



WiLink™ WLAN gLogger Tool

This user's guide describes how to use the Microsoft<sup>®</sup> Windows<sup>®</sup>-based WiLink 6/7/8 WLAN gLogger tool, a software application that records messages from the WiLink WLAN firmware and develops, debugs, and monitors the WLAN IP.

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TEXAS INSTRUMENTS

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Requirements

#### 1 Requirements

#### 1.1 System Requirements

The WLAN gLogger tool requires the following hardware and software:

- PC running Pentium<sup>®</sup> II (minimum requirements)
- Operating system: Windows 2000, Windows XP, Windows 7
- Access to WL\_UART\_DBG pin

Debug and calibration tools for WLAN and *Bluetooth*<sup>®</sup> require four UART ports. The most efficient way to drive these ports to the PC is to use a UART-to-USB converter (not included in the wireless tools package). TI recommends using the <u>WL18XXCOM82SDMMC</u> adapter with the TI <u>WL1837MODCOM8I</u> module or the WL1835MODCOM8B module on the COM8 board.

NOTE: Multiple UART-to-USB adapters are available on the market, such as the <u>FTDI Chip™</u> development modules.

#### 1.2 Configuration Requirements

The WLAN gLogger tool for the <u>WiLink 8 WLAN NLCP package release</u> requires the latest versions of the following configuration files:

- <u>WiLink 8 WLAN firmware</u>
- WL128x firmware:
  - wl128x-fw-4-mr.bin
  - wl128x-fw-4-sr.bin
  - wl128x-fw-4-plt.bin
- WL127x firmware:
  - wl127x-fw-4-mr.bin
  - wl127x-fw-4-sr.bin
  - wl127x-fw-4-plt.bin

The installation files are located in the directory named *Wireless Tools* at the installation path configured during installation. By default, the files are located at the following path:

C:\Program Files (x86)\Texas Instruments\Wireless Tools

**NOTE:** Throughout this document, the directory in which the installation files reside is referred to as the *Installation directory*.

#### 2 Installation

The WLAN gLogger tool is part of the TI wireless tools package release. When the wireless tools package is installed, the gLogger icon is created in the Texas Instrument\Wireless Tools folder at Start $\rightarrow$ Programs and on the desktop (see Figure 1).



elloger

Figure 1. gLogger Icon

To start the WLAN gLogger tool, double-click the gLogger icon. The software initializes and displays the gLogger user interface window (see Figure 2).



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stre	am.csv									
Line	Type	Level	Time	Firmware TSI	TSF Delta [uS]	File Name	Bin	Function Name	Message	
4	0	0	2015-07-01 20:26:30.6	13					Syncing: 2 of 8 valid packets received	
5	0	0	2015-07-01 20:26:30.6	14					Syncing: 3 of 8 valid packets received	
5	0	0	2015-07-01 20:26:30.6	14					Syncing: 4 of 8 valid packets received	
	0	0	2015-07-01 20:26:30.6	16					Syncing: 5 of 8 valid packets received	
	0	0	2015-07-01 20:26:30.6	16					Syncing: 6 of 8 valid packets received	
	0	0	2015-07-01 20:26:30.6	16					Syncing: 7 of 8 valid packets received	
.0	0	0	2015-07-01 20:26:30.6	17					Syncing: 8 of 8 valid packets received	
1	0	0	2015-07-01 20:26:30.6	17					Synced.	
.2	1	0	2015-07-01 20:26:30.6	13 0	0	0:0	1	0	FU keep alive	
			2015-07-01 20:26:30.6	14 0		thermal_sensor.c:895		ThermalSensor_FsmInit	Thermal Sensor is Enabled, isMinoDevice=1	
4	1	0	2015-07-01 20:26:30.6	14 0	0	thermal sensor.c:958	1	Thermal Sensor_FsmInit	fs_val=2	
.5	1	0	2015-07-01 20:26:30.6	14 0	0	thermal_sensor.c:971	1	Thermal Sensor FsmInit	thrLowDefault=80, thrHighDefault=121, thr_high_max=140	
.6	1	0	2015-07-01 20:26:30.6	16 0	0	thermal_sensor.c:200	1	Thermal Sensor_SetThresh	Setting threshold LOW to 80	
.7	1	0	2015-07-01 20:26:30.6	16 0	0	thermal_sensor.c:221	1	Thermal Sensor_SetThresh	Setting threshold HIGH to 121	
18	1	0	2015-07-01 20:26:30.6		0	thermal sensor.c:981	1	Thermal Sensor FsmInit	Alpha factor=80/100 , fsm_enabled_delay =320	
-			10015 08 01 00 05 00 s	10.0	10 11			- · · · · · ·		
filter:	therma	el 🛛		Search 📃 C	ase sensitive 📃	Regex 📝 Filter tail 📝 Sync 🏾	Show	advanced		
Line	Type	Level	Time	Firmware TSP	TSF Delta [uS]	File Name Bin	Funct	on Name	Message	Packet
						thernal_sensor.c:895 1	Therm	Sensor_FsmInit	Thernal Sensor is Enabled, isMimoDevice-1	
4	1	0	2015-07-01 20:26:30.6	14 0	0	thernal_sensor.c:958 1	Therm	lSensor_FsmInit	fs_val=2	800013
5	1	0	2015-07-01 20:26:30.6	14 0	0	thernal_sensor.c:971 1	Therm	Sensor_FsmInit	thrLowDefault=80, thrHighDefault=121, thr_high_max=140	800064
.6	1	0	2015-07-01 20:26:30.6	16 0	0	thernal_sensor.c:200 1	Therm	lSensor_SetThresholdLow	Setting threshold LOW to 80	800061
7	1	0	2015-07-01 20:26:30.6	16 0	0	thernal_sensor.c:221 1	Therm	Sensor_SetThresholdHig	h Setting threshold HIGH to 121	80007£
8	1	0	2015-07-01 20:26:30.6	17 0	0	thernal_sensor.c:981 1	Therm	Sensor_FsmInit	Alpha factor=80/100 , fsm_enabled_delay =320	80048f
9	1	0	2015-07-01 20:26:30.6	17 0	0	thernal sensor.c:995 1	Therm	Sensor FsmInit	Band=0, thr low=80, thr high=121	8000bf2

Figure 2. WLAN gLogger User Interface Window

## 3 Configuring WLAN gLogger for UART Mode

To configure the gLogger tool for UART mode, perform the following steps:

1. From the toolbar, open the Options menu and select Settings. The Settings window displays (see Figure 3).

erver	View setting	s Highlight	Persistence	Memory/C	PU Create	ILI N	lemory Ov	erview			
				Legacy		gLog	ger				
Serve	Configuration	n Params - W	LAN								
0	Use Serial										
	COM Port	COM9	-	2	Baudrate (	300000	0	-			
	Data file(HE	X)									
s	tream Path	.Vogs									
-		-	Users\GuyM\	FW\w18xx+	fw-4.bin						
В	in File	Z:\Firmware\	Users\GuyM\ AN\WLAN\W			Version	Tree\8.9	.0.0.55 b	ug fixes\n	elease	

Figure 3. Configuring the gLogger for UART Mode

- 2. Click to highlight the gLogger button.
- 3. In the Server Configuration Params WLAN area, click the Use Serial button and select the correct value from the COM Port menu.

**NOTE:** The UART logger COM port is usually the last COM port created.

- 4. Select the correct baud rate from the Baudrate menu:
  - WL127x and WL128x: Baud rate is 921600
  - WL18xx: Baud rate is 3,000,000 (default)
- 5. In the Bin File field, browse to the location of the firmware bin file that is running the target device and select the path. The bin file contains all debug, strings, asserts, and other information that the gLogger requires to parse the logs correctly.



**NOTE:** The selected bin file must be identical to the bin file running on the target device.

6. The Max File Size (MB) field is set to 25MB by default. This parameter limits the maximum size of a log file. When the maximum limit is reached, a new log file is created.

### 4 Configuring WLAN gLogger for SDIO Mode

To configure the gLogger tool for SDIO mode, perform the following steps:

- 1. Configure your platform to run with gLogger over SDIO as follows:
  - (a) Update the wlconf file on your platform to enable FW logger over SDIO.
    - Static: In the wlconf file, change the Logger output to SDIO as follows:
      - ./wlconf -i wlconf.bin file -o wlconf.bin file -s core.fwlog.output = 2
    - Dynamic: use the debugfs to switch from UART to SDIO (and SDIO to UART).

**NOTE:** To enable dynamic operation, the gLogger must be enabled with UART/SDIO (core.fwlog.output = 1 or core.fwlog.output = 2).

UART configuration:

echo 1 > /sys/kernel/debug/ieee80211/phy0/wlcore/fw\_logger

SDIO configuration:

echo 2 > /sys/kernel/debug/ieee80211/phy0/wlcore/fw\_logger

(b) Run the wl\_logproxy application as follows:

```
./wl_logproxy 1555
```

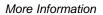
/sys/devices/ocp.3/47810000.mmc/mmc\_host/mmc0/mmc0:0001/mmc0:0001:2/wl18xx.0.auto/fwlog /usr/share/wl18xx/fwlogs/ 10000000 &

#### where:

- Blue text is the location of the system file (the example shows the file for the AM35x device).
- Green text is the location of the saved logs (the folder is not created by default).
- Orange text is the maximum size of the logger file in (TI recommends a file size of less than 1,000,000 bytes).

#### NOTE:

- Each log is marked with a timestamp denoting when the log is last saved.
- The only log without a timestamp is the current log to which the application writes.
- 2. From the toolbar, open the Options menu and select Settings. The Settings window displays (see Figure 4).





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erver	View setting	ıs Highlight	Persistence	Memory	/CPU Cr	eate ILI	Memory C	Iverview			
Senver	Configuratio	n Params - WL	AN	Legacy		gL	ogger				
	Use Serial										
-		СОМЭ		2	Baudrate	3000	100	-			
0		Abl 1-1-70 0)									
	Use SDIO (										
	Use SDIO ( Data file(HI										
	Data file(HI										
Str	Data file(HI	.Nogs									
Str	Data file(HI	>>)	sers\GuyM\	FW\wl18c	x-fw-4.bin						
Str	Data file(HI	.Nogs				A9_Versio	n_Tree\8	9.0.0.55_bi	ig_fixes∖re	lease	
Sti Bir Bir	Data file(HI ream Path n File	Nogs Z:\Firmware\L	N\WLAN\V		Firmware \	A9_Versio	n_Tree\8 File Form		n <u>g f</u> ixes\re	lease	

Figure 4. Configuring the Logger for SDIO Mode

- 3. Click to highlight the gLogger button.
- 4. In the Server Configuration Params WLAN area, click the Use SDIO (WiLink<sup>™</sup> 8) button and select the log file generated on the platform.
- 5. Load the log file and click OK.

#### 5 More Information

## 5.1 General

- To start the gLogger, press the Play icon.
- To stop the gLogger, press the Stop icon.
- To view old logs, click the Open Logs Directory icon.
- To load and parse a binary log file, click the Open Raw Log, select the binary log file path, and then select the bin file path.
- To clear the window while the gLogger is connected to the device, press Ctrl+n.

## 5.2 Searching and Filtering

- Press F4 to display the search tab.
- Search for strings or regular expressions on the open log file (see Figure 5).



#### More Information

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stre	am.csv									
Line	Type	Level	Time	Firmware TSF	TSF Delta (uS)	File Name	Bin	Function Name	Message	
4	0	0	2015-07-01 20:26:30.613						Syncing: 2 of 8 valid packets received	
5	0	0	2015-07-01 20:26:30.614						Syncing: 3 of 8 valid packets received	
6	0	0	2015-07-01 20:26:30.614						Syncing: 4 of 8 valid packets received	
7	0	0	2015-07-01 20:26:30.616						Syncing: 5 of 8 valid packets received	
8	0	0	2015-07-01 20:26:30.616						Syncing: 6 of 8 valid packets received	
9	0	0	2015-07-01 20:26:30.616						Syncing: 7 of 8 valid packets received	
10	0	0	2015-07-01 20:26:30.617						Syncing: 8 of 8 valid packets received	
11	0	0	2015-07-01 20:26:30.617						Synced.	
12	1	0	2015-07-01 20:26:30.613	0	0	0:0	1	0	FW keep alive	
			2015-07-01 20:26:30.614			thermal_sensor.c:895		ThermalSensor_FsmInit	Thermal Sensor is Enabled, isMimoDevice=1	
14	1	0	2015-07-01 20:26:30.614	0	0	thermal_sensor.c:958	1	Thermal Sensor_FsmInit	fs_val=2	
15	1	0	2015-07-01 20:26:30.614	0	0	thermal_sensor.c:971	1	Thermal Sensor_FsmInit	thrLowDefault=80, thrHighDefault=121, thr_high_max=140	
16	1	0	2015-07-01 20:26:30.616	0	0	thermal_sensor.c:200	1	Thermal Sensor_SetThres	h Setting threshold LOW to 80	
17	1	0	2015-07-01 20:26:30.616	0	0	thernal_sensor.c:221	1	Thermal Sensor_SetThres	Setting threshold HIGH to 121	
18	1	0	2015-07-01 20:26:30.617	0	0	thernal sensor.c:981	1	Thermal Sensor_FsmInit	Alpha factor-80/100 , fsm_enabled_delay -320	
10		1.0	loore of or or or or or	1.						
st filter:	therma	el	▼ Se	arch 📃 Ca	se sensitive 📃	Regex 👽 Filtertail 👽 Syn	c Show	advanced		
Line	Туре	Level	Time	Firmware TSF	TSF Delta [uS]	File Name	Bin Funct	ion Name	Message	Packet
						thermal_sensor.c:895	Therm	alSensor_FsmInit	Thernal Sensor is Enabled, isHimoDevice-1	
14	1	0	2015-07-01 20:26:30.614	0	0	thermal_sensor.c:958	Therm	alSensor_FsmInit	fs_val=2	800013
15	1	0	2015-07-01 20:26:30.614	0	0	thermal sensor.c:971	l Therm	alSensor_FsmInit	thrLowDefault=80, thrHighDefault=121, thr high max=140	80006d
16	1	0	2015-07-01 20:26:30.616	0	0	thermal_sensor.c:200 1	Therm	<mark>al</mark> Sensor_SetThresholdLo	Ø Setting threshold LOW to 80	800061
17	1	0	2015-07-01 20:26:30.616	0	0	thermal_sensor.c:221 1	Therm	alSensor_SetThresholdHi	gh Setting threshold HIGH to 121	80007£
18	1	0	2015-07-01 20:26:30.617	0	0	thermal_sensor.c:981 1	I Therm	alSensor_FsmInit	Alpha factor=80/100 , fsm_enabled_delay =320	80048£
19	1	0	2015-07-01 20:26:30.617		0	thermal sensor.c:995	-	alSensor FsmInit	Band-0, thr low-80, thr high-121	8000bf

Figure 5. Searching and Filtering

• To search multiple strings, check the Regex box and type the requested strings with an OR operator in between as follows: *string1*|*string2*.

## 5.3 Coloring and Highlighting

To color and highlight strings and expressions, perform the following steps:

- 1. From the toolbar, open the Options menu and select Highlights and Triggers. The Hilighting and action triggers dialog box displays (see Figure 6).
- 2. Add strings or regular expressions that, if matched, will be highlighted or colored.
- 3. Move the selected field up to increase priority. New items are always added to the end of the list and have the lowest priority.

Groups	
[Default]	New Del Copy
You can assign groups to file name:	s in the settings.
<sup>*</sup> thermal <sup>*</sup> HIGH	Up Down
	Add
	Delete
	Apply
Line match criteria Search string: HIGH	
Search string:	
Search string: HIGH	Actions
Search string: HIGH Case sensitive RegEx Coloring Foreground color	Don't lit dirty LED
Search string: HIGH Case sensitive RegEx Coloring	Don't lit dirty LED
Search string: HIGH Case sensitive RegEx Coloring Foreground color Custom Custom Background color	Don't lit dirty LED     Set bookmark     Text     Stop Follow Tail
Search string: HIGH Case sensitive RegEx Coloring Foreground color Custom Custom	Don't lit dirty LED     Set bookmark     Text     Stop Follow Tail
Search string: HIGH Case sensitive RegEx Coloring Foreground color Custom Custom Background color	Don't lit dirty LED     Set bookmark     Text     Stop Follow Tail
Search string: HIGH Case sensitive RegEx Coloring Foreground color Custom Custom Background color Custom Custom	Don't lit dirty LED Set bookmark Stop Follow Tail

Figure 6. Hilighting and Action Triggers Dialog Box



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## More Information

## 5.4 Bookmarking

Create bookmarks manually by pressing Ctrl+F2, or automatically by setting a rule in the Hilighting and action triggers dialog box.

Figure 7 shows an example of bookmarking on the gLogger user interface window.

stre	m.csv								
Line	Туре	Level	Time	Firmware TSF	TSF Delta [uS]	File Name	Bin	Function Name	Message
1	0	0	2015-07-01 20:26:14.380						Connected to COM28 successfully
2	0	0	2015-07-01 20:26:30.612						Logger Started.
3	0	0	2015-07-01 20:26:30.613						Syncing: 1 of 8 valid packets received
4	My cos	nment	2015-07-01 20:26:30.613						Syncing: 2 of 8 valid packets received
5	0	0	2015-07-01 20:26:30.614						Syncing: 3 of 8 valid packets received
5			2015-07-01 20:26:30.614						Syncing: 4 of 8 valid packets received
7		0	2015-07-01 20:26:30.616						Syncing: 5 of 8 valid packets received
3		0	2015-07-01 20:26:30.616						Syncing: 6 of 8 valid packets received
9	0	0	2015-07-01 20:26:30.616						Syncing: 7 of 8 valid packets received
.0		0	2015-07-01 20:26:30.617						Syncing: 8 of 8 valid packets received
.1		0	2015-07-01 20:26:30.617						Synced.
12	1	0	2015-07-01 20:26:30.613			0:0	1	0	FW keep alive
13	Here a		2015-07-01 20:26:30.614		0	thermal_sensor.c:895	1	ThernalSensor_FsmInit	
14			2015-07-01 20:26:30.614		0	thermal_sensor.c:958	1	Thermal Sensor_FsmInit	
15			2015-07-01 20:26:30.614		0	thermal_sensor.c:971	1		thrLowDefault=80, thrHighDefault=121, thr_high_max=140
.6			2015-07-01 20:26:30.616			thermal_sensor.c:200	1		sh Setting threshold LOW to 80
17		0	2015-07-01 20:26:30.616		0	thermal_sensor.c:221	1		sh Setting threshold HIGH to 121
.8			2015-07-01 20:26:30.617		0	thermal_sensor.c:981	1		Alpha factor=80/100 , fsm_enabled_delay =320
.9	-	0	2015-07-01 20:26:30.617		0	thermal_sensor.c:995	1		Band=0, thr_low=80, thr_high=121
:0		0	2015-07-01 20:26:30.636			calib_agent.c:145	1	calibAgentInit	Calibration Agent Init Complete PHY calib results pointer 80920d
1	1	0	2015-07-01 20:26:30.636	v	0	links.c:361	1		s Init the links database
2	1	0	2015-07-01 20:26:30.637	•	0	links.c:1462	1		t Removing link context, flid 0, frid 0
23	1	0	2015-07-01 20:26:30.637		0	links.c:1462	1		t Removing link context, flid 1, frid 0
4	1	0	2015-07-01 20:26:30.638		0	links.c:1462	1		t Removing link context, flid 2, frid 0
5	1	0	2015-07-01 20:26:30.638	•	0	links.c:1462	1		t Removing link context, flid 3, frid 0
6		0	2015-07-01 20:26:30.639		0	links.c:1462	1		t Removing link context, flid 4, frid 0
7		0	2015-07-01 20:26:30.639		0	links.c:1462	1		t Removing link context, flid 5, frid 0
28	-	0	2015-07-01 20:26:30.641		0	links.c:1462	1		Removing link context, flid 6, frid 0
29	1	0	2015-07-01 20:26:30.641 2015-07-01 20:26:30.642			links.c:1462 links.c:1462	1		t Removing link context, flid 7, frid 0 t Removing link context, flid 8, frid 0

Figure 7. Bookmarking on gLogger User Interface Window



# Appendix A SWRU435A–September 2015–Revised January 2016

# Terms and Abbreviations

Table 1 lists terms and abbreviations.

#### **Table 1. Terms and Abbreviations**

Term	Description
BD_ADDR	Bluetooth device address
BER	Bit error rate
BT	Bluetooth
HCI	Host controller interface
Host/host PC	A PC connected to the device through the serial port
LMP	Link manager protocol
LQM	Link quality monitor
PER	Packet error rate
RF	Radio frequency
RSSI	Received signal strength indication
SW	Software
VS	Vendor-specific

# **Revision History**

Cł	nanges from Original (September 2015) to A Revision	Pag	е
•	Added Section 4, Configuring gLogger for SDIO Mode		4

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RFID	www.ti-rfid.com		
OMAP Applications Processors	www.ti.com/omap	TI E2E Community	e2e.ti.com
Wireless Connectivity	www.ti.com/wirelessconne	ctivity	

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