

CC3200 SimpleLink™ Wi-Fi® and IoT Solution With MCU LaunchPad™ Getting Started Guide

User's Guide



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1	Introduction	4
1.1	Prerequisites	4
2	Getting Started	5
2.1	Download and Install Software	5
2.2	Configure Board	5
2.3	Install USB Driver	5
3	Compile, Download, and Debug	9
3.1	Option 1: Code Composer Studio (CCS)	9
3.2	Option 2: IAR Workbench	16
3.3	Option 3: GCC	21
4	Summary	27
5	Acronyms Used	28
	Revision History	29

List of Figures

1	Jumpers on the CC3200-LAUNCHXL.....	5
2	Windows Device Manager.....	6
3	Update Driver Software.....	6
4	Browse for Driver Software.....	7
5	USB Serial Port.....	7
6	Device Manager.....	8
7	Code Composer Studio v6 Setup.....	9
8	CCS App Center.....	10
9	Select CCS Projects to Import.....	11
10	Select CCS Projects to Import.....	12
11	Properties for <i>ti_rtos_config</i>	13
12	Select <i>simplelink</i> Project.....	14
13	Editing <i>main.c</i>	14
14	Target Configurations.....	15
15	Import Target Configuration.....	15
16	Set as Default.....	16
17	Debug <i>wlan_station</i>	16
18	IAR Embedded Workbench IDE.....	17
19	Open <i>simplelink.eww</i>	18
20	Rebuild the <i>simplelink</i> Project.....	19
21	Editing <i>main.c</i>	20
22	Select TI Stellaris Driver.....	20
23	Debug Icon.....	21
24	Cygwin Setup.....	22
25	Cygwin Terminal.....	23
26	Cygwin Terminal.....	23
27	Running the Make Command.....	23
28	Running the Make Install Command.....	24
29	Editing <i>main.c</i>	24
30	Makefile Command.....	25
31	Output Screen.....	25
32	Debugging <i>wlan_station</i>	26

CC3200 SimpleLink™ Wi-Fi® and IoT Solution With MCU LaunchPad™ Getting Started Guide

This guide is intended to assist users in the initial setup and demonstration of the *Getting Started with WLAN Station* application. The guide explains how to install an Integrated Development Environment (IDE), and then compile, download and debug *Getting Started with WLAN Station*.

1 Introduction

1.1 Prerequisites

The user should have the following items:

- One CC3200-LAUNCHXL
- An 802.11b/g/n (2.4 GHz) Wireless Access Point (AP).
- A computer running the Microsoft® Windows® 7 or XP operating systems.

2 Getting Started

2.1 Download and Install Software

Download and install the following software:

- [CC3200 SDK package](#).
 - This guide assumes the use of the default installation folder C:\TI\CC3200SDK\.

2.2 Configure Board

The jumpers on the CC3200-LAUNCHXL should be connected as shown in [Figure 1](#). It may be necessary to move a jumper from P58-VCC to SOP2.

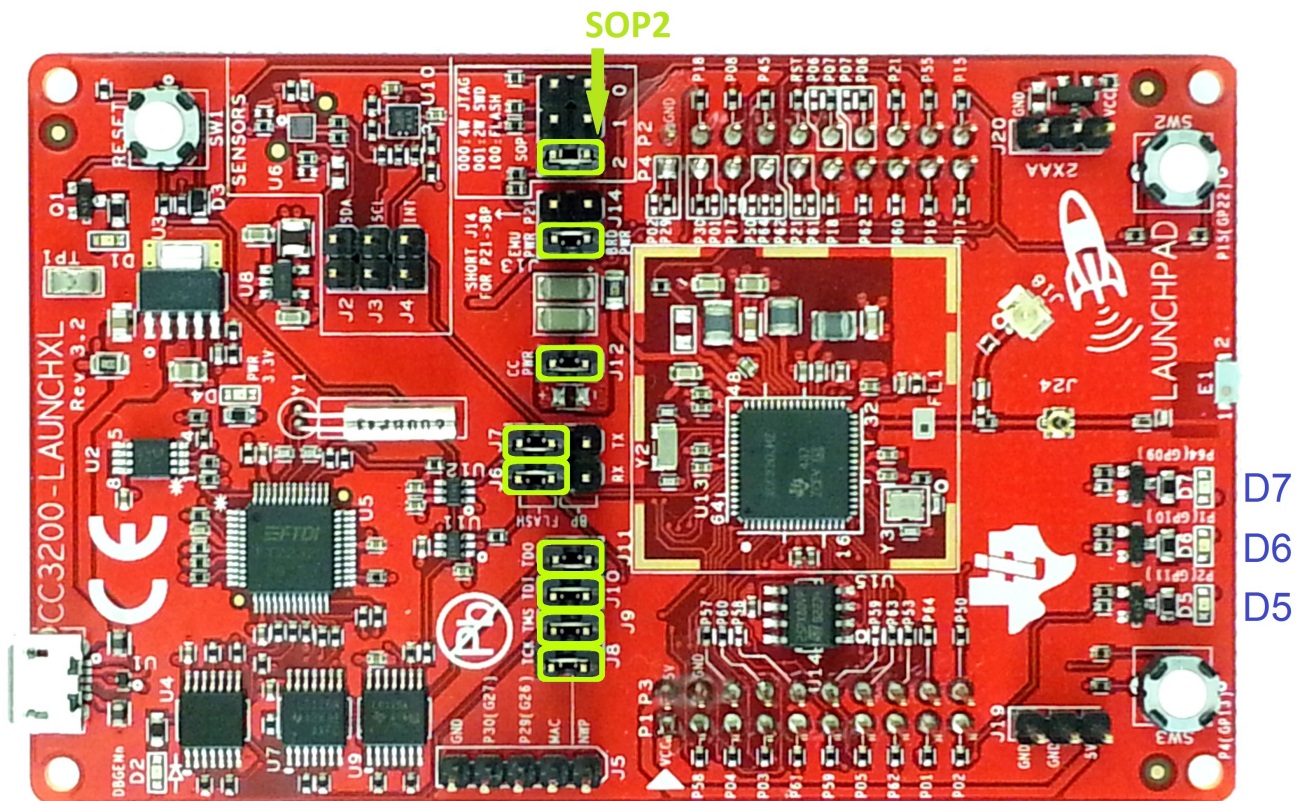


Figure 1. Jumpers on the CC3200-LAUNCHXL

2.3 Install USB Driver

1. Connect the CC3200-LAUNCHXL to the PC using the provided micro-USB cable.
2. Open the Windows Device Manager by selecting *Start Menu > Control Panel > Device Manager*. The CC3200-LAUNCHXL will appear as two instances of “USB <-> JTAG/SWD” under the category *Other Devices* as shown in [Figure 2](#). For both of these instances, the driver software will need to be updated.

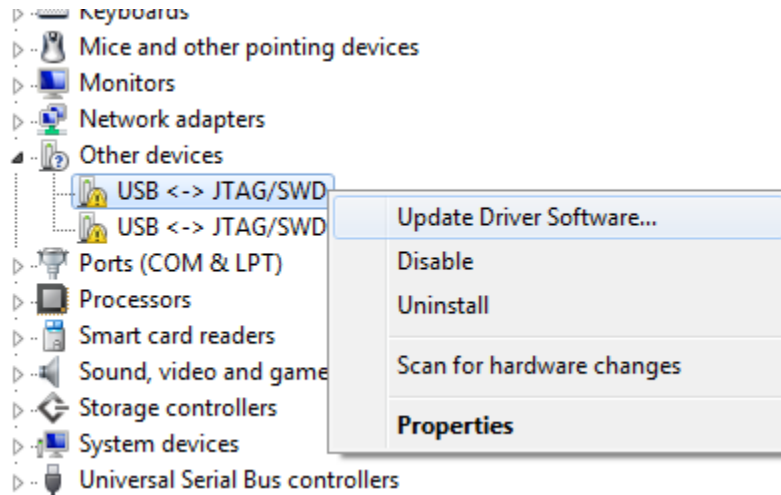


Figure 2. Windows Device Manager

3. Right click on the first instance of “USB <-> JTAG/SWD” and select “Update Driver Software...”
4. Select “Browse my computer for driver software.”

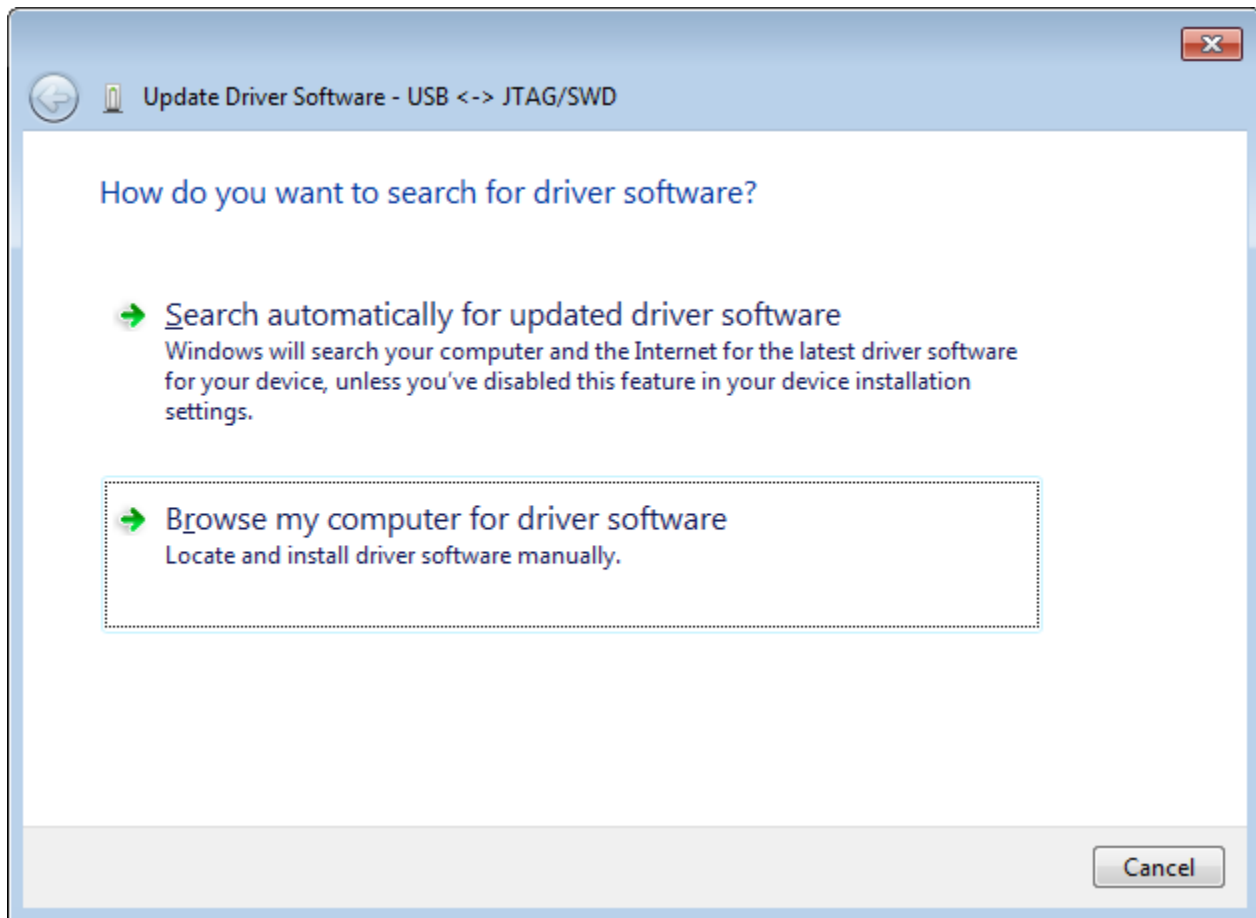


Figure 3. Update Driver Software

5. Fill the search path as `C:\TI\CC3200SDK\cc3200-sdk\tools\ftdi`, and press next. There is no need to restart the PC.

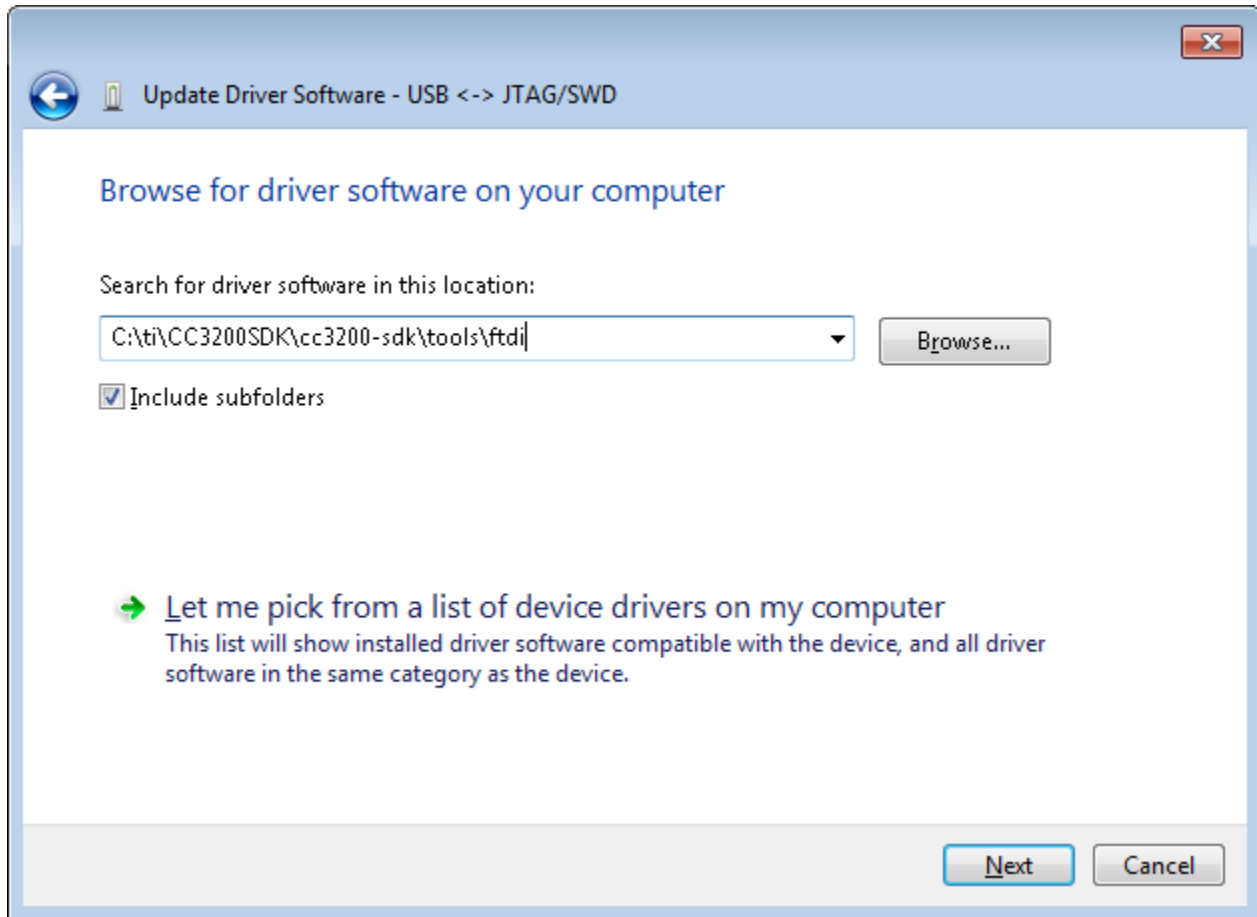


Figure 4. Browse for Driver Software

6. Repeat the above three steps for the other instance of "USB <-> JTAG/SWD."
7. Repeat the same steps for the instance of "USB Serial Port" that should have appeared as shown in [Figure 5](#).

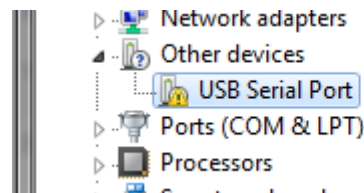


Figure 5. USB Serial Port

8. The CC3200-LAUNCHXL will now be visible in the Device Manager as shown in [Figure 6](#). Note the COM port number that appears.

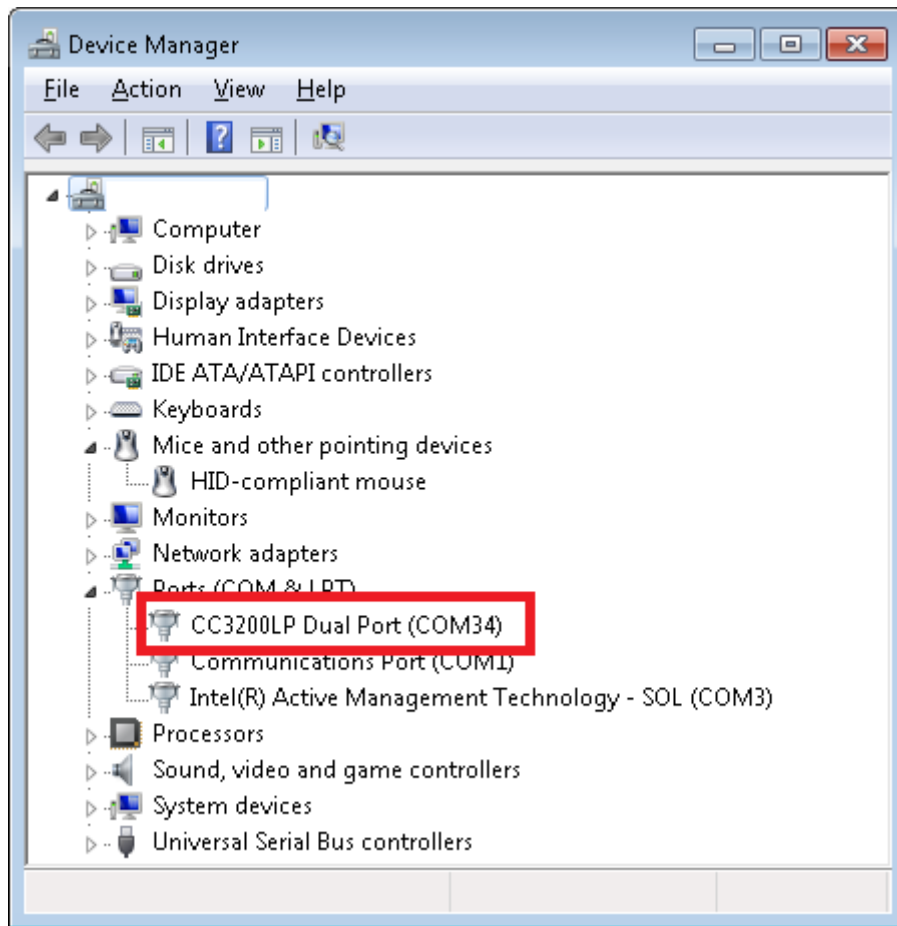


Figure 6. Device Manager

3 Compile, Download, and Debug

The CC3200 SDK supports CCS 6.0, IAR 7.10.3 and GCC IDE/compiler. The example shown here is *Getting Started with WLAN Station*, and performs the following functions:

1. Switches to Station mode if the device is in AP mode.
2. Connects to the user's Access Point (default SSID is 'cc3200demo'). If the connection to the AP is successful, the red LED (D7) will switch on.
3. Pings the user's Access Point. If the ping test is successful, the green LED (D5) will switch on.
4. Pings to www.ti.com to check Internet connectivity. If the ping test is successful, the orange LED (D6) switches on.

This example uses a Real Time Operating System (RTOS).

3.1 Option 1: Code Composer Studio (CCS)

3.1.1 Download and Install

Download and run the Code Composer Studio 6.0 (CCS) installation wizard (*ccs_setup_win32.exe*) from http://processors.wiki.ti.com/index.php/Category:Code_Compiler_Studio_v6 The program must be **Version 6.0.0.00190** or later. Select the Wireless Connectivity MCUs option for processor support. The remaining options for the installer should be left as the default. Installation time is typically 20 minutes, but can vary based on internet connection speed.

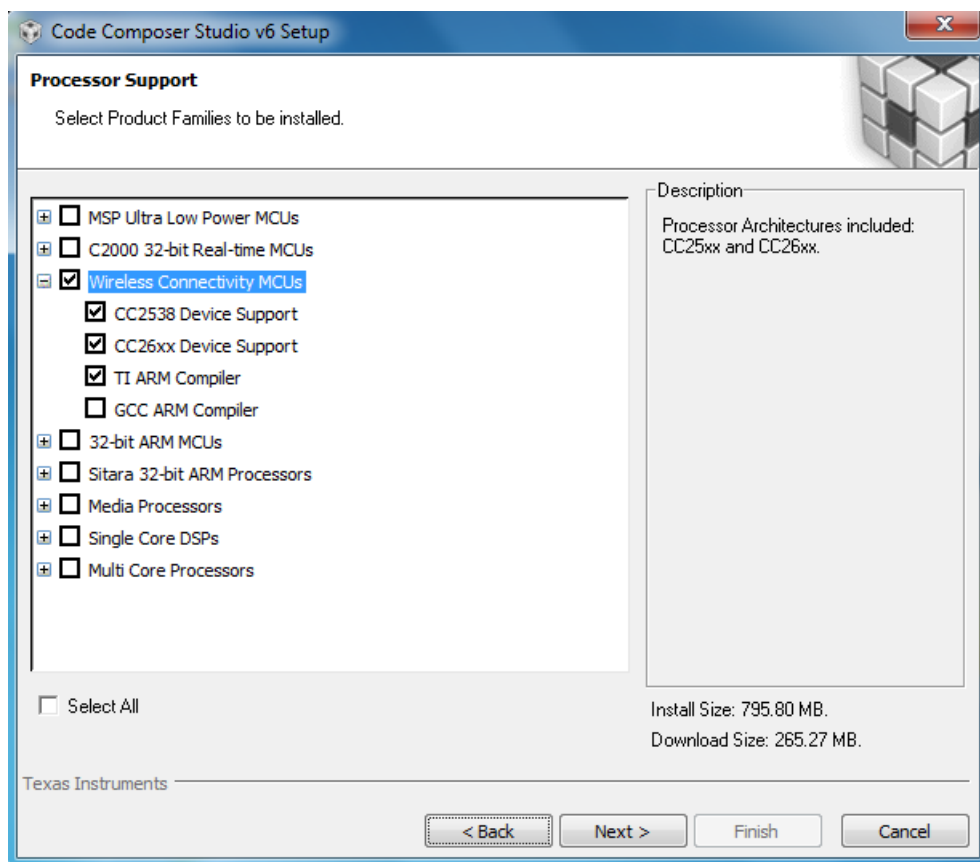


Figure 7. Code Composer Studio v6 Setup

3.1.2 Install TI-RTOS for SimpleLink and CC3200 Support Package

Install TI-RTOS for SimpleLink from the CCS App Center:

1. Start CCS, and choose a Workspace folder (the folder where the projects reside).

2. Open the App Center from the *Help->Getting Started* screen.
3. Search 'CC3200' in the App Center to find 'TI-RTOS for SimpleLink' and 'CC3200 Add-On'
4. Select TI-RTOS
5. Select the CC3200 Add-On
6. Press 'Install Software'

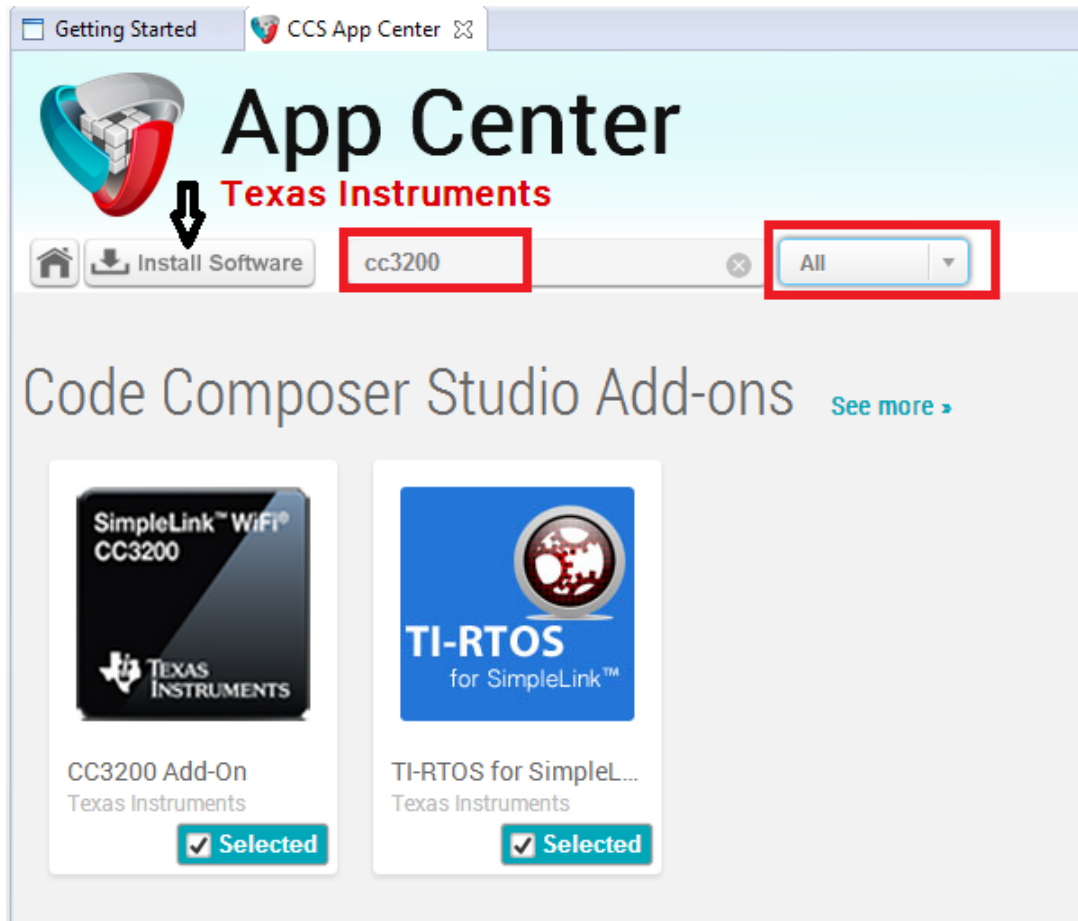


Figure 8. CCS App Center

3.1.3 Import and Configure Project

1. Choose *Projects>Import CCS Projects* from the menu.
2. Select the Browse button in the Import CCS Eclipse Projects dialog, and Select the directory `C:\TI\CC3200SDK\cc3200-sdk`.

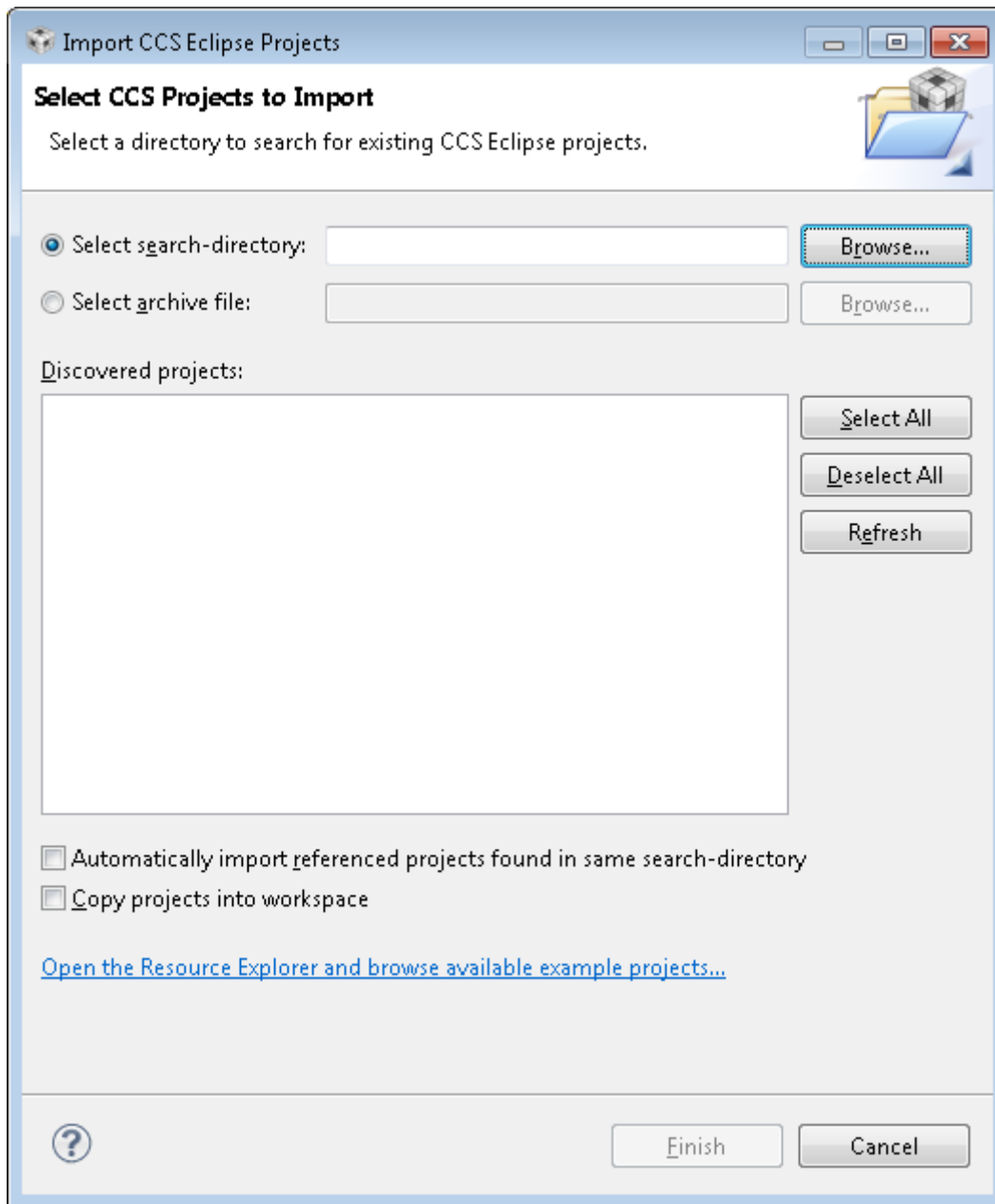


Figure 9. Select CCS Projects to Import

3. Select the *wlan_station*, *driverlib*, *simplelink*, *oslib* and *ti_rtos_config* projects. Click Finish. For this tutorial, do not check the 'Copy projects into workspace' option. This would cause the project's links to its dependencies to be broken since relative paths are used.

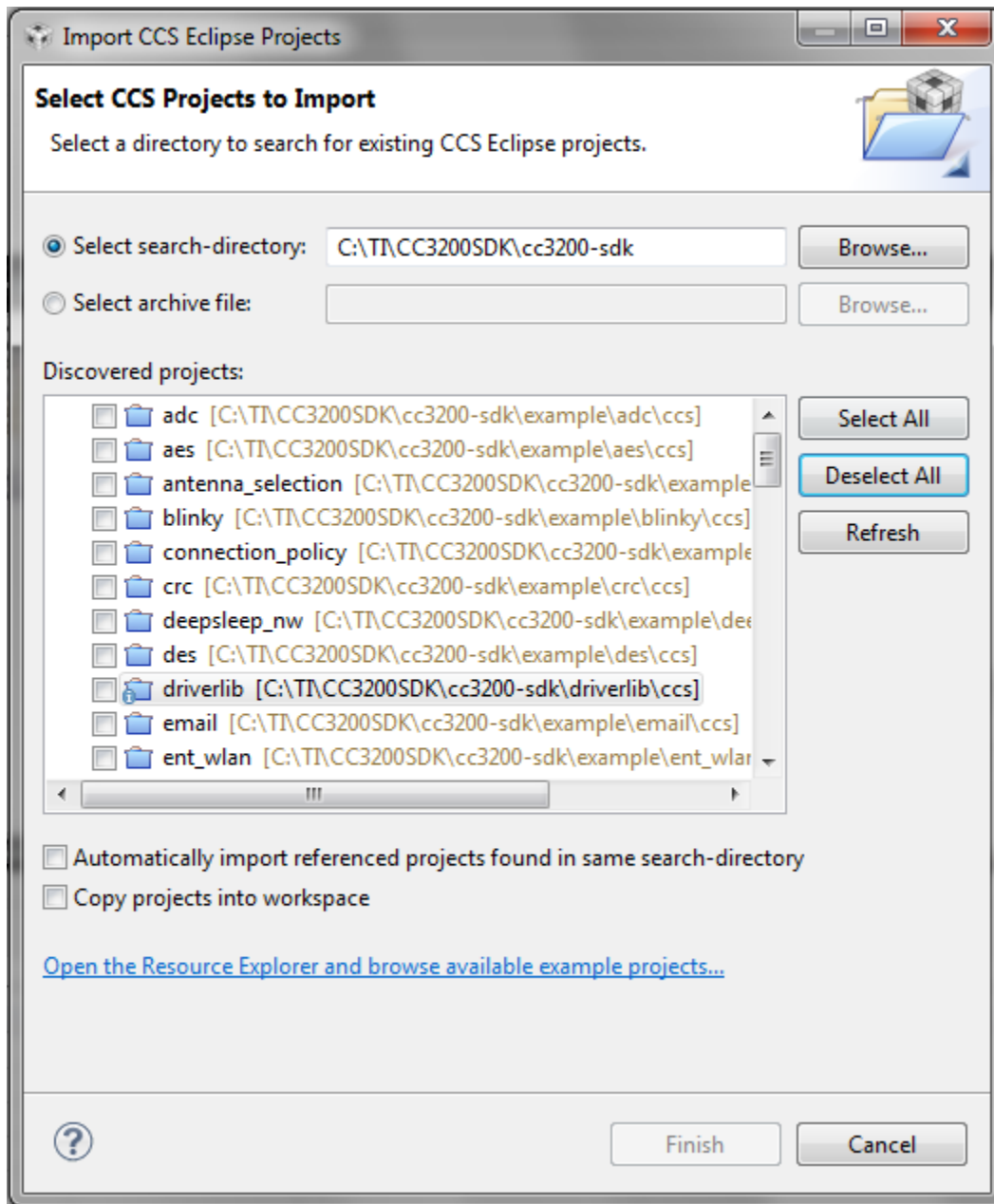


Figure 10. Select CCS Projects to Import

4. Setup the `ti_rtos_config` project configuration as shown in Figure 11. Select the latest versions of XDCtools and TI-RTOS for SimpleLink. Also verify the platform is selected as `ti.platforms.simplelink:CC3200`.

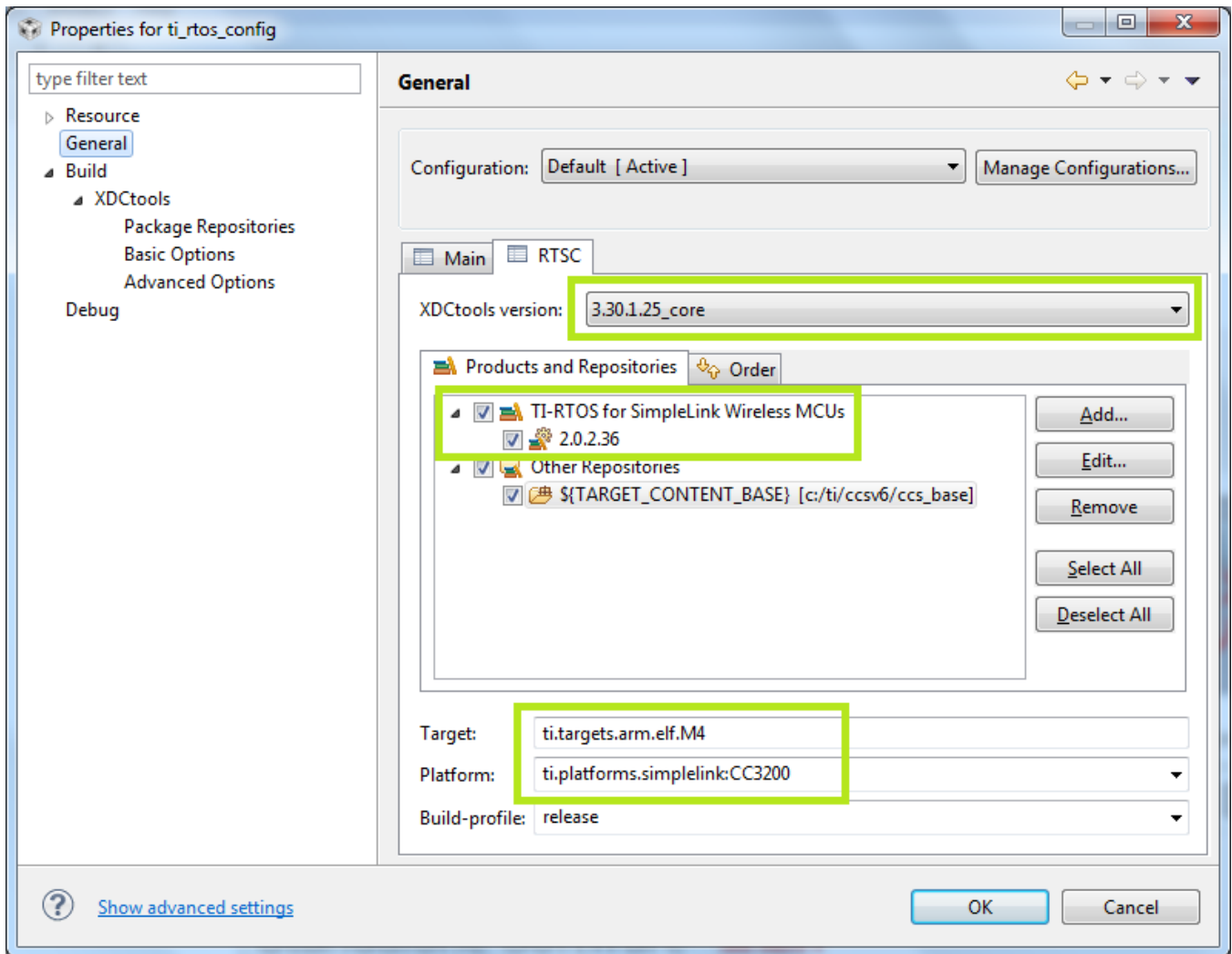
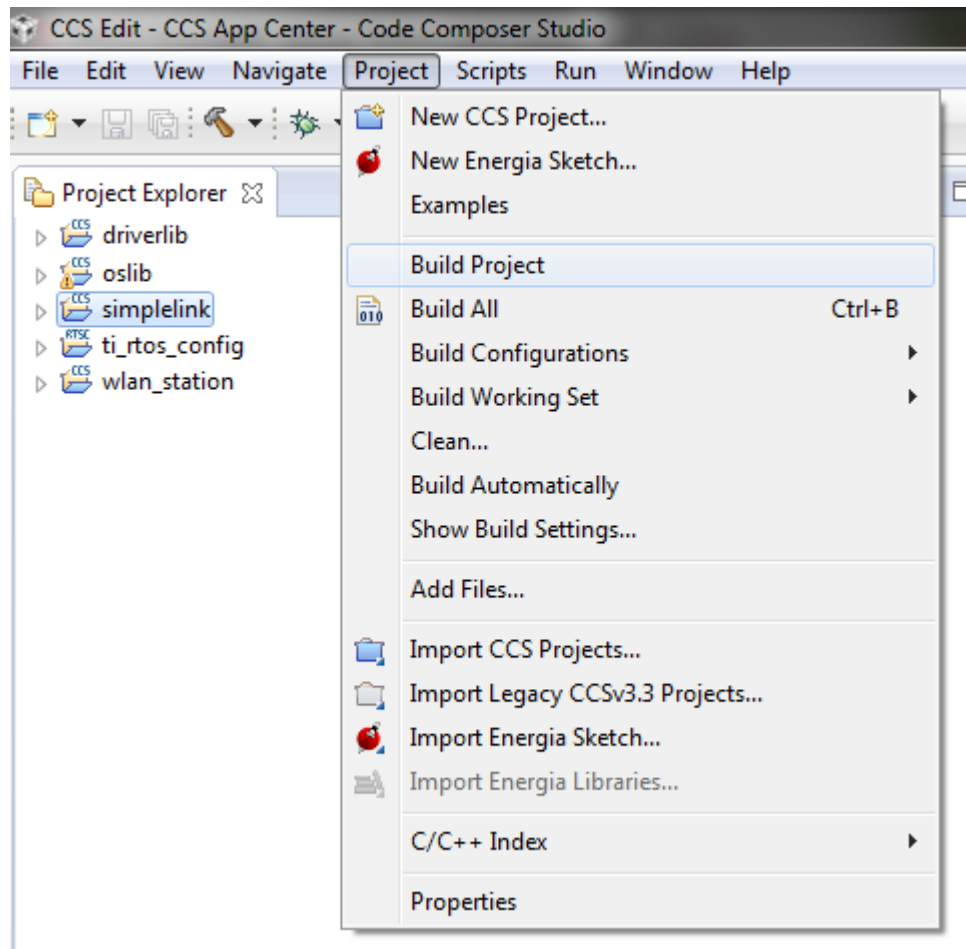


Figure 11. Properties for *ti_rtos_config*

5. Select the *simplelink* project and build it as shown in Figure 12.


Figure 12. Select simplelink Project

6. Select the *ti_rtos_config* project and build it.
7. Select the *driverlib* project and build it.
8. Select the *oslib* project and build it.
9. Open the *main.c* file of the *wlan_station* project for editing at `C:\TI\CC3200SDK\cc3200-sdk\example\getting_started_with_wlan_station\main.c`.
10. Edit *main.c* to use the SSID, security type and security key of the Access Point being used. Edit the macros `SSID_NAME`, `SECURITY_TYPE` and `SECURITY_KEY` to contain the Access Point's information as shown in [Figure 13](#). The security types supported for this demo are WPA/WPA2 and Open. For Open security, define `SECURITY_TYPE` as `SL_SEC_TYPE_OPEN`. For WPA and WPA2 security, define it as `SL_SEC_TYPE_WPA`. Alternatively, the SSID and security of the Access Point being used can be changed to match the default (SSID: `cc3200demo`, Security: Open).

<pre> // Values for below macros shall be modified as per access-point(A // SimpleLink device will connect to following AP when application // #define SSID_NAME "cc3200demo" /* AP SSID */ #define SECURITY_TYPE SL_SEC_TYPE_OPEN /* Security type (OPEN) #define SECURITY_KEY "" /* Password of the sec #define SSID_LEN_MAX (32) #define BSSID_LEN_MAX (6) #define HOST_NAME "www.ti.com" </pre>	<pre> // Values for below macros shall be modified as per access-point(// SimpleLink device will connect to following AP when applicatio // #define SSID_NAME "Your_AP_Name_Here" /* AP SSID */ #define SECURITY_TYPE SL_SEC_TYPE_WPA /* Security type (OPEN) #define SECURITY_KEY "Your_AP_Security_Key_Here" #define SSID_LEN_MAX (32) #define BSSID_LEN_MAX (6) #define HOST_NAME "www.ti.com" </pre>
--	--

Figure 13. Editing main.c

11. Save *main.c*.

12. Select the *wlan_station* project and build it.
13. The target configuration needs to be set before debugging from CCS. Navigate to *View>Target Configurations*.

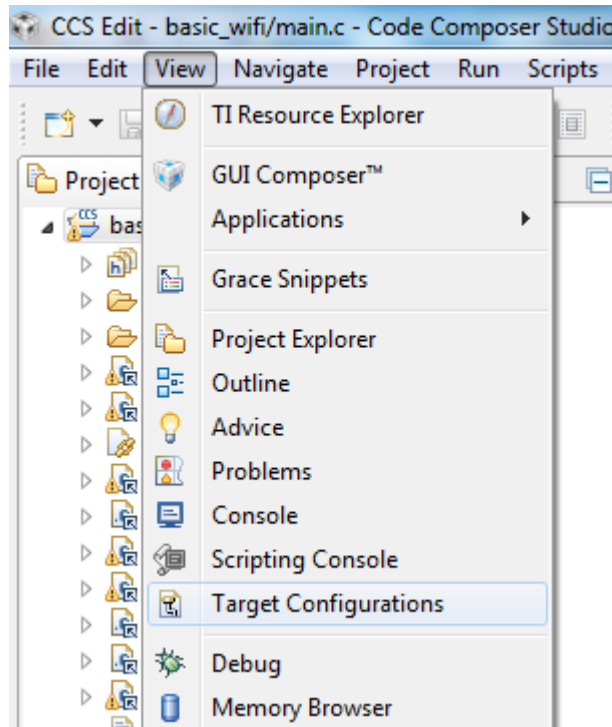


Figure 14. Target Configurations

14. Right Click on “User Defined,” select “Import Target Configuration” and select the file CC3200.ccxml from C:\TI\CC3200SDK\cc3200-sdk\tools\ccs_patch\. Select the Copy files option when prompted.

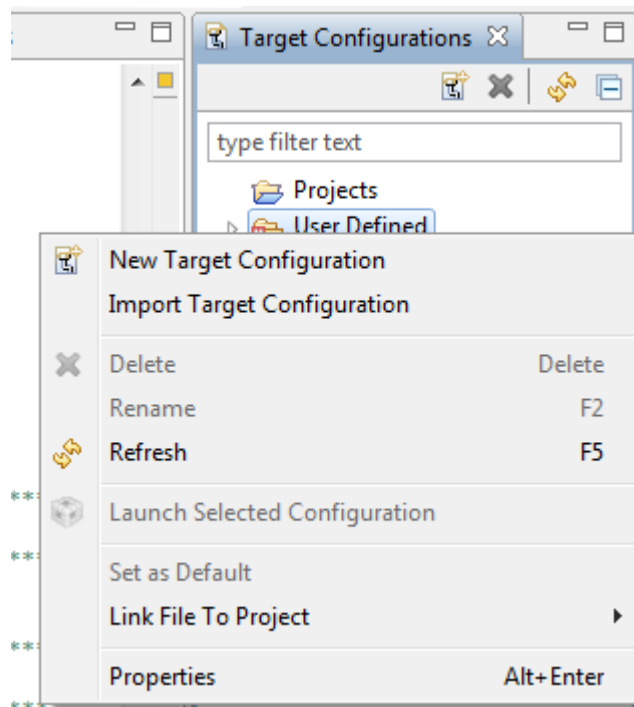


Figure 15. Import Target Configuration

15. Set this new configuration as the default by right clicking on the file name as shown in [Figure 16](#).

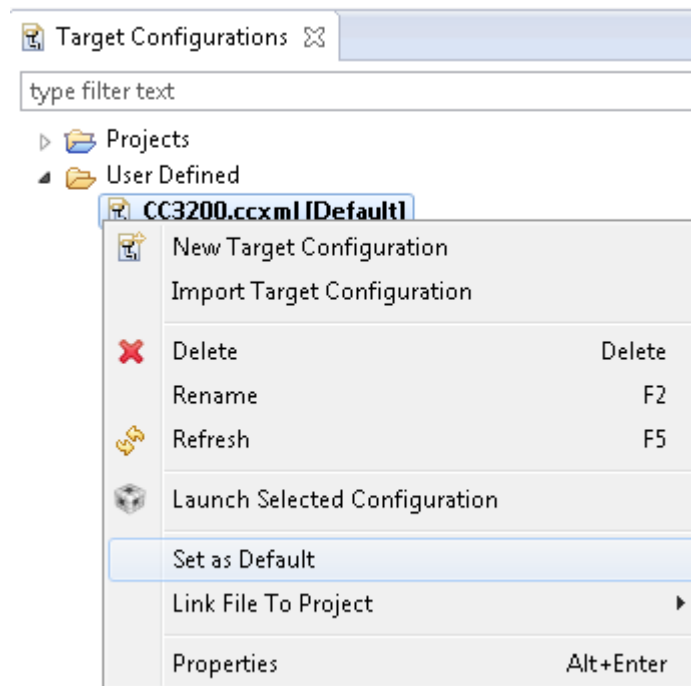


Figure 16. Set as Default

16. Launch application. Select the `wlan_station` project in Project Explorer, then click the debug icon as shown in [Figure 17](#) to download code to the device and begin debugging. Press F8 to begin execution.

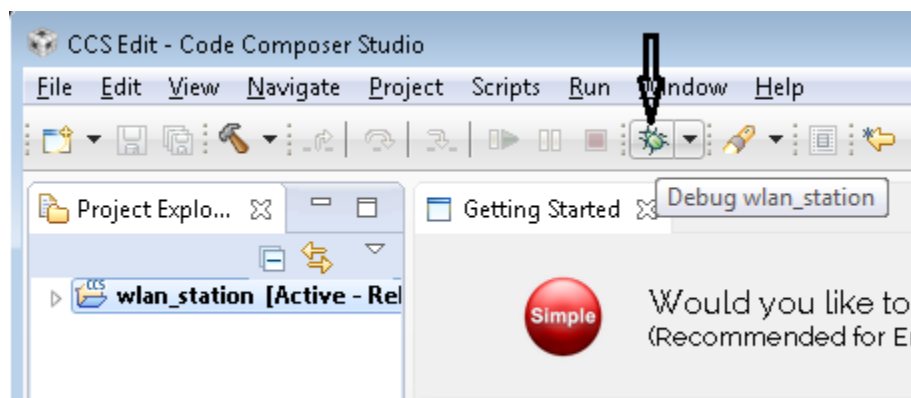


Figure 17. Debug wlan_station

Caution: Only one FTDI board should be connected to the PC while CCS downloads code to device.

3.2 Option 2: IAR Workbench

3.2.1 Download IAR

The CC3200 SDK has been built and tested with IAR 7.10.3, and older versions of IAR projects might not work properly on IAR 7.10.x. Most examples will only run with the fully licensed IAR Workbench.

1. Download IAR for ARM processors from the IAR System website, and install it using the installation wizard.
2. Copy the file `c:\TI\CC3200SDK\cc3200-sdk\tools\iar_patch\armLMIFTDI.dll` into the folder `C:\Program Files (x86)\IAR Systems\Embedded Workbench 7.0\arm\bin` (will need to replace existing file).

3.2.2 Rebuild the SimpleLink Driver

1. Start IAR and select *File>Open>Workspace* from the menu.

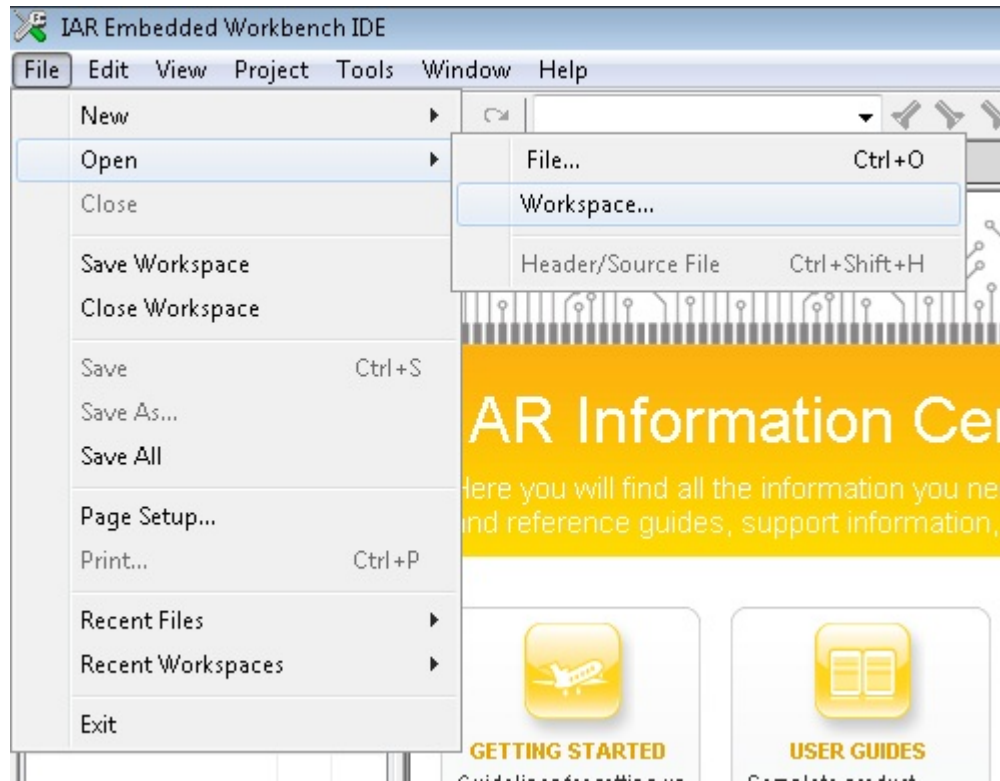


Figure 18. IAR Embedded Workbench IDE

2. Open the *simplelink* project by navigating to *C:\TI\CC3200SDK\cc3200-sdk\simplelink\lewarm* and opening *simplelink.eww*.

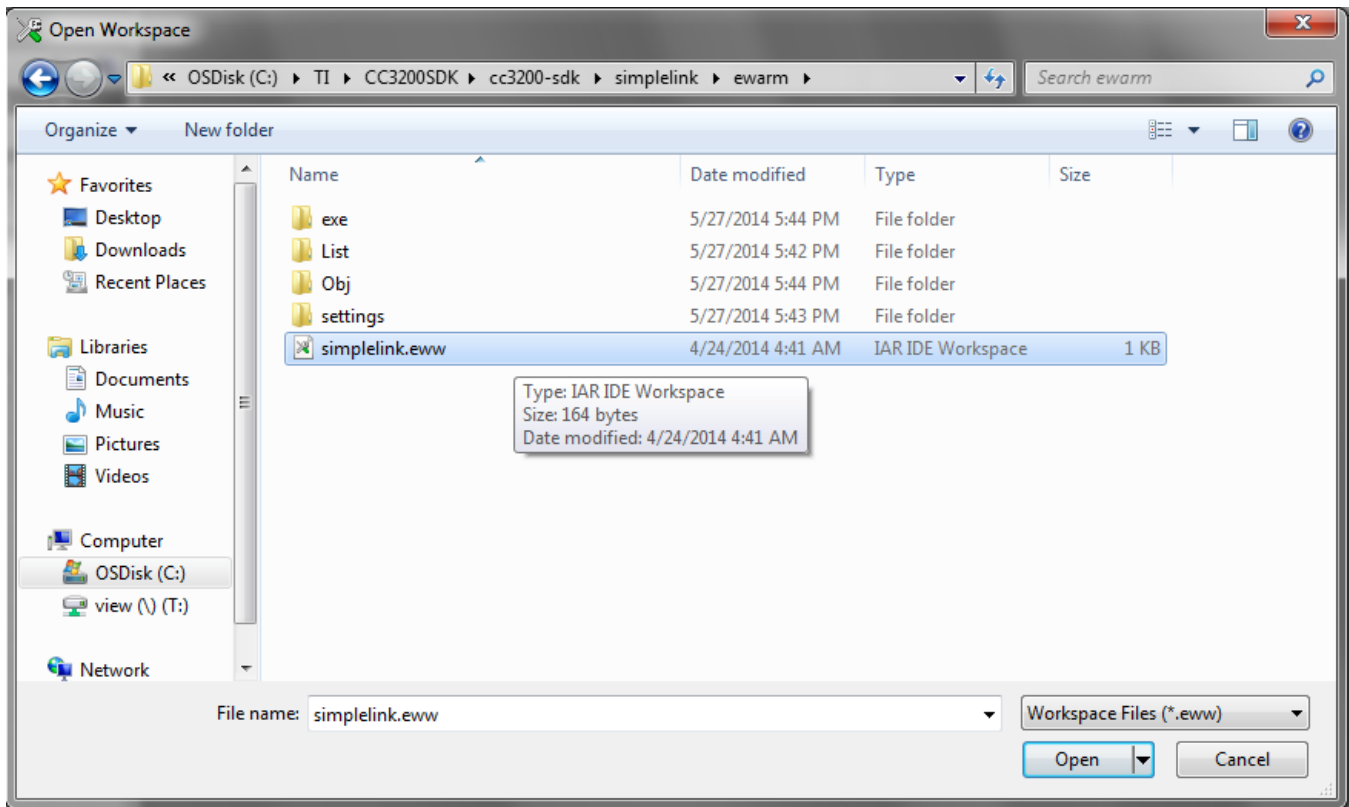


Figure 19. Open simplelink.eww

3. Rebuild the *simplelink* project by selecting *Project>Rebuild All* from the menu as shown in [Figure 20](#).

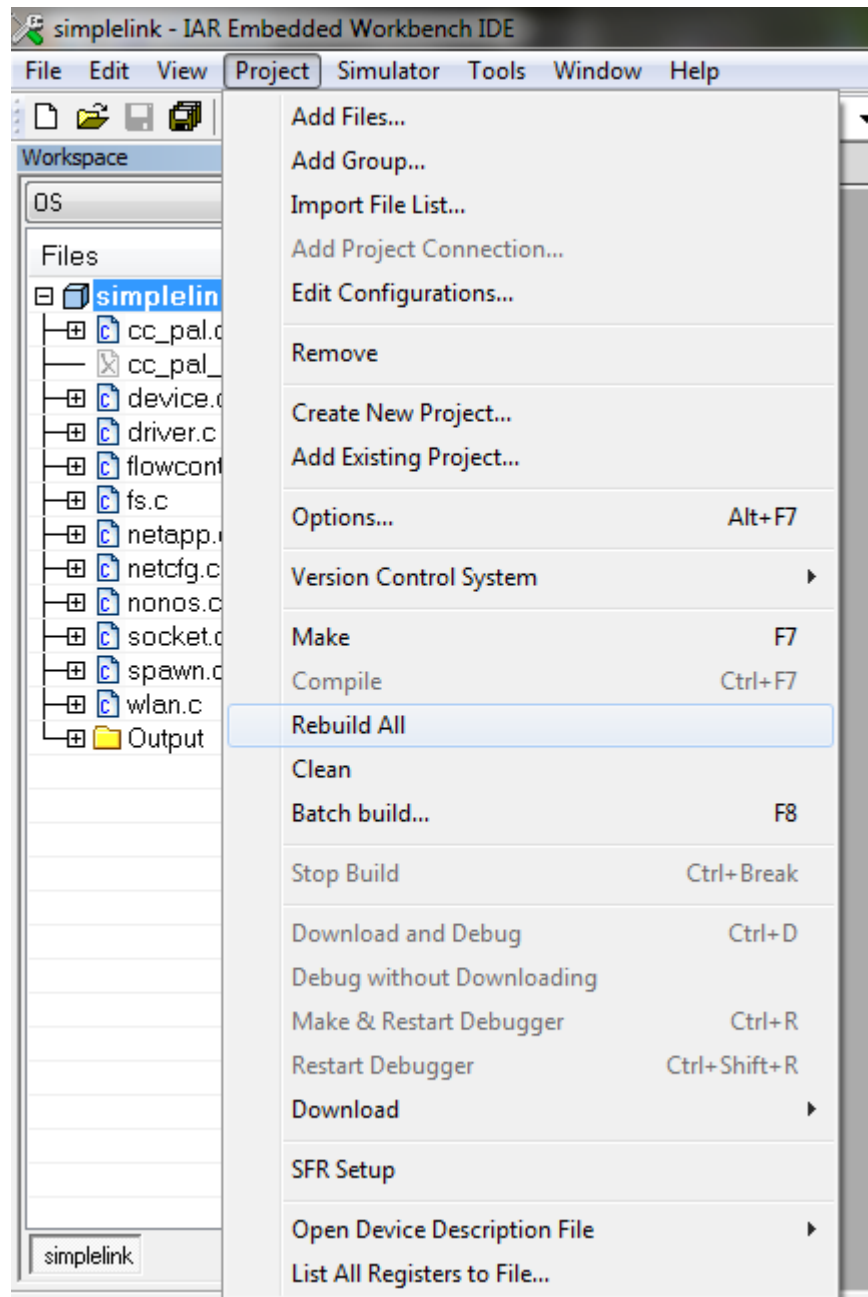


Figure 20. Rebuild the *simplelink* Project.

3.2.3 Rebuild, Download and Debug the WLAN Station Example

1. Open the *wlan_station* project by selecting *File>Open>Workspace* from the menu, navigating to *C:\TI\CC3200SDK\cc3200-sdk\example\getting_started_with_wlan_station\warm*, and opening *wlan_station.eww*.
2. Open the *main.c* file of the *wlan_station* project for editing at *C:\TI\CC3200SDK\cc3200-sdk\example\getting_started_with_wlan_station\main.c*.
3. Edit *main.c* to use the SSID, security type and security key of the Access Point being used. Edit the macros *SSID_NAME*, *SECURITY_TYPE* and *SECURITY_KEY* to contain the Access Point's information as shown in Figure 21. The security types supported for this demo are WPA/WPA2 and Open. For Open security, define *SECURITY_TYPE* as *SL_SEC_TYPE_OPEN*. For WPA and WPA2

security, define it as SL_SEC_TYPE_WPA.

```

// Values for below macros shall be modified as per access-point(A // Values for below macros shall be modified as per access-point(
// SimpleLink device will connect to following AP when application // SimpleLink device will connect to following AP when applicatio
//
#define SSID_NAME "cc3200demo" /* AP SSID */ #define SSID_NAME "Your_AP_Name_Here" /* AP SSID */
#define SECURITY_TYPE SL_SEC_TYPE_OPEN /* Security type (OPEN) #define SECURITY_TYPE SL_SEC_TYPE_WPA /* Security type (OPEN)
#define SECURITY_KEY "" /* Password of the security key #define SECURITY_KEY "Your_AP_Security_Key_Here"
#define SSID_LEN_MAX (32) #define SSID_LEN_MAX (32)
#define BSSID_LEN_MAX (6) #define BSSID_LEN_MAX (6)
#define HOST_NAME "www.ti.com" #define HOST_NAME "www.ti.com"

```

Figure 21. Editing main.c

4. Save main.c.
5. Rebuild the wlan_station project by selecting Project>Rebuild All from the menu.
6. The debugger must be configured to download code to the device. Select Project>Options from the menu, and select the Debugger category. In the Setup tab, choose TI Stellaris as the driver, as shown in Figure 22, and press OK.

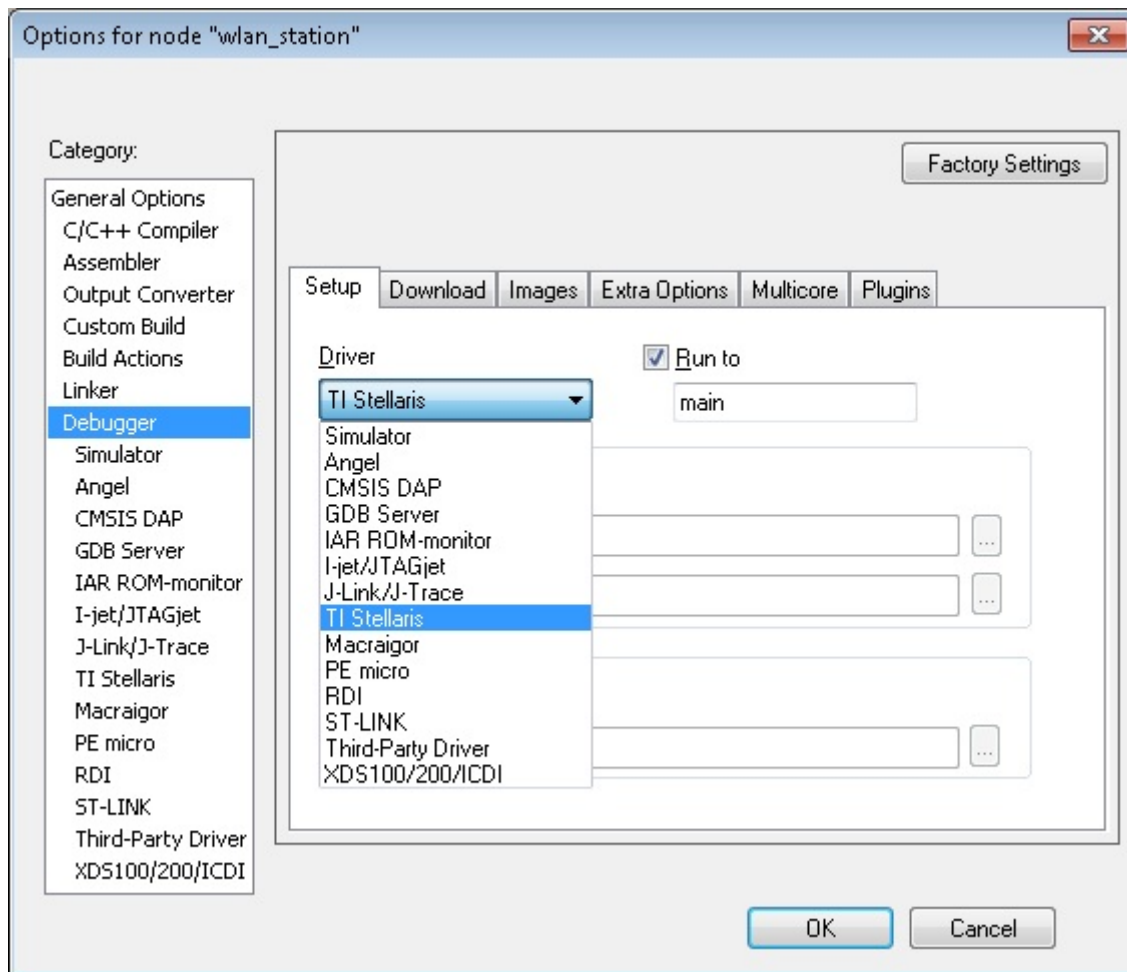


Figure 22. Select TI Stellaris Driver

7. Click the debug icon as shown in Figure 23 to download code to the device and start debugging. Select Debug>Go from the menu or press F5 to begin execution.

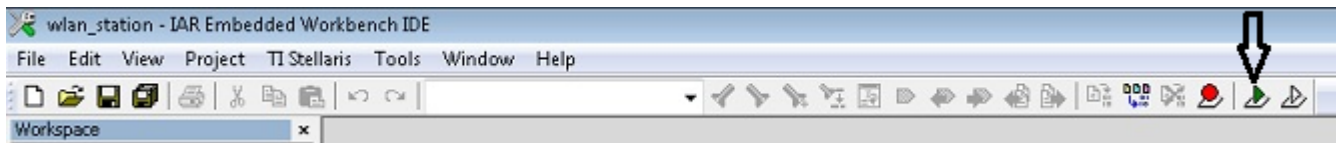


Figure 23. Debug Icon

3.3 Option 3: GCC

This section demonstrates the GCC setup for the Windows 7 environment. GCC installation requires other dependencies to be installed to work with ARM-based devices.

3.3.1 Install Cygwin (Windows)

1. Download *setup-x86.exe* from <http://cygwin.com/install.html> and run it. Select the Install from Internet option.
2. Specify a proxy if necessary, depending on the network.
3. Choose a download site (for example, <http://mirrors.kernel.org>).
4. Include the latest versions of the following packages in the Cygwin installation (in addition to those included in the base installation):
 - Archive/unzip
 - Archive/zip
 - Devel/autoconf
 - Devel/automake
 - Devel/libtool
 - Devel/make
 - Devel/subversion (**Note:** if using TortoiseSVN/Windows7, skip this file)
 - Devel/gcc-core
 - Devel/gcc-g++
 - Devel/mingw-gcc-core
 - Devel/mingw-gcc-g++
 - Devel/mingw-runtime

See [Figure 24](#) for an example of selecting a package (as example: Devel/autoconf).

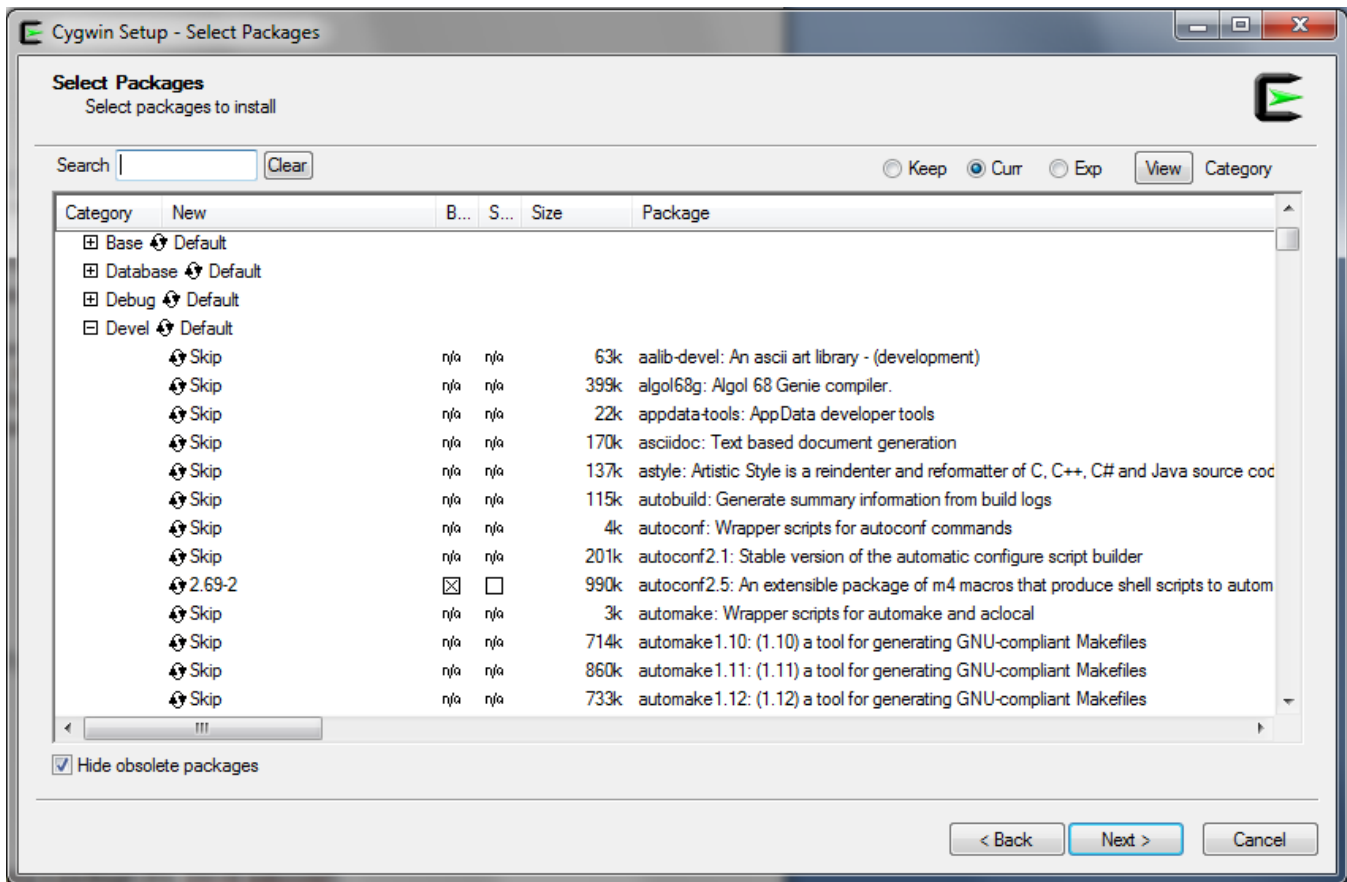


Figure 24. Cygwin Setup

5. The system will find dependencies. Press Next.
6. After a successful Cygwin installation, add its path (`c:\cygwin\bin`) to the Windows environment variable `PATH` by going into *Control Panel>System>Advanced System Settings>Environment Variables*. Under *System Variables*, select `PATH` and press Edit. Append `;"C:\cygwin\bin"` to the end of the line and press Ok.

3.3.2 Get GNU Tools for ARM Embedded Processors

Download and run the latest version of `gcc-arm-none-eabi-<version>-win32.exe` from <https://launchpad.net/gcc-arm-embedded>. The link to the file should be on the right side of the page and will appear as a green button with the text: "gcc-arm-non...4-win32.exe." Install under the Cygwin root directory (default: `c:\cygwin`).

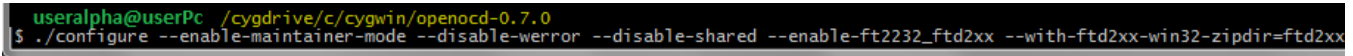
3.3.3 Build OpenOCD for FTDI Interface

1. Download the Open On-Chip Debugger (OpenOCD) source from <http://sourceforge.net/projects/openocd/files/openocd/0.7.0/>. Look for the zip file `openocd-0.7.0.zip`.
2. Extract the OpenOCD source into the Cygwin directory (`c:\cygwin`). This will create a directory called `openocd-<version>` (for example, `c:\cygwin\openocd-0.7.0`) under the Cygwin directory containing all the OpenOCD source contents.
3. Download the FTDI driver library (x86 [32-bit] zip version) at <http://www.ftdichip.com/Drivers/CDM/CDM%20v2.10.00%20WHQL%20Certified.zip>.
4. Extract the FTDI source into the path `c:\cygwin\openocd-<version>\ftd2xx` (for example, `c:\cygwin\openocd-0.7.0\ftd2xx`).
5. Run the Cygwin terminal and change the directory to `openocd-<version>` (for example, by using a command such as: `cd c:\cygwin\openocd-0.7.0`).

- Run the following command:

```
./configure --enable-maintainer-mode --disable-werror --disable-shared --enable-ft2232_ftd2xx --with-ftd2xx-win32-zipdir=ftd2xx
```

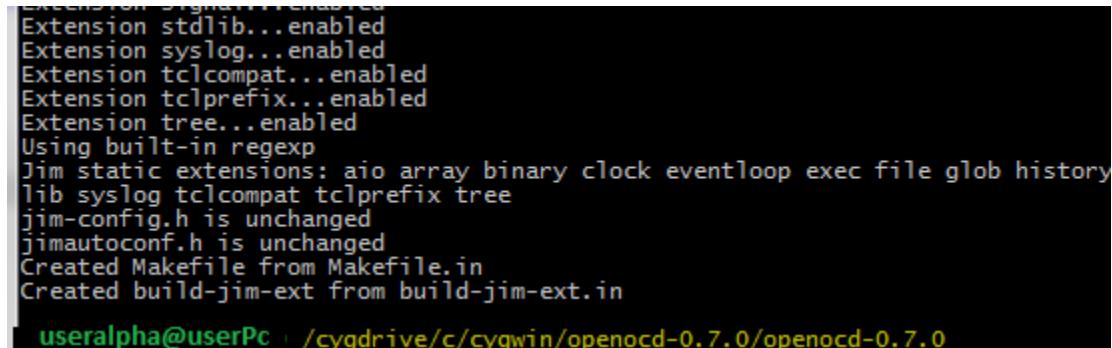
The command should look similar to [Figure 25](#).



```
useralpha@userPc /cygdrive/c/cygwin/openocd-0.7.0
$ ./configure --enable-maintainer-mode --disable-werror --disable-shared --enable-ft2232_ftd2xx --with-ftd2xx-win32-zipdir=ftd2xx
```

Figure 25. Cygwin Terminal

The last lines of the result should appear as in [Figure 26](#).



```
Extension signal...enabled
Extension stdlib...enabled
Extension syslog...enabled
Extension tclcompat...enabled
Extension tclprefix...enabled
Extension tree...enabled
Using built-in regexp
Jim static extensions: aio array binary clock eventloop exec file glob history
lib syslog tclcompat tclprefix tree
jim-config.h is unchanged
jimautoconf.h is unchanged
Created Makefile from Makefile.in
Created build-jim-ext from build-jim-ext.in
useralpha@userPc /cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0
```

Figure 26. Cygwin Terminal

- Run the command **'autoreconf --force --install.'**
- Run the command **'make.'** This may take several minutes. The last lines of the result should appear as in [Figure 27](#).



```
rc=0; \
CDPATH="${ZSH_VERSION+}:" && cd .; \
else \
rc=$?; \
CDPATH="${ZSH_VERSION+}:" && cd . && \
$restore $backupdir/* `echo "./openocd.info" | sed 's|[/]#|/|'`; \
fi; \
rm -rf $backupdir; exit $rc
make[2]: Leaving directory '/cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0/doc'
make[2]: Entering directory '/cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0'
make[2]: Leaving directory '/cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0'
make[1]: Leaving directory '/cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0'
useralpha@userPc /cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0
$
```

Figure 27. Running the Make Command

- Run the command **'make install.'** The last lines of the result should appear as in [Figure 28](#).

```

make[2]: Nothing to be done for 'install-exec-am'.
/usr/bin/mkdir -p '/usr/local/share/openocd'
/usr/bin/mkdir -p '/usr/local/share/openocd/contrib'
/usr/bin/install -c -m 644 contrib/openocd.udev '/usr/local/share/openocd/contrib'
/usr/bin/mkdir -p '/usr/local/share/openocd/contrib/libdccc'
/usr/bin/install -c -m 644 contrib/libdccc/dcc_stdio.c contrib/libdccc/dcc_stdio.h contrib/libdccc/exa
l/share/openocd/contrib/libdccc'
make install-data-hook
make[3]: Entering directory '/cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0'
for i in $(find ./tcl -name '*.cfg' -o -name '*.tcl' -o -name '*.txt' | sed -e 's,^./tcl,'); do \
j="/usr/local/share/openocd/scripts/$i" && \
mkdir -p "$(dirname $j)" && \
/usr/bin/install -c -m 644 ./tcl/$i $j; \
done
make[3]: Leaving directory '/cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0'
make[2]: Leaving directory '/cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0'
make[1]: Leaving directory '/cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0'

useralpha@userPc /cygdrive/c/cygwin/openocd-0.7.0/openocd-0.7.0
$

```

Figure 28. Running the Make Install Command

10. After the command has run successfully, check that the file *openocd.exe* is generated at path *C:\cygwin\usr\local\bin*. Add this path to the Windows PATH environment variable.

3.3.4 Compile the GCC SDK project

1. Open the *main.c* file of the *wlan_station* project for editing at *C:\TI\CC3200SDK\cc3200-sdk\example\getting_started_with_wlan_station\main.c*.
2. Edit *main.c* to use the SSID, security type and security key of the Access Point being used. Edit the macros *SSID_NAME*, *SECURITY_TYPE* and *SECURITY_KEY* to contain the Access Point's information as shown in Figure 29. The security types supported for this demo are WPA/WPA2 and Open. For Open security, define *SECURITY_TYPE* as *SL_SEC_TYPE_OPEN*. For WPA and WPA2 security, define it as *SL_SEC_TYPE_WPA*.


<pre> #include "pin.h" #include "prcm.h" #include "utils.h" #include "pinmux.h" #include "gpio_if.h" #define SSID_NAME "cc3200demo" #define SECURITY_TYPE SL_SEC_TYPE_OPEN #define SECURITY_KEY "" #define PING_ADDRESS "www.ti.com" #define WEP_KEY_ID 1 #define SL_STOP_TIMEOUT 30 #define UNUSED(x) x = x </pre>		<pre> #include "pin.h" #include "prcm.h" #include "utils.h" #include "pinmux.h" #include "gpio_if.h" #define SSID_NAME "Your_AP_Name_Here" #define SECURITY_TYPE SL_SEC_TYPE_WPA #define SECURITY_KEY "Your_AP_Security_Key_Here" #define PING_ADDRESS "www.ti.com" #define WEP_KEY_ID 1 #define SL_STOP_TIMEOUT 30 #define UNUSED(x) x = x </pre>
--	---	---

Figure 29. Editing *main.c*

3. Save *main.c*.

In the Cygwin terminal, change the directory to *C:\TI\CC3200SDK\cc3200-sdk\example\getting_started_with_wlan_station\gcc* and run following command:

```
make -f Makefile
```

This command should appear as in Figure 30. Note that Cygwin uses forward slashes to separate directories.


```

useralpha@userPc /cygdrive/c/ti/CC3200SDK_0_5/cc3200-sdk/example/getting_started_with_wlan_station/gcc
$ make -f Makefile
CC ../main.c
CC ../pinmux.c
CC ../../common/gpio_if.c
CC ../../common/startup_gcc.c
LD exe/wlan_station.axf

useralpha@userPc /cygdrive/c/ti/CC3200SDK_0_5/cc3200-sdk/example/getting_started_with_wlan_station/gcc
$

```

Figure 30. Makefile Command

This generates the *wlan_station.axf* file under the *gcclexe* folder.

3.3.5 Target Connection and Debug (GDB)

1. The OpenOCD configuration file for FTDI is present under the *C:\CC3200SDK\cc3200-sdk\tools\gcc_scripts* folder. To test the connection to the CC3200 FTDI Launchpad, navigate to the *<cc3200-sdk>\tools\gcc_scripts* folder in the Cygwin terminal, run the following command and check the output to see if the connection happened properly.

```
openocd -f cc3200.cfg
```

See [Figure 31](#) for the output screen while the CC3200 device is connected through GDB.

```

useralpha@userPc /cygdrive/c/ti/CC3200SDK_0_5/cc3200-sdk/tools/gcc_scripts
$ openocd -f cc3200.cfg
Open On-Chip Debugger 0.7.0 (2014-05-28-05:04)
Licensed under GNU GPL v2
For bug reports, read
  http://openocd.sourceforge.net/doc/doxygen/bugs.html
Info : only one transport option; autoselect 'jtag'
adapter speed: 1000 kHz
cc3200_dbginit
Info : device: 4 "2232C"
Info : deviceID: 72467242
Info : SerialNumber: cc3200A
Info : Description: USB <-> JTAG/SWD A
Info : clock speed 1000 kHz
Info : JTAG tap: cc3200.jrc tap/device found: 0x0b97c02f (mfg: 0x017, part: 0xb97c, ver: 0x0)
Info : JTAG tap: cc3200.dap enabled
Info : cc3200.cpu: hardware has 6 breakpoints, 4 watchpoints

```

Figure 31. Output Screen

2. Press `<ctrl>+c` to return to prompt.
3. Copy the *wlan_station.axf* file found in *C:\TI\CC3200SDK\cc3200-sdk\example\getting_started_with_wlan_station\gcclexe* to the directory *C:\TI\CC3200SDK\cc3200-sdk\tools\gcc_scripts*.
4. To start debugging using GDB on CC3200, go to *C:\TI\CC3200SDK\cc3200-sdk\tools\gcc_scripts* and run the following command at the Cygwin prompt:

```
arm-none-eabi-gdb -x gdbinit wlan_station.axf
```

See [Figure 32](#) for the result of debugging the *wlan_station* application from GCC.

```

useralpha@userPc /cygdrive/c/ti/CC3200SDK_0_5/cc3200-sdk/tools/gcc_scripts
$ arm-none-eabi-gdb -x gdbinit wlan_station.axf
GNU gdb (GNU Tools for ARM Embedded Processors) 7.6.0.20140228-cvs
Copyright (C) 2013 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law. Type "show copying"
and "show warranty" for details.
This GDB was configured as "--host=i686-w64-mingw32 --target=arm-none-eabi".
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>...
Reading symbols from C:\ti\CC3200SDK_0_5\cc3200-sdk\tools\gcc_scripts\wlan_station.axf...done.
0x0000230e in ?? ()
Open On-Chip Debugger 0.7.0 (2014-05-28-05:04)
Licensed under GNU GPL v2
For bug reports, read
  http://openocd.sourceforge.net/doc/doxygen/bugs.html
Loading section .text, size 0x77a0 lma 0x20004000
Loading section .data, size 0x858 lma 0x2000b7a0
Start address 0x20004974, load size 32760
Transfer rate: 88 KB/sec, 10920 bytes/write.
Breakpoint 1 at 0x20004722: file ../main.c, line 483.

Breakpoint 1, main () at ../main.c:483
483      BoardInit();
(gdb) |
    
```

Figure 32. Debugging *wlan_station*

This results in a GDB prompt. To continue, type 'continue' and press enter. For other commands, consult the [GDB Quick Guide](#).

4 Summary

After the development environment has been set up, see the following resources for further assistance in development:

- [CC3200 Programmer's Guide](#) – This guide contains information on how to use the SimpleLink API for writing WLAN-enabled applications.
- [PinMux Tool](#) – This utility helps determine how to best assign peripherals to the appropriate CC3200 package pins.
- [Uniflash](#) – The Uniflash tool manually stores files on the external serial flash. This includes the application binary and SimpleLink firmware patch files. Also, any configuration files, security certificates, web pages, and so forth can be stored using this tool.
- [CC3200 Wiki](#) – All information and tools for the CC3200, including the above, can be found on the CC3200 Wiki page.

5 Acronyms Used

STA – Wi-Fi Station

AP – Wi-Fi Access Point

WLAN – Wireless LAN

CCS – Code Composer Studio

GCC – GNU Compiler Collection

Revision History

Changes from Original (June 2014) to A Revision	Page
• Changed Changed image	3
• Changed Changed image	3
• Updated image with SOP-2 Jumper marked	5
• Added function #4	9
• Changed to Select the Wireless Connectivity MCUs option for processor support.....	9
• Updated image	9
• Changed to Select the CC3200 Add On.	10
• Updated image	13
• Changed Changed image	14
• Changed Changed image	20

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

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