



Bluebox Embedded UHF M800, M900, M950

SDK Description

up to software release 8.9.0

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1 Introduction

This manual describes how to operate with the software pack provided with the iDTRONIC Bluebox readers. The SDK includes the following tools:

- BLUEBOX Polling, .Net Visual C# sample application
- BLUEBOX Show, .Net Visual C++ application
- BLUEBOX Test, .Net Visual Basic sample application
- Library files

The SDK has the following prerequisites:

- .Net Framework 2.0 Redistributable
- x86 Visual C++ 2005 Redistributable Package

2 BLUEBOX Polling

2.1 Connection configuration

Once the Bluebox reader is connected to LAN, turn the reader on and wait for the end of the initialization. Launch the BLUEBOX Polling software and configure the network connection using the upper data grid view table (see figure below). The IP address, the communication port and the reader address must be inserted.

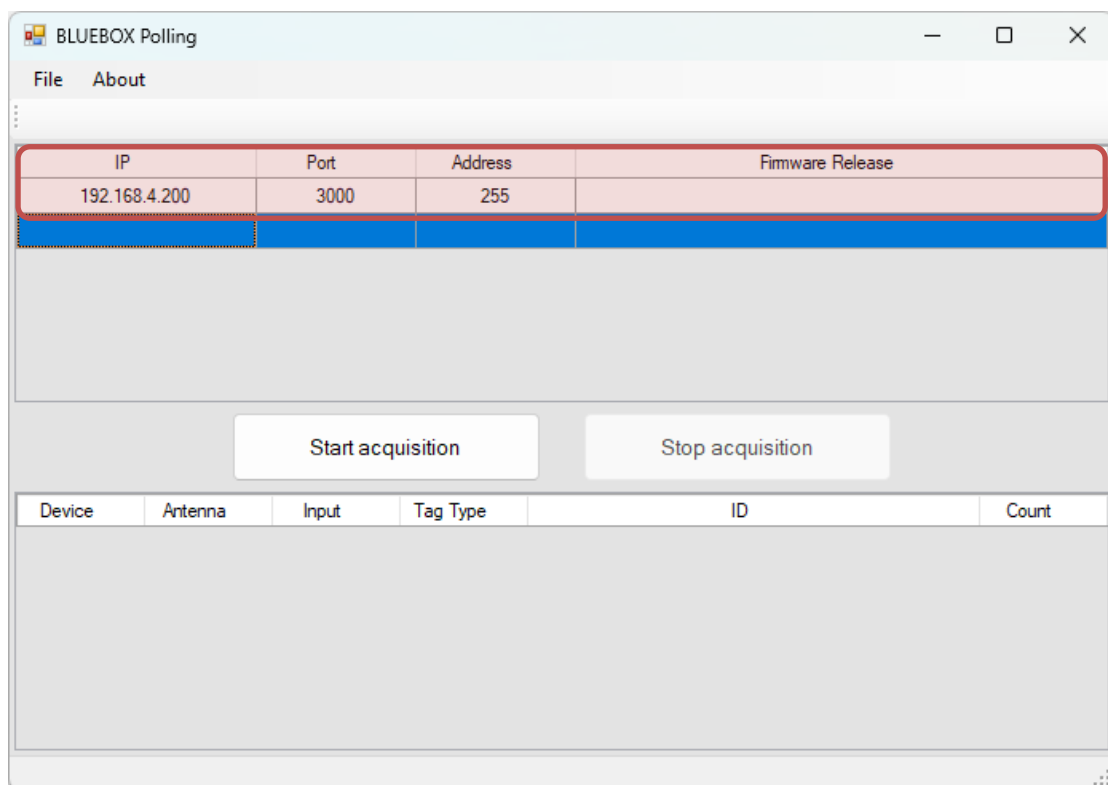


Figure 1: Screenshot Bluebox Polling, Connection configuration

2.2 Tags acquisition

Click on “Start acquisition” to start the polling.

First the software reads the firmware release number of the attached reader and shows it in the upper right data grid view. In case of error, the procedure will be aborted.

The IDs of the read tags will be shown in the data grid view at the bottom. The data grid view also shows the reader that read the tag, the antenna number, the tag type and a counter. The counter will be incremented every time the software detects the same tag on the same reader and antenna number. Click on “Stop acquisition” to stop the polling.

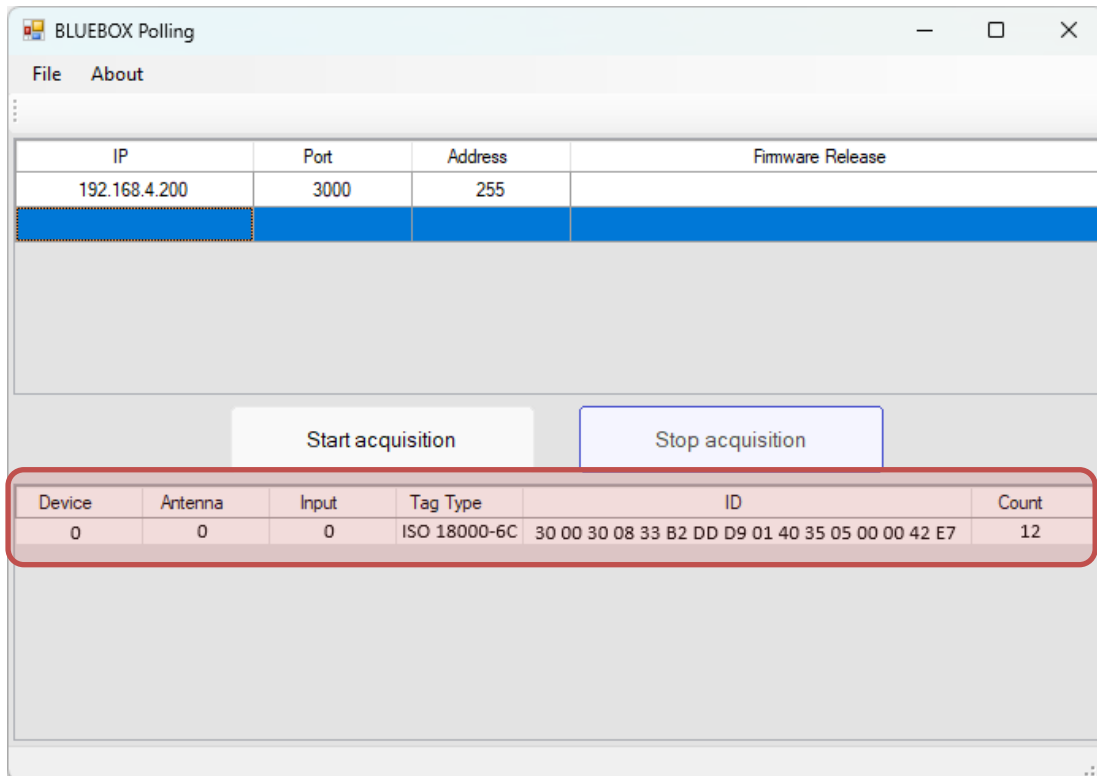


Figure 2: Screenshot Bluebox Polling, Tags detection

3 BLUEBOX Show

3.1 Connection configuration

You can connect the Bluebox reader using RS232, RS485 or TCP. Once connected, turn the reader on and wait for the end of the initialization. Afterwards, select the right interface and input the parameters for the connection.

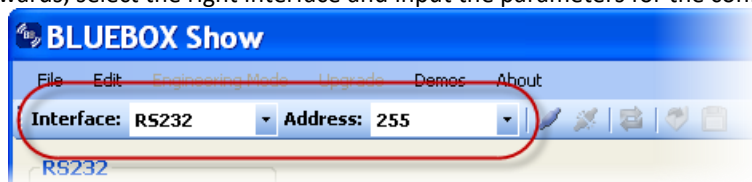


Figure 3: Screenshot Bluebox Show, connection configuration

For RS232 and RS485 the com port, baud rate, data bits, stop bits and the parity bit must be selected.

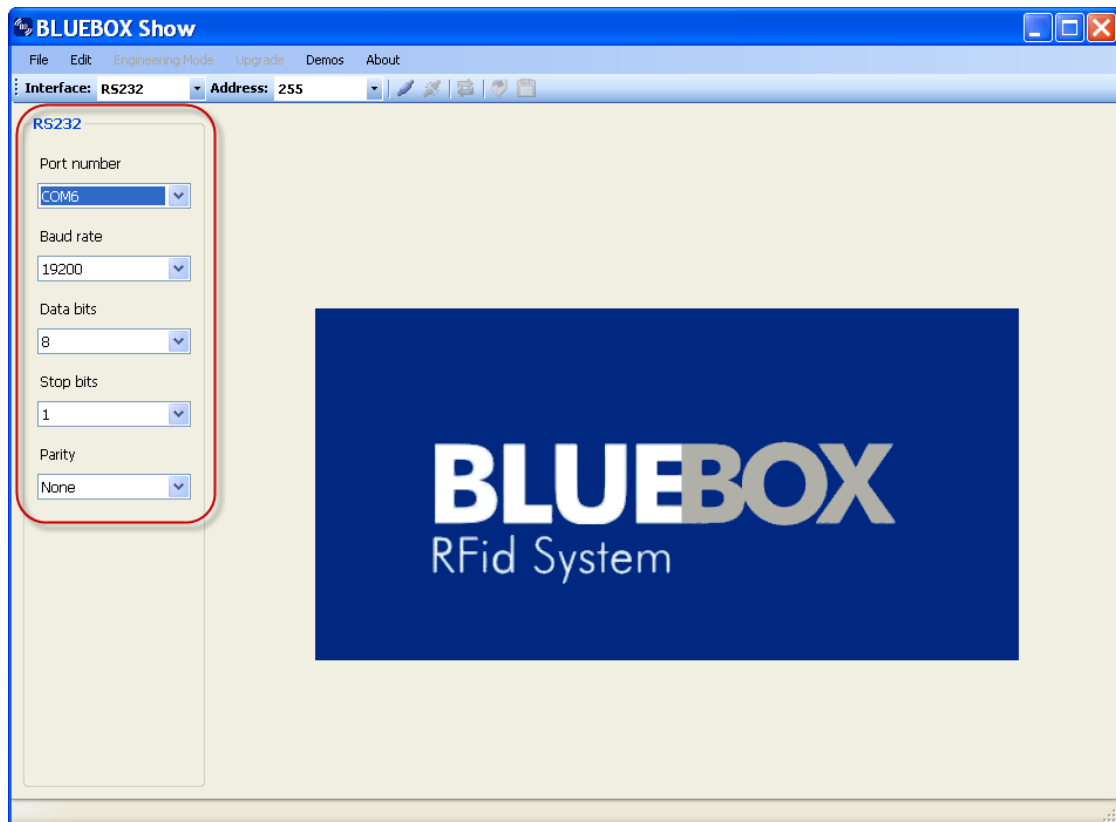


Figure 4: Screenshot Bluebox Show, RS232 connection configuration

For the TCP interface, the IP address and the communication port must be selected.

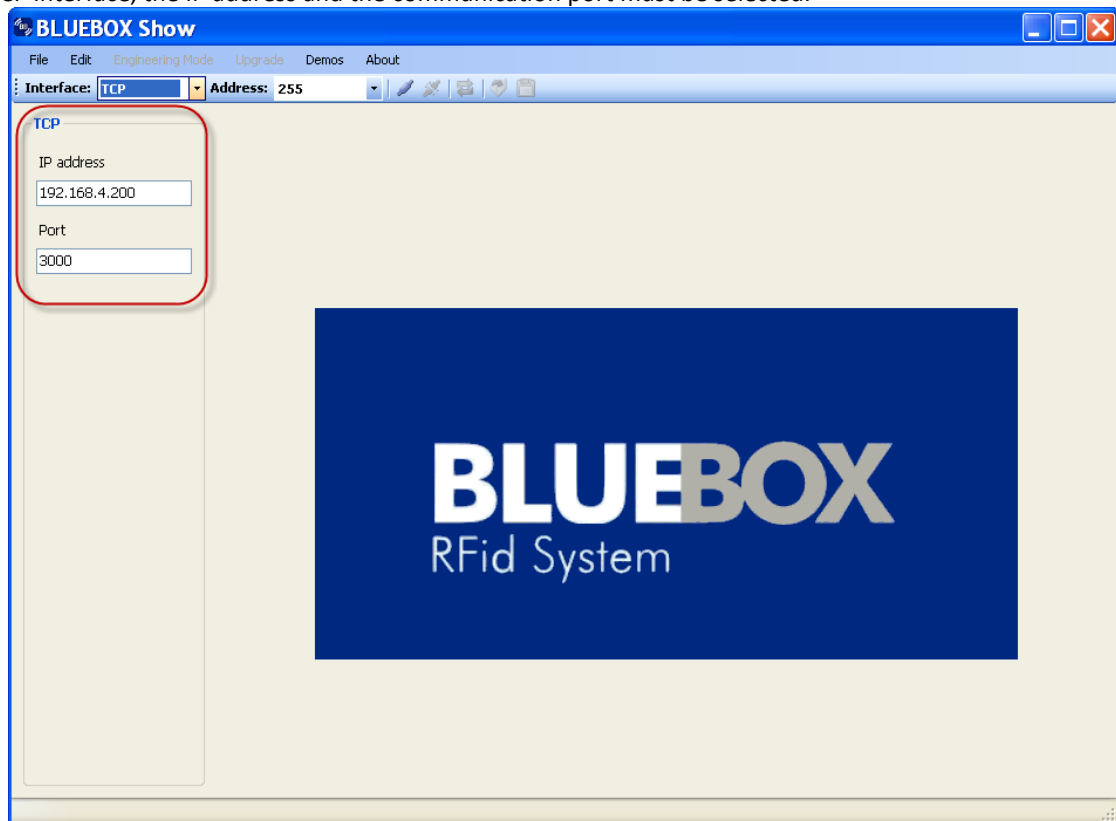


Figure 5: Screenshot Bluebox Show, TCP connection configuration

3.2 Connect to the reader

Click on the toolbar connect button to connect with the reader. After opening the connection, the software reads the firmware release of the reader.

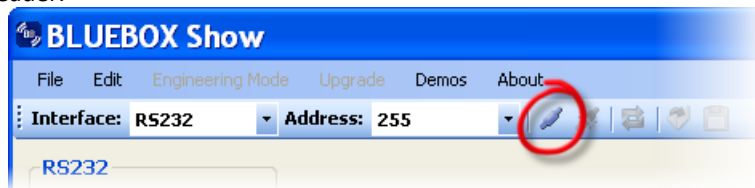


Figure 6: Screenshot Bluebox Show, Connect button in the toolbar

If the reader is not supported by the software, it prints the following message box.

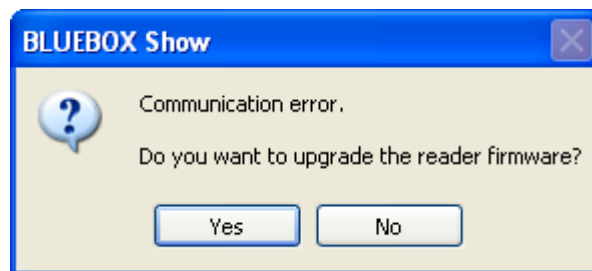


Figure 7: Screenshot Bluebox Show, Error message unsupported reader

Otherwise, the software reads the configuration of the reader and shows the following window.

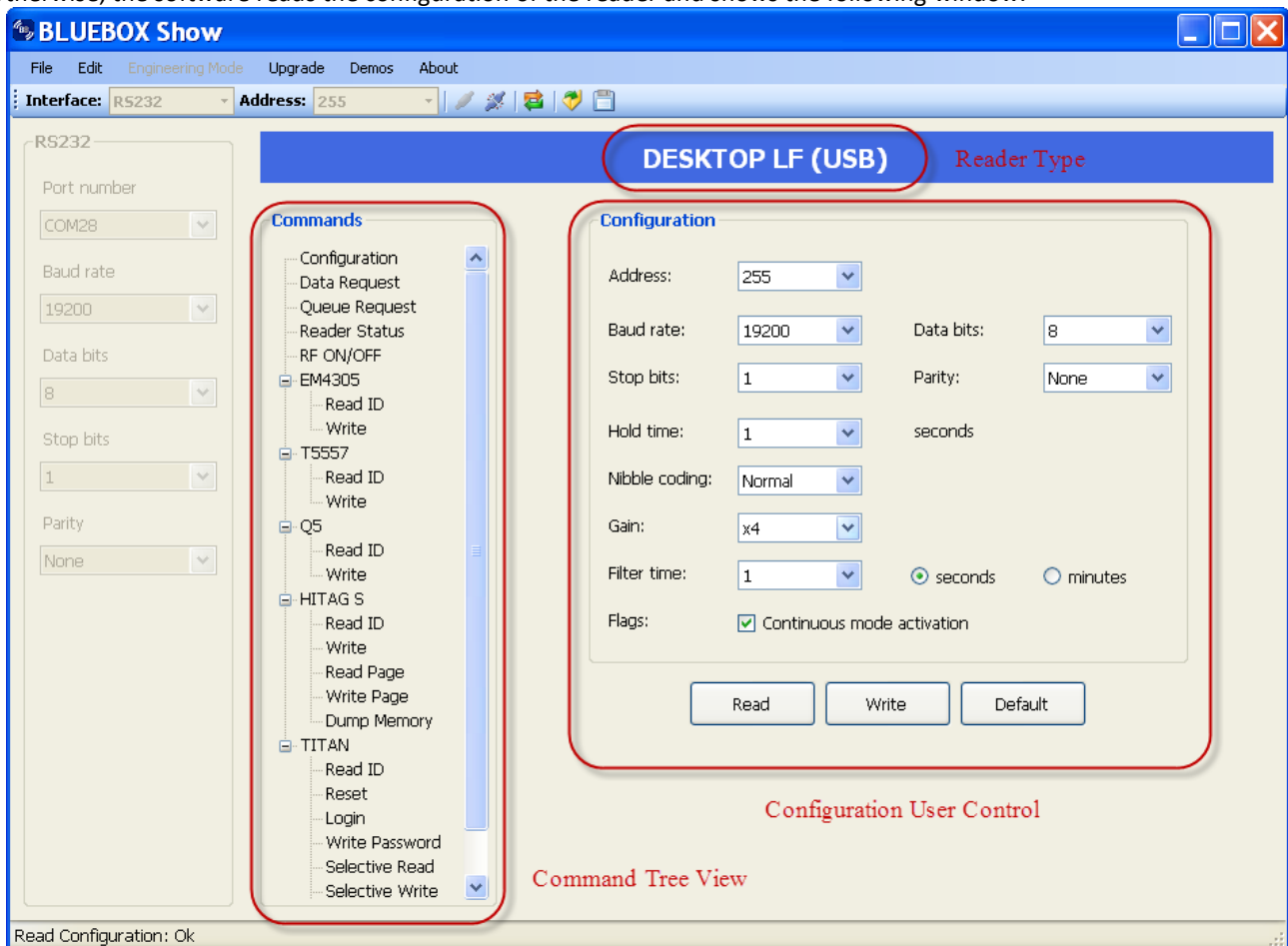


Figure 8: Screenshot Bluebox Show, Reader connected (here the reader is a Bluebox Desktop LF)

The window shown above depends on the reader. On the left is a command tree view that allows the user to select a command to send to the reader. When the active user control is “configuration”, it is possible to open the configuration from a file or to save it using the file menu or the toolbar buttons.

Click on the toolbar disconnect button to disconnect from the reader.

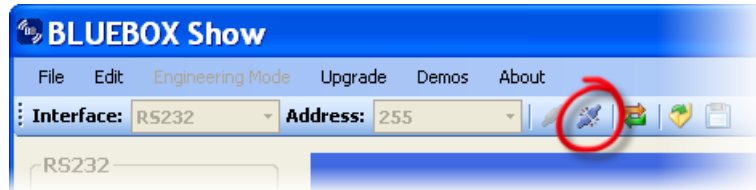


Figure 9: Screenshot Bluebox Show, toolbar disconnect button

3.3 Demos – Bluebox Spontaneous

When no connection with the reader is open, it is possible to start the BLUEBOX Spontaneous demo application. It allows to test the “spontaneous” mode of supported Bluebox readers.

This application uses the same interface configuration of the parent application (BLUEBOX Show), hence before launching the application, it is necessary to configure the interface as described in section 3.1.

After configuration of the interface, click on Demos -> BLUEBOX Spontaneous menu item to launch the application.

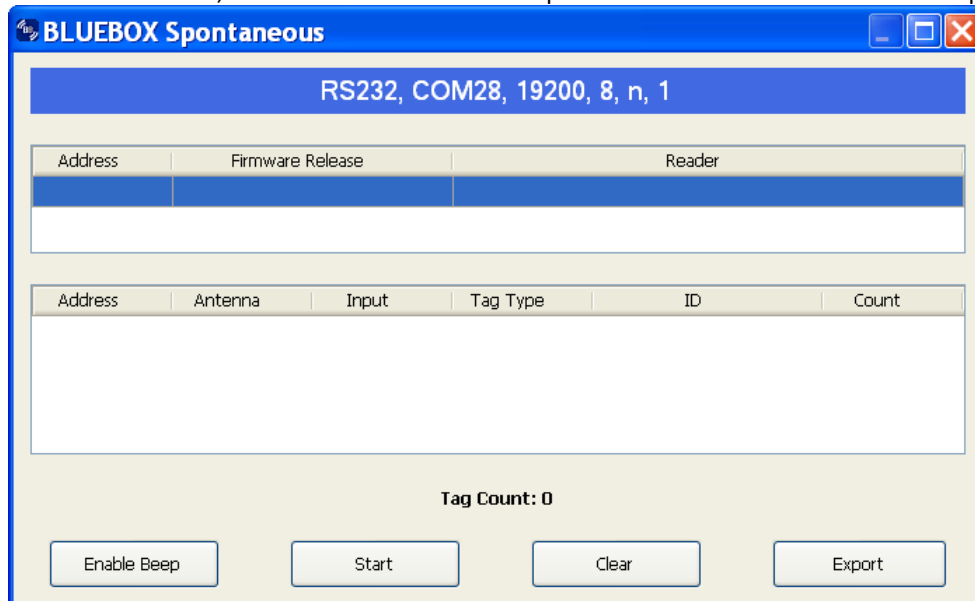


Figure 10: Screenshot Bluebox Spontaneous, here the RS232 interface is selected

Add the readers in the upper table by adding the reader address. In case of the RS232 or TCP interface, only one reader is allowed, in case of the RS485 interface, all readers connected to the RS485 bus can be inserted in the table.

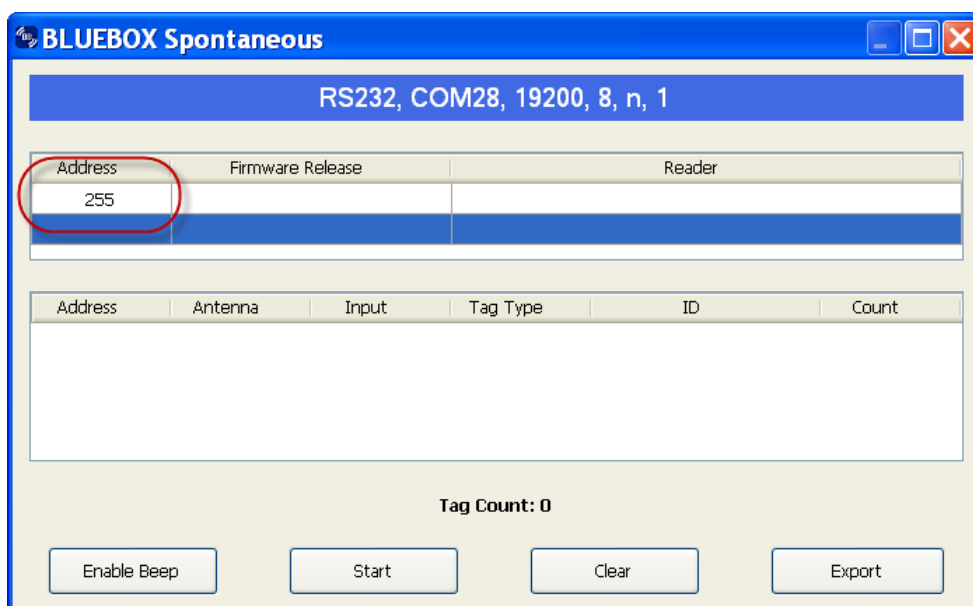


Figure 11: Screenshot Bluebox Spontaneous, one Reader added with RS232 interface

Click on “Start” to start the notifications. First the software reads the firmware release number of the readers attached and shows it in the upper data grid view together with the reader description. In case of errors, the procedure will be aborted. The ID’s of the read tags will be shown in the table below.

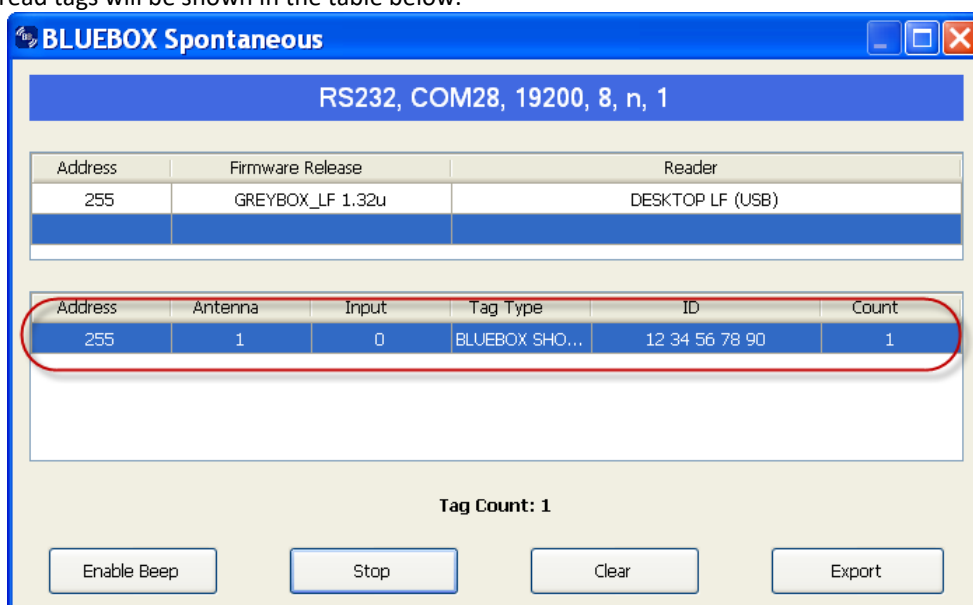


Figure 12: Screenshot Bluebox Spontaneous, one tag read

The table also shows the reader that has read the tag, the antenna number, the tag type and a counter. The counter will be incremented every time the software detects the same tag on the same reader and antenna number.

Click on “Stop” to stop the notifications. It is always possible to enable or disable a PC buzzer beep at every tag notification, clear the tag table and to export the tag table as .csv file.

3.4 Firmware Upgrade

It is possible to upgrade the reader’s firmware using Bluebox Show. First configure the interface as described in section 3.1 and connect to the reader as described in section 3.2. Now it is possible to launch the firmware upgrade by clicking on the upgrade menu item.

As described in section 3.2, if the reader is not supported by the application, a message box allows to start the BLUEBOX Upgrade to upgrade the reader's firmware. Select the image file (a .bin file) by clicking on "Browse" and then clicking on "Upgrade" to start the upgrade procedure.

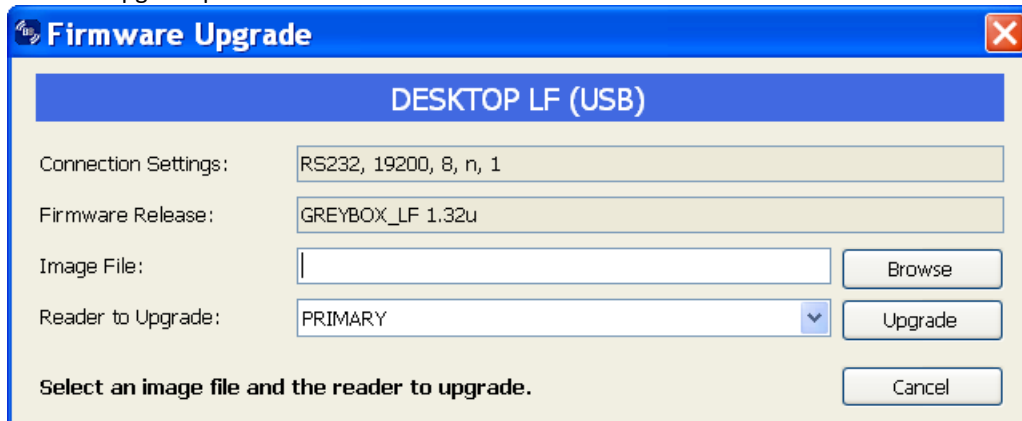


Figure 13: Screenshot Firmware Upgrade (here the reader is a Bluebox Desktop LF)

A message warns the user about the upgrade length and to not power off the reader before the upgrade procedure is completed.

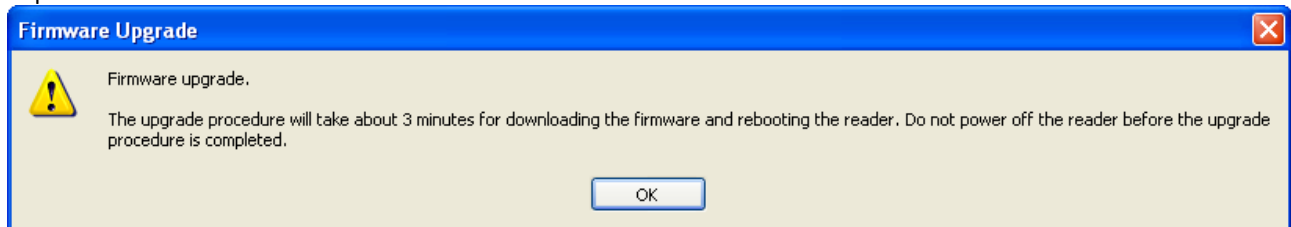


Figure 14: Screenshot Firmware Upgrade, Warning before upgrade

At the end of the firmware download a message informs the user about the download status. If the download procedure was completed successfully, a message as shown below warns the user not to power off the reader before the upgrade procedure is completed. The firmware upgrade in the reader starts after the firmware download.

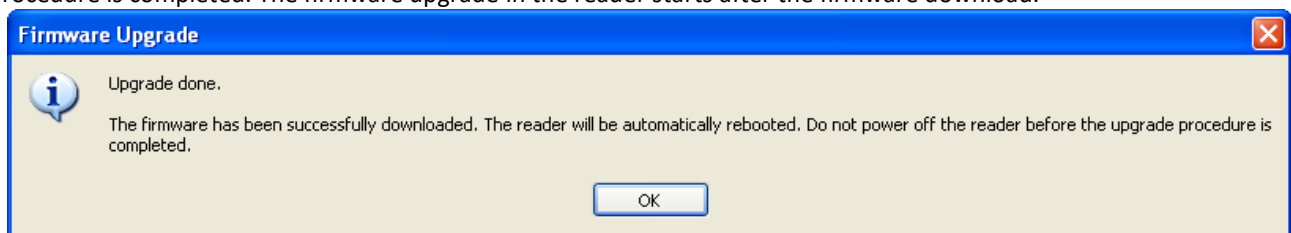


Figure 15: Screenshot Firmware Upgrade, Info message after firmware download

After the firmware upgrade, the reader will be automatically rebooted. The reader is also rebooted in case of an upgrade error, in this case the reader reboots with the old firmware.

This application also allows to upgrade the firmware of auxiliary readers connected to the primary reader (for example if the attached reader is the Bluebox Industrial HF MR Single Channel, which consists of a primary reader and an auxiliary reader, both are upgradable).

4 BLUEBOX Test

4.1 Connection configuration

Once you have connected the Bluebox reader to the PC, turn the reader on and wait for the end of the initialization. Launch the BLUEBOX Test software and configure the connection. You must insert the reader address, the com port name, the baud rate, the data bits, the stop bits and the parity.

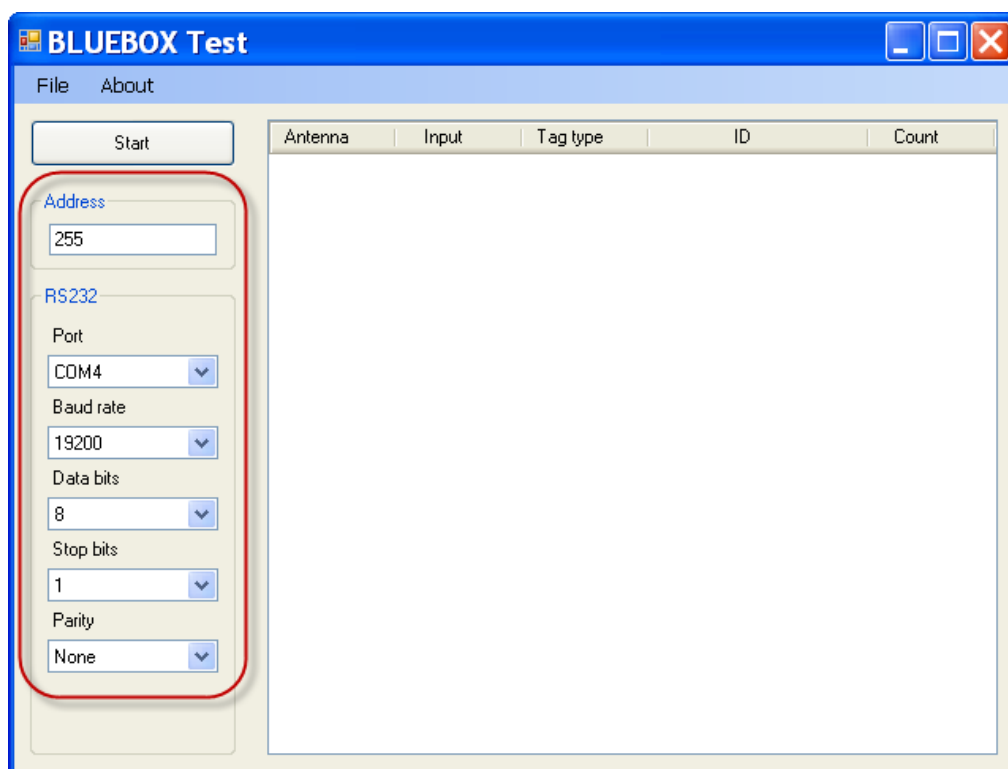


Figure 16: Screenshot Bluebox Test, Connection configuration

4.2 Tags acquisition

Click on “Start” to start the polling. First the software reads the firmware release number of the attached reader. In case of an error during the procedure, it will be aborted.

The IDs of the tags read will be shown in the right data grid view. The data grid view also shows the antenna number that has read the tag, the tag type and a counter. The counter will increment every time the same tag on the same reader and antenna number is detected. Click on “Stop” to stop the polling.

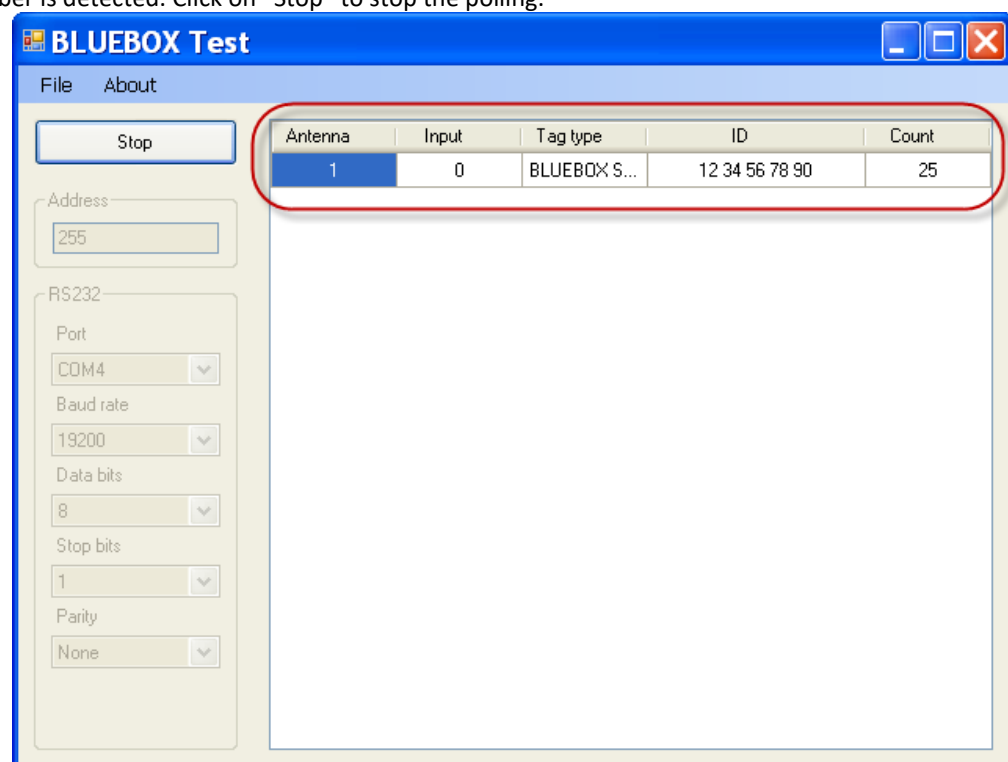


Figure 17: Screenshot Bluebox Test, Tags acquisition

5 Document Revision History

Revision	Date	Description
1.00	30.04.10	First release
1.01	05.05.10	Added a list with the readers supported by the SDK. Added the document revision history section.
1.02	18.06.10	Added the BLUEBOX OEM HF E, BLUEBOX INDUSTRIAL HF MID RANGE SINGLE CHANNEL, BLUEBOX INDUSTRIAL HF LONG RANGE QUAD CHANNEL and BLUEBOX INDUSTRIAL UHF MID RANGE SINGLE CHANNEL readers management. Added the BLUEBOX Spontaneous section as demo software included in BLUEBOX Show. Added the BLUEBOX Upgrade section.
1.03	08.07.10	Added the BLUEBOX INDUSTRIAL HF SHORT RANGE DUAL CHANNEL and BLUEBOX INDUSTRIAL ACTIVE 2.4 GHz readers management. Added a debug library to make the application, based on the library, developing easier.
1.04	05.08.10	Changes in document formatting to conform with other BLUEBOX documents formatting.
1.05	06.10.10	Added the BLUEBOX PORTAL UHF reader management. Replaced all the images in BLUEBOX Polling description. Replaced all the images in BLUEBOX Show description and added two images to show the Connect and Disconnect buttons positions in the software toolbar. Added the BLUEBOX Dump demo software description. Replaced all the images in BLUEBOX Spontaneous description. Added two images to show the messages shown during the upgrade procedure. Improved the Firmware Upgrade description to avoid user upgrade errors. Replaced all the images in BLUEBOX Test BSW002110E Page 18 of 18 description.
1.06	09.11.10	Changes to SDK installation instructions
1.07	10.06.11	Replaced the BLUEBOX Show screenshots with new versions. Deleted the BLUEBOX Dump demo section.
1.08	09.09.11	Added the firmware release related to this technical manual in the first page. Deleted the BLUEBOX INDUSTRIAL UHF SHORT RANGE SINGLE CHANNEL reader management (replaced with the MID RANGE one). Added the BLUEBOX Demo sample program in sections 1 and 2.1. Removed the reference to source code of BLUEBOX Show application in section 2.1. Changes in section 'Document Revision History' (this section).
1.09	24.10.11	Replaced the sample software screenshots with new versions.
1.10	10.10.12	Removed the list of the supported readers in section 1. Replaced the BLUEBOX Show screenshots with new versions and added the possibility to open/save a configuration. Added the possibility to clear the table and export it in BLUEBOX Spontaneous demo.
1.11	06.10.25	Format changes and grammar corrections in all sections. Replaced images in chapter BLUEBOX Polling with newer versions.