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# APPLICATION NOTE



**Ref:** FR-191-AN-RB-001  
**Date:** 27<sup>th</sup> May 2010  
**To:** General distribution  
**From:** Richard Barry – Real Time Engineers Ltd.  
**Subject:** Using the EWARM example projects that accompany the Cortex-M3 edition of the FreeRTOS book on a Stellaris microcontroller.

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## INTRODUCTION

The book *Using The FreeRTOS Real Time Kernel – a Practical Guide* presents numerous examples, the source code for which is provided in a.zip file that can be downloaded from the FreeRTOS web site.

The Cortex-M3 edition of the book is relevant to several different Cortex-M3 microcontrollers and several different tool chains. This application note describes how to use the examples on a Texas Instruments Stellaris microcontroller, using the IAR Embedded Workbench for ARM (EWARM) tool chain. Note however that the screen shots contained in the book are not taken from EWARM.

The example projects can be built and executed using the free EWARM KickStart version. See <http://www.iar.com/ewarm> for download links.

Most (if not all) Stellaris evaluation kits have debug circuitry built onto the evaluation board, removing the need for any external debugging interface. The example projects make use of the EWARM semi-hosting feature to write messages to the terminal IO window within EWARM itself. The example projects were created and tested on the EK-LM3S6965 and EK-LM3S8962 evaluation boards, but do not rely on any particular IO interfaces, so should be suitable for use on any of the evaluation boards available (although a little retargeting may be required).

The semi hosting interface selected in the example projects causes the microcontroller core to be stalled while strings are being output. This results in the example projects running more slowly than would otherwise be the case.

## IMPORTANT NOTE ON THE EWARM VERSION NUMBER

The example projects were created in EWARM 5.41.2. Do not attempt to open the example projects in a version that is older than this as doing so might result in the project files getting silently corrupted.

## LOCATING THE EXAMPLE PROJECTS

The Embedded Workbench workspace files are all called RTOSDemo.eww and can be located in the Examples\Example0nn directories, where 'nn' is the example number.

## **OPENING, BUILDING AND EXECUTING THE EXAMPLE PROJECTS**

The example workspaces can be opened, built and debugged using the standard EWARM menu items.

The projects included in the workspaces are pre-configured for connection to a Texas Instruments evaluation kit using a standard micro USB cable (included as part of the kit). The EWARM terminal IO window must be open to observe the output. The projects are delivered with the terminal IO window already open (it will only be visible while a debug session is active). If it is accidentally closed then it can be re-opened using the EWARM view menu (again, only while a debug session is in progress).