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# Guiliani on Renesas GR-Mango Evaluation Board Kit: Quickstart Guide – “GuilianiDemo” application

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# 1 Introduction

The “GuilianiDemo” presents some of the capabilities of the Guiliani HMI framework running on the Renesas GR-Mango. It uses the TES eGML software rendering.
Additionally the efficient way of working for HMI application development by using the Guiliani Streaming Editor (GSE) is introduced. The user may make some first changes to the “GuilianiDemo”, simulate the changes on PC and download the changes to the GR-Mango board – all without the need of compiling and linking a new executable.

This quick guide runs you through this process within minutes!

- Preparing your PC, i.e. installing and configuring the required tool chain
- Installing the “GuilianiDemo” demo on the GR-Mango boards
- Using the Guiliani Editor (GSE) to simulate the “GuilianiDemo” on PC and to make your own first changes to the “GuilianiDemo”.
- Exporting your changes and loading them to the GR-Mango board
- Compiling your own GSE and StreamRuntime

**NOTE: when unpacking the SDK-Package, please use a short name as the target folder-name. Due to the folder-structure of included BSP, e2studio and toolchain will not work properly if folder-names are too long.**

# 2 System Preparation

- Unpack the GR-Mango target, described on https://os.mbed.com/platforms/Renesas-GR-MANGO/
- Connect the GR-Mango target (USB2, see Fig. 1) via an USB cable to a Windows PC to power it up

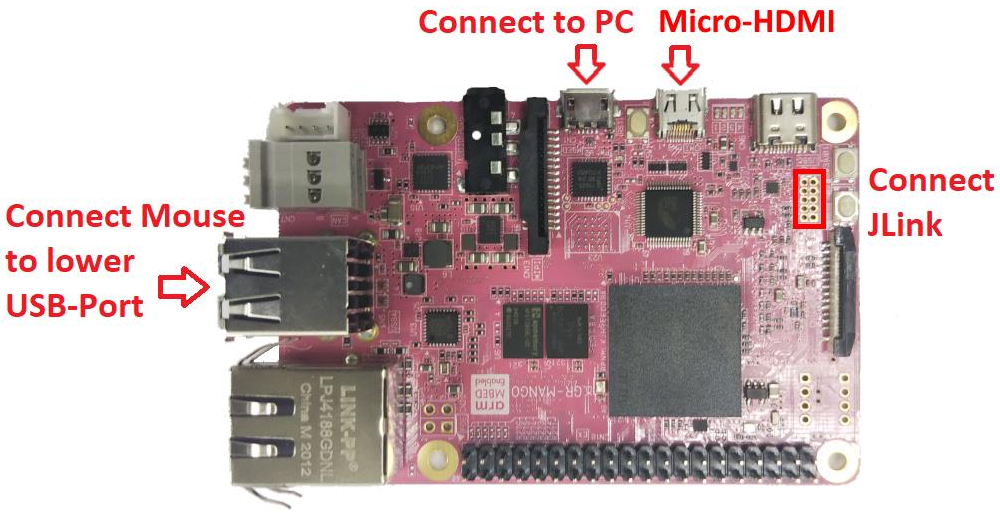



**Fig. 1 Connect via USB**

GR-Mango will be mounted as volume MBED on Windows.

- For direct flashing via JLink, drivers need to be installed (at least version 6.56b is needed! **Note: newer versions might cause problems due to different device-names**)
  Download here: http://www.segger.com/jlink-software.html
  To connect the JLink to the board you will need an adapter for CortexM with 10pins

# 3 Load pre-built example project

## 3.1 Via JLink

Use the flashing-batch-file to flash application and/or resources via jlink. The JLink must be connected to the 10-pin-connector on the board.

## 3.2 Via mounted Windows-drive

After the flash-disc is mounted you can simply copy the GuilianiDemo to it:

- Copy GuilianoDemoResources.bin from folder Export/GRMango to the drive. This file can be created either by compiling GuilianiDemo in e2studio or by executing the respective menu-point in the flashing-batch-file.
- Wait until the flash process has finished. This will take some time.
- Restart the target pushing the reset button (between USB-Port and MicroHDMI)
- Now you are ready to play with the GuilianiDemo.

## 3.3 Demo description

After flashing as described above, you can start the “GuilianiDemo”. This demo has a main screen in which you can choose between several options. In each of them you can test the functionality implemented using the Guiliani API.

- Animations: the animation screen exhibits the animation functionality. For each of the possible animation’s setting on the left applies an animation shown at the right.
- Buttons: This screen depicts some of the button-related widgets available in Guiliani. Additionally skinning is demonstrated.
- Slider: Here you can see how the slider-based widget works, vertically and horizontally. Dragging the knob will update the bar accordingly.
- Text: In this screen you can see how normal and rich text is displayed, the translation of the text and the dynamic re-structuring of it. Additionally multi-language support is demonstrated.
- Gauge and Wheel: In dependence of the value you choose with the wheel, the gauge will be set to the same value.
- Carousel: A carousel is a widget that implements a flowing visual effect on the objects that are contained. By dragging the frontal picture left or right, the widget will displace all the pictures according to the speed of the dragging. On the left side of the screen, you will see a slider with which you can choose the vertical positions of the shown pictures. The slider on the right handles the spacing between pictures and the one at the bottom manages the amount of pictures shown. Also, there is a button that allows you to change between classic carousel and cover flow mode. In cover flow mode, the pictures are displayed from left to right. The sliders work likewise.
- Keyboard: Here a keyboard will be simulated. When selecting the text below user, you can enter text using the keyboard. With the “abc” button you can select between capital and small letter. The button “123” let you choose numbers and special characters. The password field will hide the entered text as asterisks.
- Settings: Here you can set the language, the kind of transition and easing and skinning.
- Scratchpad: You can extend the demo's functionality using the Guiliani Streaming Editor (GSE). This screen is left blank on purpose, so you can see how other widgets work. All the necessary information for extending functionality and using GSE is available in this SDK.

# 4 Edit example project on the computer

Please read chapter 5 in the document “GSE Getting started.pdf” to learn about how to edit the GuilianiDemo (see /documentation folder).

## 4.1 Resources.dat file size

The size for the resources including both themes Light and Dark Mode is 9MB (Export\GRMango\Resources.dat). Because the flash is sized with 16MB it is partitioned in two segments of 8MB for application and resources each. This is why the GuilianiDemo only provides the Light Mode when loaded from the board’s internal flash.

# 5 Load edited example project onto the board

- In the previous step we were able to edit a GSE project and see the modifications on a running simulation on the computer. Now we will see those changes on the board.
- Connect the board to the computer via JLink probe and to the power supply.
- If you did not test the pre-built example project (as described in 3 Load pre-built example project), do all the steps described in Load pre-built example project. With the GSE project open, export the resources (i.e. the GuilianiDemo application including all pictures etc.) by clicking Resources ➔ Export (Fig. 5).

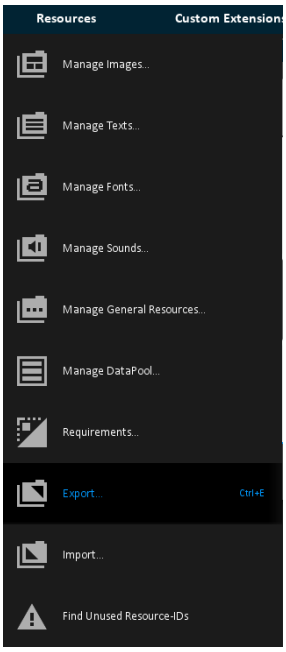



**Fig. 2 Export Option**

- In the Export window (Fig. 6), select “GRMango” as the profile. Start-dialog and all other settings will have been selected according to the export-profile. Please select the correct export-folder by clicking on the “…”-button in the first line and navigating to the folder “<SDK-Root>/Export/GRMango”

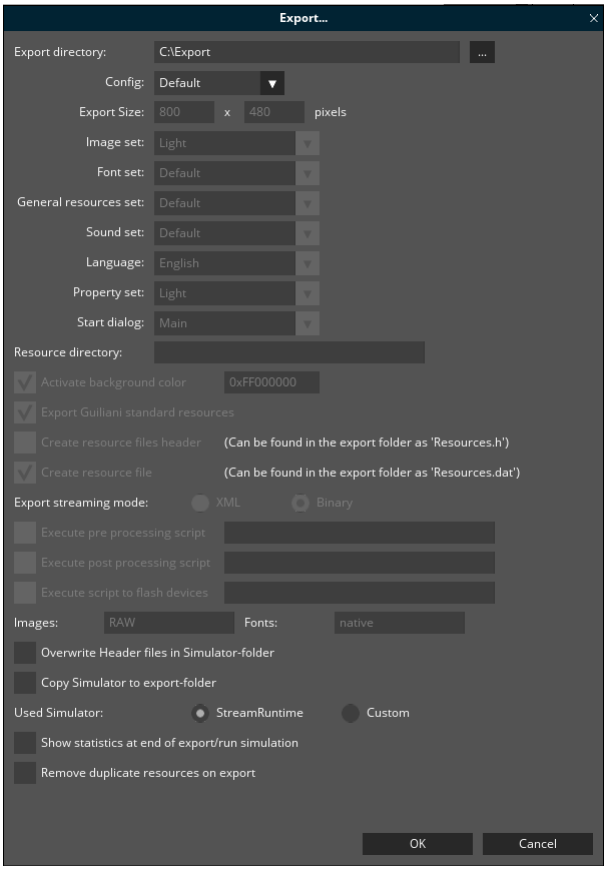



**Fig. 3 Exporting Configuration**

- Click on *OK*
- Execute *FlashGuilianiDemo.bat* (located in the folder “FlashTools”) and select the option 3 (Flash Guiliani Resources). This batch script will install the resources (e.g. application behavior, pictures, textures, fonts…).
- Wait until the flash process has finished. This will take several minutes.
- Now you can start playing with the GuilianiDemo demo on the board. Navigate to “SCRATCHPAD” and you will see your first own Guiliani HMI application running on the target board.

(*) If you want to export the project to a different folder, you will have to modify the *FlashGuilianiDemo.bat* file (Fig. 7). Please substitute the text *"..\Export\GRMango\Resources.dat"* with the required path, where the resources will be exported.

**Note: The file which will be flashed is "Resources.bin" which is a copy from your "Resources.dat". The script will automatically copy your file and rename the new one.**

```
115  :GRMangoResources
116  if not exist "..\Export\GRMango\Resources.dat" goto :errorNoResourceFile_GRMango
117  copy ..\Export\GRMango\Resources.dat ..\Export\GRMango\Resources.bin>nul
118  echo.
119  pause
120  cd JLink
121  cls
122  "%BASE%\JLink.exe" -if JTAG -speed 12000 -device R7S921058VCBG -jtagconf -1,-1 -CommanderScript FlashResources_GRMango.Command
123  pause
124  cd ..
125  goto :loop
```

**Fig. 4 FlashGuilianiDemo.bat**

You will also need to change J-Link command files present under "*FlashTools\JLink"*. To modify the path for the resources of GR-Mango platform, open FlashResources_GRMango.command file (Fig. 8) and change the path of loadbin and verifybin command.

```
4  exec device = R7S921058VCBG
5
6  loadbin ..\..\Export\GRMango\Resources.bin,0x50800000
7  verifybin ..\..\Export\GRMango\Resources.bin,0x50800000
```

**Fig. 5 Command File for Flashing Resources for GR-Mango platform**

# 6 Compiling your own GSE and StreamRuntime

If you like to extend your GSE project with your own functionality, you have to re-compile GSE and StreamRuntime. For this you have to take CMake as the build environment.
Please refer to chapter "3.Preparation and compilation" inside the manual "Custom Extensions.pdf" which you will find in the documentation folder.