Freescale Semiconductor
Application Note

Document Number: AN4910

How to setup pre-build steps in CodeWarrior for Microcontrollers v10.x

1. Introduction

This document outlines the steps for setting up user-defined dependencies and pre-build steps in CodeWarrior for Microcontrollers v10.x.

An MC9S08QE128 CodeWarrior v10.5 project is used as an example to configure the pre-build settings from within the CodeWarrior IDE.

NOTE: The steps described in this document can be applied to any other architecture.

Contents

2. Build steps settings

- Input the commands or a script to be executed before the execution of the build
- If needed, update related project settings

2.1. Create a dummy project

Create a new dummy project with the project wizard for MC9S08QE128.
To create a project:

1. Select **File > New > Project… > Bareboard Project**.
2. Provide a name to the project and follow the steps in the project wizard.

2.2. Pre-build steps

This option identifies any steps that occur before the build takes place. The pre-build steps are executed only if the state of the main build is not up to date. An attempt to execute the main build occurs regardless of the success or failure of executing the pre-build step.

One or more commands are specified that execute immediately before the execution of the build. The build tools use the makefile data and the last-modification times of the files to decide which of the files need to be updated. The output of the pre-build steps can be saved into a file and used as a dependency to the build tools. However, this may incur some unwanted building effort if the pre-build commands only update the last-modification time of this file but its content. In such a case, all the source files will be rebuilt no matter if the source files are changed or not.

The MC9S08QE128 project created before is used to show you this problem and the method we take to work around it.

In this MC9S08QE128 project the pre-build commands create a user defined pre.prm file, which is in turn a dependency for the linker. The only thing changed in this project is the last-modification time of the pre.prm file created in the pre-build steps. The changes of the last-modification time of the pre.prm will cause a full rebuilding when a building is performed.

The following figure shows the command added to the MC9S08QE128 project for creating a user defined PRM file.

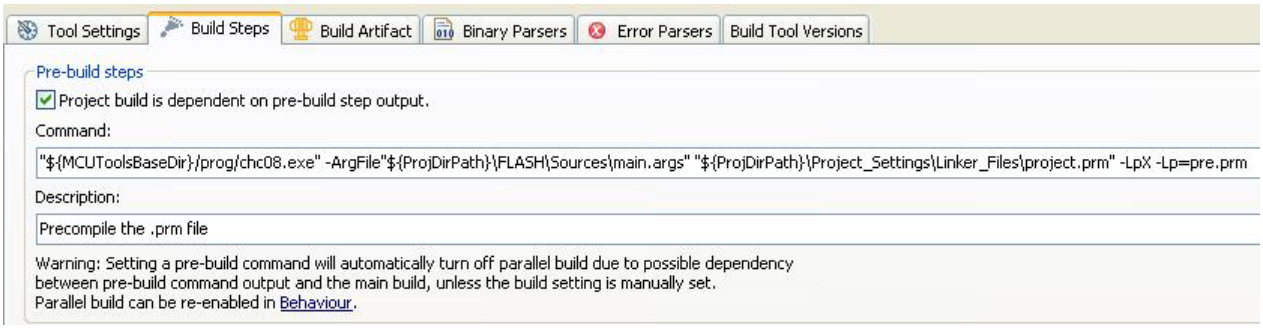

Figure 1. Build Steps

The following figure shows the input option of the S08 linker in the MC9S08QE128 project. The pre.prm file created before is used as the parameter file to the S08 linker.

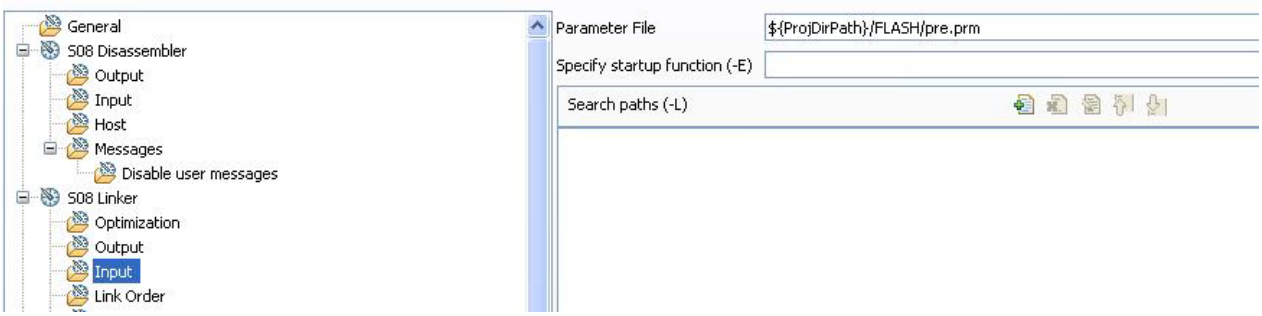

Figure 2. Input of S08 Linker

2.3. Solution for user-defined pre-build steps

In order to solve this problem, it would be required to avoid modifying the last-modification time of pre.prm if the content is the same. A script is executed in the pre-build phase to check if the content of pre.prm file is modified or not.

The first step is to create a script file, for example prebuild.bat:

```
""%1"\chc08.exe" -ArgFile"%2\FLASH\Sources\main.args"
"%2\Project_Settings\Linker_Files\Project.prm" -LpX -Lp=pre.prm.tmp

if not exist pre.prm goto differs

fc pre.prm.tmp pre.prm > nul
if errorlevel 1 goto differs

goto end

:differs
copy /y pre.prm.tmp pre.prm

:end
```

Then, set the pre-build command to

```
"${ProjDirPath}\prebuild.bat" "${MCUToolsBaseDir}/prog/" ${ProjDirPath}
```

Select **Properties > C/C++ Build > Settings > Build Steps.**
Uncheck the **Project build is dependent on pre-build step output** option

Build steps settings

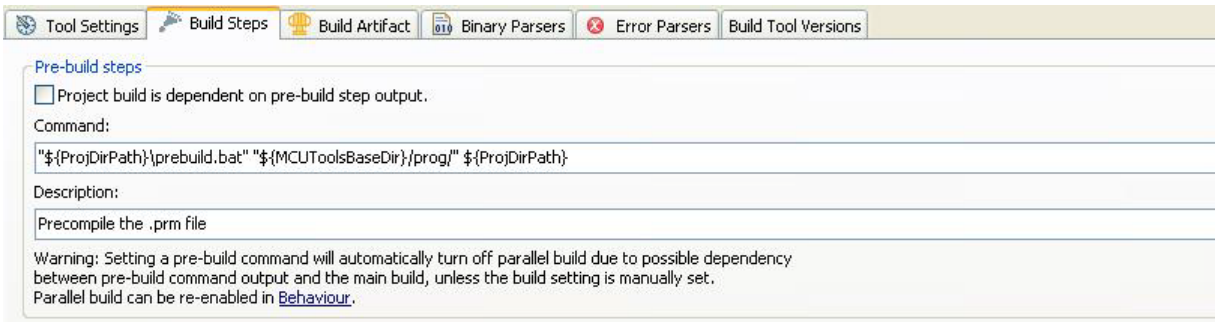

Figure 3. Pre-build steps

How to Reach Us:

Home Page:
www.freescale.com

E-mail:
support@freescale.com

Document Number: AN4910

19 March 2014