TECHNOLOGY SOLUTIONS UK LTD
part of HID

ASCII PROTOCOL INVENTORY SAMPLE APPLICATION (.NET DESKTOP) USER GUIDE

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Design • Development • Manufacture

CONTENT

Overview

This document provides installation and operating instructions for the ASCII Protocol Inventory Sample Application

History

Version	Date	Modifications
1.0	06/09/2013	Document Creation

INTRODUCTION

The ASCII Protocol Inventory Sample application was developed to provide developers with examples of using the .NET API to command devices that support the TSL ASCII 2.0 protocol. The application illustrates the following aspects of the API:

- Configuration of an instance of `AsciiCommander` to communicate with a reader
  - Use of commands as responders for handling reader responses asynchronously
  - Using the built in synchronous responder to provide handling of synchronous commands
  - Implementing a simple `IAsciiCommandResponder` to capture all responses from the reader
  - Configuration of the 'responder chain' to handle synchronous and asynchronous responses successfully
  - Connecting to a device via a `SerialPort` (which may be a virtual com port)
- Use of the `InventoryCommand` to perform inventories of UHF RFID Transponders
  - Configuring the inventory's query session and query target
  - Handling the events used to notify of each transponder as it is received
- Use of the `BarcodeCommand` to scan for barcodes (for compatible devices)
  - Handling the events used to notify of each barcode as it is received,

The ASCII 2 device-specific code is contained in the `MainViewModel` and `ReaderService` classes.

USING THE APPLICATION

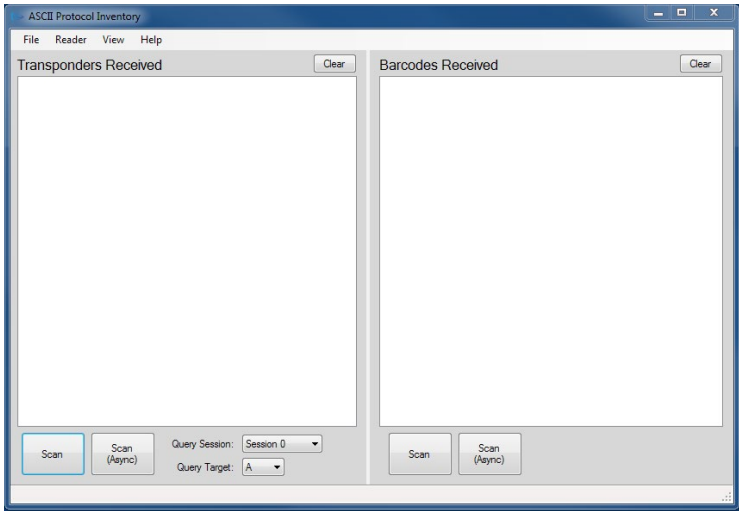

FIGURE 1: The main screen

The main screen (in its default state) is split into two main areas. The left side of the screen is used to scan for and display UHF RFID transponders. The right hand side is used to scan and display barcodes.

You can exit the application by closing the window or with File>Exit.

CONNECTING TO THE READER

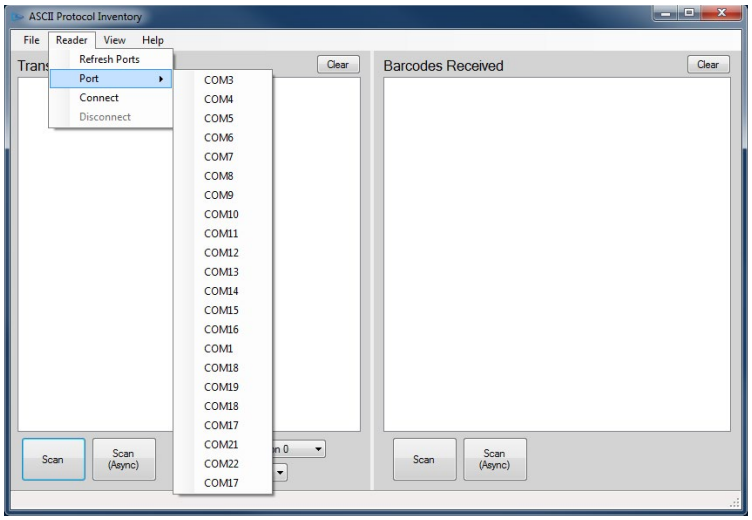

FIGURE 2: Connecting a reader

Readers are connected to the application using a standard serial port. This permits both the USB Desktop (e.g. 1126) and *Bluetooth*® (e.g. 1128) UHF Readers to be used. A list of available com ports are provided in Reader>Port menu. You will need to determine the com port that the reader is connected to. If the port required is not in the port list use Reader>Refresh Ports to refresh the list of available ports.

For *Bluetooth*® readers Windows will associate an incoming and outgoing com port when you pair a Technology Solutions UHF Reader. To establish a *Bluetooth*® connection to the reader you need to select and connect to the outgoing com port. For more information refer to the information in the reader user guide.

For USB readers Windows will associate a USB serial com port to the Technology Solutions UHF Reader as the reader is connected. Refer to the reader user guide for more information.

Once the com port has been selected use the Reader>Connect menu to connect to the com port and the reader. The connection status is shown in the status bar. Reader>Disconnect will disconnect from the reader.

SCANNING FOR RFID TRANSPONDERS

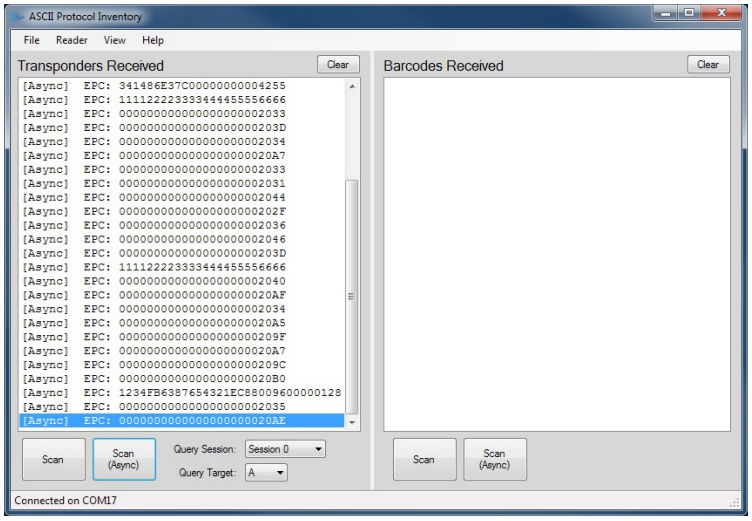

FIGURE 3: Scanning for transponders

The UHF RFID transponder controls, on the left hand side of the interface, use the `InventoryCommand` to issue both synchronous and asynchronous inventory operations. Clicking the 'Scan' button will initiate the synchronous inventory operation displaying the EPC of any transponders detected in the 'Transponders Received' list. Each entry in this list is prefixed with the synchronisation type. The application also handles inventory responses generated via the device trigger (if present) as asynchronous responses.

The inventory can be set to target a particular session state using the 'Query Session' and 'Query Target' controls. There are many other parameters that can be configured for the inventory operation and these are described in the *TSL ASCII Protocol 2.1* guide (see Further Information, page 7).

Clicking the 'Scan (Async)' button will initiate the asynchronous inventory operation. This can be used to issue multiple inventory commands rapidly, the reader will queue the commands and execute them in sequence.

The triggered inventory response is that of a simple '`.iv`', since the ASCII protocol commands support a number of optional parameters, where a parameter is not specified the reader uses its stored value. This will be the default if the value has never been specified or the last value specified if it has. Parameters revert to their defaults on power up and after the factory defaults command. Consequently, the triggered inventory will have the same parameters as the last operation via the on-screen button.

SCANNING FOR BARCODES

The barcode controls, on the right hand side of the interface, use the `BarcodeCommand` to issue both synchronous and asynchronous barcode scan operations. Clicking the 'Scan' button will initiate the synchronous barcode operation displaying the data within the 'Barcodes Received' list. As for the inventory operations, each entry in this list is prefixed with the synchronisation type.

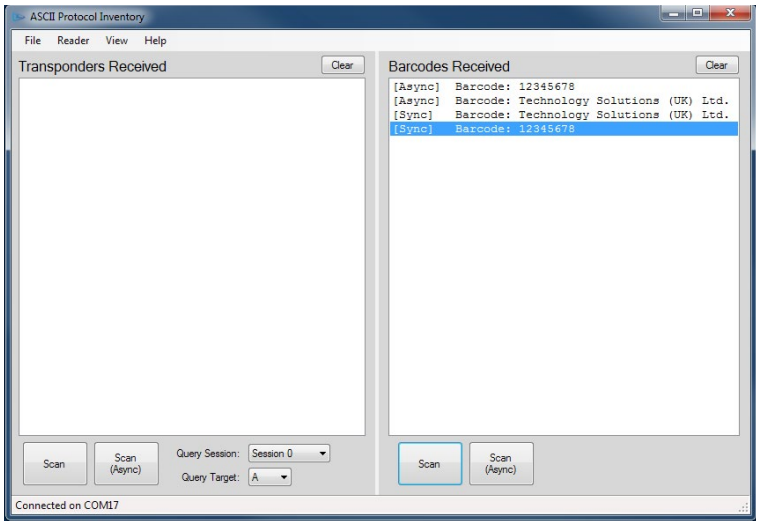

FIGURE 4: Results of several barcode scan operations

Clicking the 'Scan (Async)' button will initiate the asynchronous barcode operation.

The application will also handle barcode responses generated via the device trigger (if present) as asynchronous responses.

VIEWING THE ASCII PROTOCOL RESPONSES

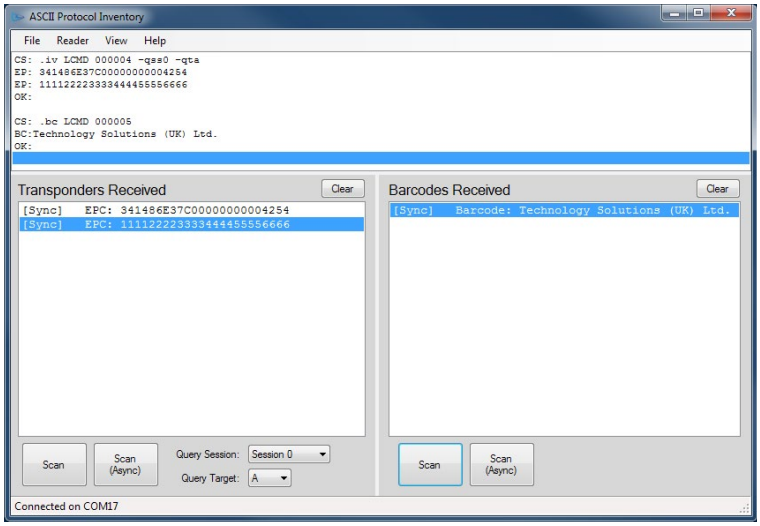

FIGURE 5: The Protocol Response Display (top)

All reader commands in the .NET API provide a convenient method of issuing ASCII commands to the device. To see the raw ASCII command responses for the operations in the sample application use the Protocol Response Display. This can be toggled using the View>Show Protocol Responses menu option.

The Technology Solutions ASCII API has the options to identify a command as a library command and also to index each command sent. This is not required by the reader which has loose parsing requirements but as the reader can echo the command in the response the library uses this feature to determine responses to library commands and specifically indexed commands from responses generated from trigger presses and other means. This can be seen using the Protocol Response Display and comparing the lines prefixed by CS: for commands issued using the on-screen buttons and those arising from trigger operations.

FURTHER INFORMATION

More information can be found on the Technology Solutions website. The product downloads section of each product requires a free, one time, registration. See “Product Downloads” of the following products to download the document describing the ASCII Protocol and also user manuals for the products.

http://www.tsl.com/products/1128-bluetooth-handheld-uhf-rfid-reader/

http://www.tsl.com/products/1126-desktop-uhf-rfid-reader-with-usb/

If you have any questions please contact support@tsl.com

ABOUT

ABOUT TSL®

Technology Solutions UK Ltd (TSL®), part of HID Global, is a leading manufacturer of high performance mobile RFID readers used to identify and track products, assets, data or personnel.
For over two decades, TSL® has delivered innovative data capture solutions to Fortune 500 companies around the world using a global network of distributors and system integrators. Specialist in-house teams design all aspects of the finished products and software ecosystems, including electronics, firmware, application development tools, RF design and injection mould tooling.
TSL® is an ISO 9001:2015 certified company.

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