



TECHNOLOGY
SOLUTIONS UK LTD
part of **HID**

ASCII PROTOCOL EXPLORER DESKTOP USER GUIDE

CONTENT

Introduction.....	3
Using The Application.....	3
Connecting to the Reader.....	4
Building A Command.....	5
Shortcut a command.....	6
Parsing a command.....	7
Executing A Command.....	8
Responses.....	9
Further information.....	10
About TSL.....	11
About.....	11
Contact.....	11

Overview

This document provides installation and operating instructions for the ASCII Protocol Explorer Desktop Application

History

<u>Version</u>	<u>Date</u>	<u>Modifications</u>
1.0	02/08/2013	Document Creation

INTRODUCTION

The ASCII Protocol Explorer application was developed for developers to explore Technology Solutions ASCII 2.0 Protocol that is being adopted by its UHF Reader range. It allows the available commands to be built up and visualized as a command line as well as parsing a command and viewing and interpreting the reader responses.

USING THE APPLICATION

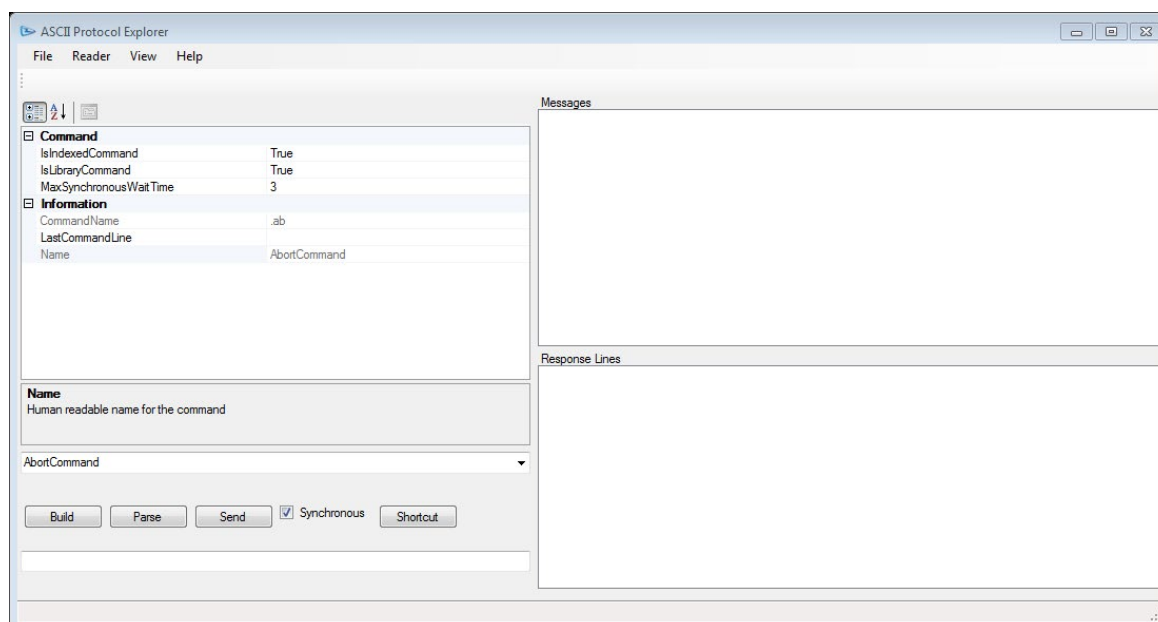


FIGURE 1: Main Screen

The main screen is split into two main areas. The left side of the screen is used to select and construct commands. The right hand side displays messages and responses.

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

CONNECTING TO THE READER

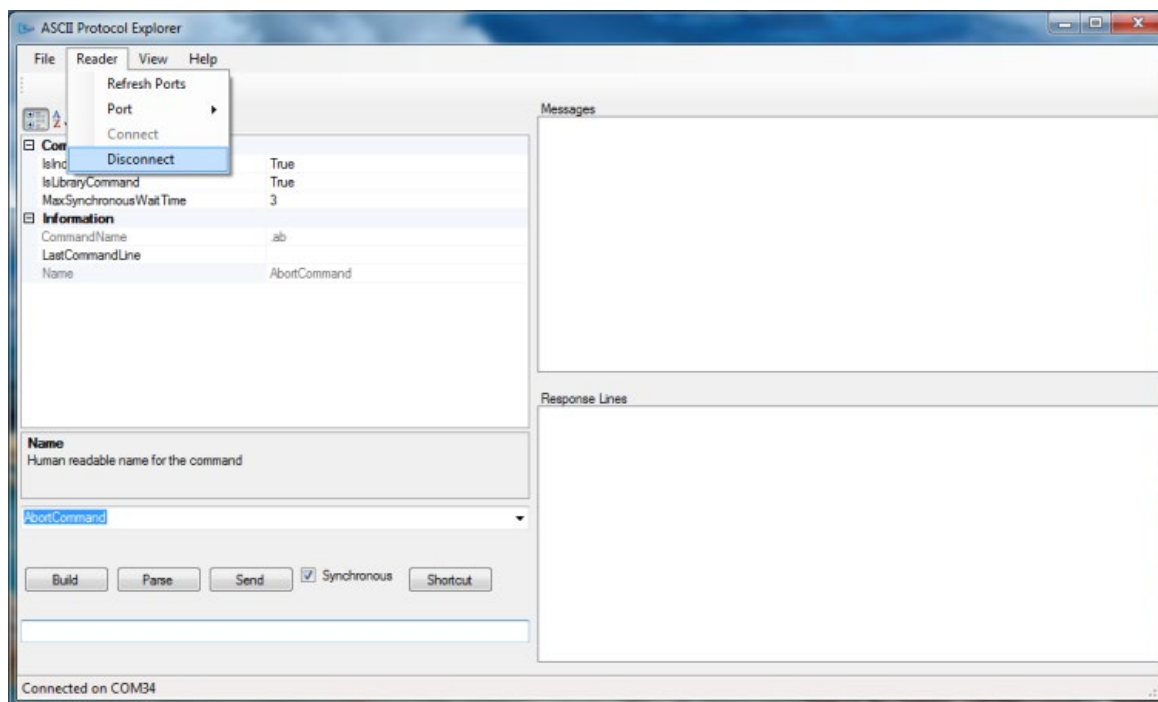


FIGURE 2: Connecting a reader

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.

BUILDING A COMMAND

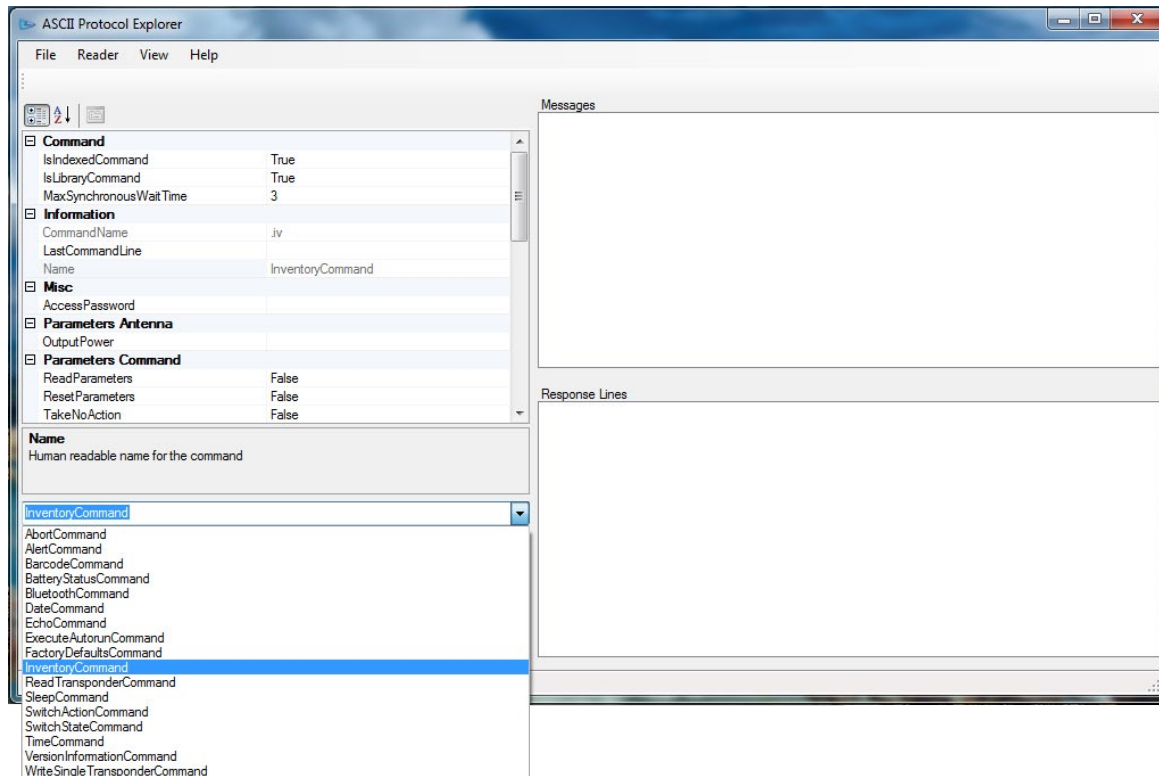


FIGURE 3: Building a command

The ASCII protocol supports a set of high level commands that are supported by the reader. The commands supported are determined by the ASCII protocol version reported by the version response of the reader. The 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. Defaults can be changed on some readers using an auto run file on an inserted memory card.

Select the desired command using the drop down menu. The command and the supported parameters are displayed. Selecting a parameter in the property grid provides a short explanation of the property and if desired a value can be entered for the property. Clicking the “Build” button will display the command line as it would be sent to the reader.

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.

SHORTCUT A COMMAND

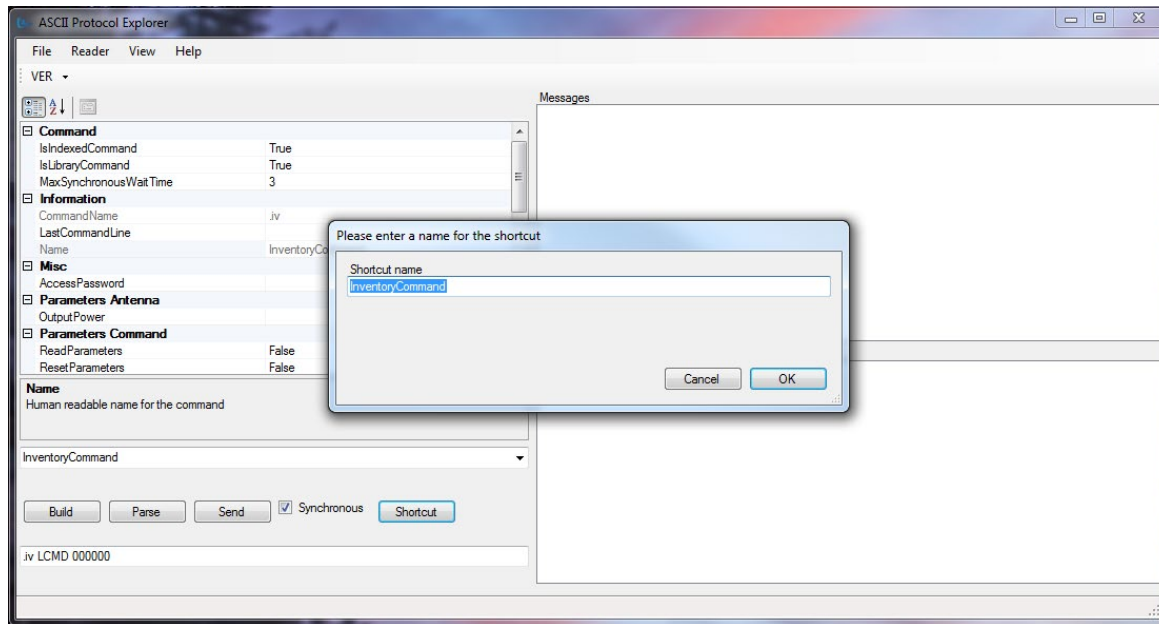
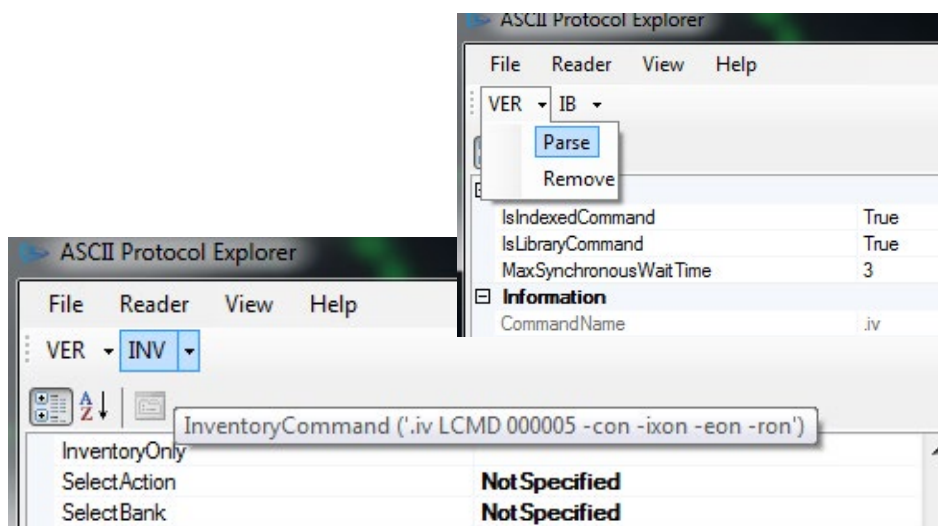


FIGURE 4: Creating a shortcut

If you commonly use a set of commands you can build shortcuts on the command bar. Type or build a command required in the text box and click “Shortcut” you will then be prompted to name the shortcut. Enter a value or use the default. The first three characters are used (hovering over a shortcut shows the full name and the command). Shortcuts are saved as the application exits. Use the dropdown next to each shortcut to remove it or parse the contents back into the command line. Clicking a shortcut sends it to the reader.



PARSING A COMMAND

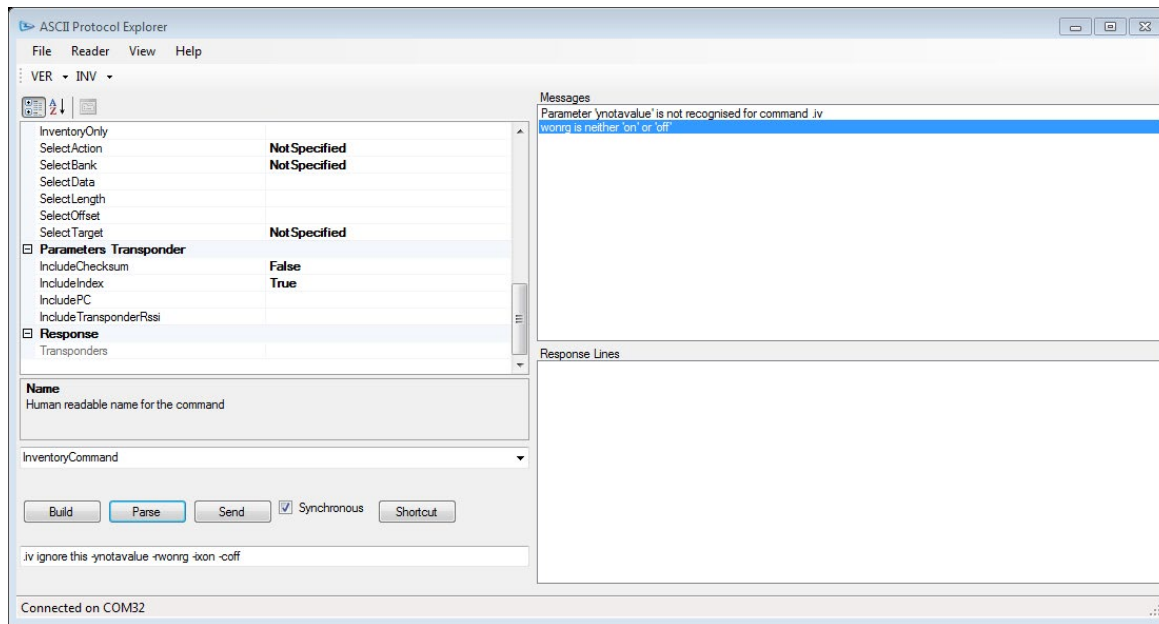


FIGURE 6: Parsing a command

As mentioned above and in the ASCII Protocol document the reader has a straightforward parser that will ignore most things that it cannot interpret. You can type a command manually into the command line and click “Parse”. The application will then attempt to select the appropriate command and update the parameters to match those specified on the command line. The application will warn of unrecognised parameters or invalid values in the messages section.

In the example above “ignore this” is ignored in the same way as the library command and index mentioned previously but the following errors are identified. The “-y” parameter is not recognised as a parameter for the “.iv” command and “wrong” is not a valid option for the “-r” parameter. The checksum and index parameters have been parsed and updated.

EXECUTING A COMMAND

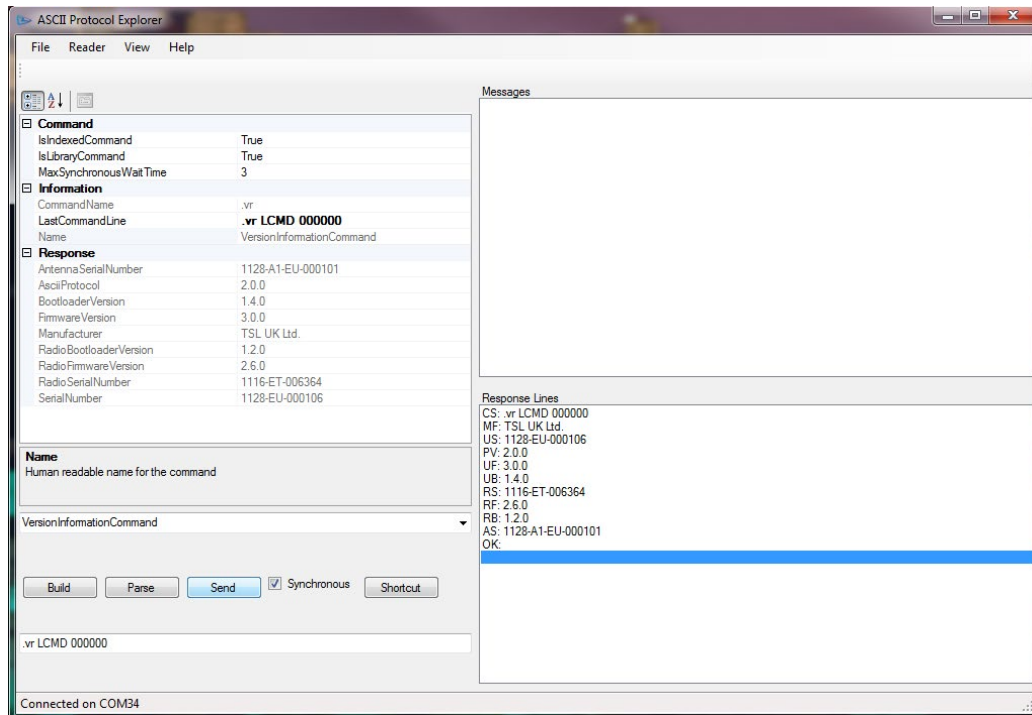


FIGURE 7: Executing a command

The “Send” button sends the command to the reader. As previously mentioned you can also click any defined shortcut to send that as a command to the reader. The response from the reader is displayed in the Response Lines window. The application is internally wired to receive barcode and transponders from the command. These are displayed in the Messages window.

The Technology Solutions ASCII API has the concept of synchronous and asynchronous commands. Each of the commands is capable of receiving its own response but does not have to. The commander interface has the concept of a responder chain where a number of responders, which are listening out for particular messages, are notified of anything received from the reader.

When a command is executed synchronously the execute call of the command blocks until the command is complete or it times out. The commander uses its synchronous responder in the responder chain to relay the responses received back to the executing command. You can see in the example above the response received has been relayed to the version command where the response has been interpreted into values.

When a command is executed asynchronously the execute call of the command returns as soon as the command is sent. The synchronous responder, if present, is not used and other responders in the chain handle the responses.

There is a checkbox to specify whether a command should be sent synchronously or asynchronously.

RESPONSES

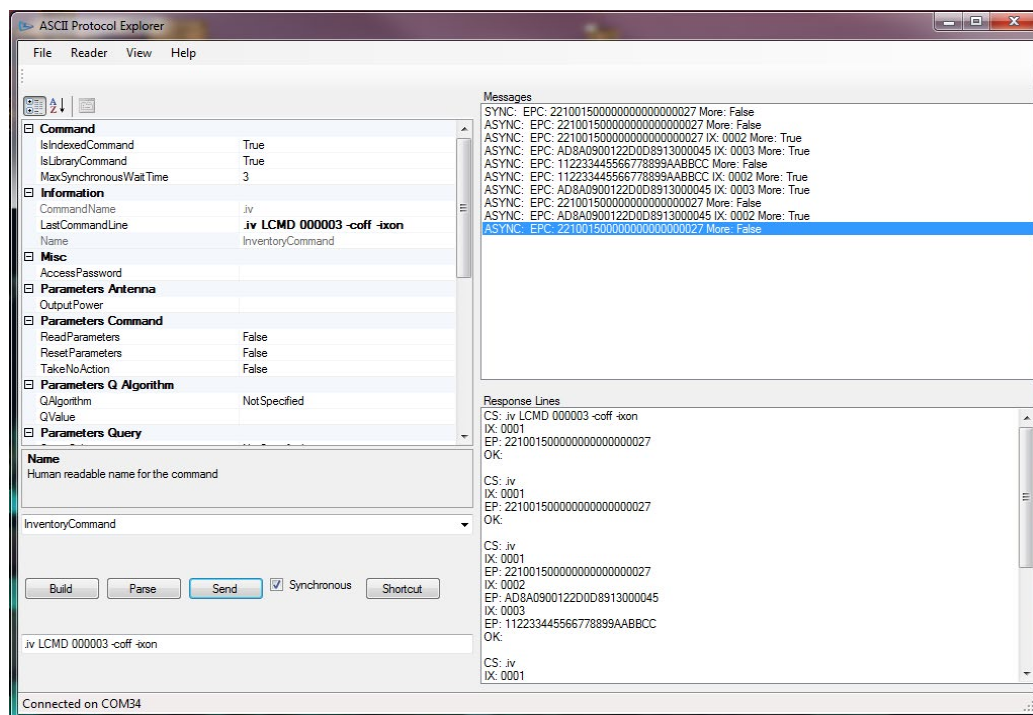


FIGURE 8: Synchronous and asynchronous responses

As described in the section above commands can execute synchronously or asynchronously. This has two effects, whether the call to execute blocks or not and whether the command receives its own response.

In addition to sending commands to the reader the primary (single click) and secondary (double click) trigger presses are configurable to an action or to a user defined command line. Therefore when the trigger is used the command executes and the responses are sent to the host. The applications responder chain is configured to handle inventory and barcode responses synchronously or asynchronously and the source of the event is indicated in the Messages list. The received responses can also be seen in the Response Lines window, you will note that as the commands were not sent from the library, the command started "CS:" header indicates the command that initiated the command does not have the library identifier or index.

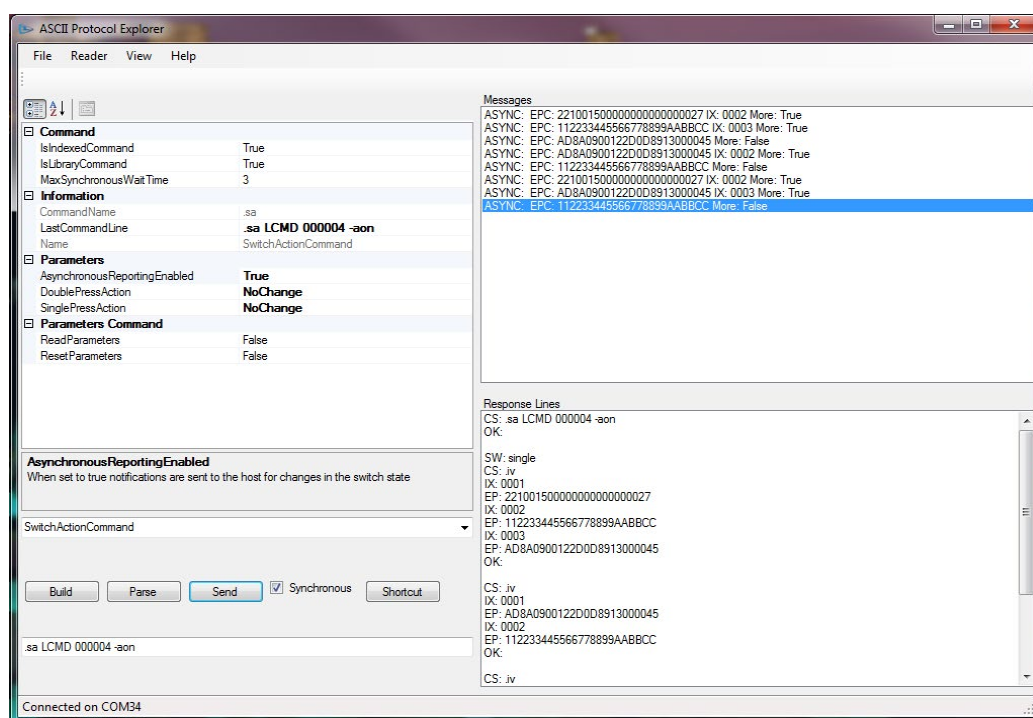


FIGURE 9: Trigger responses

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.



ISO 9001: 2015

CONTACT

Address:	Technology Solutions (UK) Ltd, Suite A, Loughborough Technology Centre, Epinal Way, Loughborough, Leicestershire, LE11 3GE, United Kingdom.
Telephone:	+44 1509 238248
Fax:	+44 1509 214144
Email:	enquiries@tsl.com
Website:	www.tsl.com

ABOUT HID GLOBAL



HID Global powers the trusted identities of the world's people, places and things. We make it possible for people to transact safely, work productively and travel freely. Our trusted identity solutions give **people** convenient access to physical and digital **places** and connect **things** that can be identified, verified and tracked digitally. Millions of people around the world use HID products and services to navigate their everyday lives, and billions of things are connected through HID technology. We work with governments, educational institutions, hospitals, financial institutions, industrial businesses and some of the most innovative companies on the planet. Headquartered in Austin, Texas, HID Global has over 4,000 employees worldwide and operates international offices that support more than 100 countries. HID Global is an ASSA ABLOY Group brand. For more information, visit www.hidglobal.com.