RENESAS

Renesas Synergy™ Platform

Migration Guide for SSP v2.0.0

Introduction

This document describes how to migrate the existing SSP v1.7.x projects to SSP v2.0.0, and lists the critical steps to be taken. Tools and pin configurator-specific steps are also covered in this document for seamless migration.

Contents

1. Project Migration Issues

This section describes some issues and workarounds related to migrating projects to SSP v2.0.0.

1. **Issue ID**: 16688
   Some projects created with previous versions of SSP fail to generate project content and build when migrating to SSP v2.0.0. This is noticed especially when the project has multiple `pinconfig` files.

   Applies to: All MCUs

   Workaround:

   1. If the project exists in the workspace, delete it, and import the project again.

   2. Open `configuration.xml` in the Synergy Configuration editor and accept to migrate to SSP v2.0.0.

   3. Save the editor and build the project as the next step. Do not click generate project content.

      The project builds successfully.

2. **Issue ID**: 16592

   Migrating a project to SSP v2.0.0 that has the comparator functions configured, does not work properly.

   One of the following issues will be noticed:

   1. Pin editor does not open and complains about the invalid `pinmapping.xml` file.

   2. Shows messages about conflicts found.

   3. Migrates with error in pin configuration.

   Applies to: All MCUs

   Workarounds (corresponding to items 1,2, and 3 in the issue description above, respectively):

   1. **Option 1**: Manually recreate the configuration in SSP v2.0.0.

Option 2: Remove the configuration for CMP function and then migrate to SSP v2.0.0.

2. Click **Continue** and **OK** on the messages shown below to continue to migrate the project. The project migrates with an error. Manually fix the error in the ACMP function (for example, by selecting the pin for VCOUT on ACMP0).
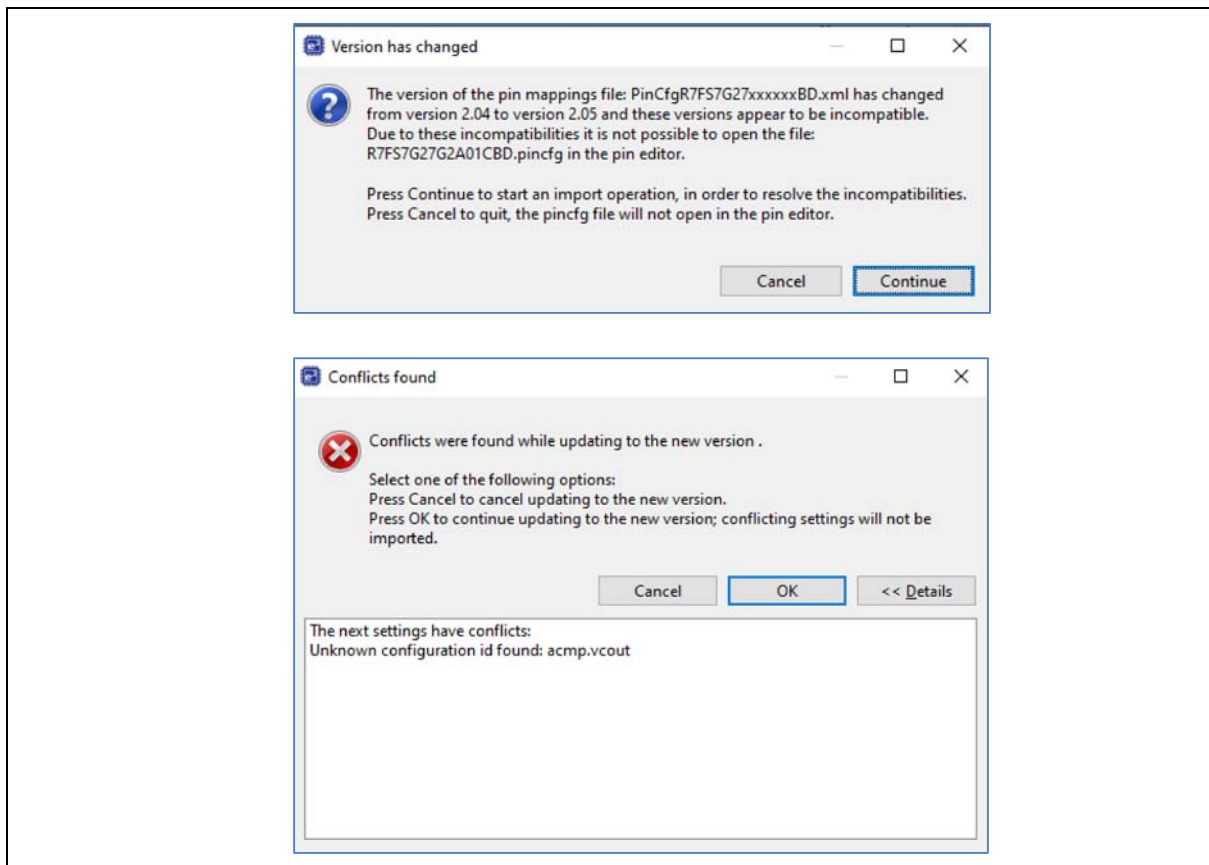

Figure 1.   Messages During Project Migration

3. Manually fix the error in the ACMP function (for example, by setting the operation mode).

3. **Issue ID**: 15837

Earlier, only one linker script was available common to all Synergy devices in a given family, and this did not account for the different flash sizes that each of these Synergy devices can have.

In SSP v2.0.0, a separate linker script is provided for each Synergy device (corresponding to their respective flash sizes).

Hence, if any users have made customized linker script changes to their Synergy projects, they must make the same changes in the newly created device-specific linker scripts as well.

4. **Issue ID**: 11323

Earlier in `sf_el_ux_comms_v2` framework, `write` API did not check the Data terminal Ready (DTR) and Request to send (RTS) control signal state before writing to the terminal.

Now, with DTR/RTS check, `write` API will return error if the control signal is not enabled due to data terminal not being ready.

Any application that uses `sf_el_ux_comms_v2 framework` should take care of this error handling in the application code.

2.   Screen Rotation Feature in the Renesas Synergy™ Software Package (SSP)

The Screen Rotation feature lets the user change the orientation of output displayed on the LCD. With this feature, the dimensions of displays with landscape orientation can be used in portrait orientation or vice versa. It also allows the display to be used in flipped orientation. The screen rotation angles shown in Table 1 are not allowed:

Table 1.   Screen Rotation Angles Not Allowed

Item No	Rotation Angle
1	90 degrees
2	180 degrees
3	270 degrees

Note: The screen rotation feature has been improvised in SSP v2.0.0 to enhance performance and reduce the memory footprint.

2.1   Implementation in SSP v1.7.8 or earlier

The Screen Rotation feature in SSP v1.7.8 provides rotation angle options in Counterclockwise (CCW) direction. The GUIX versions before 6.1.6 do not support the Screen Rotation feature and the actual rotation happens in the GUIX port with the help of an intermediate buffer known as a canvas buffer. GUIX draws the screen update on a canvas buffer first and then the GUIX port processes the screen copy to a frame buffer with rotating the image in a counterclockwise direction.

The configuration options (`sf_el_gx_cfg_t::rotation_angle`) and (`sf_el_gx_cfg_t::p_canvas`) need to be set for screen rotation.

2.2   Implementation in SSP v2.0.0

The Screen Rotation feature in SSP v2.0.0 provides the rotation angle options in Clockwise (CW) direction. GUIX version 6.1.6 or later supports screen rotation for 90 and 270 degrees and a canvas buffer is not required to rotate the frame. However, the canvas buffer is still required for 180-degree screen rotation and it works in a similar way as in SSP v1.7.8. The configuration option (`sf_el_gx_cfg_t::rotation_angle`) is no longer required and has been removed from Synergy Configurator. The rotation angle should be set in GUIX Studio from now on. The configuration option (`sf_el_gx_cfg_t::p_canvas`) needs to be set only for 180-degree screen rotation.

3.   Migrating the Graphics Application from SSP v1.7.8 (or earlier) to SSP v2.0.0

The steps to migrate the graphics application from SSP v1.7.8 (or earlier) to SSP v2.0.0 are as follows:

1. Make sure that e^2 studio 2021.04 (or the latest version) and SSP v2.0.0 pack are installed.
2. Import a project into the workspace.
3. Open Synergy Configuration.
4. Select GUIX port on `sf_el_gx` stack.

5. If your application uses 0 (no rotation), 90- or 270-degree rotation, set the following property **GUIX Canvas buffer (required if rotation angle is FLIP or 180)** to '**Not Used**'. If the application uses 180-degree rotation, set the property to '**Used**.'
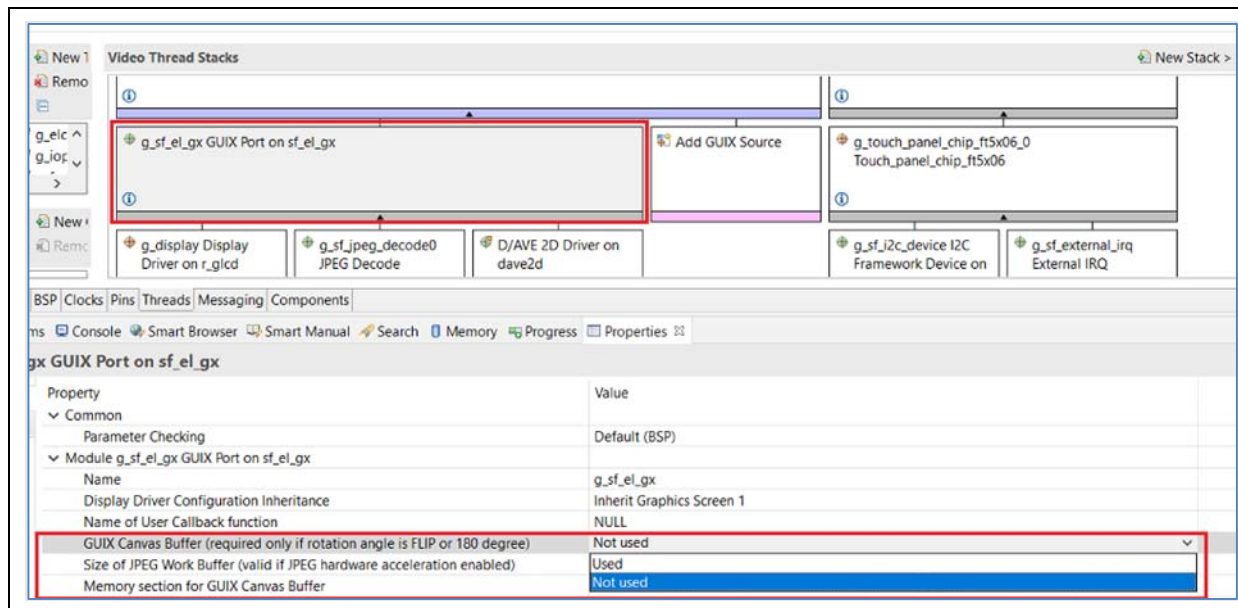

Figure 2.   Setting GUIX Canvas Buffer Property

6. Save the project and click on **Generate Project Content**.
7. Open GUIX project (or `.gxp` file) with GUIX Studio version 6.1.6.2 or later.
8. Click on **Configure** and then select **Project/Displays**. A pop-up window **Configure Project** will open.
9. Set the **GUIX Library** version option to 6.1.6 or later as shown in Figure 3.
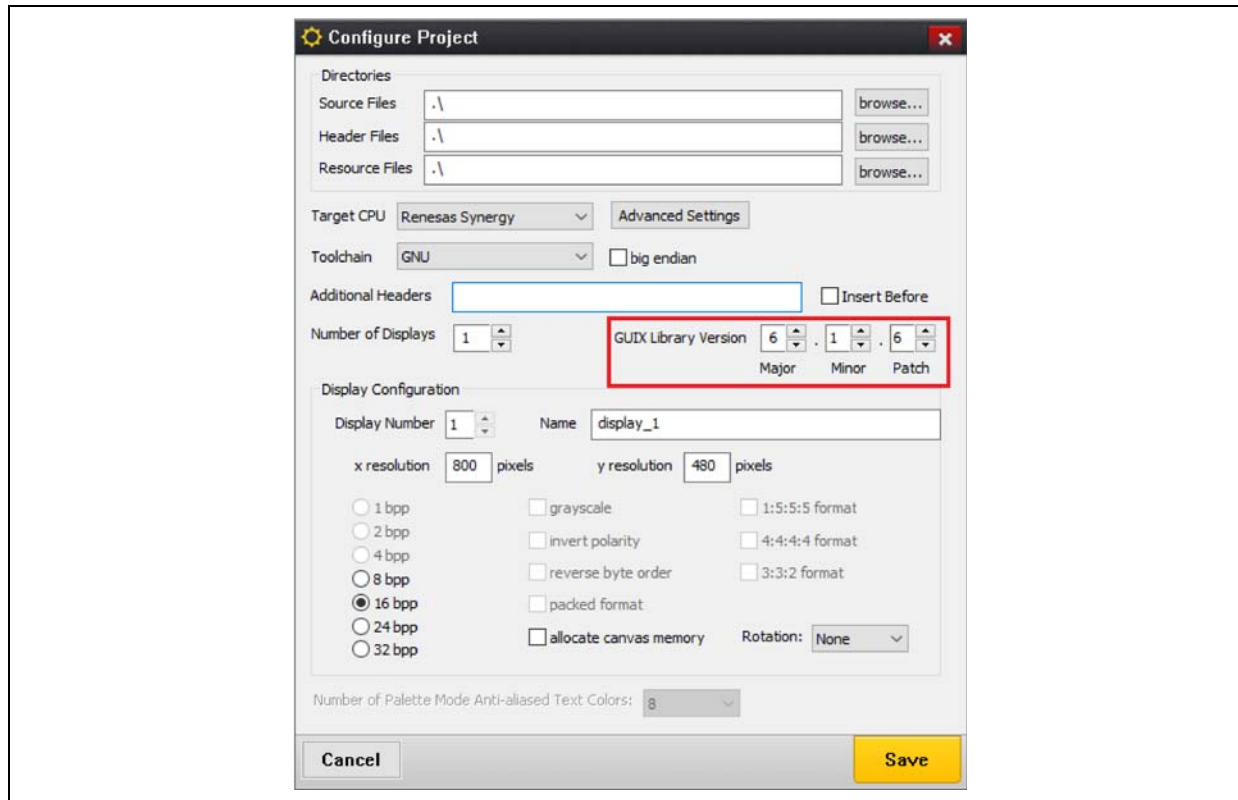
Figure 3.   Configure Project Window

10. Click on the drop-down menu for **Rotation** as shown in Figure 4.
Select the options as listed in Table 2 and click save.

Table 2.   Rotation Options

Rotation Option	Option Selection
None	Select this option for applications which do not need Screen Rotation .
CW	Select this option if your application had Rotation angle set to 270 in Synergy Configurator for SSP v1.7.8 or earlier version.
CCW	Select this option if your application had Rotation angle set to 90 in Synergy Configurator for SSP v1.7.8 or earlier version.
FLIP	Select this option if your application had Rotation angle set to 180 in Synergy Configurator for SSP v1.7.8 or earlier version.
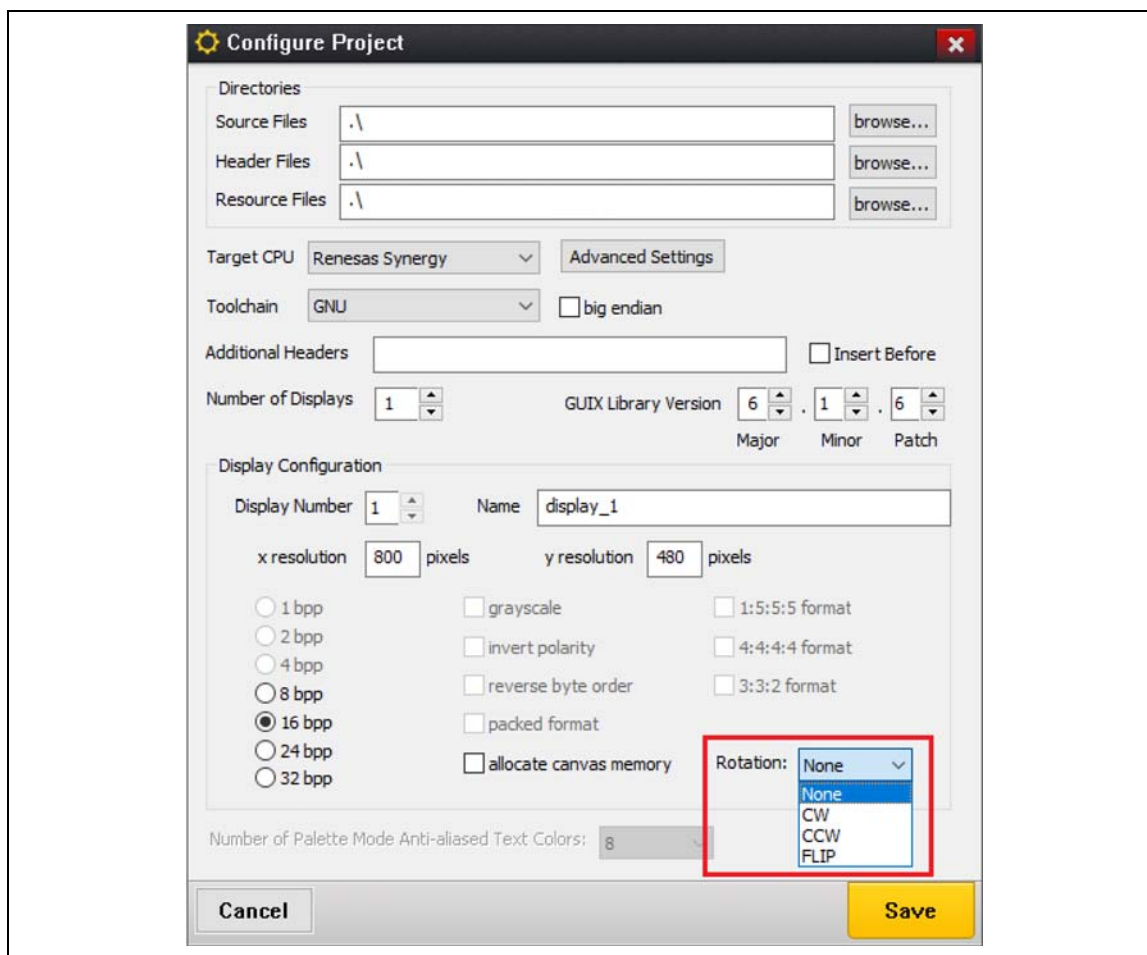
Figure 4.   Choosing the Rotation Option from the Configure Project Window

11. The following image shows the pre-defined system fonts and pixelmaps to be used by the application.
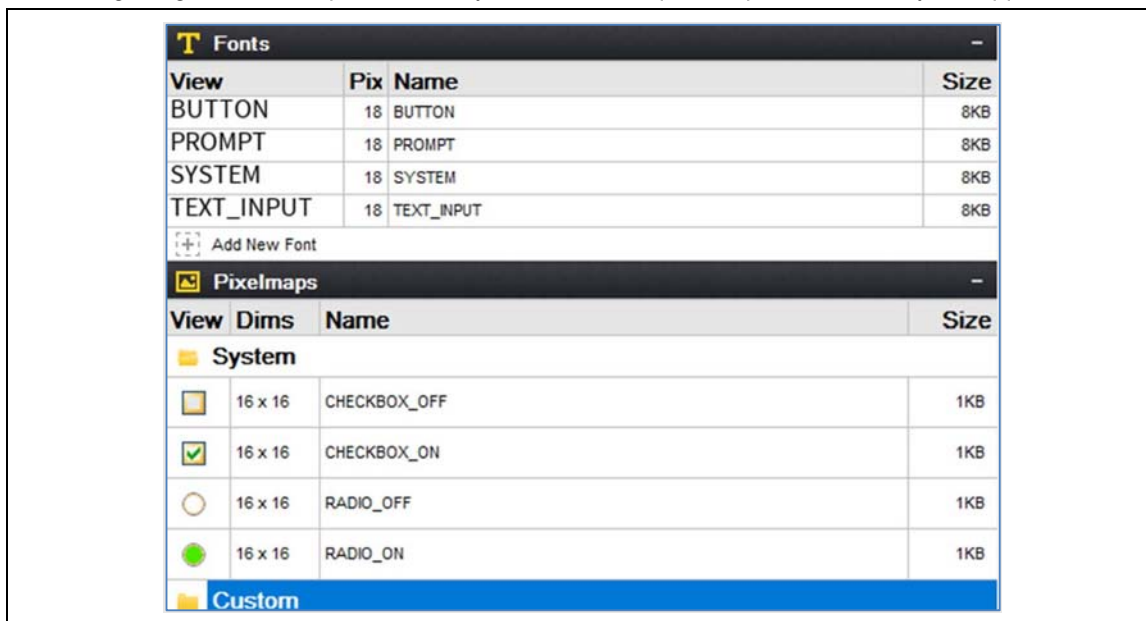
Figure 5.   Pre-defined Fonts and Pixelmaps

12. The user need not specify the source path and can leave the Source Image Path window empty as shown in the following graphic.
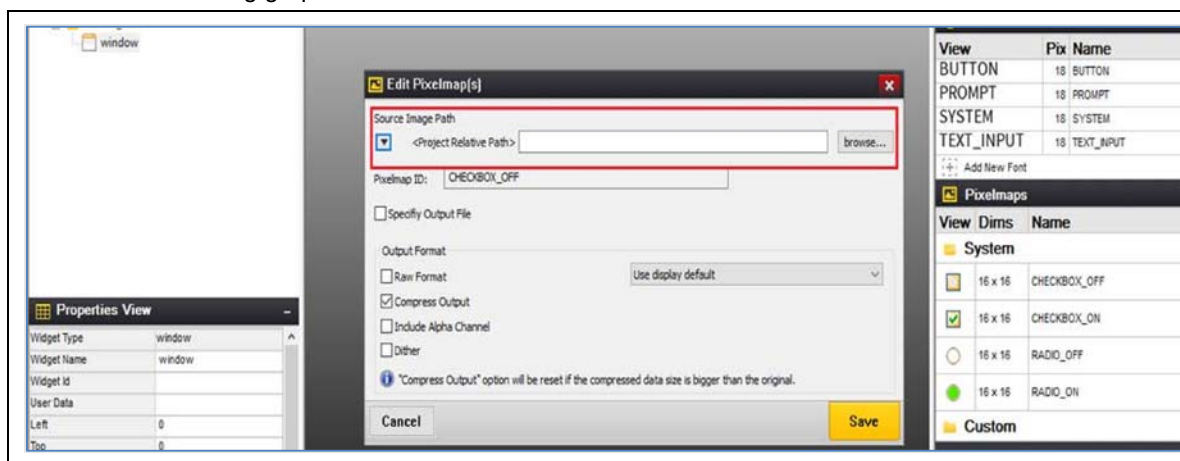
Figure 6.   Pixelmap Source Image Path Entry

Note: If the user wants to change the associated fonts or pixelmap data, the path of the new fonts or pixelmap data should be specified. However, the ID cannot be changed for the system pixelmaps and fonts.

13. Click on **Project** from the menu bar and then select **Save Project.** Click on **Generate All Output Files** from the drop-down menu. This should generate the specification and resource files in your project.
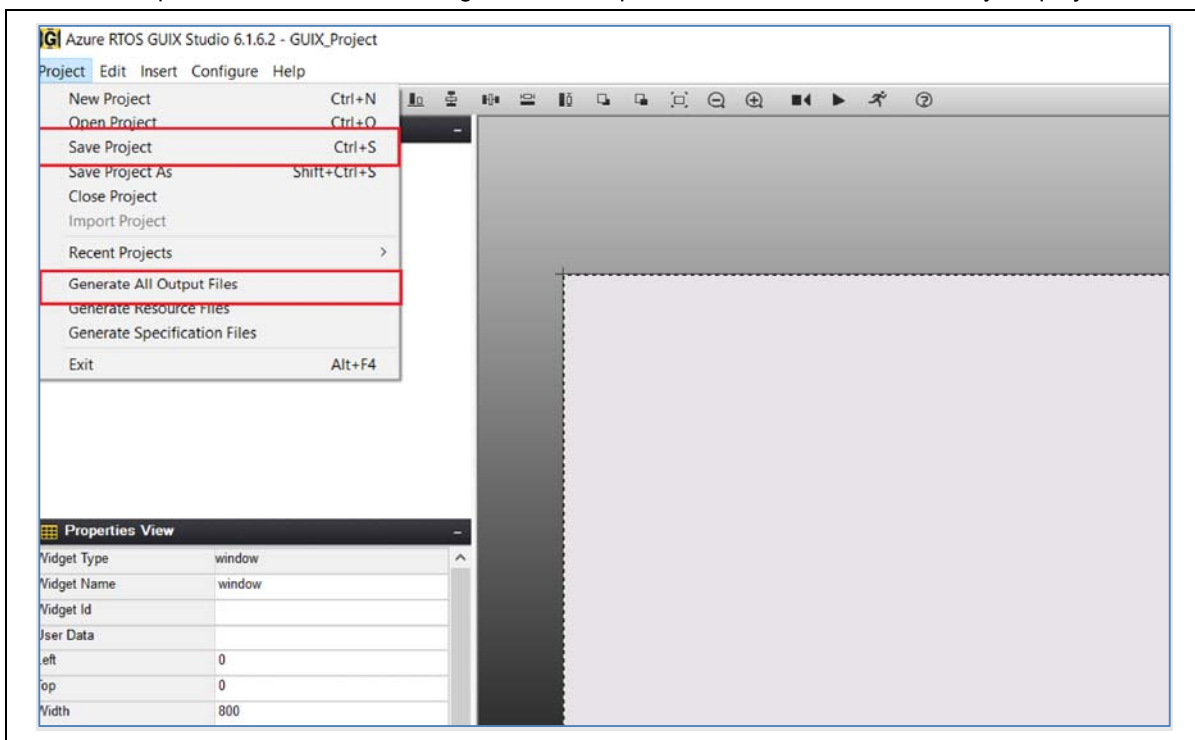
Figure 7.   Generating Specification and Resource Files

14. Go to the Workspace in e² studio.
15. Build the application. If successful, flash the code.

Note: Applications not using Screen Rotation feature can skip the steps 4 and 5.

4. Installing GUIX Studio from the Microsoft Store

1. Download Azure RTOS GUIX Studio from the following link:
    https://www.microsoft.com/en-us/p/azure-rtos-guix-studio
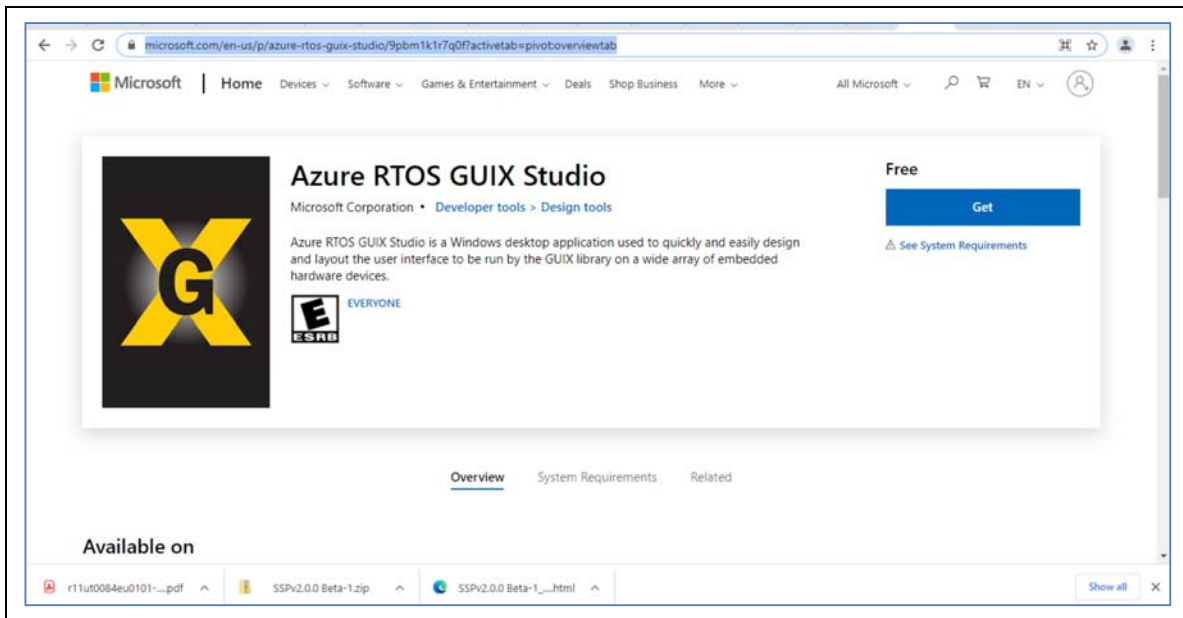
Figure 8.   Downloading Azure RTOS from GUIX Studio

2. Click on the **Get** button to download GUIX Studio.

3. Once the download is successful, click on **Launch** to open GUIX Studio.
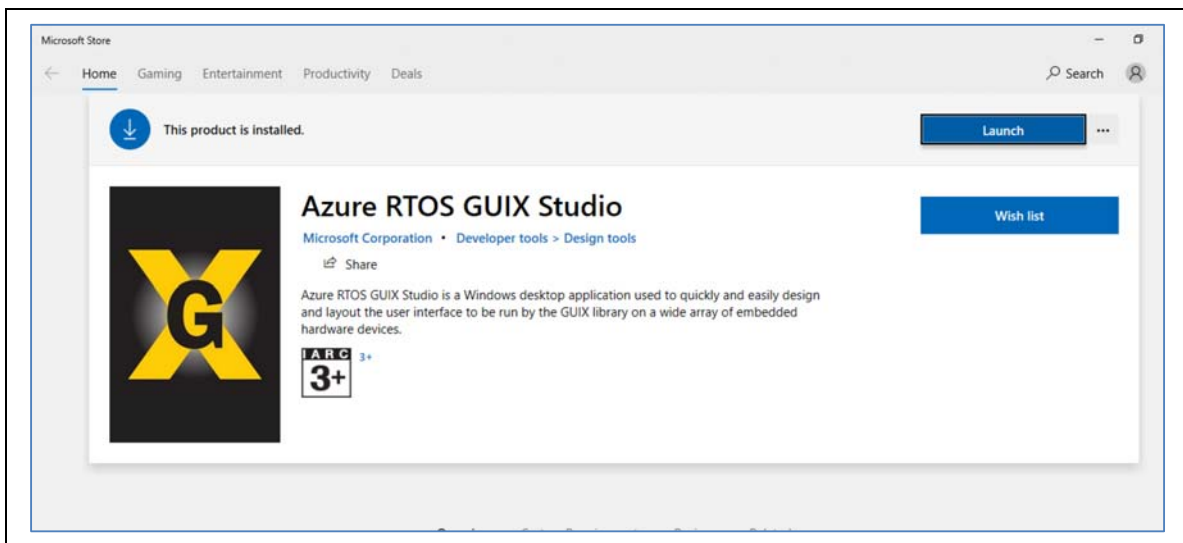
Figure 9.   Launching Azure RTOS from GUIX Studio

4. Once GUIX Studio opens, the following window appears.
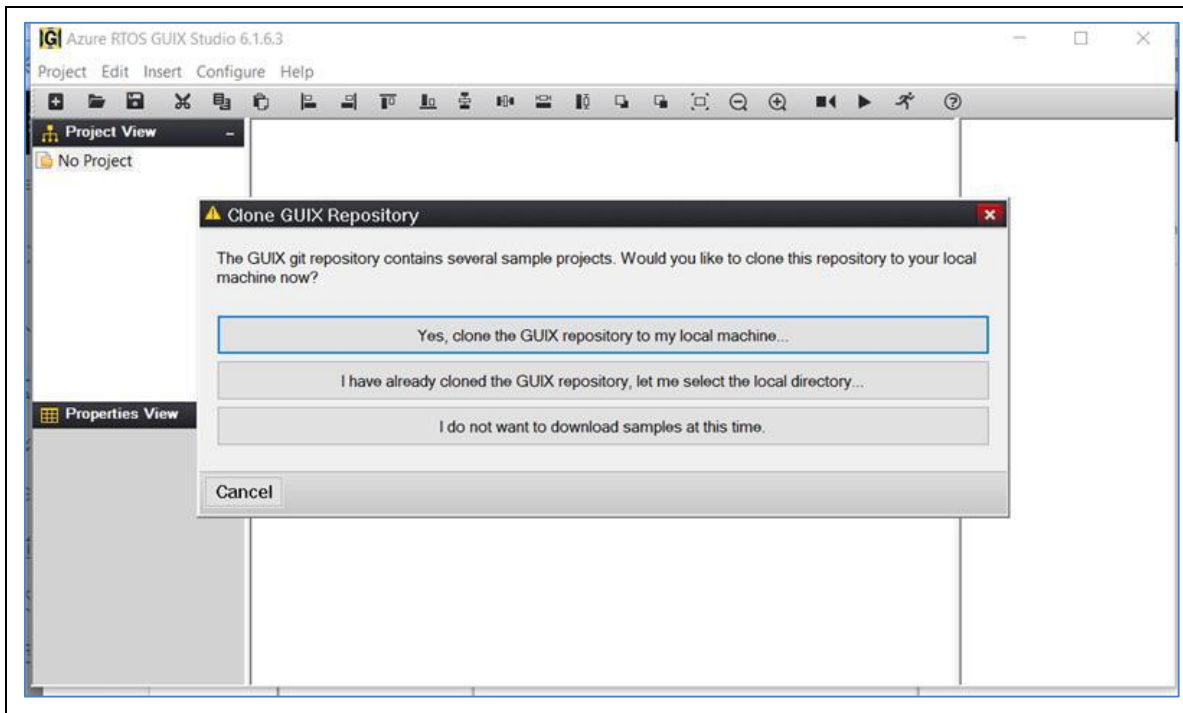
Figure 10. Selecting Option to Clone the GUIX Repository

5. Select one of the options shown in the above graphic as follows:
   — option 1: to clone the GUIX Git repository to your local machine in order to get sample projects.
   — option 2: GUIX Git repository is already cloned.
   — option 3: if sample projects are not required.

Website and Support

Visit the following vanity URLs to learn about key elements of the Synergy Platform, download components and related documentation, and get support.

Synergy Software	www.renesas.com/synergy/software
Synergy Software Package	www.renesas.com/synergy/ssp
Software add-ons	www.renesas.com/synergy/addons
Software glossary	www.renesas.com/synergy/softwareglossary
Development tools	www.renesas.com/synergy/tools
Synergy Hardware	www.renesas.com/synergy/hardware
Microcontrollers	www.renesas.com/synergy/mcus
MCU glossary	www.renesas.com/synergy/mcuglossary
Parametric search	www.renesas.com/synergy/parametric
Kits	www.renesas.com/synergy/kits
Synergy Solutions Gallery	www.renesas.com/synergy/solutionsgallery
Partner projects	www.renesas.com/synergy/partnerprojects
Application projects	www.renesas.com/synergy/applicationprojects
Self-service support resources:	
Documentation	www.renesas.com/synergy/docs
Knowledgebase	www.renesas.com/synergy/knowledgebase
Forums	www.renesas.com/synergy/forum
Training	www.renesas.com/synergy/training
Videos	www.renesas.com/synergy/videos
Chat and web ticket	www.renesas.com/synergy/resourcelibrary

Revision History

		Description	
Rev.	Date	Page	Summary
1.00	May.18.21	—	First release for GUIX Studio migration for SSP v2.0.0.
1.01	May.28.21	—	Updated to include SSP v2.0.0 migration content.
1.02	Apr.04.21	3, 4, 5, 6, 8	Minor updates for GUIX Studio configuration.

Notice

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