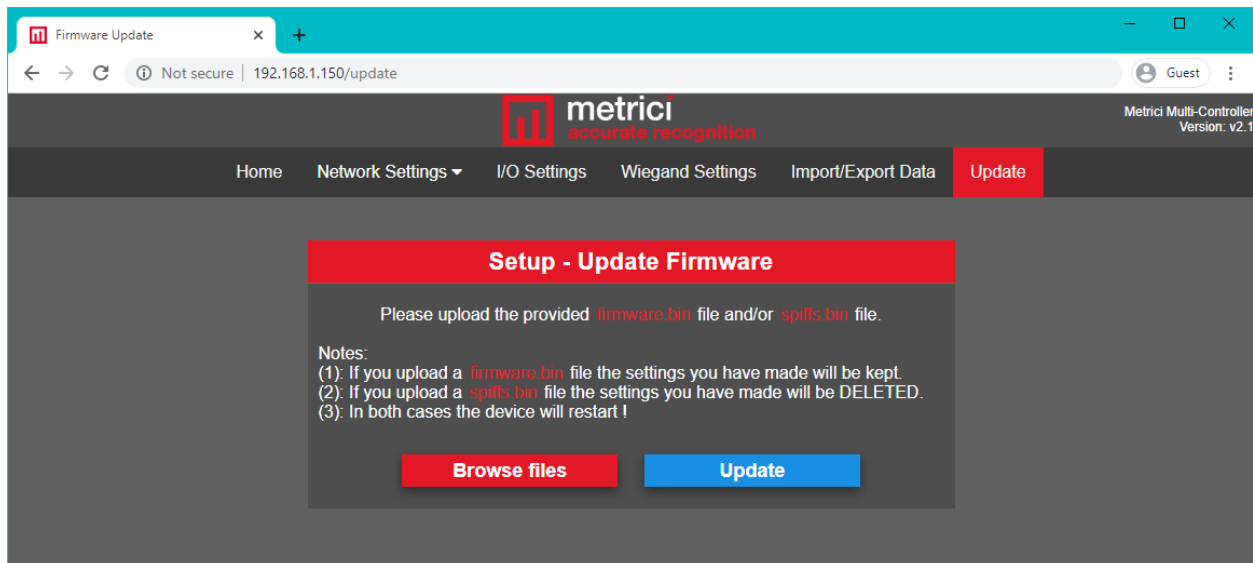
Please be careful when using the configuration files on multiple devices. Some values should be unique and will work only on one device. The files should be used more as a template to speed up the process of setting up multiple controllers.

If you choose to change the settings by Uploading one or more configuration files please note that the settings will take effect after you restart the device. You can do that by pressing on the **Restart Device** button.

Uploading a file with the same name and extension like the ones that are already present on display will replace the existing ones and changing the settings with the new ones. This will also need a restart.

## 5.10 Update firmware

The Update feature is available only in Station Mode. You can reach this page by selecting Update tab from the Navigation Bar:



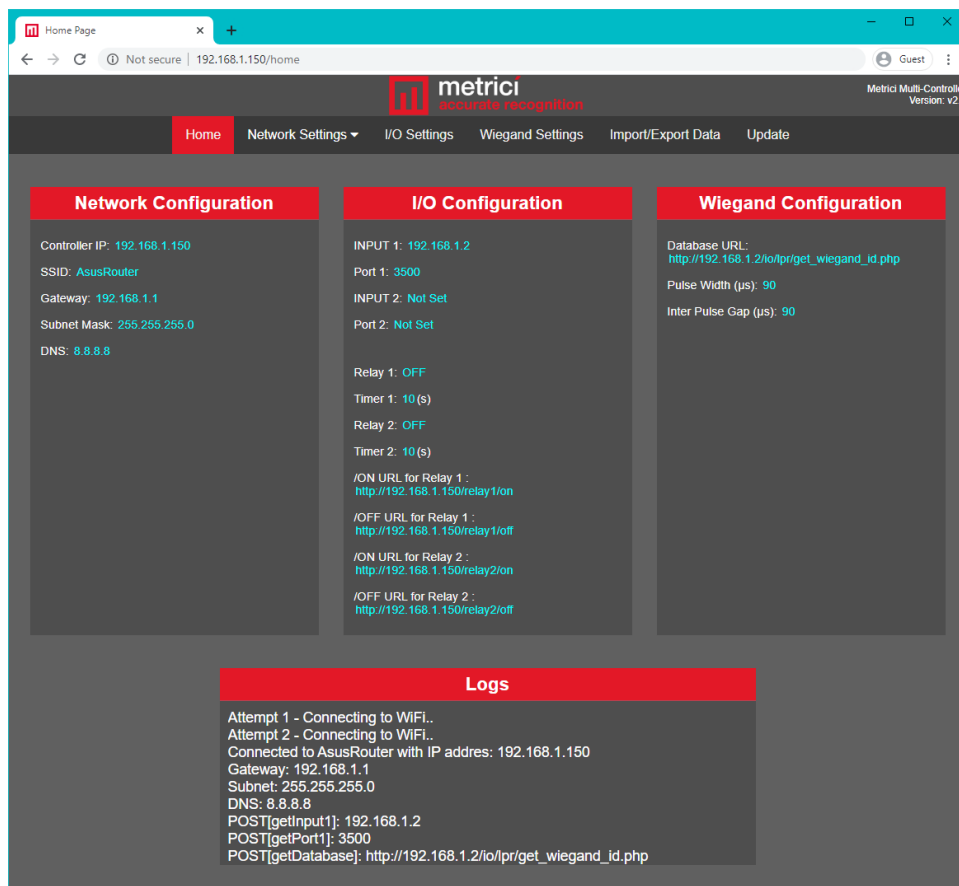
Here you will be able to update the firmware of the device. The firmware.bin and spiffs.bin files will be provided by Metrici and can be found on **support.metrici.ro**. Download them on your Multicontroller.

To do a firmware update start by clicking on Browse files. From here browse for the firmware.bin file, select and hit Update. The device will then restart and continue its normal activity, because the previously made settings will not be disturbed. Metrici can also provide a spiffs.bin file. Updating spiffs.bin will delete any saved settings and you will have to set-up the display again. In this case we recommend downloading/exporting all of the settings files that are available on Import/Export Data page before updating spiffs.bin.

The spiffs.bin update process should follow the next steps:

- First, browse for the firmware.bin file, select it and hit Update. The device will restart and resume its normal activity.
- Secondly, if you've been provided with a spiffs.bin file, we recommend to download/export all of the settings files that are available on the Import/Export Data page. Afterwards you will have to return to the Update page and browse for the spiffs.bin file, select it and hit Update. This will restart the device and delete all of the settings files.
- Finally, you will have to connect to the device's AP Mode, just like a regular set-up and set it up again or upload/import the previously saved settings files and restart the device by hitting the Restart Device button.

A proper configured MultiController should look like in the next image.



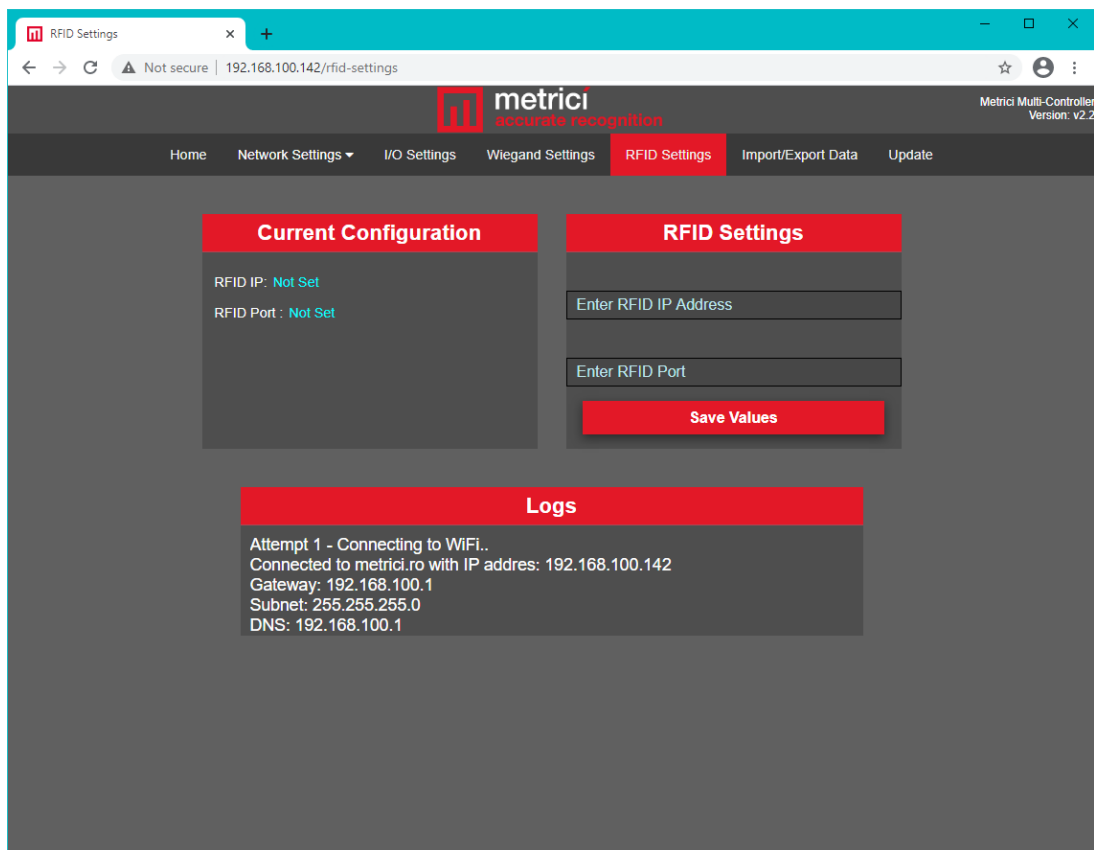
## 6. RFID Reader

---

Metrici MultiController can be transformed in a RFID reader. This function can be used independently to deliver the reading in a external database or for certain actions: open barrier, open door, record the event etc, or in a combination with the Metrici detection engines, or for a cross checking with the license plate, for example, or take an action if the two are registered in the database.

The configuration for the RFID reading is similar to INPUTS section.

MultiController reads RFID type Mifare Classic 1K 13.56 MHz.



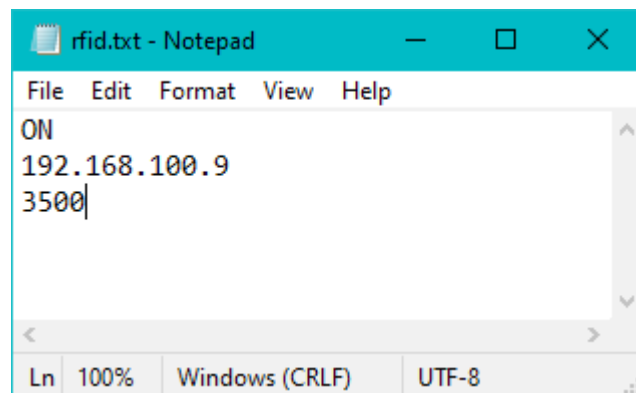
MultiController can send the reading to a Metricí engine, where one can set a trigger for an action in Control Panel in LPR Working mode and trigger in settings.

RFID IP Address is the Metricí server address which will receive the ID reading. RFID Port is to be found in Metricí Control Panel and will be unique for each device.

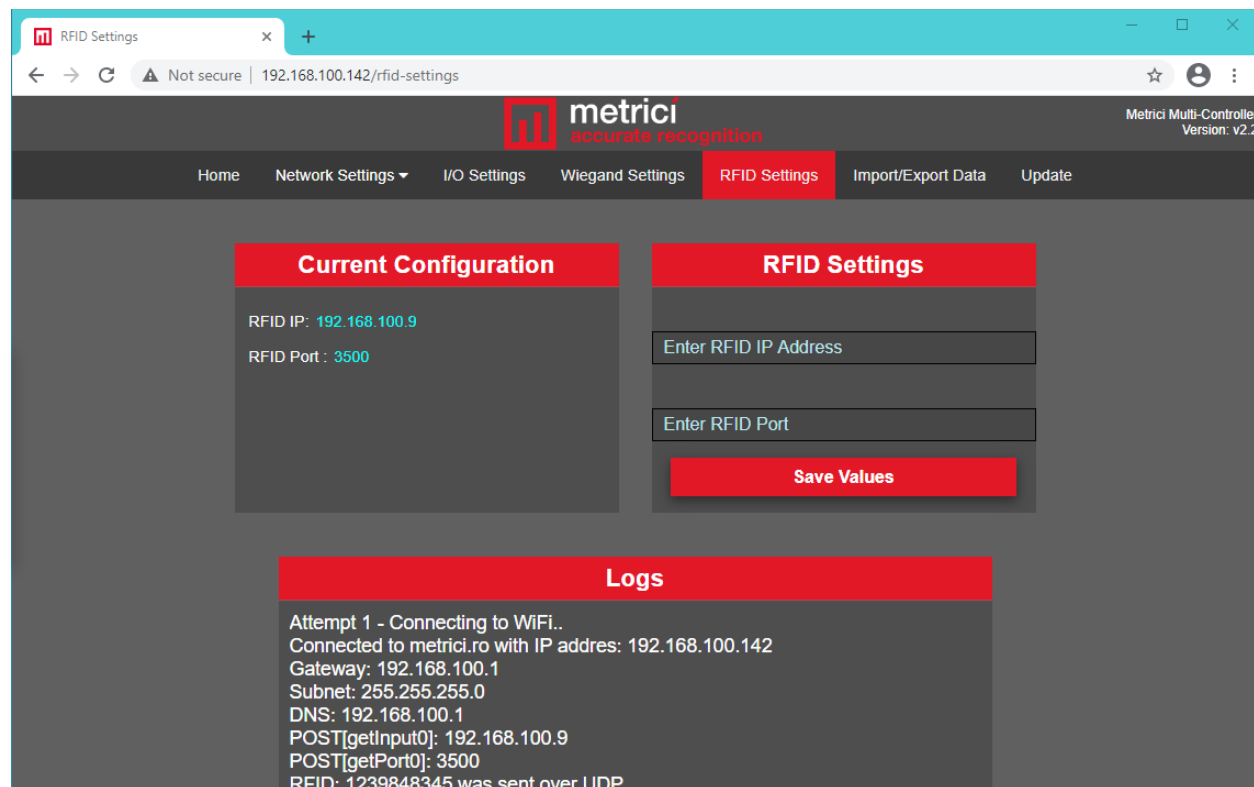
## rfid.txt format

rfid.txt will contain:

- The RFID mode, meaning ON or OFF
- IP address where the ID is sent
- The port for that IP



If all settings are done properly, you will see an image as the next one.



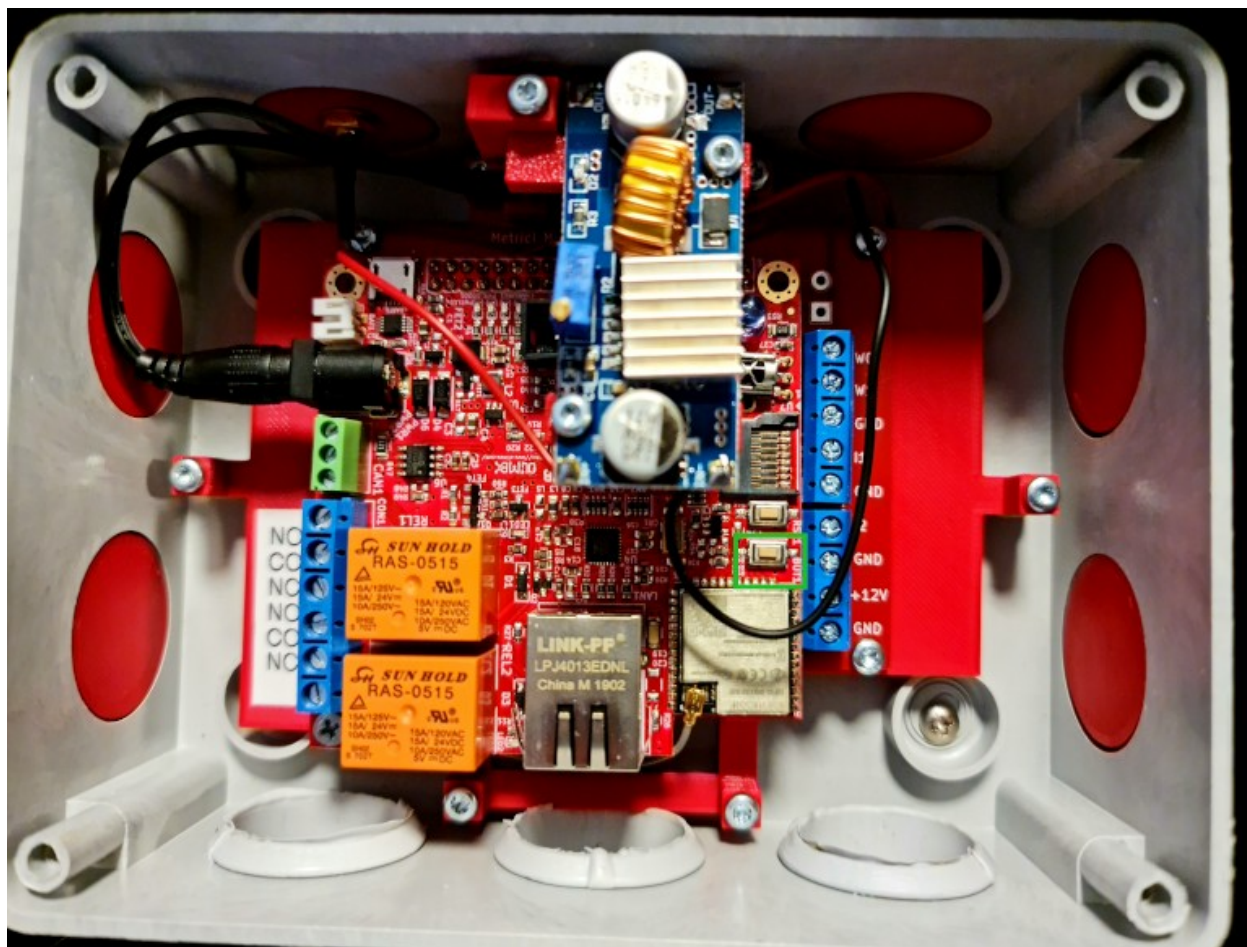
## 7. Factory Reset

The MultiController also features a Reset button.

Be aware that resetting the controller will delete all the settings you have made and will return the device to the factory settings.

Use the factory reset button only if you want to delete the settings.

To reach the Reset button you will have to gain access to the case and open its lid. You will see there the reset button marked with a label called BUT1, with green mark in the next image.





## **METRICI MultiController User Guide**

To begin the reset procedure, unplug the controller from the power source, push the reset button and keep it pressed for 5-10 seconds while plugging the device back in.

To check if the factory reset was a success, please get a device and search for a wireless network name composed of Metricí and a randomly generated 3-digit number. You can also connect to the device at address 192.168.100.10.

### **6.1 Restart Button**

If a device needs a little refresh, but plugging and unplugging it didn't to the trick, you can find a little button on the controller inside the case, named RST1. Press it once and the device will reboot without deleting any information you have stored.

The reboot button is next to the reset one.