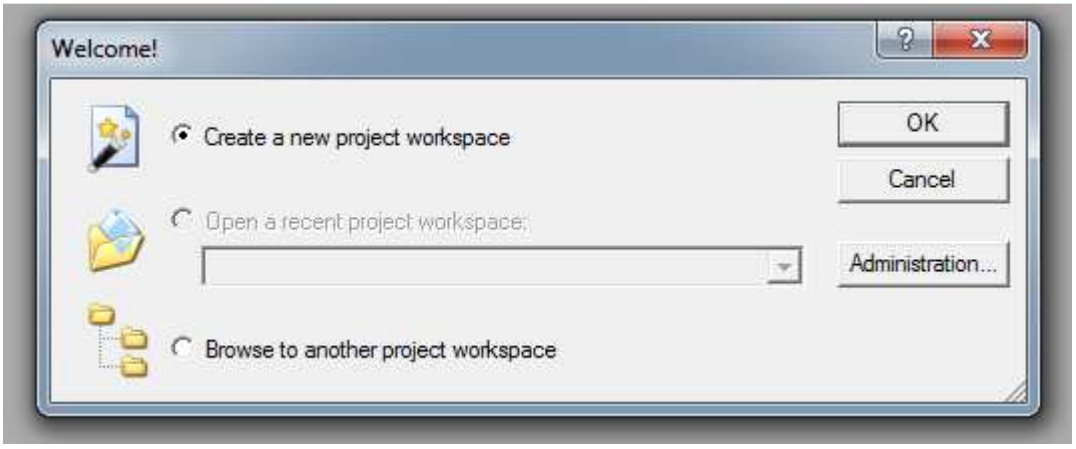
# Lab 1 Supplemental Information V 1.0

***Creating a new project in HEW for the RX Demo board is a relatively straightforward process***

**Step 1:** Open *HEW* by clicking the icon on the desktop




**Step 2:** Once *HEW* has loaded ensure the "*Create a new project workspace*" is selected and press the "*OK*" button



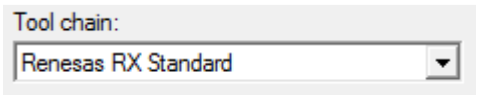

**Step 3:** Type your project Name into the "*Workspace Name*" text box



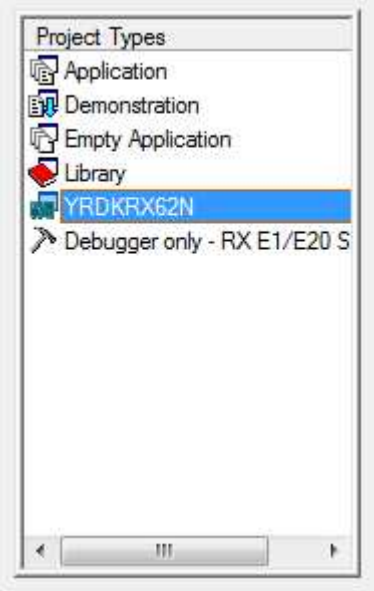

**Step 4:** Ensure that the "*CPU family*" drop down box has "*Rx*" selected



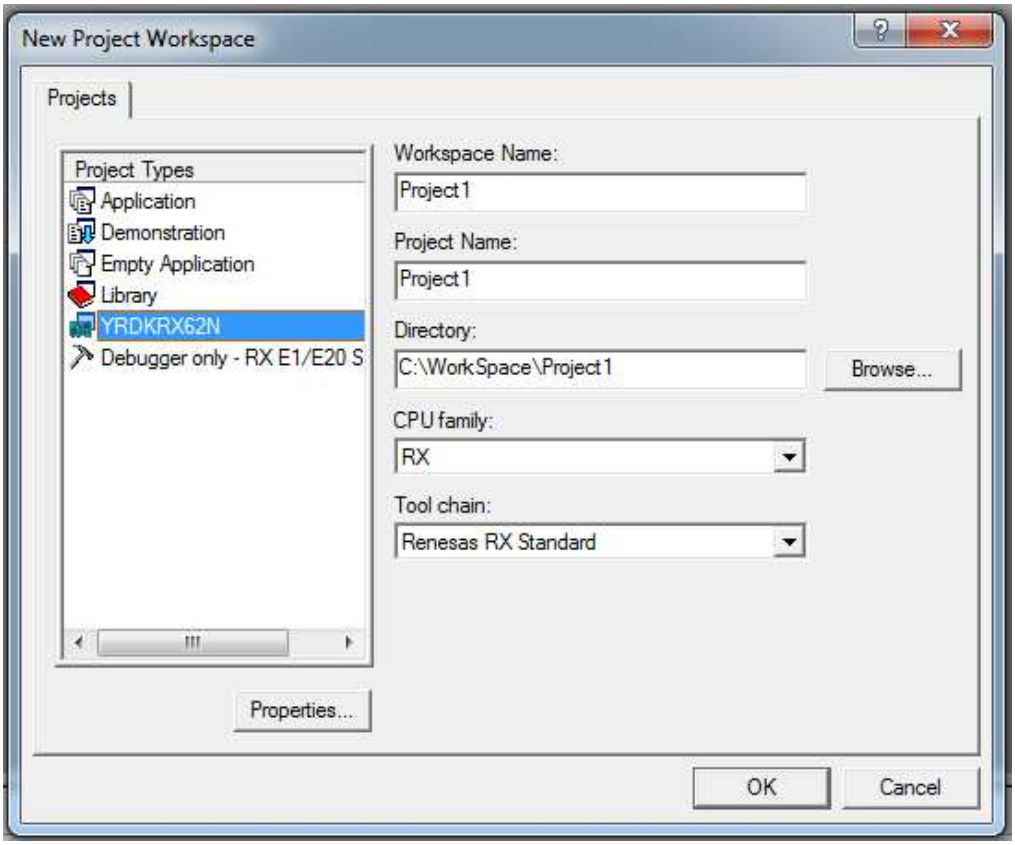

**Step 5:** Ensure that the "*Tool chain*" drop down box has "*Renesas RX Standard*" Selected



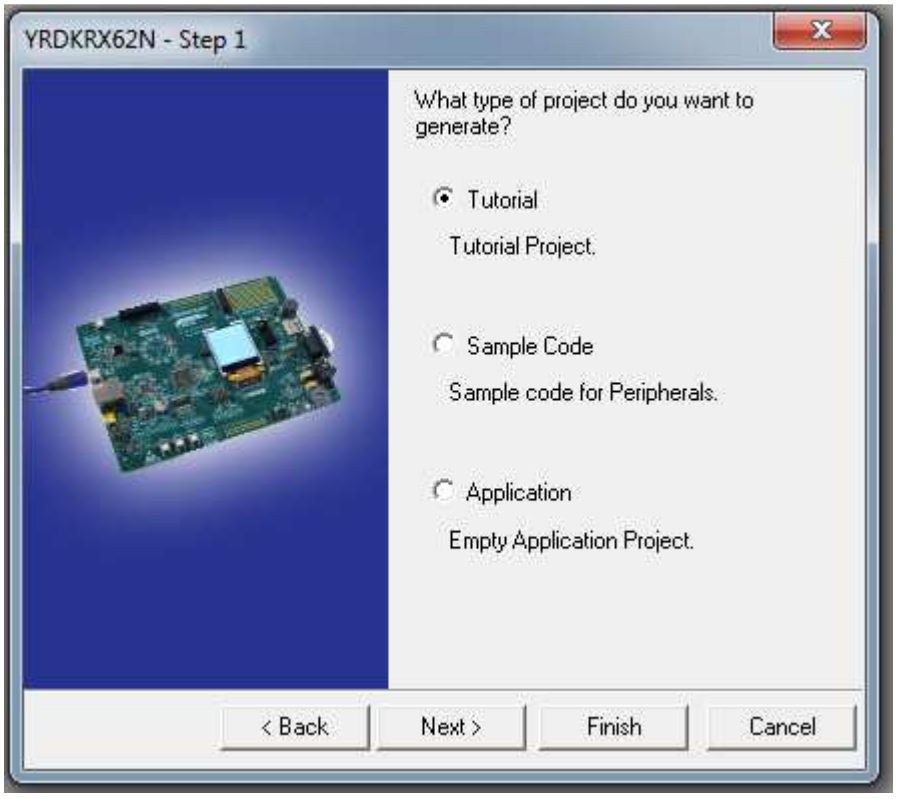
**Step 6:** Ensure that the "*Project Types*" list box has "*YRDKRX62N*" Selected



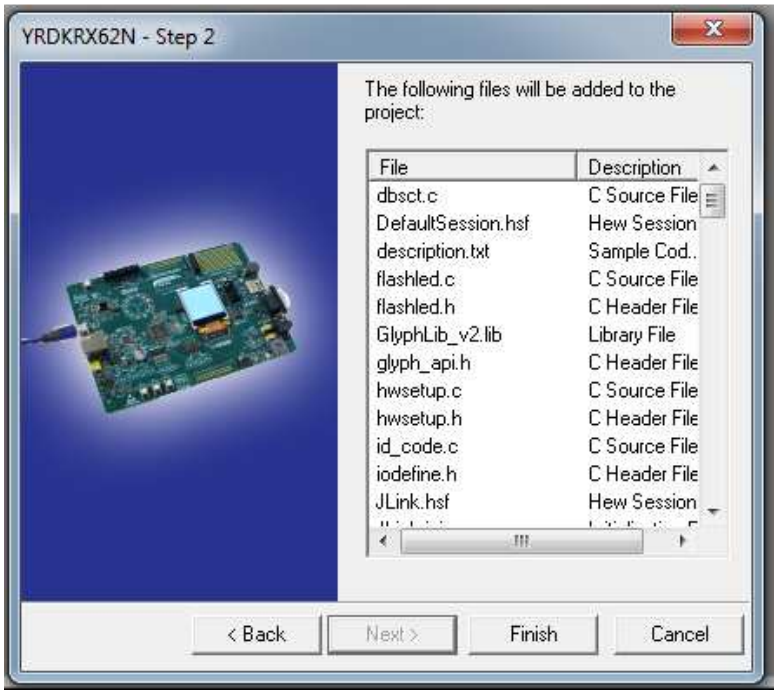

**Step 7:** Ensure that your "*New Project Workspace*" dialog resembles the following and press "*OK*" if it does



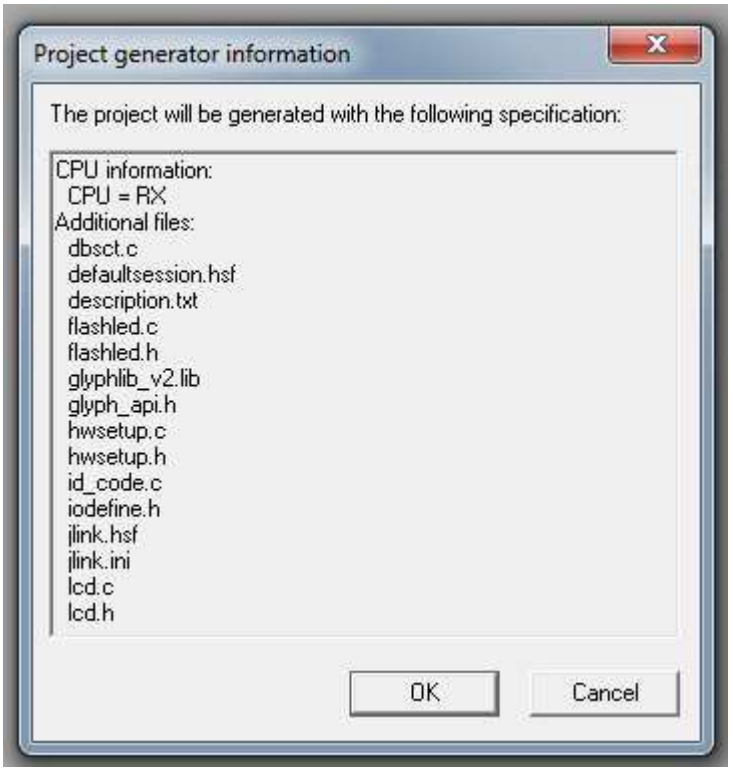
**Step 8:** At this point another dialog will appear, for this lab ensure that the "*Tutorial*" option is selected and press the "*Next >*" button



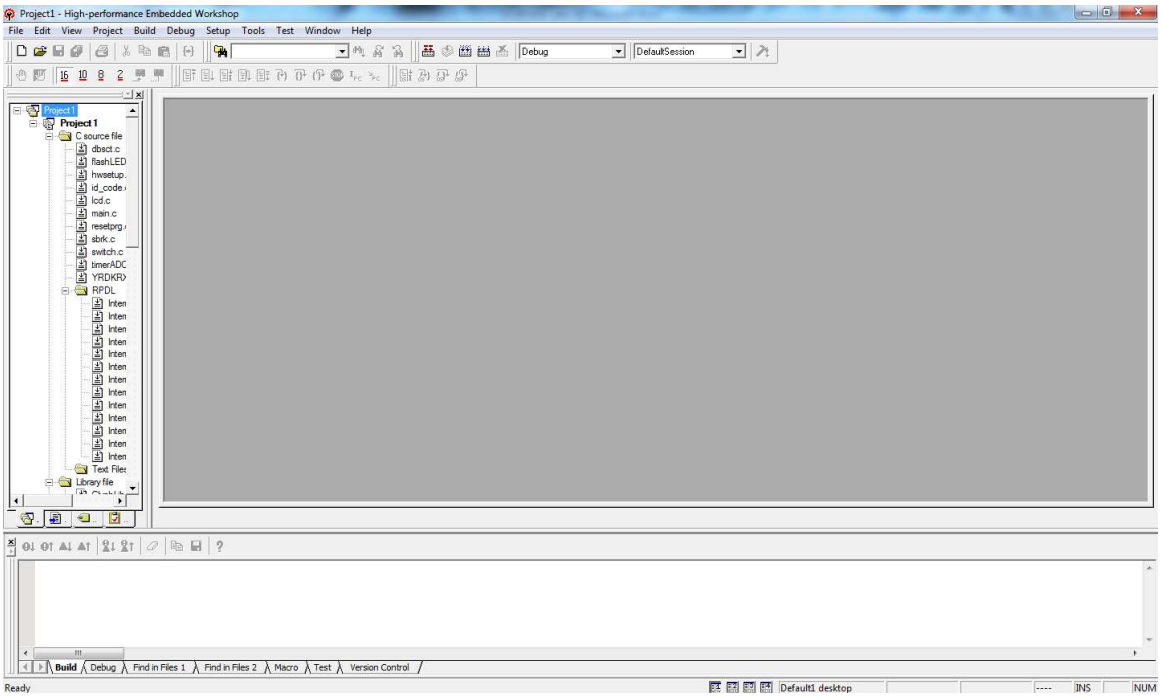

**Step 9:** At this point another dialog will appear, press the "*Finish*" Button



**Step 10:** At this point another dialog will appear, press the "*OK*" Button

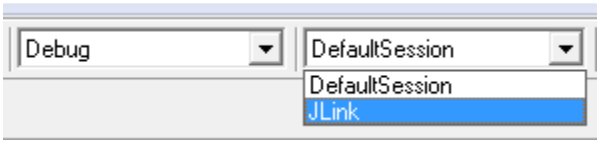



**At this point the HEW editor should become active and you can navigate around and edit any necessary files. For more information about using HEW please see your class notes or visit the Renesas HEW Guide at [http://documentation.renesas.com/eng/products/tool/doc/r20ut0372ej0100_hew_409u.pdf](http://documentation.renesas.com/eng/products/tool/doc/r20ut0372ej0100_hew_409u.pdf)*

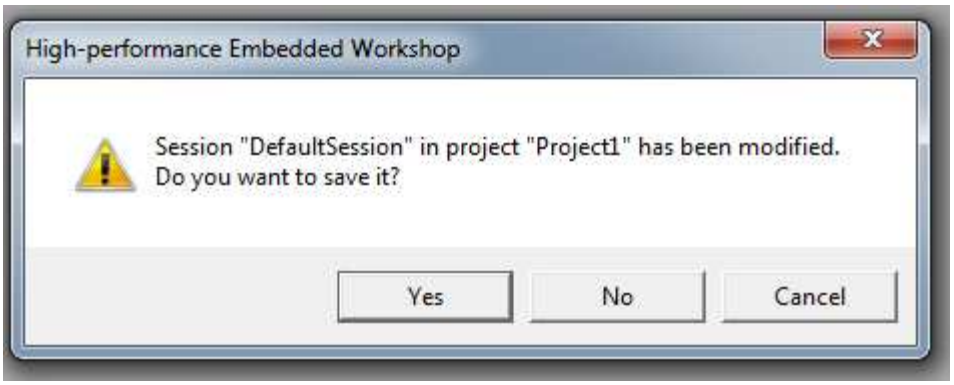


**Step 11:** Once all necessary modifications have been made to the demo project (if needed) connect your RX Demo Board to the computer and wait for the device to be found.

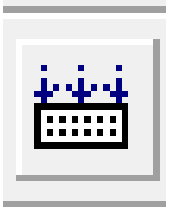
**Step 12:** Next under the source drop down menu select "*JLink*"




**Step 13:** If an alert dialog pops up press "Yes"

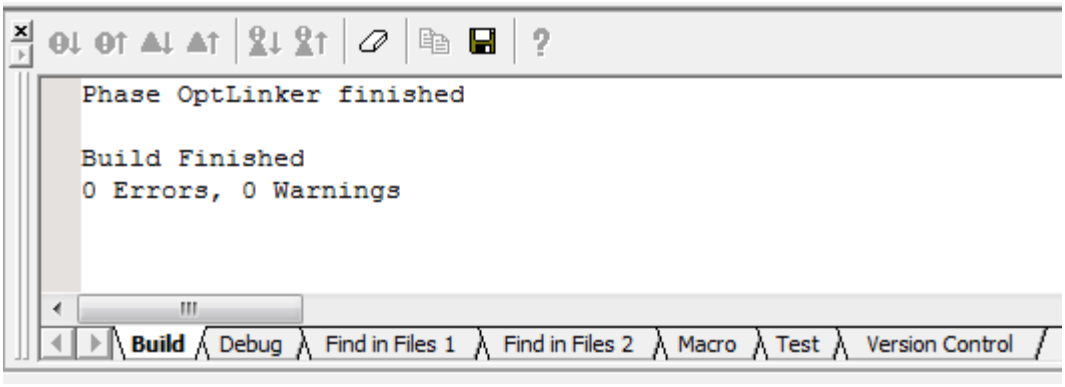



**Step 14:** Press the Build All Button that is near the Debug dropdown box

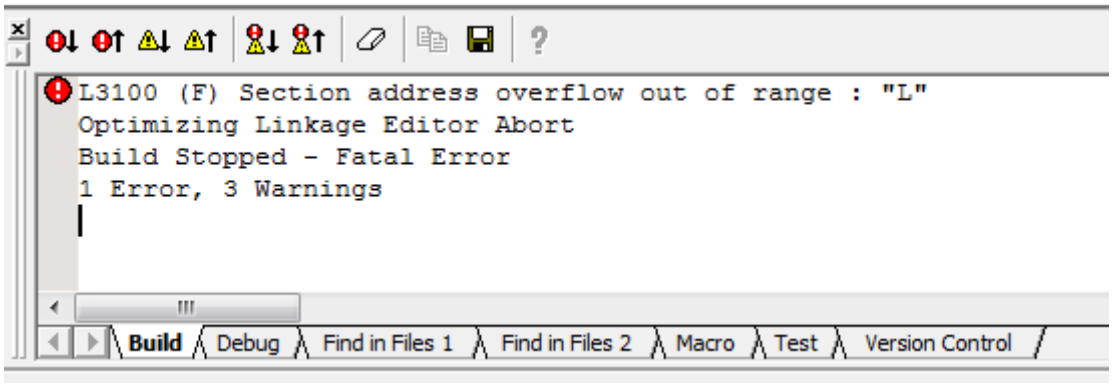


(Button show above was increased in size to allow for better visibility, Real button is much smaller)

**Step 15:** At this point you should see text appearing in the build window as the complier complies the code and depending on the version of HEW you have one of two things will happen



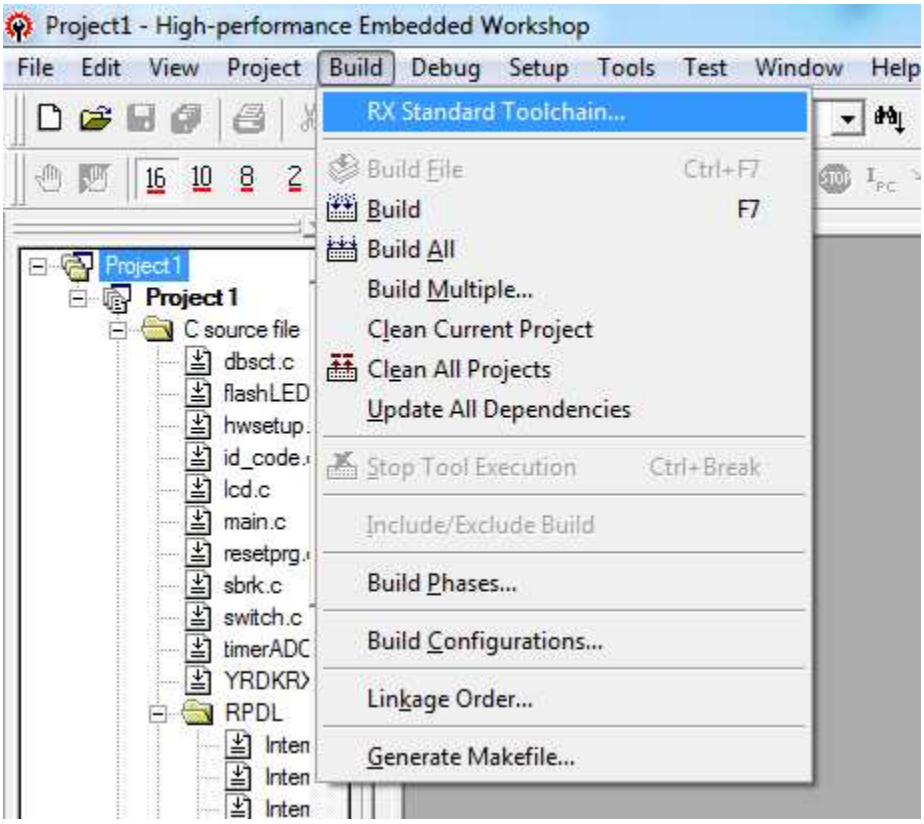

Or



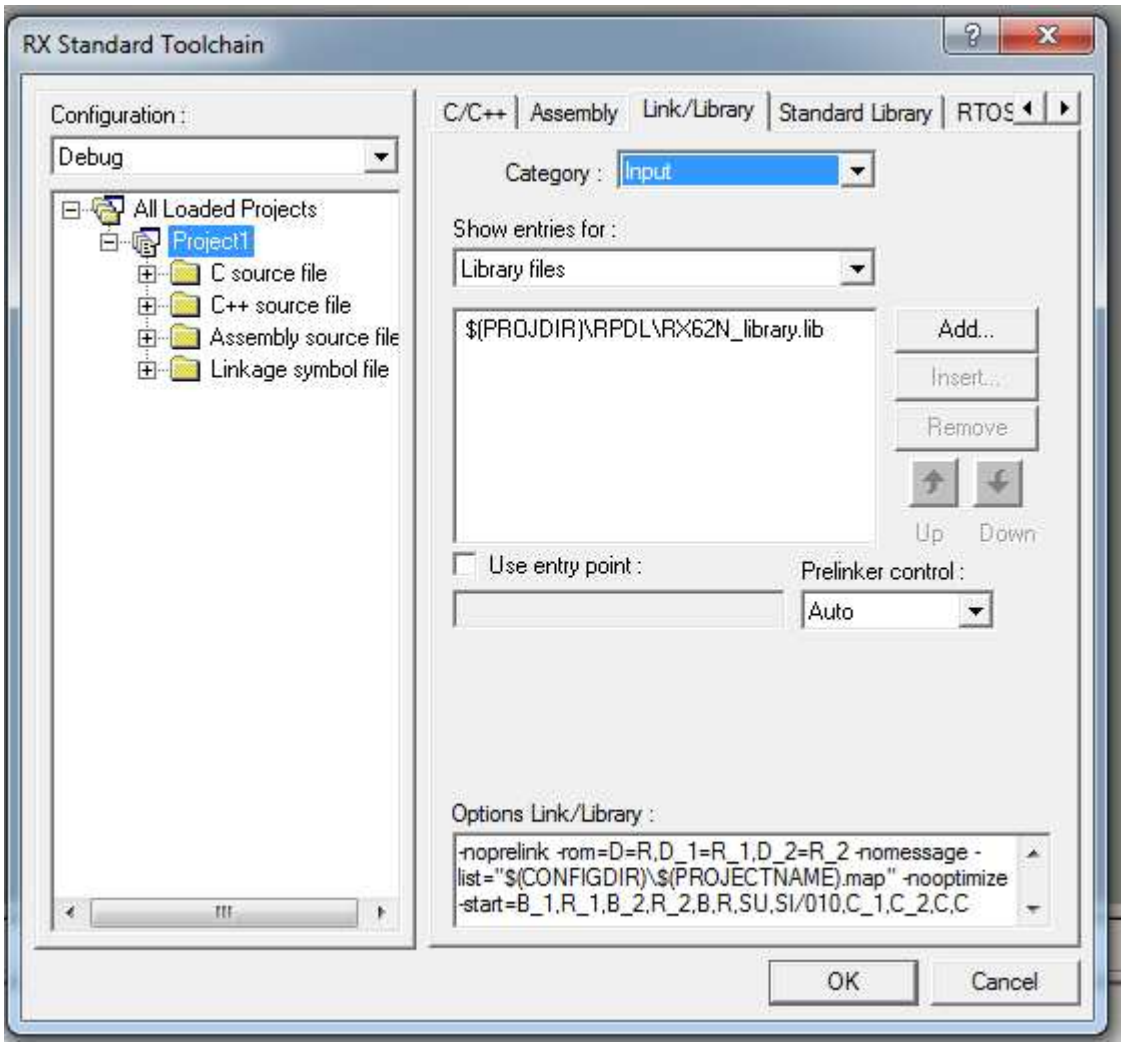

*If the build window has no errors then skip to Step 23 otherwise you will need to perform a few code changes to your project to support the new version of HEW.*

*Note the official Renesas documentation about fixing this error can be found at http://www.renesasrulz.com/servlet/JiveServlet/downloadBody/1902-102-1-1871/r01an0699eu0102_rx62n_an.pdf However, a step by step guide to fixing these errors will be discussed.*

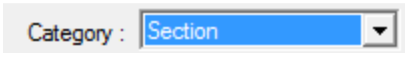
**Step 16:** Under the "*Build*" menu select the "*RX Standard Toolchain…*"



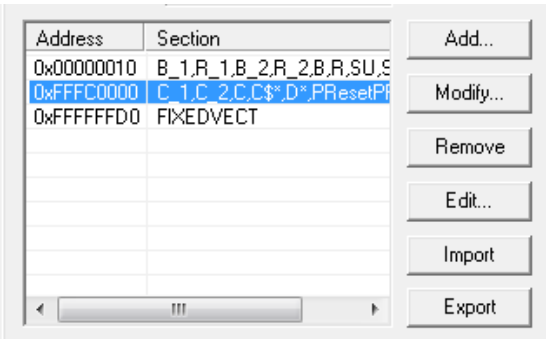
**Step 17:** After the "*RX Standard Toolchain*" dialog appears select the "*Link/Library*" tab



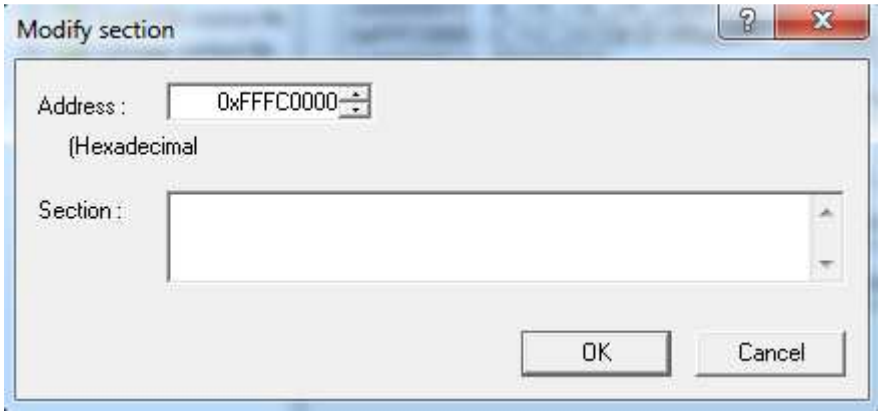

**Step 18:** Next change the "*Category*" drop down box to say "*Section*"




**Step 19:** Next select the "*0xFFFC0000*" option from the selection box and click the "*Modify*" button



**Step 20:** After the "*Modify section*" dialog appears highlight and remove the section text "*C_1,C_2,C,C$*,D*,PResetPRG,P,W**"




**Step 21:** Next either type or preferably paste

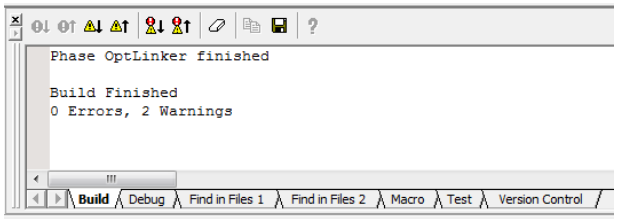
C_1,C_2,C,L*,C$*,D*,PResetPRG,P,W*

Into the "*Section*" textbox and press the "*OK*" Button




**Step 22:** After the "*Modify section*" dialog closes press "*OK*" again

At this point when you press the Build All Button the program should now compile, however a few warnings will be reported.



While having warnings are not necessarily bad sometimes they can indicate possible problems that could cause your code to not function the way you intended it to function.

An Aside: *type casting warnings in particular should always be investigated since data truncation can easily result in operational error.*

To fix the warnings reported above three changes should be made to the DEMO source code.

*Note you do not have to perform these additional steps to fix the warnings above, these code changes are provided for reference.*

In **dbstc.c at** line number **54** add the following code

```
/* Fix One L* Warning */
#pragma section C L
const unsigned long deadSpace = 0xDEADDEAD ;
#pragma section
```

In **RPDL\Interrupt_INTC.c** at line number **358** change

```
set_fintv(*vector_location);
```

to

```
set_fintv((void *)*vector_location);
```

in **resetprg.c** at line number **103** change

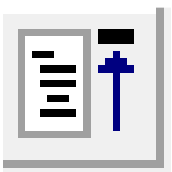
```
set_intb((unsigned long)__sectop("C$VECT"));
```

to

```
set_intb((void *)(unsigned long)__sectop("C$VECT"));
```

Now press the "*Build All*" button and all of your warnings should have disappeared.

**Step 23:** At this point we are ready to download code to the RX DEMO board Press the "*Reset CPU*" Button

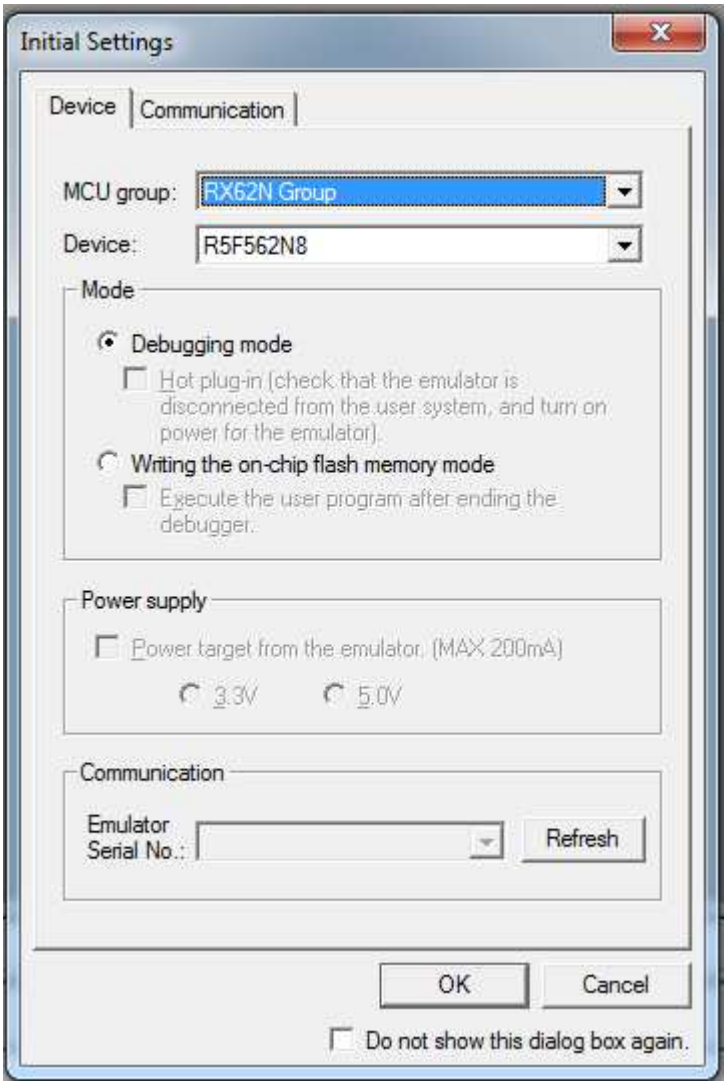


(Button show above was increased in size to allow for better visibility, Real button is much smaller)

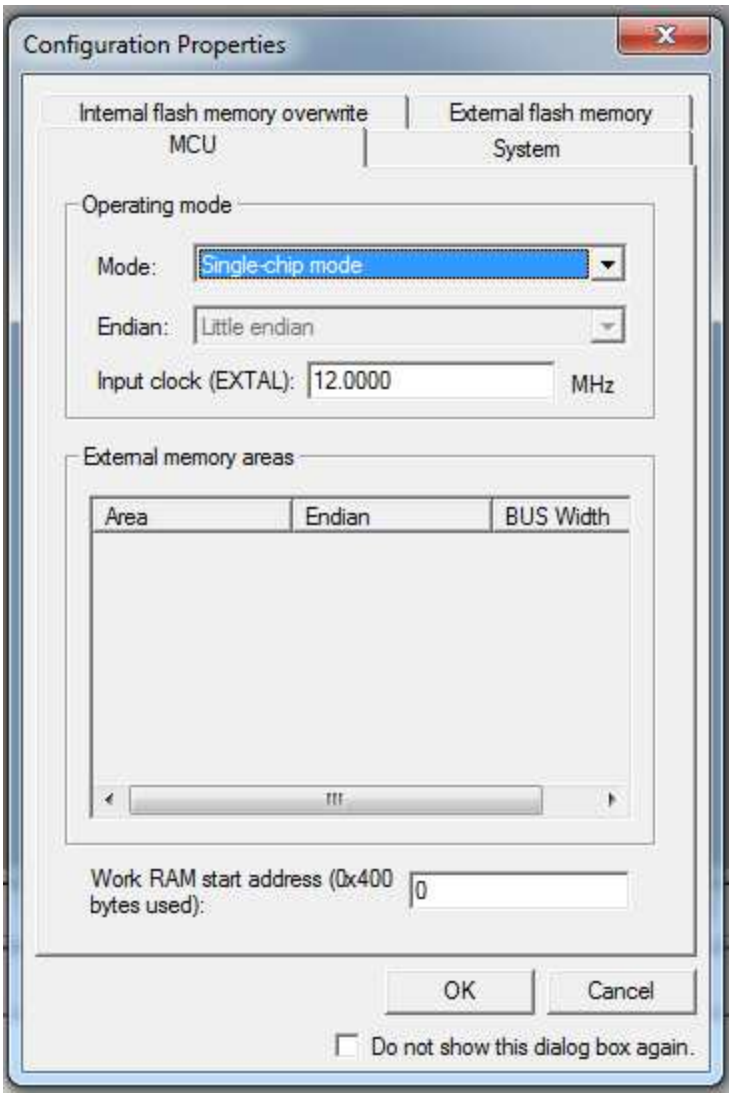
**Step 24:** If this is the first time HEW has been run for the RX Board a "*Confirmation Request*" Dialog might appear, if it does appear then you will need to press the "*Yes*" button and you may use your own discretion as to whether or not you want to check the "*Don't ask this question again*" check box




**Step 25:** Next an "*Initial Settings*" Dialog will appear simply press the "*Ok*" button



**Step 26:** Next a "*Configuration Properties*" Dialog will appear simply press the "*OK*" button

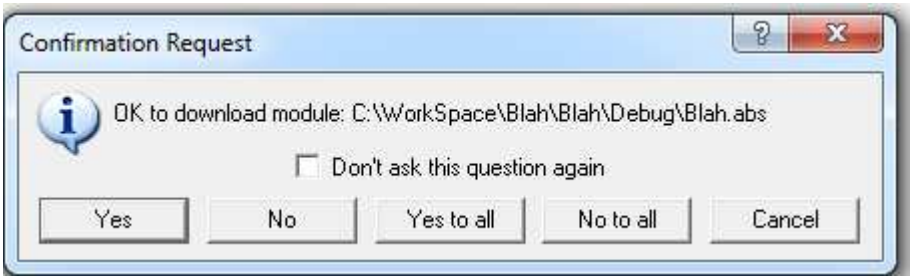



At this point the debugger should be communicating with the RX Demo board and an ASM debug window should appear.

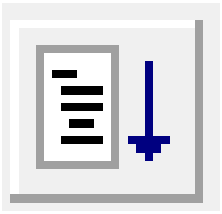
There have been reports of other dialogs might appear during these steps such as the JLink is unavailable or the RX firmware needs to be updated, it has been my experience that pressing "*OK*" to these dialogs will get you safely up to Step 27 most of the time.

Additional information can be found at http://documentation.renesas.com/eng/products/mpumcu/apn/rx/r01an0586eu_rx.pdf and at http://am.renesas.com/media/products/tools/introductory_evaluation_tools/renesas_demo_kits/yrdkrx62n/child_folder/YRDKRX62N_Renesas_Compiler_Based_QSG.pdf if more information is required

**Step 27:** At this point we are ready to load data onto the RX Demo board to do this simply click the build all button and a "*Confirmation Request*" dialog will appear, Press the "*Yes to All*" button and the code module should be loaded onto the RX Demo.

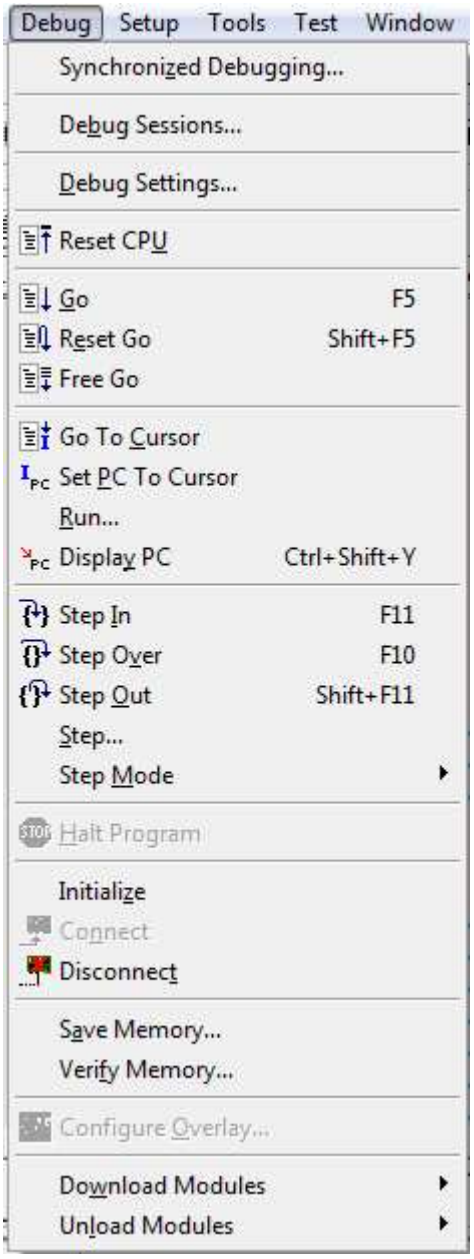



**Step 28:** At this point we are ready to run the code by pressing the "GO" button and watch the result on the RX Demo Board



(Button show above was increased in size to allow for better visibility, Real button is much smaller)

Note Step 26 and 27 are shortcuts that get the job done; the better way of programing the board is going under the Debug Menu and pressing the "*Initialize*" option to setup the JLink connection and then going back under the "Debug" Menu and then selecting the "Download Modules" and selecting the desired code module that should be uploaded to the RX Demo board.




At this point you should have enough background about HEW and the RX Demo Board to Create, Modify, and run projects of your own!

One Final Tip, be sure when you are done playing with the RX Demo Board that you "*Stop*" the board and then "*Disconnect*" the board in the Debug Menu or change the source drop down menu back to "*DefaultSession*" to reduce HEW connection Errors and application hangs.