User's Guide
SWRU375–May 2014

CC3100 SimpleLink™ Wi-Fi® and IoT Solution Getting Started Guide

ABSTRACT

This document lists the instructions for configuring the CC3100 SimpleLink Wi-Fi BoosterPack™ device, while connected to a host computer. It provides guidelines to set-up the environment; both software and hardware, in order to execute the CC3100 SDK sample applications. It must be read in conjunction with application-specific user's guides

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1 Introduction

Connect any low-cost, low-power microcontroller (MCU) to the Internet of Things (IoT). The CC3100 wireless networking solution is a part of the new SimpleLink Wi-Fi family that dramatically simplifies the implementation of internet connectivity. This product integrates all protocols for Wi-Fi and internet, which greatly minimizes host MCU software requirements. With built-in security protocols, the CC3100 solution provides a robust and simple security experience. Additionally, the CC3100 is a complete platform solution including various tools and software, sample applications, user and programming guides, reference designs and the TI E2E™ support community. The device is available in an easy to lay-out QFN package.

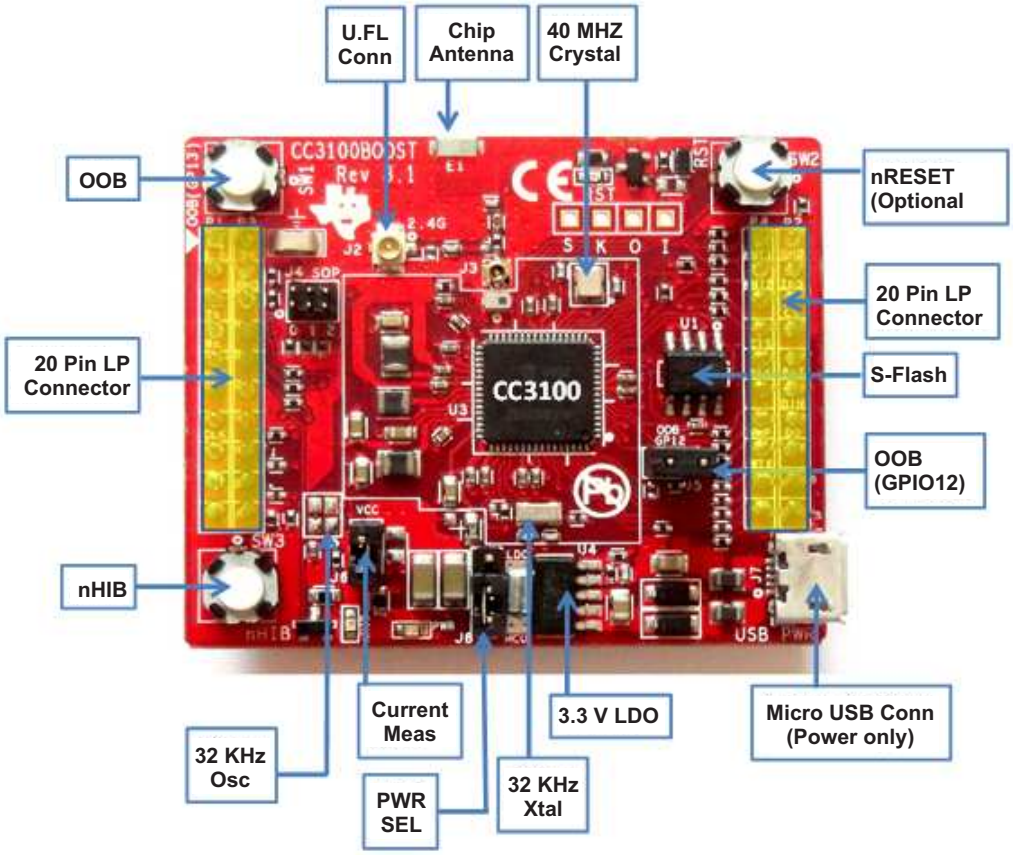
2 Prerequisites

- Hardware
  - CC3100 Booster-Pack 3.3: http://www.ti.com/product/cc3100
  - MCU - MSP430F5529 Launchpad
  - CC31xx EMUBOOST Board 3.0
  - Wi-Fi Access Point
  - Two Micro USB Cables
- Software
  - CC3100 Embedded Wi-Fi Software Development Kit
  - IAR Embedded workbench, and Code Composer Studio™
  - Visual Studio express or Eclipse
- This document should be read in conjunction with the SDK release notes; which is part of the installed package.

3 Configuring the Target Device and Hardware Quick Start

3.1 CC3100 BoosterPack™

This section contains instructions to connect the CC3100 BoosterPack to a Windows based PC running *SimpleLink Studio for CC3100* available at SimpleLink Studio User Guide (if the PC is chosen as a host-platform) or an external 'MCU'. For more detailed instructions, see the *CC3100 SimpleLink Wi-Fi and IoT Solution BoosterPack Hardware User's Guide* (SWRU371).



3.2 Guidelines for Using BoosterPack

The following instructions should be followed for seamless working of BoosterPack.

- Settings required on BoosterPack:
  - J8: Mounted on pin 2-3
  - J6: Mounted
  - These jumper settings must be followed to work with all MCU or EMUBOOST board.

NOTE: BoosterPack should always be powered from on-board USB.

3.3 Flashing the Firmware

Updating the firmware of the CC31xx BoosterPack is required in order to work with the SDK. To update the firmware of CC3100 BoosterPack, follow the steps at the CC3100 Flasher wiki.

3.4 Connecting to External MCU - MSP430F5529 Launchpad

- Jumper Configuration:

  For more information, see Section 3.2.

Steps to attach the CC3100 BoosterPack to MSP430F5529 Launchpad are shown in Figure 1

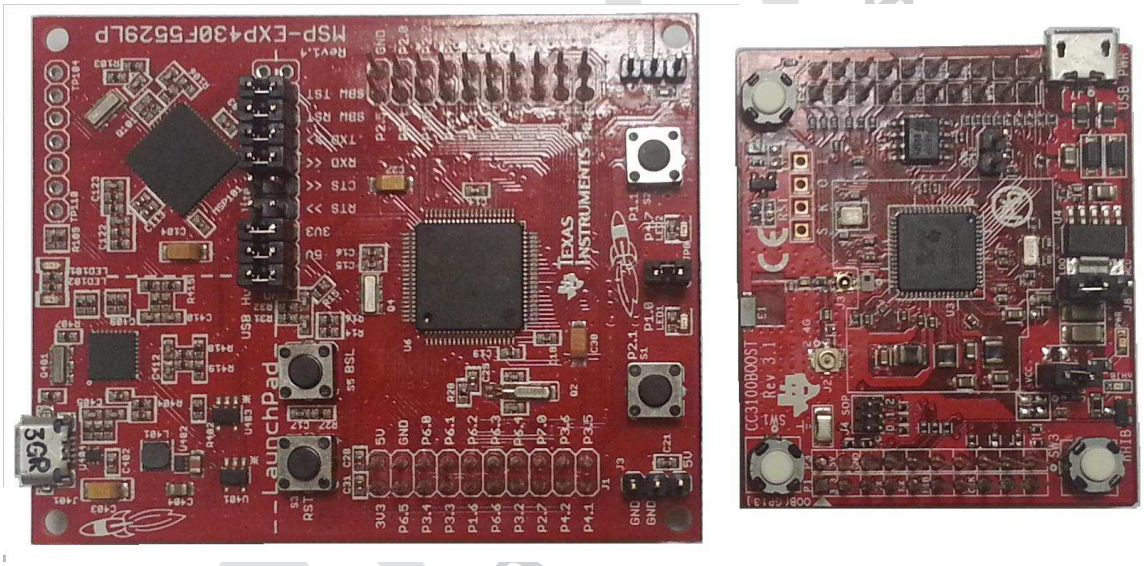


Figure 1. Attaching CC3100 BoosterPack

1. Mount the CC3100 BoosterPack on the Launchpad as shown in Figure 2. Make sure it is correctly connected.

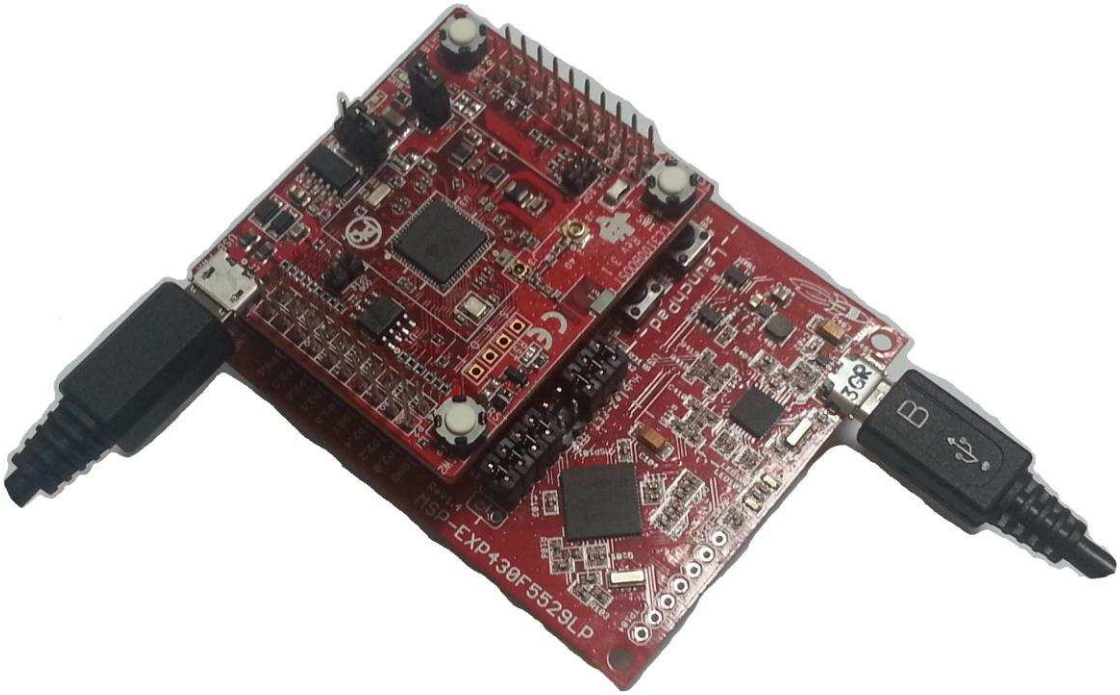


Figure 2. Mounting CC3100 BoosterPack

2. USB connections:
   (a) Connect the Micro USB cable to the CC3100 BoosterPack and the PC.
   (b) Connect the micro USB cable to the MSP430F5529 Launchpad and the PC.

3.5 Connecting to SimpleLink Studio for CC3100 (Windows PC-based platform)

This is required to work with *SimpleLink Studio for CC3100* applications. *SimpleLink Studio for CC3100* is a tool to aid in the development of applications designed to work with the SimpleLink Wi-Fi CC31xx family of wireless chips. Using *SimpleLink Studio for CC3100*, code can be written and run in a desktop IDE, such as Visual Studio or Eclipse. This allows the code to be easily tested while it is under development, and later ported to an MCU without having to be modified. More details about *SimpleLink Studio for CC3100* are available in the *SimpleLink Studio for CC3100* available at SimpleLink Studio User Guide.

- Jumper Configuration on CC3100 BoosterPack
  For more information, see Section 3.2.
- Jumper configuration on EMUBOOST board:
  – J4 - Mounted
  – J22 - Mounted

1. Mount the CC3100 BoosterPack on EMUBOOST board as shown in Figure 3.

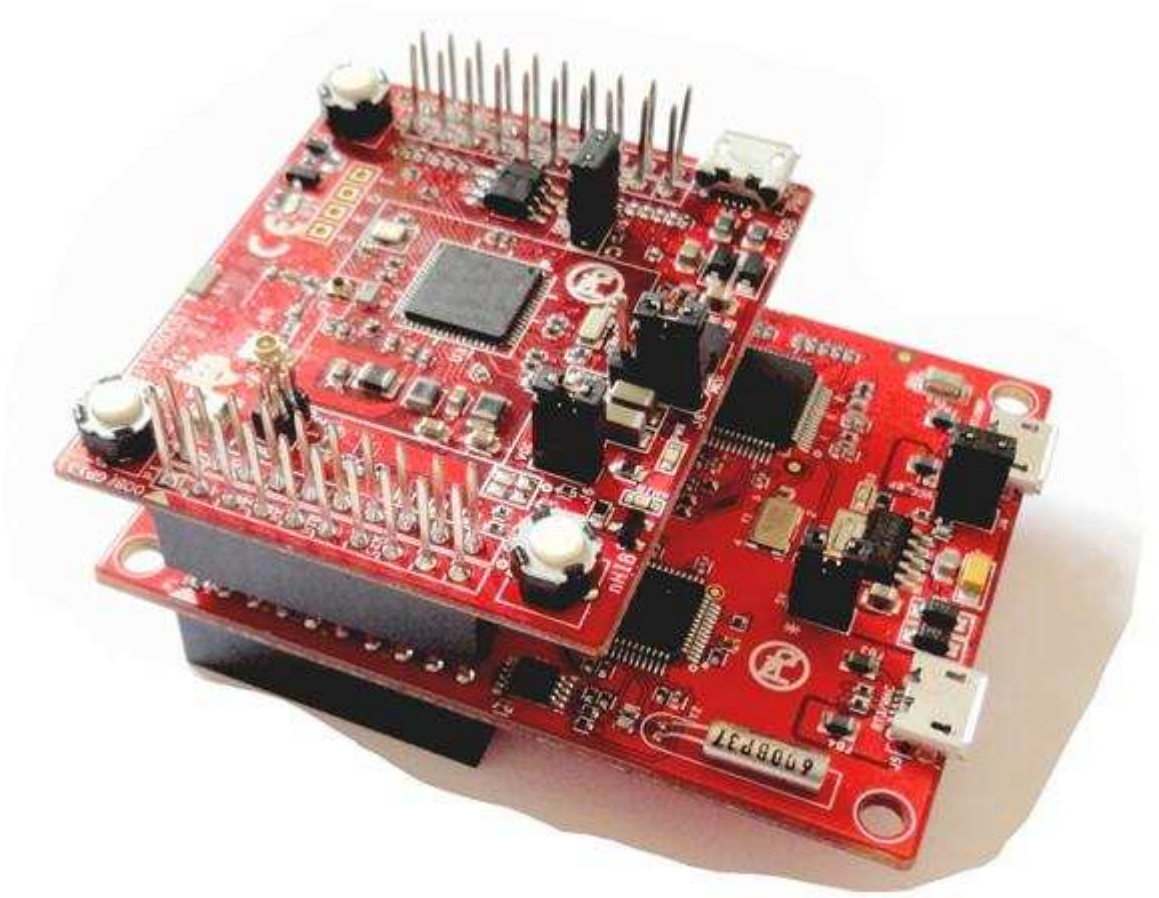


Figure 3. Mounting CC3100 BoosterPack

2. USB connections
   (a) Connect the Micro USB cable to the CC3100 BoosterPack and the PC.
   (b) Connect the micro USB cable to the J6 USB port of EMUBOOST and the PC.

4 Software Quick Start

4.1 Downloading CC3100 Embedded Wi-Fi Software Development Kit

1. Install the CC3100 Embedded Wi-Fi Software Development Kit.
2. Run 'CC3100SDK-0.x-windows-installer.exe' and follow the installation steps provided by the software development kit (SDK).
3. *Start → All Programs → Texas Instruments → CC3100 SDK → Demo Applications* has a list of all supported platforms and each platform has a list of all the supported applications (see Figure 4).

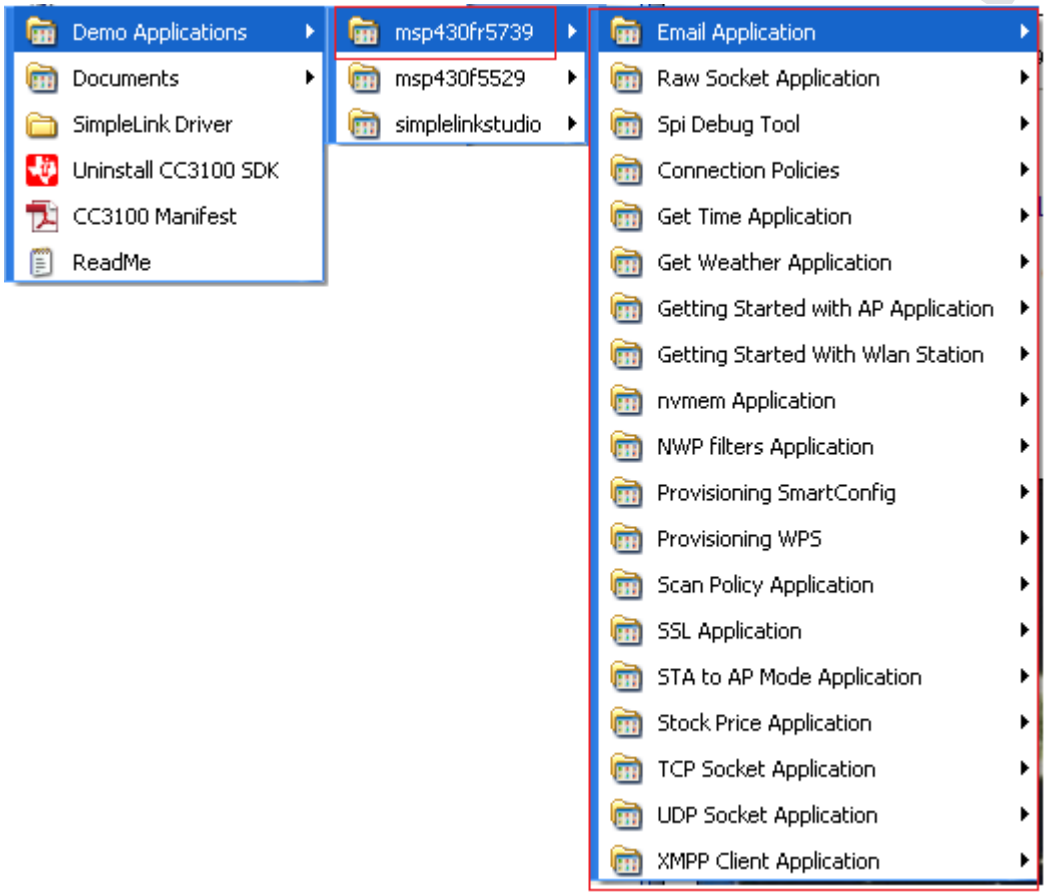


Figure 4. Demo Applications

4.2 Working With External MCU - MSP430F5529 Launchpad

1. Install an IDE to compile and execute the sample applications.
   (a) CCS
   (b) IAR
2. Mount and connect the CC3100 BoosterPack with MSP430F5529 Launchpad (see Section 3.4). The Windows PC should recognize it as 'MSP Debug Interface' (see Figure 5).

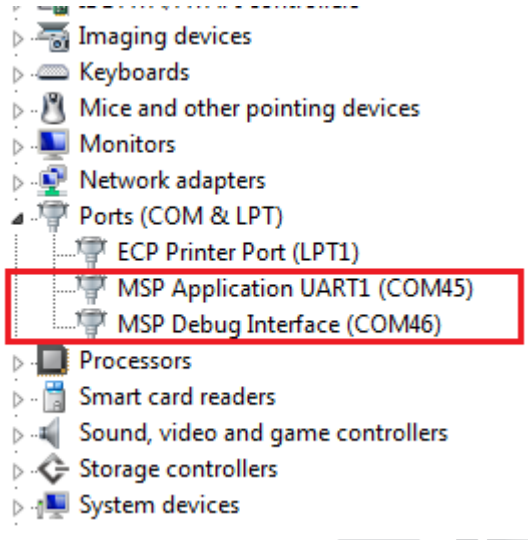


Figure 5. MSP Debug Interface Connection

3. *IAR* or *CCS* projects are available in CC3100 SDK v0.x at 'cc3100-sdk → platform → msp430f5529lp → example_project_iar' or 'cc3100-sdk → platform → msp430f5529lp → example_project_ccs', respectively.
4. Evaluate the demo applications. Detailed testing instructions are available in application-specific user's guides.
5. For universal asynchronous receiver/transmitter (UART) prints, the Terminal should be connected with the MSP Application UART port configured with 9600 baud rate setting.

4.3 Working With SimpleLink Studio for CC3100' (Windows PC host)

This is required to work with *SimpleLink Studio for CC3100* applications.

1. Mount and connect the CC3100 BoosterPack with EMUBOOST board (see Section 3.5). The Windows PC should recognize the device as shown in Figure 6.

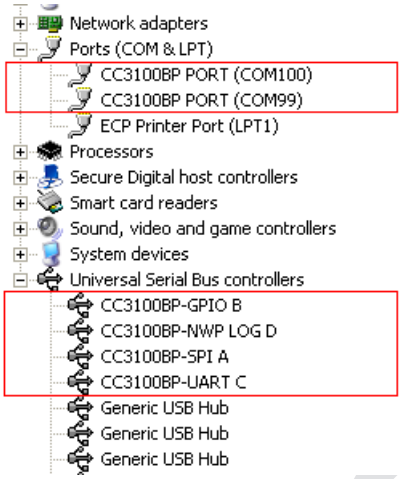


Figure 6. EMUBOOST Board

2. Install the FTDI Drivers on the Windows PC, if the device is not recognized.
   (a) When installing the device drivers using Windows *Found New Hardware* wizard, direct it to the FTDI directory that contains the '*.inf' files.
   (b) FTDI Drivers for the CC3100 BoosterPack are available in CC3100 SDK v0.x at cc3100-sdk → tools → cc31xx_board_drivers.
3. Install an IDE to compile and execute *SimpleLink Studio for CC3100* applications.
   (a) Visual Studio
   (b) Eclipse
4. Open the *Visual Studio* or *Eclipse* project available in CC3100 SDK v0.x at cc3100-sdk → platform → simplelinkstudio.
5. Evaluate the demo applications. Detailed testing instructions are available in application-specific user's guides.

5 Platform Configuration

5.1 Tiva-c-launchpad

TivaWare™ needs to be installed on the system to work with the tiva-c launchpad. SDK applications are tested with TivaWare version 2.1.0.12573. The following configuration is required on IAR and CCS while working with the tiva-c launchpad (TM4C123GH6PM).

5.2 CCS

1. Import the *Getting Started* project into CCS.
2. Open the project properties.
3. Open *Resource → Linked Resources* section.
4. Under the *Path Variable* tab, edit the *TIVAWARE_ROOT* value.
5. Change the value to tivaware root directory.

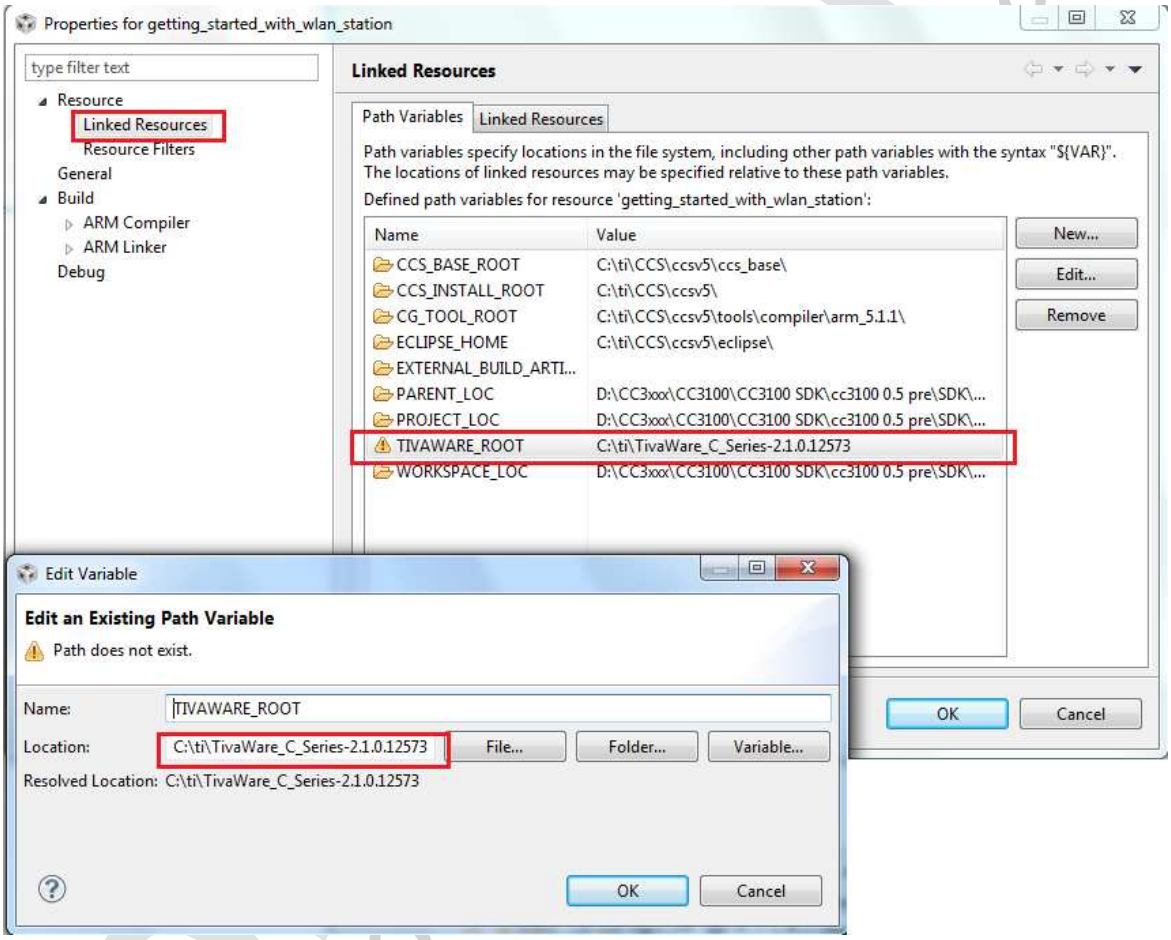


Figure 7. Editing Path Variable

5.3 IAR

1. Open the *Getting Started* project in IAR.
2. Open the project properties.
3. Open *C/C++ Compiler* → *Preprocessor* tab (see Figure 8).
4. Check and modify the TivaWare root directory path.

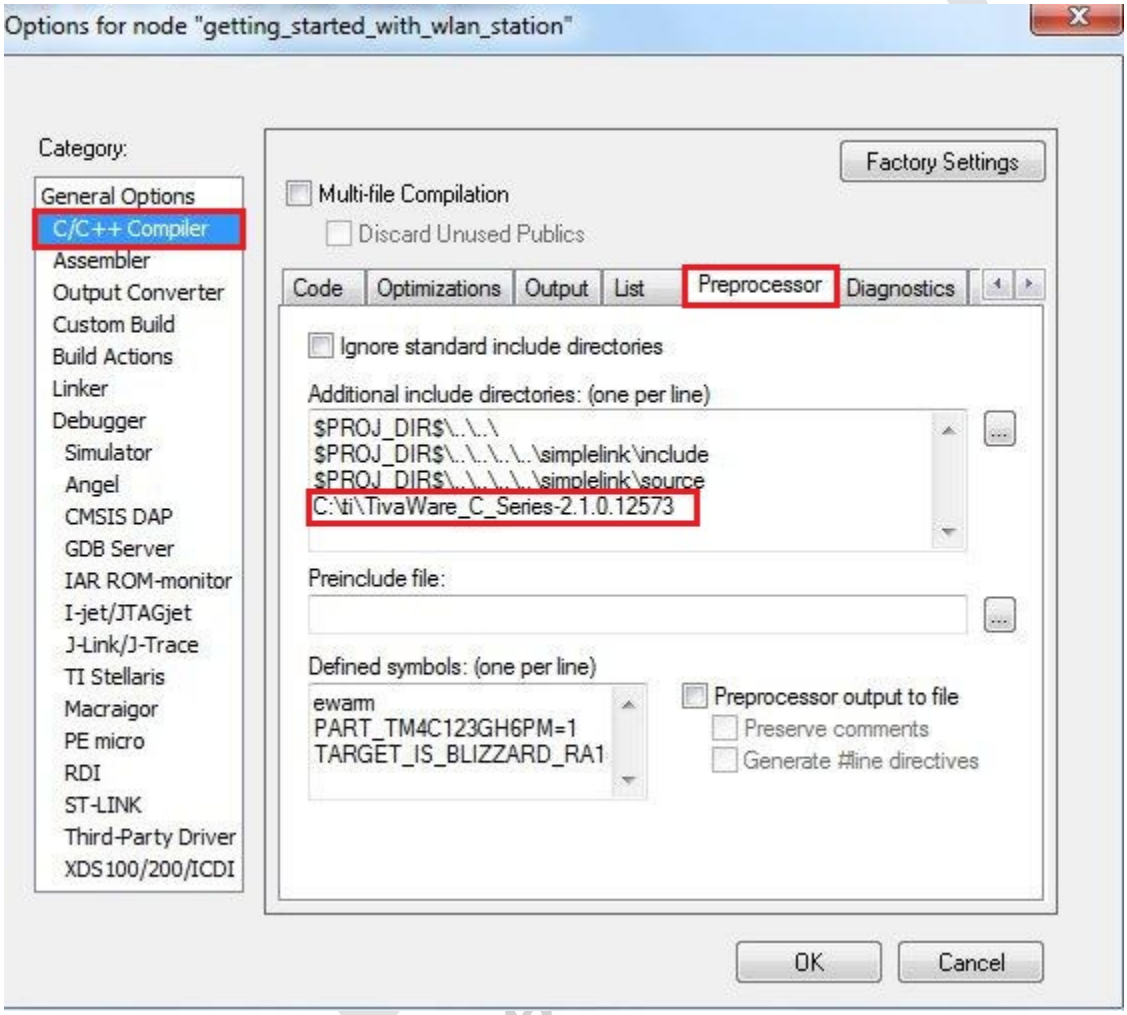


Figure 8. Preprocessor Tab

5. Open *Linker* → *Library* tab (see Figure 9).
6. Check and modify the Tiva driver lib path.

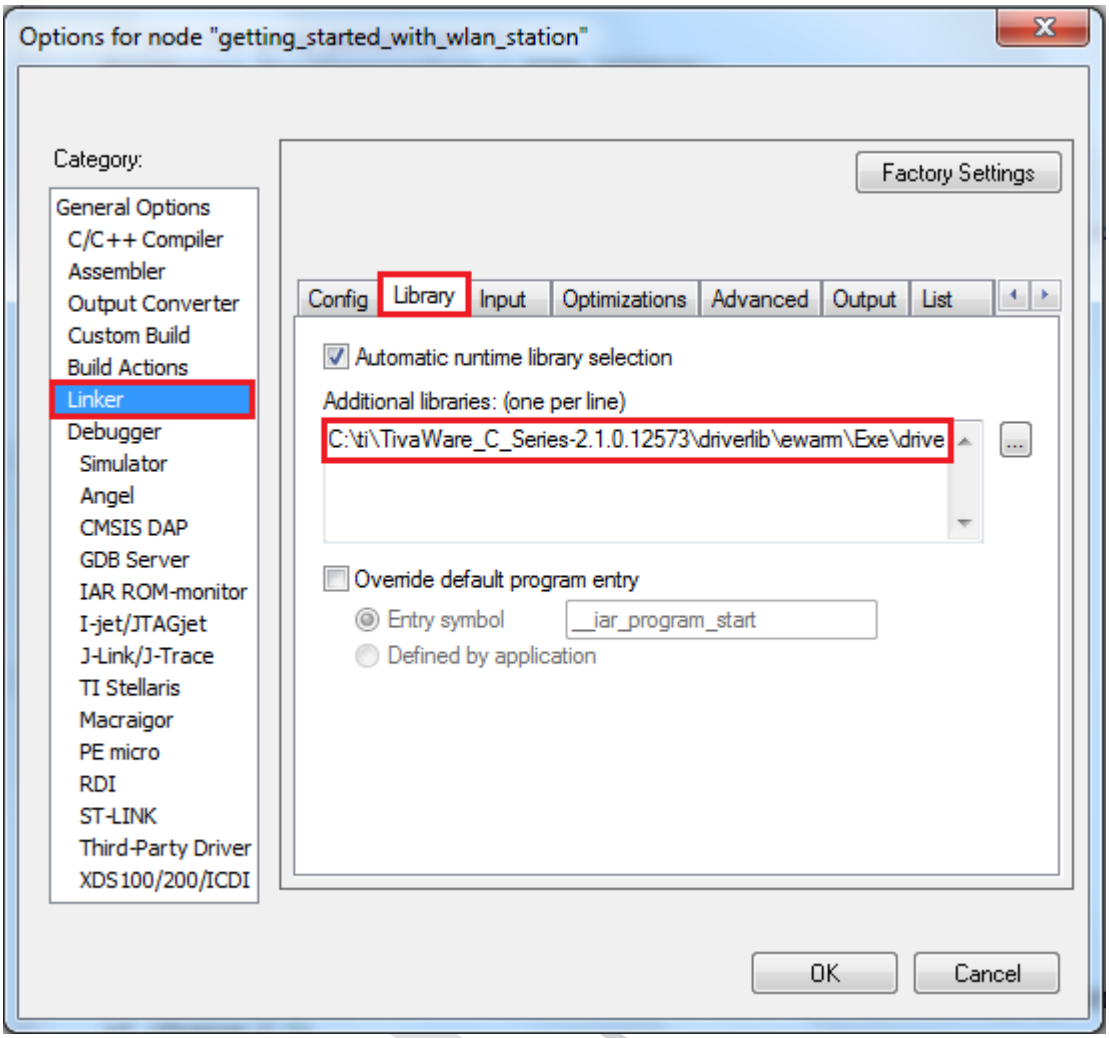


Figure 9. Library Tab

6 References

- *CC3100 SimpleLink Wi-Fi and IoT Solution BoosterPack Hardware User's Guide* (SWRU371)
- SimpleLink Studio for CC3100 User's Guide
- CC3100 SDK Release notes. This is part of the installed SDK package

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