

# SN8000 EVK User Guide

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Version 1.1	10/10/2014	• Updated "ignore leading path name segment" to 0



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# 1. Introduction

SN8000 is a FCC/IC certified IEEE 802.11b/g/n Wi-Fi module. It integrates Wi-Fi BB/MAC/RF IC, RF front end, clock, and on-board antenna. The SN8000 Development Kit can serve as a software development platform to design IP-enabled WiFi systems using Broadcom's WICED architecture [3]. This document provides the necessary information for setting up the EVK.

## 1.1 Acronyms

Acronym	Meaning
API	Application Programming Interface
EVB	Evaluation Board
EVK	Evaluation Kit
FW	Firmware
GPIO	General Purpose Input/Output
PC	Personal Computer
SW	Software
UART	Universal Asynchronous Receiver/Transmitter
USB	Universal Serial Bus

## **1.2 References**

- [1] Murata, "SN8000 EVB schematics"
- [2] Murata, "SN8000 SDIO adapter schematics"
- [3] Broadcom WICED architecture (<u>http://www.broadcom.com/support/wiced/</u>)
- [4] Wingbond, "W25Q80BL Serial Flash Memory With Dual and Quad SPI"
- [5] ST Microelectronics, "UM0462: STM32<sup>™</sup> and STM8<sup>™</sup> Flash loader demonstrator"



## 2. Setting up the SN8000 EVK for Windows

The SN8000 Development Kit (SN8000 EVK) supports the evaluation and development of wireless IP networking products. It consists of an evaluation board (EVB) [1], a SN8000 SDIO adapter [2], a ribbon cable, a mini-USB cable, and an installation package and this user guide. The SDIO adapter contains a SN8000 module and a ribbon cable connector. The EVB contains a STM32F205RG microcontroller, a dual channel USB-UART/USB-JTAG interface IC, a ribbon cable connector and a SDIO socket. The SN8000 EVK is intended for the following purposes:

- Demonstrate the dual AP/STA mode of operation. The preloaded firmware supports a web-based interface for configuring the WiFi connection to a specified AP.
- Serve as a software development platform to design IP-enabled WiFi systems using the Broadcom WICED architecture [3].

Each of these steps is discussed in detail in the following subsections.

## 2.1 SN8000 SDIO adapter

The SDIO adapter board is a carrier board for the SN8000 module supporting 802.11 b/g/n WiFi. It can be connected to the EVB and provide the hardware platform for application development – insert the SDIO adapter to the SDIO socket and connect the ribbon cable for IO controls as shown in Figure 1.



Figure 1 SN8000 SDIO adapter connected to the EVB

The ribbon cable connector CN2 provides the necessary GPIO signals used by WICED SDK. The signal assignment is as shown below:

• (1, SLOW\_CLK), (2, GPIO1), (3, GPIO0), (4, RST\_N), (5, VDD\_3V3\_EN)





Figure 2 Ribbon cable connector CN2 signals

## 2.2 SN8000 EVB

The SN8000 EVB is paired with a SN8000 SDIO adapter board to provide the hardware platform for application development. Some major components of the EVB are shown in Figure 3.



Figure 3 SN8000 EVB paired with a SN8000 SDIO adapter

- SDIO socket for the SN8000 adapter board
- STM32F205RG ARM Cortex-M3 processor with integrated memory
- Mini-USB connector supporting USB-JTAG and USB-serial interfaces
- Jumper CN2 to select power supply source between V<sub>USB</sub> and V<sub>EXT</sub>.
- Jumper CN9 to select power supply source for VDD\_SD (3.3V or 3.6V)
- Jumper CN20 to select BOOT mode (default is off)
- Connectors for extern 5V power supply  $(V_{EXT})$
- Power indicator LED for availability of power to the SDIO interface



- Reset button
- Application button
- Application LED
- Serial flash (8M bits) and interface connectors
- UART interface connectors
- Ribbon connector to select I/O pins of the SN8000 module
- Pads for header to access select I/O pins of the STM32F

#### 2.2.1 Programming and debug interface

The SN8000 EVB provides a mechanism for programming and debugging applications on the STM32F through the USB-JTAG interface. The instructions for installing the driver for the USB-JTAG interface are described in Section 2.4.

## 2.2.2 UART interface

The EVB also provides a serial interface to the STM32F processor through the USB-UART interface. The instructions for installing the driver for that interface are described in Section 2.4. Connectors CN4-CN7 may be removed to disconnect the USB-UART interface. The ordering of the jumpers in the illustration below listed from top to bottom is CN4, 5, 6, 7 and 8. The left column of the pins is connected to the USB-UART port, and the right column is connected to STM32F. Jumper on CN8 should be removed.

Connector	STM32F pins	Signal	Remark
CN4	PA12	RTS/	Jumper on to use USB-UART interface
CN5	PA11	CTS/	Jumper on to use USB-UART interface
CN6	PA9	TXD	Jumper on to use USB-UART interface
CN7	PA10	RXD	Jumper on to use USB-UART interface

#### Table 1 UART interface jumpers

## 2.2.3 Serial flash

The EVB has an 8MBits Winbond W25Q80BL ([4]) serial flash that may be used for over-the-air FW upgrade by the WICED SDK (Section 2.4). The jumpers on connectors CN10-CN12 may be removed to disconnect the serial flash from the module so that those pins may be connected to the customer platform for other purposes. The ordering of the jumpers in the illustration below listed from left to right is CN10, 11, 13 and 12. The bottom row of the pins is connected to the serial flash, and the top row is connected to STM32F.



Connector	STM32F pins	Flash Signal	Remark
CN10	PA4	CS/	Jumper on to use serial flash



CN11	PA5	CLK	Jumper on to use serial flash
CN13	PA7	DI	Jumper on to use serial flash
CN12	PA6	DO	Jumper on to use serial flash

#### Table 2 Serial flash interface jumpers

## 2.2.4 EVB supply jumper setting

The EVB power can be provided either by the USB host or an external 5V supply. The supply source is configured by jumper CN2, as described in Table 3. By default, the USB is selected as the power source for the EVB.

Power source	CN2 position	Remark
USB	USB	Jumper away from VEXT
External 5V DC	EXT	Jumper closest to VEXT

 Table 3 EVB power supply jumper setting

## 2.2.5 SN8000 supply jumper setting

The SN8000 power (VDD\_SD supplying both VDD\_IO and VDD\_BAT) can be provided by the EVB and is selectable between 3.3V and 3.6V. The supply source is configured by jumper CN9, as described in Table 4. The power indicator LED shows the availability of power to the SN8000 SDIO adapter.

VDD source	CN3 position	Remark
3.3V	3.3V	Jumper closest to power indicator
3.6V	3.6V	Jumper away from power indicator

#### Table 4 VDD supply jumper setting

## 2.2.6 Application button and LED

The application button and LED are connected to STM32F for application usage, e.g., WICED bootloader button and LED. The button and LED are connected to PC4 and PC5, respectively, of STM32F.

## 2.2.7 Header pads

The SN8000 EVB provides the following header pads (0.1" pitch) for application-specific usage:

• Select STM32F205RG I/Os with the pin number as labeled on the silk screen

## 2.3 Using the preload firmware

By default the SN8000 EVB is already loaded with an application firmware. It provides basic features such as soft AP and simple web service. Power up the board through a mini USB cable connected to a PC. (Discard any "Found new USB device" message on PC for now. The demo only needs the USB interface to provide the +5V power. The USB driver installation will be addressed in the Section 2.4)

Once the board is power up, on a Laptop PC (or any web capable device), turn on WiFi and scan for the



soft AP's SSID "Murata-WS-xxxxx", the "xxxxx" is the last 3 octets of the EVB's MAC address.

After joining the soft AP, the laptop should get IP address assignment by the soft AP, which is 172.31.0.xx, by default. Open a web browser such as Firefox and enter "sn8000.com". The following sections illustrate the functionalities of the sample web files.

## 2.3.1 Wifi status

The Wifi STA status tab indicates the current network status of the module. By default it is not connected to any network at the beginning.

-ile	Edit	View	History	Bookmarks	Tools	Heln		
<u>m</u> s	N8xxx I	Demo	1112001	Poolandi	+	Ū0ip		
4	\$	S	🛞 sn80	00.com				
			W	'iFi STA stat	tus	WiFi scar	n and join	STA IP Config
			W	/iFi STA S	Statu	s		
				Status	MAC	address	SSID	
					00000	0044400		

#### 2.3.2 Wifi scan and join

Click on "WiFi scan and join" tab, it will perform the Wifi scan request first and then list the scan result.



SN8xxx Demo - Mo	zilla Firefox tory Rockmarks Too	k Holp			
<u>nie cuit vi</u> ew ni <u>s</u> <b>III</b> SN8xxx Demo		is <u>H</u> eib			
	con 0009com				
· · 5	310000.0011				
	WiFi STA status	ViFi scar	n and join S	TA IP Config	
	Please enter passwo Password:	rd and join	a network:	1	
	SSID	Channel	BSSID	Signal(dBm)	
				Signal(abiii)	
	RFM80211B	3	00904B36B4C2	-92	Join
	RFM80211B Murata-WS-416C00	3 6	00904B36B4C2 000B6C416C00	-92 -51	Join Join
	RFM80211B Murata-WS-416C00 MY_AP_SSID	3 6 6	00904B36B4C2 000B6C416C00 0018E7FE5C13	-92 -51 200	Join Join Join
	RFM80211B Murata-WS-416C00 MY_AP_SSID Linky	3 6 6 7	00904B36B4C2 000B6C416C00 0018E7FE5C13 68EFBD2E29B0	-92 -51 200 -68	Join Join Join Join
	RFM80211B Murata-WS-416C00 MY_AP_SSID Linky wwlan2007	3 6 6 7 8	00904B36B4C2 000B6C416C00 0018E7FE6C13 68EFBD2E29B0 000D0B3DAB46	-92 -51 200 -68 -70	Join Join Join Join Join
	RFM80211B Murata-WS-416C00 MY_AP_SSID Linky wwlan2007 Murata-WS-416F82	3 6 6 7 8 8	00904B36B4C2 000B6C416C00 0018E7FE5C13 68EFBD2E29B0 000D0B3DAB46 000B6C416F82	-92 -51 200 -68 -70 -62	Join Join Join Join Join Join
	RFM80211B Murata-WS-416C00 MY_AP_SSID Linky wwlan2007 Murata-WS-416F82 RFM80211b	3 6 6 7 8 8 8 9	00904B36B4C2 000B6C416C00 0018E7FE5C13 68EFBD2E29B0 000D0B3DAB46 000B6C416F82 001CDF102B2B	-92 -51 200 -68 -70 -62 -59	Join Join Join Join Join Join
	RFM80211B Murata-WS-416C00 MY_AP_SSID Linky wilan2007 Murata-WS-416F82 RFM80211b MEHQ	3 6 6 7 8 8 8 8 9 9	00904B36B4C2 000B6C416C00 0018E7FE5C13 68EFBD2E29B0 000D0B3DAB46 000B6C416F82 001CDF102B2B 000AB855B0D0	-92 -51 200 -68 -70 -62 -59 -71	Join Join Join Join Join Join Join

Select a SSID (In security cases, fill the password first), click on "Join". Wait for the join result to be updated. If such join request succeeds, the previous status window will be refreshed, like this:

🕙 si	NBxxxx	Demo	Mozilla Firefo	x			
Eile	Edit	View	History Book	marks <u>T</u> oo	ls <u>H</u> elp	E.	
<mark>m</mark> S	N8xxx	Demo		+	•		
*	>	S	🕘 sn8000.cor	n			
			WiFi S	TA status	WiFi	scan and ioin	STA IP Config
				, status		ooun une join	c
				STA Stat	110		
			wwir't s	STA Stat	us	2	
			Statu	s MAC a	ddress	SSID	
			In netw	ork 000B6C	F411AE	MY_AP_SSID	
			33000			50 (c)	
			Leave	MY_AP_S	SID	Get RSSI	
			BSSI-3	a dBm			
			1,000,0				

Click on "Get RSSI" will retrieve the RSSI reading, "Leave" will perform the Wifi leave request.



#### 2.3.3 Wifi IP config

🕑 SI	18xxx	Demo	Mozilla	Firefox		
Eile	<u>E</u> dit	<u>V</u> iew	Hi <u>s</u> tory	<u>B</u> ookmarks	<u>T</u> ools	Help
<b>m</b> Si	N8xxx I	Demo			+	
÷	\$	S	🛞 sn80	00.com		

WiFi STA status	WiFi scan and join	STA IP Config	
O DHCP		O Static IP	
Hostname ("*": no	o change, "": erase)		
*			
Append last 3	3 bytes of MAC to hostna	ame	
Canfigura ID	Get IP info		

Once joined, switch to "STA IP Config" tab. Click on "Configure IP" first then click on "Get IP info". If succeed, the assigned IP value will be displayed at bottom, as illustrated in the figure above.

At this stage, users should be able to ping the SN8000 EVB from other nodes who stays within the same network domain.

## 2.4 Setting up the WICED SDK

Users can develop their own applications on SN8000 EVB by using Broadcom® WICED SDK and IDE. To use the SDK, the following steps must be performed:

- 1. Download and install the WICED SDK and IDE
- 2. Apply the SN8000 platform patches
- 3. Create and compile an application
- 4. Load the application into the SN8000 EVB
- 5. Run the application
- 6. Debug the application

This section provides instructions for Windows XP/Windows 7 users. For other OS please refer to Broadcom WICED Quick Start Guide.

#### 2.4.1 Install the WICED SDK and IDE

The WICED SDK and IDE package is available for download from the Broadcom® WICED website (<u>http://go.broadcom.com/wiced</u>). It is provided as a self-installing executable file. Double-click the Wiced-SDK-2.3.x-IDE-Installer.exe file to begin the installation. A setup window similar to the following appears.



UP will install the	SOFTWAI Wireless Internet Con WICED IDE in the foll another folder. Click No	REDEN nectivity for Emi owing folder. To ext to continue.	ELOPN redded Devices	MENT KIT
up will install the wse and select a	WICED IDE in the foll another folder. Click N	owing folder. To ext to continue.	install in a diffe	rent folder click
/ICED IDE Folde	e			
C:\Program File	s\WICED\WICED_IDE\			Browse
ce required: 38	3.5MB			
ice available: 71	.2GB			
t Install System	v2.46-7			
			Next >	Cancel

Note: ensure that the SN8000 EVB is NOT connected to the PC prior to installing the WICED SDK.

Choose the installation folder for the WICED IDE and click **Next**, then choose the installation workspace folder for the WICED SDK and click **Install**. Once the installation completes, click **Finish** to immediately start the WICED IDE.

## 2.4.2 Connect the SN8000 Evaluation Board

The SN8000 EVB connects to the PC through USB. The USB interface provides +5V power as well as individual JTAG and UART interfaces to the STM32F205 onboard SN8000 EVB.



Figure 4 SN8000 EVK Configuration

Note: Do NOT plug the EVB into PC prior to installing the WICED SDK. Run Broadcom WICED SDK installer first so that USB driver for SN8000 EVB can be loaded properly.

The SN8000 EVB has two logical USB devices: a USB-JTAG device and a USB-UART device. USB drivers for the EVB were automatically installed during the previous SDK installation process. Plug the SN8000 EVB into the development PC with a USB cable, the driver should automatically load.



#### 2.4.3 Verifying USB Driver Installations

Verify that installation of the drivers was successful by checking the Device Manager window. Follow the steps below to open the Device Manager window:

- 1. For XP, select Windows Start Button->Control Panel->System->Hardware->Device Manager. For Win 7, select Windows Start Button->Control Panel->Hardware and sound->Device Manager.
- 2. The A device (WICED USB JTAG Port) should be under *<computer-name>\SN8200 USB-JTAG Device* as shown in the screen capture below.
- 3. The B device (WICED USB Serial Port) should be under *<computer-name>\Ports (COM & LPT)* as shown in the screen capture below.
- 4. Take note of the USB serial COM port number for later use. Your SN8000 EVB USB serial COM port will most likely be assigned to a different port number than shown in the screen capture.



Figure 5 Device Manager screen showing installed SN8000/SN8200 serial and JTAG drivers

## 2.4.4 Uninstalling the USB drivers

If for any reason it is desired to uninstall the USB drivers, go to **Control Panel->Add Remove Programs** (for XP) or **Control Panel->Uninstall a program** (for Win 7) to remove the three drivers installed.



🐻 Add or Rei	nove Programs			
	Currently installed programs:	Show updates	Sort by: Name	~
Change or	Sentinel System Driver Installer 7.5.0	1995 909	Size	1.03MB 📉
Programs	🛃 Sina Web TV		Size	0.98MB
2	😹 SOTI Pocket Controller-Pro		Size	21.09MB
10 A	🔀 Spelling Dictionaries Support For Adobe Reader	9	Size	29.69MB
Add <u>N</u> ew Programs	ST SimpleMAC 1.1.0 STM32W108		Size	43.96MB
-	🛃 UART-tester		Size	4.39MB
	🛃 WICED IDE for Broadcom WICED SDK		Size	135.00MB
Add/Remove Windows	👸 WinCvs 2.0		Size	3.04MB
Components	Windows Driver Package - FTDI CDM Driver Pack 2.08.14)	kage - Bus/D2XX Driver (03/18/2011	Size	1.91MB
	Windows Driver Package - FTDI CDM Driver Pack	kage - VCP Driver (03/18/2011 2.08.14)		
Set Program	🗮 Windows Driver Package - libusb-win32 (libusb0)	WICED Eval Board (07/24/2011 1.2.5.	0)	
Access and Defaults	💐 Windows Driver Package - Segger (jlink) USB (0	1/09/2007 2.6.5.0)		
	🔀 Windows Installer 3.1 (KB893803)			
	C Windows Internet Explorer 8		Size	4.58MB
	🔀 Windows XP Service Pack 3			
	🕞 WinPcap 3.1		Size	0.25MB
	🔚 WinRAR 4.10 (32-bit)		Size	3.95MB
	WinSCP 3.8.2		Size	5.75MB 🥃

Figure 6 Uninstalling USB drivers



# 3. Using the WICED IDE

A patch file has been created to simplify the porting of WICED SDK to the SN8000 EVB. Please contact <u>modules@murata.com</u> to obtain the patch file. Ensure that the WICED SDK version being used matches that supported by the patch file.

## 3.1 Start IDE and apply the patch

The WICED IDE should have been started during previous installation process, or in any cases user has closed it, re-launch the WICED IDE by selecting **START** > **All Programs** > **Broadcom** > **WICED IDE**.

After startup, use **Project Explorer** tab on the left of the IDE, right-click on Wiced-SDK project, and then in the menu select Team->Apply Patch, as shown below.



On the next window of Patch Input Specification, browse for the SN8000 patch file. Once the location is selected, click "Next" to proceed.

![](_page_17_Picture_0.jpeg)

Apply D	atch	
Patch Inpu	It Specification	
Select the pa	atch location.	
◯⊆lipboar	d	
⊙ Fil <u>e</u>	C:\Documents and Settings\vmware\Desktop\WICED\Wiced-SDK-2.3.1_IDE_sn8000x.patch	]
O <u>W</u> orkspa	ice	
Select th	e location of the patch:	-
± 5	• Wiced-SDK	
		_
C	< Back Next > Einish Cancel	

On the next window of Target Resource, keep the default setting and click on "Next". On the next window of Review Patch, under "Patch options" set Ignore leading path name segments to be '0', then click "Finish".

Upon this step, the WICED SDK project will be updated with SN8000 platform profiles.

![](_page_18_Picture_1.jpeg)

📥 Apply Patch	the second day is not the		
Review Patch			
Review the patch with respect to the local file syst	tem and manually merge any	unmatched portions.	<b>-</b>
Ignore leading path name segments: 0 🔹	Show <u>m</u> atched hunks	Fuzz factor: 0	Guess
<u>Reverse patch</u>	Show Excluded	🔲 G <u>e</u> nerate a .rej file for un	merged hunks
Double-click on file or patch segment entries to vi	ew their content:		
Patch Contents			× ×
platforms/SN8205xUFL/README.txt (file	e does not exist)		*
platforms/SN8205xUFL/SN8205xUFL.mk	(file does not exist)		
platforms/SN8205xUFL/wifi_nvram_ima	ige.h (file does not exist)		
WICED/platform/MCU/STM32F2xx/plat	form_init.c		*
Patch contains 3543 added and 1 removed lines.			
?	< <u>B</u> ack	Next > Einish	Cancel

## 3.2 Create the SN8000 make target

After patch applied, the SN8000x headers and platform files should occur in the updated Wiced-SDK project. Now use **Make Target** tab on the right top of the IDE. Pick up an existing target, i.e., snip.scan-BCM943362WCD4 download, right click on it and copy/paste the target. The "Create Make Target" window will pop up. Rename the target as snip.scan-SN8000x download.

![](_page_19_Picture_0.jpeg)

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![](_page_19_Picture_2.jpeg)

## 3.3 Build and download the application

The new created target "snip.scan-SN8000x download" should appear in the updated Wiced-SDK target list. Double click on it to build the scan application based on SN8000 platform, the IDE console window displays the build progress.

The build target is appended with the 'download' and 'run' options, these options tell the toolchain to download the firmware and run the application after the build completes. The build output looks similar to the following:

```
**** Build of configuration Default for project Wiced-SDK ****
```

```
C:\My Documents\WICED\Wiced-SDK-2.3.1\Wiced-
SDK\make.exe snip.scan-SN8000x download
Building Bootloader
```

Building App

```
Making .gdbinit
Creating security credentials
Converting resources
```

![](_page_19_Picture_10.jpeg)

![](_page_20_Picture_0.jpeg)

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Making DCT image Compiling App Scan Compiling Platform SN8000x Compiling Wiced Compiling STM32F2xx Compiling common GCC Compiling WWD\_ThreadX\_Interface Compiling WWD\_NetX\_Duo\_Interface Compiling Wiced\_ThreadX\_Interface Compiling Wiced NetX Interface Compiling Supplicant\_besl Compiling Lib http server Compiling Lib dns redirect daemon Compiling Lib dns Compiling WWD for SDIO ThreadX Compiling STM32F2xx Drv Compiling SPI Flash Library SN8000x Compiling Lib\_dhcp\_server Compiling Wiced\_Wifi\_image Making snip scan-SN8000x.elf Making snip\_scan-SN8000x.bin Build complete

snip\_scan-SN8000x

Module	 Flash	   Static     RAM
App	905	4
Bootloader Host MCU-family library	133	2626
Interrupt Vectors libc	660 180	0     4
Networking	385	
Other	23980	2260
Platform RAM Initialisation	668 2252	0
Startup Stack & Link Script fill Supplicant - BESL	434	844
ThreadX	7088	392
WI-FI FIRMWARE Wiced	2249	773
WWD	10834	1037
TOTAL (bytes)	254700	31624

Downloading Bootloader ... Download complete

Downloading Application ... Download complete

Downloading DCT ...

![](_page_21_Picture_0.jpeg)

Download complete

Note: If the EVB is not recognized by the programming tools, it may be necessary to disconnect and then reconnect the board to the computer before trying again. The following message indicates there was an error with the download process:

```
"**** OpenOCD failed - ensure you have installed the driver from the drivers
directory, and that the debugger is not running **** In Linux this may be due
to USB access permissions. In a virtual machine it may be due to USB
passthrough settings ****"
Resetting target
make: *** [run] Error 1
```

## 3.4 Run the application

This section assumes you have successfully completed previous section, and the scan application is running on the SN8000 EVB.

After power-on-reset, the scan application prints status messages to the USB UART of the SN8000 EVB.

To verify printing, launch a terminal application such as Microsoft<sup>®</sup> Hyper Terminal. (For Windows XP, it's located at **START** > **All Programs** > **Accessories** > **Communications** > **Hyper Terminal**)

Use following settings on COM port connected (in this example it's COM 18):

rt Settings		
<u>B</u> its per second:	115200	~
<u>D</u> ata bits:	8	~
Parity:	None	~
<u>S</u> top bits:	1	~
Elow control:	None	~
	B	estore Defaults

![](_page_22_Picture_0.jpeg)

Start the terminal application then press the reset button on the board. The texts are expected to appear as shown below:

🗞 eß - HyperTerminal	
Elle Edit View Call Iransfer Help	
□ 🖨 🐵 💲 =□ " 🗃 🖆	
Platform SN8000x initialised Started ThreadX v5.5 Initialising NetX v5.6 Creating Packet pools Starting Wiced v2.3.1 Waiting for scan results	
<pre>#000 SSID : SN8XXX_ADAPTIVE BSSID : 00:14:BF:05:D9:81 RSSI : -73dBm Max_Data_Rate : 54.0 Mbits/s Network Type : Infrastructure Security : 0pen Radio_Band : 2.4GHz Channel : 1</pre>	
<pre>#001 SSID : Murata-WS-F411B0 BSSID : 00:0B:6C:F4:11:B0 RSSI : -73dBm Max Data Rate : 54.0 Mbits/s Network Type : Infrastructure Security : Open Radio Band : 2.4GHz Channel : 1</pre>	
Disconnected Auto detect 115200 8-N-1 SCROLL CAPS NUM Capture Print echo	

## 3.5 Debug the application

For detailed debug procedure, please refer to Broadcom WICED Quick Start Guide Sec. 4.3.

![](_page_23_Picture_1.jpeg)

## Appendix. Restore the pre-load firmware

Once the user has used the WICED SDK to build and download an image to the SN8000 EVK, the preloaded image in the STM32 is erased. The following procedure may be used to reload the original firmware through the serial port.

- 1. Place the STM32 onboard the SN8000 EVB into boot mode to prepare to load image through USART1.
  - a. Unplug the mini-USB cable from the SN8000 EVB. Configure the EVB to be powered by the USB.
  - b. Pull up STM BOOT0 by placing the jumper on CN20.
  - c. Reconnect the mini-USB cable to the SN8000 EVK. Press and release reset button.

![](_page_23_Picture_8.jpeg)

- 2. Download and install the tool "STM32 and STM8 Flash loader demonstrator" from ST website (<u>www.st.com</u>) to the PC. The keyword to search is "flash loader". The snapshots shown below are based on STMSW-MCU005 (version 2.6.0). More details can be found in [5].
- 3. Double click the installer in the package. Once the installation process is completed, check the option to launch the program then click on finish.

![](_page_24_Picture_1.jpeg)

InstallShield Wizard	
	Welcome to the InstallShield Wizard for Flash Loader Demonstrator V2.6.0 The InstallShield® Wizard will install Flash Loader Demonstrator V2.6.0 on your computer. To continue, click Next.
InstallShield Wizard	<u> &lt; B</u> ack <u>Next</u> Cancel
	InstallShield Wizard Complete Flash Loader Demonstrator V2.6.0 Setup is almost complete. Choose the options you want below.
	< <u>B</u> ack <b>Finish</b> Cancel

- 4. Some configurations need to be specified to the tool, as shown below:
  - a. For UART setting, the COM port should be same as shown in Section 2.4.3. Timeout is set as 10 sec, but user can adjust to a bigger interval if needed, e.g., if the erase phase exceeds 10 sec to finish, use a larger value to avoid the erase failure. The baud rate may also be changed to a larger value. Click Next when done.

![](_page_25_Picture_1.jpeg)

Select the cor connection.	Microe mmunication p all families	lectr ort and set	onics settings, then	click next to o	pen
Port Name Baud Rate Data Bits	СОМ19 256000 8	<b>v</b>	Parity Echo Timeout(s)	Even Disabled 10	•
	Back	Nevt	1 -	ancel	Close

b. Select the correct STM target, i.e., STM32F2\_1024K for STM32F205RG.

ST	Aicroele	ctronic	s	
Please select	your device in the	target list		
1 10030, 301000	your device in the	i digot ilst		
Target	STM32F2_1024K			-
PID (h)	0411			
PID (b)	33			
olo (ii) j				
Version	3.1			
Flash mapping				
Name	Start address	End address	Size	^
🏇 Page0	0x 8000000	0x 8003FFF	0x4000 (16K)	
🆠 Page1	0x 8004000	0x 8007FFF	0x4000 (16K)	
🆠 Page2	0x 8008000	0x 800BFFF	0x4000 (16K)	
🎭 Page3	0x 800C000	0x 800FFFF	0x4000 (16K)	
🎭 Page4	0x 8010000	0x 801FFFF	0x10000 (64	
🎭 Page5	0x 8020000	0x 803FFFF	0x20000 (12	
🎭 Page6	0x 8040000	0x 805FFFF	0x20000 (12	
🎭 Page7	0x 8060000	0x 807FFFF	0x20000 (12	
🎭 Page8	0x 8080000	0x 809FFFF	0x20000 (12	
🎭 Page9	0x 80A0000	0x 80BFFFF	0x20000 (12	
🎭 Page10	0x 80C0000	0x 80DFFFF	0x20000 (12	
🔦 Page11	0x 80E 0000	0x 80FFFFF	0x20000 (12	~

![](_page_26_Picture_1.jpeg)

c. When selecting the target bin file, note that the starting address MUST be 0x8000000. Click Next to start FW download.

1		
€ All	C Selection	
Download to device		
Download from fil	e	
C:\SNIC_EWW_	May17\SNIC_UART\Binary\	SN8000-demo.bin
Erase necess	ary pages 🕜 No Erase	C Global Erase
Thi 800000		on to the user program
C Optimize (Ren	nove some FFs)	ify after download
Apply option t	ovtes	-
Upload from douring	* I.	
Upload to file		
and the second second second second second		
<u></u>		
ENABLE	READ PROTECT	10N 💌

![](_page_27_Picture_1.jpeg)

🥔 Flash Loa	der Demonstrator			
ST	Microelectronics			
Target	STM32F2_1024K			
Map file	STM32F2_1024K.STmap			
	DOMAN DAD			
Uperation File name	DUWNLUAD CASNIC EXAV Mau17ASNIC UABTABinari/ASN8000.demo.h			
r lie name	C. ISINIC_EWW_MAYTYISINIC_OANTYISINISUO000demo.c			
File size	555.00 KB (568321 bytes)			
Status	61.05 KB (62513 bytes) of 555.00 KB (568321 bytes)			
Time	00:00:34			
Downloading data 11%				
	Back Next Cancel Close			

📌 Flash Loa	Flash Loader Demonstrator					
ST	Microelectronics					
Target	STM32F2_1024K					
Map file	STM32F2_1024K.STmap					
Operation	DOWNLOAD					
File name	C:\SNIC_EWW_May17\SNIC_UART\Binary\SN8000-demo.E					
File size	555.00 KB (568321 bytes)					
Status	555.00 KB (568321 bytes) of 555.00 KB (568321 bytes)					
Time	00:03:43					
Do	wnload operation finished successfully					
1						
	Back Next Cancel Close					

![](_page_28_Picture_1.jpeg)

5. Once the download is successful, close the tool and disconnect the mini-USB cable. Drive STM32F BOOT0 pin back to low by removing the jumper from CN20 to enable the firmware to run upon subsequent power up.

![](_page_29_Picture_0.jpeg)

# (END)