

Using CUTE32 CORE32 Test Suite

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Overview

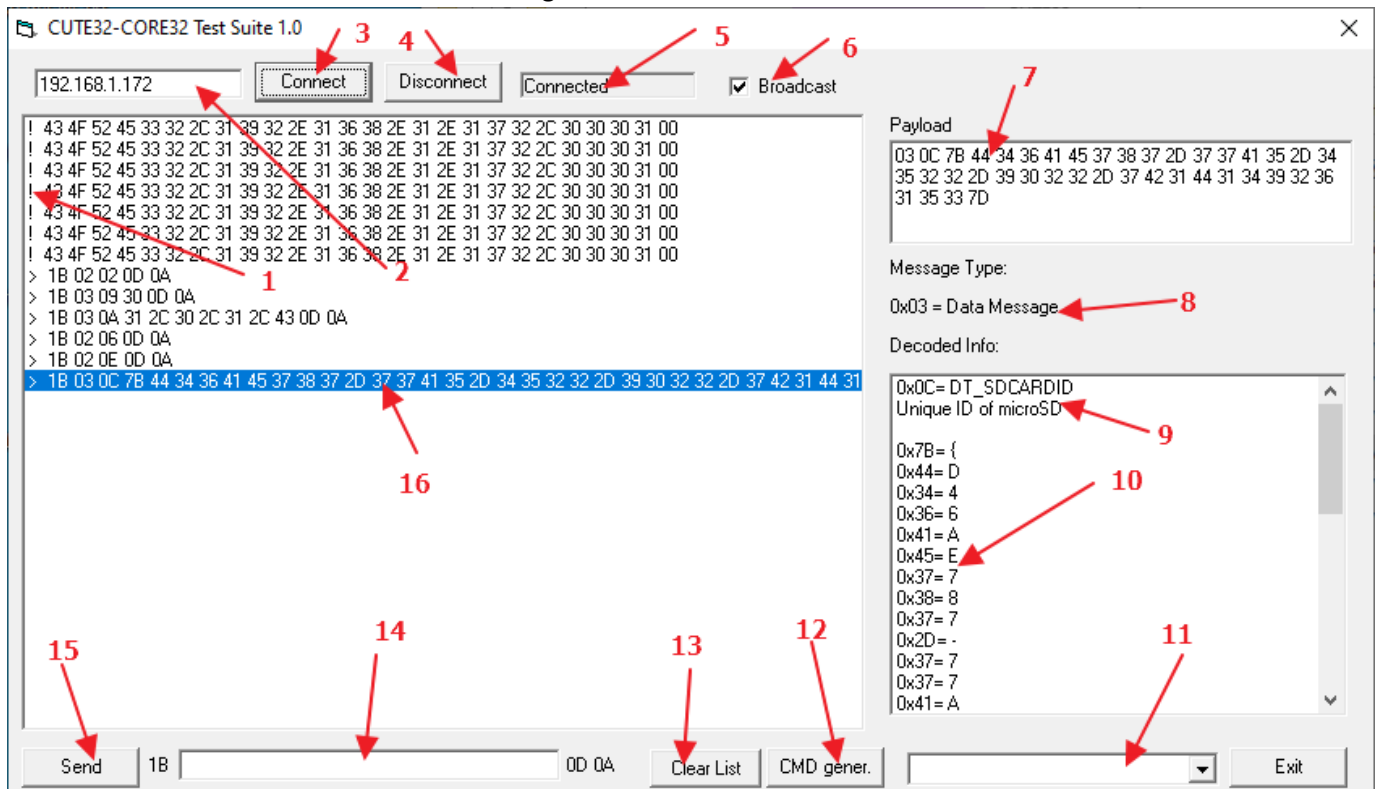
This document describes the high-level operation of CUTE32_CORE32_TestSuite software (from here on referred as TestSuite).

TestSuite is a software allowing a developer to display and decode byte by byte the communications occurring between a CUTE32 (or CORE32) card and the CUTE32_Console program, allowing the developer to see how the protocol items are actually translated into strings and bytes.

TestSuite is a single executable file with no dependencies that should work on any version of Windows Starting from Windows XP onwards, it's operation anyway is supported only in Windows 10 64-bits.

Main Window

The main window of TestSuite is the following:



1	Indicator of communication type: "!"=Broadcast UDP message "<"=Console to Card ">"=Card to Console
2	TCP/IP Address of the card to connect to
3	Press to connect to the CUTE32/CORE32 card at the TCP/IP address indicated in (2)
4	Press to disconnect from the CUTE32/CORE32 card
5	Current Connection Status
6	If checked the console will display UDP Broadcast Traffic (the one generated by the CUTE32 CORE32 cards to advertise their presence on the network) in addition to the TCP/IP traffic

7	Payload of the message selected in the message window (see point 16). The Payload is the fragment of data in a message identified by a start message 0x27 code and an end-message sequence 0x0D 0x0A
8	Type of message selected in the message window (see point 16). It can be "Command Result Message", "Data Message" or "Event Message"
9	Sub type of message selected in the message window (see point 16) and its human-readable decoded meaning
10	Byte by Byte dump of the data embedded with the message selected in the message window (see point 16)
11	List of Commands that is possible to generate (and then send to the CUTE32/CORE32 card)
12	Press to start the wizard to generate the Command selected in the list (11)
13	Press to clear the content of Messages Screen
14	Message to be sent to the CUTE32/CORE32 card indicated in hexadecimal bytes separated by spaces
15	Press to send the command contained in (14) to the CUTE32/CORE32 card
16	Complete message in hexadecimal bytes separated by spaces sent or received to/from the CUTE32/CORE32 card

Getting Started

When the TestSuite program is started it will start to listen to broadcast messages sent by CUTE32/CORE32 cards that are connected to the same Wi-Fi network as the PC where TestSuite is running.

If any broadcast message is received it will appear with an exclamation mark (see point 1 above). To connect to the card just click first on the Broadcast message in the Messages Window and then on the Button "Connect" (3).

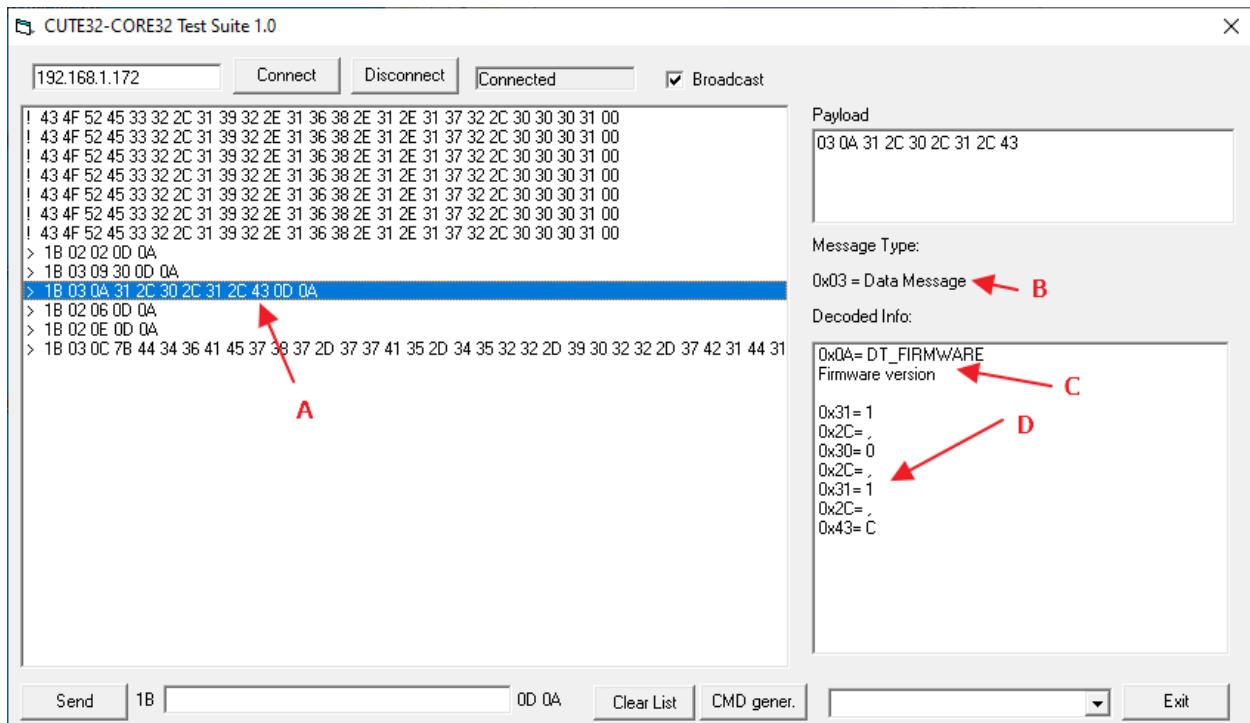
Receiving and decoding Messages

When clicking on the Broadcast Message you will notice that:

- Field (2) will be automatically filled with the TCP/IP address of the CUTE32/CORE32 card
- Payload (7) will be extracted from the message
- Message type (8) will be showing "UDP Beacon, Port 10024"
- Decode Info (9) and (10) will respectively show you the decoded information in the UDP fragment and the byte-by-byte content of the fragment

This is the general way of operating TestSuite: When clicking on any message on the message window that is either a Broadcasted Message sent by the card or any other TCP/IP message coming from the card the content of the message will be decoded in human-readable format in the fields 7-8-9 and 10.

Just after pressing the "Connect" (3) button you will notice that the broadcast messages will cease to arrive and some messages coming from the card (they can be identified since they start with the symbol ">" (see point (1) above) will be received. Clicking on these messages in the message window it's possible to decode their content too:

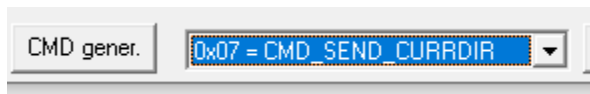


In the above case the selected message is a “Data Message” (B) coming from the card and indicating to the console the Firmware version (C) installed in the card (D).

Sending Commands

Once the TestSuite is connected to a CUTE32/CORE32 card it is possible to send to the card any command among the available ones that are listed in the list (11).

For example, to get the content of the current directory let’s select the command “0x07 = CMD_SEND_CURRDIR” from the list (11)

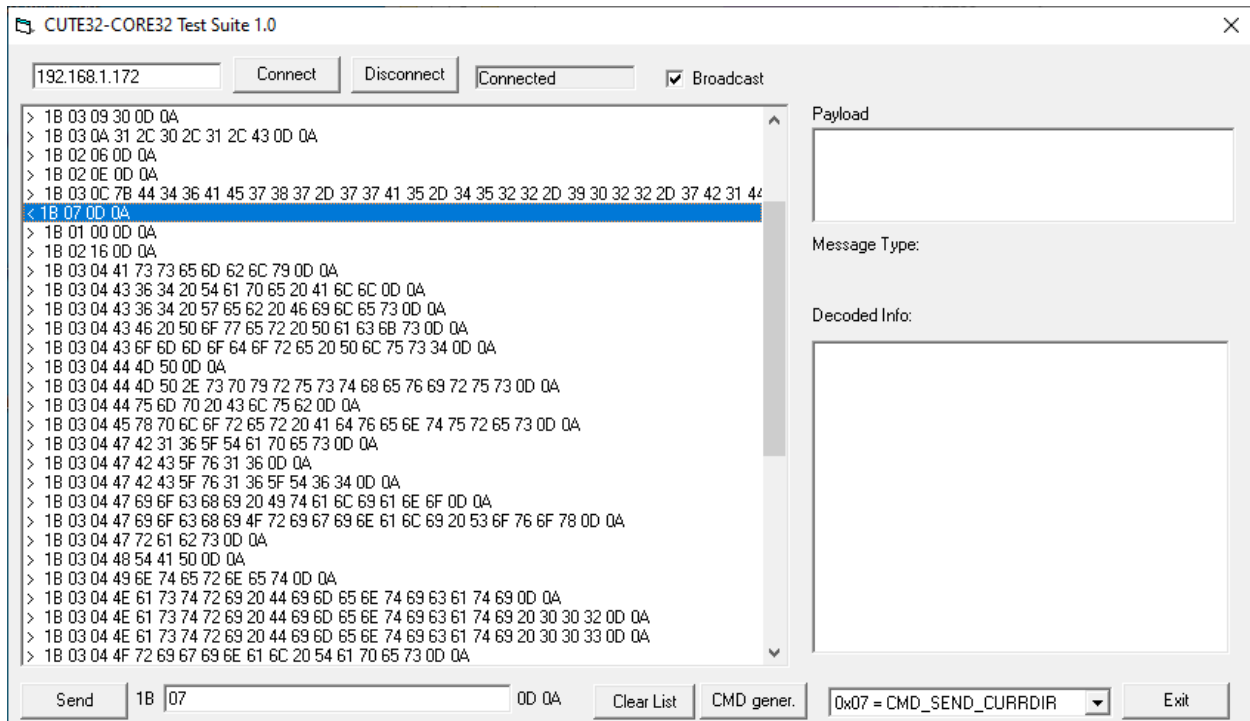


Let’s now press the button “CMD gener.” (12)

The complete command string in byte (only missing the message start byte 0x27 and the end sequence 0x0D and 0x0A) will appear in the field (14).

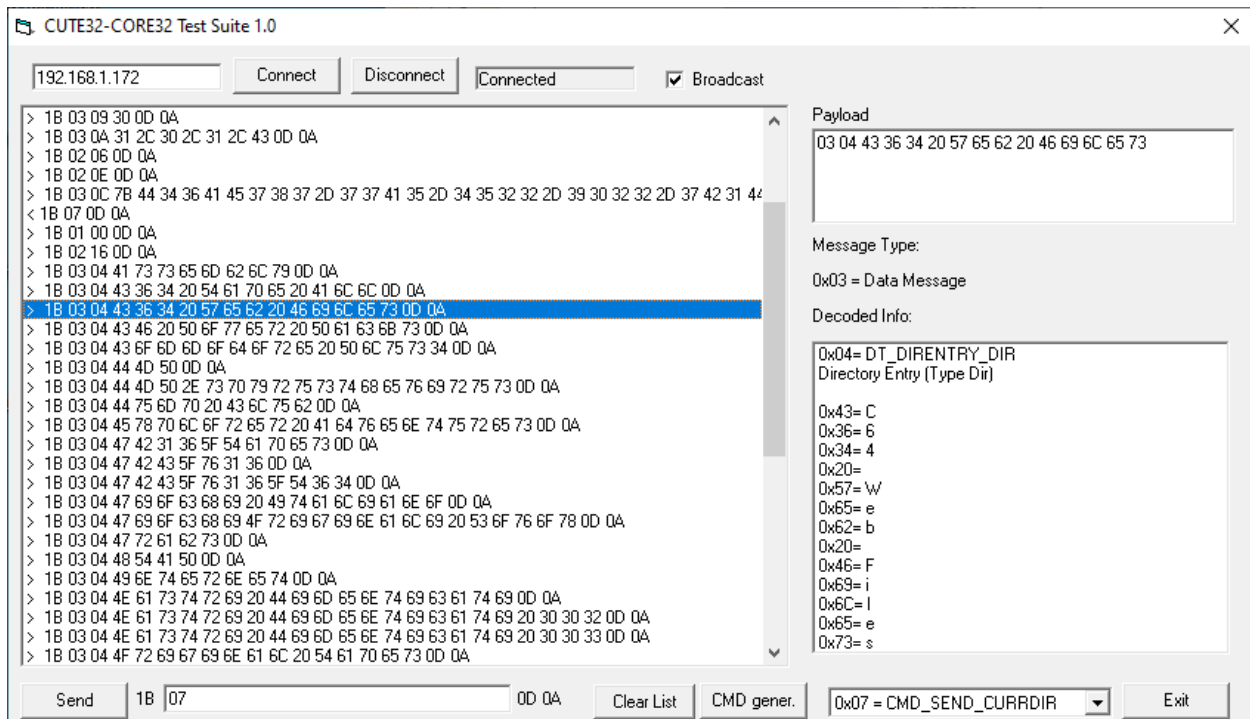


Let’s now press the button “Send” (15). The command will be sent to the card and the answer of the card will appear as a number of messages displayed in the message window.



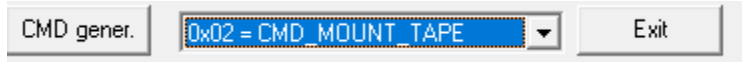
Note the full message sent from the console to the card identified by the sign “<” (highlighted above) and all the messages coming back from the card to the console identified by the sign “>”.

As usual it’s possible to click on any of the messages coming from the card to decode its content:



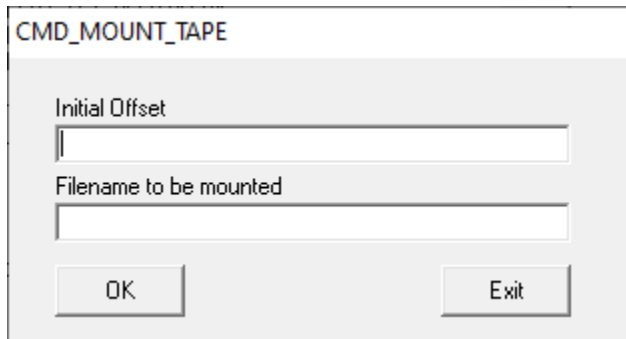
Of course it's possible to send to the card commands that are much more complicated and requiring many parameters. For example let's try to mount a file on the microSD to be able to subsequently playback its content:

let's select the command "0x02 = CMD_MOUNT_TAPE" from the list (11)

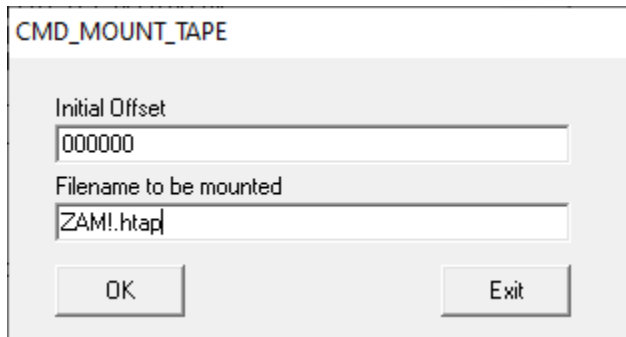


Let's now press the button "CMD gener." (12)

Since this command requires two parameters the following window with two text fields will appear:

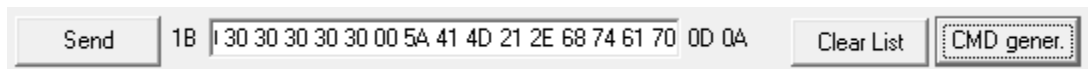


According to the protocol specifications let's indicate the parameters assuming we want to mount a file named "ZAM!.htap" that is lying in the current directory.



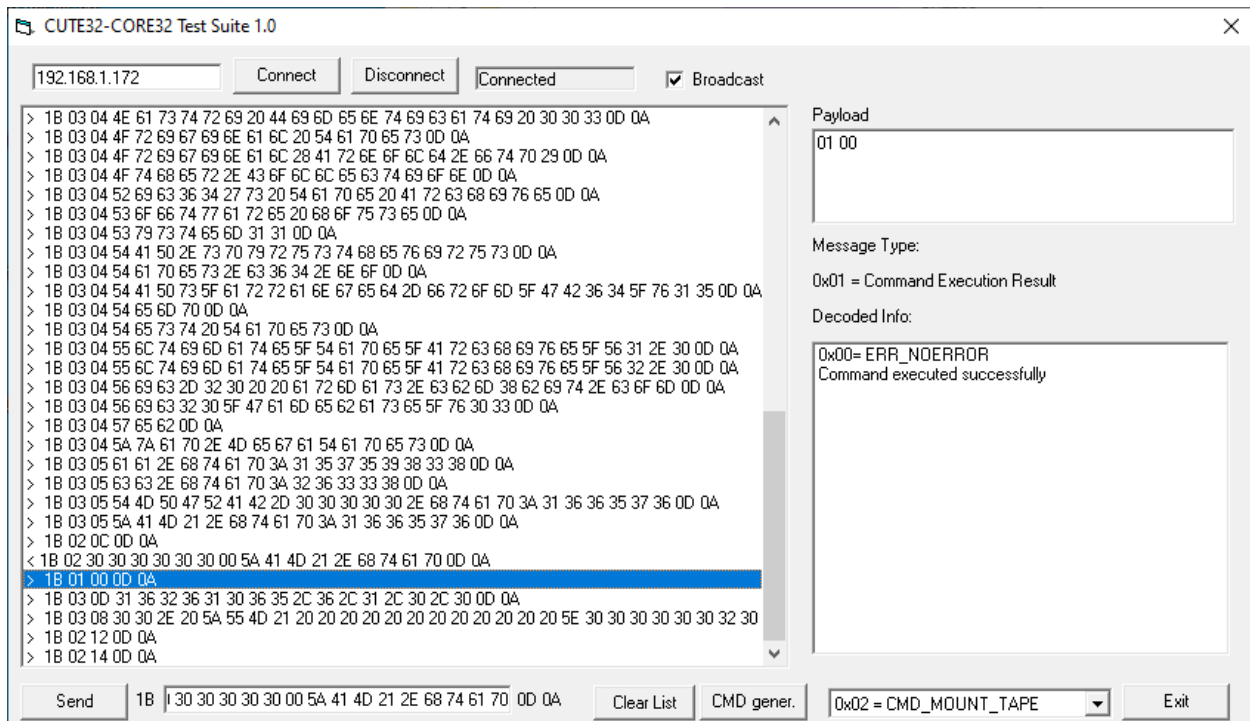
Let's press now the "OK" button.

You will notice that the string of bytes to be sent to the card to execute the command has been fully encoded in hexadecimal bytes and placed in the field (14):

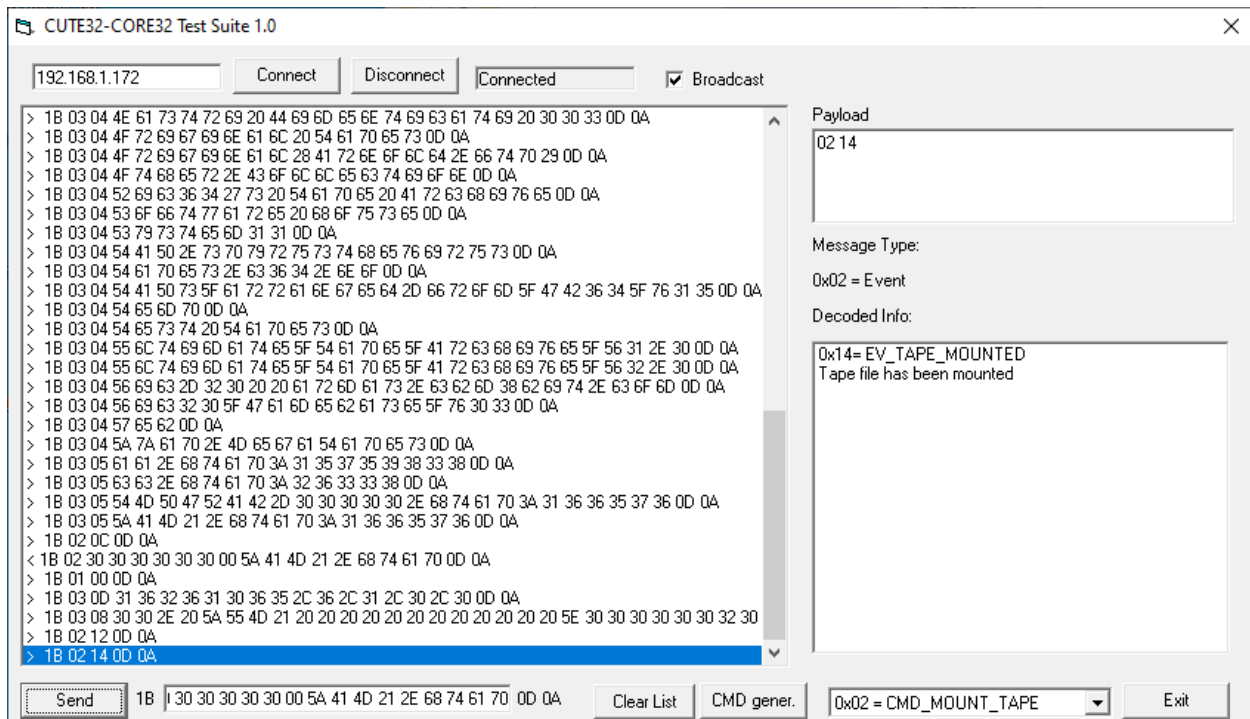


Now pressing the button "Send" (15) the command is sent to the card.

The last message received, decoded, shows that the result of the mount operation is successful.



And there is also an “Event Message” sent from the card to the console showing the tape file was successfully mounted.



This in accordance with the CUTE32 /CORE32 protocol description document.

Please note that is possible to send commands also manually by entering the respective bytes in Hexadecimal format directly into the field (14). Each byte must be a two digits identifier separated by a space from the next byte. Once the bytes have been entered in the field (14) it's possible to press the button "Send" to send the bytes directly to the card.

Note that 0x1B (start message) byte will be automatically added at the beginning of the stream of bytes you enter in the field (14) and 0x0D 0x0A (end message) sequence will be appended to the end of the bytes you entered as well.