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

User's Guide



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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 Trademarks

SimpleLink, LaunchPad are trademarks of Texas Instruments. Microsoft, Windows are registered trademarks of Microsoft. Wi-Fi is a registered trademark of WiFi Alliance.

2 Introduction

2.1 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.

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Getting Started

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3 Getting Started

3.1 Download and Install Software

Download and install the following software:

- CC3200 SDK package.
 - This guide assumes the use of the default installation folder C:\T/\CC3200SDK_1.3.0\.
- Tera Term (or similar software)
 - Tera Term link: http://en.sourceforge.jp/projects/ttssh2/releases/

3.2 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

- 1. Connect the CC3200-LAUNCHXL to the PC using the provided micro-USB cable.
- 2. The CC3200-LAUNCHXL is now visible in the Device Manager as shown in Figure 2. Note the COM port number that appears.

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Figure 2. Device Manager

3.3 Update Service Pack

If the board is not already flashed with the service pack for SDK 1.3.0, the latest service pack for SDK 1.3.0 must be flashed on the CC3200. The latest service pack can be downloaded from http://www.ti.com/tool/cc3200sdk. Refer to the UNIFLASH Quick start guide for details on flashing the service pack to the CC3200

(http://processors.wiki.ti.com/index.php/CC31xx_%26_CC32xx_UniFlash#Service_Pack_Programming).

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Compile, Download, and Debug

4 Compile, Download, and Debug

The CC3200 SDK supports CCS 8.0.0, IAR 7.30, and GCC IDE/compiler. The example shown here is *Getting Started with WLAN Station*, and performs the following functions:

- 1. Program restores WLAN configuration to factory default.
- 2. Switches to Station mode if the device is in AP mode.
- 3. Connects to the user's Access Point (default SSID is 'cc3200demo'). If the connection to the AP is successful, the red LED (D7) switches on.
- 4. Pings the user's AP. If the ping test is successful, the green LED (D5) switches on.
- 5. 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).

4.1 Option 1: Code Composer Studio (CCS)

4.1.1 Download and Install

Download and run the Code Composer Studio 8.0.0 (CCS) installation wizard (*ccs_setup_win32.exe*) from http://processors.wiki.ti.com/index.php/Download_CCS#Code_Composer_Studio_Version_8_Downloads. It is preferable to use the latest version of CCS (8.0.0.00016). 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.

😯 Code Composer Studio v6 Setup	
Processor Support Select Product Families to be installed.	
 MSP Ultra Low Power MCUs C2000 32-bit Real-time MCUs SimpleLink Wireless MCUs CC2538 Device Support CC26xx Device Support CC32xx Device Support TI ARM Compiler GCC ARM Compiler 32-bit ARM MCUs Sitara 32-bit ARM Processors Media Processors Single Core DSPs Multi Core Processors 	CC32xx device support package
🗖 Select All	Install Size: 815.22 MB. Download Size: 271.74 MB.
Texas Instruments	< Back Next > Finish Cancel

Figure 3. Code Composer Studio v6 Setup



4.1.2 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 where the projects will reside.
- 2. Open the App Center from the Help->Getting Started screen.
- 3. Search 'cc32xx' in the App Center to find 'TI-RTOS for SimpleLink' and 'CC3200 Add-On.'
- 4. Select TI-RTOS CC32XX
- 5. The CC3200 add-on should already be installed. If not, select it.
- 6. Press Install Software



Figure 4. CCS App Center

4.1.3 Import and Configure Project

- 1. Choose Project>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_1.3.0\cc3200-sdk*.

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🐨 Import CCS Eclipse Projects	
Select CCS Projects to Import Select a directory to search for existing CCS Eclipse projects.	
 Select search-directory: Select archive file: 	Browse
Automatically import referenced projects found in same search-directo Copy projects into workspace	<u>S</u> elect All <u>D</u> eselect All <u>Re</u> fresh
Open the Resource Explorer and browse available example projects	
? <u>Einish</u>	Cancel

Figure 5. Select CCS Projects to Import

3. Select the wlan_station, driverlib, simplelink, oslib, and ti_rtos_config projects. Click Finish. For any library import, do not check the 'Copy projects into workspace' option. This breaks the links from the libraries to their dependencies. The wlan_station project is automatically copied to the workspace.



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Figure 2015 Eclipse Project		
Select CCS Projects to Im Select a directory to search		
 Select search-directory: Select archive file: Discovered projects: 	C:\ti\CC3200SDK_1.3.0	Browse Browse
udma [C:\ti\CC udp_socket [C:\ watchdog [C:\ti watchdog_syste webclient [C:\ti webserver [C:\ti webserver [C:\ti websock_camer wifi_audio_app wifi_audio_app wlan_ap [C:\ti\CC wlan_station [CC wlan_station [CC wlan_station [CC Copy projects into works Open Resource Explorer to be	3200SDK_1.3.0\cc3200-sdk\example\udma` ti\CC3200SDK_1.3.0\cc3200-sdk\example\washeddowname (CC3200SDK_1.3.0\cc3200-sdk\example\washeddowname (CC3200SDK_1.3.0\cc3200-sdk\netapps\httle ti\CC3200SDK_1.3.0\cc3200-sdk\netapps\httle (CC3200SDK_1.3.0\cc3200-sdk\example\gettle (CC3200SDK_1.3.0\cc3200-sdk\example\gettle (c)\ti\CC3200SDK_1.3.0\cc3200-sdk\example\gettle (ti\CC3200SDK_1.3.0\cc3200-sdk\	Select All Deselect All Refresh
?	Finish	Cancel

Figure 6. wlan_sta Import

 Select the ti_rtos_config project in Project Explorer, and select Project>Properties from the menu. Under General, select the RTSC tab as shown in Figure 7. Select the latest versions of XDCtools and TI-RTOS for SimpleLink (not shown in Figure 7). Also verify the platform is selected as ti.platforms.simplelink:CC3200.



Compile, Download, and Debug

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Properties for tirtos_config	p ocinci	
type filter text	General	▼ ▼
 Resource General Build XDCtools Package Repositories 	Configuration: Release [Active]	e Configurations
Basic Options Advanced Options	Main RTSC	
Debug Git	XDCtools version: 3.32.0.06_core	•
	Products and Repositories 🔗 Order	
	▷ ■ HAP SDK for SimpleLink Wireless MCUs ▷ ■ SYS/BIOS ⊿ ☑ ■ TI-RTOS for CC32XX ☑ … 2.15.0.17 ▷ = TI-RTOS for SimpleLink Wireless MCUs ⊿ ☑ … ○ … TI-RTOS for SimpleLink Wireless MCUs ↓ □ …	Add Edit Remove Select All Deselect All
	Target: ti.targets.arm.elf.M4	
	Platform: ti.platforms.simplelink:CC3200	•
	Build-profile: release	•
Show advanced settings	ОК	Cancel

Figure 7. Properties for ti_rtos_config

5. Select the simplelink project and build it as shown in Figure 8.





Figure 8. Select SimpleLink Project

- 6. Select the ti_rtos_config project and build it.
- 7. Select the driverlib project and build it.
- 8. Select ti_rtos configuration for oslib project and build it.
- 9. Open the common.h file located at the path C:\T/\CC3200SDK_1.3.0\cc3200-sdk\example\common\.
- 10. Edit common.h to use the SSID, security type, and security key of the AP. Edit the macros SSID_NAME, SECURITY_TYPE, and SECURITY_KEY to contain the AP information as shown in Figure 9. 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 AP can be changed to match the default (SSID: cc3200demo, Security: Open). For the SSID_NAME and SECURITY_KEY, the quotation marks must remain as part of the macro definition.

<pre>// Values for below macro // SimpleLink device will //</pre>	os shall be modified a l connect to following	as per access-point(A g AP when application	<pre>// Values for below macros shall be modified as per access-point(// SimpleLink device will connect to following AP when applicatio //</pre>			
<pre>#define SSID_NAME #define SECURITY_TYPE #define SECURITY_KEY</pre>	"cc3200demo" / SL_SEC_TYPE_OPEN/ "" /	* AP SSID */ * Securi * Password of the sec	<pre>#define SSID_NAME #define SECURITY_TYPE #define SECURITY_KEY</pre>	"Your_AP_Name_Here" /* AP_SSID */ SL_SEC_TYPE_WPA/* Security tipe (OPEN "Your_AP_Security_Key_Here"		
<pre>#define SSID_LEN_MAX #define BSSID_LEN_MAX</pre>	32 6		<pre>#define SSID_LEN_MAX #define BSSID_LEN_MAX</pre>	(32) (6)		

Figure 9. Editing common.h

11. Save common.h.

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



Figure 10. Target Configurations

14. Right-click on User Defined, select Import Target Configuration and select the file CC3200.ccxml from C:\TI\CC3200SDK_1.3.0\cc3200-sdk\tools\ccs_patch\. Select the Copy files option when prompted.



Figure 11. Import Target Configuration



15. Set this new configuration as the default by right-clicking on the file name, as shown in Figure 12.

😭 Targe	et Co	nfigurations 🖾	
type filt	er te>	đ	
> 📻 F	^D roje	cts Defined	
	रो ट	C3200.ccxml [Default]	
	t	New Target Configuration	
		Import Target Configuration	
	×	Delete	Delete
		Rename	F2
	Ŷ	Refresh	F5
	Ø	Launch Selected Configuration	
		Set as Default	
		Link File To Project	•
		Properties	Alt+Enter

Figure 12. Set as Default

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

16. Launch Tera Term, and create a new serial connection to the CC3200 Launchpad COM port as shown in Figure 13.

📒 Tera Term -	[disconnected] VT			_			23
File Edit Se	Tera Term: New conne	ection				x	
	© ТСР/ІР	Host: Service:	myhost.exa ✓ History ◎ Telnet ◎ SSH ◎ Other	mple.com TCP po SSH version: Protocol:	rt#: 22 SSH2 UNSPEC		
	Serial	Port: OK	COM4: CC3 COM4: CC3 Cancel	200LP Dual Por 200LP Dual Por Help	t (COM4) t (COM4)		Ŧ

Figure 13. Launch Tera Term

17. In the menu, select Setup>Serial Port, and change the baud rate to 115200 as shown in Figure 14.



COM4:9600baud - Ter File Edit Setup Con	Tera Term: Serial port setu	p	x	
	Port:	COM4 -	ок	-
	Baud rate:	115200 -		
	Data:	8 bit 🔹	Cancel	
	Parity:	none 🔻		
	Stop:	1 bit 🔹	Help	
	Flow control:	none 🔻		
	Transmit delay O msec	, /char 0 m	sec/line	

Figure 14. Tera Term Serial Port Setup

18. Launch application: select the wlan_station project in Project Explorer, then click the debug icon as shown in Figure 15 to download code to the device and begin debugging. Press F8 to begin execution.



Figure 15. Debug wlan_station

19. If the CC3200 successfully completes all steps, the serial output appears as shown in Figure 16.





Figure 16. Tera Term VT

4.2 Option 2: IAR Workbench

4.2.1 Download IAR

The CC3200 SDK has been built and tested with IAR 7.30, and older versions of IAR projects might not work properly on IAR 7.30. 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. If using IAR version 7.20 or earlier, copy the file C:\T/\CC3200SDK_1.3.0\CC3200sdk\tools\iar_patch\armLMIFTDI.dll into the folder C:\Program Files (x86)\IAR Systems\Embedded Workbench 7.0\arm\bin (the user must replace the existing file).

4.2.2 Rebuild the SimpleLink Driver

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





Figure 17. IAR Embedded Workbench IDE

2. Open the simplelink project by navigating to C:\TI\CC3200SDK_1.3.0\cc3200-sdk\simplelink\ewarm and opening simplelink.eww.



🔀 Open Workspace				-			X
😋 🔾 🗢 🚺 « 09	Disk (C:)	► TI ► CC3200SDK ►	c3200-sdk 🕨 simplelink 🕨 ewarm 🕨	▼ 49	Search ewarm		Q
Organize 🔻 Ne	w folder				:=:	•	(?)
☆ Favorites	^	Name	Date modified	Туре	Size		
🧮 Desktop		鷆 exe	5/27/2014 5:44 PM	File folder			
鷆 Downloads		퉬 List	5/27/2014 5:42 PM	File folder			
🔚 Recent Places		퉬 Obj	5/27/2014 5:44 PM	File folder			
		퉬 settings	5/27/2014 5:43 PM	File folder			
🥽 Libraries		🛛 simplelink.eww	4/24/2014 4:41 AM	IAR IDE Workspace	e 1 KB		
 Documents Music Pictures Videos 	Е		Type: IAR IDE Workspace Size: 164 bytes Date modified: 4/24/2014 4:41 AM				
Computer Computer CSDisk (C:)							
辑 Network	-						
	File nam	ne: simplelink.eww		•	Workspace Files (Open 🚽	*.eww) Cancel	• •

Figure 18. Open simplelink.eww

3. Rebuild the simplelink project by selecting Project>Rebuild All from the menu, as shown in Figure 19.



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😽 simplelink - IAR Emb	edded Workbench IDE					
File Edit View Proj	ect Simulator Tools Win	dow Help				
	Add Files	-				
workspace	Add Group					
US	Import File List					
Files	Add Project Connection					
□	Edit Configurations					
—⊞ [] cc_pal.(— [] cc_pal_	Remove					
H H C device.(Create New Project					
E flowcont	Add Existing Project					
E ts.c E c netapp.i	Options	Alt+F7				
-⊞ ເ] netcfg.c	Version Control System	•				
- 🕀 🖸 socket.c	Make	F7				
	Compile	Ctrl+F7				
U Han.c	Rebuild All					
	Clean					
	Batch build	F8				
	Stop Build	Ctrl+Break				
	Download and Debug	Ctrl+D				
	Debug without Downloading					
	Make & Restart Debugger	Ctrl+R				
	Restart Debugger	Ctrl+Shift+R				
	Download	•				
	SFR Setup					
simplelink	Open Device Description File List All Registers to File	•				

Figure 19. Rebuild the simplelink Project.

4.2.3 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_1.3.0\cc3200-sdk\example\ getting_started_with_wlan_station\ewarm, and opening wlan station.eww.
- 2. Open the common.h file located at the path C:\T/\CC3200SDK_1.3.0\cc3200-sdk\example\common\.
- 3. Edit common.h to use the SSID, security type, and security key of the AP. Edit the macros SSID_NAME, SECURITY_TYPE, and SECURITY_KEY to contain the AP information as shown in Figure 20. 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>// Values for below macro // SimpleLink device will //</pre>	os shall be modified L connect to followin	as per access-point(A g AP when application	<pre>// Values for below macr // SimpleLink device wil //</pre>	os shall be modified as per access-point(l connect to following AP when applicatio
<pre>#define SSID_NAME #define SECURITY_TYPE #define SECURITY_KEY</pre>	"cc3200demo" / SL_SEC_TYPE_OPEN/ ""	* AP SSID */ * Securi * Password of the sec	<pre>#define SSID_NAME #define SECURITY_TYPE #define SECURITY_KEY</pre>	"Your_AP_Name_Here" /* AP_SSID */ SL_SEC_TYPE_WPA/* Security t pe (OPEN "Your_AP_Security_Key_Here"
<pre>#define SSID_LEN_MAX #define BSSID_LEN_MAX</pre>	32 6		#define SSID_LEN_MAX #define BSSID_LEN_MAX	(32) (6)

Figure 20. Editing common.h

4. Save common.h.

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- 5. Rebuild the wlan_station project by selecting Project>Rebuild All from the menu.
- 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 21, and press OK.

Options for node "wlan_station"						—
Category:					F	actory Settings
General Options						
C/C++ Compiler						
Assembler						
Output Converter	Download	Images	Extra Options	Multicore	Plugins	
Custom Build						
Build Actions Drive	1		<u>I R</u> un to			
Linker	ellaris	-	main			
Circulater Simu	lator					
Simulator Ange						
CMSTS DAD GDB	IS DAP Server					
GDB Server	ROM-monitor					
IAR ROM-monitor	JTAGjet					
I-iet/JTAGiet	k/J-Trace ellaris					
J-Link/J-Trace Mac	aigor					
TI Stellaris PE n	nicro					
Macraigor RDI	INIZ					
PE micro Third	Party Driver					
RDI XDS	100/200/ICD					
ST-LINK						
Third-Party Driver						
XDS100/200/ICDI						
				04		Cancel
						Caricel

Figure 21. Select TI Stellaris Driver

7. Launch Tera Term, and create a new serial connection to the CC3200 Launchpad COM port as shown in Figure 22.



📒 Tera Term -	[disconnected] VT		
File Edit Se	Tera Term: New con	nection	
	© TCP/IP	Host: myhost.example.com	, i
		✓ History TCP port#: 22 Service: Telnet Image: SSH SSH version: SSH2 Image: Other Protocol: UNSPEC	
	⊚ Serial	Port: COM4: CC3200LP Dual Port (COM4) COM4: CC3200LP Dual Port (COM4) OK Cancel Help	

Figure 22. Launch Tera Term

8. In the menu, select Setup>Serial Port, and change the baud rate to 115200 as shown in Figure 23.

Port: COM4 OK Baud rate: 115200 Data: 8 bit Data: 8 bit Parity: none Stop: 1 bit Help Flow control: none Transmit delay 0 msec/char 0 msec/line	COM4:9600baud - Ter	Tera Term: Serial port setu	р	×	J
Stop: 1 bit + Help Flow control: none + Transmit delay 0 msec/char 0 msec/line		Port: Baud rate: Data: Parity:	COM4 • 115200 • 8 bit • none •	OK Cancel	~
		Stop: Flow control: Transmit delay O msec	1 bit • none • / /char 0 ms	Help ec/line	

Figure 23. Tera Term Serial Port Setup

9. Click the debug icon as shown in Figure 24 to download code to the device and start debugging. Select Debug>Go from the menu, or press F5 to begin execution.



💥 wlan_station - IAR Embed	ded Workbench IDE	П
File Edit View Project	TI Stellaris Tools Window Help	V
i 🗅 🚅 🖬 🕼 🖓 🖓 🛙	1 B B B B B B B B B B B B B B B B B B B	 2 D
Workspace	×	

Figure 24. Debug Icon

10. If the CC3200 successfully completes all steps, the serial output appears as shown in Figure 25.

📒 co	DM5:1	15200b	aud - Tera	Term VT	And the second se
File	Edit	Setup	Control	Window	Help
			******	******	****
			*****	CC320	0 WLAN STATION Application
U 4	N		4 0	1.0	
Host Build	Vers	r vers ion 2.	10h: 1.0 6.0.5.31	.1.4.0.1	.1.0.3.34
Devic Devic	e is e sta	config rted a	ured in s STATIO	default : N	state
[WLAN	EVEN PP FII	T] STA FNT] I	Connect P Acquir	ed to the	NE AP: TP-LINK_POCKET ,BSSID: e8:94:f6:48:71:12 92 168 0 100 Gateway=192 168 0 254
Conne	ction	estab	lished w	/ AP and	IP is aquired
Devic	e pin	: ged bo	th _{the g}	ateway a	and the external host
WEHN	51411	UN exa	mple exe	cuted su	lccessfully

Figure 25. Tera Term VT

4.3 Option 3: GCC

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

4.3.1 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



Compile, Download, and Debug

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See Figure 26 for an example of selecting a package (as example: Devel/autoconf).

A
and Java source cod
lder
shell scripts to autom
files
files
Class.
riles 🔻
i

Figure 26. 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.

4.3.2 GNU Tools for ARM Embedded Processors

Download the latest version of *gcc-arm-none-eabi-<version>-win32.exe* from https://launchpad.net/gccarm-embedded, and install under the Cygwin root directory (default: *c:\cygwin*) and add the path *<installation_dir>\bin* (for example, *c:\cygwin\4.9 2015q2\bin*) to the windows PATH environment variable.

4.3.3 Open On-Chip Debugger (OpenOCD)

- 1. Download prebuilt openocd-0.9.0 for Windows from http://www.freddiechopin.info/download/category/4openocd and unzip the package to the Cygwin root directory (default: *c:\cygwin*).
- 2. Add the path for the openocd.exe (.lopenocd-0.9.0lbinl) to the Windows PATH environment variable.
- 3. Download the Zadig USB installation driver from http://zadig.akeo.ie/.
- Run the zadig_<version>.exe and install the WinUSB driver for USB<->JTAG/SWD (Interface 0) debuggers (refer to Figure 27 and Figure 28). The IAR and CCS debugger do not work after this: the drivers must be reconfigured to work with these (refer to Section 4.3.6).



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🗾 Zadig				
Device	Opt	ions Help		
		List All Devices	-	
	\checkmark	Ignore Hubs or Composite Parents		▼ _ Edit
	✓	Create a Catalog File		
Driver	✓	Sign Catalog & Install Autogenerated Certificate	•	WinUSB (libusb)
USB II		Advanced Mode		libusb-win32
WCID		Log Verbosity		libusbK WinUSB (Microsoft)
	_		_	
0 devices	foun	d.		Zadig 2.1.2.677

Figure 27. Zadig Options

Zadig	
Device Options Help USB <-> JTAG/SWD (Interface 0)	▼ □ Edit
Driver FTDIBUS (v13.11.35.0) WinUSB (v6.1.7600.16385) USB ID 0451 C32A 00 WCID ² X Replace Driver	More Information WinUSB (libusb) libusb-win32 libusbK WinUSB (Microsoft)
5 devices found.	Zadig 2.1.2.677

Figure 28. Replace Driver

4.3.4 Compile the GCC SDK Project

1. Open the common.h file located at the path C:\T/\CC3200SDK_1.3.0\cc3200-sdk\example\common\.

 Edit common.h to use the SSID, security type, and security key of the AP. Edit the macros SSID_NAME, SECURITY_TYPE, and SECURITY_KEY to contain the AP 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.



Compile, Download, and Debug

<pre>// Values for below macro // SimpleLink device will //</pre>	os shall be modified . L connect to following	as per access-point(A g AP when application	<pre>// Values for below macr // SimpleLink device vil //</pre>	ros shall be modified as per access-point(1 connect to following AP when applicatio
<pre>#define SSID_NAME #define SECURITY_TYPE #define SECURITY_KEY #define SSID_LEN_MAX #define BSSID_LEN_MAX</pre>	"cc3200demo" / SL_SEC_TYPE_OPEN/ "" 32 6	• AP SSID */ • Securi • Password of the sec	<pre>#define SSID_NAME #define SECURITY_TYPE #define SECURITY_KEY #define SSID_LEN_MAX #define BSSID_LEN_MAX</pre>	"Your_AP_Name_Here" /* AP SSID */ SL_SEC_TYPE_WPA/* Security t pe (OPEN "Your_AP_Security_Key_Here" (32) (6)

Figure 29. Editing common.h

- 3. Save common.h.
- 4. In the Cygwin terminal, change the directory to C:\T/\CC3200SDK_1.3.0\cc3200-sdk\ example\getting_started_with_wlan_station\gcc\ and run the following command:

make -f Makefile

Note that Cygwin uses forward slashes to separate the directories.

5. Go to <*cc3200-sdk*>*lexample*/*getting_started_with_wlan_station*/*gcc*/ in the command prompt and run following command:

make -f Makefile

6. This generates the wlan_station.axf file under the gcc\exe folder.

4.3.5 Target Connection and Debugging (GDB)

 The OpenOCD configuration file for FTDI is present under the C:\T/\CC3200SDK_1.3.0\cc3200sdk\tools\gcc_scripts\ folder. To test the connection to the CC3200 FTDI Launchpad, navigate to the <cc3200-sdk>\tools\gcc_scripts folder, run the following command at the Cygwin prompt window, and check the output to see if the connection happened properly. Cygwin may need to be restarted before this step.

openocd -f cc3200.cfg

See Figure 30 for the connection output screen while the CC3200 device is connected through GDB.

Figure 30. Output Screen

- 2. Press <ctrl>+c to return to prompt.
- 3. Copy the wlan_station.axf file found in C:\T/\CC3200SDK_1.3.0\cc3200-sdk\ \example\getting_started_with_wlan_station\gcc\exe\ to the directory C:\T/\CC3200SDK_1.3.0\c3200sdk\tools\gcc_scripts\.
- 4. Launch Tera Term, and create a new serial connection to the CC3200 Launchpad COM port.
- 5. To start debugging using GDB on CC3200, go to *C:\TI\CC3200SDK_1.3.0\cc3200-sdk\tools\gcc_scripts* and run the following command at the Cygwin prompt:

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



Figure 31. Debugging wlan_station

This results in a GDB prompt. To continue, type 'continue' and press enter.

6. If the CC3200 successfully completes all steps, the serial output appears as shown in Figure 32. See Figure 31 for the result of debugging the wlan_station application from GCC.

COM5:115200baud - Tera Term VT	
File Edit Setup Control Window Help	

[NETAPP EVENT] IP Acquired: IP=10.123.45.1 , Gateway=10.123.45.1 Host Driver Version: 2.0.0.48 Build Version 3.0.1.4.31.2.0.0.0.2.2.0.0 Device is configured in default state [NETAPP EVENT] IP Acquired: IP=10.123.45.1 , Gateway=10.123.45.1 Device started as STATION [WLAN EVENT] STA Connected to the AP: cc3220demo ,BSSID: f8:e0:79:9b:d4:81 [NETAPP EVENT] IP Acquired: IP=192.168.43.242 , Gateway=192.168.43.1 Connection established w/ AP and IP is aquired	
Device pinged both the gateway and the external host MLAN STATION example executed successfully	

Figure 32. Tera Term VT

4.3.6 Driver Reconfiguration

1. To work with CCS or IAR, go to the device manager.



Compile, Download, and Debug

- 2. Update the driver software for USB<->JTAG/SWD (Interface 0) under Universal Serial Bus devices.
- 3. Select the <cc3200-sdk>\tools\ftdi folder for the driver update, as shown in Figure 33.

🚔 Device Manager	1 m m m m m m
File Action View Help	
	¥ 15
 a0132167pc Computer Disk drives Display adapters Display adapters Human Interface Devices IDE ATA/ATAPI controllers Keyboards Mice and other pointing devices Monitors Monitors Network adapters Ports (COM & LPT) Processors System devices System devices Universal Serial Bus controllers UNIVERSAL Serial Bus devices 	ers
	Update Driver Software Disable Uninstall Scan for hardware changes Properties

Figure 33. Device Manager



5 Summary

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

Summary

- CC3200 Programmer's Guide (SWRU369) 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.



Acronyms Used

6 Acronyms Used

STA – Wi-Fi Station

AP – Wi-Fi Access Point

WLAN – Wireless LAN

CCS - Code Composer Studio

GCC - GNU Compiler Collection



Page

Revision History

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

Changes from March 31, 2016 to May 30, 2018 (from D Revision (March 2016) to E Revision)

•	Updated for SDK 1.3.0.	6
•	Updated links	6
•	Updated Code Composer Studio version to 8.0.0.	8
•	Updated wlan_sta Import image.	11

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