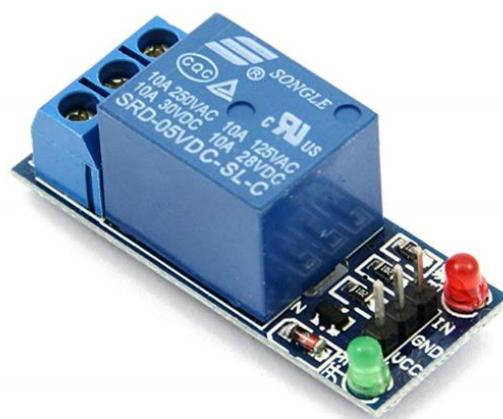
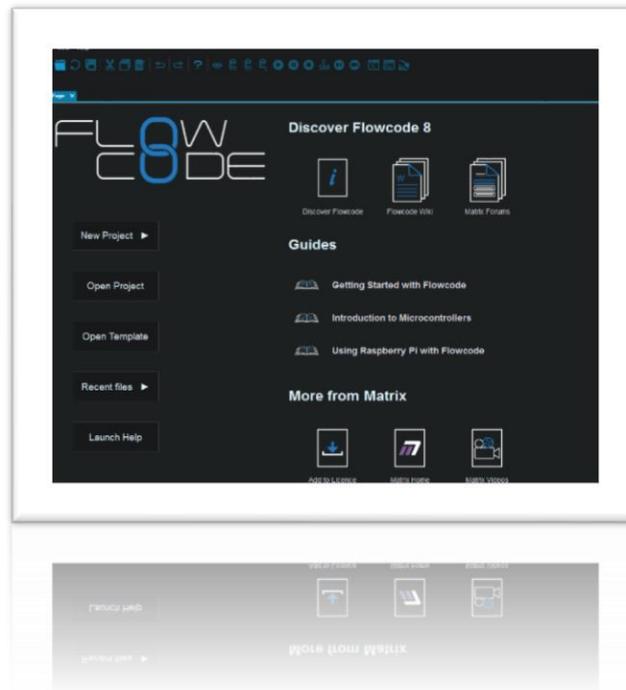


FLOWCODE 8

Component Creation

Build A Flowcode 8/7 Component

A Digital Output Device – Relay 5V

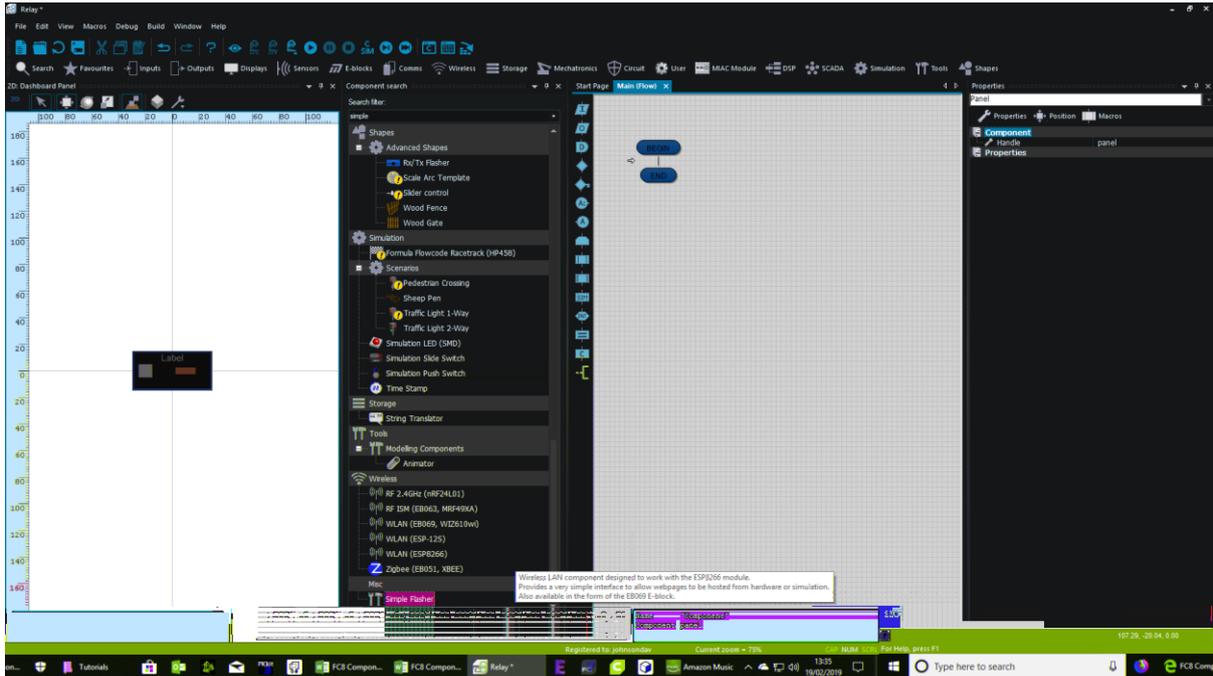


Now, we can use our sub_component that we have created to build an actual working component for use in our projects – A Relay.

Step 1 – Start a New Project - *Relay Component*

Remember - You can use absolutely any embedded chip you like, it simply does not matter as everything you are doing does not involve chip related code during this component building process.

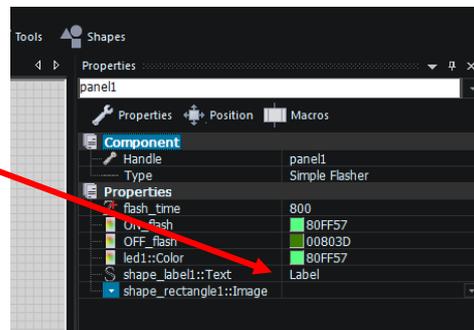
Load your - **simple_flasher sub_component** onto the 2D Dashboard Panel under – **Misc**



Okay, lets have a look at what this new device will do, when it is used in a real-life application. It's a switch that is activated by our controller i.e. – **TurnON** or **TurnOFF** by a digital output from our controller – an output pin. Therefore, all we need to do is allow a user to select which **output** pin this relay is connected to and be able to turn the relay **ON** or **OFF** – simple, with simulation.

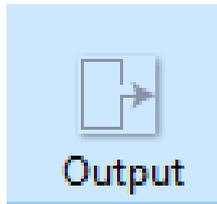
1. Click onto the sub_component

Change the text from Label to – **Relay**

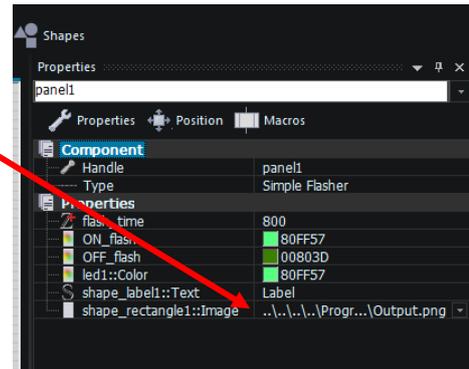


2. The small square image – use the browse to locate images that can be placed inside the small square.

The image I have chosen is: -



See below to locate the required image



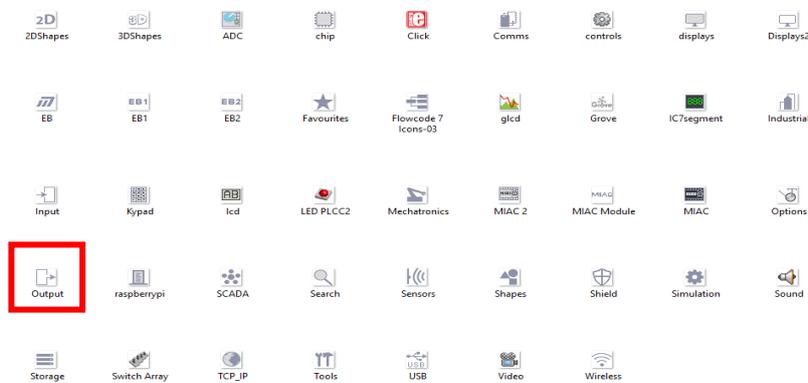
Flowcode 7: -

> This PC > Local Disk (C:) > Program Files (x86) > Flowcode 7 > components > catimg5

Flowcode 8: -

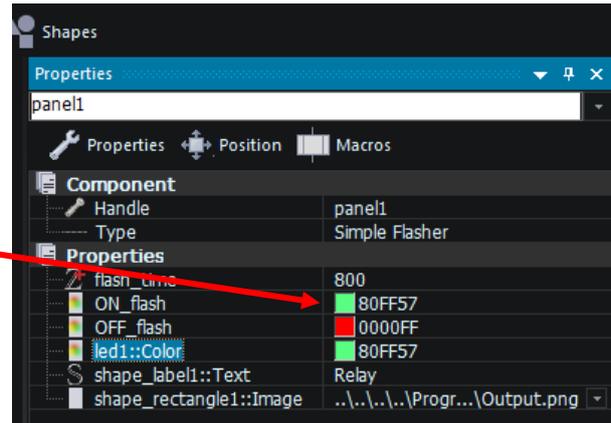
> This PC > Local Disk (C:) > Program Files (x86) > Flowcode v8 > DefaultData > FlowcodeV8 > Components > catimg5

These are the images available in Flowcode, using the folder shown above.



3. Change the colours to what the relay **led1** will be when turned: -

- ON
- OFF

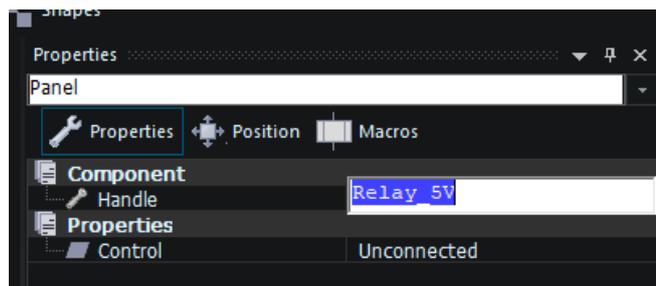


Now you see how you get to control how the device will appear during simulation.

Step 2 – Relay Properties

Click anywhere onto the **2D Dashboard Panel** (not the sub_component) and change the Handle from the **Properties Panel**:

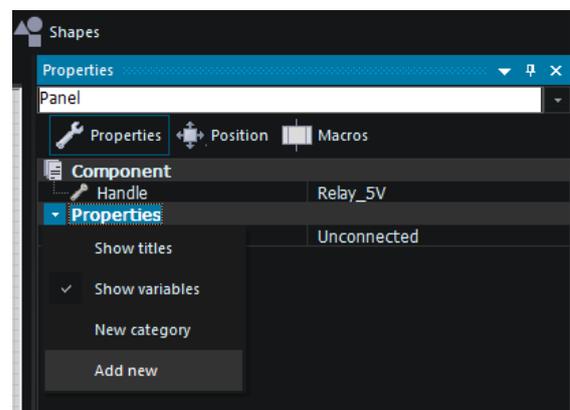
- **panel1**
- to **Relay_5V**

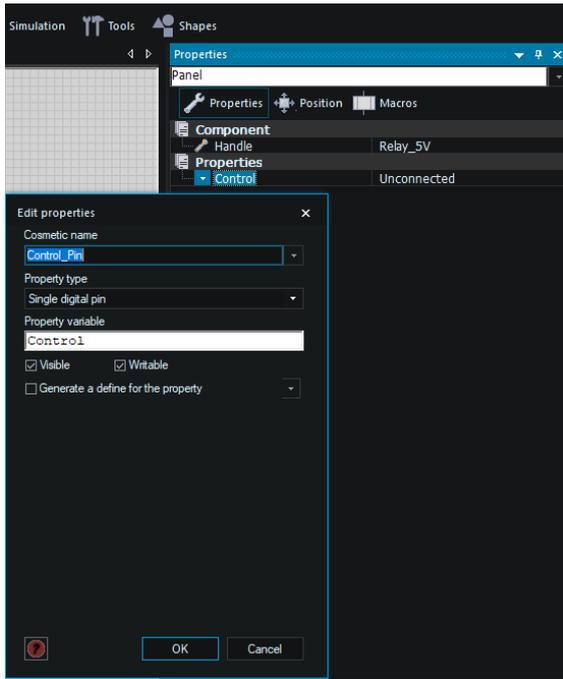


NOTE! – you cannot use a name for your new component which is already in use. If it is already in use, your name will be rejected i.e. the name will not stick, it will just revert back to – panel1

From the **Properties** drop down menu select:

- **New**





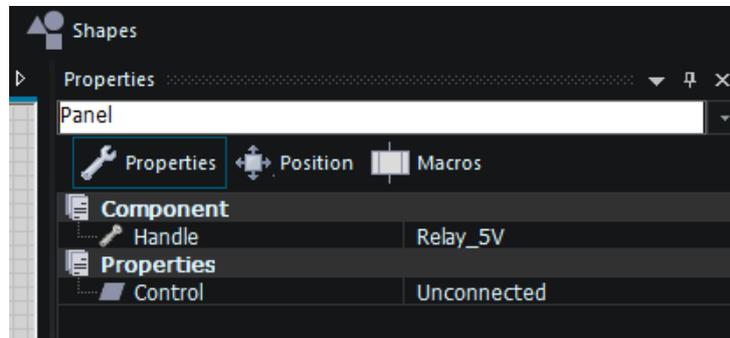
Property Type – *Single digital pin*

Property variable – *Control*

Cosmetic name – *Control_Pin*

Click OK

This is what you should have:

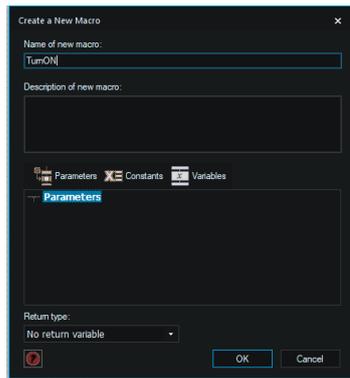


Step 3 – Set UP the Macros (two required)

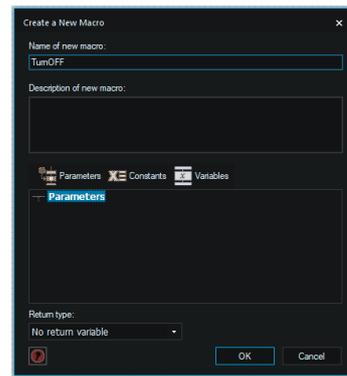
We need to create the macros to control our digital device:

- to turn the **control** output for the relay to **ON**
- to turn the **control** output for the relay to **OFF**

TurnON



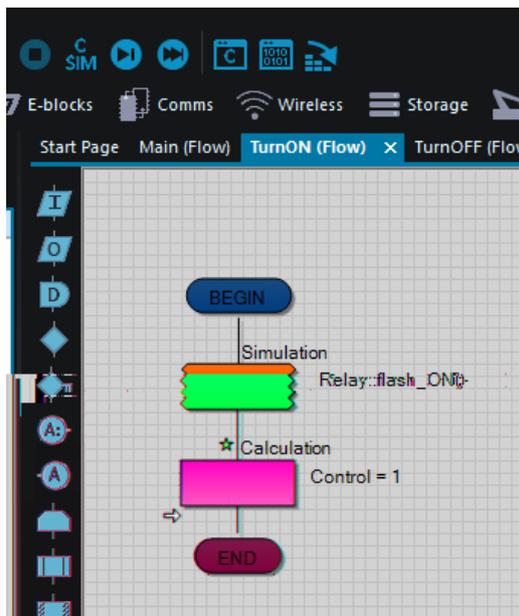
TurnOFF



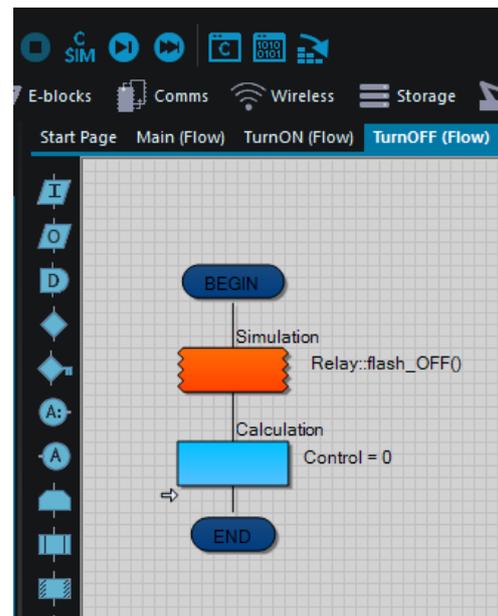
Click ok when done.

Open each of the macros and insert the following:

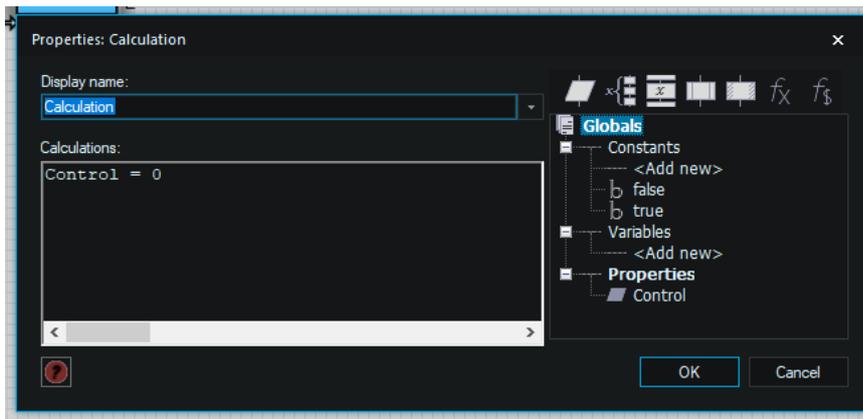
The **TurnON** macro



The **TurnOFF** macro



The calculation should look like this:



The variable **Control** is the variable set up in **Properties**

Control = 0 for **OFF** used in the TurnOFF macro

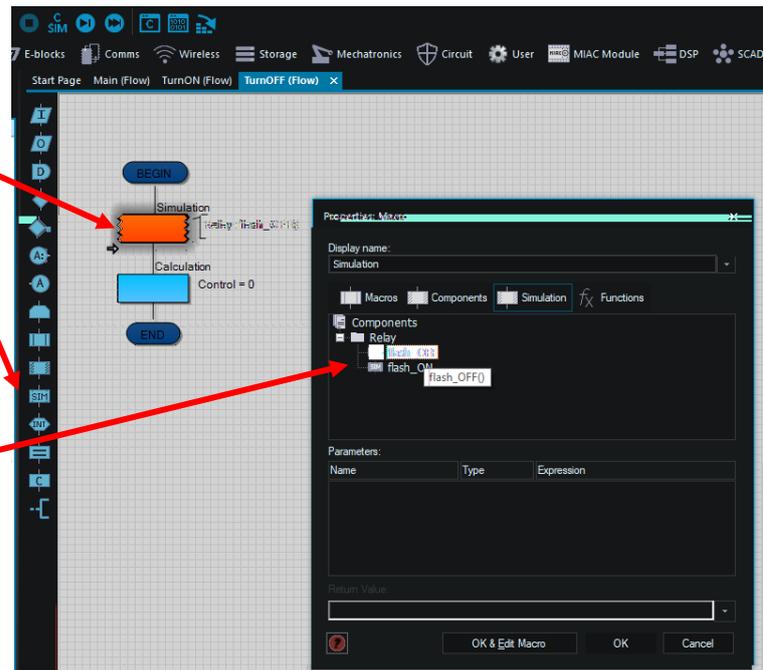
Control = 1 for **ON** used in the TurnON macro

The simulation is done like this:

Place a simulation icon:

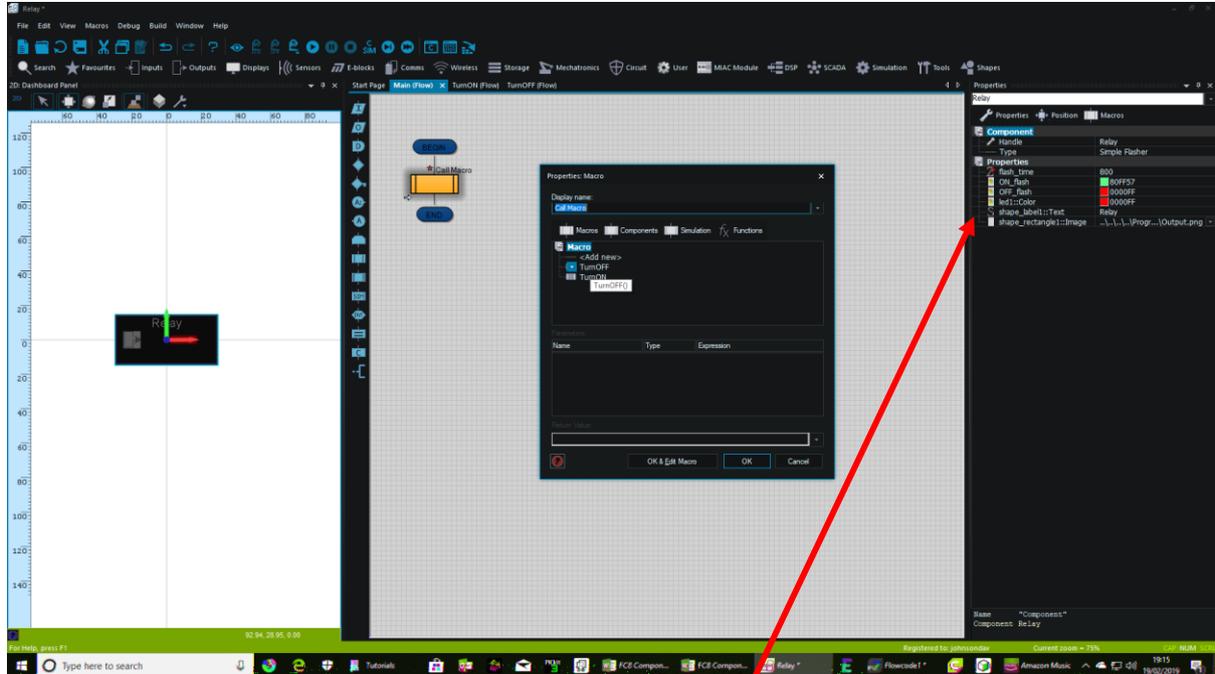
Select the **simulation** TAB

Choose the correct simulation function that matches its action!



You can test if the simulation is working by placing a **call macro** in the **Main(Flow)** and run. The small rectangle should turn RED.

Click onto the **simple_flasher** sub_component and then **RUN**



The **led1::color** should turn RED when run too.

After testing, make sure you leave the simulation set at – **RED**. This is to ensure the component is exported in the finished state with the small rectangle set as **RED**. Therefore, when the finished component is placed into the users project it will be in the default state – **OFF (RED)**.

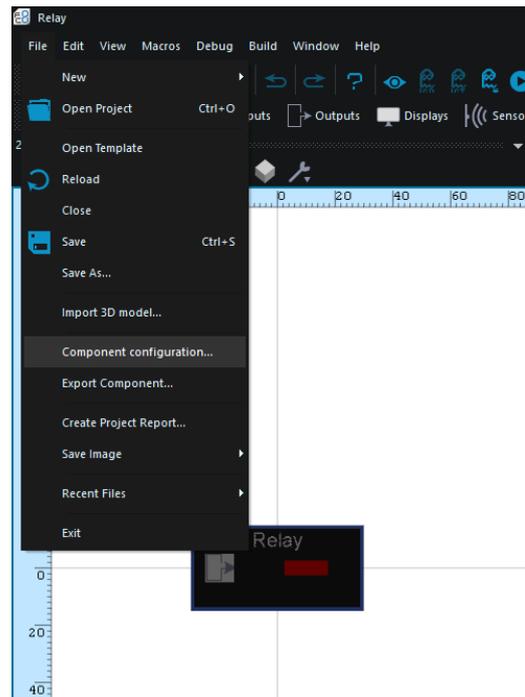
REMEMBER TO DELETE EVERYTHING IN THE MAIN(FLOW) WHEN DONE!

Step 4 – Component Configuration

To begin **component configuration**, select:

File – Component configuration

Here you will configure all the features; macros; location of your component.

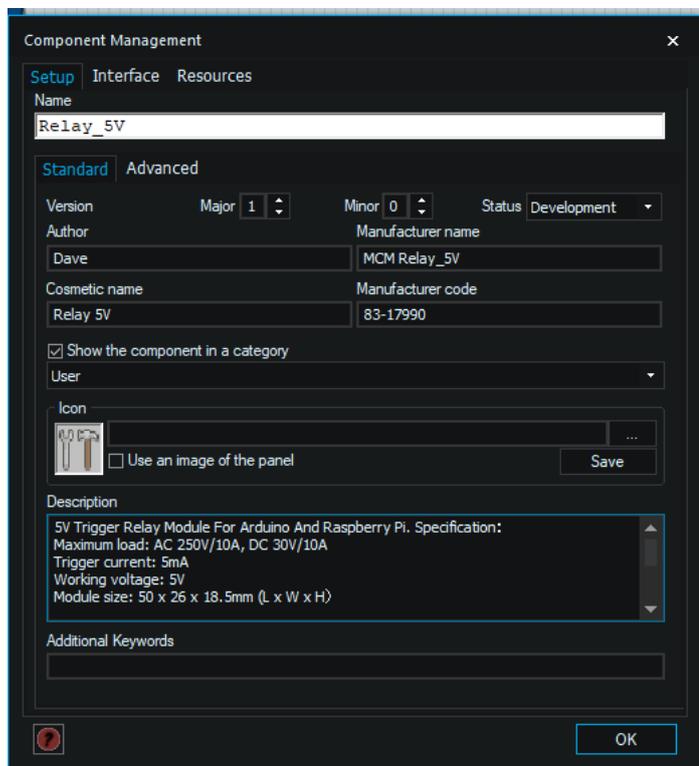


It is important to put as much information about your component as possible.

The following should be included with your component to be useable/accessible/meaningful from the **Standard TAB**:

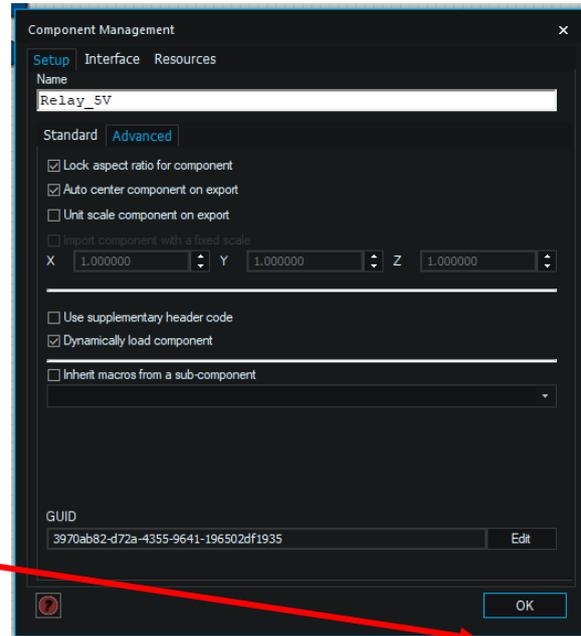
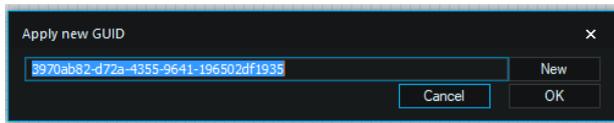
- Cosmetic name
- Component category (user)
- Status
- Author
- Description
- Manufacturer name & code

I have Farnell to obtain manufacturer specific details!



The **Advanced TAB** is extremely important. Here is where you give your new component a unique **GUID**.

I personally keep a notebook to keep important details about my components that I make, that I can use check-up on later, like GUID's.



Select the **Edit – NEW** to generate a new unique **GUID**.

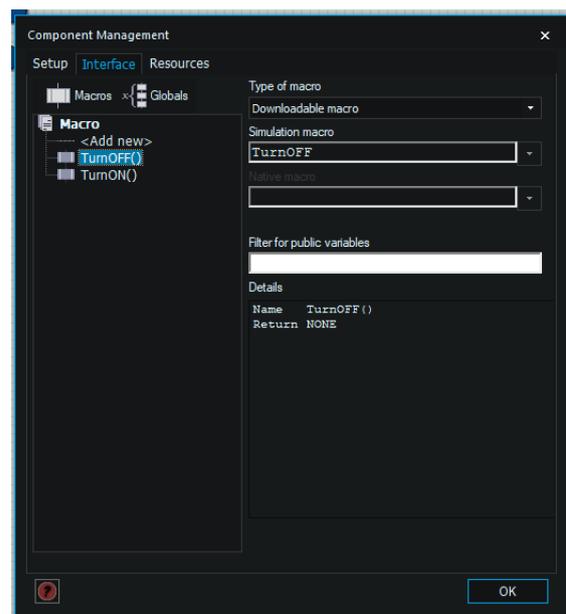
Set the new component name to what you want, but it must be a name that is not already in use. I have used **Relay_5V**.

Lock the aspect ratio.

Next

Select the **Interface TAB**

Set both macros to – **Downloadable**



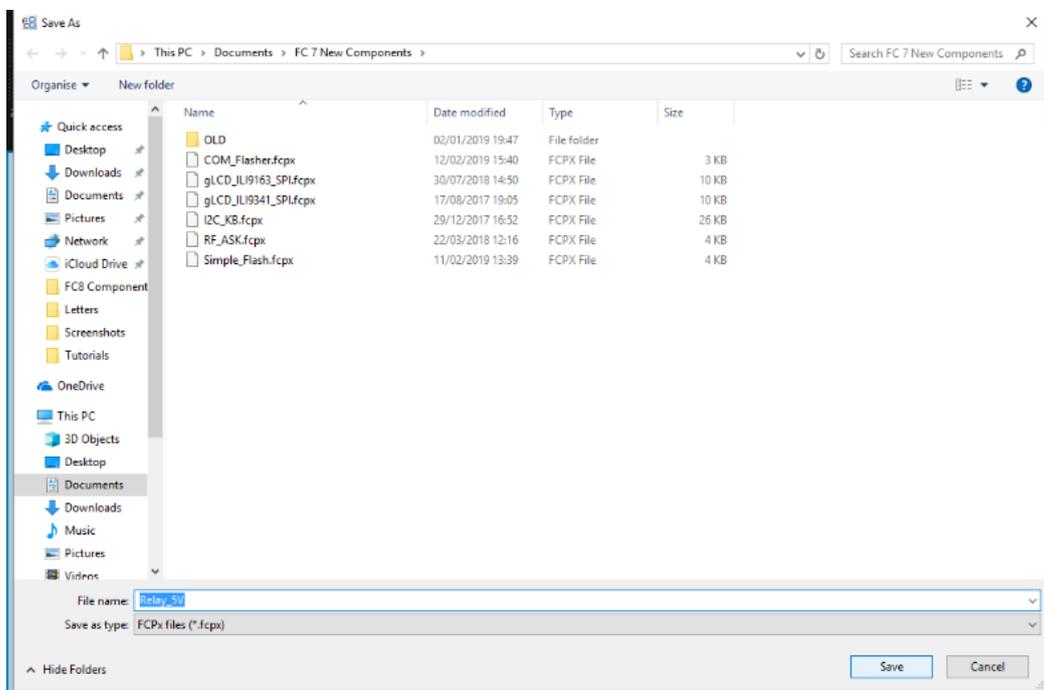
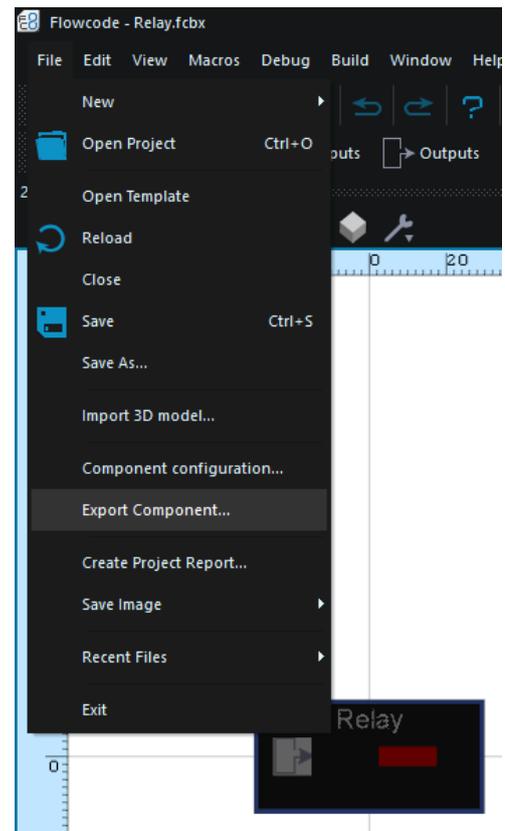
That's it, your all done. Click OK

Step 5 – Export Your Component

Select **Export Component**

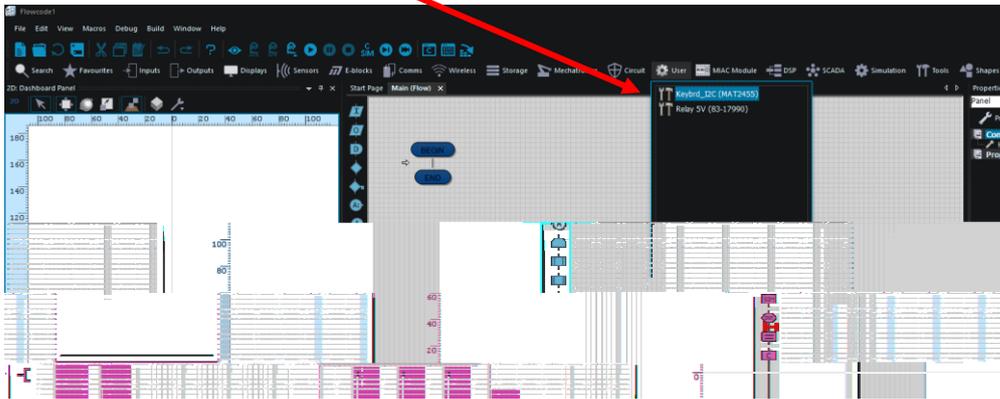
This is where you store your new Flowcode 8 component. You should have this component library folder set up on your computer and you should have set up Flowcode 8 component Library in the settings [see](#)

- **Component Creation pt1**

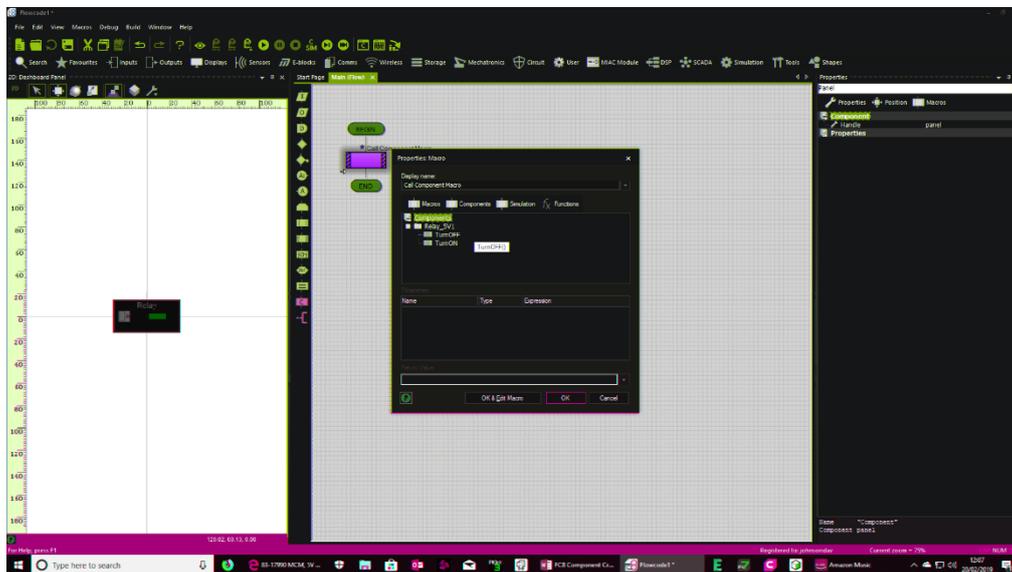


When you have set up everything correctly, you should click save and then close Flowcode 8.

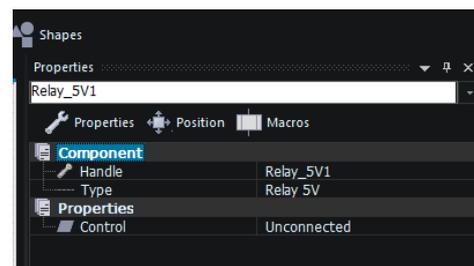
You must completely close Flowcode 8. When you restart FC8/7, start a new project. You can choose the device you prefer. You should be able to see your new component from the **TAB - User**



When you place your new component into the project you will be able to select the macros for turning the Relay_5V **ON** and **OFF**.

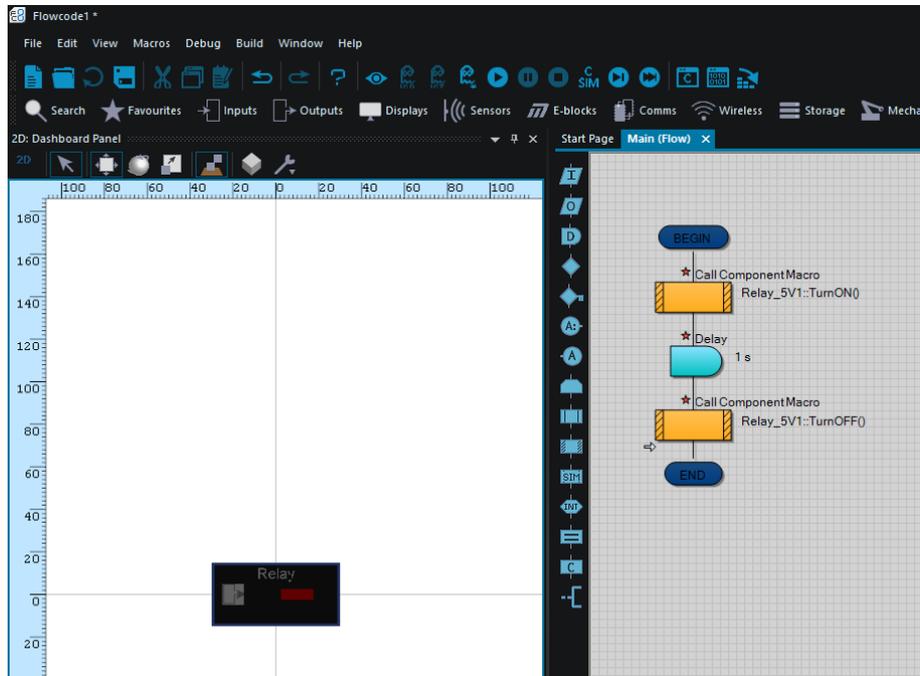


You will also be able to select which pin on your controller the Relay_5V is connected to.



Test the operation of your new component with this very simple test shown below.

The Relay Components small rectangle should change colour to what you had set up during development.



Enjoy! – remember, this component does not require a license to be used and will also be available for use with the Free version of Flowcode 8/7.

If you click on the new Relay_5V component under **User** and select – **Details**

This should display the following:

You are all done.

However, if you make changes to your new Relay_5V component, remember to completely restart Flowcode to make sure the changes are loaded correctly upon start-up.

