

# SIMIREP

---

## ENGINEERING



TM OpenWheel Add-On Display V1.1 installation manual

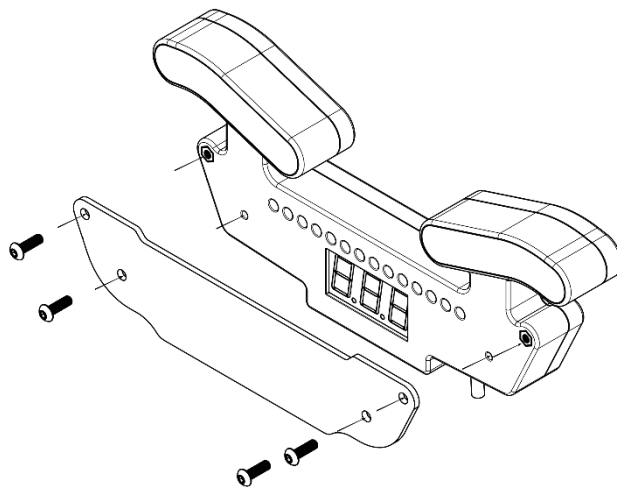
## Thank you for buying

Thank you for buying from us!

We hope you will enjoy the product, if you have any questions, please contact us at:  
[service@simrep-engineering.com](mailto:service@simrep-engineering.com)

## Package content

- 1x Add-on D1 V1.0 screen
- 1x Plexiglass front screen
- 4x M3x10mm screw
- 1x 2mm Hex socket tool



## Software

This product is configured with SimHub software. In order to use this product, SimHub has to be installed and can be downloaded at: <https://www.simhubdash.com/>

This product comes with 2 default profiles one for open wheel cars and one for GT cars. Profiles can be downloaded from your website and are send after payment confirmation.

The D1 V1.0 can also be customized according to the users preferences with SimHub or other software. In case of missing and/or damaged parts, please contact our customer support at:  
[service@simrep-engineering.com](mailto:service@simrep-engineering.com)



# SimHub

## Hardware installation

Installing the display on your trustmaster TM OpenWheel steering wheel.

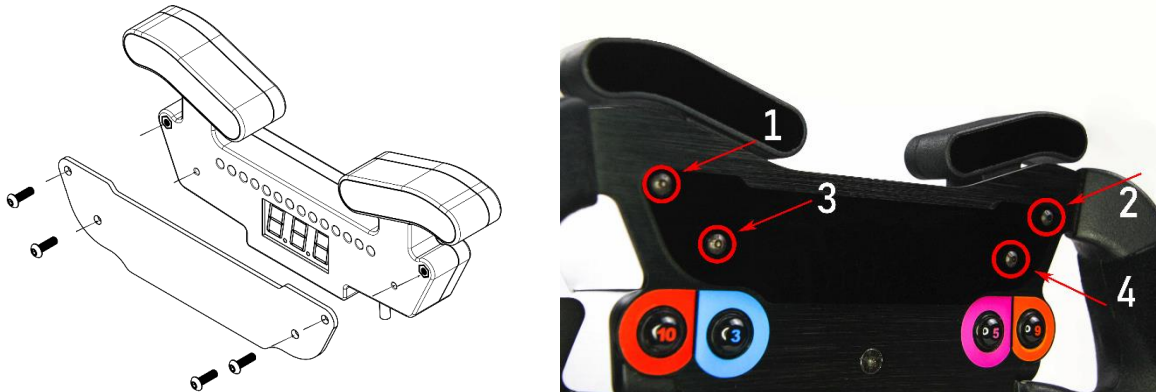
### Step 1

Remove the Thrustmaster cover with a 2mm hex socket wrench. (included).  
Remove the cover marked in RED.



### Step 2

Mount the D1 V1.0 against the back of the wheel and align the bolt holes with the Plexiglas front cover. Insert the M3x10mm hex bolts by hand. Fasten the screws with a 2mm socket hex wrench in the consecutive order.



**!! WARNING !! Overtighten the bolts can lead to damage !!**

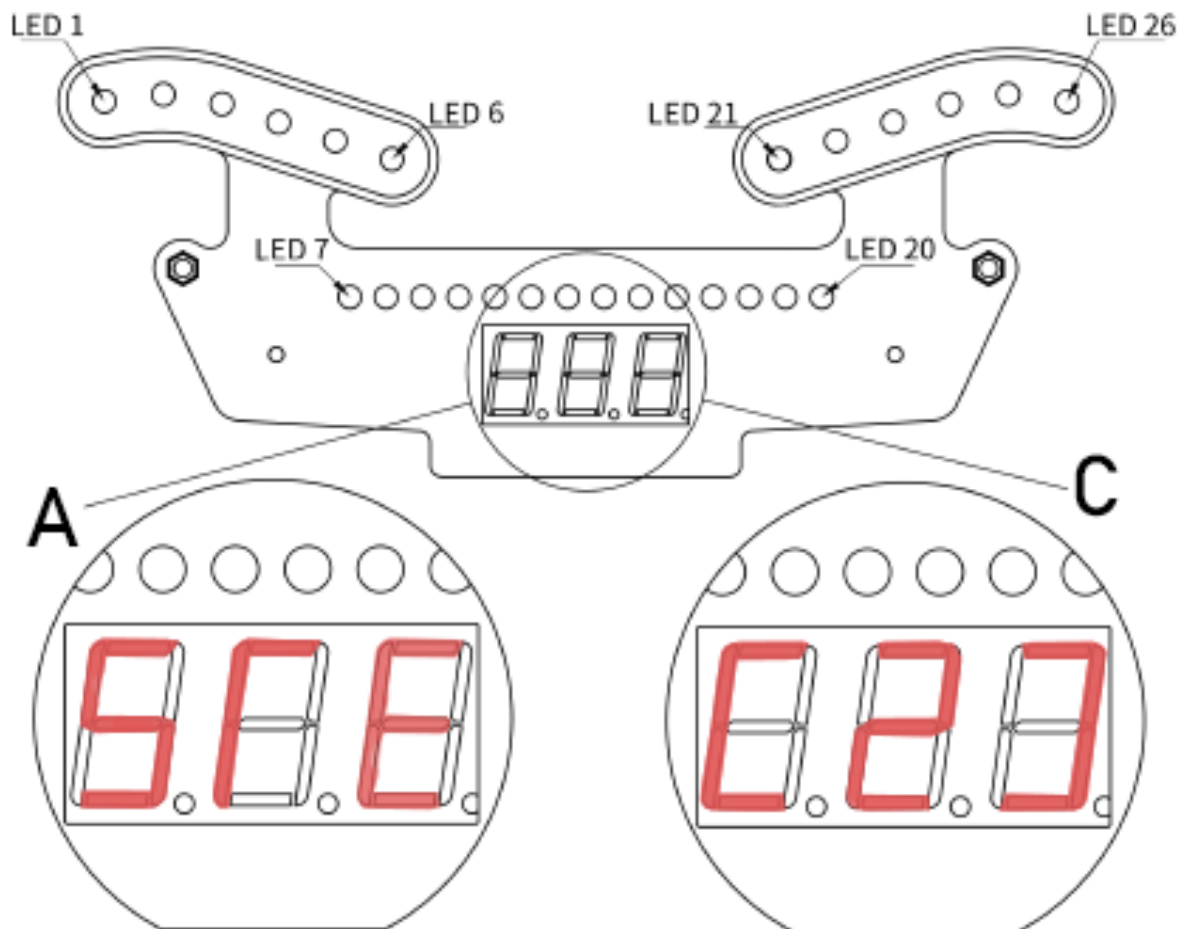
### Step 3

Connect the USB 2.0 cable to your USB port on your computer.

## Overview of the Display

A quick overview of the display with a look at the matrix views and the LED numbering.

View A – the idle screen – is here displayed as well as View C with gear 2 selected as an example. This is explained in the GT and OpenWheel function list.



## Default OpenWheel Functions

This is a default profile that can be easily loaded into SimHub as we will explain in the following steps.

### Matrix functions

- **View A** - IDLE no game is running, SimRep Engineering (SRE) logo.
- **View B** - Speed indicator, this is the default view in game.
- **View C** - Gear indicator, this is always displayed between brackets ([]).
- **View D** - Lab indicator, this will first display 'LAB' and then following the current lab number.

### Left ear functions (LED 1 to 6)

- **LED 1.** Car left (White blinking)
- **LED 2.** DRS activated (Green blinking)  
**LED 2.** DRS available (Orange static)
- **LED 3.** Fuel (Green 100%, orange 50%, red blink 15%>)
- **LED 4.** All flags
- **LED 5.** All flags
- **LED 6.** Session delta minus

### Right ear functions (LED 21 to 26)

- **LED 21.** Delta all-time (Green delta +, red delta -)
- **LED 22.** All flags
- **LED 23.** All flags
- **LED 24.** Fuel (Green 100%, orange 50%, red blink 15%>)
- **LED 25.** DRS activated (Green blinking)  
**LED 25.** DRS available (Orange static)
- **LED 26.** Car right (White blink)

### Main led functions (7 to 20)

- RPM and PIT limiter display

### Flags indication

LED 4, 5, 22 and 23 display the flags, which are displayed as followed:

- **Green flag** on (Fast blinking green)
- **Yellow flag** on (Slow blinking yellow)
- **Blue flag** on (Slow blinking blue)
- **Black flag** on (Fast blinking white)
- **White flag** on (Blink white every 5 seconds)

## Default GT Functions

This is a default profile that can be easily loaded into SimHub as we will explain in the following steps.

### Matrix functions

- **View A** - IDLE no game is running, SimRep Engineering (SRE) logo.
- **View B** - Speed indicator, this is the default view in game.
- **View C** - Gear indicator, this is always displayed between brackets ([]).
- **View D** - Lab indicator, this will first display 'LAB' and then following the current lab number.

### Left ear functions (LED 1 to 6)

- **LED 1.** Car left (White blinking)
- **LED 2.** ABS active (Green flashing)  
**LED 2.** TC active (Purple flashing )
- **LED 3.** Fuel (Green 100%, orange 50%, red blink 15%>)
- **LED 4.** All flags
- **LED 5.** All flags
- **LED 6.** Session delta minus

### Right ear functions (LED 21 to 26)

- **LED 21.** Delta all-time (Green delta +, red delta -)
- **LED 22.** All flags
- **LED 23.** All flags
- **LED 24.** Fuel (Green 100%, orange 50%, red blink 15%>)
- **LED 25.** ABS active(Green flashing)  
**LED 25.** TC active (Purple flashing )
- **LED 26.** Car right (White blink)

### Main led functions (7 to 20)

- RPM and PIT limiter display

### Flags indication

LED 4, 5, 22 and 23 display the flags, which are displayed as followed:

- **Green flag** on (Fast blinking green)
- **Yellow flag** on (Slow blinking yellow)
- **Blue flag** on (Slow blinking blue)
- **Black flag** on (Fast blinking white)
- **White flag** on (Blink white every 5 seconds)

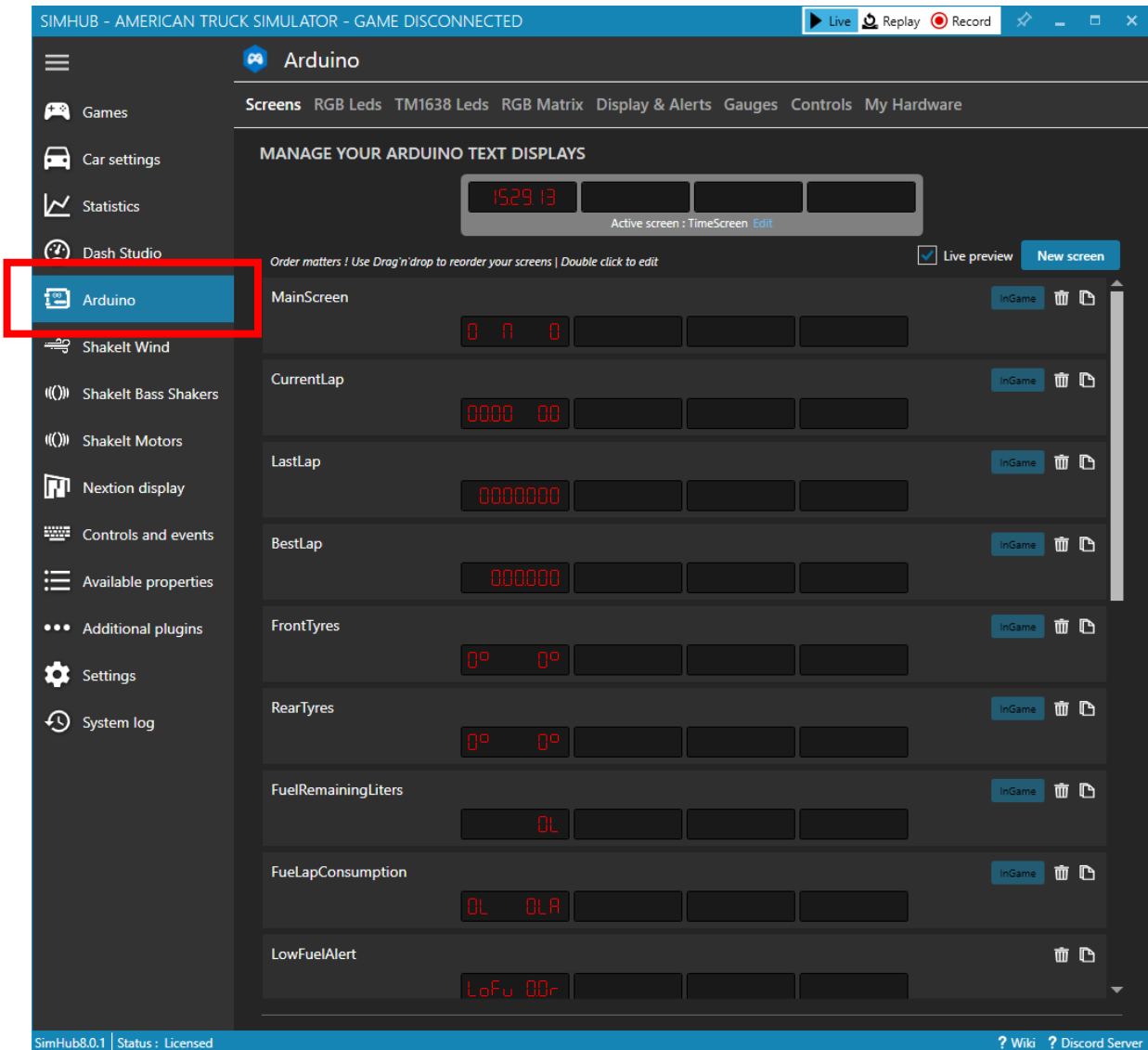
## Software installation

Connection the TM OpenWheel Add-On to SimHub for the first time.

As mentioned earlier, the display works with the SimHub software, so make sure you have that installed before proceeding.

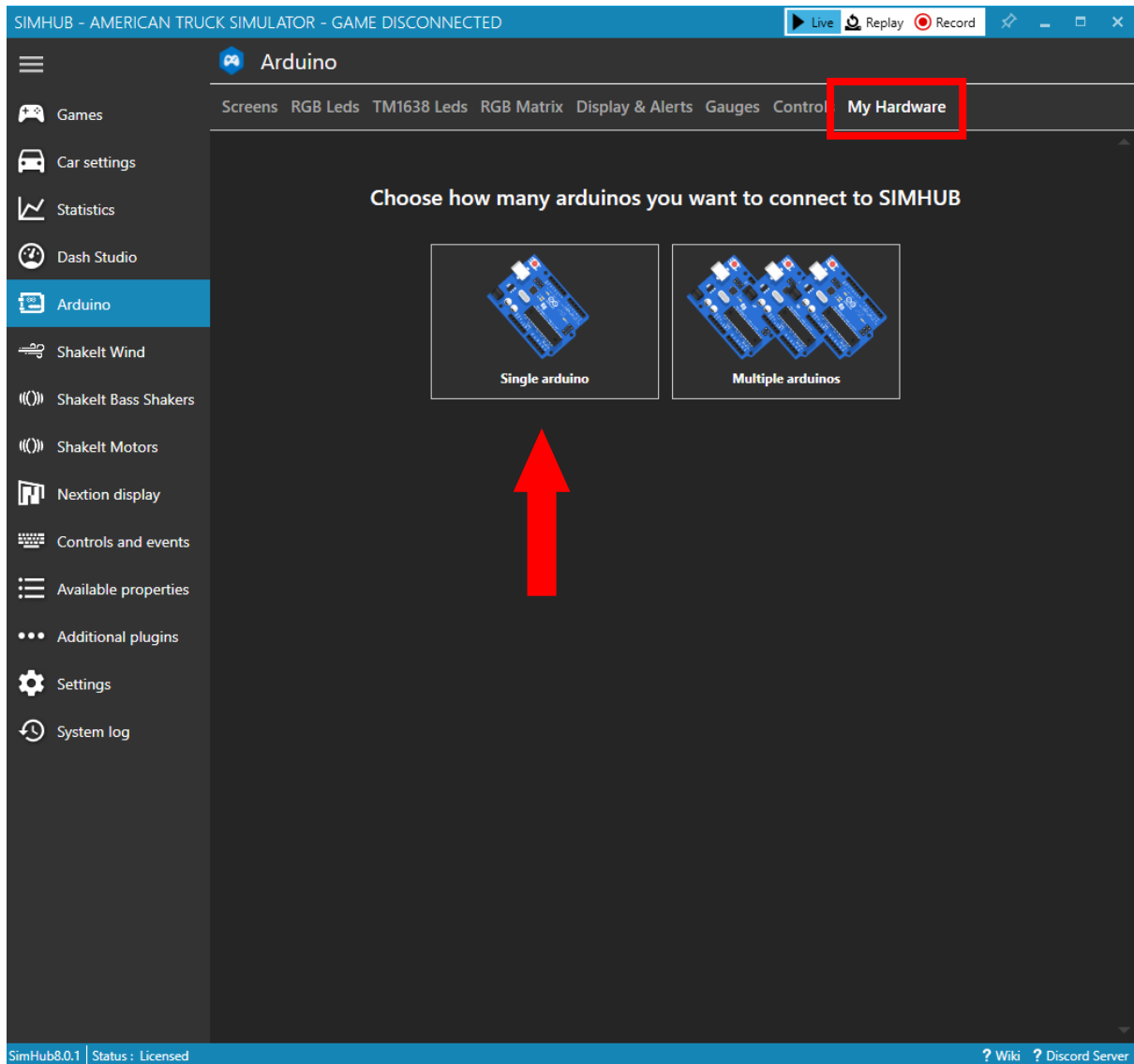
### Step 1

Click on the “Arduino” page on the left side (Highlighted RED).



## Step 2

Go to “My hardware” tab in the right corner and then click on “Single Arduino”.



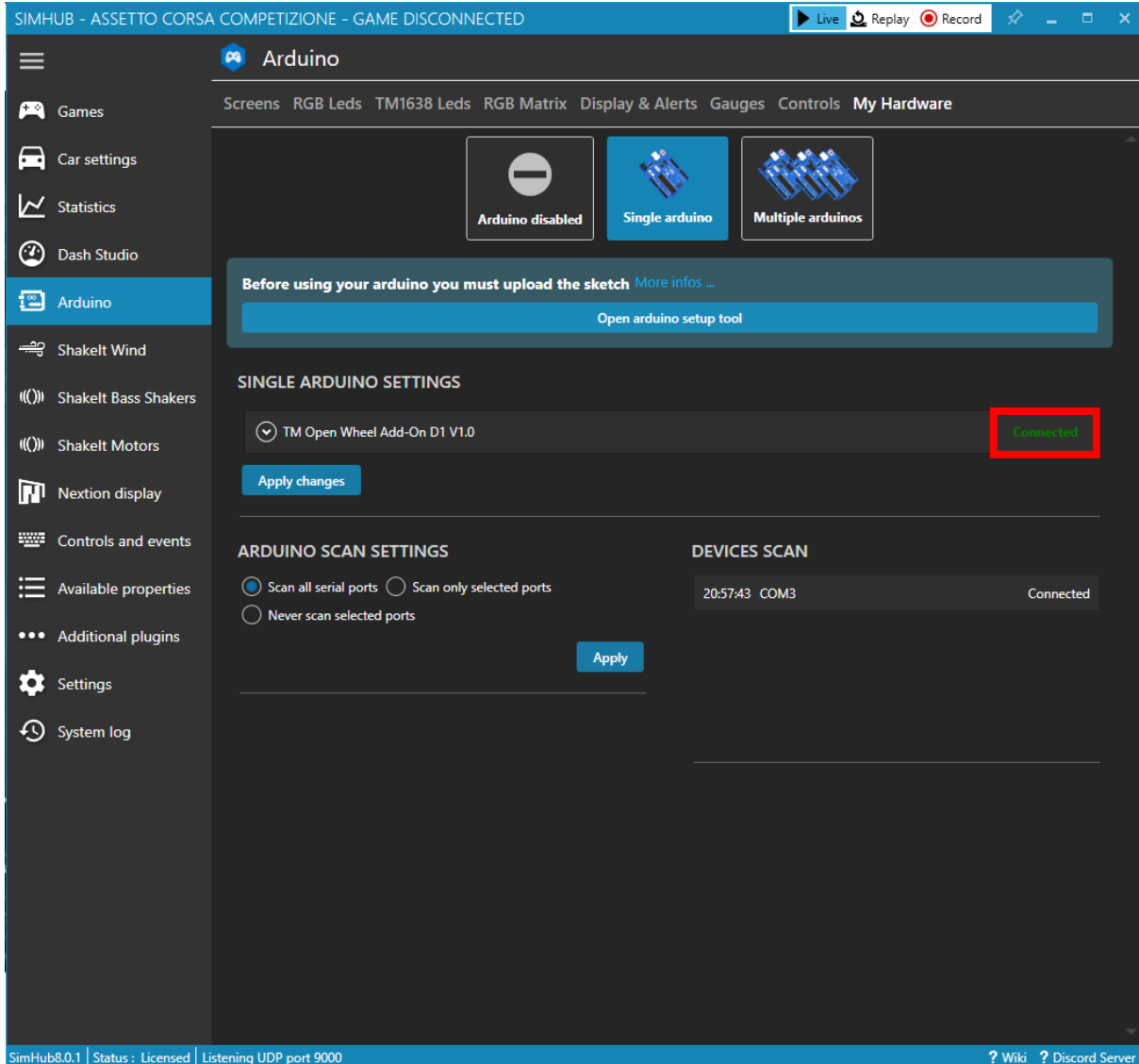


### Step 3

Wait for SimHub to finish scanning for the TM Open Wheel Add-on D1 V1.0 Display

It should say connected.

*If not, please refer to the troubleshoot section below.*




*This step is already done in production, but if you have problems or accidentally overwrite the software you can reset the settings like this.*

In the setup tool select “Arduino Pro Micro (ATmega32u4)

Now we can add the LED (WS2812B)


WS2812B RGB Leds
Component help



WS2812B RGB leds count	26 + -
Data (DIN) digital pin number	5 + -
WS2812B RGB encoding <small>Set to 0 for GRB, 1 for RGB encoding, 2 for BRG encoding</small>	GRB encoding ▾
Reverse led order	OFF <input type="checkbox"/>
TESTING MODE : Light up all configured leds (in red color) at arduino startup <small>It will clear after simhub connection</small>	OFF <input type="checkbox"/>
ADVANCED : Use legacy adafruit library (only enable if you have sketch size issues)	OFF <input type="checkbox"/>

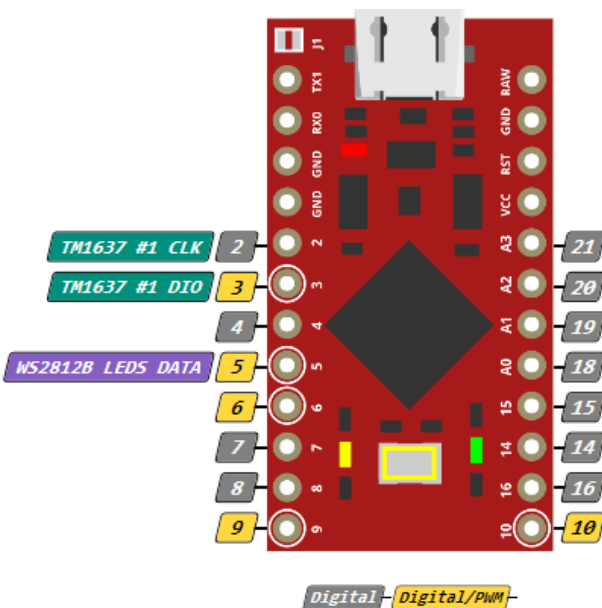
and the display

TM1637 7 Segment Modules
Component help



TM1637 modules connected	1 + -
1st TM1637 DIO digital pin number	3 + -
1st TM1637 CLK digital pin number	2 + -

Pin mapping of the arduino:

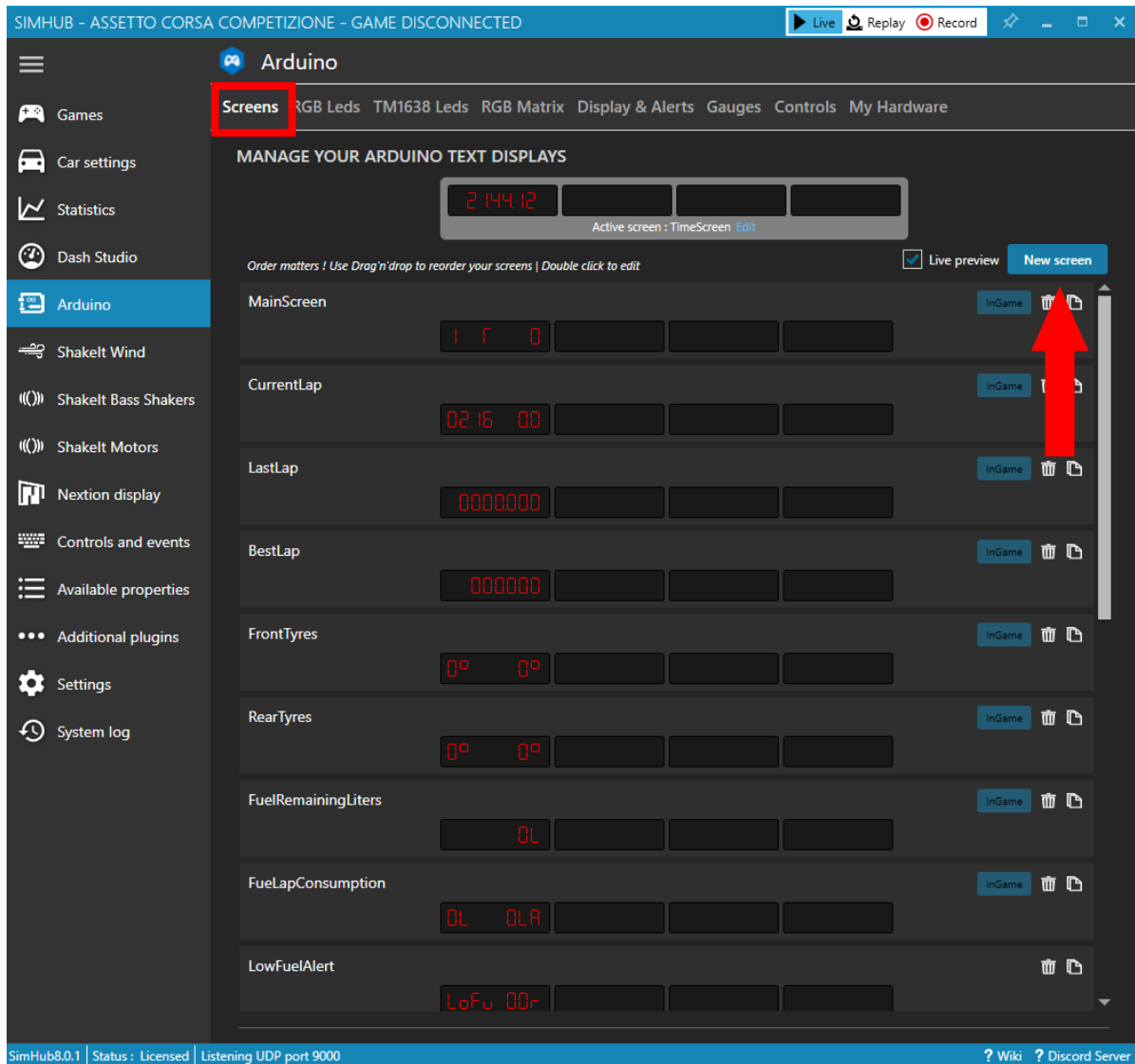


If all is shown correct, check the box and hit “UPLOAD TO ARDUINO”

### Step 4

Go back to the tab called “Screens”, on the top left.

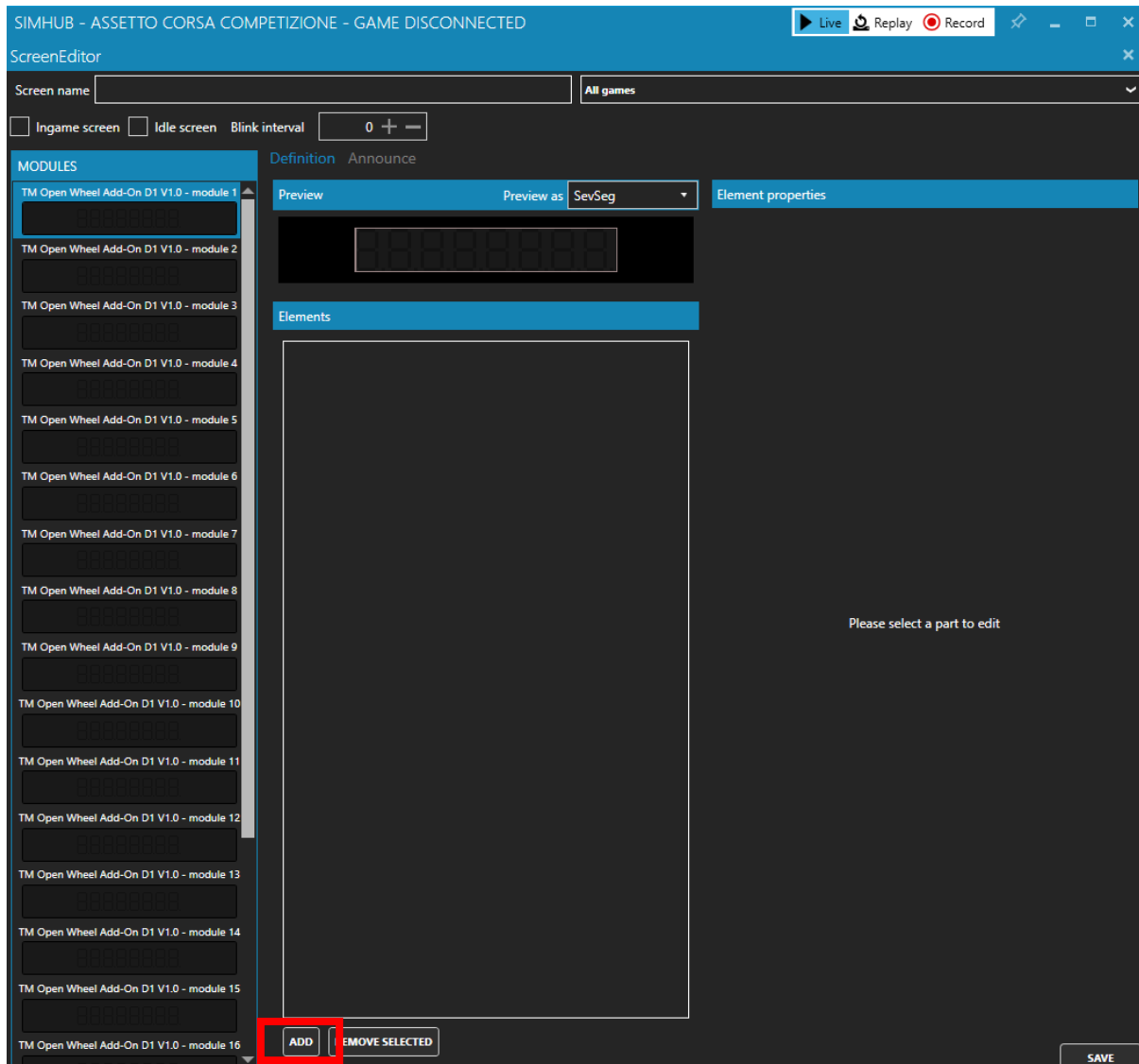
Then click on “New screen”



### Step 5

A new page will show up.

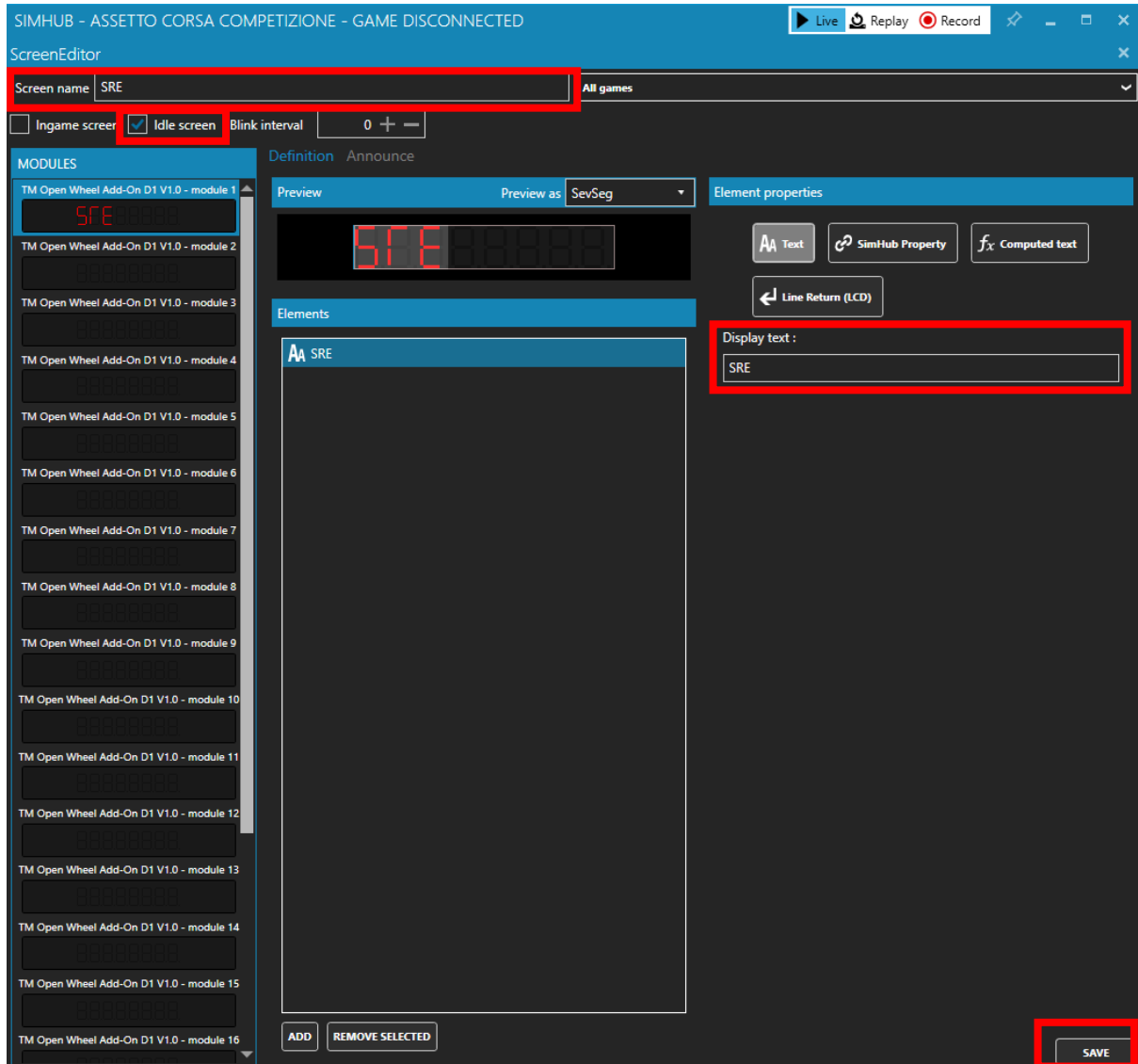
Click on the bottom on "ADD"



## Step 6

Now set the name to SRE for the idle screen.

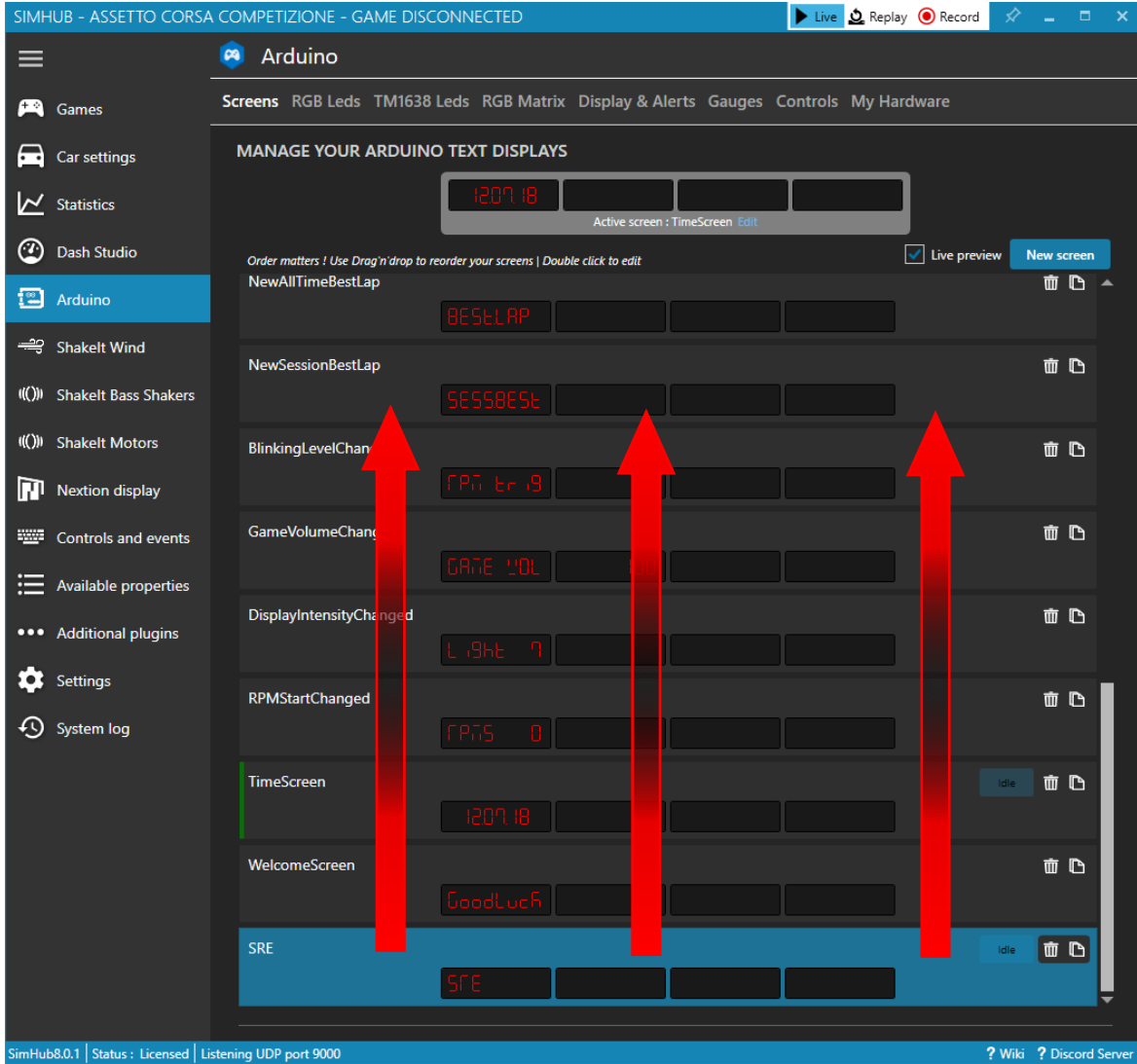
1. Write "SRE" to the "screen name" (top left)
2. Check the box called "Idle screen" (under screen name)
3. Write "SRE" to "Display text" (middle right)
4. Click on "Save" (bottom right)



### Step 7

Your new screen will show up at the bottom at the “screens” tab. Place the screen at the top of the page by left clicking and dragging it to the top. After dragging, your matrix screen should display “SRE”.

*If not, check if your display is connected to SimHub under the “My Hardware” tab and repeat the steps.*



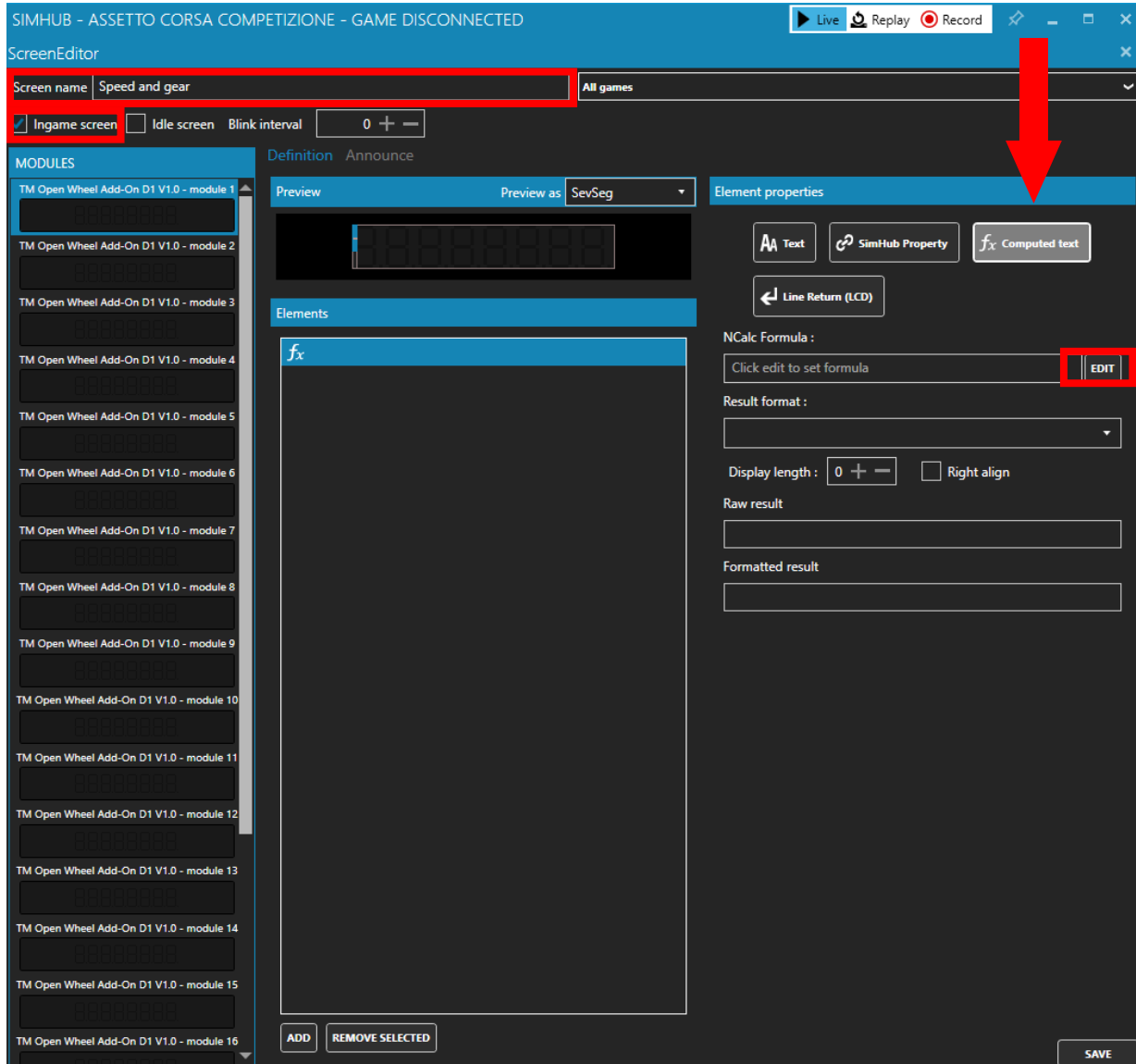
## Step 8

Click again on “New Screen”

The screenshot shows the SIMREP Arduino interface. At the top, the window title is "SIMHUB - ASSETO CORSA COMPETIZIONE - GAME DISCONNECTED". The main menu includes "Live", "Replay", and "Record" buttons. The left sidebar contains navigation options: Games, Car settings, Statistics, Dash Studio, Arduino (selected), Shaktel Wind, Shaktel Bass Shakers, Shaktel Motors, Nextion display, Controls and events, Available properties, Additional plugins, Settings, and System log. The main content area is titled "MANAGE YOUR ARDUINO TEXT DISPLAYS" and shows a list of text displays. The top display is "SRE" with a value of "SRE" and is currently active. Below it are "MainScreen", "CurrentLap", "LastLap", "BestLap", "FrontTyres", "RearTyres", "FuelRemainingLiters", and "FuelLapConsumption". Each display has a status indicator (Idle or InGame) and a "New screen" button. A red arrow points to the "New screen" button for the "SRE" display. The bottom status bar shows "SimHub8.0.1 | Status: Licensed | Listening UDP port 9000" and links to "Wiki" and "Discord Server".

Step 9

1. Change the “screen name” to “Speed and gear”
2. Check the box “in game screen”
3. Click “ADD”
4. Click “Computed text”
5. Click “Edit”



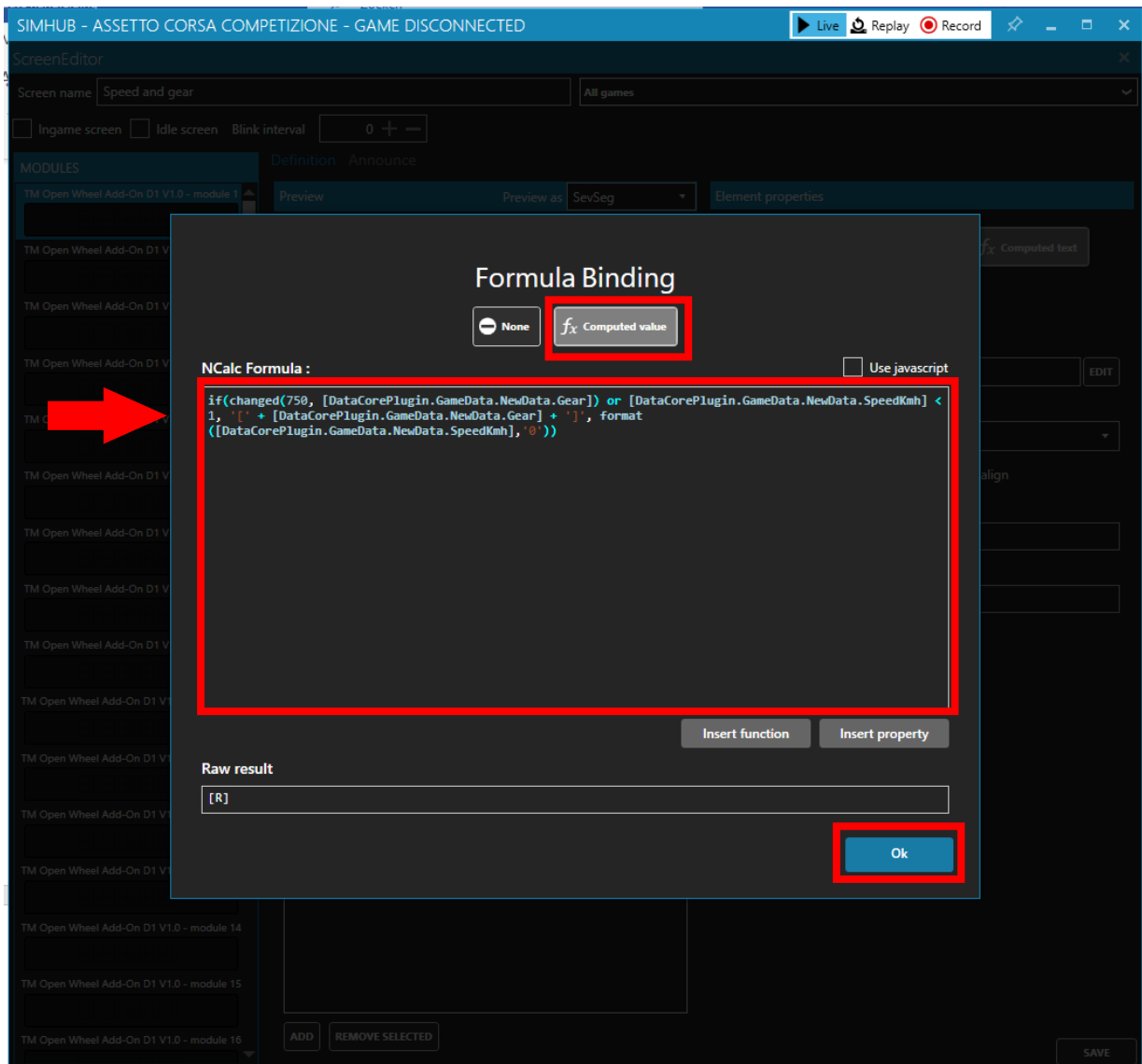


### Step 10

1. Click “Computed value”
2. Copy and paste the following NCalc Formula in the text box

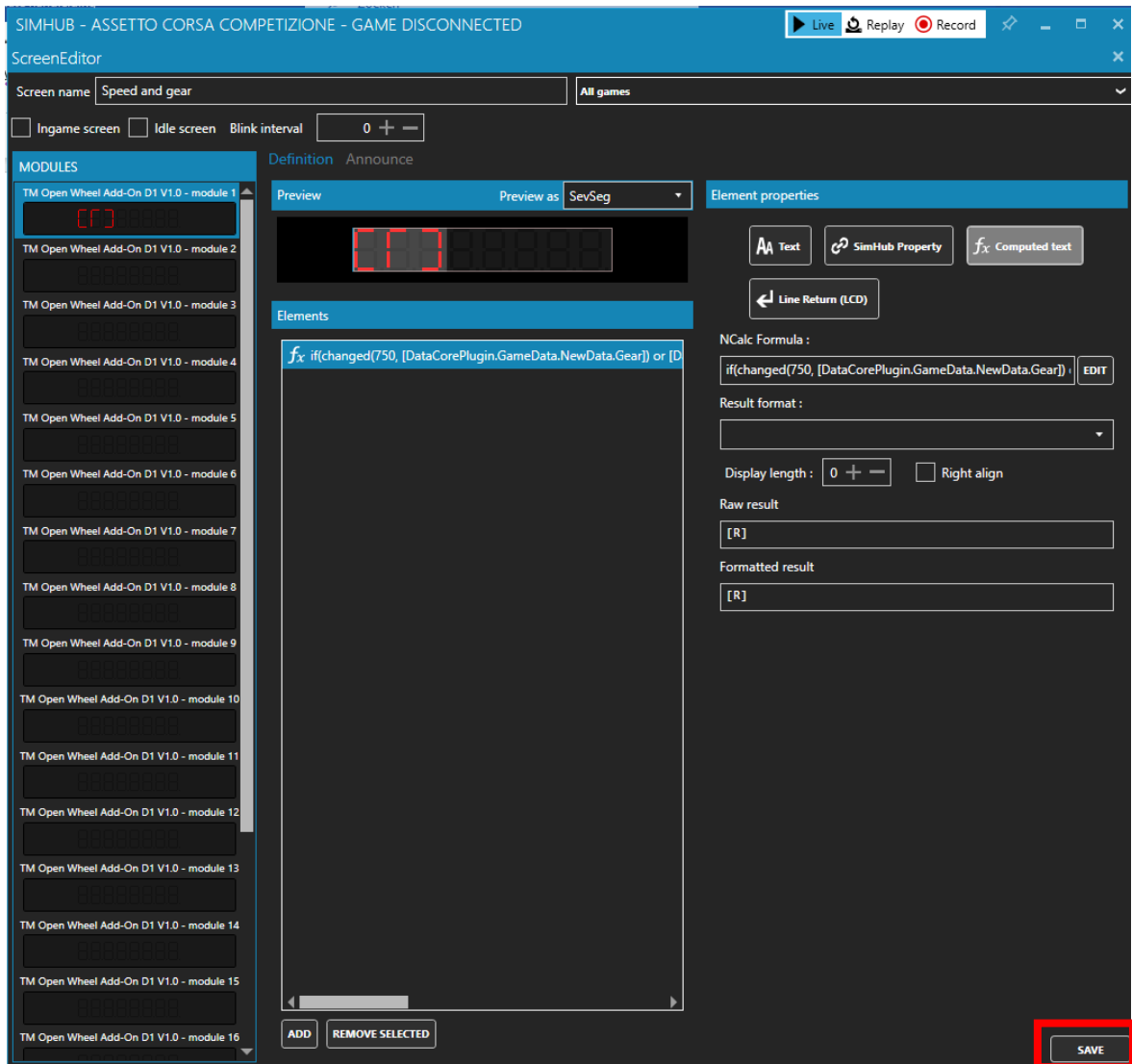
```
if(changed(750, [DataCorePlugin.GameData.NewData.Gear]) or  
[DataCorePlugin.GameData.NewData.SpeedKmh] < 1, '[' +  
[DataCorePlugin.GameData.NewData.Gear] + ')',  
format([DataCorePlugin.GameData.NewData.SpeedKmh], '0'))
```

3. Click “OK”



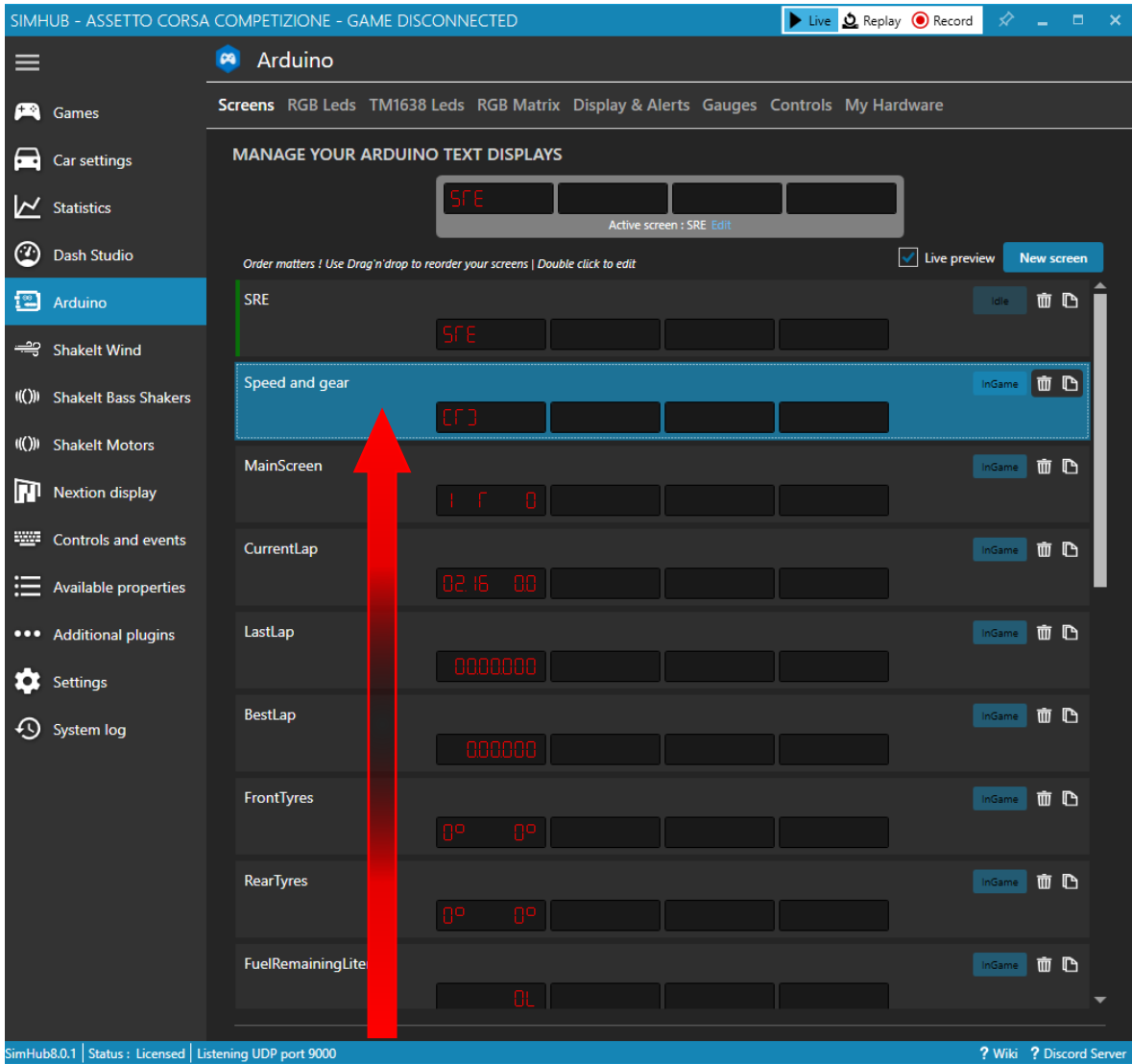
## Step 11

Click "Save" on the bottom right.



## Step 12

Drag the screen from the bottom to the second position under the SRE screen.



The Hard part is done

The setup for the Matrix is now completed

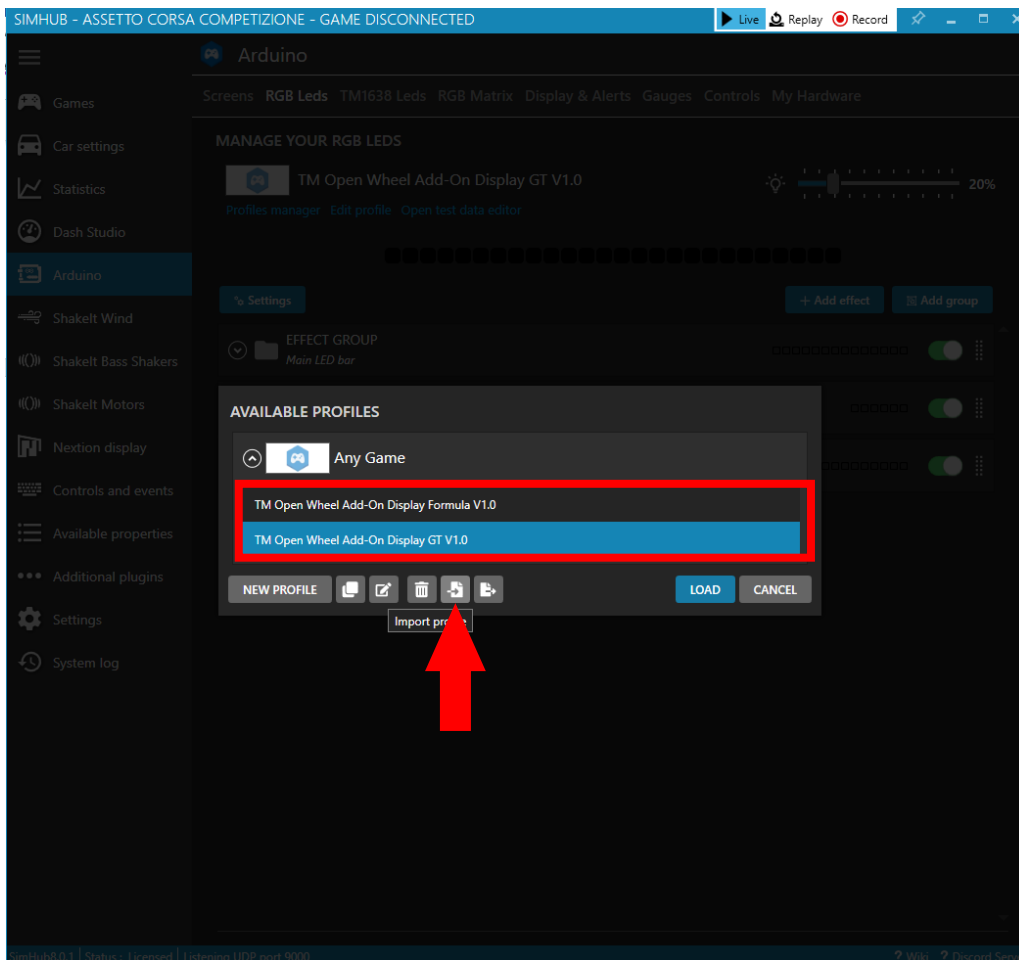
Only the RGB led profile to go!

## Step 13

### Importing the LED profile

1. Go to the tab “RGB LEDs”
2. Click on “import profile”
3. Add the files “Any Game - TM Open Wheel Add-On Display GT V1.0.ledsprofile” and “Any Game - TM Open Wheel Add-On Display Formula V1.0.ledsprofile” from your computer.
4. You can now load one of the two files depending on you class preference, the difference is explained at the beginning of the manual.

*Please note: The GT profile supports active ABS and TC. The Formula profile supports available and activated DRS.*



Step 14

ALL DONE!

Go to the “Games” tab on the left side of SimHub, select you game, let the race begin!

Thank you for your purchase and supporting our business! We are continuously improving on our products and services. If you experienced any difficulties during installation, please let us know by contacting us at [service@simrep-engineering.com](mailto:service@simrep-engineering.com) or sending a DM to our Instagram profile [www.instagram.com/simrep\\_engineering](https://www.instagram.com/simrep_engineering).

## Troubleshooting

1. **No connection on SimHub** – please make sure the USB A cable is plugged in. If you are using an USB-adapter or extender, please connect the display directly to the USB-port on the computer.
2. **My computer can't recognize the TM OpenWheel display** – This probably means you have not yet installed SimHub, or SimHub did not install the correct drivers for you. To install these manually go to: <https://www.arduino.cc/en/software>, download and install the Arduino IDE software.
3. **The IDLE text will not show up on the matrix display** – Please make sure you followed all steps and added the new SRE display. When added, it needs to be checked as an IDLE screen ONLY. Als the display needs to be at the top of the “screens” tab according to step 7.
4. **I don't have any led profiles to import** – you should have received them in a .zip or .rar file in your email. To open a .rar you can use [winrar](#). If you did not receive the correct files, please contact us at [service@simrep-engineering.com](mailto:service@simrep-engineering.com)