

BLUEBOX SDK

BLUEBOX Software User Interfaces



Up to software release 8.0.0

Preface

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1 Introduction

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

- BLUEBOX Demo, Visual C++ sample application.
- BLUEBOX Polling, .Net Visual C# sample application;
- BLUEBOX Show, .Net Visual C++ application;
- BLUEBOX Test, .Net Visual Basic sample application.

The SDK has the following prerequisites:

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

2 Getting started

2.1 SDK: installation

To install the SDK double click on the setup.exe file. Setup program will check the prerequisites (.Net Framework 2.0 and VC++ 2005 Redistributable Package) and installs them, after that it installs the BLUEBOX SDK files in the folder listed below "Folder", to change the installation folder click on "Browse" and select another folder. Click on "Next" to install files.

The setup program will create the following directories (Table 2.1):

Table 2.1 BLUEBOX SDK directories.

Directory	Description
BLUEBOX Demo	Visual C++ sample program. It contains only the source code.
BLUEBOX Polling	.Net Visual C# sample program. It contains the source code, the executable and library files.
BLUEBOX Show	.Net Visual C++ application. It contains onlyt the executable and library files.
BLUEBOX Test	.Net Visual Basic sample program. It contains the source code, the executable and library files.
Library	Library files (BLUEBOXLib.dll, BLUEBOXLib.h, BLUEBOXLib.lib, BLUEBOXLib.def, ReleaseNotes.txt).

3 BLUEBOX Polling

3.1 Connection configuration

Once you have connected the BLUEBOX readers to the LAN, turn their on and wait the end of the initialization. Launch the BLUEBOX Polling software and configure the network connections using the upper data grid view table (Figure 3.1), you have to insert the IP address, the communication port and the reader address.

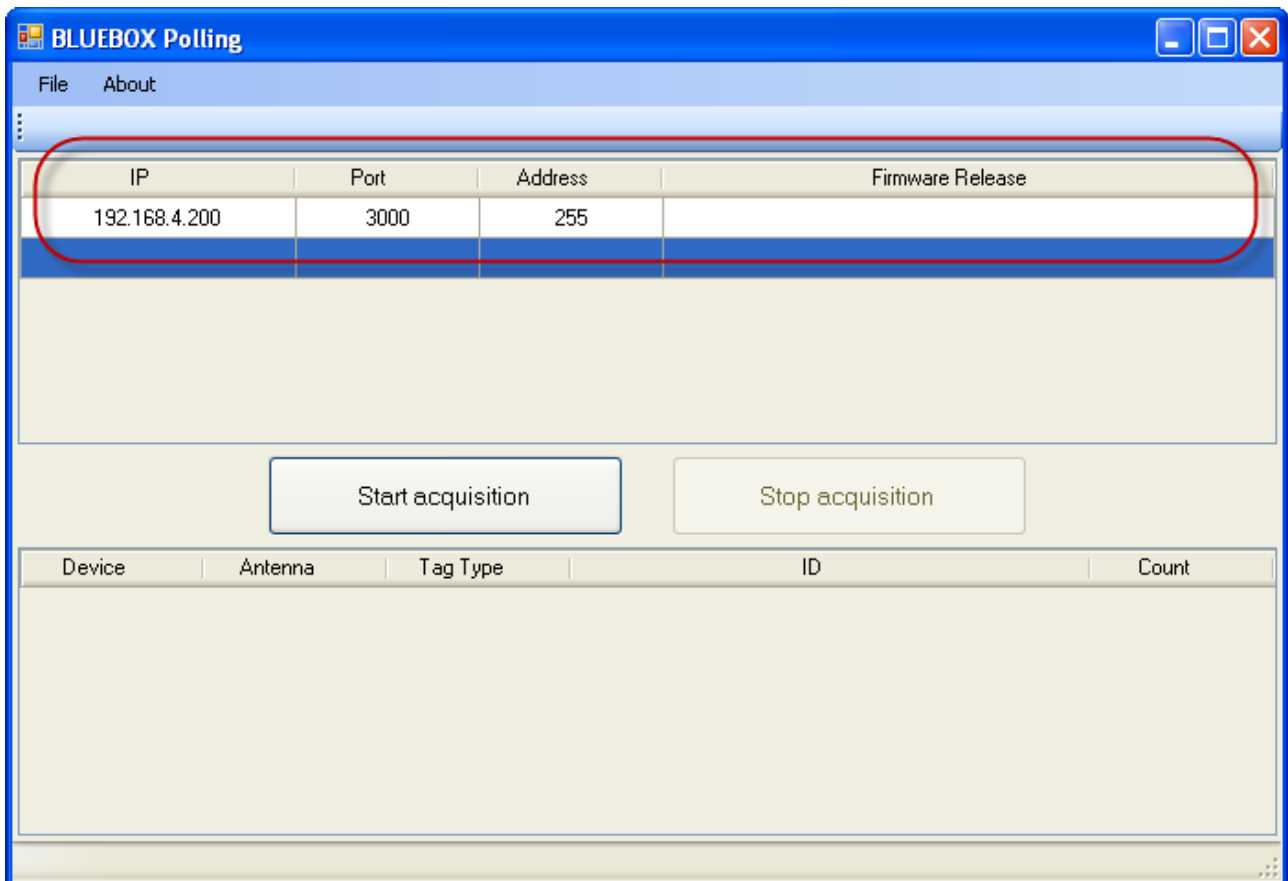


Figure 3.1 BLUEBOX Polling screenshot. Network connections configuration.

3.2 Tags acquisition

Click on "Start acquisition" to start the polling. First the software reads the firmware release number of the readers attached and shows it in the upper data grid view. In case of error the procedure will be aborted.

The ID's of the tags read will be shown in the below data grid view. The data grid view also shows the reader that has read the tag, the antenna number that has read the tag, the tag type and a counter (Figure 3.2). The counter will be incremented every time the software detect the same tag on the same reader and antenna number. Click on "Stop acquisition" to stop the polling.

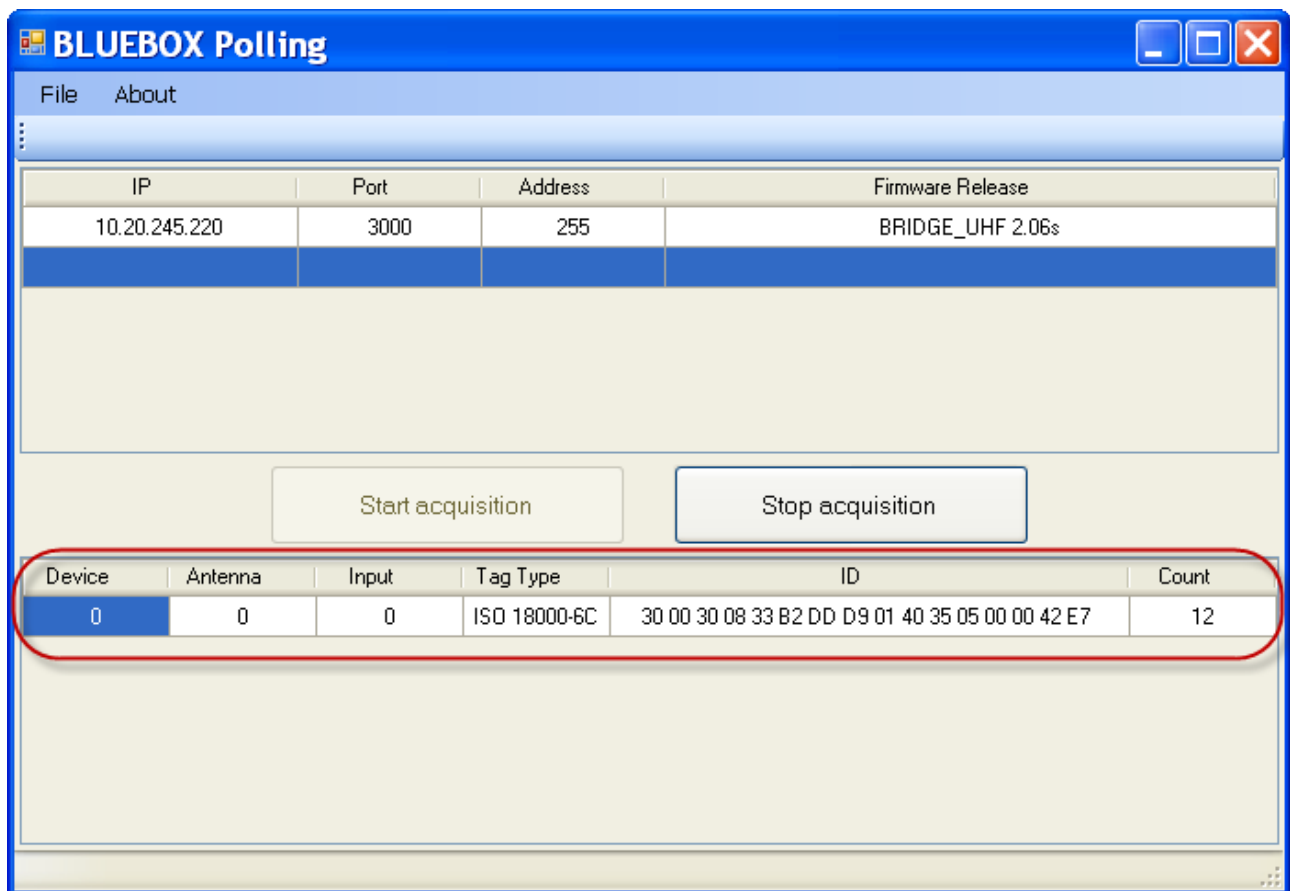


Figure 3.2 BLUEBOX Polling screenshot. Tags detection.

4 BLUEBOX Show

4.1 Connection configuration

Once you have connected the BLUEBOX reader to the PC, turn it on and wait the end of the initialization. Type the reader address (0 – 255) in the related toolbar text box, then select the interface to use (RS232, RS485 or TCP) using the related toolbar combo box (Figure 4.1).

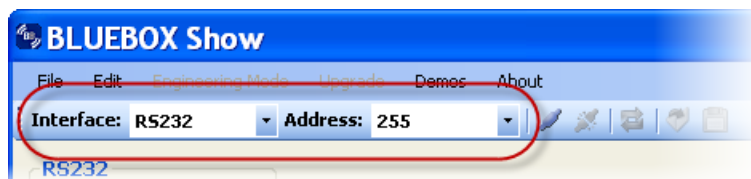


Figure 4.1 BLUEBOX Show connection configuration in the software toolbar.

In case of RS232 or RS485 interface selected you have to select the com port number, the baud rate, the data bits, the stop bits and the parity (Figure 4.2).

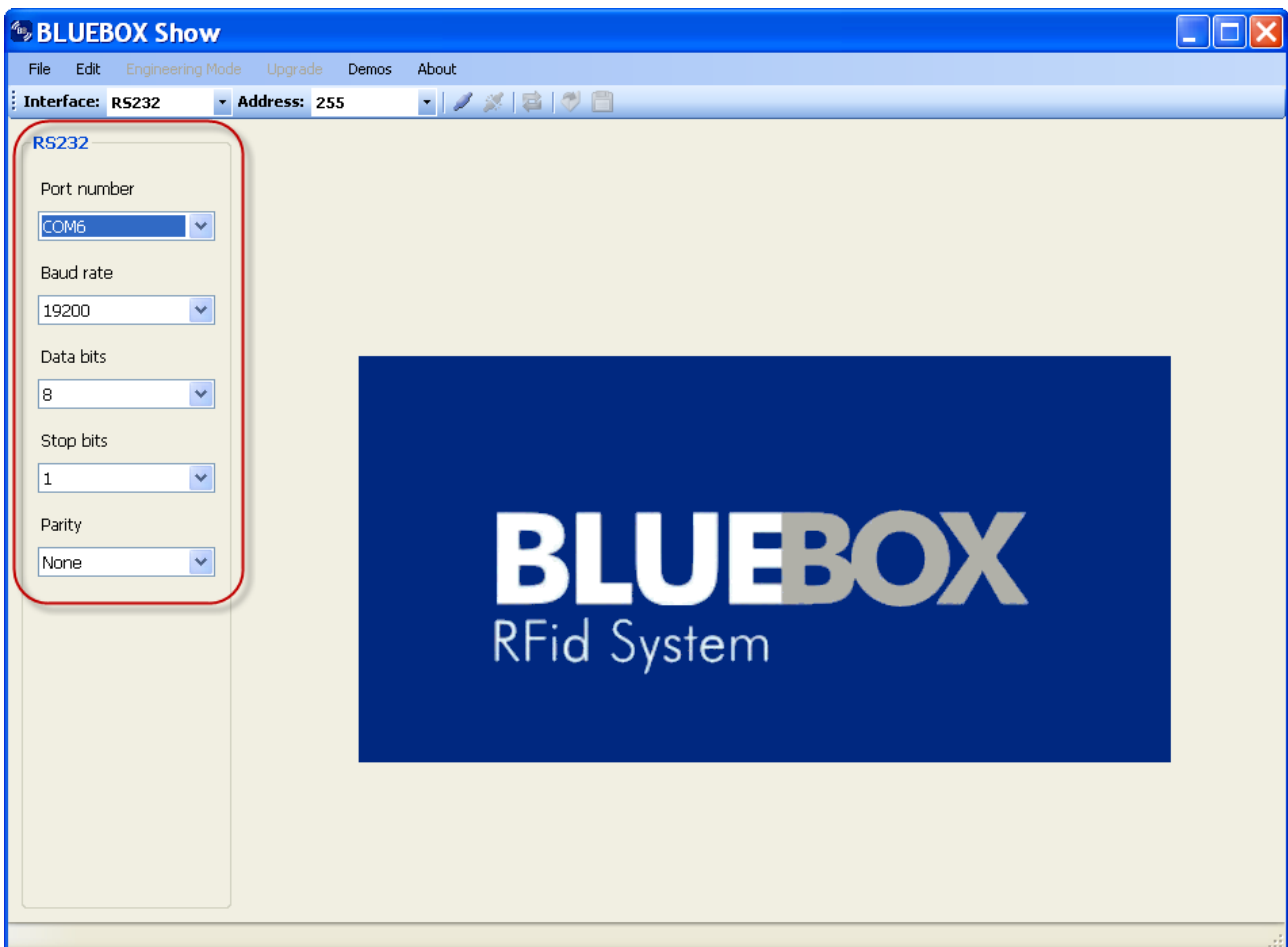


Figure 4.2 BLUEBOX Show screenshot. RS232 connection configuration.

In case of TCP interface selected you have to type the IP address and communication port (Figure 4.3).

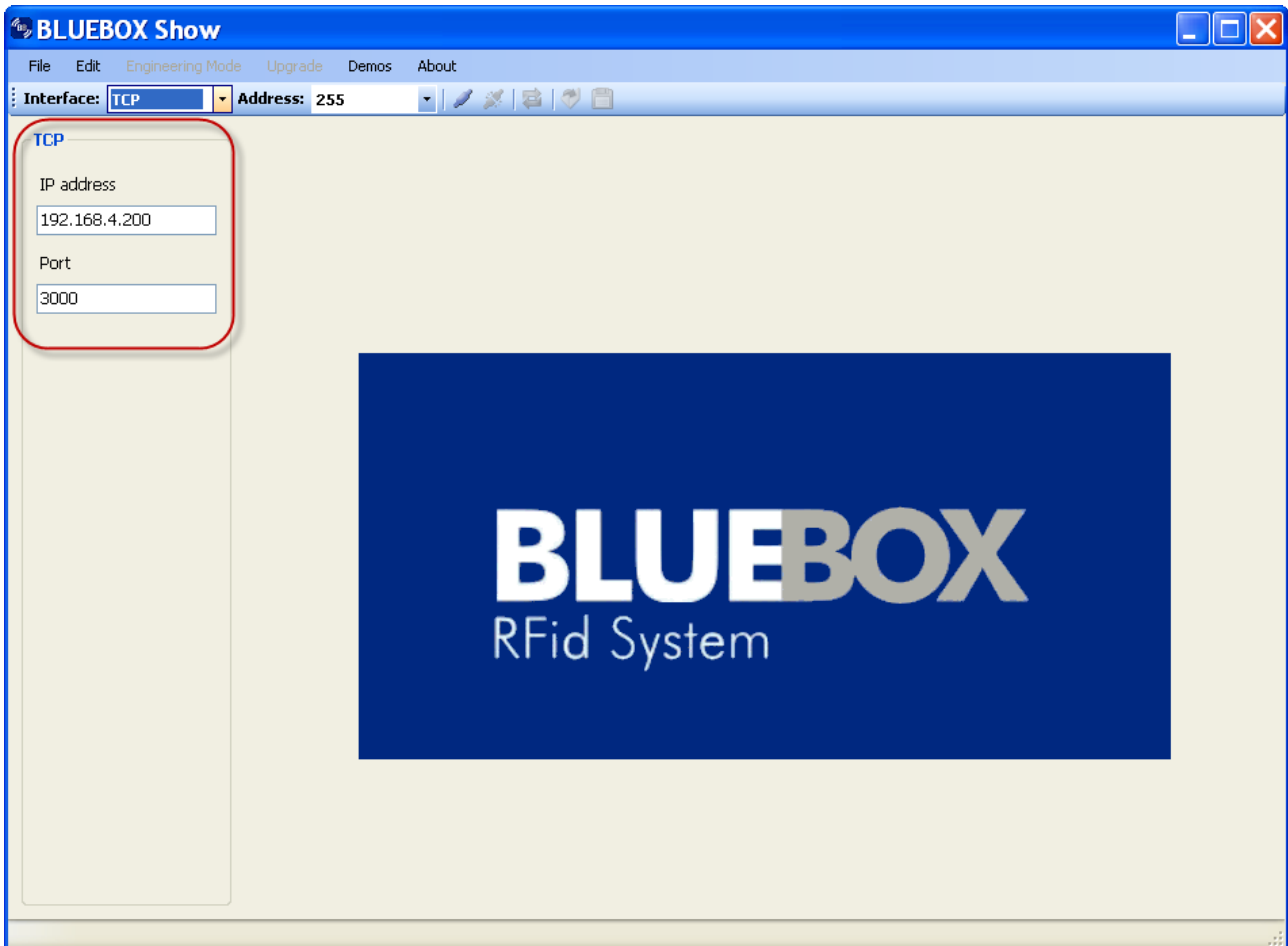


Figure 4.3 BLUEBOX Show screenshot. TCP connection configuration.

4.2 Connect to the reader

Click on the toolbar connect button (Figure 4.4) to connect with the reader. After opening the connection the software reads the firmware release of the reader.

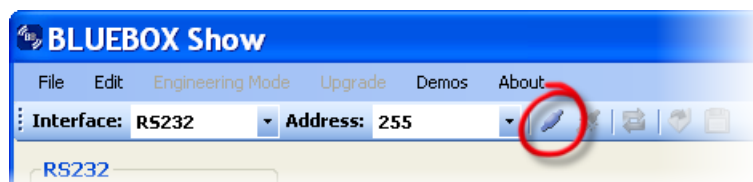


Figure 4.4 BLUEBOX Show connect button in the toolbar.

If the reader is not supported by the software, it prints the following message box (Figure 4.5).

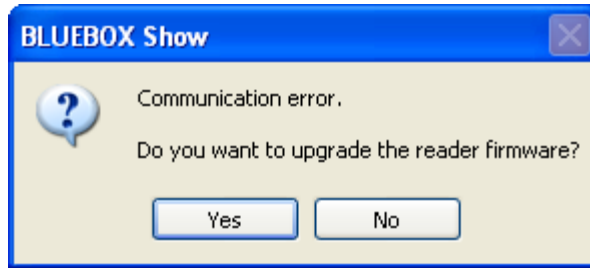


Figure 4.5 Error message box shown on reader connected not supported by software. It allows to start the Firmware Upgrade to upgrade the firmware's reader.

Otherwise the software reads the configuration of the reader and shows the following window (Figure 4.6).

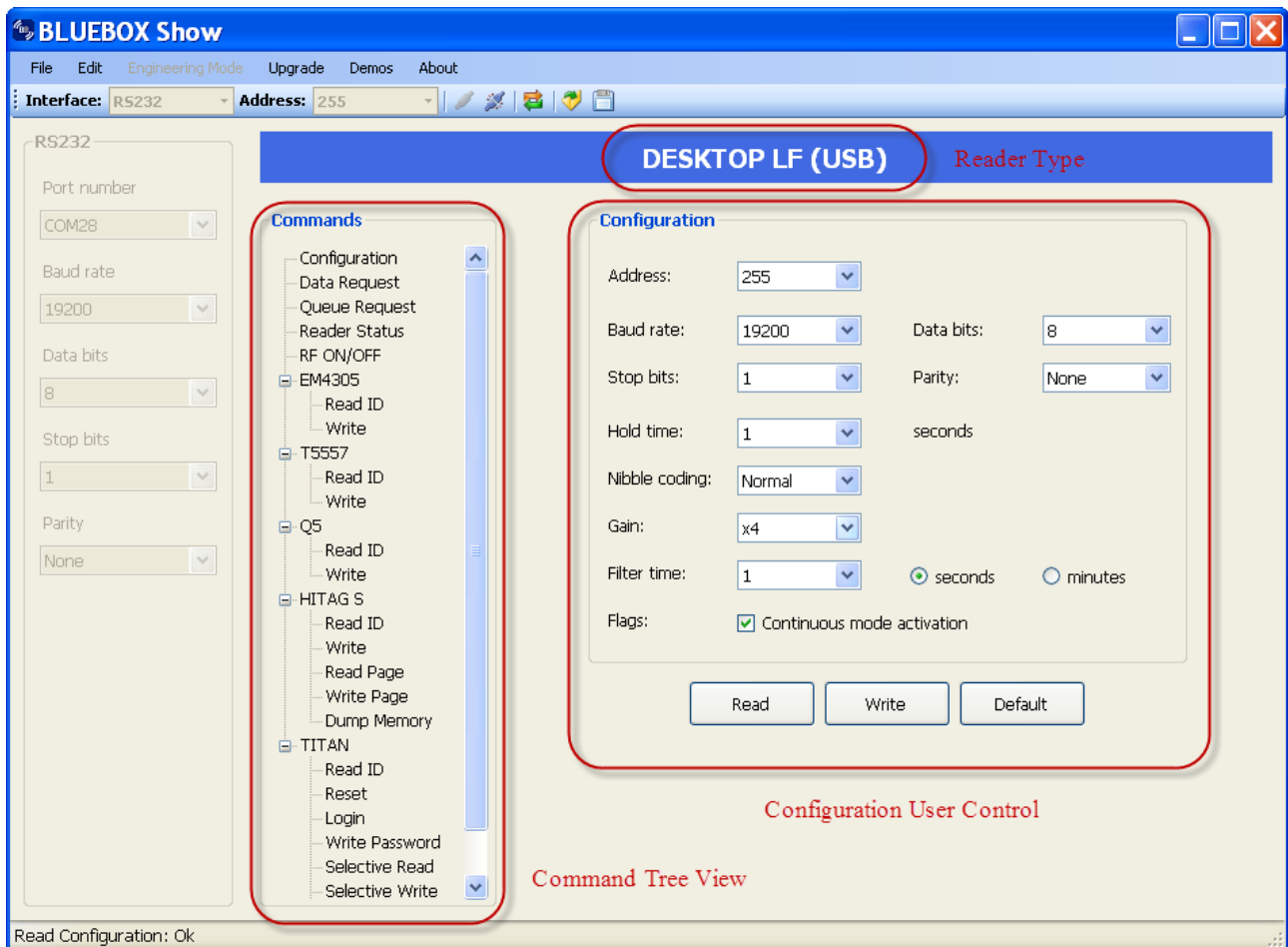


Figure 4.6 Reader connected screenshot. In this case the reader is a BLUEBOX DESKTOP LF.

The window shown depends on the reader. In the left a command tree view allows the user to select a command to send to the reader.

When the active user control is the configuration one 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 (Figure 4.7) to disconnect from the reader.

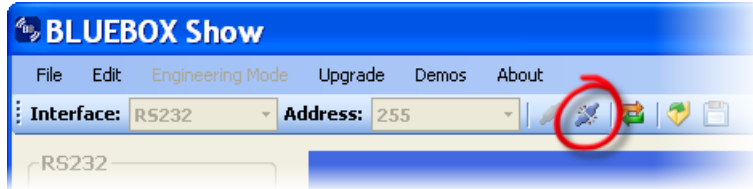


Figure 4.7 BLUEBOX Show disconnect button in the toolbar.

4.3 Demos

4.3.1 BLUEBOX Spontaneous

When there is not connection opened with the reader it is possible to start the BLUEBOX Spontaneous demo application. It allows to test the 'spontaneous' mode of BLUEBOX readers supported.

This application uses the same interface configuration of the parent application (BLUEBOX Show), so before launch it is necessary to configure the interface to use as described in 4.1.

After configured the interface, click on Demos->BLUEBOX Spontaneous menu item to launch the application (Figure 4.13).

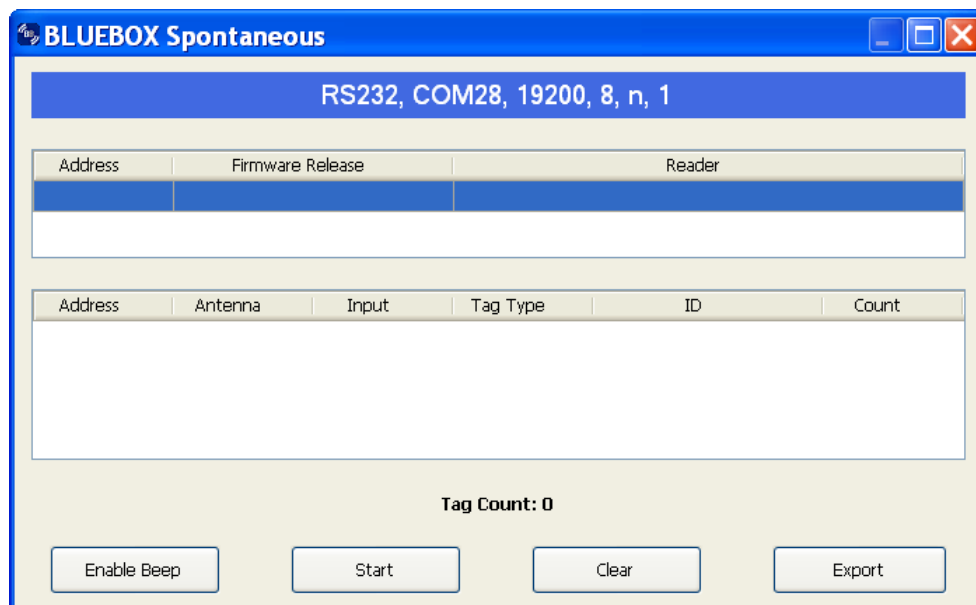


Figure 4.8 BLUEBOX Spontaneous screenshot. In this case RS232 interface is selected.

Add the readers in the upper table by adding the reader address (Figure 4.14). In case of RS232 or TCP interface selected only one reader is allowed, in case

of RS485 interface selected all the readers connected to the RS485 bus could be inserted in the table.

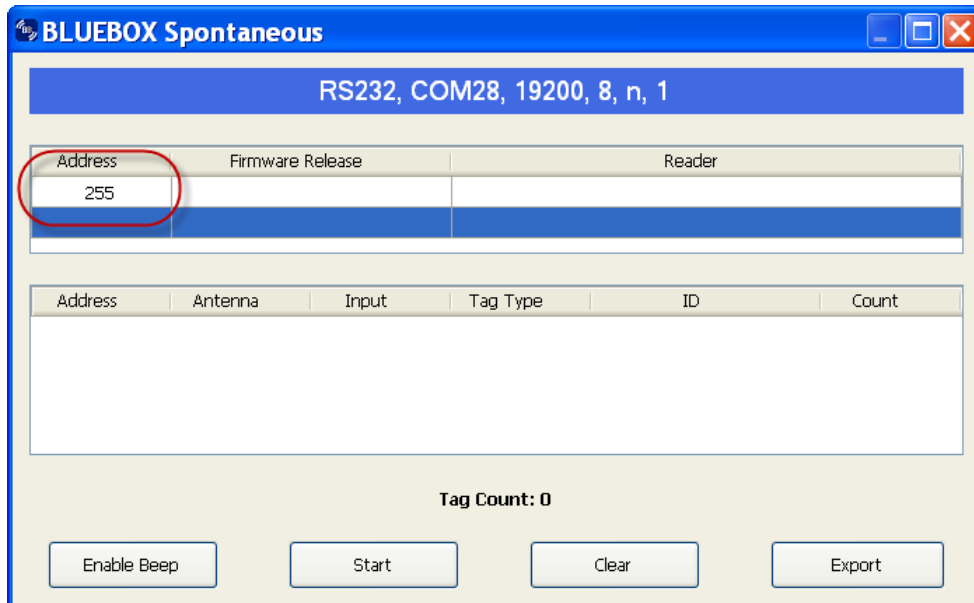


Figure 4.9 BLUEBOX Spontaneous with RS232 interface selected and one reader added in the upper table screenshot.

Click on "Start" to start the notification. First the software reads the firmware release number of the readers attached and shows it in the upper data grid view, it also shows the reader description. In case of error the procedure will be aborted.

The ID's of the tags read will be shown in the table below (Figure 4.15)..

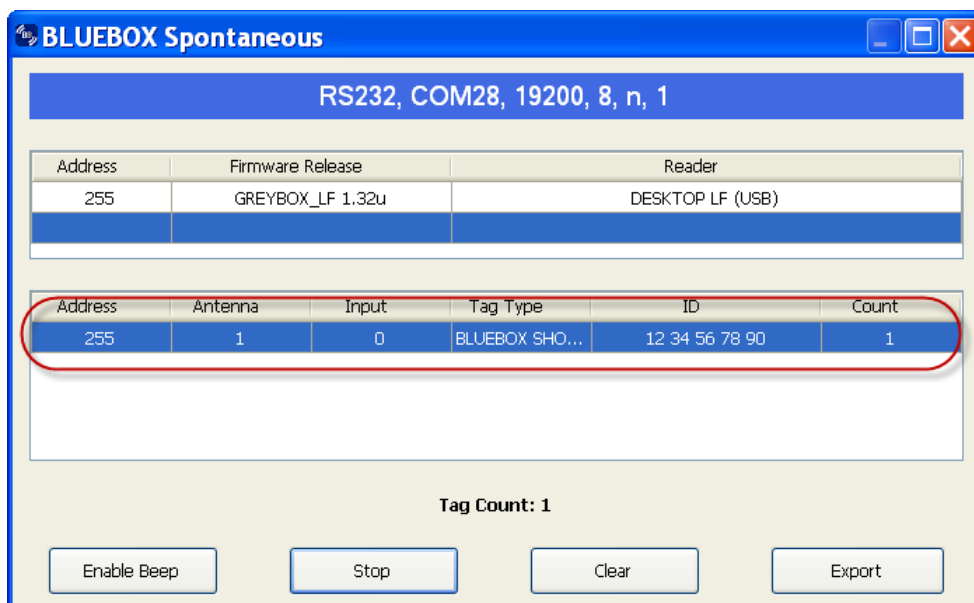


Figure 4.10 BLUEBOX Spontaneous with RS232 interface selected, one reader in the upper table and one tag notified in the lower table. In the upper table is also visible the reader's firmware release and description.

The table also shows the reader that has read the tag, the antenna number that has read the tag, the tag type and a counter. The counter will be incremented every time the software detect the same tag on the same reader and antenna number. Click on "Stop" to stop the notification.

It is always possible to enable or disable a PC buzzer beep at every tag notified by the software, to clear the tag table and export it as a .csv file.

4.4 Firmware Upgrade

Using the BLUEBOX Show it is also possible to upgrade the readers firmware. First configure the interface as described in 4.1 and connect to the reader as described in 4.2, now it is possible to launch the Firmware Upgrade (Figure 4.16) by clicking on Upgrade menu item.

As described in 4.2, if the reader is not supported by the application, a message box allows to start the BLUEBOX Upgrade to upgrade the reader's firmware. Also if the reader connected doesn't reply to the PC a message box allows to start the BLUEBOX Upgrade to upgrade the reader's firmware.

Select the image file (a *.bin file) clicking on "Browse" button and then click on "Upgrade" button to start the upgrade procedure.

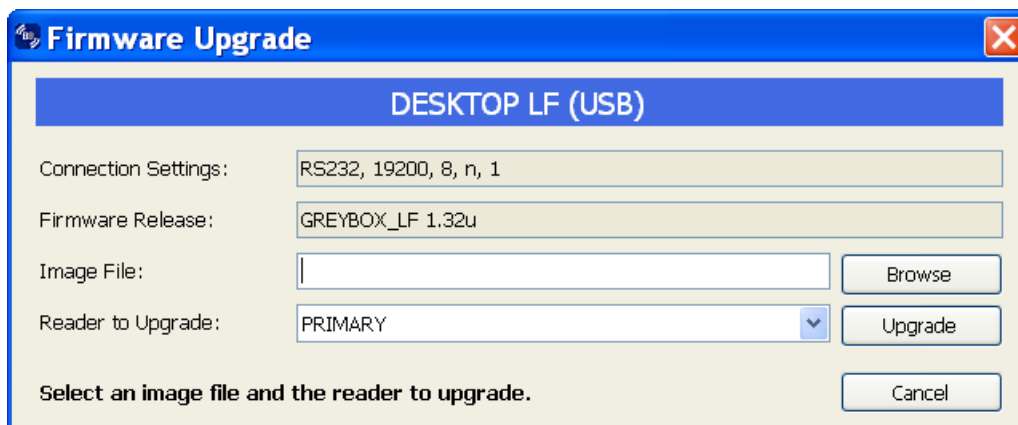


Figure 4.11 Firmware Upgrade screenshot. In this case the reader is a BLUEBOX DESKTOP LF.

A message (Figure 4.17) warns the user about the upgrade length and to do not power off the reader before the upgrade procedure is completed.

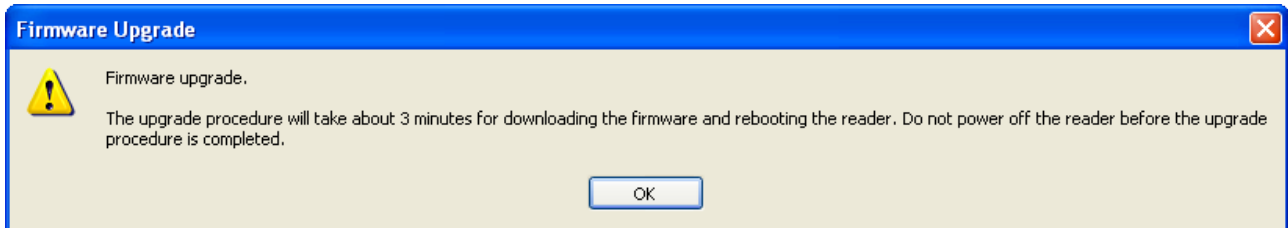


Figure 4.12 Message shown before the upgrade starting that warns the user about the upgrade length and to do not power off the reader before the upgrade procedure is completed.

At the end of the firmware download a message (Figure 4.18) informs the user about the download status. If the download procedure was completed successfully a message (Figure 4.18) warns the user to do not power off the reader before the upgrade procedure is completed. In effect the firmware upgrade in the readers starts after the firmware download.

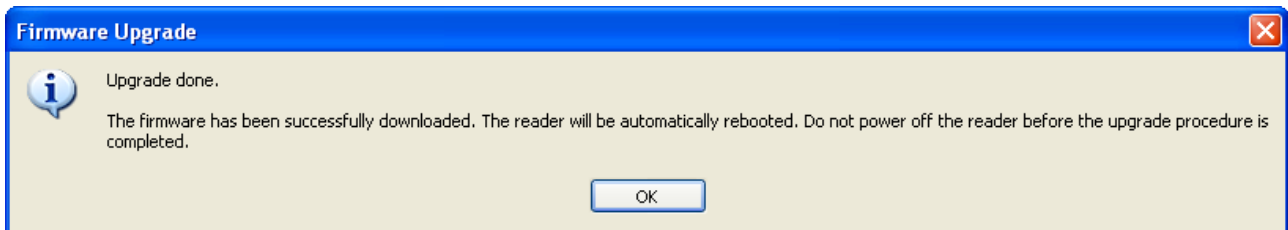


Figure 4.13 Message shown after the firmware download to inform about the download success. It also warns the user to do not power off the reader before the upgrade procedure is completed.

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

This application software also allows to upgrade the firmware of auxiliary readers connected to the primary reader (for example if the reader attached is the BLUEBOX INDUSTRIAL HF MID RANGE SINGLE CHANNEL it consists of a primary reader and an auxiliary readers, both upgradable).

5 BLUEBOX Test

5.1 Connection configuration

Once you have connected the BLUEBOX reader to the PC, turn it on and wait the end of the initialization. Launch the BLUEBOX Test software and configure the connection (Figure 5.1), you have to insert the reader address, the com port name, the baud rate, the data bits, the stop bits and the parity.

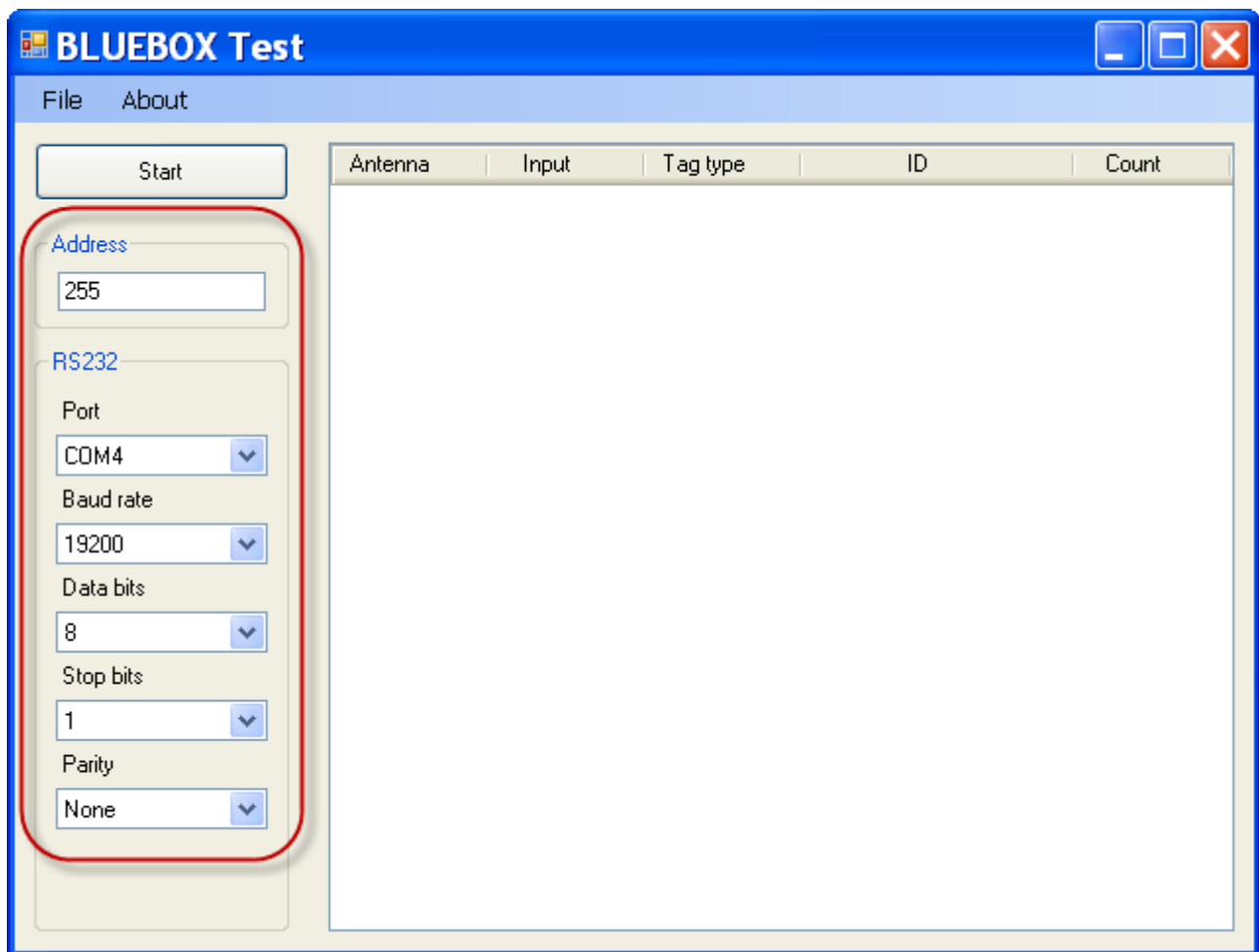


Figure 5.1 BLUEBOX Test screenshot. Connection configuration.

5.2 Tags acquisition

Click on "Start" to start the polling. First the software reads the firmware release number of the reader attached. In case of error the procedure will be aborted.

The ID's 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 (Figure 5.2). The counter will be incremented every time the software detect the same tag on the same reader and antenna number. Click on "Stop" to stop the polling.

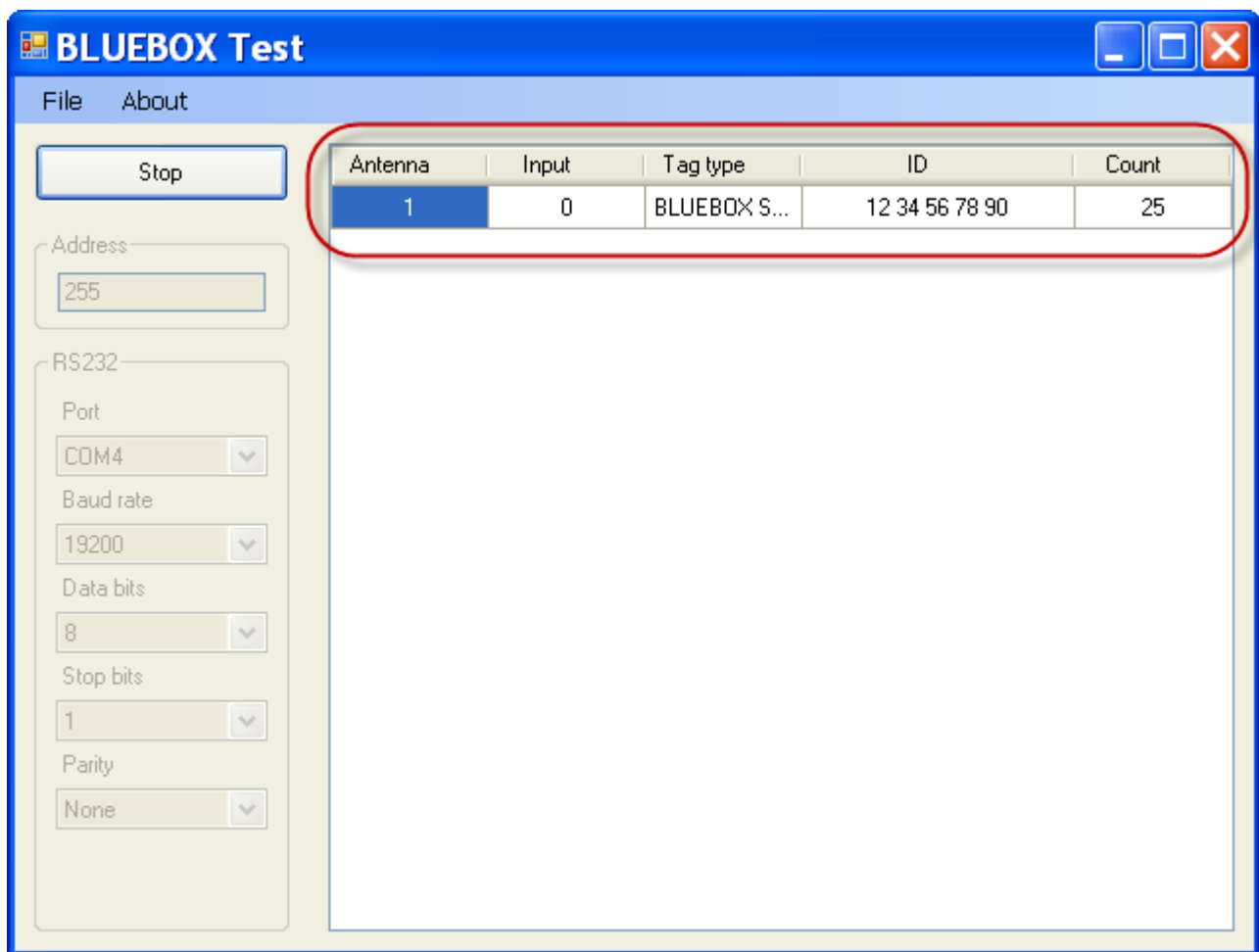


Figure 5.2 BLUEBOX Test screenshot. Tags acquisition.

6 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

		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.