

Okay, so be glad that you did not have to wander around the mighty web in search of the hidden gems that are needed to set up the development environment for this tiny little thing. Well, you may as well try to hunt them if you are feeling adventurous ... my recommendation is, be glad and collect some happiness while you can.

Disclaimer: It is intended that your love for abbreviations will grow as you read this document (mine did not)---
(can we make this text even more smaller so it would look like a line...? share your ideas)(Also, expect some dark humor)

Right, now that some context has been set, here are the software tools you need:

- Code Composer Studio (CCS)
- TI Bluetooth SDK (BLE_SDK)
- TI Real Time Operating System (TI_RTOS)
- Bluetooth Developer Studio (BDS)
- TI Plugins for BDS
- TI Simplelink Academy
- Flash Programmer

"Just download and install these and start working, what's the big deal ... ?", you might think. But no, you cannot 'just' download, install and expect these things to work. These tools are not created to work like that. There has to be right dependencies among the tools. It's sacred...! However, if later in your life, you find a new combination of dependencies that work best together and/or are latest as well, please update this document and help reduce some stress from the world.

Ideally, TI offers cloud tools at <https://dev.ti.com/>, and ideally you would just need to sign up, ideally plug in the debugger with the CC2650STK board connected to it, ideally install the drivers for it, ideally install the explorer extension, ideally set up an example project with the right configurations and expect it to work ... and guess what? It would work but the only thing it would do is, hit a break-point in the main() and exit.

```
/*
 * ===== hello.c =====
 */

/* XDC Module Headers */
#include <xdc/std.h>
#include <xdc/runtime/System.h>

/* BIOS Module Headers */
#include <ti/sysbios/BIOS.h>

/* Example/Board Header files */
#include "Board.h"

/*
 * ===== main =====
 */
Int main()
{
    /* Call board init functions */
    Board_initGeneral();

    System_printf("hello world\n");

    /*
     * normal BIOS programs, would call BIOS_start() to enable interrupts
     * and start the scheduler and kick BIOS into gear. But, this program
     * is a simple sanity test and calls BIOS_exit() instead.
     */
    BIOS_exit(0); /* terminates program and dumps SysMin output */
    return(0);
}
```

This is because there are no example projects provided on the cloud tools for CC2650STK and you cannot, therefore, set up a fully functional base project that includes BLE and RTOS stack. So it is recommended to skip that thought right there and for good, or use a hardware dev kit that is compatible with TI cloud.

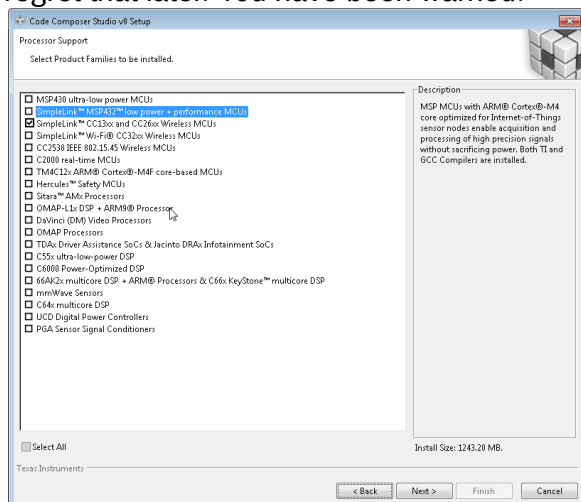
Let's begin. ... no! easy champ! not yet! Let's download the stuff first.

1 Downloads

Important and weird: Whenever you try and download anything from TI, you have to sign this declaration that you will not use their products in making nukes. You will need to sign up with TI; and before downloading, select 'Civil' and 'Yes' for a successful download. I am not kidding, take a look:

The image shows a 'TI Request' form. The 'U.S. Government export approval' section is highlighted. It contains a declaration that the user is not in a restricted country and is not using TI products for military or nuclear purposes. The user must check 'Yes' to certify the information is true.

- **Code Composer Studio 8.0 (CCS)**
 - This link goes to a generic download page of TI that contains all versions of CCS. However, try this link to directly download **CCS 8.0**.
 - Again, if you are sitting behind a proxy, do not download the Online Installer as you will regret that later. You have been warned!



- **TI Bluetooth SDK (BLE_SDK)**
 - If you go to link, you would see BLE-STACK and BLE-STACK-2-2-2, former one is for CC254X and the latter one is for CC26X0. Can you guess the version you would need? Latter one, right? Right? RIIGHHTT?? No! you are hopelessly wrong.
 - You need **2.02.01.18** and precisely this one. Reason? All the TI tutorials and examples are based on this version and even a slightest change of version makes APIs incompatible; e.g, in version 2.02.02, they replaced semaphores with events and all the examples broke. Not a good thing. Agree?
 - To download this particular version, go to [this link](#) and download the entry that says '**BLE-STACK-2-2-1: BLE-STACK V2.2.1 (Support for CC2640/CC2650/CC1350)**'. Or click on [this link](#) for a direct download.
- **TI Real Time Operating System (TI_RTOS)**
 - Good thing ... it will be installed with the BLE_SDK. Good? Now be happy like this guy -> 😊

- [Bluetooth Developer Studio \(BDS\)](#)
 - This is a tool that is going to touch your heart. It is simple, it is beautiful, it auto-generates code for you and once it does all that, it gives you examples from the auto-generated code that you may use in your application and it is not created by TI. WOWW??
 - Go to the link and download this delicious piece of software.
 - I used BDS version 1.1. So if, by the time you read this document, a newer version is launched, help yourself in finding the right version (1.1) or may be the then-latest version will still work with then-broken TI tools. Who knows? It is up-to your discretion.
- [TI Plugins for BDS](#)
 - I used version 1.0.9. It should be available for download at the bottom of the page
- [TI Simplelink Academy](#)
 - Download the Simplelink Academy. This link is precious. It is hard to find. So preserve it.
 - Simplelink Academy contains very helpful tutorials in getting started with TI BLE and RTOS Stack. I found them very easy to follow and informative.
 - Download the installer from [here](#)
- [TI Flash Programmer](#)
 - Once you go to this link, you would find 2 versions of Flash Programmer.
 - Download the entry that says "*FLASH-PROGRAMMER-2: SmartRF Flash Programmer v2*". Or, click [this link](#) for a direct download.

At this point, if you followed everything correctly, you have installers of all the tools that are required to get started with TI CC2650STK. Cool, I am so happy to see you happy.

2 Installations

Well, you know the general installation process of everything. Right? Double click on the installer, click next → next → next, accept the T&Cs, select the installation path, confirm the settings, wait for the installation to finish and click ... finish.

Here, however, if you install any of the tool in a directory other than the default one, which is C:\ti, it will make you re-evaluate how you make life decisions, because the libraries, examples, projects are hard-coded to find source code and documentation in C:\ti. So do not change the default directory and you will be fine. I do not want you to take this instruction easy, so repeat 's/owly' after me. DO... NOT... CHANGE... THE... DEFAULTS... ! Good! You did a good thing today. Appreciate yourself. 😊

3 Get Started

Getting started is the next and the most difficult step ever in this tutorial.

Nah, just kidding. Because of Simplelink Academy, it is as simple as it could be. The hard part was getting the dependencies right.

Now you may navigate to this directory: C:/ti/simplelink_academy_01_11_00_0000/. In here, you should see overview.html file. Open it and start reading. These are very easy to follow and assembled in a Lab style format.

Here, I leave you with all the good-lucks and best wishes for the endeavors in your journey that you are about to embark...

4 Oh, no. Wait!!!

I forgot something ... it was related to Flash Programmer and resetting your SensorTag with factory image. I'll add that later.

5 If You Want To Be Quick

Download and Install these:

- [CCS 8.0](#)
- [BLE_SDK](#)
- [Bluetooth Developer Studio \(BDS\)](#) (Version 1.1)
- [TI Plugins for BDS](#) (Version 1.0.9)
- [TI Simplelink Academy](#)
- [TI Flash Programmer v2](#)