

Getting Started with Freescale MQX™ RTOS for Kinetis SDK and IAR Embedded Workbench

1 Overview

This document describes the steps required to configure IAR Embedded Workbench to build, run, and debug MQX™ RTOS demo applications and necessary driver libraries provided in the KSDK framework. The Hello World demo application targeted for the TWR-K64F120M Tower System hardware platform is used as an example in this guide.

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2 Import project files into IAR workspace

Each demo application of MQX RTOS for Kinetis SDK requires several libraries to be built together with a demo application. For user convenience, the Freescale MQX RTOS package contains workspace files containing all required libraries. The workspaces are available in the following locations:

`<install_dir>/rtos/mqx/mqx/examples/<demo_name>/build/iar/<demo_name>_<board_name>/<demo_name>_<board_name>.eww`

For example, this is the open workspace file for the hello demo application for TWR-K64F120M:

`<install_dir>/rtos/mqx/mqx/examples/hello/build/iar/hello_twrk64f120m/hello_twrk64f120m.eww`

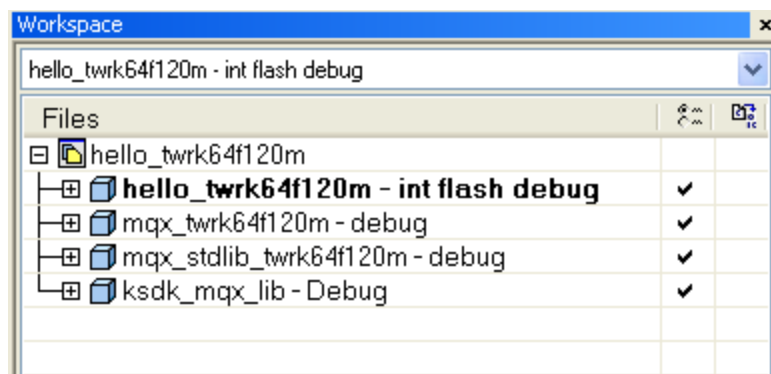


Figure 1: Import project files into workspace

3 Build library project files

This section is a guide to build the library projects required for hello example for TWR-K64F120M. Follow the steps to build multiple libraries with different build target at the same time.

1. Go to “Project” then select “Batch build” from the toolbar menu options.

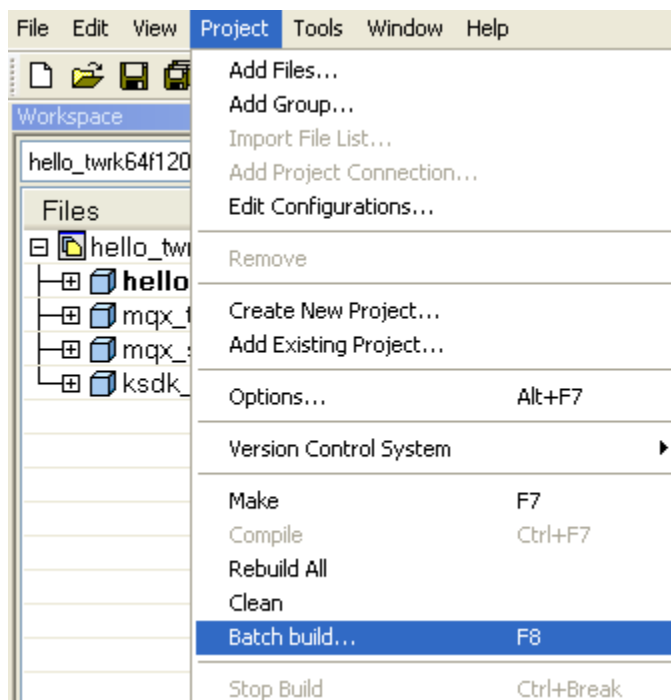


Figure 2: Open batch build

2. In the Batch build dialog window, some batches are available to select and edit. Only select one batch name and click the “Edit” button to select what project files to build.

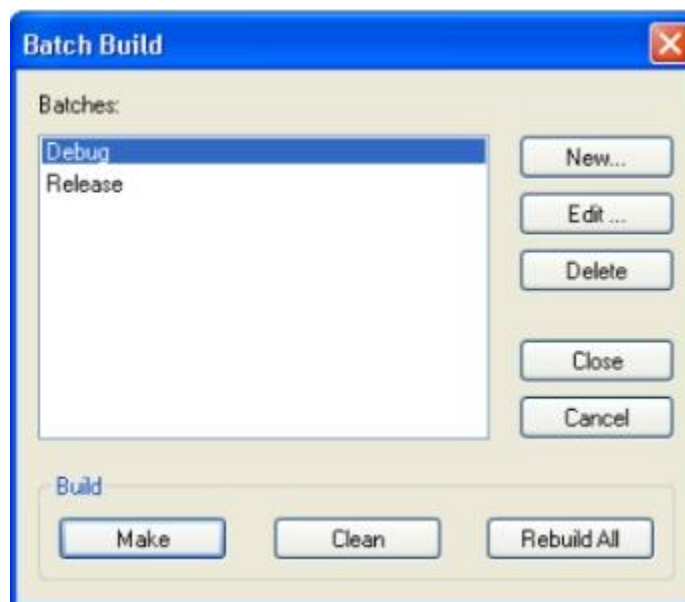


Figure 3: Batch build dialog window

3. Click the “Ok” button to return to the Batch build dialog window when complete.

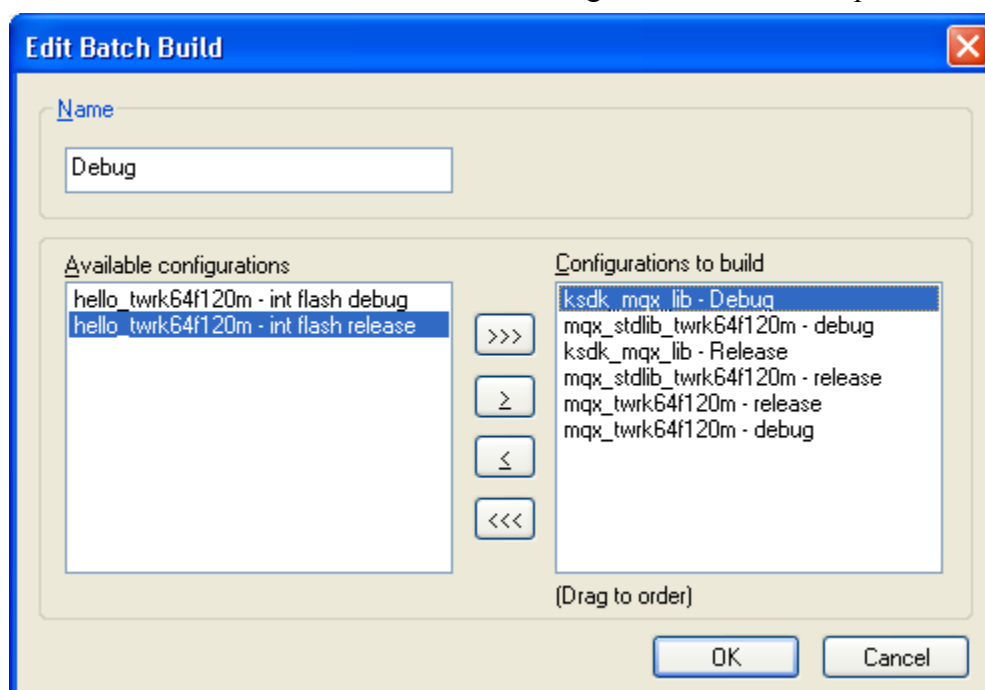


Figure 4: Select project files to do batch build

4. Click the “Make” button (Figure 3) if you build the libraries for the first time. Click the “Rebuild All” button (Figure 3) if you want to rebuild the libraries.

When the build finishes, check that the library archives are generated in the following locations:

```
<install_dir>/rtos/mqx/lib/<board_name>.iar/<build_target>/mqx/<lib_mqx>.a  
<install_dir>/rtos/mqx/lib/<board_name>.iar/<build_target>/mqx_stdlib/<lib_mqx_stdlib>.a  
<install_dir>/lib/ksdk_mqx_lib/iar/<device_name>/<build_target>/<libksdk_platform_mqx>.a
```

For example, the following library archives are generated with the hello example of the MQX RTOS for KSDK for TWR-K64F120M and Debug target.

```
<install_dir>/rtos/mqx/lib/twrk64f120m.iar /debug/mqx/<lib_mqx>.a  
<install_dir>/rtos/mqx/lib/twrk64f120m.iar/debug/mqx_stdlib/<lib_mqx_stdlib>.a  
<install_dir>/lib/ksdk_mqx_lib/iar/K64F12/debug/<libksdk_platform_mqx>.a
```

4 Build the application project file

After building the libraries, build the application project file. These steps describe how to build the hello example of MQX RTOS for KSDK for TWR-K64F120M.

1. Select the desired Debug or Release build target.

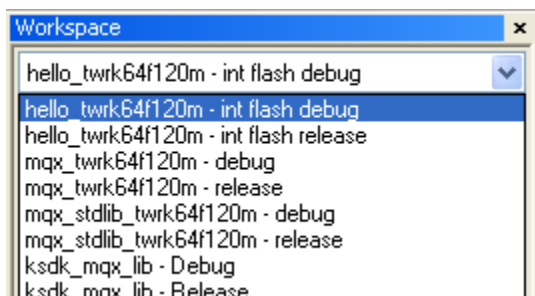


Figure 5: Select build target for hello project

2. Click the “Make” button (in red) to build the project.



Figure 6: Build button

3. The output message is similar to the message when the build of hello example is complete.

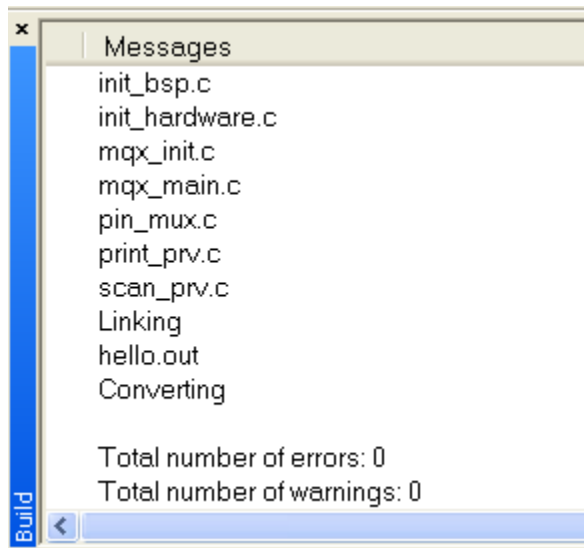


Figure 7: Build message

The error and warning status of the build will be displayed. Note that warnings, if they exist, do not block the generation of application image. A warning message does not cause any fatal problem to the process of application development.

5 Run a demo application

To download and run the application, follow these steps:

1. Connect the development platform to your PC via USB cable between the OpenSDA USB connector and the PC USB connector.
2. Open the terminal application on the PC, such as PuTTY or TeraTerm, and connect to the OpenSDA serial port number. Configure the terminal with these settings.
 - a) 115200 baud rate
 - b) No parity
 - c) 8 data bits
 - d) 1 stop bit

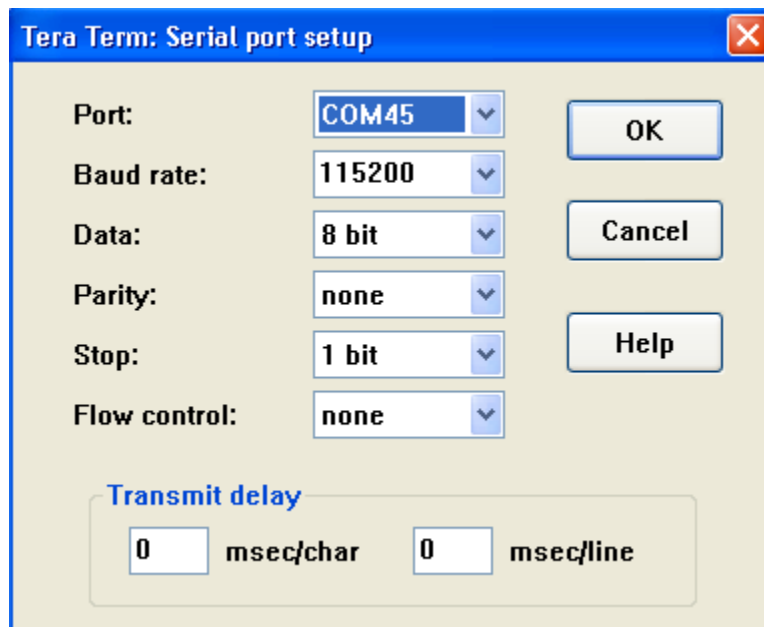


Figure 8: Configure TeraTerm serial terminal

3. Right-click the application project and select “Options” to open the options dialog window.

4. Go to “Debugger” and select “Setup” then “Driver” to select the debugger used with your development platform. It could be J-Link/J-Trace or PE micro.

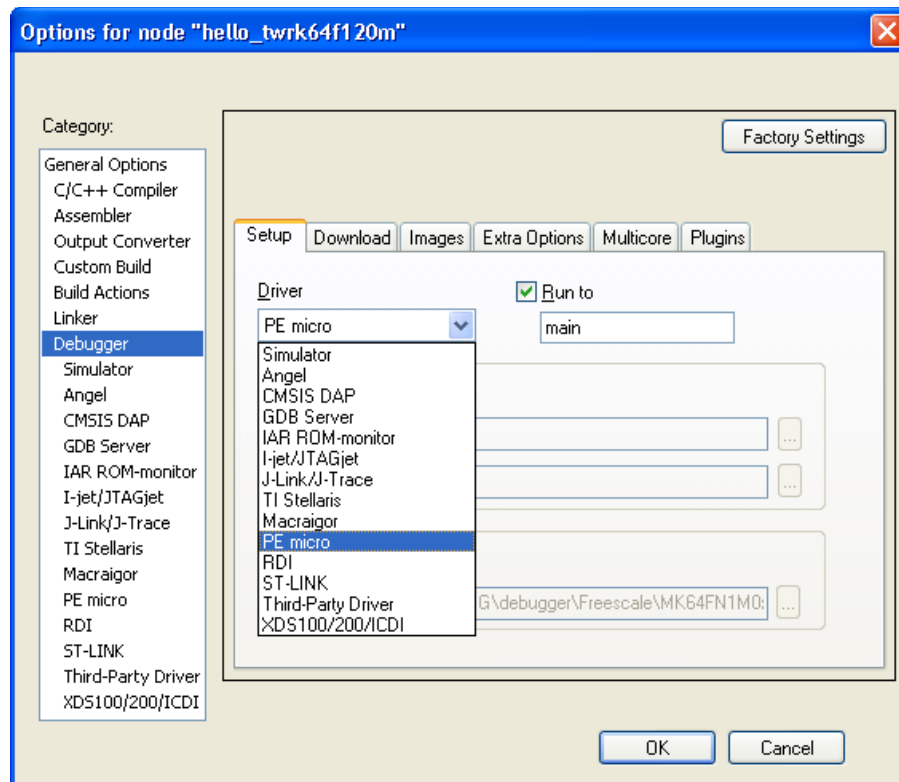


Figure 9: Select debugger

5. To change the configuration of debugger, go the debugger subsection under “Debugger”. Select the appropriate connection type, interface used, and device in your system.

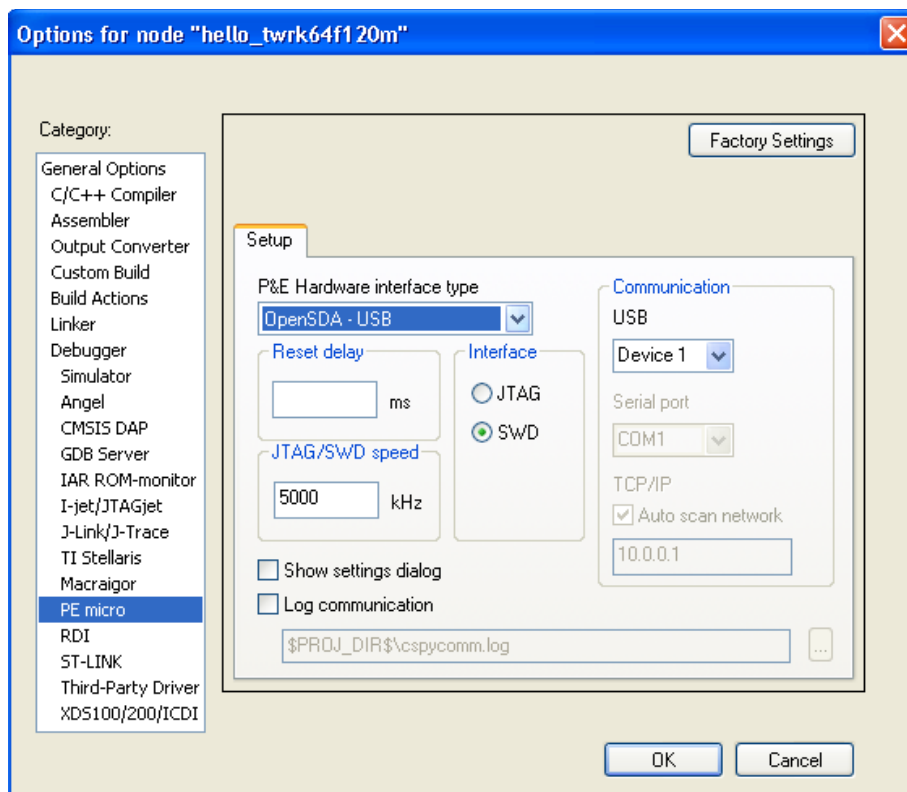


Figure 10: Debugger configuration

6. Click the “Download and Debug” button (in red) to download the application to the target.

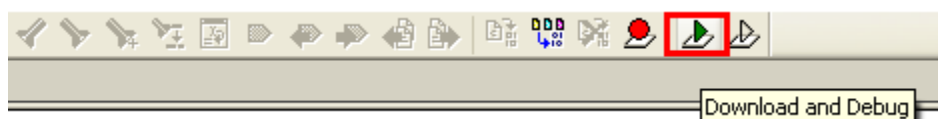


Figure 11: Download and Debug button

7. The application image is loaded to the target and automatically runs to the main() function, then stops. Click the “Go” button (in red) to run the application.

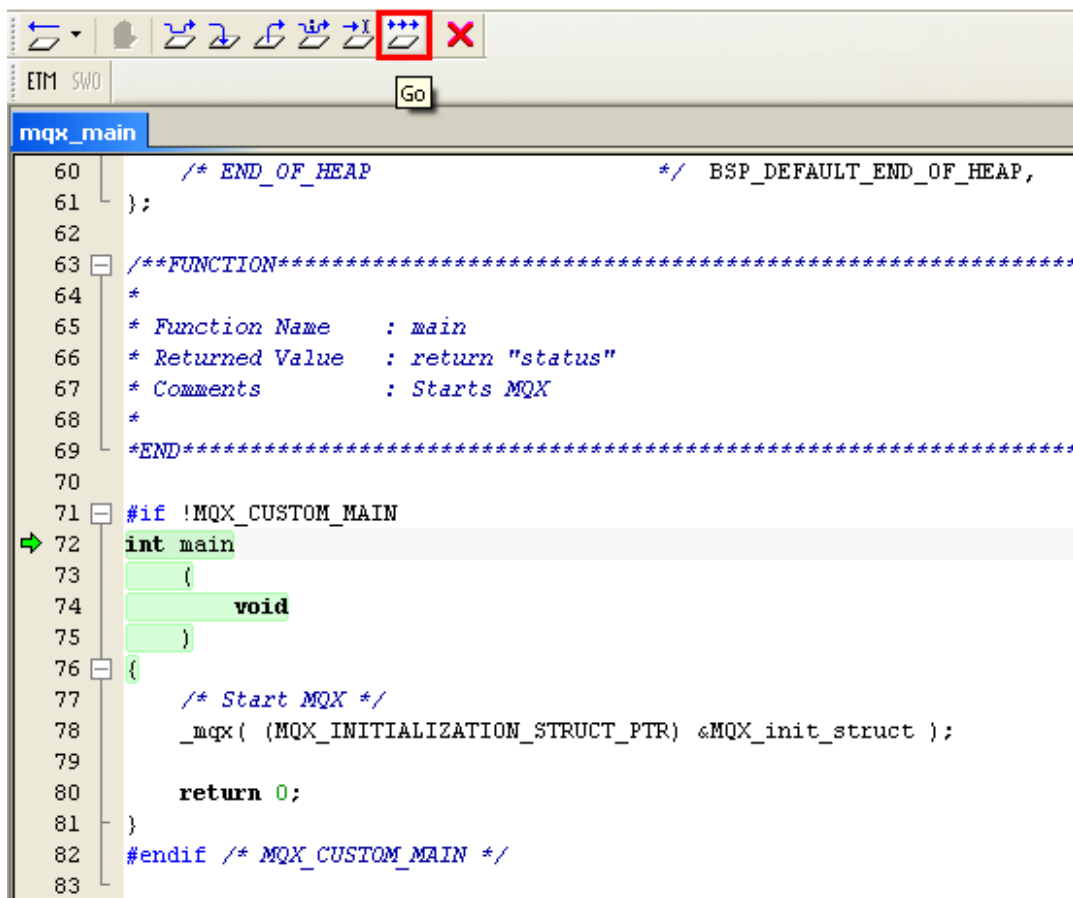


Figure 12: Run the application

The output is displayed on the terminal window.

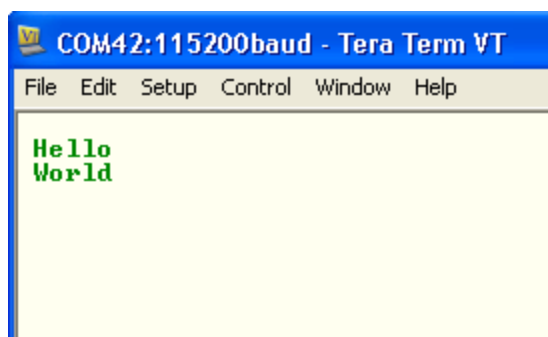


Figure 13: Output of hello example

6 Revision History

This table summarizes revisions to this document.

Table 1 Revision History		
Revision number	Date	Substantial changes
1	04/2015	Kinetis SDK 1.2.0 release
0	12/2014	Kinetis SDK 1.1.0 release

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