TEXAS INSTRUMENTS

LMX98xx Bluetooth® Serial Port Module: Simply Blue Commander User's Guide

1.0 Scope

The Simply Blue Commander is a tool to send commands to the Texas Instruments LMX98xx Bluetooth® serial port module. The software allows monitoring of the ingoing and outgoing traffic on the UART and interprets the events sent back by the LMX98xx.

This user's guide provides software installation procedures, explains the user interface of the program, and gives some general guidelines to configure and use the LMX98xx.

2.0 Requirements and Installation

2.1 BASIC REQUIREMENTS

Additional hardware required:

■ LMX9830 or LMX9838 SimplyBlue dongle Kit.

■ x86 PC with serial port

■ The software requires one of the following operating systems:
— Microsoft Windows XP
— Microsoft Windows 7

2.2 SOFTWARE INSTALLATION

The software CD and installation files are included for each kit mentioned above for the LMX9830 and LMX9838.

To install the software:

1) Insert the software CD included in your kit.

2) Follow the directions when the interactive CD prompts you to do so.

2.3 HARDWARE SETUP

The Simply Blue Commander offers a simple interface to send and receive commands and events from an LMX98xx. The commands are sent over a null modem cable to the board. See Figure 1 for the hardware setup.
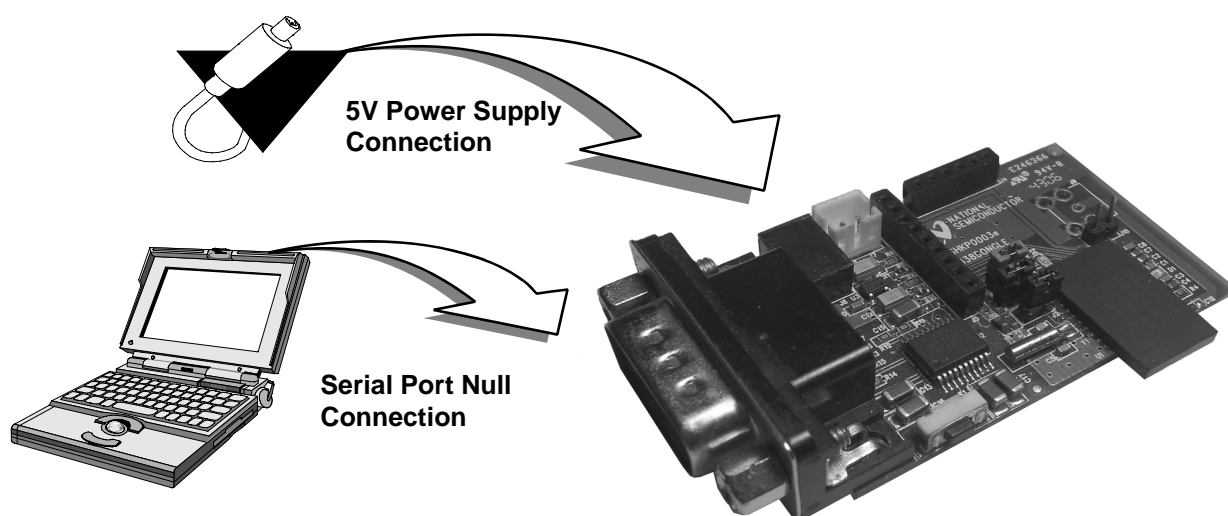

5V Power Supply Connection

Serial Port Null Connection

Figure 1. PC - LMX98xx Dongle Kit Connection

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3.0 Using the Software

3.1 GETTING STARTED

Starting the Simply Blue Commander the first time will probably cause a transport layer error on the UART (see Figure 2). Ignore the message and go on.

Figure 2. UART Transport Error (Ignore on First Start)

The program comes up as shown in Figure 3. The program can be divided in three parts:

- Command Directory
- Log Window
- Command Line

3.1.1 Command Directory

The Command Directory contains a list of commands sorted into several subfolders. Directories are stored in different files in the installation directory. If the Command Directory is empty on first startup, select "File/Open" in the menu bar. Choose one of the *.dir files. The default directory with all commands is called "Commands.dir".

3.1.2 Transfer Log Windows

The Log Window records incoming and outgoing traffic on the selected UART interface. TX indicates outgoing, RX indicates incoming. On default, after pressing the Reset button on the LMX98xx dongle Kit, you should receive the following feedback from the board:

Rx: Event: SimplyBlue Ready, SW Version: xxxx
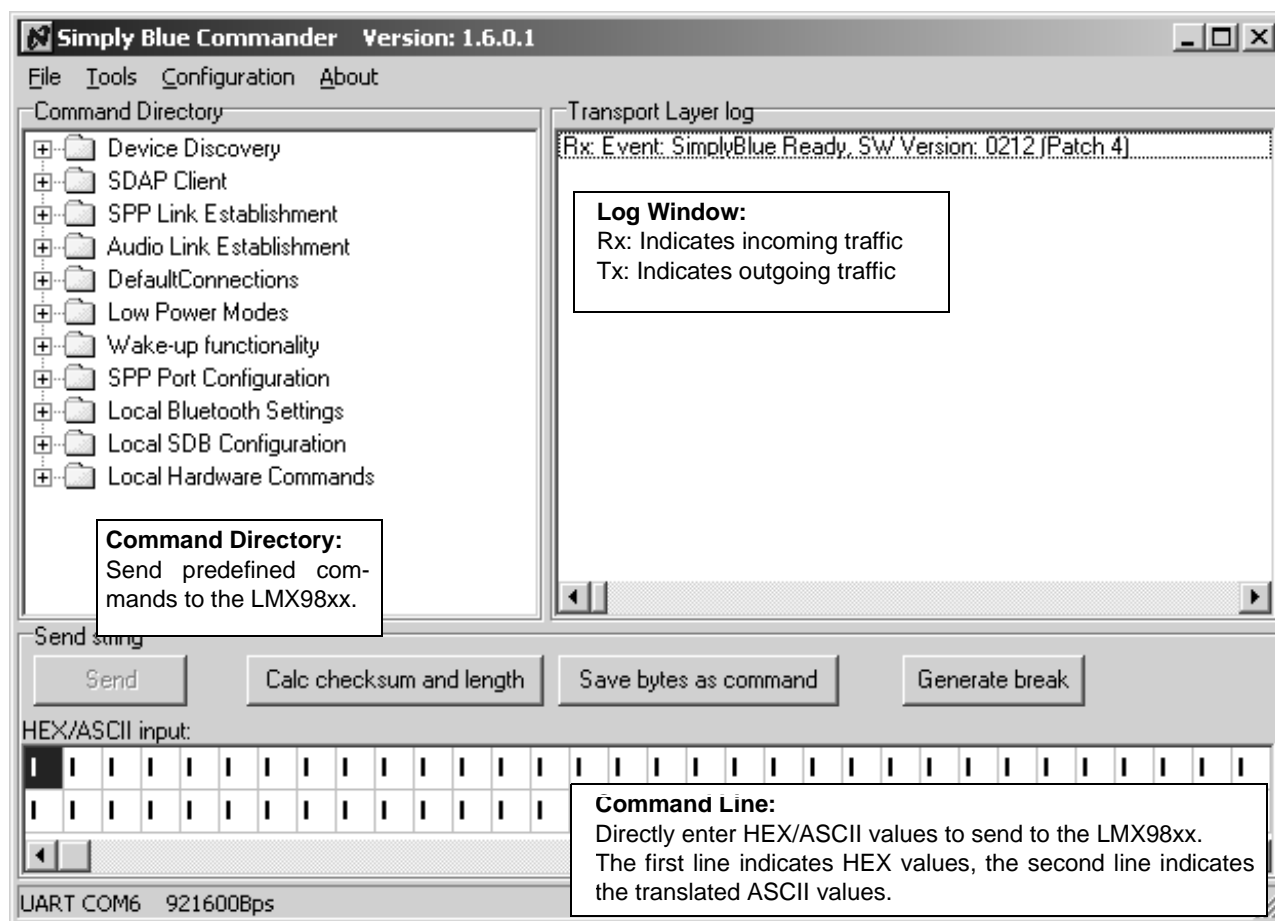
Figure 3. Simply Blue Commander Overview

3.0 Using the Software (Continued)

If you do not get this feedback (i.e., Rx: Event: SimplyBlue Ready, SW Version: xxxx), select "Configuration/Transport Layer" in the menu bar as shown in Figure 4 and Figure 5.

On default the UART settings will be set to 115.2 kbit/s, no parity, 1 stop bit. Choose "Low level driver" and "CTS output flow control". If you have the correct settings for the UART it should be possible to talk to the board. The best test is to reset the board and wait for the event as described.

Make sure the settings on the PC interface board fit with those driver settings. Refer to the *LMX98xx Hardware Users Guide* for further details regarding board configuration.
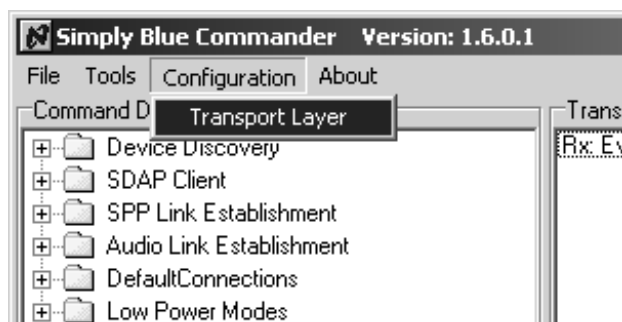

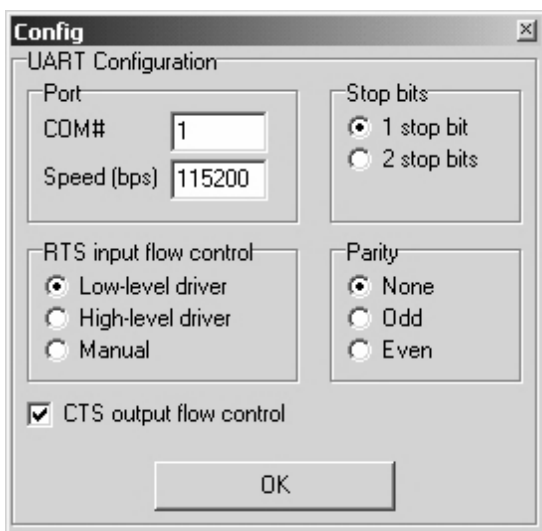**Figure 4. Choose Transport Layer**

Figure 5. UART Configuration

3.1.3 Command Line

The Command Line is split into two lines (see Figure 6), one for HEX and one for ASCII. These lines are update linked to each other, meaning as soon as something is typed in the first line it is translated and the other line is filled with the appropriate value. Each field in the first line represents one byte in HEX. Each field in the second line represents the ASCII character for the value in the appropriate HEX field. Both fields are editable.

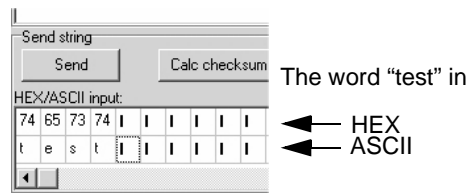This feature is provided to ease the creation of commands including ASCII characters (e.g., Write_local_name).

Figure 6. Example Command Line

3.2 COMMAND DIRECTORY

3.2.1 Open/Save Command Directories

The command directories are stored in editable files in the installation directory of the Simply Blue Commander. The file format is *.dir.

The program offers to save modified directories and load them if needed. This feature allows device specific directories and settings in one directory.

Command directories can be opened and stored by selecting "File/Open" or "File/Save".

3.2.2 Editing Command Directories

It is possible to add or remove existing command folders within one directory. To create a new folder, right-click your mouse within the Command Directory part of the window (see Figure 7 and Figure 8). To add a new directory click on "New Command Folder". The "Delete" command can be used for folders and commands.
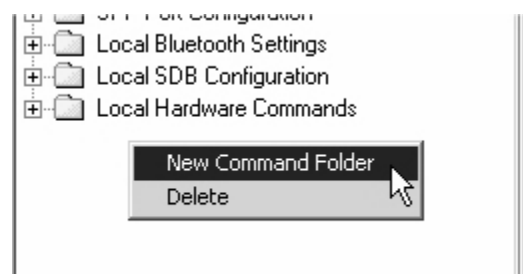

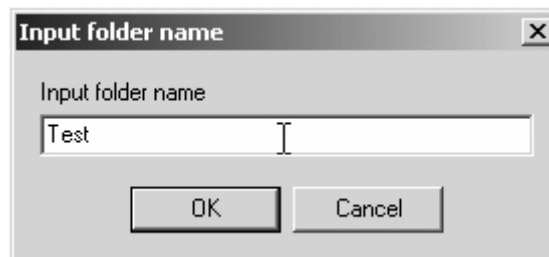**Figure 7. Creating a New Command Folder**

Figure 8. Enter the Name for the New Folder

3.3 THE LOG WINDOW

The Log Window monitors the incoming and outgoing traffic on the UART interface. The configuration of the Log

3.0 Using the Software (Continued)

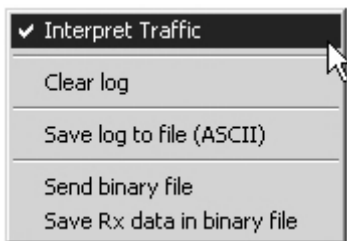Window can be performed by a right-click within the Log Window (see Figure 9).

Figure 9. Log Window Configuration

3.3.1 Interpreting Traffic

On default, the commands and events are interpreted by the command and translated into user friendly terms. The interpretation can be switched on or off by the configuration dialog.

3.3.2 Clear Log

The log file can be emptied by a function in the configuration dialog.

3.3.3 Store Log Window into File

The configuration allows storage of the complete Log Window and all future traffic within a log file. The ASCII file is called "SimplyBlueCommander.log" and is stored within the installation directory of the program. The function is active until it is changed within the configuration dialog.

3.3.4 Send Binary File

If the LMX98xx is within a link and the transparent option is switched on for the UART, it is possible to send a binary file to the remote device. The device sends the data to the UART without any modifications. To send the file, choose "Send binary file" in the configuration dialog, choose the file, and press OK.

3.3.5 Receiving a File

Typically, the Simply Blue Commander does not store any incoming data in a file. The Log Window only displays them or stores the complete log file within an ASCII file (see Section 3.3.3).

To save incoming data within in a file, enable the "Save RX binary data in file" option. The program will ask for the file name and the directory to save it in.

The option must be enabled BEFORE the sender starts to transmit.

3.4 THE COMMAND LINE

After choosing a command within the Command Directory the Command Line is filled with the actual HEX package associated with this command. The first line shows the actual HEX code of the package. The second line shows the translated ASCII character for that HEX code.

The lines provide the ability to check the actual package with all options and parameters, before actively sending it over the UART.

The translated ASCII value in the second line helps provide recognition for or entering string values like the Local Name.

Note: When Send is pressed, the string within the Command Line is always used. The content of the Command Line changes by selecting another command within the Command Directory.

To save a modified command, use the "Save bytes as command" button.

3.5 CREATING AND SENDING COMMANDS

To send a command to the LMX98xx:

1) Find the command within the Command Directory.

2) Select the command and left-click it once. This generates the HEX code within the Command Line.

3) Modify the parameters within the Command Line to the necessary values.

Upon completion of the steps above, the user has the following options:

■ Button "Calc Checksum and length": This checks the modified string and recalculates the length of the data package and the Checksum for the header. For detailed information on the package format refer to the *LMX98xx Bluetooth™ Serial Port Module: Designers Guide*. **This command should be used every time before sending it to the LMX98xx. It guarantees that the package header is transmitted correctly.**

Note: The command does not calculate length parameters within the payload (e.g., the length of the name in "Write Local Name"). This has to be counted and modified manually.

■ Button Send: This sends the string of the Command Line to the LMX98xx.

Once a command has been modified it can be saved by pressing the button "Save byte as command". The entered string is used as the command name within the Command Directory.

A step-by-step example of changing the "Local Name" with "Write Local Name" is provided next.

3.0 Using the Software (Continued)

Step 1: Choose the command and the command appears in the Command Line.
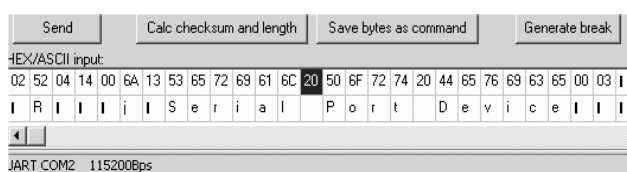

Figure 10. Choose the Command

Figure 11. Command Line

Step 2: Change the text string "Serial Port Device" to "Test". Typing on the second line automatically fills in the correct HEX values.
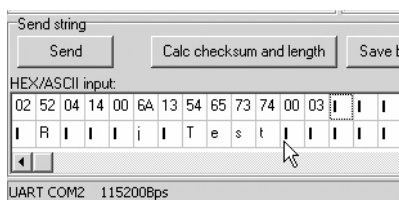

Figure 12. Change the String

Step 3: Change the string length field to "05". The value is calculated by the length of the word "Test" plus the end character "0x00". This value is still part of the payload and therefore is not updated by Step 4.
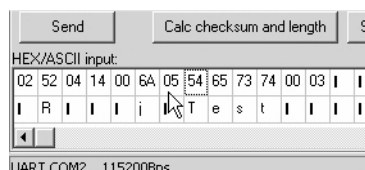

Figure 13. Change Payload Size

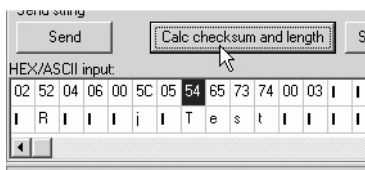Step 4: Recalculate checksum and length of the package.

Figure 14. Recalculate Checksum

Step 5: Press Send to submit the package to the LMX98xx, then view the result in the Log Window. Status 00 indicates that it was successful.
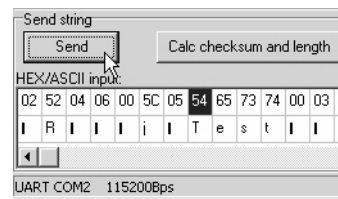

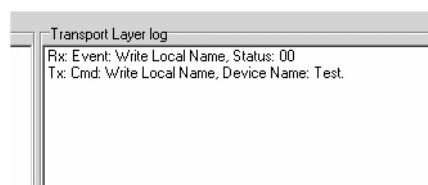**Figure 15. Send the Package to the LMX98xx**

Figure 16. View Result within the Log Window

Step 6: In case the command is necessary in the future, the modified HEX string, which is still in the Command Line, can be saved by right clicking "Save bytes as commands".

Enter the name of the command that should be listed within the Command Directory.

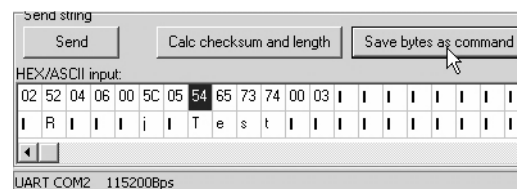The command will appear within the Command Directory.
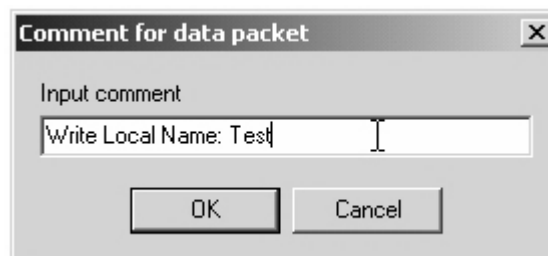

Figure 17. Save Bytes as Command

Figure 18. Enter the Command Name

Figure 19. Entry Listed as New Command in Command Directory

4.0 Command Reference

The Simply Blue Commander supports all commands possible to send the LMX98xx. The commands have been defined with certain parameters and values. A full list of commands and events can be found in the menu by choosing "Definitions" (see Figure 20, Figure 21, and Figure 22). To get a full description of the commands refer to the *LMX98xx Bluetooth™ Serial Port Module: Designers Guide*.

Figure 20. Show Command Definitions

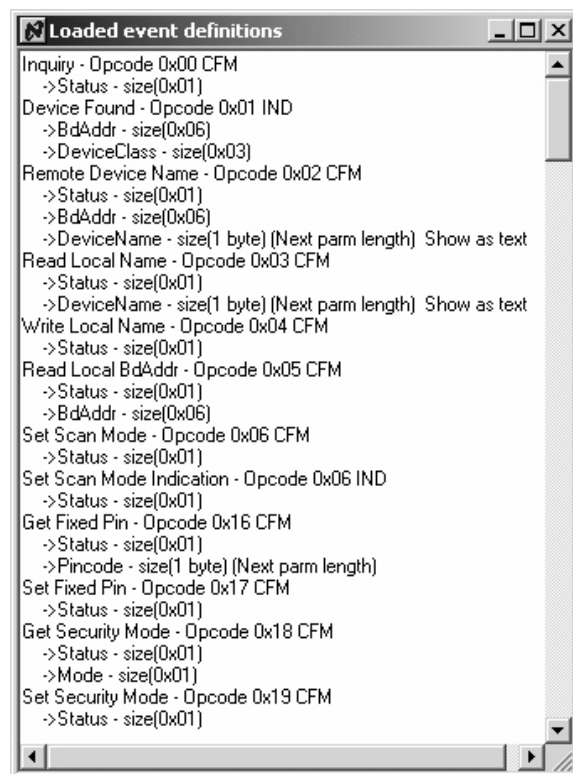**Figure 21. Command Definitions**

Figure 22. Event Definitions

5.0 SDP Record command

The LMX983x devices offer the command "Store SDP record" to store any SDP record within the device service database. This command replaces the service specific commands.

The command requires the complete service string as defined in the bluetooth specification.

Since the service string can get quite complex, Simply Blue Commander offers functionality to generate the complete "Store SDP record" command for various services.

Please use the following steps to generate a new service record command.

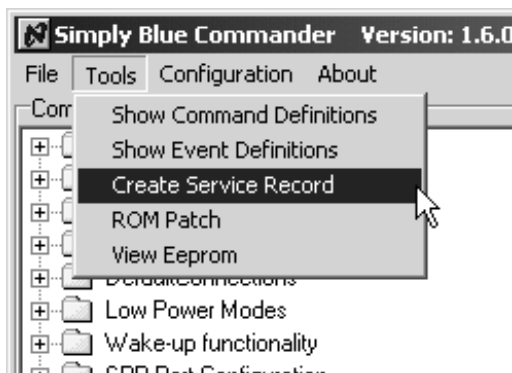**Step 1**: Select "Tools/Create Service Record" from the menu.

Figure 23. Create Service Record Menuitem

Step 2: Select the service to be generated.

Figure 24. Select the Service to be generated

Step 3: Select the service options, the local port and the service name.
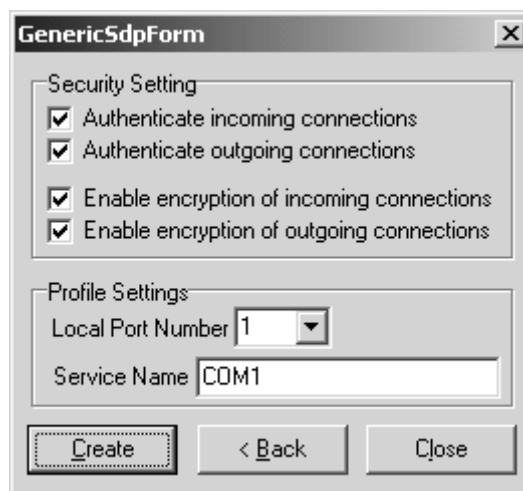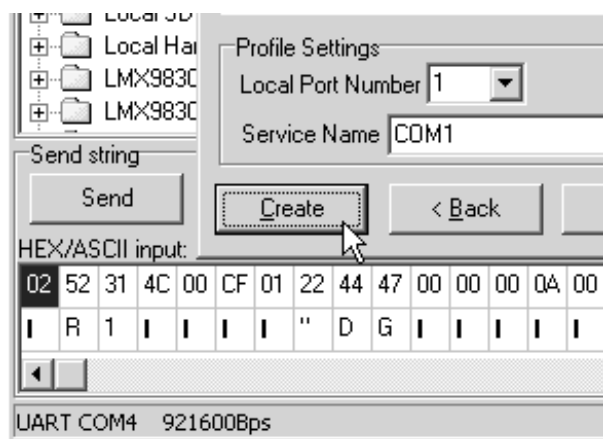

Figure 25. Select service options

5.0 SDP Record command (Continued)

Step 4: Press Create. The Service record is filled into the HEX/ASCII input line. Afterwards close the GenericSDP Dialog.

Figure 26. Create the record command in the Hex/ASCII input line

Step 5: On pressing "Send", the command is sent to the Simply Blue Device. The command can be copied from the log window to be pasted in to your own code.

We recommend to disable "Interpret Traffic" (see Section 3.3.1) so that the complete Hexadecimal command is displayed in the log window.
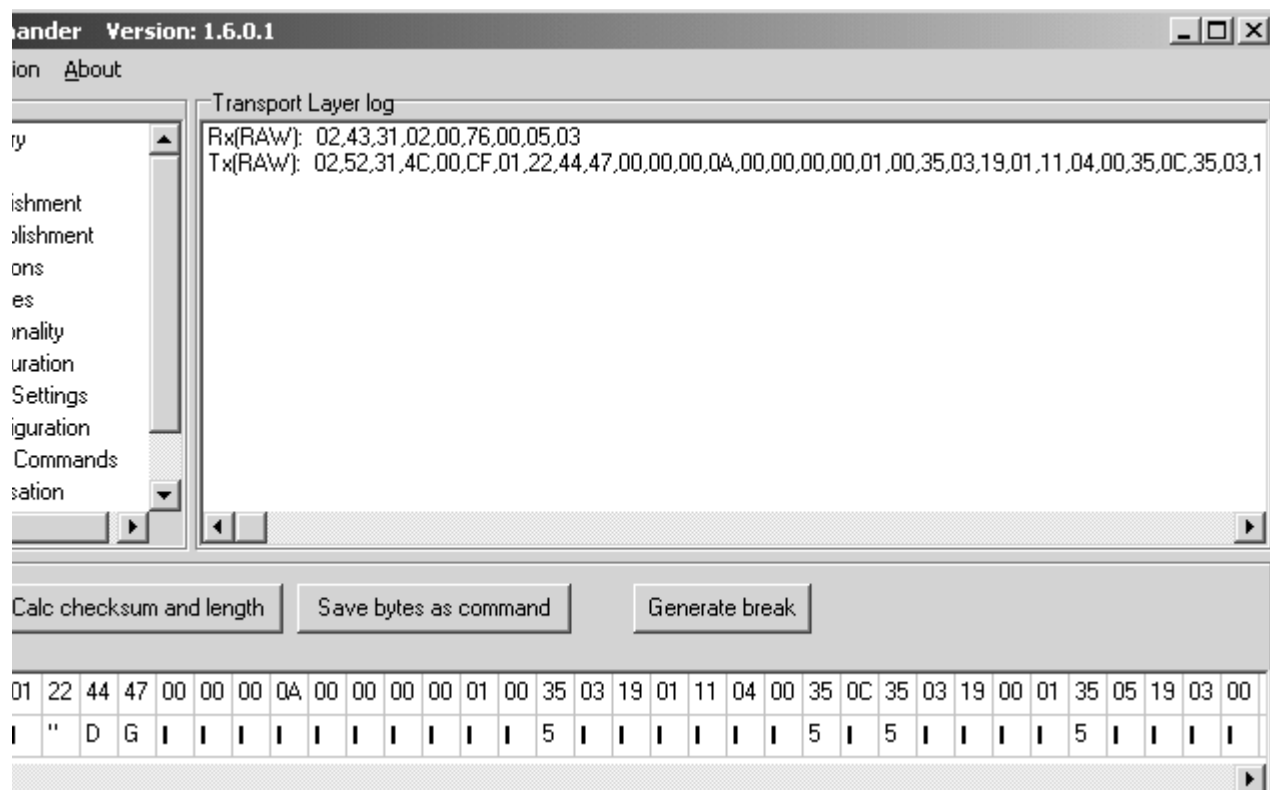
Figure 27. Press "Send" to store the service in the device database

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