



Quick Start Guide

Computer System Requirements

Supported Systems

- Operating System: Windows 10
- USB: USB 2.0 and later

Minimum Requirements

- Processor: Core i5 at 2.7 GHz
- RAM: 4 GB
- Free Hard Disk Space on C: drive: 20 GB

Install Software

- From Download: Download the latest Frontline installer from FTE. <http://fte.com/soderale-soft>. Once downloaded, double-click the installer and follow the directions.

When the installation is complete pin the Wireless Protocol Suite icon to your taskbar.



1. Sodera LE Front Panel

Frontline Sodera LE front panel is shown below. The panel provides controls to power up and shut down the Frontline Sodera LE hardware, and it provides indicators to show the power and capture status.



Sodera LE Front Panel Controls and Indicators

Table 1 - Sodera LE Front Panel Controls

Control	Description
ANTENNA	Connect to the front panel antenna SMA connector. Used for wideband wireless capture of <i>Bluetooth</i> Low Energy transmissions.

Table 1 - Sodera LE Front Panel Controls (continued)

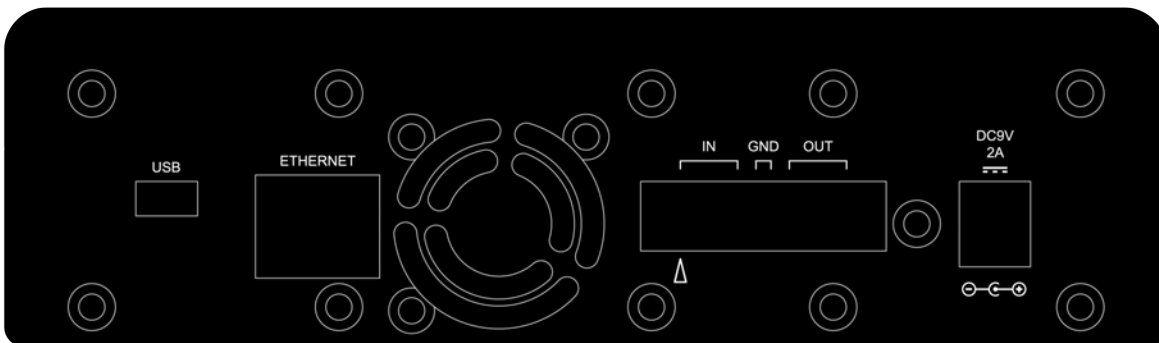
Control	Description
	Maximum useable signal level: -10 dBm.
WIRED	Low sensitivity RF input suitable for conductive testing that utilizes a wired connection from the devices under test (DUTs). Conductive testing allows for isolation of the DUTs from environmental interference. Maximum useable signal level: 27 dBm.
OVERLOAD	RF overload indicator. If the RF signal level on either the ANTENNA or WIRED connector is too high, then this LED will light red. RF overload occurs when the signal level is greater than 27 dBm. Should an RF overload occur with the ANTENNA in use, try switching to the less sensitive WIRED connector to relieve the problem.
POWER	LED illuminates when the Sodera LE unit has been powered up using the power button. See Table 2 - Sodera LE Front Panel Power and Overload Indicators on page 2 for more information.
EXT CLOCK	Not used.
Power Button	Press and then release the button to power on or power off the system.

Table 2 - Sodera LE Front Panel Power and Overload Indicators

Indicator	Color	State	Status Indicated
Power	None	Off	Unit is powered off.
	Green	Constant	Unit is powered on.
	Amber	Constant	Unit is powering on.
	Red	Blinking	Unit has reached thermal overload. See Applying Power on page 3 .
		Constant	Unit has reach thermal overload and has shut down. See Applying Power on page 3 .
Overload	Red	Occassional	Illuminates each time RF power at the Antenna or Wired connectors has exceeded 27 dBm.

2. Sodera LE Rear Panel Connectors

The rear panel is shown below. The panel provides connectors for external power and for connection to the computer hosting the Wireless Protocol Suite software.



Sodera LE Rear Panel Connectors

DC9V: 1.7 mm jack connector to the Frontline supplied AC-to-9 VDC power adapter.

USB : USB 2.0 port for connecting the Sodera LE unit to the host computer where the Wireless Protocol Suite software resides. This connector provides host computer command, control, and data transfer.

Note: All other connectors are not used.

3. Attach Antenna



Antenna Attachment Point

Remove the Frontline Sodera LE hardware from the box and attach the antenna to the **ANTENNA** SMA connector on the front panel.

4. Applying Power

The Sodera LE hardware is powered by an external 9 VDC power source using an AC-to-DC power adapter.

Note: Only use the Frontline supplied power adapter. Do not substitute another power adapter.

To apply power to the Sodera LE hardware, connect the provided AC-to-DC power adapter to the **DC9V** connector on the rear panel and then connect the adapter into an AC source.

To start the Sodera LE hardware, depress the Power button on the front panel and then release. This action will provide a clean start for the Sodera LE hardware.

The front panel **Power** LED indicator will be green.

Should the Sodera LE hardware reach thermal overload temperature between 50 °C and 60 °C (122 °F and 140 °F), it will shut down.

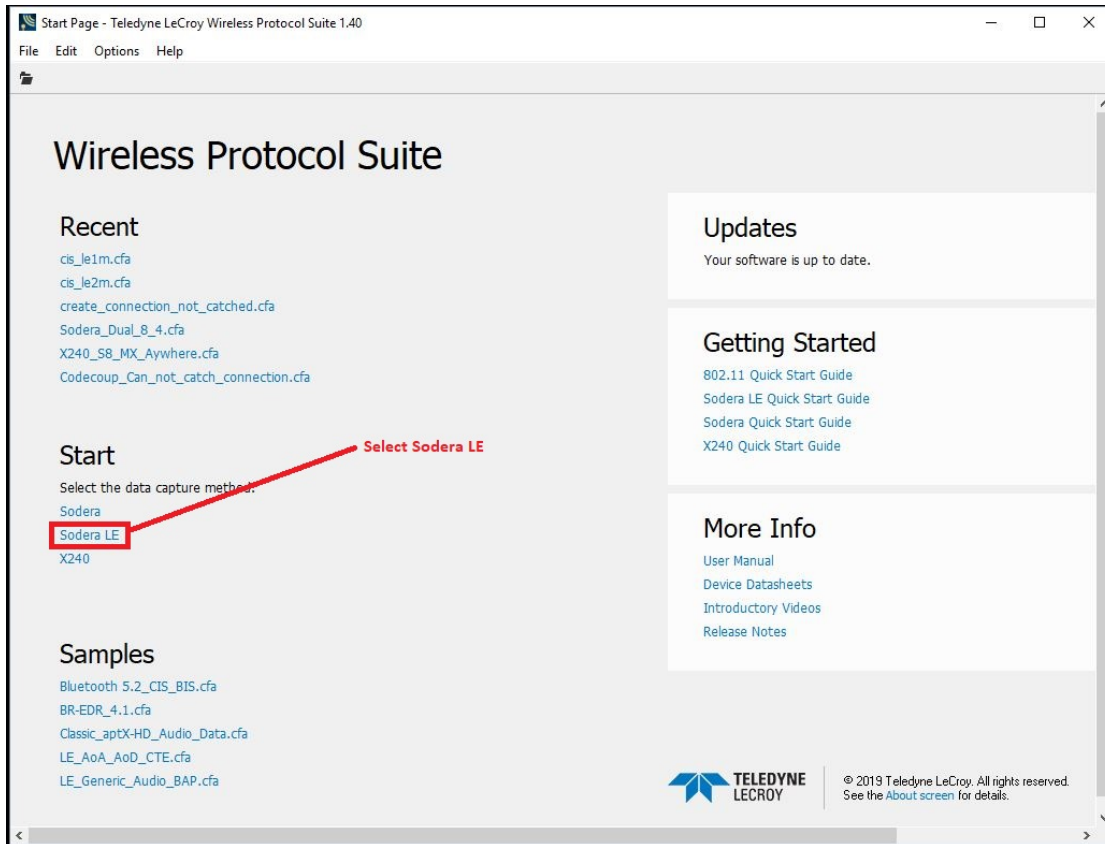


Sodera LE Rear Panel Airflow

If the fan becomes blocked, the Sodera LE unit will power down. Should this happen check that nothing is blocking the airflow to the unit's air inlet, or that nothing is impeding the fan from spinning freely. Clear any obstructions and then apply power to the unit.

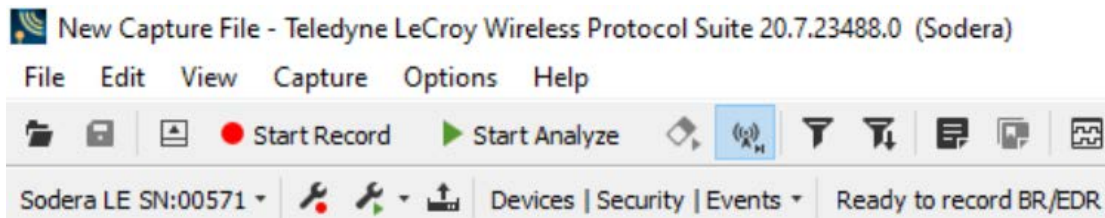
5. Sodera LE Data Capture Method

When the **Sodera LE Analyzer** is connected to the Host PC running the **Wireless Protocol Suite** the **Start Page** window will display the **Sodera LE** option.



Wireless Protocol Suite Start Page

Select Sodera LE to bring up the Wireless Protocol Suite window. When the Main Application Window is Displayed, you will see toolbars with the following functions:



Sodera LE Toolbars

To begin recording Bluetooth traffic, click on the **Start Record** button. Addresses of captured *Bluetooth* devices will appear on the **Wireless Devices** View. The view is accessible via the Sodera LE Toolbar **Devices|Security|Events** menu.

Select **Sodera LE** to bring up the **Wireless Protocol Suite** window. The **Sodera Main window** icon will be placed in your taskbar at the bottom of your screen.



Wireless Protocol Suite Application Icon

6. Wireless Protocol Suite

The screenshot displays the Wireless Protocol Suite interface with the following components:

- Summary Table:**

B...	Frame#	Side	Code	Fram...	Delta	Timestamp
	3,913	2	Security Request	45		8/17/2020 8:28:25.887878.
	4,039	1	Pairing Request	50	00:00:00.757734	8/17/2020 8:28:26.645612.
	4,042	2	Pairing Response	50	00:00:00.000833	8/17/2020 8:28:26.646444.
	4,062	1	Pairing Confirm	60	00:00:00.058710	8/17/2020 8:28:26.705154.
	4,065	2	Pairing Confirm	60	00:00:00.000961	8/17/2020 8:28:26.706115.
	4,068	1	Pairing Random	60	00:00:00.006539	8/17/2020 8:28:26.712654.
	4,071	2	Pairing Random	60	00:00:00.007834	8/17/2020 8:28:26.720488.
- Decode View (Frame 4,039):**
 - LE BB: [Decoded]
 - LE PKT: [Decoded]
 - LE DATA:
 - LLID: Start
 - NESN: 1
 - SN: 1
 - SN+NESN: 3
 - MD: 1
 - CP: No CTEInfo
 - Payload Length: 11
 - L2CAP:
 - PDU Length: 7
 - Channel ID: 0x0006 (LE Security Manager Protoc)
 - SMP:
 - Code: Pairing Request
 - IO Capabilities: KeyboardDisplay
 - OOB data flag: OOB Authentication data not pre
 - AuthReq
- Raw Data:**

```

0x0000 22 03 00100010 00000011
0x0002 1E 65 00011110 01100101
0x0004 00 90 00000000 10010000
0x0006 82 80 10000010 10000000
0x0008 25 B9 00100101 10111001
0x000A 22 96 00100010 10010110
0x000C F8 FD 11111000 11111101
0x000E 00 00 00000000 00000000
0x0010 00 00 00000000 00000000
0x0012 00 25 00000000 00100101
0x0014 B9 22 10111001 00100010
0x0016 96 63 10010110 01100011
0x0018 32 3C 00110010 00111100
0x001A F8 5C 11111000 01011100
0x001C 7C 00 01111100 00000000

```

Wireless Protocol Suite

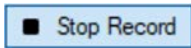
7. Record Begin Capture

When starting a capture session all of these actions occur::

- The active status of all devices is cleared in the **Wireless Devices** pane and the pane.
- The **Security** pane is emptied.
- The **Event Log** pane retains all prior logged events.



On the **Wireless Protocol Suite** Toolbar, click on the **Start Record** button or select **Start Record** from the **Capture** menu option. The **Start Record** button is also available in the Wireless Protocol Suite main window. In the Main window you can also select **Start Recoloring** from the **Capture** menu option. When the **Start Record** button changes to **Stop Record**, the Soder LE hardware is capturing data from all active *Bluetooth* devices within range and is recording data on the PC.



On the **Wireless Protocol Suite** Toolbar, clicking on the **Stop Record** button, or selecting **Stop Recording** from the **Capture** menu options will halt live capture. From the Main window you can click the **Stop Record** button or select **Stop Recording** from the **Capture** menu list to stop recording as well.

The **Wireless Devices** View populates with any newly discovered devices. Selecting devices for analysis can be done while recording.

The **Security** View will show all encrypted *Bluetooth* links.


The **Event Log** View will begin to populate with information, warnings, and error messages.

The **Status Bar** will show a running total of captured packets.

Note: Starting a new capture session will clear all unsaved data from both the Soder LE hardware and the **Wireless Protocol Suite**. If it has not been saved, then a pop-up warning message will appear.

8. Selecting Devices for Analysis

Once a capture session starts by clicking on **Start Record** on the Datasource Toolbar, data from all active devices within range or data from wireless or wired connections is being captured. To analyze the data using the **Wireless Protocol Suite**, select specific devices of interest to include in the analysis.

In the **Wireless Devices** View, place a check in the row of each active device  to be analyzed. Active devices can also be selected while the recording is in process.

Note: Data filtered by the device selection is an “OR” function, not an “AND” function. When selecting device1, device2, device3,... the recorded data filtered into the analyzer is data involving device1 OR device2 OR device3 OR However, if in the Options menu, analysis of LE Empty packets is selected, an AND function is included. For example: (device2 AND LE Empty packets) OR (device3 AND LE Empty packets).

The following table lists some common data capture and device selection scenarios.

Table 3 - Common Data Capture and Device Selection Scenarios

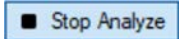
Scenario	Wireless/Wired Devices View Selection
Analyzing traffic between a Slave Device Under Test (DUT) and its Master.	Select only the Slave DUT for analysis

Once Devices are selected, analysis of the capture can begin.


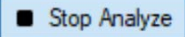
9. Starting Analysis



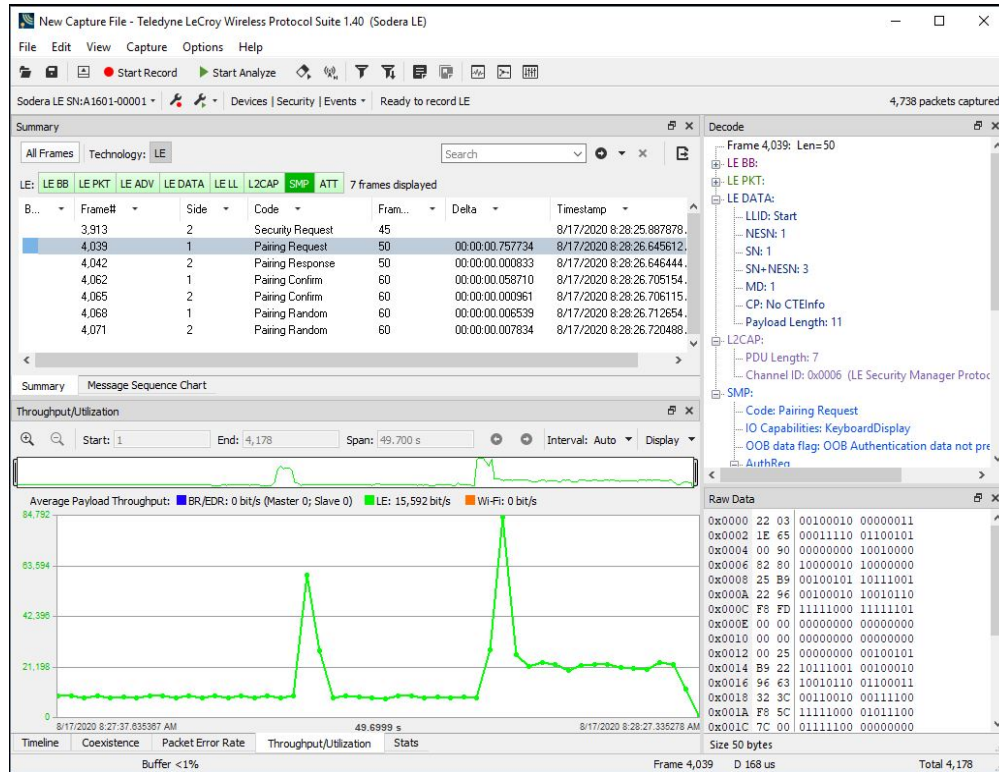
The analysis begins by clicking on the **Start Analyze** button in the **Wireless Protocol Suite** Main window. The Soder LE analyzer will begin sending captured packets involving the selected device to the **Wireless Protocol Suite**.



Once analysis has begun, you cannot change the device selection. All device rows in the **Wireless Devices** View are grayed-out. To stop the analysis, click on the **Stop Analyze** button. You can then change your device selection and restart analysis by clicking on the **Start Analyze** button.

To stop the analysis, click on the  button in the Sodera datasource or click the  button on the **Wireless Protocol Suite** Main window. You can also select the **Stop Analyze** option in the **Capture** menu in the Sodera datasource or **Stop Analyzing** option in the **Capture** menu in the Main window as well.

Conducting analysis from a capture file is identical to the live capture method.



Wireless Protocol Suite: Main Window

The Application Window icon will be shown in your task bar, see below:



Wireless Protocol Suite Application Icon

10. Saving Analyzed Data to Disk

Note: **Start Record** is not available when viewing a previously recorded Capture file. **Start Analyze/Stop Analyze** is available in **Wireless Protocol Suite** application window, allowing different analyses to be performed on previously recorded and saved captures.

Note: Choose File Location from the File menu to change the default file location.

1. Click on either

- the **Start Record** button on the datasource toolbar.,
- or the **Start Record** under Capture in the datasource,,
- or the Start Recording under the Capture option in the Main window.

The Sodera LE analyzer will begin capturing data from all wireless devices within range.

2. In the **Wireless Devices** View select the active devices for analysis.

3. : Click on either

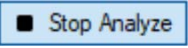
- the **Start Analyze** button Start Analyze under the Capture menu in the Sodera LE datasource window,
- or click on Start Analyze button in the Wireless Protocol Suite Main window,
- or Start Analyzing under Capture menu


to begin capturing data traffic.

4. Files are placed in **My Capture Files** folder by default and have a .cfa extension.

5. Watch the Status Bar on the Wireless Protocol Suite Main window to monitor how full the file is.

6. Click on **Stop Record**  button to stop recording.

7. Click the **Stop Analyze**  button to stop analyzing.

8. To clear captured data, click the **Clear**  icon .

- If you select **Clear** after stopping analysis, a dialog appears asking whether you want to save the data.
 - You can click **Save File** and enter a file name when prompted .
 - If you choose **Do Not Save**, all data will be cleared.
 - If you choose **Cancel**, the dialog closes with no changes.
- If you select the **Clear** icon while a capture is occurring:
 - The capture stops.
 - A dialog appears asking if you want to save the capture.
 - You can select **Yes** and save the capture or select **No** and close the dialog. In either case, the existing capture file is cleared and a new capture file is started.
 - If you choose **Cancel**, the dialog closes with no changes.

Note: The Sodera LE/Frontline software system does not support host PC hibernation or sleep mode. If the PC does inadvertently go into hibernation or sleep mode, the user should close and then restart the Frontline software.

11. Sodera LE Technical Specifications/Service Information

- Dimensions: 160 mm wide X 56 mm tall X 167 mm deep (6.3" X 2.2" X 6.6")
- Weight: 1.4 kg (3.1 lb)
- Humidity: Operating: 0% - 90% (0 °C – 35 °C), non-condensing
- Temperature: 0 °C to +40 °C (32 °F to +104 °F)
- Power Input: 9 VDC (tip positive)
- Max Power: 12 W

Service Notes

The Sodera LE hardware does not contain any user serviceable items. Any repairs and maintenance must be performed by a service technician that has been trained and approved by Frontline.

Before any service is performed on the Sodera LE hardware, all power sources must be removed. This includes disconnecting any power sources from the **DC9V** input power connector on the rear panel.

This quick start guide provides sufficient information to begin the data capture. Detailed hardware and software information is contained in the Sodera LE User Manual. The manual is available on FTE.com.

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Publish date: 8/20/2020