

## HowTo 1 - build a project step by step

A guide to build a Guiliani Streaming Editor (GSE) project on your own

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## 1. Introduction

Welcome to the How To documentation for using Guiliani with the GSE.

This document explains how to create your own project by only using the GSE, without any programming.

### 1.1. Assumed knowledge

None.

### 1.2. Prerequisites

Unpacked Guiliani-SDK including GSE.

### 1.3. Documentation conventions

Whenever you can use keys from your computer's keyboard, these will be displayed in square brackets (e.g., "To run your project press [Ctrl] + [r].").

Menu commands or file path used in this document will be shown in *italic*.

Text that appears in the software on controls will be printed in **bold and blue**.

▶ Whenever the reader of this document has to do something in his project, the text will start with this triangle.

➡ Results will be shown using this arrow.

In this document, we use icons whenever we will warn the user or will give him additional or important information.



The speech bubble icon will show additional helpful information.



Whenever a text begins with an exclamation mark icon, it contains important information that is essential for the current chapter.



A warning sign icon signals serious issues and potential risks that require your full attention.

## 1.4. Shortcuts

In the documents, we often select a command from the window. These can be selected by the following short cuts, too:

<i>File</i> → <i>New Project...</i>	[Ctrl] + [Shift] + [n]
<i>File</i> → <i>New Dialog...</i>	[Ctrl] + [n]
<i>File</i> → <i>Save Project...</i>	[Ctrl] + [s]
<i>File</i> → <i>Run Simulation...</i>	[Ctrl] + [r]

## 1.5. This document's goal

At the end of this HowTo you will have learned

- how to create, open, save and export a project and how it will run as a simulation
- the creation of dialogs
- how to add controls and set their attributes
- the handling of icons and backgrounds
- and much more

We will have set the basics for our cooking stove and the main dialog will look like this:

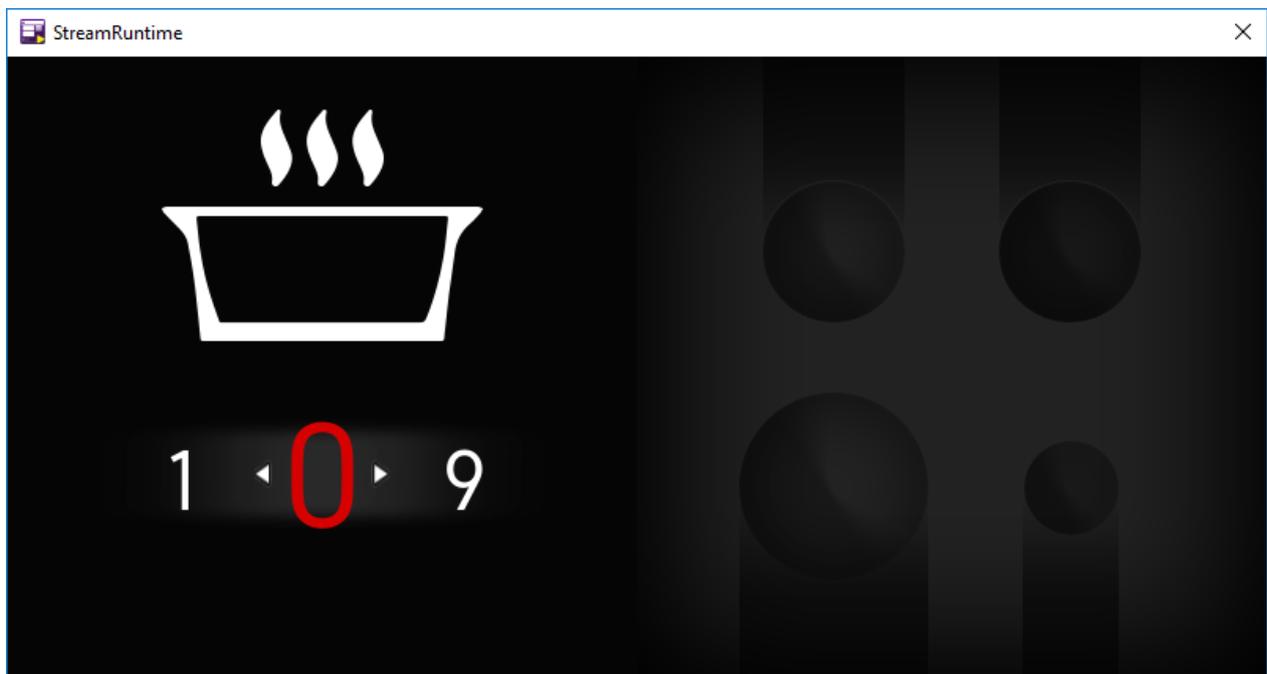


Fig. 1 This "How To" result

## 2. Create a new project

### 2.1. Step 1: Starting the GSE

You will find the pre-compiled GSE as “GSE.exe” (Win32) / GSE-binary (Linux) in the SDK’s main folder.

▶ Just double click onto it to start.

On the first start of the GSE a warning will appear in the console-window that the window settings could not be loaded. This is normal.

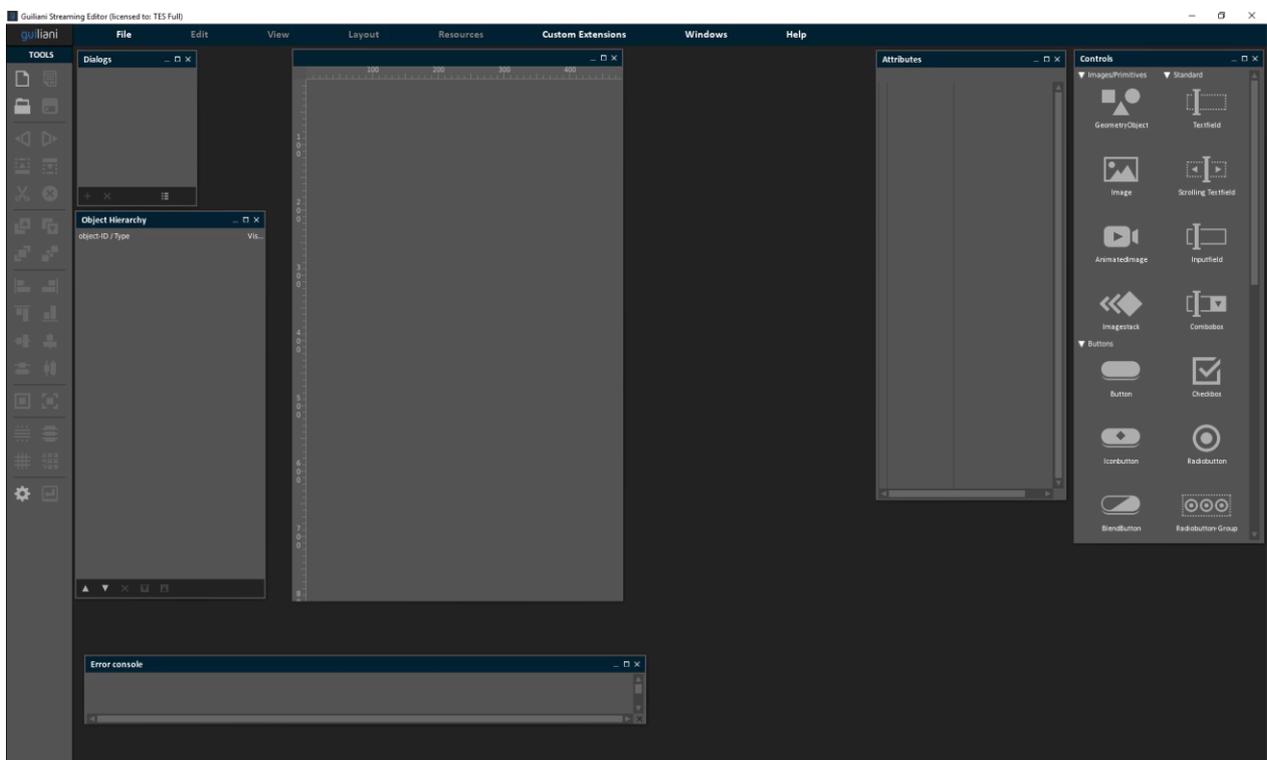


Fig. 2 Guiliani Streaming Editor

You can arrange the different windows by moving (drag and drop) or arranging their sizes (moving with the mouse-cursor to a edge or corner of a window and drag when the cursor shape changes).

If any of the shown windows is not appearing it can be opened using the “Windows”-menu.

## 2.2. Step 2: Create a new project

▶ Click on *File*.

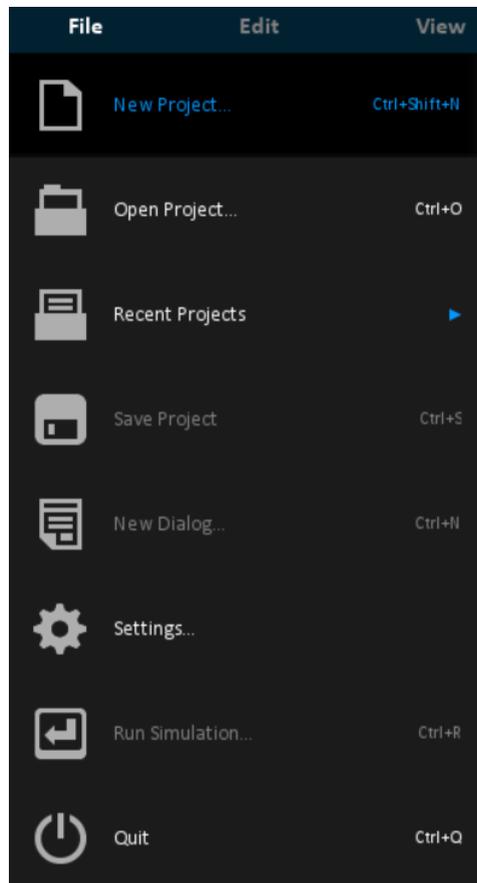


Fig. 3 File menu – New Project

▶ Click on *New Project....*

➡ A window with the same name opens.

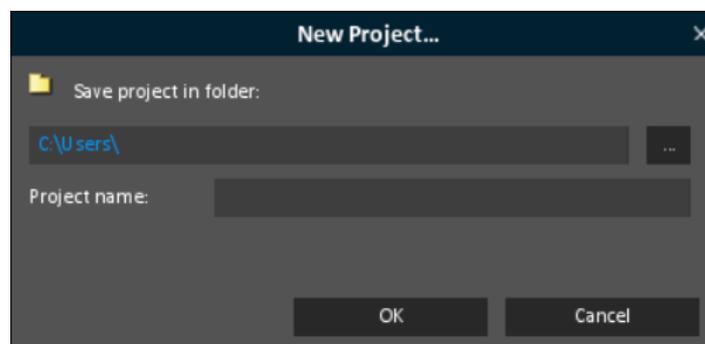


Fig. 4 New Project window

- ▶ You can change the folder, where your project will be saved by the GSE, by clicking onto the button “...”.

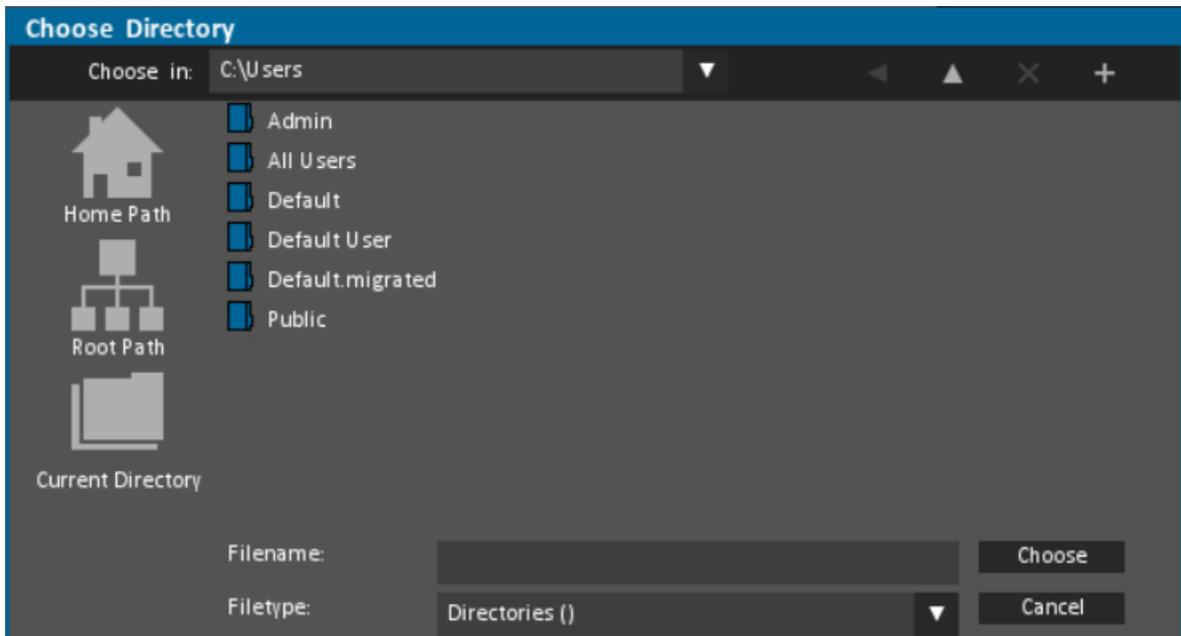


Fig. 5 New project – Choose Directory

- ▶ For our example, we change to the “**Root Path**”.
- ▶ As the project name choose “**step\_by\_step**”.

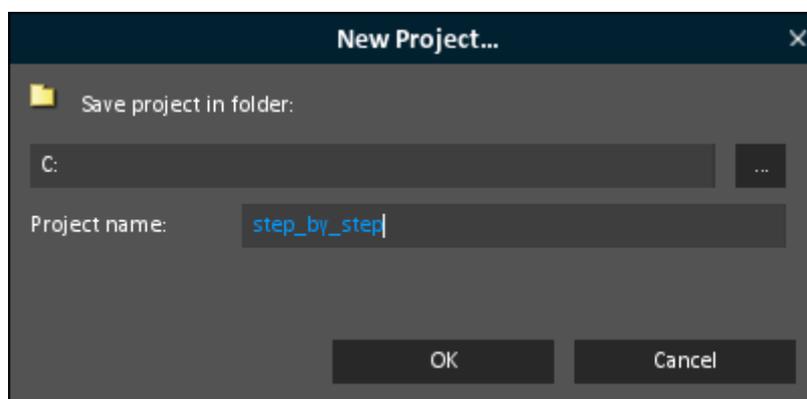


Fig. 6 New Project with Project name

- ▶ Now click onto “**OK**”.
- ➔ In the title of the GSE your project’s name has been added at the beginning.



Fig. 7 Changed GSE title

## 2.3. Step 3: Create a new dialog

Normally a project consists of several dialogs. These will be displayed in the upper left window called “**Dialogs**”.

Our project will only have one dialog for the moment.

So we have to add a dialog:

- ▶ Choose *File* → *New Dialog* from the menu.

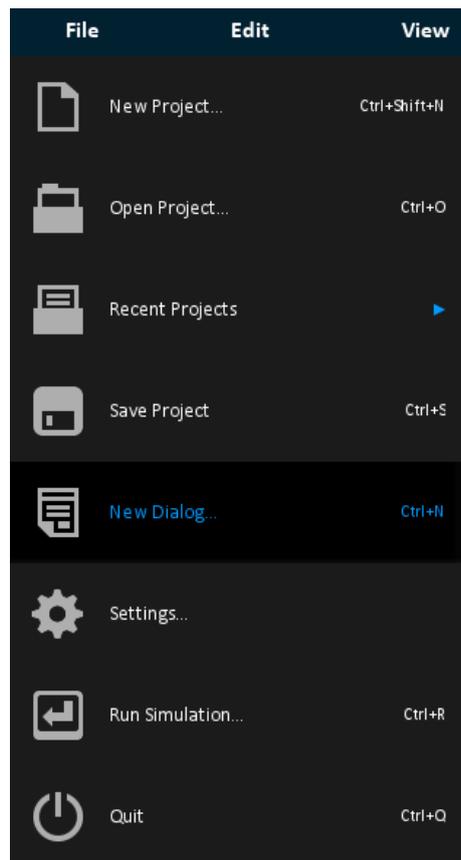


Fig. 8 File menu – New Dialog

➔ The window “**Create new dialog**” opens.

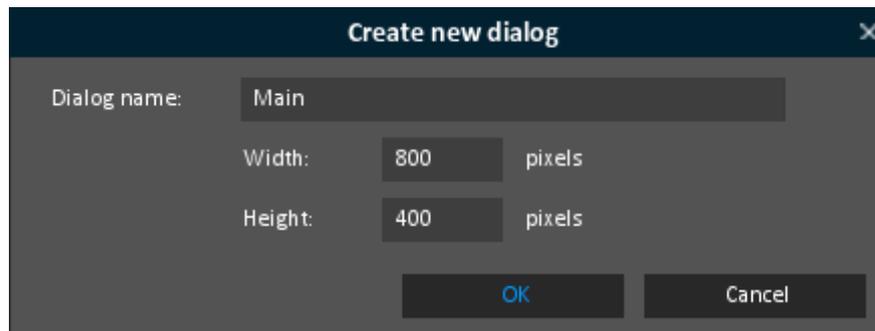


Fig. 9 Create new dialog

- ▶ Please name the dialog “**Main**” and enter 800 for **Width** and 400 for **Height**.
- ▶ Then click “**OK**”.
- ➔ The dialog has been added to the “**Dailogs**” window.
- ➔ As you can see now, in the **Object Hierarchy** window our dialog has been added and labeled as “**AID\_MAIN**”.

This is the so called Object ID, by which GSE can find our window (which is an object for GSE).

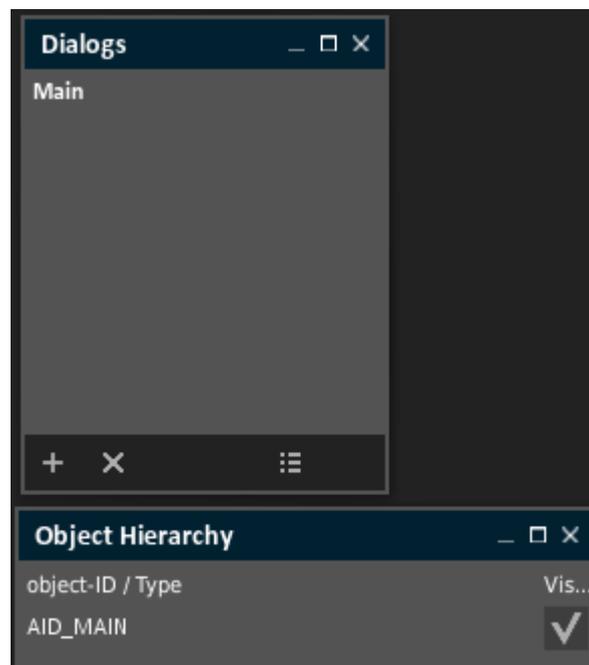


Fig. 10 the dialog's object ID

## 2.4. Step 4: Save the project

Now it is time to save our project.

As you can see in the title bar, an asterisk (\*) has been added at the end of the title. This will always appear, as soon as you have made any change to the project.



The asterisk will be your reminder of saving the project.

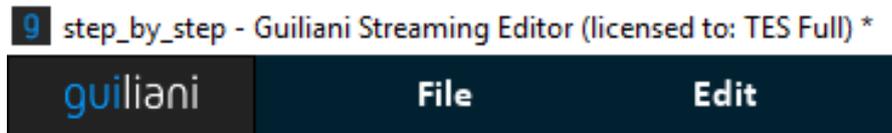


Fig. 11 asterisk added – time to save

- ▶ To save the project, just choose *File* → *Save Project* from the menu.
- ➔ The project will be saved in the folder “step\_by\_step” (inside the folder “GSE\_HowTo”).

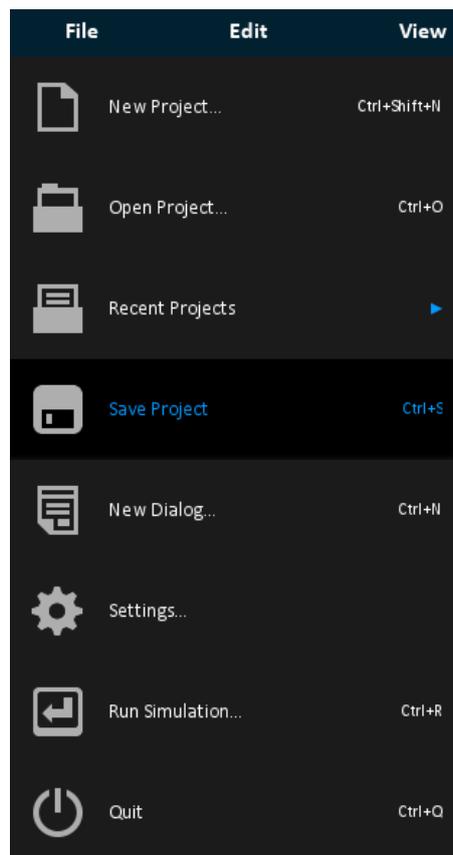


Fig. 12 File menu – Save Project

## 2.5. Step 5: Set the dialog's background

To set the background in a dialog, you have to add a picture, which spreads over the whole dialog.

- ▶ Go to the “**Controls**” window and click onto “Image” (the second entry in Images/Primitives in the controls list).
- ▶ As you can see, the image control has been inserted to our dialog at once, represented by a rectangle with a question-mark in it.

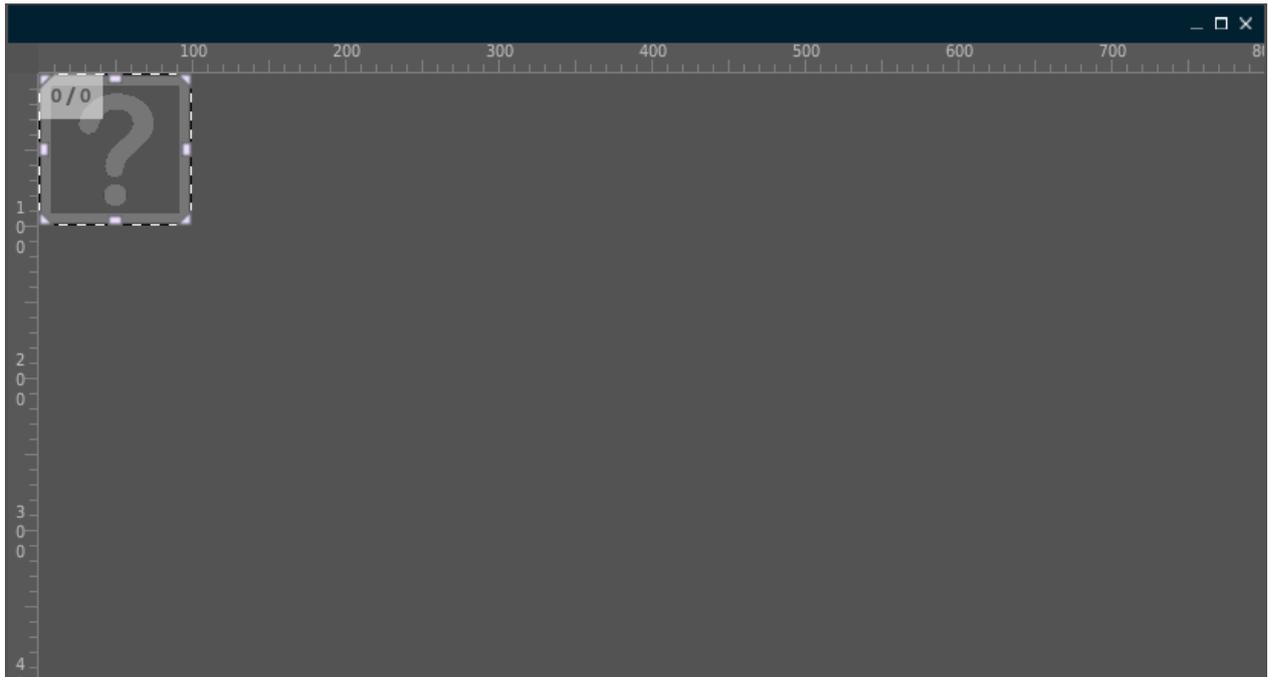


Fig. 13 Added image for background

The image control appears as “**AID\_IMAGE\_1**” in the “**Object Hierarchy**” window, too, where it is selected. And the “**Attributes**” window now shows the image’s attributes.

There, the first entry is called “**ImageID**”. That is the attribute we have to change.

- ▶ Click onto the button behind the attribute “**ImageID**”, which is called “**IMG\_STDCTRL\_PLACEHOLDER**” at the moment.
- ➔ A new window opens, which is called “**Images...**”.

Here you will find all images, which are included to GSE and your project. A background is an image. So we could use one of them, but there isn’t one which really fits.

Therefore, there is a button in the lower left corner called “Insert new image”.

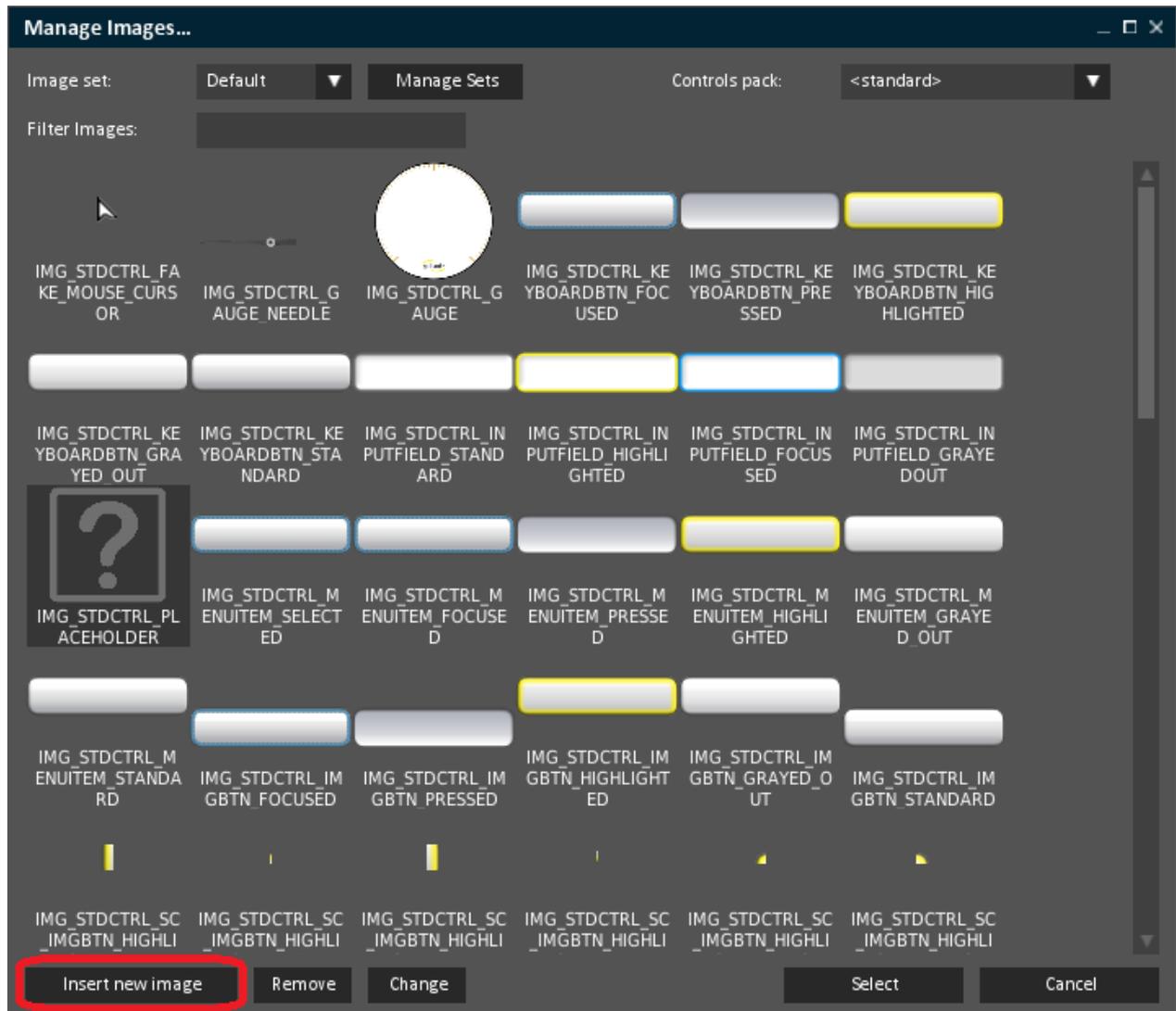


Fig. 14 Manage images

- ▶ Click onto that button. Another window appears. Here you have to click onto the “...” button.

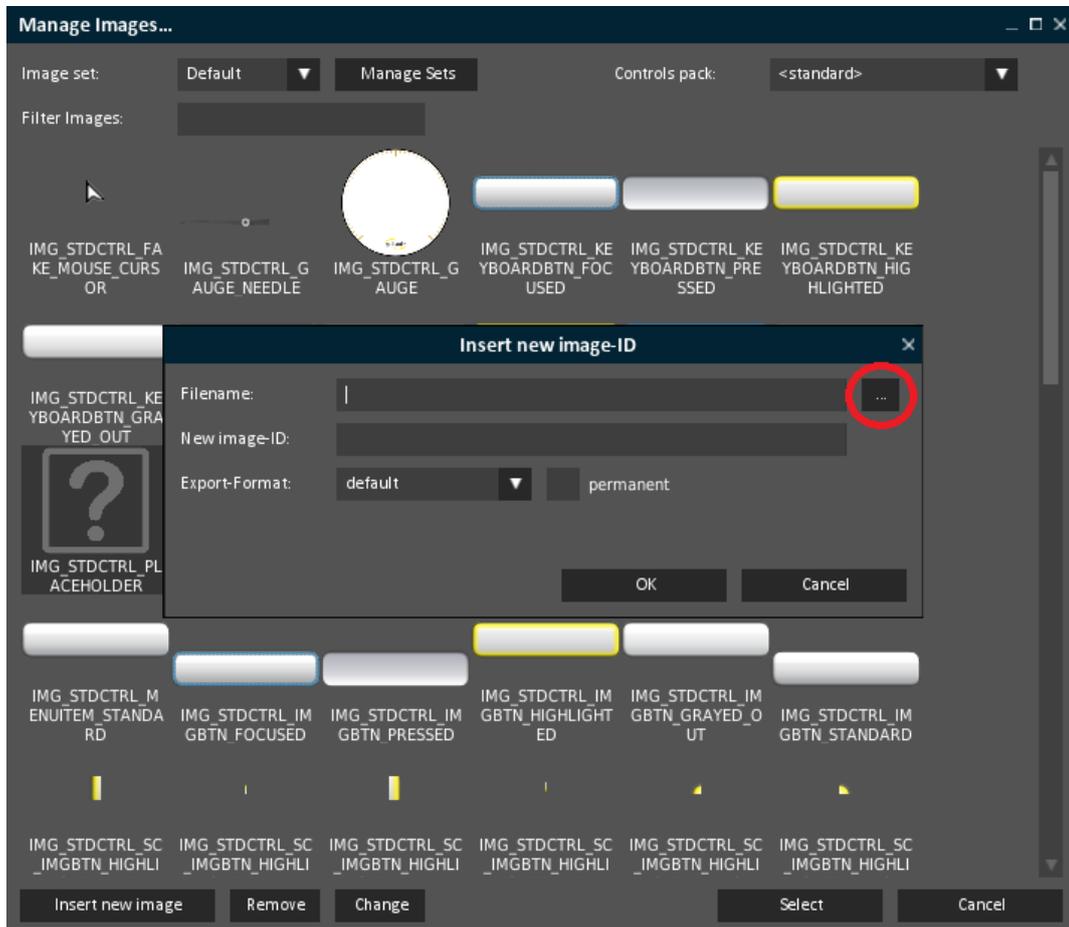


Fig. 15 Insert new image-ID

- ▶ Navigate to the data folder for this How To (You can find it on our website [www.guiliani.de](http://www.guiliani.de)). Here, inside the folder “How to 1 - resources” select “background.png”.

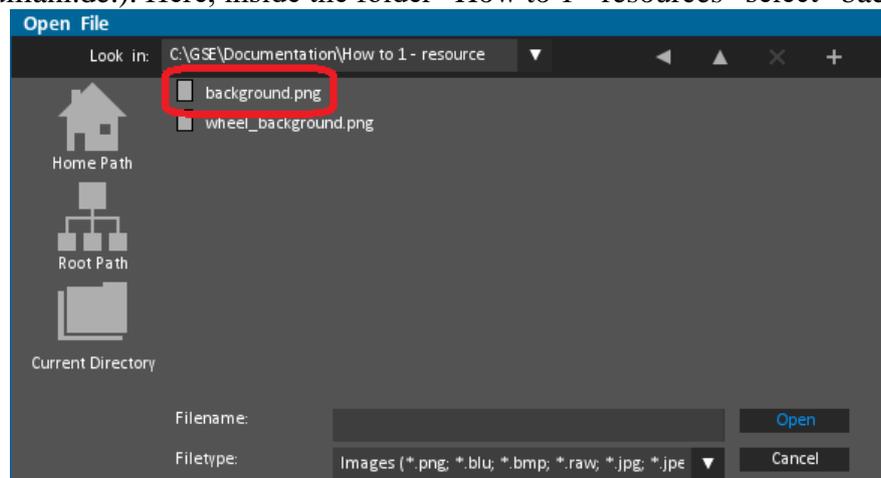


Fig. 16 Choose dialog background image

- ▶ Click onto “Open” and you will return to the window “Insert new image-ID”. Here you could change the name of the image-ID. But we will keep “IMG\_BACKGROUND”.

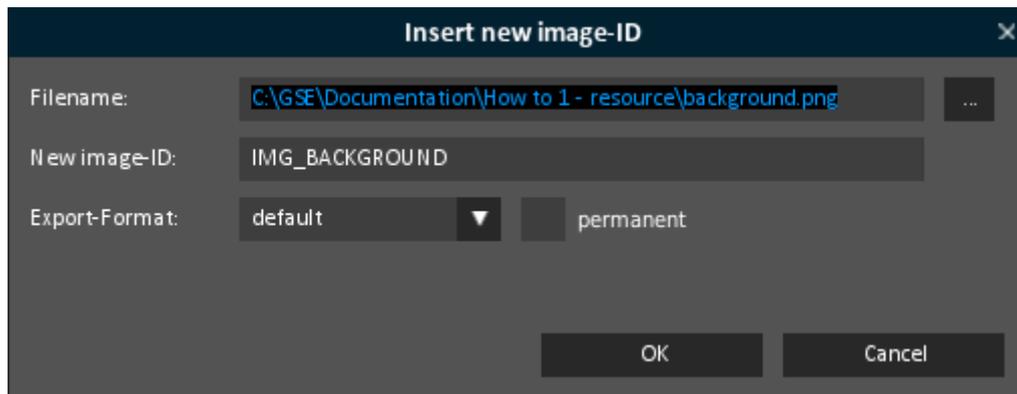


Fig. 17 Named dialog background image ID

- ▶ Click onto the button “**OK**” and you are back to the window “**Mange images...**”. Here scroll down to the end. There you will find the new inserted image.

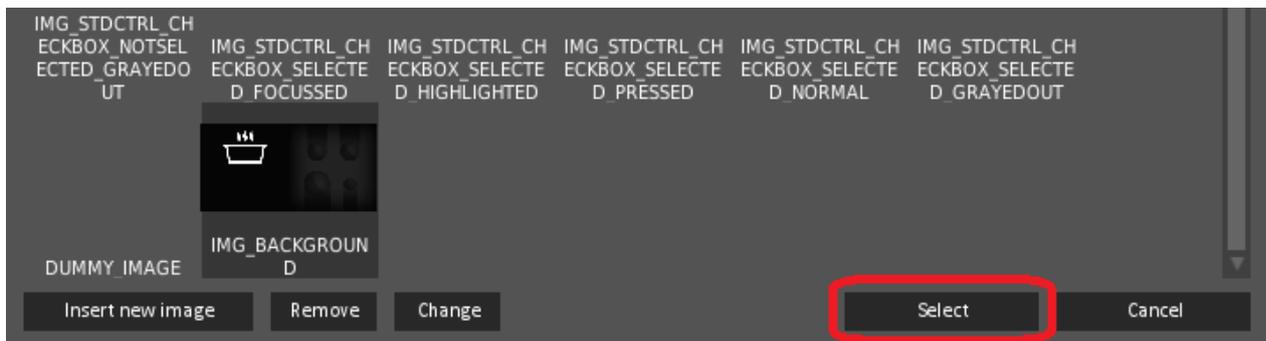


Fig. 18 Select dialog background

- ▶ Now click onto the button “**Select**”.

➔ Your dialog window should look like this, now:

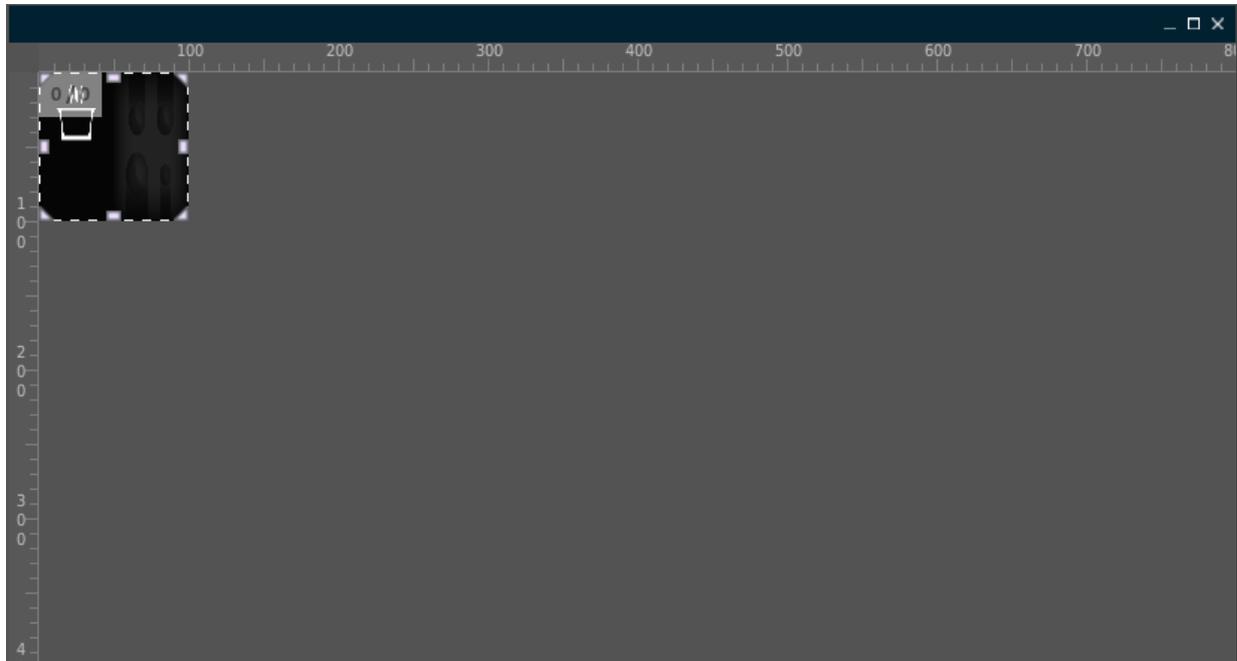


Fig. 19 Inserted background image

▶ The next step is to resize the image to fill the whole dialog. This will be done by setting the image's attributes to the dialog's values.

<b>XPos</b>	0
<b>YPos</b>	0
<b>Width</b>	800
<b>Height</b>	400

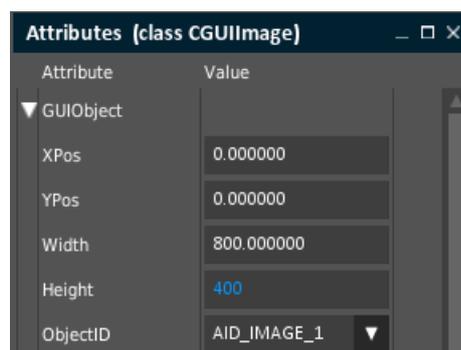


Fig. 20 Spread background image

➔ Now we have filled our dialog with the image.

## 2.6. Step 6: Adding a control

At the moment, we have a cooking pot on the left side of our main dialog and four burners on the right side.

Now, we need a possibility to choose the cooking-stage for the pot.

This will be realized using a wheel.

- ▶ Choose the control “**Wheel**” from the “**Controls**” window. You will find it in the category **Advanced**.



Fig. 21 The wheel inside Controls list

- ▶ Click on the control to add it to the dialog.

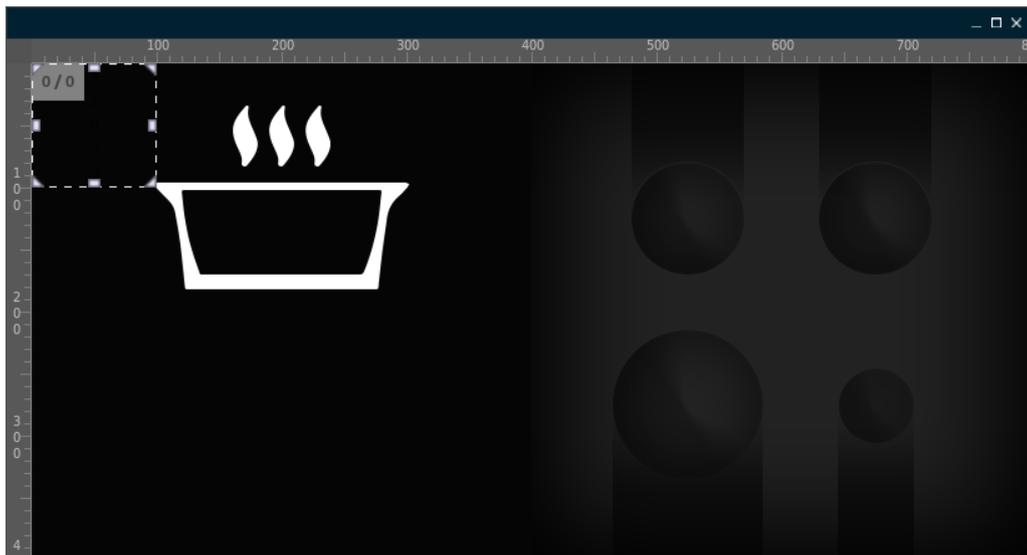


Fig. 22 Wheel added



All controls can either be placed using Drag&Drop into the dialog or any other container. The container which will contain the new control will be highlighted. If you just click on a control it will be placed in the upper left corner of the current selected container (shown in bold in the “[Dialogs window](#)”). So you have to choose the x and y coordinates for the control to define, where it should appear inside the control.



The control has been added to the “[Object Hierarchy](#)” window, too. And because it was placed inside the dialog “[Main](#)”, it will be shown beneath this dialog ([AID\\_MAIN](#)) with its object ID ([AID\\_WHEEL\\_1](#)).

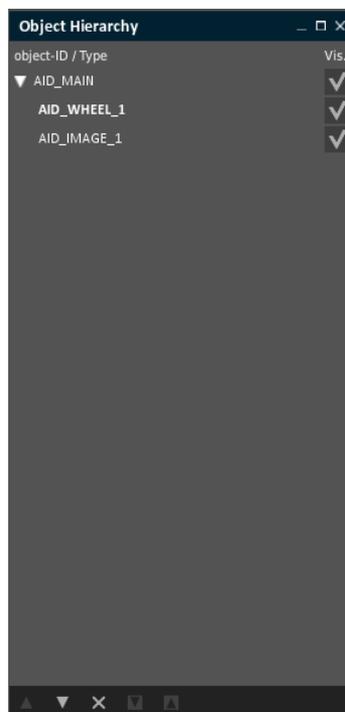


Fig. 23 The wheel's object ID in Object Hierarchy

- ▶ Save the project and continue with the next chapter.

## 2.7. Step 7: Placing the control

In the “**Attributes**” window the wheel has been selected. The window’s title now shows the class-name of the selected control (see Fig. 24).



Fig. 24 The attribute’s class name

Unlike the “**Attributes**”-windows the “**Object Hierarchy**” window displays controls either using the Object-ID (e.g. **AID\_WHEEL\_1**) or – if **NO\_HANDLE** is set – the class-name (e.g. **CGUIWheel**).

For our project, we do not want to have the wheel at the left upper corner:

- ▶ Set **XPos** to 60, **YPos** to 232, **Width** to 280 and **Height** to 70 by just entering the numbers.

As you can see, you can place your controls very exactly, using digits behind the decimal point (e.g. 25.25).

You cannot see a lot from the wheel:

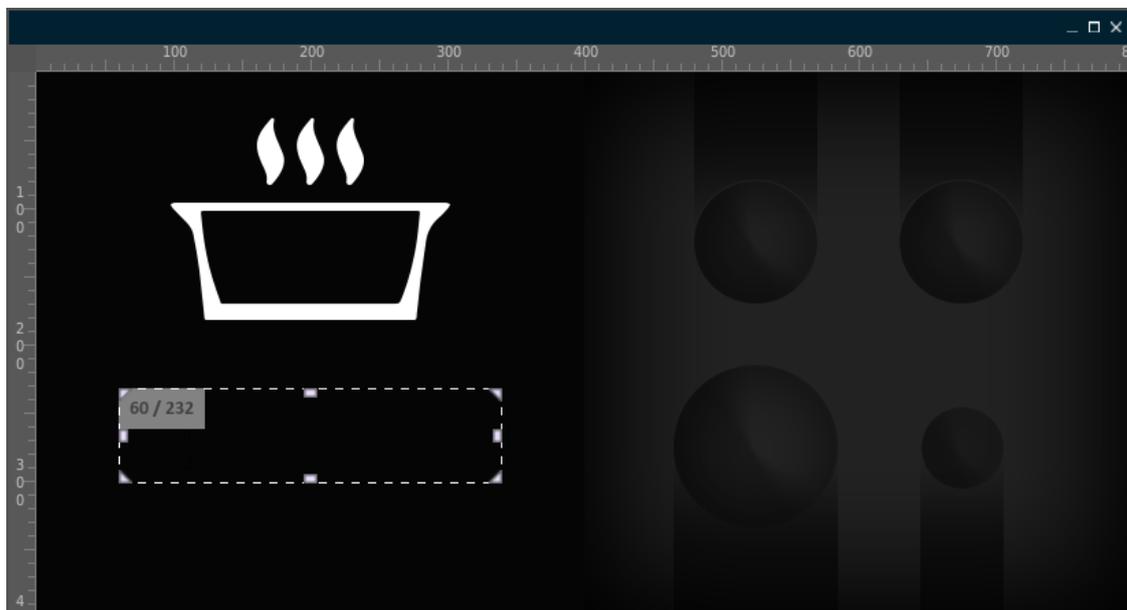


Fig. 25 Wheel added

First, we need a background. For this, read the next chapter.

## 2.8. Step 8: Set the control's background

We add a background to the wheel.

- ▶ For this, click onto the button “**DUMMY\_IMAGE**” behind the attribute “**BackgroundImageID**”.

💬 If you cannot read the whole attribute's name like “**BackgroundImageID**” ...

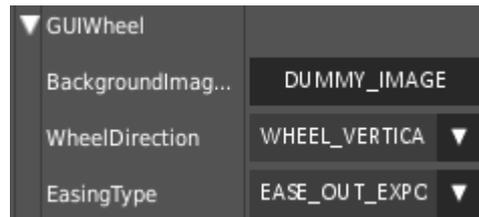


Fig. 26 Attribute's name field to small

💬 ... you can widen it. Just move your mouse to the top of the list between the headers “**Attribute**” and “**Value**”. A bar appears between both headers. Click onto it and move the mouse to the left or right to shrink or enlarge the columns.

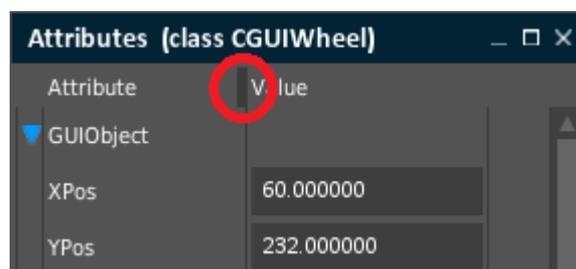


Fig. 27 Widen a list field

For the wheel's background image you have to insert a new image.

- ▶ So click onto “**Insert new image**” inside the “**Images ...**” dialog.

Because we inserted a new image before, the now opened “**Insert new image-ID**” window will show the filename and image-ID from our background. Therefore we will be inside our images folder when we click onto the “**...**” button.

💬 If you have closed the GSE and started it again, the previous selection won't be there. Then you have to navigate to the resource folder of this HowTo again.

- ▶ Select “wheel\_background.png”.

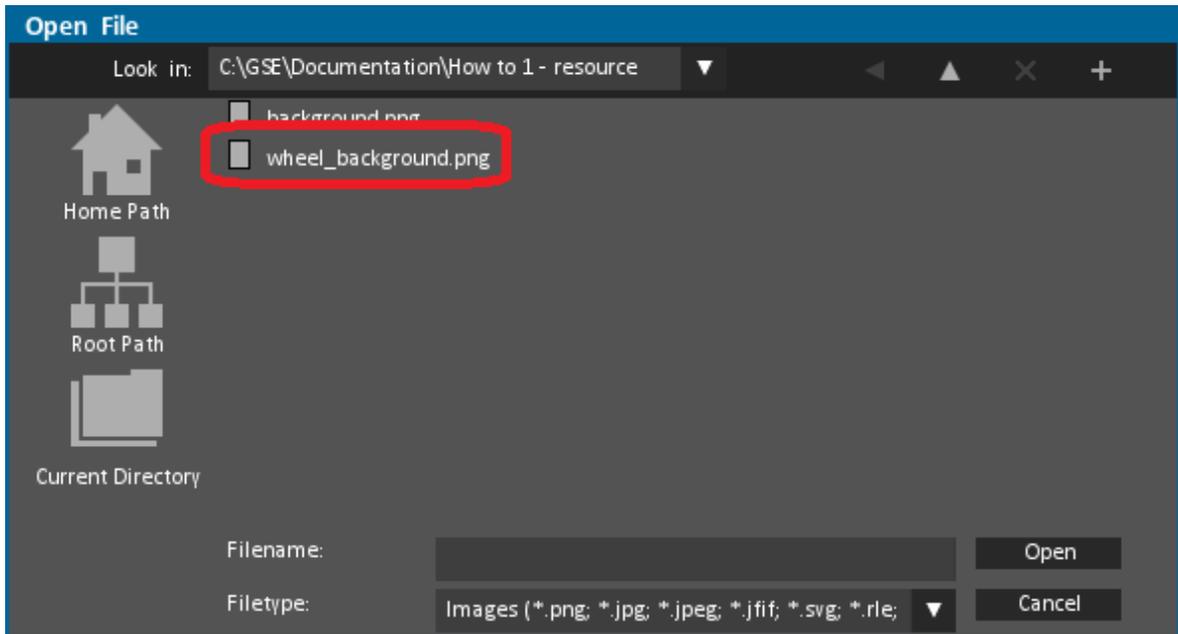


Fig. 28 Insert image for wheel background

- ▶ Click onto “Open” and in the next dialog onto “OK”.
- ▶ Back in the “Mange Images ...” window click onto “Select” to change the wheel’s background image.

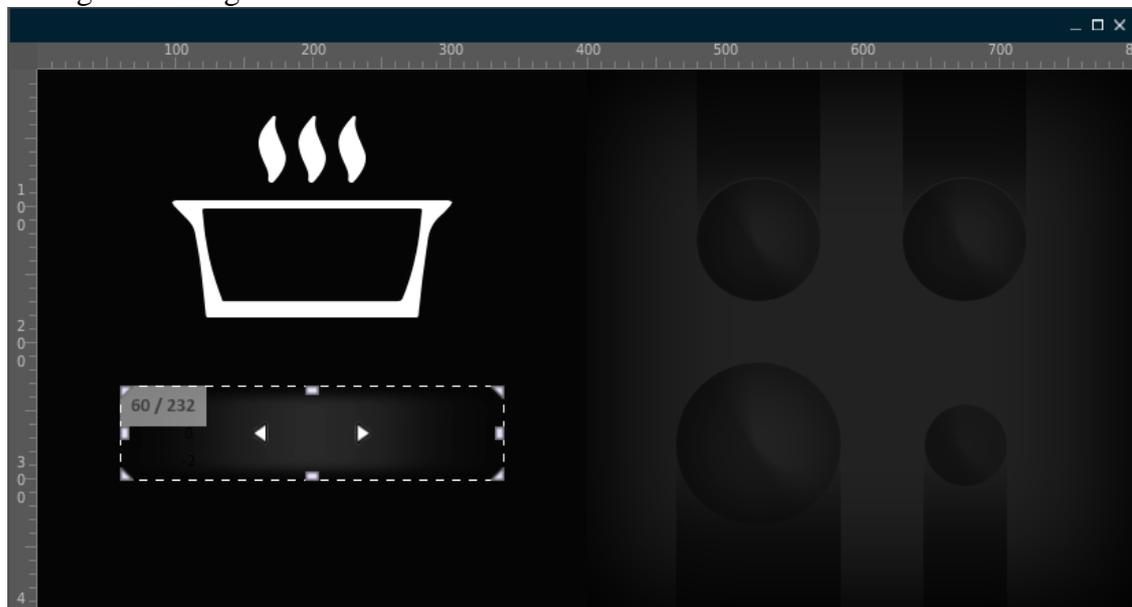


Fig. 29 Wheel background set

The numbers cannot be seen. So we have to set the entries to other colors.  
This will be done in the next chapter.

## 2.9. Step 9: Changing colors of the control



Colors in GSE will be entered in ARGB form. So you have to enter a 32-bit unsigned integer, which has the alpha sample in the highest 8 bits, followed by the red sample, the green sample and finally the blue sample in the lowest 8 bits.

Therefore, use the following table for the colors black, blue, white and red:

Black 0XFF000000

Blue 0XFF0040FF

White 0XFFFFFFFF

Red 0XFFD70000

(0X marks the beginning of the hexadecimal coded number and FF is the alpha value = no transparency.)

We will set the wheel's entries to white and the focussed entry color to red.

- ▶ For this, click on “**EntriesFontColor**”, pick the white color inside the ColorSelection-dialog and press “OK”. Repeat this for the attribute “**FocussedEntryFontColor**” and set it to red.

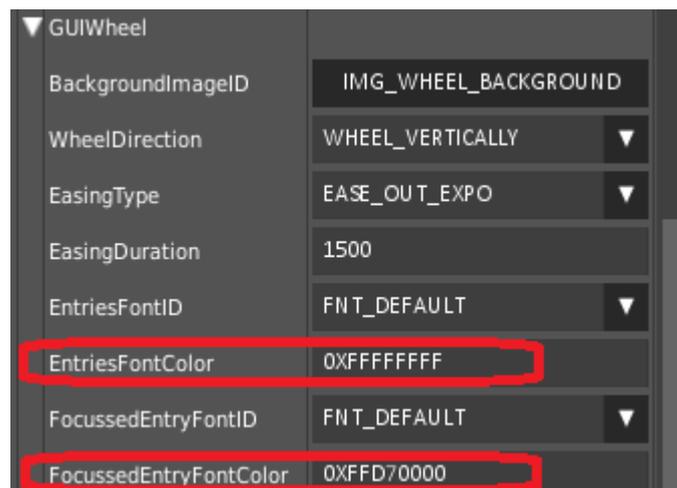


Fig. 30 All entries font color set

- ▶ Save your project.

The wheel isn't very nice at the moment, so we have to do some adjustments.

## 2.10. Step 10: Adjusting attributes for the control

The next thing we should do is to set the wheel to a horizontal one.

- ▶ Change the attribute “**WheelDirection**” to “**WHEEL\_HORIZONTALLY**”.

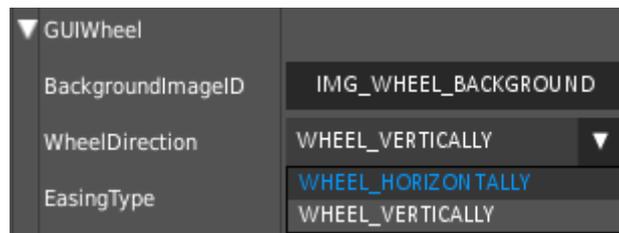


Fig. 31 Set wheel direction

- ▶ To set the wheel’s numbers straight, please change “**EntryWidth**” to 90.
- ▶ To enlarge the gap between the numbers you have to set “**EntryHeight**” to 84.

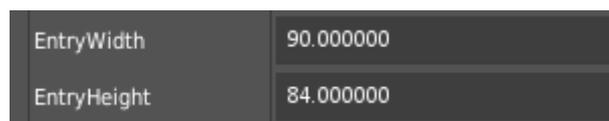


Fig. 32 Wheel's entry settings

For a stove we need stages 0 to 9.

- ▶ So let us set the numbers from 0 to 9.
- ▶ This will be done with the attributes “**MinValue**” and “**MaxValue**”. The step has to be set using the attribute “**StepSize**”. For us, it should be 1.

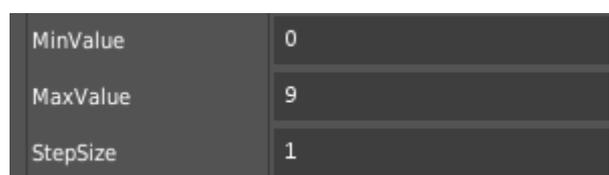


Fig. 33 Setting the wheel's entries

- ▶ Save your project and run it (see next chapter).

## 2.11. Step 11: Run (simulate) the project

- ▶ To run your project, select File → Run simulation ([Ctrl] + [r]) from the menu.

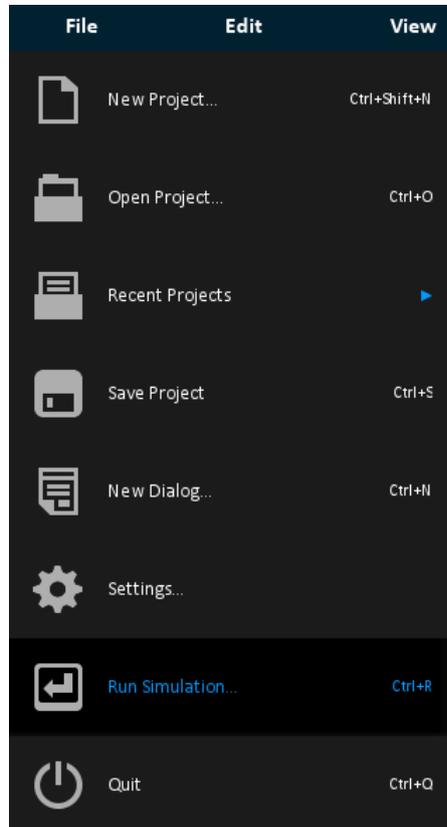


Fig. 34 Menu File → Run Simulation



In the “**Run simulation**” dialog, make sure to choose the right start dialog and that the options are set as shown.

At the moment, “**Main**” is the only dialog. But if you have created more than one, choose the right one as “**Start dialog**”:

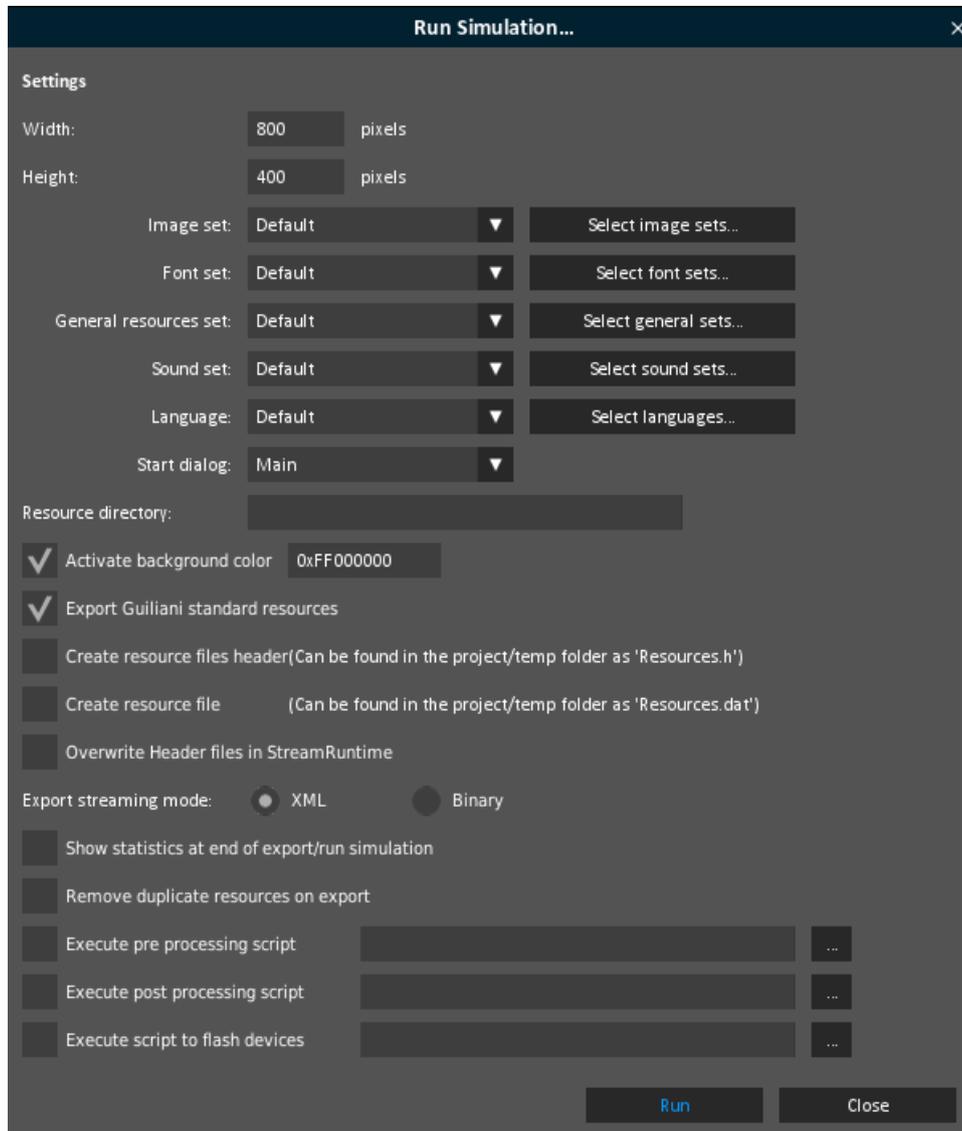


Fig. 35 Run Simulation dialog

When you click to the “**Run**” button, your project will be run with the StreamRuntime in a separate window.



When using “Run Simulation” the exported contents of your project will be stored inside the “temp” subfolder, where you can find an application named StreamRuntime. This is the main executable of your application on the PC side.

➔ Your project should look like this:

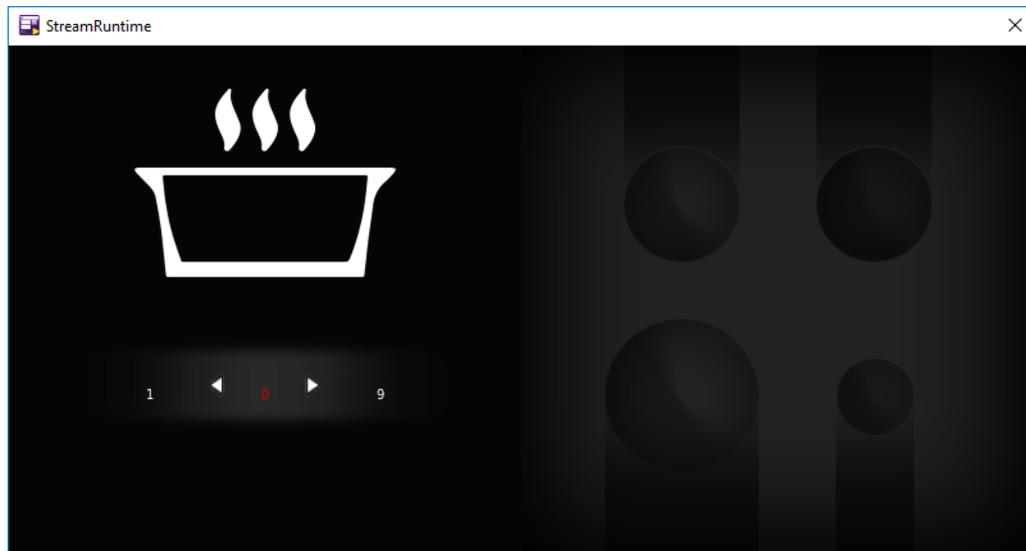


Fig. 36 Wheel's entries set



If you don't like that the wheel cycles (you can go from 9 directly to 0) you have to uncheck the wheel's attribute "[Cyclic](#)".

The numbers are very small and have to be enlarged.  
This will be done in the next chapter.

## 2.12. Step 12: Changing the font of a control



To change the appearance of the entries of the wheel, you can change the used fonts. A font in Guiliani sets the font-file, size and style-attributes (e.g. bold or italic).

Make sure “**AID\_WHEEL\_1**” is still selected in the “**Object Hierarchy**” window.

- ▶ Look for the attribute “**EntriesFontID**” and click onto the triangle of the combobox (which is labeled “**FNT\_DEFAULT**” at the moment). Choose “**Manage Fonts ...**”.

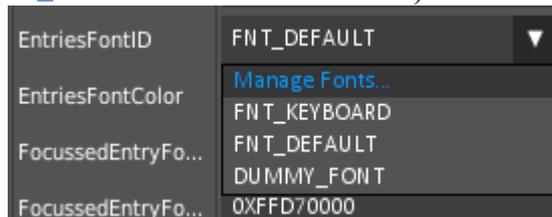


Fig. 37 Open manage fonts



The now opened window (“**Manage Fonts...**”) shows all fonts which can be used inside the project.

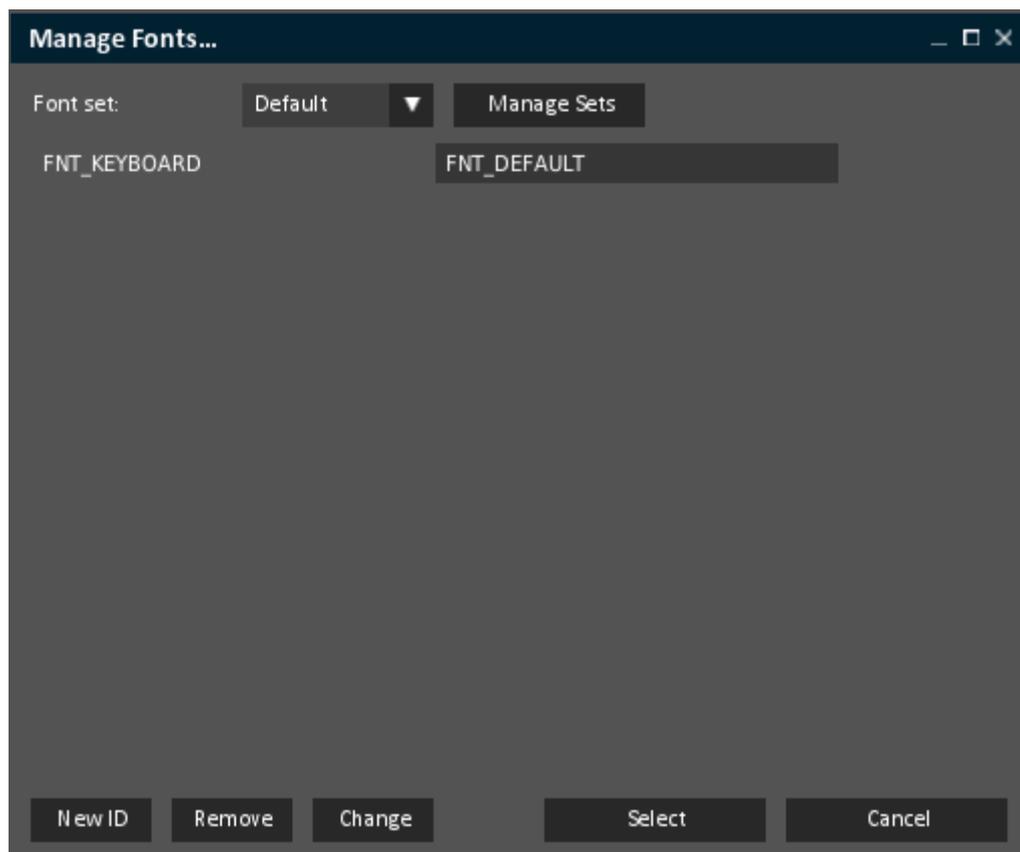


Fig. 38 Fonts dialog

We need a new font, so you have to click onto the button “**New ID**”.

- ▶ As before, click onto the “**...**” button and navigate to the data folder for this How To. Here, inside the folder “**How to 1 - resources**”, you will find the font “**Gidole-Regular.ttf**”.

- ▶ Choose and open it (by double clicking onto the font name).

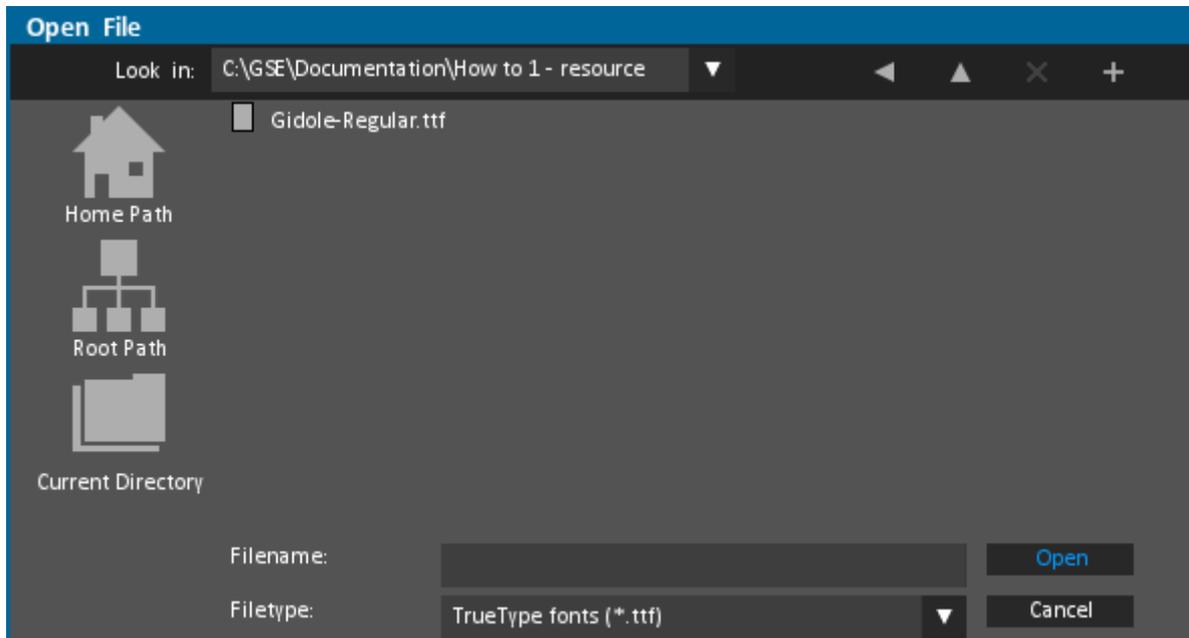


Fig. 39 choose new font

You are now back inside the “**Insert new font-ID**” window. Here we can define the font’s size.

- ▶ For our entries, we set the size to 55. For a better differentiation in the future, we also have to rename the font for this size. So add a “\_55” at the end of the font’s ID.



If you click onto an entry, it will be highlighted (blue) and you will delete this text if you enter a new one. So double click into the field, but behind the entry. Now you can add the characters needed.

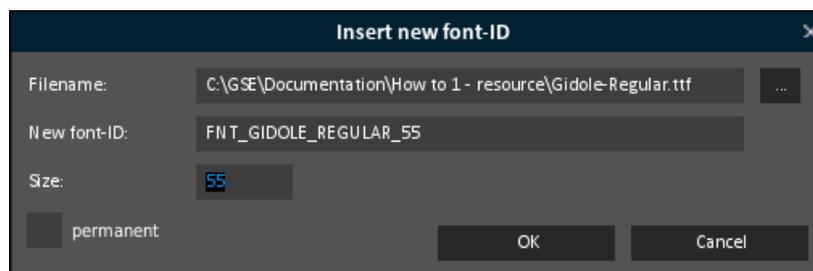


Fig. 40 insert new font ID size 55

- ▶ Click onto “**OK**” to close this dialog.

- ▶ Back in the “**Manage Fonts ...**” window, select our new font “**FNT\_GIDOLE\_REGULAR\_55**” and click select (or double click onto the (correct) font’s name).

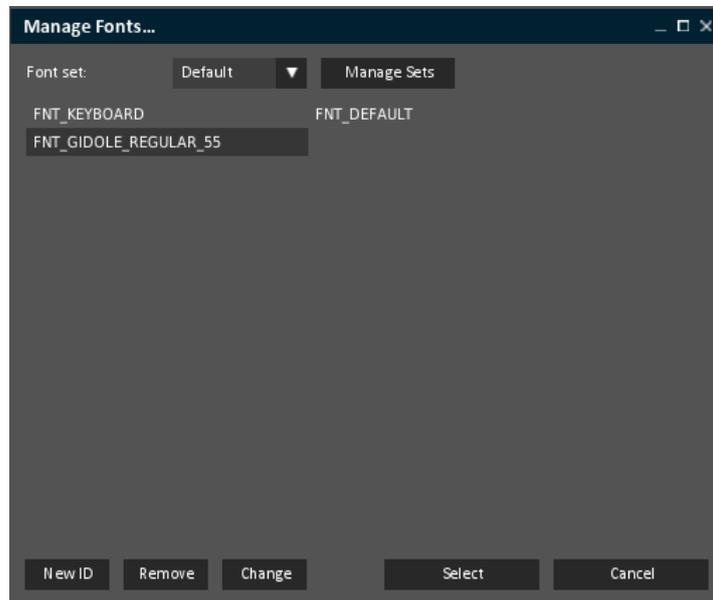


Fig. 41 select new font - size 55

It looks good. But now the focussed entry (the red one) is a bit too small.

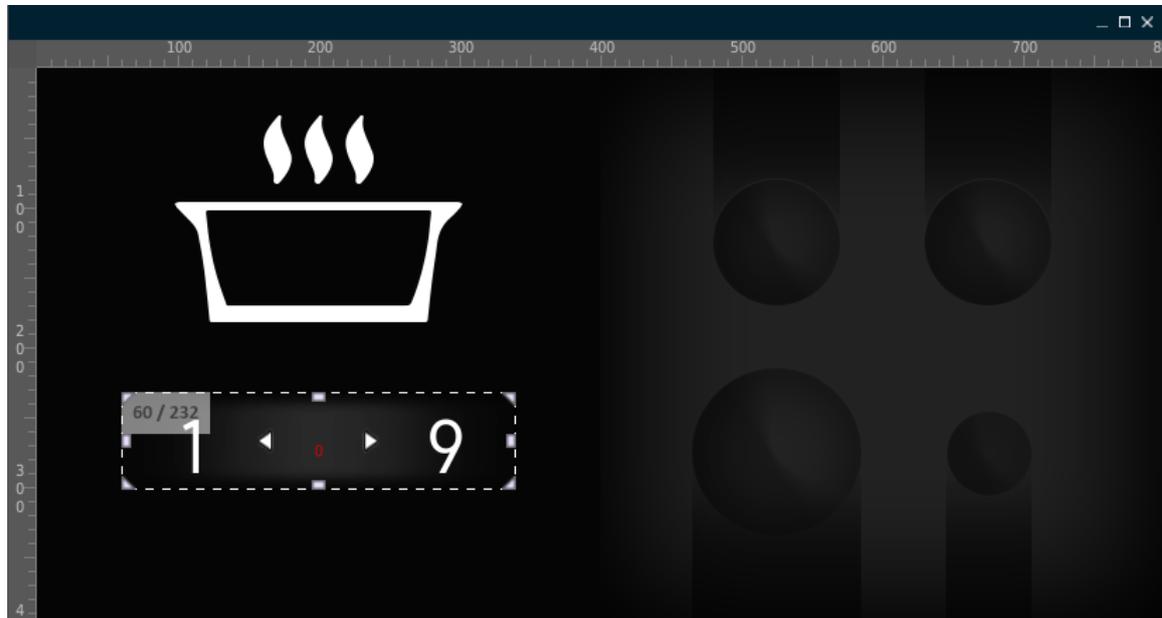


Fig. 42 entries' font set

- ▶ We have to correct this by setting it to the same font “Gidole-Regular.ttf”. But this time, we set the size to 96.
- ▶ Can you do this on your own?

If not, just take a look at the next page.

- ▶ Click onto the triangle of the pull down menu behind the attribute “**FocussedEntryFontID**” (which is labeled “**FNT\_DEFAULT**” at the moment) and choose “**Fonts ...**”.
- ➔ The window with the same name opens.
- ▶ Here click onto “**New ID**”.

Because we just selected the needed font, we don't need to change the file name.

- ▶ Just change the size to 96 and change the added “\_55” to “\_96”.

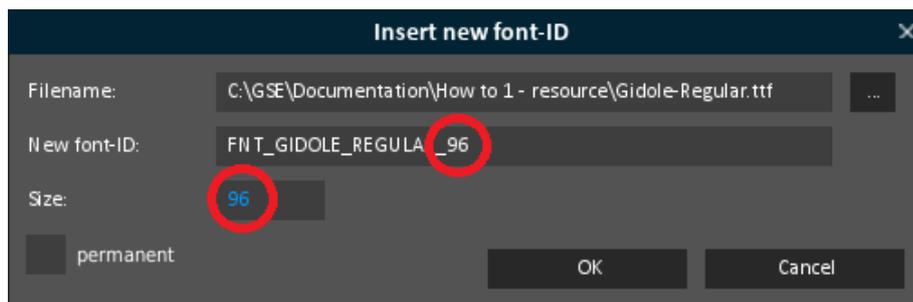


Fig. 43 insert new font ID – size 96

- ▶ Click onto “**OK**”.
- ▶ In the “**Fonts...**” window, don't forget to select the correct font (**FNT\_GIDOLE\_REGULAR\_96**).



Fig. 44 wheel's fonts changed

- ▶ Save and run your project.

You can select the stove's stage by either scrolling a number or clicking between one of the arrows and the next number in the direction of the arrow.

➡ Now you have built your first project! Congratulations!

If you like to enhance your project with Commands, a DataPool and/or adding code, have a look at the next HowTos.

Please send us ([support@guiliani.de](mailto:support@guiliani.de)) an email and write if you like this step-by-step document or not – and why. Maybe you have some suggestions on how to enhance this guide or maybe you have found errors – then we would be glad, if you send these to us, too.

Thank you in advance.

On the next page you will find an additional chapter. Herein we explain how to move a control between the viewing layers.

The HowTo will be completed by showing you how to export your project for using it on a device.

## 2.13. Step 13: Move a control to another view layer

It may occur that, when adding a new control, it will overlay other controls. When you want to change the order you can move it to another layer inside the dialog.

In our project we can see what we can do, if we had added the wheel first and then the background image.

- ▶ For this, select “**AID\_IMAGE\_1**” in the “**Object Hierarchy**” window.
- ▶ Choose *Edit* → *Delete* or the X (marked in red) from the icon bar at the bottom of the “**Object Hierarchy**” window to remove the current background image.

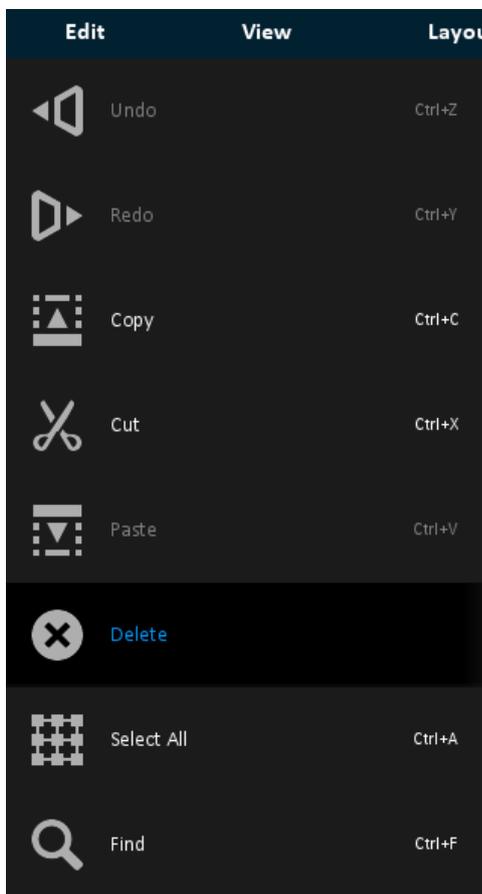


Fig. 45 Menu Edit Delete



Fig. 46 Delete in Object Hierarchy window

 If you choose the X, you have to confirm that you want to delete the control by clicking “**OK**”.

Now we will re-load the background image.

- ▶ Click onto “**image**” in the “**Controls**” window and set “**Width**” to 800 and “**Height**” to 400.

The wheel can still be seen, because we do not have chosen an image, yet.

- ▶ Click onto “**IMG\_STDCTRL\_PLACEHOLDER**” behind “**ImageID**” and choose “**IMG\_BACKGROUND**” in the “**Images ...**” window.
- ➔ Now the background covers our wheel.

How can we change this?

At the bottom of the “**Object Hierarchy**” window, you will see an arrow facing upwards (which is inactive, because our image is placed in the upmost layer) and an arrow facing downwards (which is active).



**Fig. 47** Change control's layer

- ▶ Click onto the arrow facing downwards.
- ➔ You will see that in the dialog window the wheel reappears immediately and that the controls in the “**Object Hierarchy**” window have changed places.

With the arrows facing upwards and downwards you can change the layer of every single control. The control at the bottom of the “**Object Hierarchy**” is drawn first and all other controls are drawn on top of it.

If you like to let a control “shine through” another one, set the Alpha attribute to a value you prefer.

## 2.14. Step 14: Export a project

- ▶ You can export your project (to run it on the target board) by selecting Resources → Export from the menu ([Ctrl] + [e]).

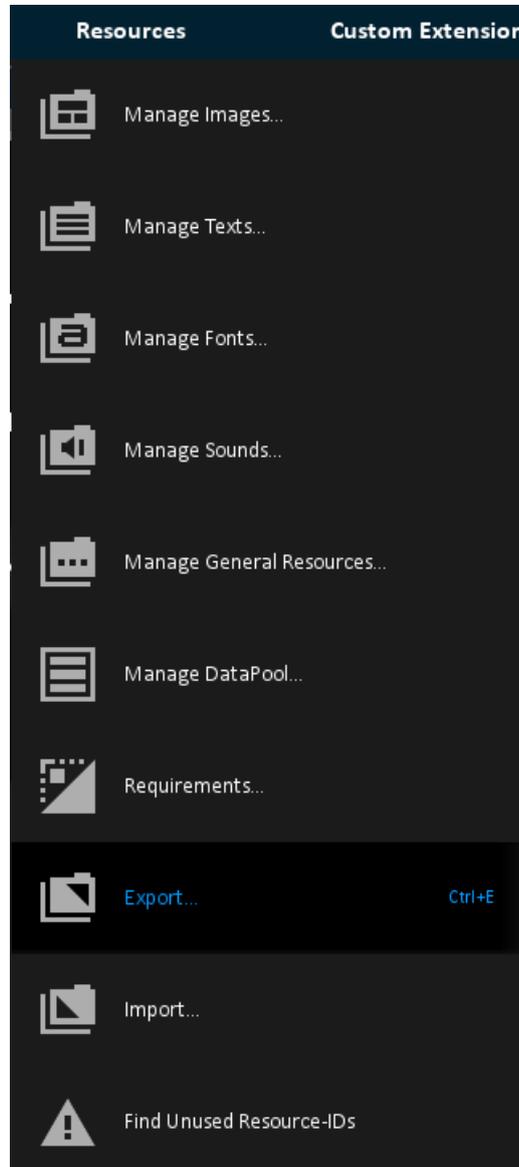
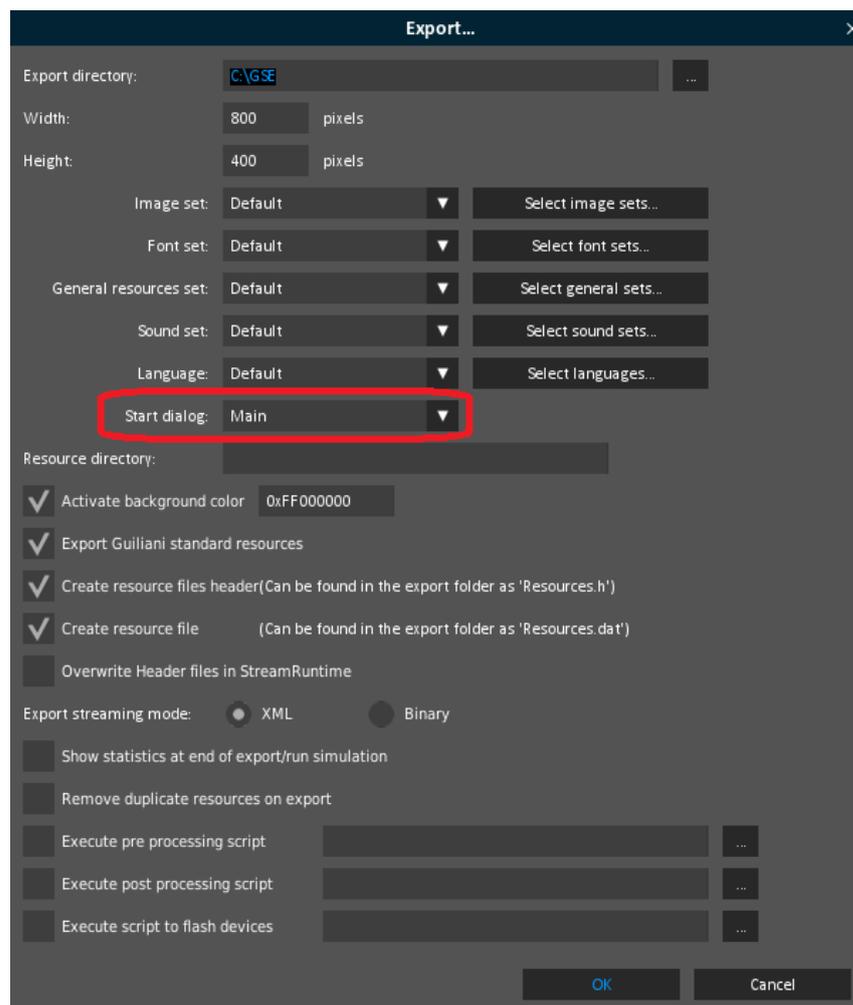


Fig. 48 Menu Resources → Export

- ▶ In the now opened “**Export...**” dialog enter a valid path to the folder where your project should be saved. To select a folder, use the “...” button which will open the “**Choose Directory**” dialog.

! Just like in the “**Run simulation**” dialog, make sure to choose the correct start dialog and that the export options are configured as shown below. At the moment, “**Main**” is the only dialog.

! And do not forget to set the **Export directory**.



**Fig. 49** Export attributes

By selecting “**OK**”, your project will be exported to the selected folder. This folder does now contain everything which is required to run your GUI on your desired target platform. Copy the contents of the folder next to your StreamRuntime binary on the target board and execute it, to see your GUI in action.

## 2.15. Step 15: How to continue?

### 2.15.1. Sample solution

We hope this document will get you step by step to your first project. If you encountered problems or wish to have the solution without creating the project on your own, we have added the sample solution into the folder called “How to 1 - sample solution”.

Here you will find the GSE Project (step\_by\_step.gpr) inside the project folder called “step\_by\_step”.



For Windows user inside the folder “temp” there is an executable StreamRuntime.exe.

### 2.15.2. Continuing HowTos

You will find an overview of continuing HowTos in the document “How to 0 - an overview of building GSE projects”.

Don't forget to visit our homepage [www.guiliani.de](http://www.guiliani.de) to get more information, demos, help, videos and the latest news about guiliani and GSE.

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