Renesas Synergy™ Platform

Importing a Renesas Synergy Project

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Introduction

This application note describes the process of importing a Renesas Synergy Project into the IAR Embedded Workbench® for Renesas Synergy™ or e^2 studio, then building and running the project application. The procedure applies to IAR EW for Synergy v7.71.1 or greater, Renesas Synergy™ Standalone Configurator (SSC) v5.3.1 or greater, e^2 studio ISDE version 5.3.1 or greater, and Synergy Software Package (SSP) version 1.2.0.

Note: The NetX™ DNS project is used an example in this application note. Substitute your desired project as needed.

Goals and Objectives

The goal of this application note is to help you import an existing Renesas Synergy Project, such as an example application, into IAR EW for Synergy or e^2 studio.

Prerequisites

As the reader of this application note, you are assumed to have some experience with the IAR EW for Synergy or Renesas e^2 studio ISDE and SSP. For example, before you perform the procedure in this application note, you should follow the procedure in your board's Quick Start Guide to build and run the Blinky project. By doing so, you will become familiar with IAR EW for Synergy or e^2 studio and the SSP, and ensure that the debug connection to your board is functioning properly.

Required Resources

The procedure in this application note applies to all Renesas Synergy devices and development boards. To perform the procedure, you will need a PC running Microsoft® Windows® 7 or 10 with the following Renesas software installed:

- A Renesas Synergy development board (for example, DK-S7G2)
- A PC running Microsoft® Windows® 7 or 10 with the following Renesas software installed:
  - IAR EW for Synergy v7.71.1 or greater or e^2 studio ISDE v5.3.1 or greater
  - Synergy Software Package (SSP) v1.2.0
  - Renesas Synergy™ Standalone Configurator (SSC) v5.3.1 or greater (only for IAR EW for Synergy).

  You can download the required Renesas software from the Renesas Synergy Gallery (https://synergygallery.renesas.com).

Contents

1. Import Project into IAR EW for Synergy

1.1 Importing an Existing Project into IAR EW for Synergy

1. Start by opening IAR EW for Synergy. From the Windows Start Menu, select **All Programs** > **IAR Systems** > **IAR Embedded Workbench for Renesas Synergy 7.xx** > **IAR Embedded Workbench**.

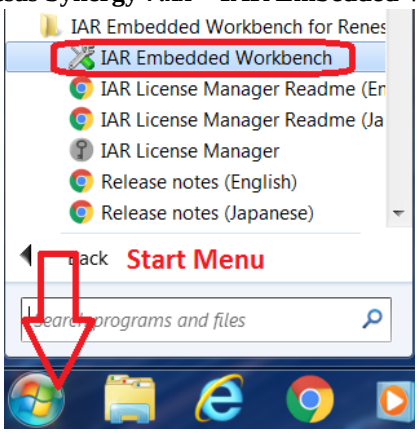

Figure 1.1 Start Menu

2. Unzip the example **"**`NETX_DNS_DK-S7G2.zip`**"** to a known destination folder, for example**...**`\Desktop\NETX_DNS_DK-S7G2`.
3. Open the IAR EW workspace file (.eww) by clicking on **File >Open >Workspace**. Navigate to the folder where the `NETX_DNS_DK-S7G2.zip` or a similar zip project has been extracted to. Select the **NETX_DUO_DNS.eww** workspace file (.eww) and click **Open.**

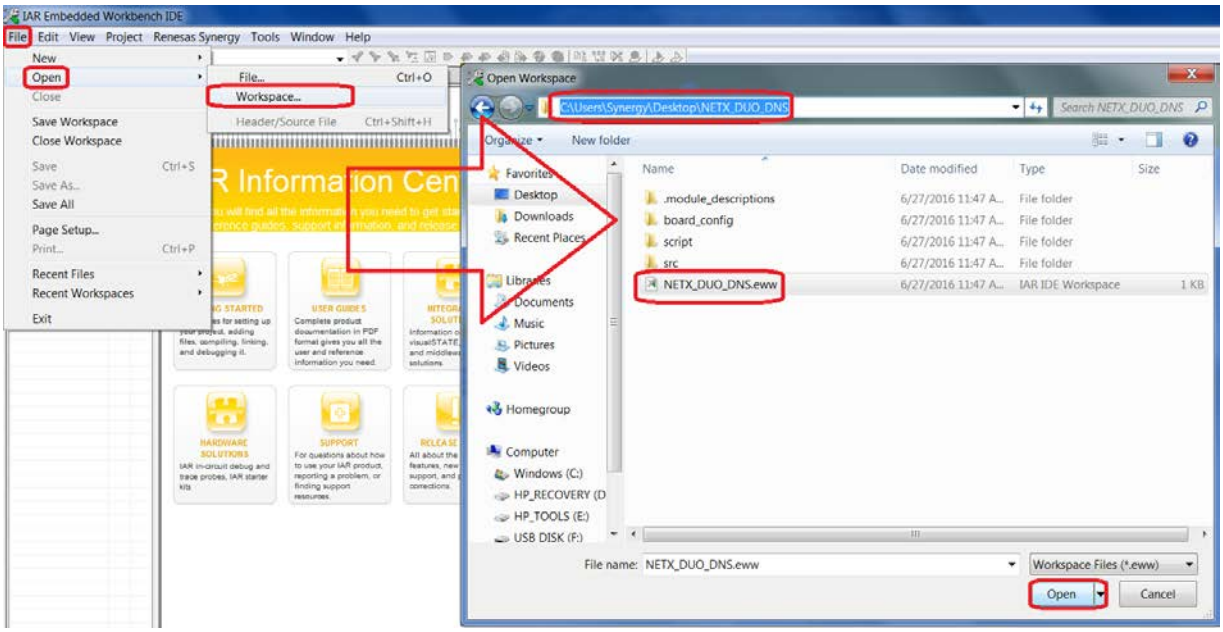

Figure 1.2 Open Workspace in IAR EW for Synergy

4. After opening the project, you should see the following project structure from Figure 1.3 in the IAR EW for Synergy IDE.

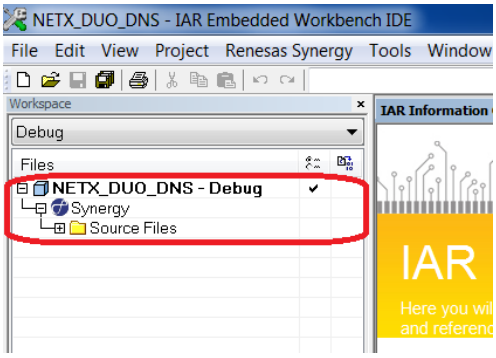

Figure 1.3 Project loaded in IAR EW for Synergy

1.2 Generating the Project Files in the IAR EW for Synergy

Now that the project has been successfully loaded, you can start configuring the project for your hardware.

Before starting the file generation, it is necessary to set the path to the Renesas Synergy™ Standalone Configurator (SSC) and Synergy Software Package (SSP). This is requested by default if you don't follow the next steps.

To generate the project files:

1. Click **Renesas Synergy >Settings** to open the **Renesas Synergy Settings**. If the License file and the SSC/SSP folder are already configured, the License area and SSC/SSP location of the form is as shown in Figure 1.4. If so, skip to step 3.

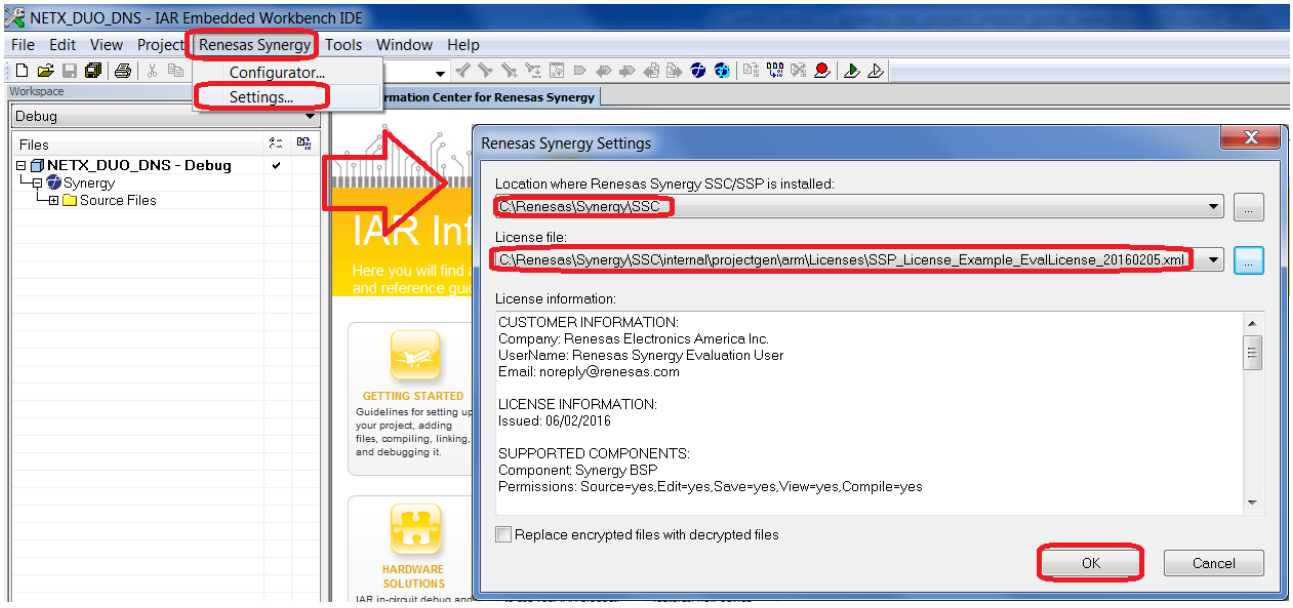

Figure 1.4 SSC/SSP settings

2. If the License area and SSC/SSP location of the form is empty, or not pointing to "**C:\Renesas\Synergy\SSC",** continue with the steps below (A to F). These settings only need to be done once.
   A. Click the browse **<…>** button for the SSC/SSP location. The IAR EW for Synergy IDE displays the Open Dialog box.

      Note: If you installed the SSC/SSP to the default location, then SSC/SSP folder is located in **"C:\Renesas\Synergy\SSC"** directory.

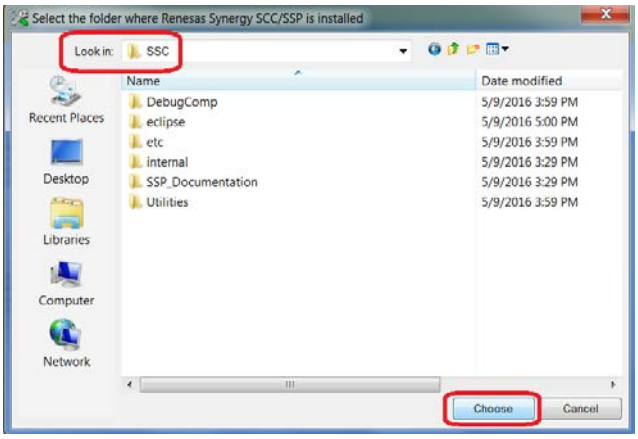

Figure 1.5 SSC folder

B. Click **Choose** to set the SSC/SSP location.
C. Click the Browse <**…**> button for the license file. The IAR EW for Synergy IDE displays the Open Dialog box.
   Note: The SSP license is located in `C:\Renesas\Synergy\SSC\intenal\projectgen\arm\Licenses` directory.
D. Select the "`SSP_License_Example_EvalLicence_*.xml`" or "`SSP_Development_and_Production_License_*.xml`" located in the directory.

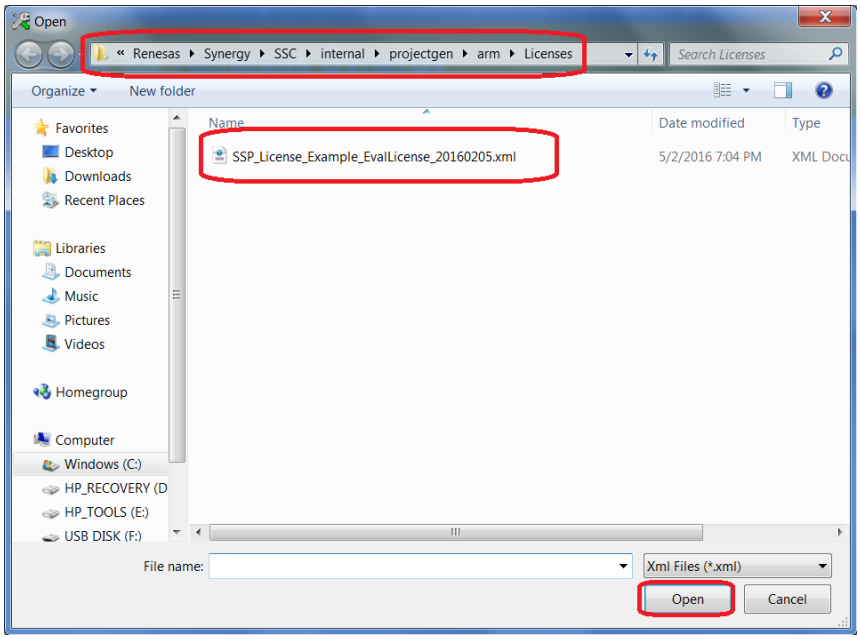

Figure 1.6 XML SSP License file

E. Click **Open** to set the License file and confirm the configuration window by clicking **OK**.
F. Shortcuts are also available for the Renesas Synergy Settings and the Synergy Configurator in the IDE.

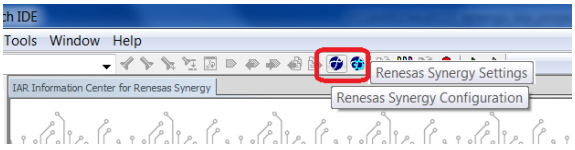

Figure 1.7 Shortcuts for SCC/SSP settings

3. Open the Synergy™ Standalone Configurator, by clicking **Renesas Synergy** > **Configurator**. See Figure 1.8.

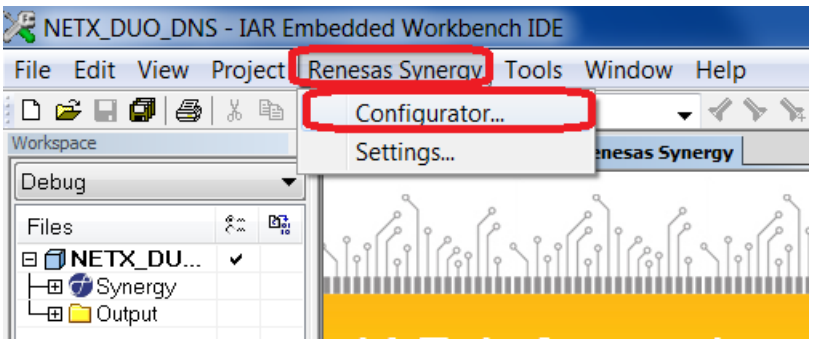

Figure 1.8 Synergy™ Standalone Configurator

Note**:** At this point, the “synergy” and “synergy_cfg” folders have not been created. These two folders contain the SSP generated files. The next step generates those files.

4. In the Synergy Standalone Configuration window, click the **Generate Project Content** button.

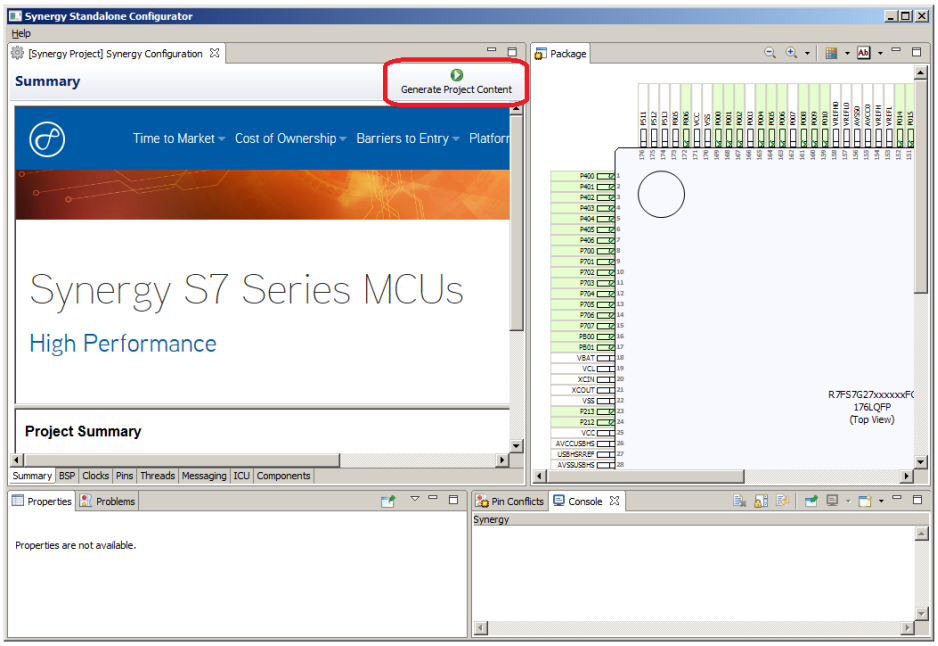

Figure 1.9 Generate Project Content button

5. Close the Synergy Standalone Configuration.

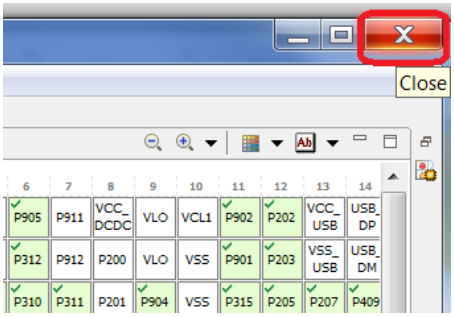

Figure 1.10 Close SCC

6. The project should resemble the folder structure as shown in Figure 1.11.

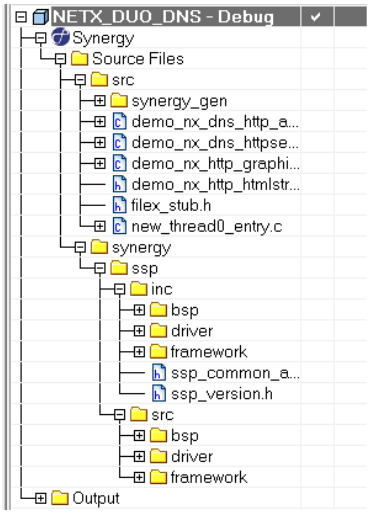

Figure 1.11 Synergy Configuration tabs

1.3 Building the Application

1. Build the project by clicking the **Make** icon in the menu bar. You can also use the **F7 short key.**

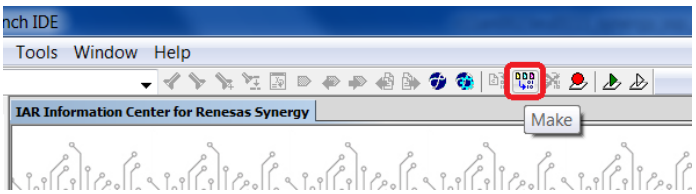

Figure 1.12 Build button

2. A successful build produces an output similar to Figure 1.13.

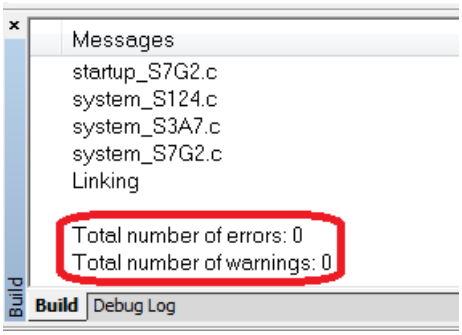

Figure 1.13 Error Free build

1.4 Running the Application

The application is now ready run on the target hardware. The project settings are all generated and the default debug probe is the J-Link ARM. You can also make use of the IAR I-jet or I-jet Trace when debugging, if you change the debug driver.

1. Verify the debug probe by clicking **Project** > **Options** > **Debugger** > **Setup** > **Driver** as shown in Figure 1.14.

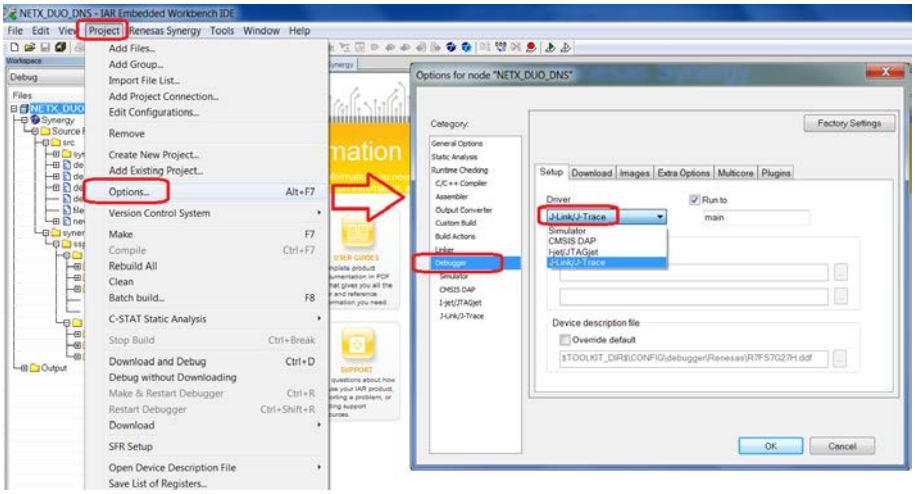

Figure 1.14 Debugger Setup 1

2. Confirm the **J-Link** or **IAR I-jet** driver by clicking **OK**.
3. Press the **CTRL+D** or **Download and Debug** button as shown in Figure 1.15, to start debugging.

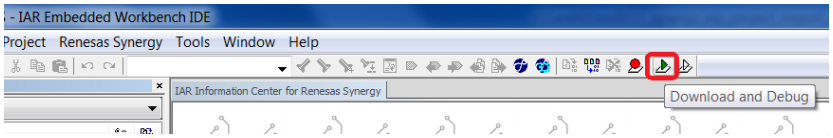

Figure 1.15 Debugger Setup 2

4. Press **F5** or the **Go** button, as shown in Figure 1.16, to start the application.

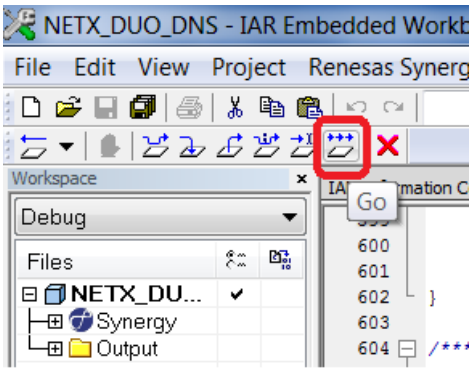

Figure 1.16 Run button

Note**:** The application is now running on the hardware. You can pause, stop, and resume the application using the debug controls, as shown in Figure 1.17.

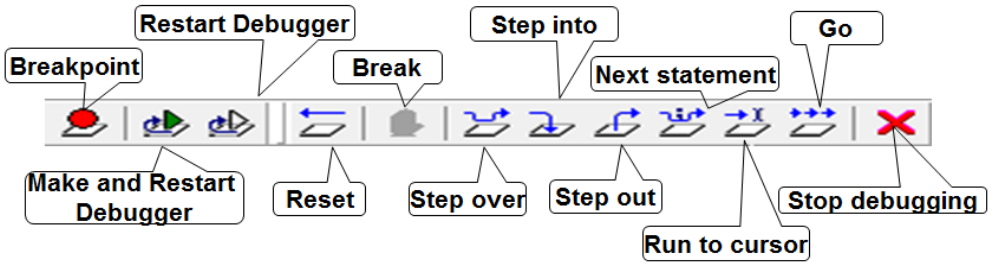

Figure 1.17 Debug control

5. Press **Ctrl + Shift +D** or the **Stop** button to end the debug session.

2. Importing Project into e² studio ISDE

2.1 Importing an Existing Project into e² studio ISDE

1. Start by opening e² studio. From the Windows Start Menu, select **All Programs** > **Renesas Electronics e2studio** > **e2 studio.**

Figure 2.1 Start menu

2. Open the Workspace that you want to import the file into and skip to step D. Otherwise, proceed with the following steps:
   A. At the end of e² studio startup, you see the Workspace Launcher Dialog box as shown in Figure 2.2. (If you did not see this dialog box, you might have turned off it off. If that is the case, open your desired project and skip to step D.) Otherwise, continue with the following steps.

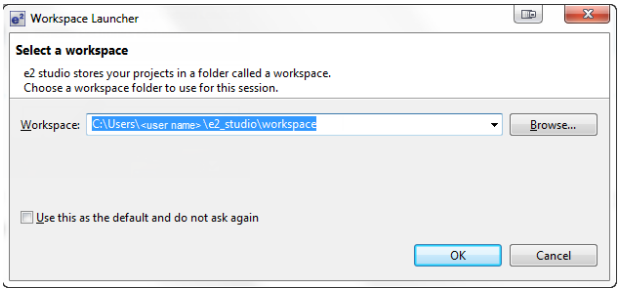

Figure 2.2 Workspace Launcher dialog

   B. Enter a new workspace name in the Workspace Launcher dialog as shown in Figure 2.3. e² studio creates a new workspace with this name.

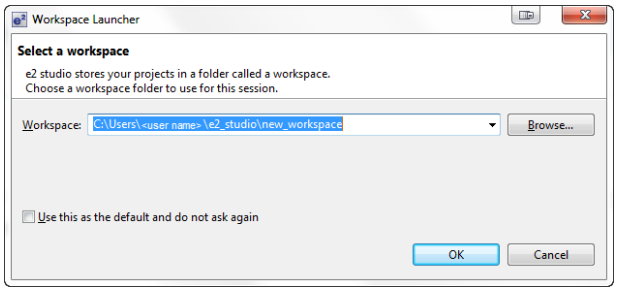

Figure 2.3 Workspace Launcher dialog

   C. Click **OK**.
   D. When the workspace is opened, you may see the Welcome Window. If that happens, click the Workbench arrow to proceed past the Welcome Screen as seen in Figure 2.4**.**

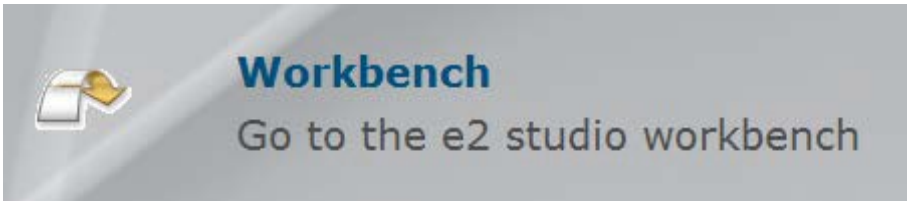

Figure 2.4 Workbench arrow

3. You are now in the workspace that you want to import the project into. Click the **File** menu in the menu bar, as shown in Figure 2.5.

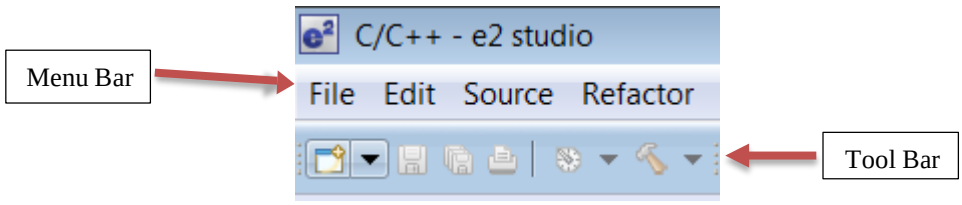

Figure 2.5 Menu and tool bar

4. Click **Import** on the **File** menu, in the menu bar, as shown in Figure 2.6.

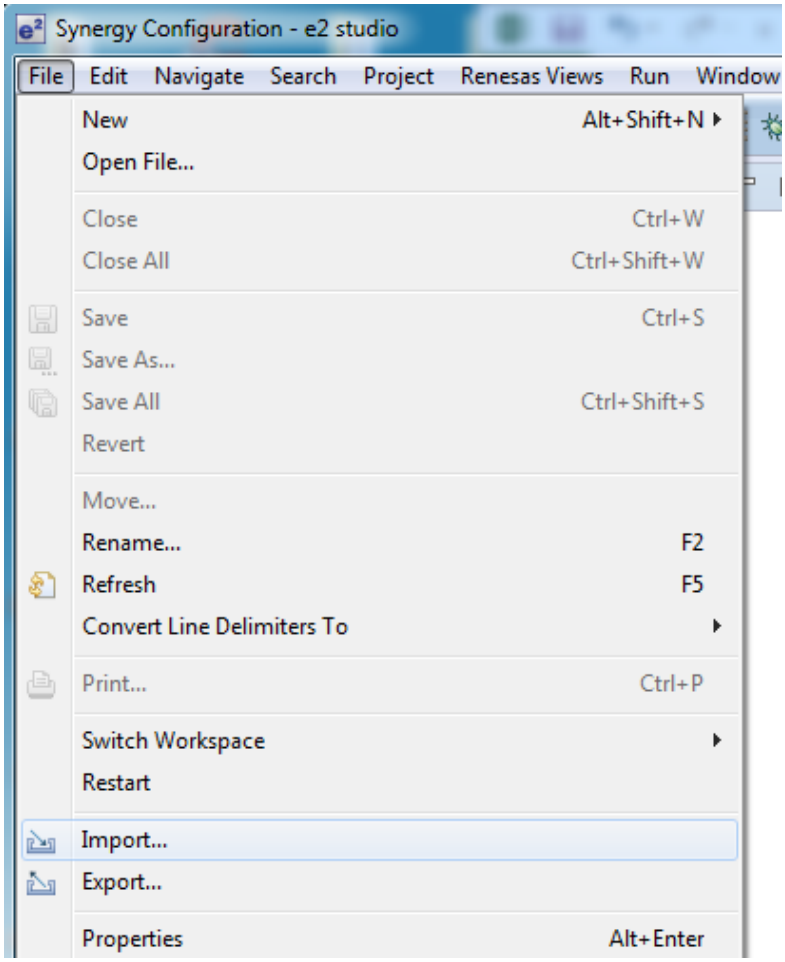

Figure 2.6 File drop-down menu

5. In the Import dialog box, as shown in Figure 2.7, choose the **General** option, then **Existing Projects into Workspace,** to import the project into the current workspace.

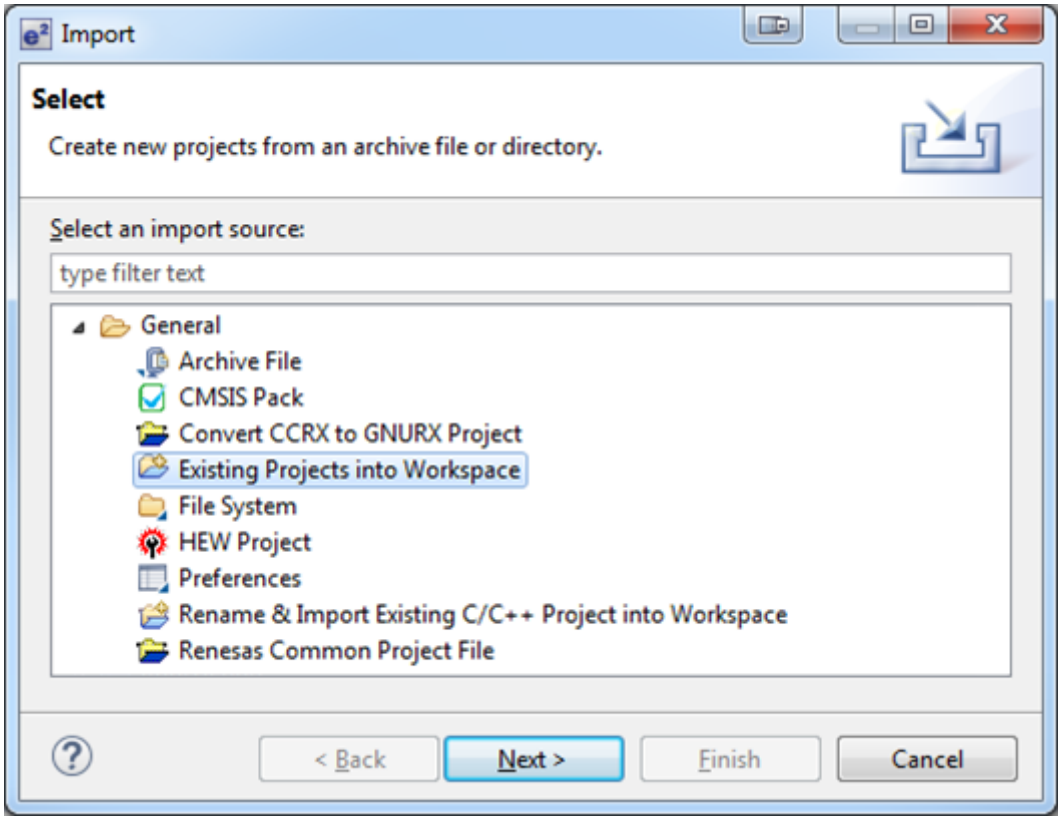

Figure 2.7 Project Import dialog with "Existing Projects into Workspace" option selected

6. Click **Next**.
7. Click **Select archive file** as shown in Figure 2.8.

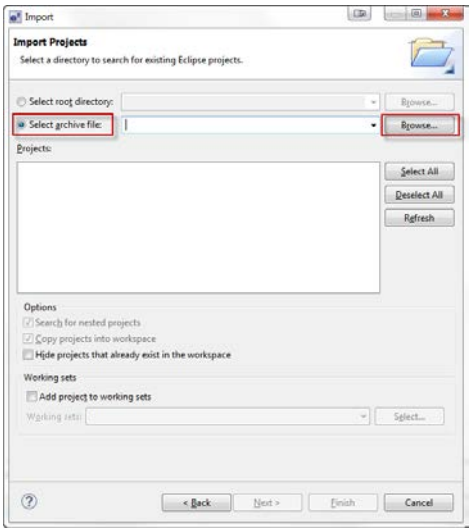

Figure 2.8 Import Existing Project dialog 1

8. Click **Browse**.
9. Browse to the folder where the zip file for the project you want to import is located.
10. Select the file for import. In our example, it is "`NETX_DNS_DK-S7G2.zip`".
11. Click **Open**.

12. Select the Project to import from the list of Projects, as shown in Figure 2.9.

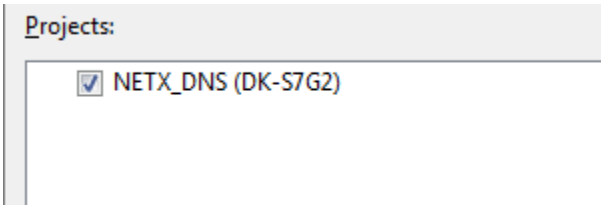

Figure 2.9 Import Existing Project dialog 2

13. Click **Finish** to import the project.

2.2 Installing the Synergy License

Building and running example applications requires a Synergy license to be installed in e^2 studio. If this license is not installed, a yellow box is displayed in the lower right hand corner of the ISDE after you have imported your example application.

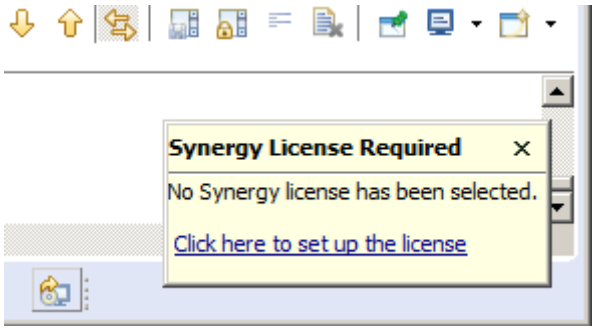

Figure 2.10 Synergy License Required prompt

1. To install the license, click "**Click here to set up the license**". This takes you to the Synergy License setup window.

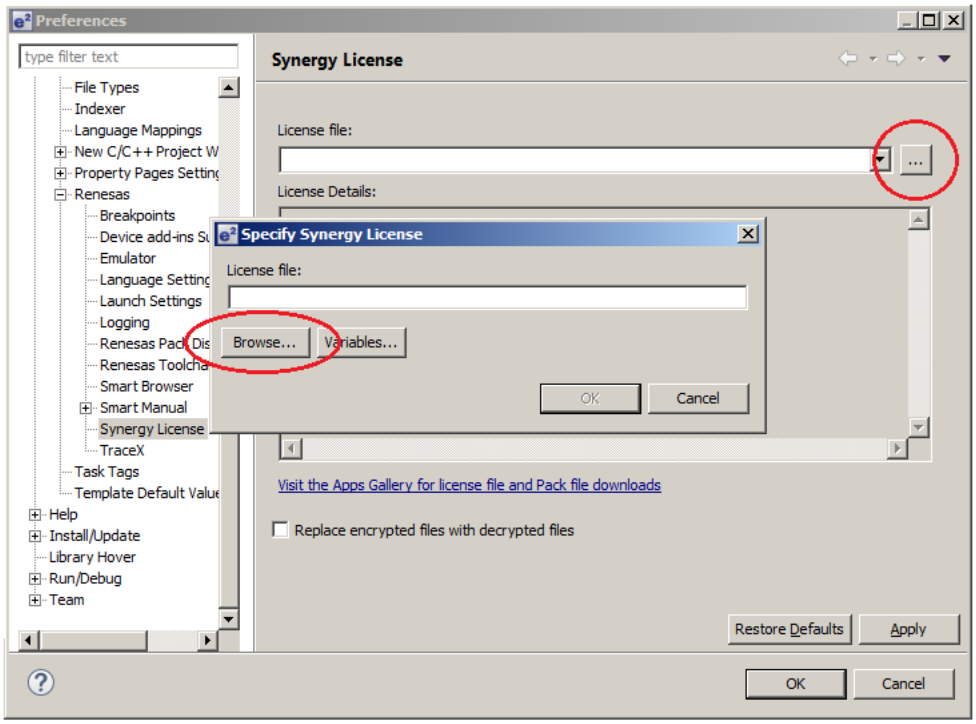

Figure 2.11 Synergy License file

Pressing the two **Browse** buttons takes you to the folder where your default Synergy License is stored. Select this file to install the license. Once this is done, the yellow window disappears and building can begin.

2.3 Generating the Project Files in the ISDE

Now that the project has been successfully imported, you can start configuring the project for the hardware.

1. If the Project Explorer looks like Figure 2.12, click the arrow to the left to expand the project.

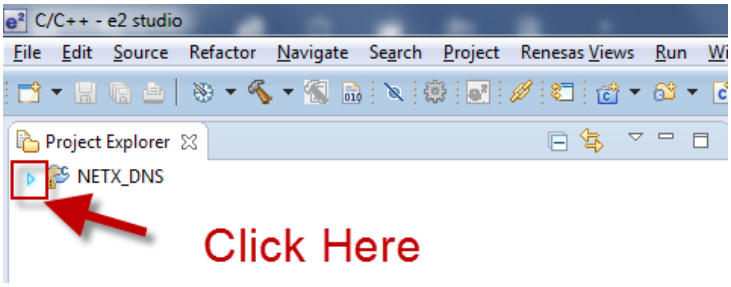

Figure 2.12 Collapsed Project Explorer

2. Open the Synergy Configuration, if not already open, by double-clicking the `configuration.xml` file in the Project Explorer, as shown in Figure 2.13.

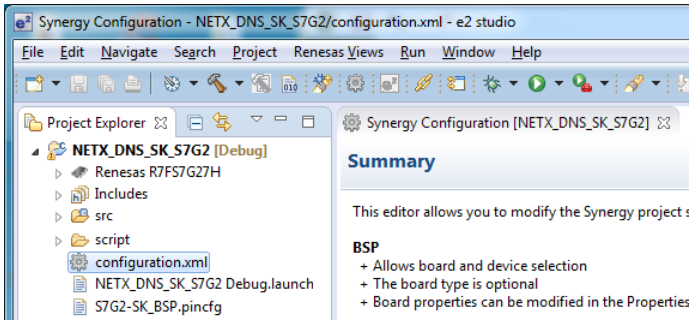

Figure 2.13 Project Explorer

Note: At this point, the “synergy” and “synergy_cfg” folders have not been created. These two folders contain files generated by e^2 studio and the SSP. The next step generates these files.

3. In the Synergy Configuration window, click the **Generate Project Content** button.

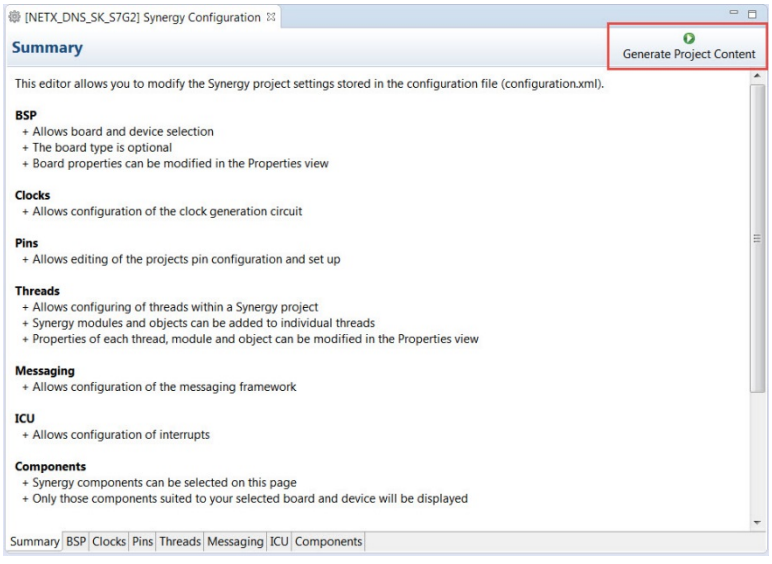

Figure 2.14 Generate Project Content button

4. The project should resemble the folder structure shown in Figure 2.15.

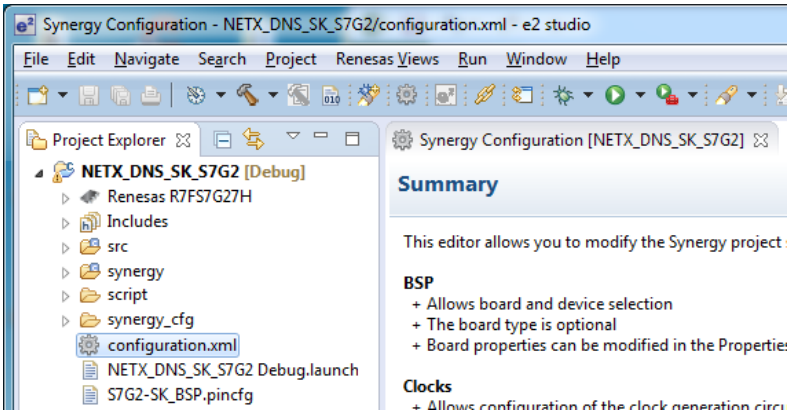

Figure 2.15 Synergy Configuration tabs

2.4 Building the Application

Build the project by clicking the hammer icon as seen in the menu bar in Figure 2.16.

Figure 2.16 Build button

A successful build produces an output similar to Figure 2.17.

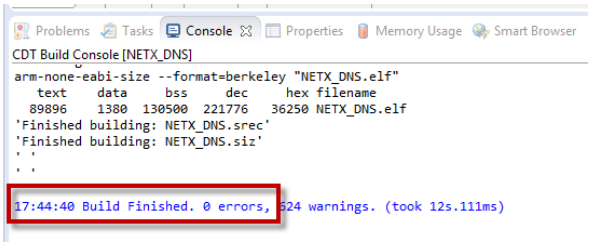

Figure 2.17 Error free build

2.5 Running the Application

The application is now ready to run on the target hardware.

To run the application:

1. Click the drop-down menu for the debug icon, as shown in Figure 2.18.

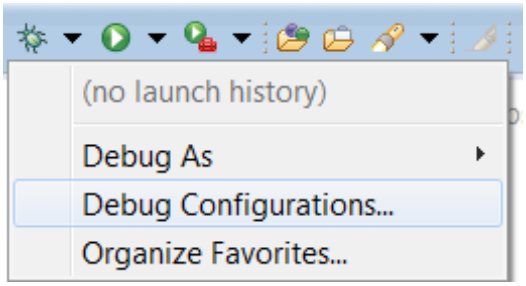

Figure 2.18 Debug options

2. Select the **Debug Configurations...** option.
3. Under the Renesas GDB Hardware Debug section, select the name of the project, which in this case is `NETX_DNS_SK_S7G2 Debug`.
4. Make sure that the ".elf" file name matches the one generated by the project inside of the debug folder.

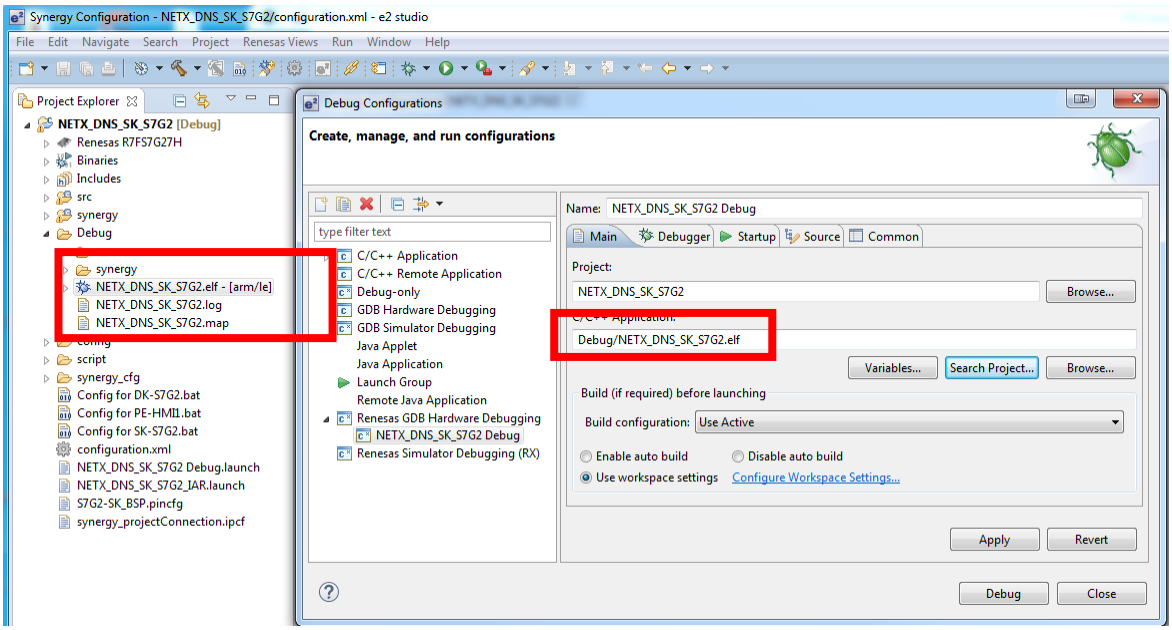

Figure 2.19 Debug Configurations window

5. Click the **Debugger** tab on the right side of the dialog box.
6. Ensure the **Debug hardware** setting is set to **J-Link ARM**. If not, change it using the drop-down menu.
7. Ensure the **Target Device** setting matches the target hardware. If it does not match, click the "**…**" button to select the correct target device from the Synergy device list.

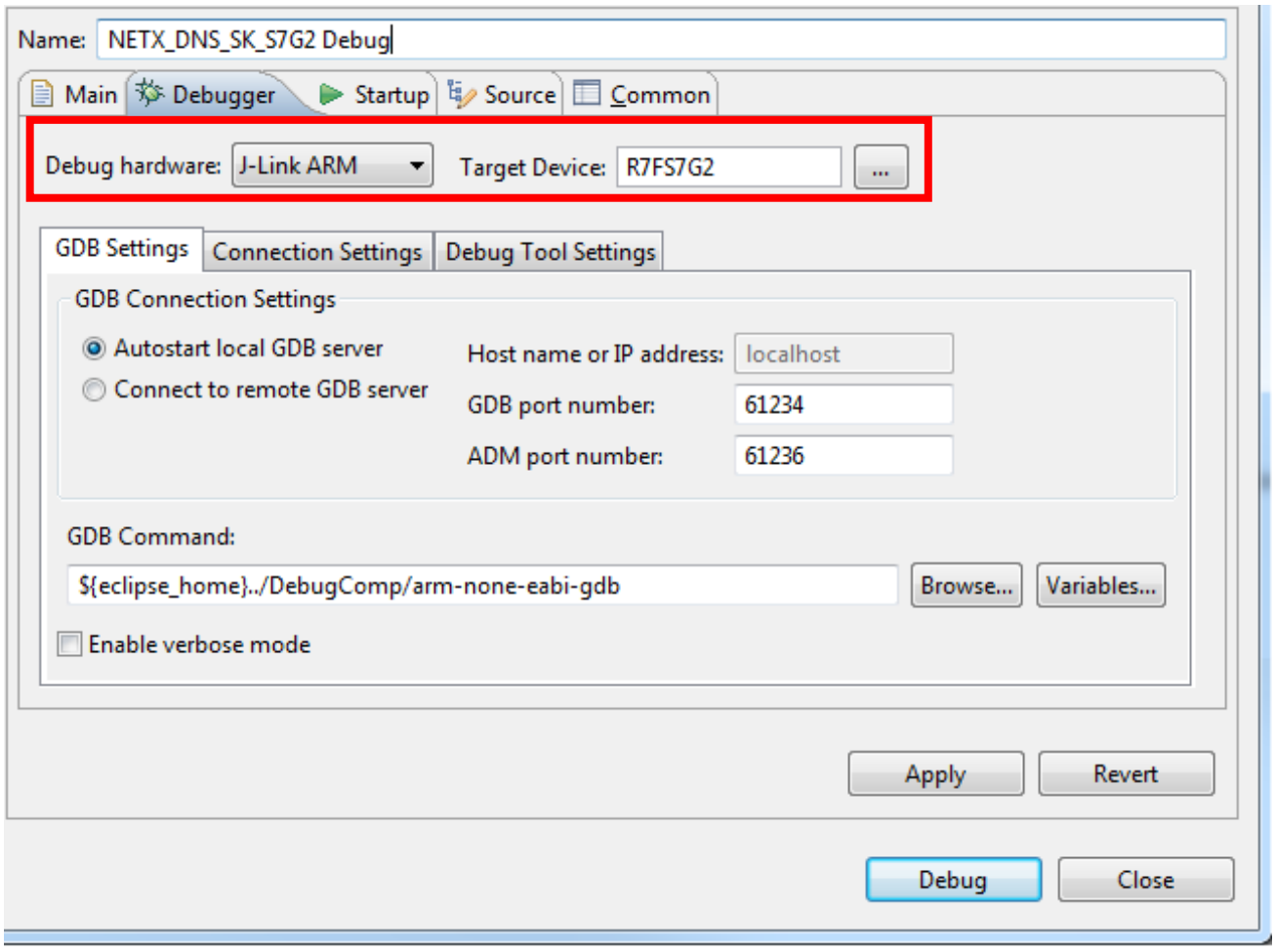

Figure 2.20 Debug Configurations Debugger setup

8. Press the **Debug** button to start debugging.

Figure 2.21 Debug button

9. Select **Yes** to open the Debug Perspective.

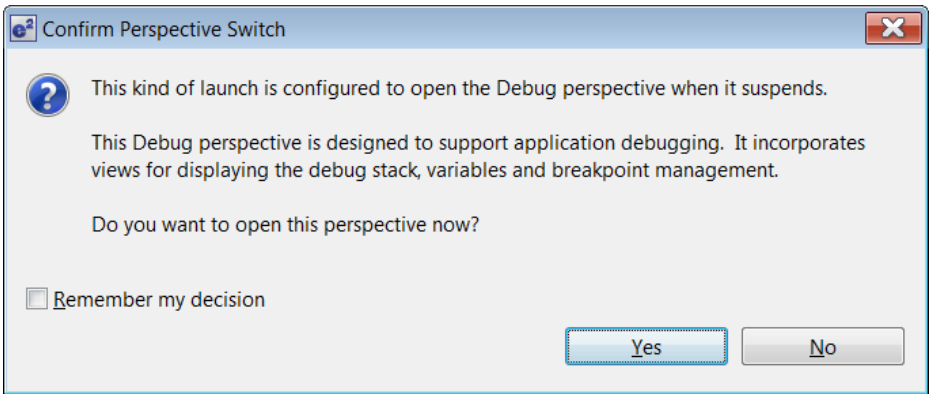

Figure 2.22 Perspective Switch dialog

10. Press **F8** or the **Resume** button to start the application.

Figure 2.23 Resume button

11. Press **F8** or the **Resume** button at main to continue.
    Note: The application is now running on the hardware. You can pause, stop, and resume the application using the debug controls shown in Figure 2.24.
12. Press **Ctrl + F2** or the **Stop** button to end the debug session.
13. Press the **Synergy Configuration** button to return to the Synergy Perspective.

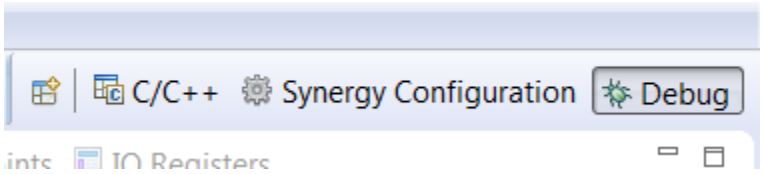

Figure 2.24 Perspective options

3. Next Steps

After you run the example application, you can learn more about how the application works, and the API calls involved, by examining the application source code.

You can also download additional Synergy example applications from the following URL:
https://www.renesas.com/en-us/products/embedded_systems_platform/synergy/sample-code.html

Website and Support

Support: https://synergygallery.renesas.com/support

Technical Contact Details:

- America: https://renesas.zendesk.com/anonymous_requests/new
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Revision History

		Description	
Rev.	**Date**	**Page**	**Summary**
1.00	Jan 8, 2016		Initial Document
1.10	Mar 30, 2016	10	Removed appendix “Fixing the license path” and all references to the appendix.
1.11	May 25, 2016	All	Minor formatting and editing changes.
1.12	Jun 30, 2016	All	Added the importing information for the IAR EW for Synergy
1.13	Aug 30, 2016	All	Minor format changes
1.14	Nov 28, 2016	All	Updated for SSP v1.2.0-b1. Minor changes to title, format
1.15	Nov 29, 2016	1	Specified software version numbers for e2 studio, IAR EW and SSC.
1.16	Feb 1, 2017	All	Updated for SSP v1.2.0. Minor changes to title, format

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