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Getting Started with Freescale MQX™ RTOS BSP Cloning Wizard

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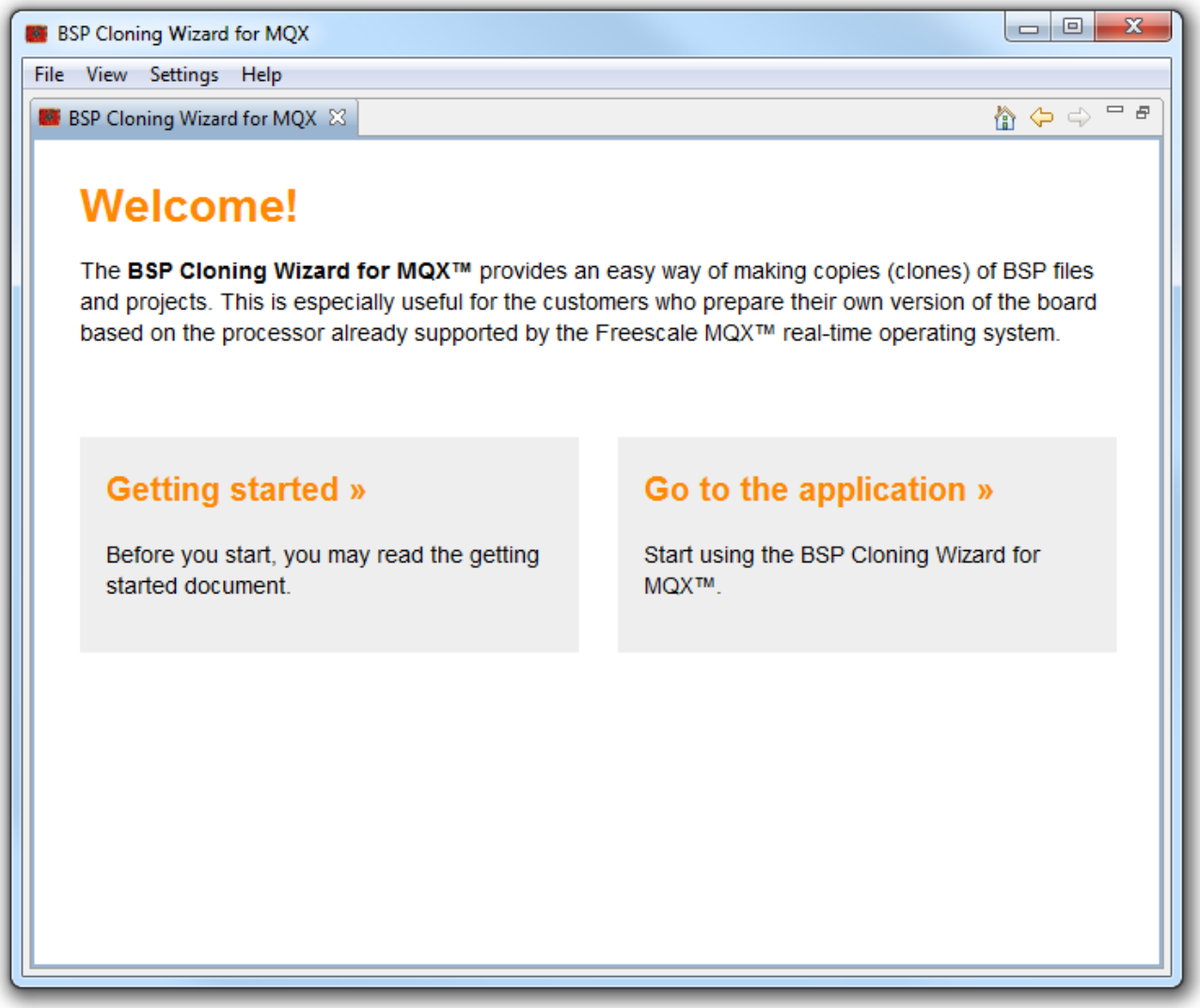
1 Read Me First

This document describes how to use the MQX™ RTOS BSP Cloning Wizard tool. The aim of this application is to provide an easy way of making copies (clones) of BSP files and projects. This is especially useful for the customers who prepare their own version of the board based on the processor supported by the Freescale MQX RTOS operating system.

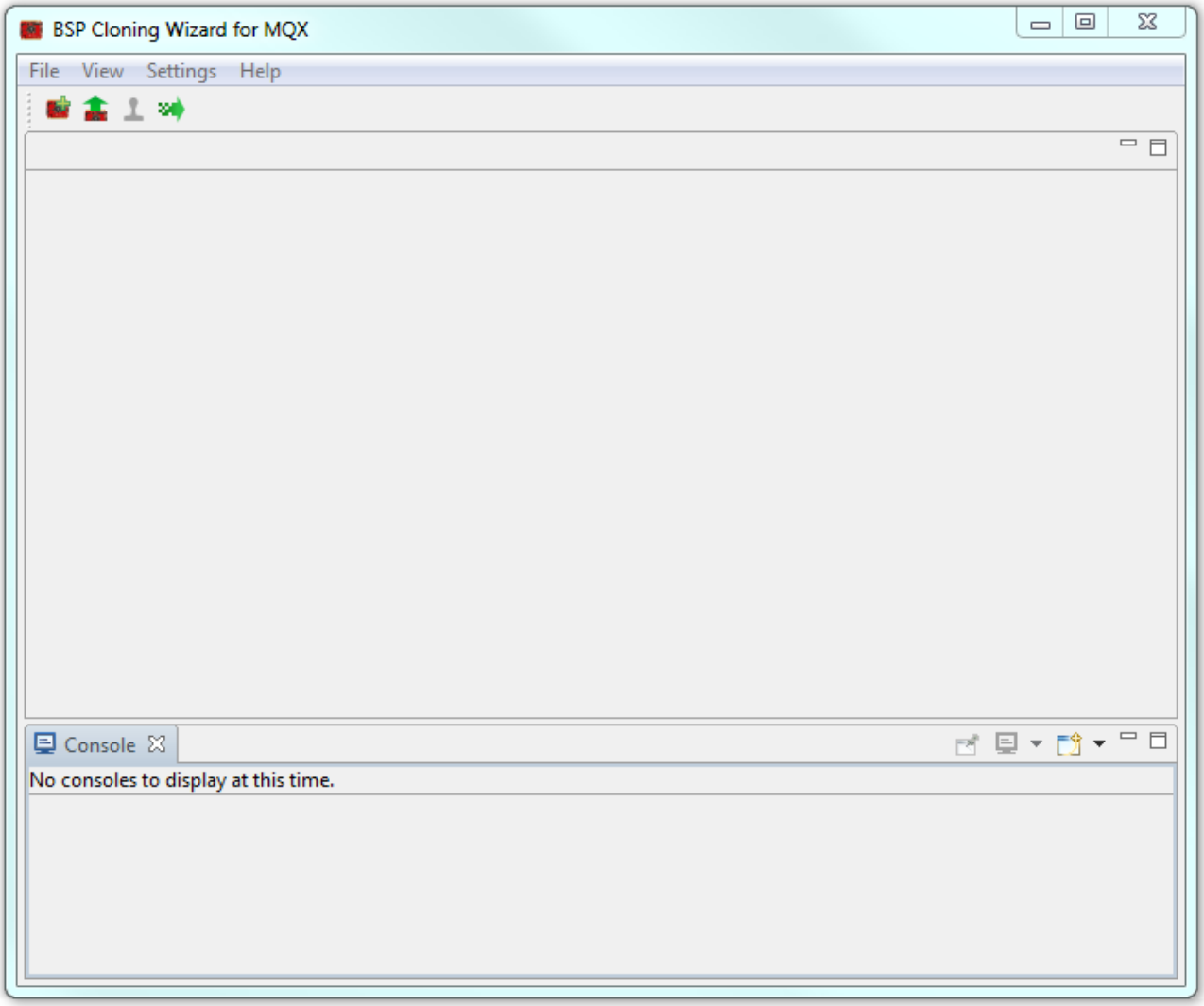
2 Making a clone of an existing board

2.1 Starting the MQX RTOS BSP Cloning Wizard application

To start the BSP Cloning Wizard, run the "`BSPCloningWizard.exe`" executable, which is located in <install_dir>\tools\BSPCloningWizard. If this is the first time you have started the application, the main window of the application displays as shown in the image. You can always display the welcome page using the "Help/Welcome" menu.

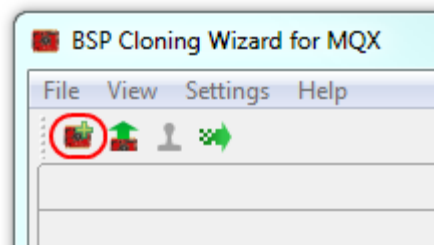


To start using the wizard, click the “Go to the application” link. You can see this screen.

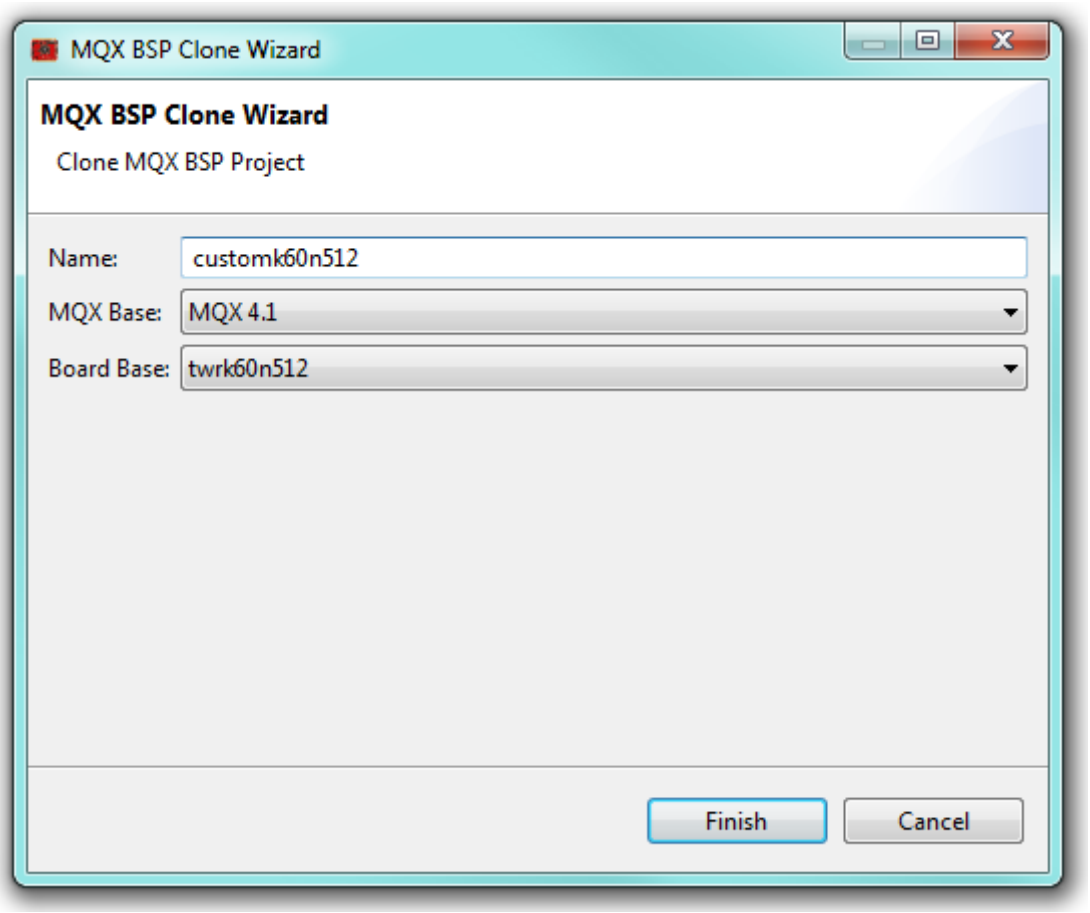


2.2 Creating a clone of an existing board

To create a new clone, find in the toolbar the wizard icon and click it. It is located in the left corner of the application.



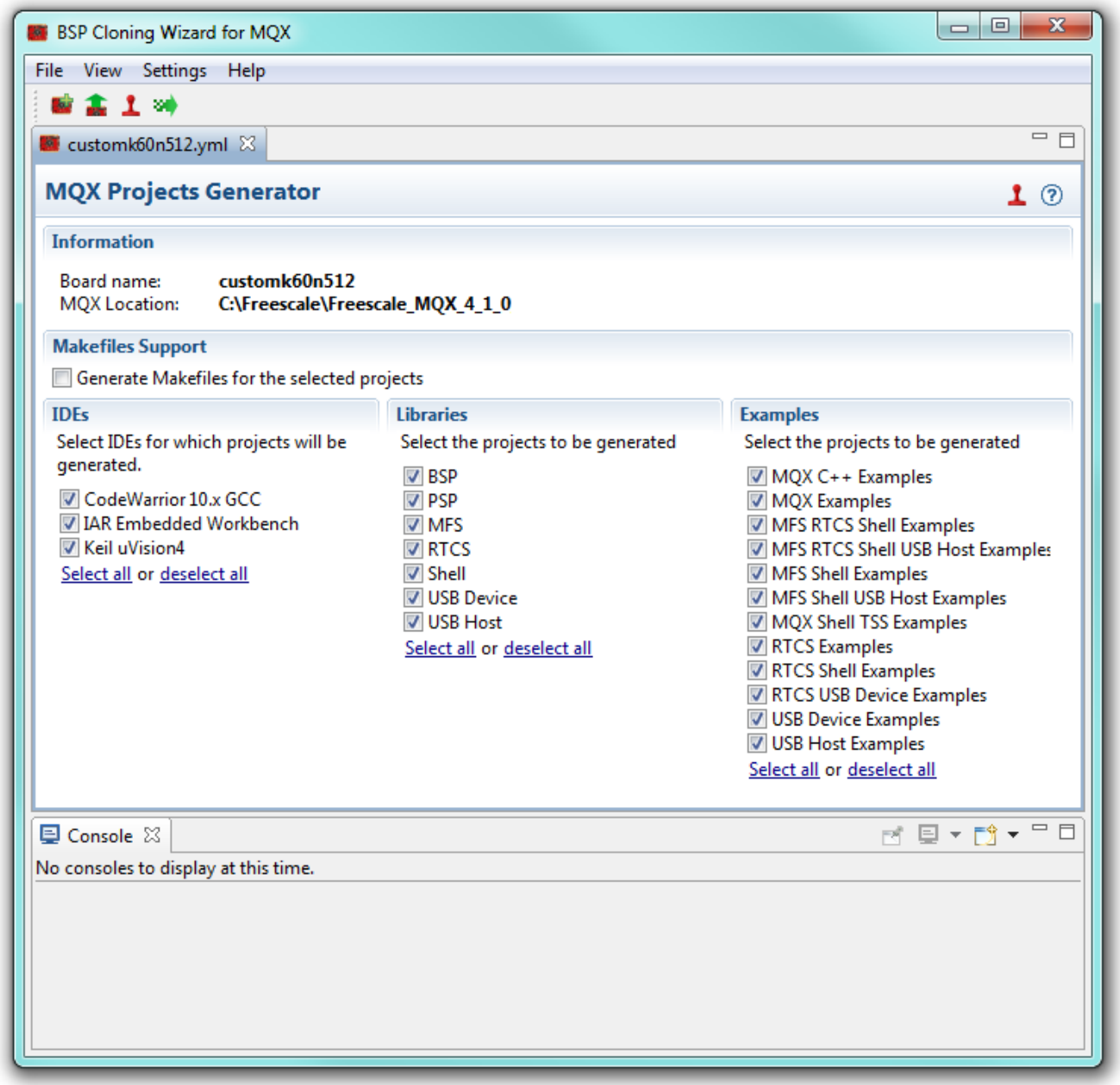
You can see the wizard window.



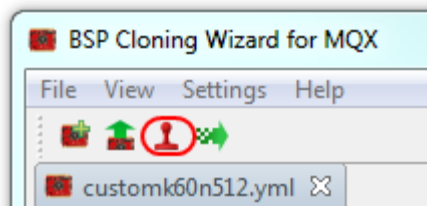
Select the MQX software base for which you need to create a board clone and then select an appropriate board that serves as a base for your custom board. In the name file, type the name of your custom board. Click the “Finish” button – the wizard creates clones of BSP files in the MQX software folder structure and the window with available libraries and examples are opened. It is used to create the project files for selected IDEs.

2.3 Generating project files

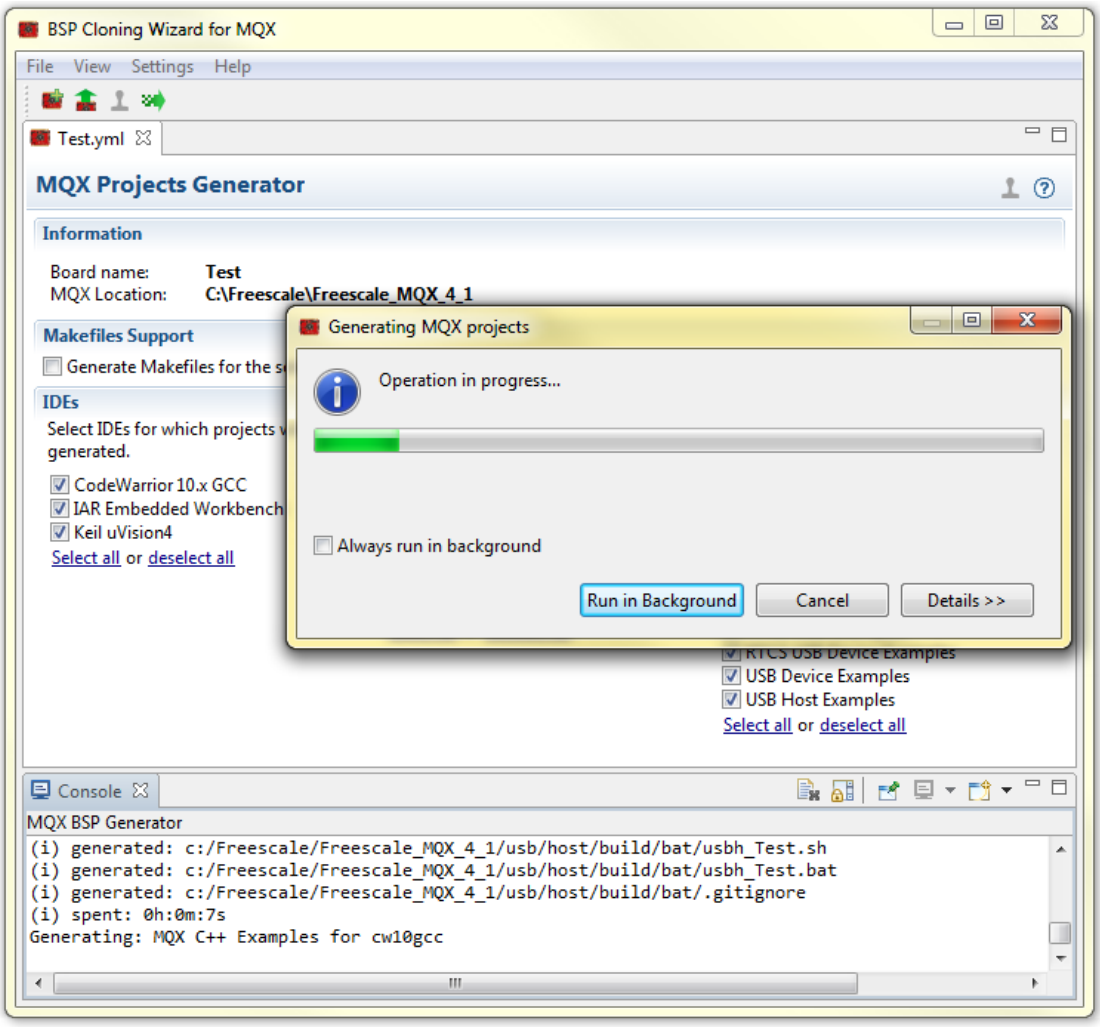
To generate project files for IDEs, select at least one IDE and at least one project from Libraries and Examples sections. Note that for MQX RTOS version 4.1 and above, you can generate the makefiles and regular project files.



When you have finished selecting IDEs and libraries/examples, you can generate the project files. To do this, click the generator icon . It is located next to the wizard icon.



You can see the modal window indicating the progress.

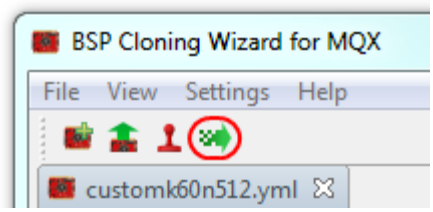


After the generation process has been finished, you can find the generated projects in the MQX software folder structure.

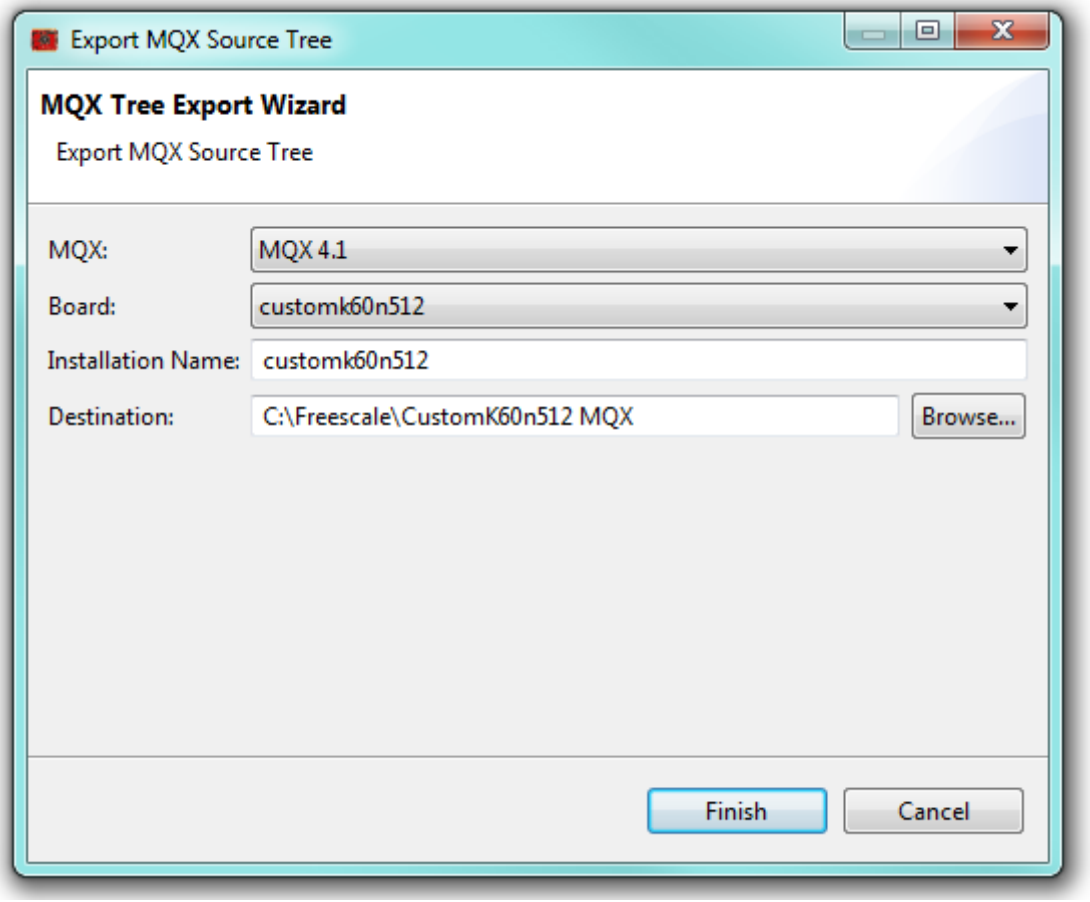
2.4 Exporting MQX RTOS source tree

You can always export the MQX RTOS source tree for a given board, either for the board which comes with MQX software, or for your custom board. Exported MQX software is a full MQX RTOS with all tools including the BSP Cloning Wizard. It is important to note that exported source tree does not contain project files, even if they were created in the original location. Please use BSP Cloning Wizard to generate project files.

To export the source tree, click the green arrow button.



You can see the export tree wizard.



Select MQX RTOS, where the board to be exported is stored, and then select the appropriate board.

In the field “Installation Name,” fill in the name of the installation. It is visible in the Installation Manager and can be used to quickly open the board definition.

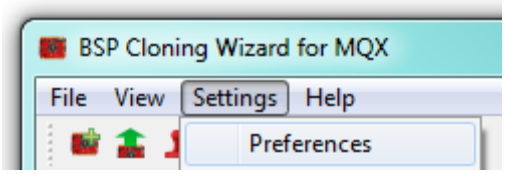
Finally, select the folder where the source should be exported and click the “Finish” button.

When the exporting process is done, you can zip the destination folder and, for instance, share it with another team member. You should be aware, however, that, on a new machine, it should be registered in the MQX software installation manager. For more information, see the next chapter.

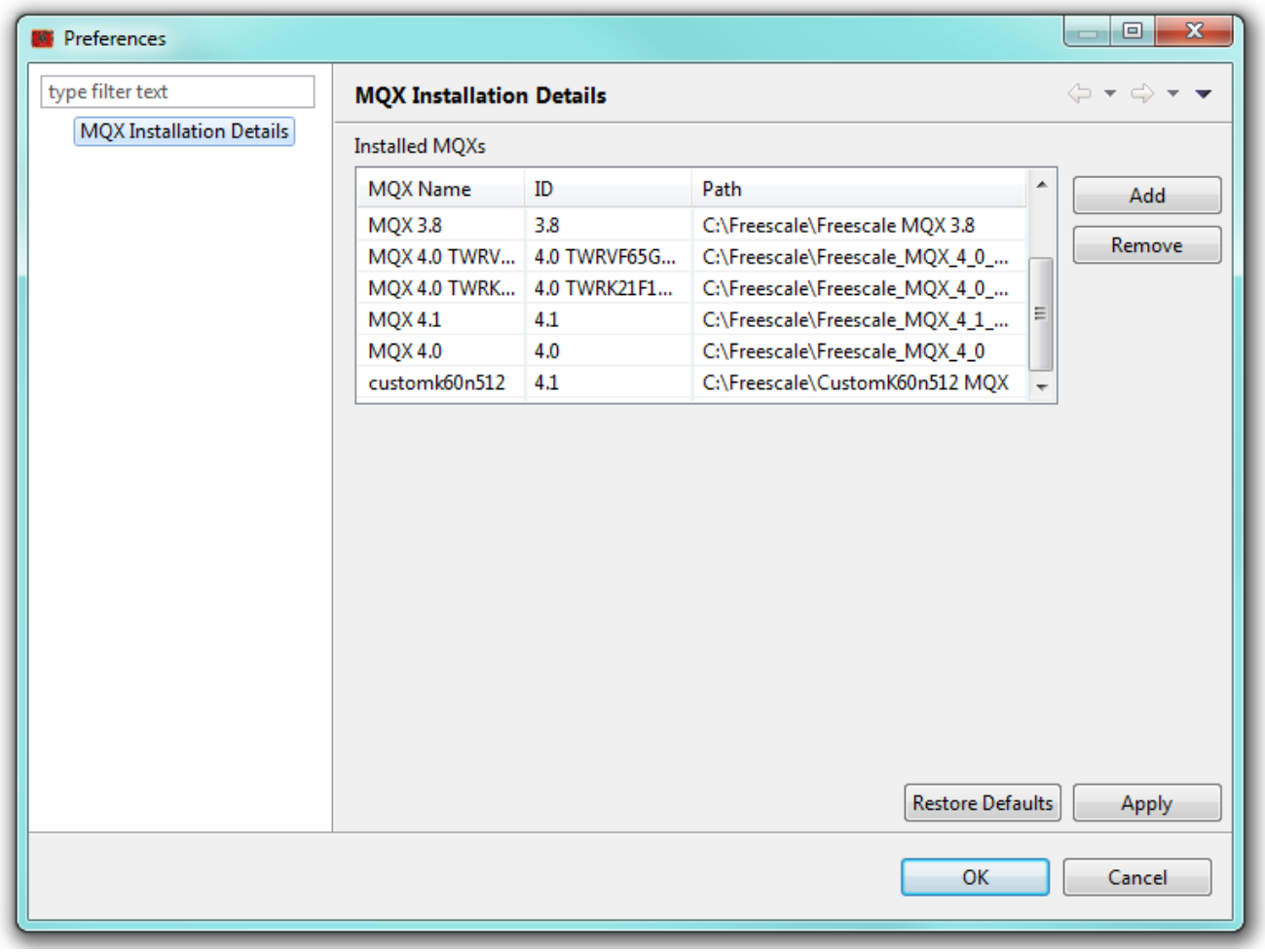
2.5 MQX software installation manager

When you install MQX RTOS using the installer from the Freescale web page, your MQX installation is registered in the Windows registry. However, this is not the case when you get a MQX software source tree from someone else, or when you move your MQX installation to some other directory. The registry entries become outdated.

To register the MQX software source tree go to the “Settings/Preferences” menu.



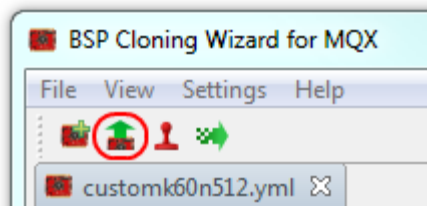
You can see the MQX Installation Details page.



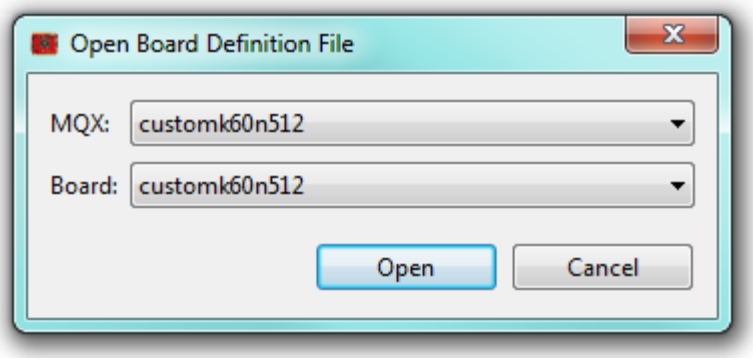
You may add another entry which contains a name (it is used in many dialogs), ID which is used to identify your MQX RTOS version, and the path to the installation. Please note that the ID is slightly different than the version. For instance, MQX RTOS version 4.0.1 has ID equal to 4.0. When you have finished adding MQX installations click the “Apply” button and then the “OK” button.

2.6 Opening board definition file

To open a board definition file (e.g. you got a source tree and you want to generate project files for it) click the icon.

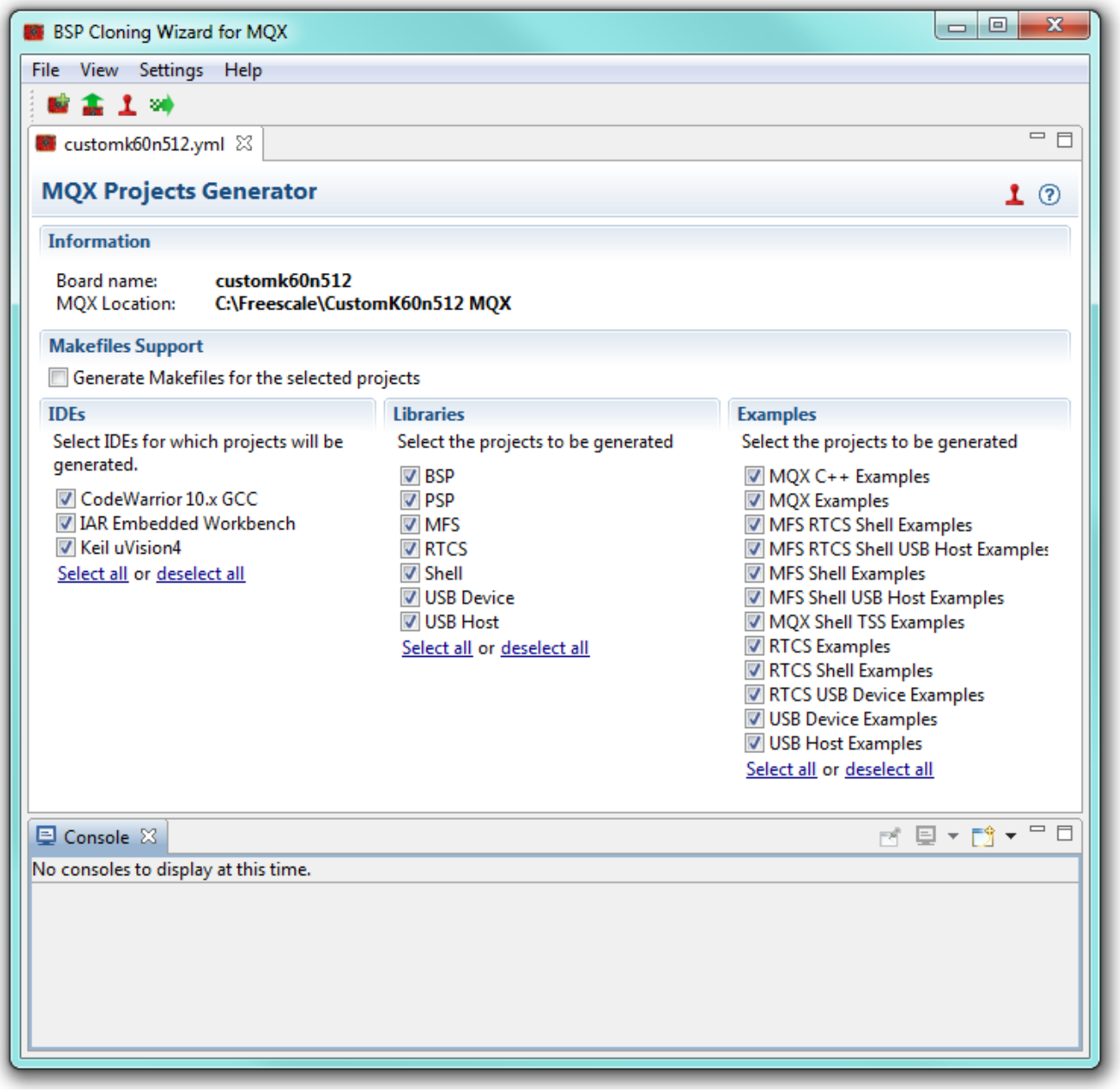


You can see the dialog window.



Select appropriate MQX RTOS and the board you want to open. Please keep in mind that the MQX installation has to be registered in the MQX installation manager to be visible in this dialog.

Click the “Open” button. The board definition file is opened.



2.7 Support for the MQX New Project Wizard in CodeWarrior

If projects for CodeWarrior have been selected, at the end of the generation process the BSP Cloning Wizard creates additional XML file and two windows registry files. One file is for the 32-bit system and the other file is for the 64-bit system. The files are named accordingly. Ensure that you use the appropriate file corresponding to the registry. The files may be used to add the custom board into the MQX CodeWarrior New Project Wizard.
It is important to ensure that the New Project Wizard for MQX software plug-in in version 1.4.0 or later is used.
The generated XML and the registry files may be found in the following directory:
<install_dir>/tools/CodeWarriorNPW

The registry file is used to add the MQX software path to the Windows Registry, which is especially important if you have exported the MQX source tree to a new location. The CodeWarrior New Project Wizard uses the Windows Registry to get the root folder of MQX RTOS.

All MQX installations are registered under the following node in the Windows Registry:
[HKEY_LOCAL_MACHINE\SOFTWARE\Freescale\Freescale MQX]

After importing the registry file in Windows, the XML file has to be copied into the CodeWarrior folder structure. The general schema of folders is as follows:
<codewarrior_install_dir>/MCU/lib/wizard_data/mqx/<mqx_version>/<architecture>

For instance, for MQX RTOS version 4.1.0 and the ARM architecture, the XML should be copied to the following directory:
<codewarrior_install_dir>/MCU/lib/wizard_data/mqx/4.0/arm

2.8 Remarks

The other approach to opening board definition files is by using “File/Open File…” command. The files with the description are located in the following directory:

```
<install_dir>/tools/generator/records/<your_custom_board_name>.yml
```

Please do not move these files to another folder because, during the projects generation process, the generator makes some assumptions about the relative position of MQX files.