Active RFID Systems, Inc

RFID System Evaluation Kit

Instruction Manual

Active RFID Systems, Inc Proprietary Information

Version 103105

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1. RFID Evaluation Kit Description

Please note that the RFID Evaluation Kit is a fully functional system, however, it is intended to demonstrate first principles only. Our industrial versions offer enhanced performance by virtue of greater RF range, improved anti-collision response and waterproof enclosures. The kit is ***designed for evaluation of the effectiveness and functionality*** *of active RFID and the RFID system components, as well as to* ***enable development of a final product specification*** *that will lead to a production system that will satisfy specific requirements.*

RF Systems are*, by their nature,* ***subject to outside interference sources****. For example, laptop computers, welders, ham radios, and wireless weather stations can all interfere with RFID systems.* ***Range and reliability can be affected by these sources****. Therefore, as a standard precaution and to optimize performance, it is* ***recommended that the Reader be placed as far from a laptop or other potential sources of interference as possible****.*

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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1.1. Evaluation Kit Components

The Active RFID Systems RFID Evaluation Kit includes the following components:

- One ***Easy-Trak*** Reader, antenna, and power adapter
- One ***Easy-Trak*** Trigger
- ARS Active Tags
- USB to Serial Adapter
- Serial Cable
- Network Crossover Cable
- Application CD containing the EZ Reader Software, optional memory Tag memory map, Microsoft .NET web services framework, USB to Serial drivers, and this manual.

Figure 1 - Evaluation Kit Components

1.2. Evaluation Kit Functional Description

The Active RFID Systems Evaluation Kit is a fully functional RFID system that includes a Reader, Tag Trigger, Active RFID Tags, and PC Software that can be used to read, write, and display Tag data. The Kit components are described below.

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1.3. EZ Reader Software

The **EZ Reader Software** provides a user interface and display and is used to trigger, read, write, and configure Tags by controlling the Trigger and Reader.

1.4. Active Tags

Active Tags incorporate the unique (patent pending) ability to communicate via dual mode Radio Frequency (RF) and Infrared (IR). Tags are triggered (i.e. forced to respond) via IR using an ***Easy-Trak*** Trigger or Reader. Tags can be configured to respond to a trigger with IR, RF, or both. Tags can also be set to 'beacon', i.e. transmit RF at fixed intervals without a trigger. Active RFID Systems Tags incorporate anti-collision technology that optimizes the successful reception when more than one Tag is triggered. See Section 1.7.

1.5. *Easy-Trak* Trigger

Easy-Trak **Trigger** has two modes of operation, as a manual IR trigger, and for two-way IR communication when connected to a PC via the supplied, custom, serial cable.

1.6. *Easy-Trak* Reader

Easy-Trak Readers are Ethernet-enabled and can be directly connected to a PC with the supplied crossover cable. Readers receive data from Tags via RF and can trigger Tags via IR. (note: industrial readers can both “read” and “write” data to and from tags via the infra-red mode) The Reader includes an audible enunciator that will chirp on the first RF reception of any particular ID value.

1.7. Anti-Collision Tags Explained

The term Anti-collision refers to the communications protocol/scheme that is utilized in order to optimize the successful reception of multiple Tags. Because Tags can interfere with each other if they respond to a Trigger at the same time, an anti-collision algorithm is used to randomize Tag responses within 'windows' of time. This increases the likelihood of all Tag responses getting through intact. The exact number, size, and timing of windows are chosen based on the number of Tags that are expected to respond to a Trigger. The Anti-collision algorithm data are sent within the IR Trigger signal to the Tags and the Tags use that to calculate when to respond. Of course the larger the expected number of Tags, the longer the time required to guarantee 100% reception.

2. System Requirements

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The Active RFID Systems Evaluation Kit requires the following:

- A **PC running Windows 2000 or XP**.
- An **Ethernet port on the PC**.
- A **Serial or USB port on the PC**.
- Access to a standard **120 volt outlet** for the Reader power adapter.

3. Installation and Configuration Instructions

The following sections describe installation and configuration of the hardware and software components of the Evaluation Kit. The steps should be executed in the order shown.

3.1. Hardware Installation

3.1.1. Connecting the *Easy-Trak* Reader to the PC

1. If the supplied **Antenna is not attached** to the ***Easy-Trak*** Reader, **gently screw the right angle connector into the Reader and then screw the antenna onto the connector**. **Orient the antenna so it is 'vertical'**, e.g. perpendicular to the Reader if the Reader is sitting on a table. See Figure 1.
2. **Plug the Power Adapter into a standard outlet and plug the power cable into the Easy-Trak Reader**. The Red "Power" LED should light.
3. **Plug the Crossover cable into the PC and into the Reader**. The **Green "Ethernet" LED should light**.
4. The Reader is ready for use.

3.1.2. Connecting the *Easy-Trak* Trigger to the PC

Note that the ***Easy-Trak*** Trigger can also be used as a handheld device. Section 4.1.2 reviews the Software functionality and the various Trigger modes available.

1. **Plug the Custom Serial Cable into to the 9-pin Serial connector on the PC**. If the **PC does not have a Serial Port**, the **optional USB/Serial Cable Adapter must be used**. See Appendix 1 for USB/Serial Cable Adapter and Driver installation instructions.
2. If the USB/Serial Cable is being used, **plug the 9-pin Serial Cable connector into the USB/Serial Cable and plug the USB connector into the PC.**

   Always plug the USB cable into the same USB port on the PC. As noted in the installation instructions, the Serial Port (Com Port) will change if a different USB port is used. Refer to Sections 3.2.3 and 3.2.5 to determine which Serial Port is being used and how to configure the EZ Reader Software for a different Serial Port.

3. **Plug the Serial Cable into the *Easy-Trak* Trigger**. All three Red LEDs on the trigger assembly should light.

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4. Follow the instructions in Section 3.2.5.1 to configure the EZ Reader Software for use with the ***Easy-Trak*** Trigger connected to the Serial Port.

3.2. Software Installation and Configuration

The CD provided with the Evaluation Kit contains the following files:

- EZ Reader Application (EZ Reader Vxx.exe)
- Tag Memory Map (memmapsm.xml)
- Microsoft .NET web services framework (DOTNETFX.EXE)
- USB to Serial Adapter drivers
- Evaluation Kit Manual (Evaluation Kit Instruction Manual 0805.1.pdf)

3.2.1. Installing the .NET Framework on the PC

The PC must have the .NET Framework installed. Execute the following steps to install .NET on the PC. Note that the most recent version of the .NET Framework can also be downloaded from the Microsoft website.

1. Put the **CD in the PC** and access the files.
2. **Run DOTNETFX.E**XE by double clicking on the filename. The installer should start.
3. A dialog box will ask if you want to install the .NET Framework. **Click the 'YES' button** to proceed.
4. The dialog boxes will disappear when the installation is complete.

3.2.2. Configuring the Network Connection

Open the 'Network Connections' folder by either of the following methods:

1. Right Click on the **'My Network Places'** icon on the Desktop and selecting '**Properties**'
   Or
   Open 'Control Panel' by clicking on the 'Start' button and selecting 'Settings', then double click on 'Control Panel'. Double click on 'Network Connections'.
2. Right click on **'Local Area Connections'** and select '**Properties**'.
3. Under the 'General' tab double click 'Internet **Protocol (TCP/IP)**'.
4. Select '**Use the following IP address**'.
5. Enter the **IP Address as 10.0.0.164**.
6. Enter the **Subnet mask as 255.255.0.0**.
7. The Internet Properties dialog should look like **Error! Reference source not found.** when you are finished.
8. **Click OK** to accept the changes and **click OK again** to close the Local Area Connection Properties dialog.

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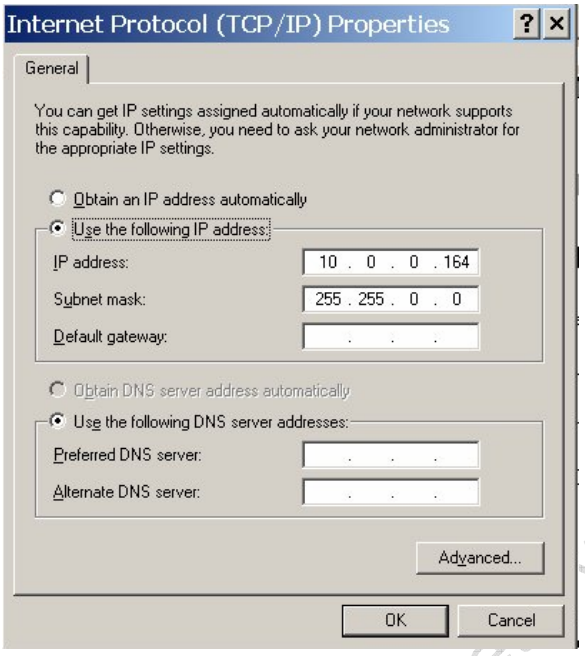

Figure 2 - TCP/IP Properties

3.2.3. Determining Which Serial Port is Being Used

The **EZ Reader Software** must be **configured to use the appropriate serial port** (i.e. to establish communications with the Easy-Trak Trigger). The following procedure should be used to determine which serial port is connected to the Trigger. The EX Reader Software will be configured in Section 3.2.

1. **Open Control Panel** (Click on the 'Start' button and select 'Settings' and 'Control Panel').
2. **Open 'System' and click on the 'Hardware' tab**. The 'System Properties' Dialog should appear and look like **Error! Reference source not found.**
3. **Click the 'Device Manager' button**. Then **click on the 'plus sign' next to 'Ports'**. The Device Manager screen should look like **Error! Reference source not found.**.
4. **Note which 'Communications Port' number is displayed** (e.g. COM1 is port 1). This number will be used to configure the EZ Reader software.
5. **If the USB/Serial Adapter is being used**, the number displayed on the **'ATEN USB to Serial Bridge' should be used instead**.
6. **Close the 'Device Manager' window**, click **'OK' in the 'System Properties' Dialog** and **close the 'Control Panel' window** if necessary.

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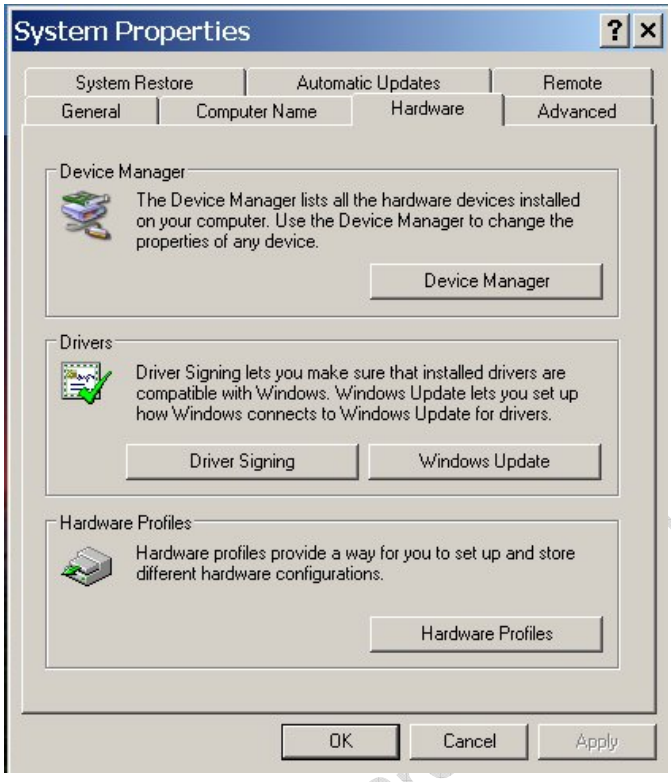

Figure 3 - System Properties

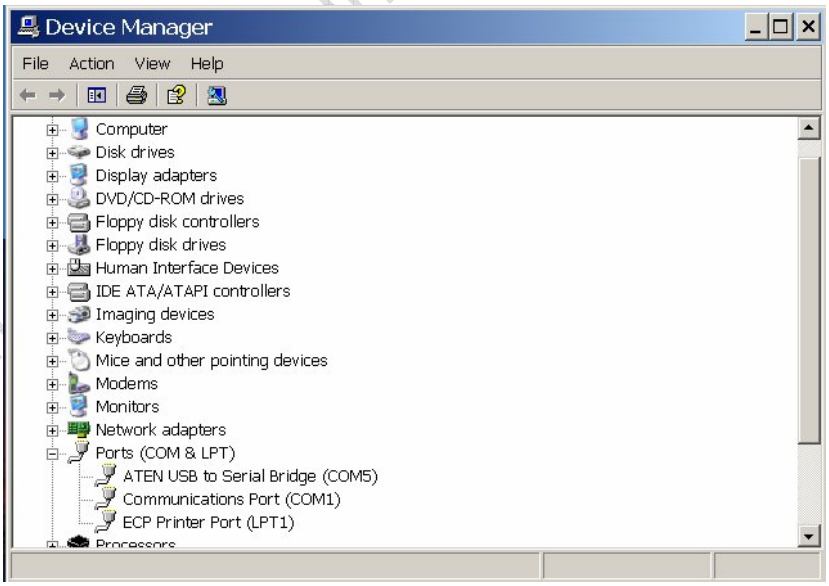

Figure 4 - Device Manager Window

3.2.4. Installing the EZ Reader Software on the PC

Access the CD files and **copy the EZ Reader application (EZ Reader Vxx.exe) to the Desktop**. The EZ Reader application includes a default Tag Memory Map. If an alternative Memory Map file (memmapsm.xml) is supplied, copy that file to the Desktop. Note that it is convenient to copy the files to the Desktop, but they can be put in any appropriate folder.

3.2.5. Configuring the EZ Reader Software Settings

3.2.5.1. Configuring the Serial Port for the Trigger

The **EZ Reader Software must be configured to communicate with the Easy Trak Trigger** via the appropriate Serial Port. Follow the steps outlined below to configure the software.

1. **Open the EZ Reader Software** (double click on the ARS EZ Reader icon).
2. **Click on the Configuration Tab**.
3. **Change the number of the Com Port** to the number of the Serial (Com) port determined in Section 3.2.3.
4. Pull down the **Trigger Address** menu and **select Serial**.
5. The rest of the Configuration Settings should be the same as those shown in **Error! Reference source not found.**.

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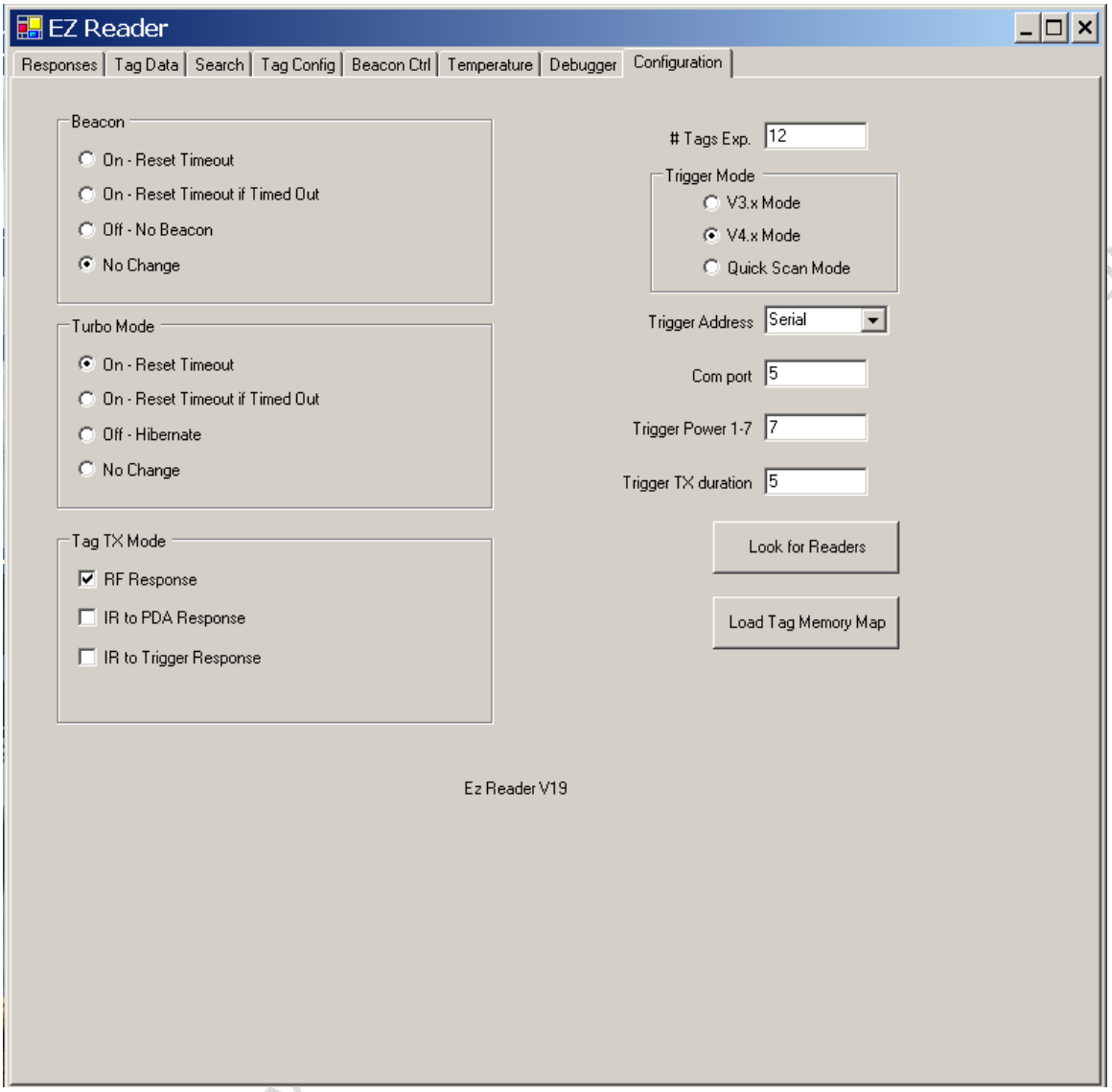

Figure 5 - Serial Port Settings

3.2.5.2. Configuring the IP Address for the Reader Used as a Trigger

The ***Easy-Trak*** Reader includes an IR emitter that can function as a Trigger. To use the Reader as a Trigger the EZ Reader Software must be configured to communicate with the Reader as a Trigger. Note that the Reader will function as a receiver for RF returned by the Tags even if it is not configured or used as a Trigger. Follow the steps outlined below to enable the Reader as a Trigger.

1. Be sure the **Network Connection is configured** as described in Section 3.2.2.
2. **Connect the Easy-Trak Reader to the PC** with the network cable and apply power to the Reader.
3. **Note the IP Address listed on the label on the Reader** (e.g. 10.0.0.30).

4. **Open the EZ Reader Software** (double click on the ARS EZ Reader icon).
5. **Click on the Configuration Tab**.
6. **Click the 'Look for Readers' button**.
7. Pull down the **Trigger Address** menu and select the IP Address that corresponds to the label on the Reader.
8. The rest of the Configuration Settings should be the same as those shown in **Error! Reference source not found.**.

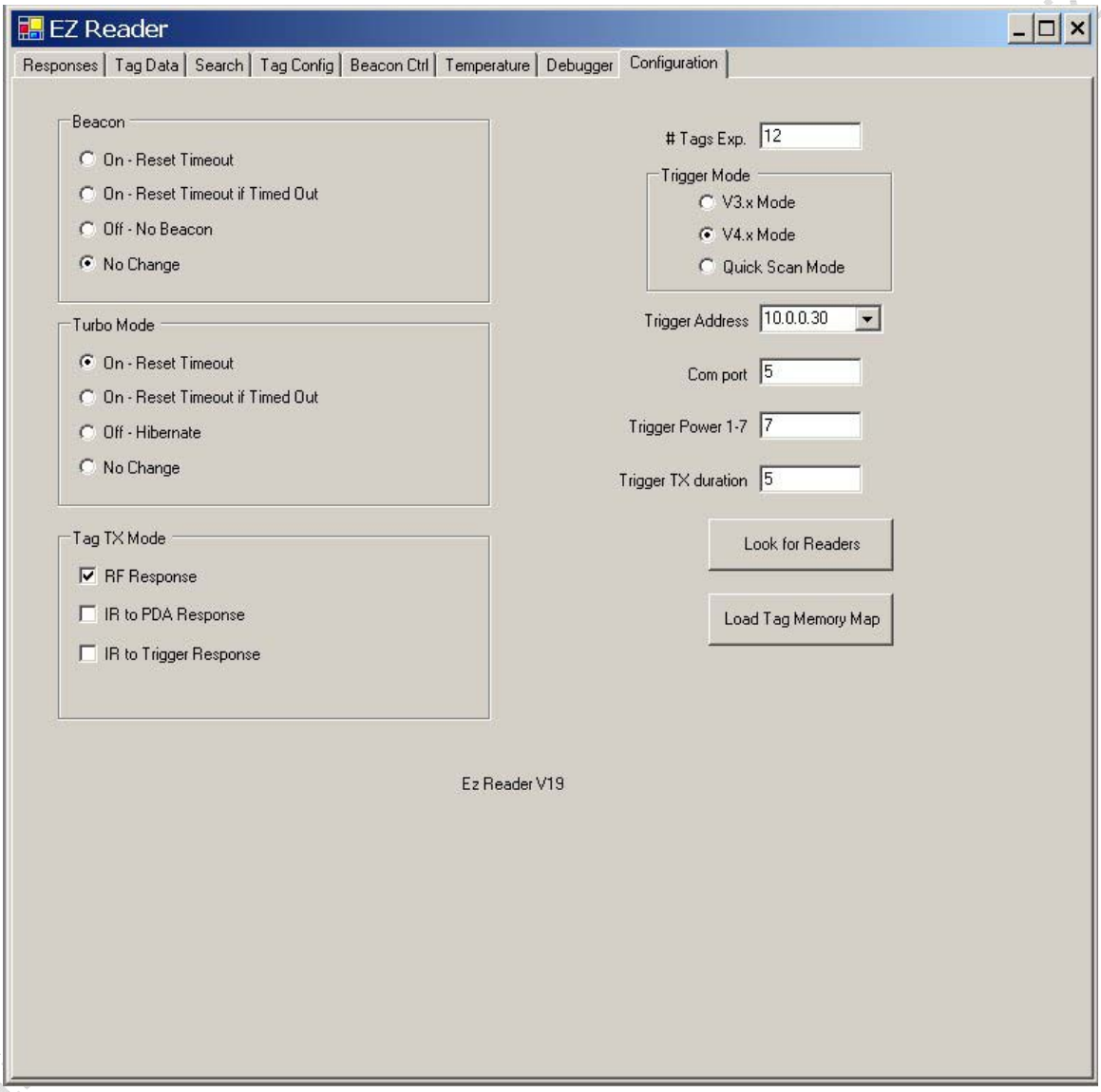

Figure 6 - IP Address

3.2.6. Loading the Optional Tag Memory Map

The EZ Reader Software incorporates a default Tag Memory Map. However, **some Evaluation Kits may include Tags that require a different Memory Map**. Follow the

procedure outlined below to load the optional Memory Map. This procedure only needs to be done one time.

Note that EZ Reader Software will use the default Memory Map if it can not find the optional Map file. If the Map does not correspond to the Tag type data may be displayed incorrectly.

1. **Copy the Tag Memory Map file (memmapxx.xml) to the PC**. It can be stored in any folder, but it is convenient to keep it in the same folder as the EZ Reader application file.
2. **Open the EZ Reader Software** and click the **'Configuration' tab**.
3. **Click the 'Load Tag Memory Map' button**.
4. **Browse to the appropriate folder** and **select the Memory Map file**. **Click Open**.
5. The Memory Map location will be stored in the System Registry and the EZ Reader Software will load the appropriate Map each time it is opened.

4. Using the Evaluation Kit

The Hardware and Software Installation and Configuration must be completed before attempting to use the Evaluation Kit.

The Easy Reader Software demonstrates the capabilities of the Active RFID Systems Evaluation Kit by controlling and communicating with the Tags. Tags will transmit data when triggered by an IR signal sent from a Reader or a Trigger. Triggers can be connected to a PC and controlled by the Easy Reader Software or they can be used as a handheld unit. Tag data can be read by a Trigger via IR or by a Reader via RF. The Easy Reader Software will display data received from Tags and provides data entry fields that can be used to write data to Tags.

Figure 7 shows a typical desktop setup that can be used to test and evaluate the functionality of the Evaluation Kit. Note all components are shown in close proximity for convenience. The distance between Tags, Triggers, and Readers is one parameter that can be changed as part of the evaluation procedure. Note that the Reader is on edge to facilitate using the built-in IR Trigger. The Reader IR Trigger is low power and has shorter range than the Easy-Trak Trigger.

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Figure 7 - Typical Desktop Setup

4.1. Evaluation Kit Configurations

The Evaluation Kit can be configured and used in a number of unique ways. The various combinations of Trigger, Communications, and Data Transfer Modes are summarized in **Error! Reference source not found.**. Note that the last column refers to the Tag TX Mode Setting on the Easy Reader Software Configuration Screen (see **Error! Reference source not found.** and **Error! Reference source not found.**). Note that the Trigger Address is also different if a Reader or a Trigger is being used to receive data. An example of one System Setup is described in Section 4.1.1.

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Table 1 - Evaluation Kit Configurations

Trigger Mode			Data Receive Mode		
Tag Activated by	**Connected to**	**Communications Mode**	**Data Received by**	**Communications Mode**	**Tag TX Mode Setting**
Trigger	PC Serial	IR	Reader	RF	RF

					Response
Trigger	PC Serial	IR	Trigger	IR	IR to Trigger
Trigger	Handheld	IR	Reader	RF	RF Response
Trigger	Handheld	IR	Reader	IR	
Reader	PC Network	IR	Reader	RF	RF Response
Reader	PC Network	IR	Reader	IR	
Beacon	N/A	N/A	Reader	RF	RF Response
Shaded Rows show functionality that will be available in the future versions of the EZ-Trak Reader.					

4.1.1. Example. Functionality of One System Configuration

Reading across a row in **Error! Reference source not found.** summarizes the functionality of a system configuration. For example, the first row shows a system where Tags are activated by the Easy-Trak Trigger, connected via the Serial Cable to the PC. Tags are Triggered with IR. Tag data are received by a Reader via RF. The last column shows the Tag TX setting on the software Configuration Tab.

4.1.2. Easy-Trak Trigger Handheld Modes

When used as a handheld device, the Easy-Trak Trigger can be configured to operate in a number of different modes. The various Modes are described below and summarized in Table 2.

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Table 2 - Trigger Handheld Modes					
Mode Number	LED Sequence			Function Description	Duration of transmit signal	Power level
1	0	0	1	Last command memory mode	5 seconds	High
2	0	1	0	Low power Single tag Mode	1 seconds	Low
3	0	1	1	High Power scan Mode	1 seconds	High
4	1	0	0	24 tag anti-collision Mode	5 seconds	High
5	1	0	1	Beacon ”On”	5 seconds	High
6	1	1	0	Beacon “off”	5 seconds	High

4.1.2.1. Mode 1 - Last Command Memory Mode.

The last command sent to the Trigger by the EZ Reader Software via the Serial Cable is stored in the Trigger. The Trigger can then be detached from the PC and used as a Handheld device. When set to Mode 1, the Trigger can be used to repeatedly send the stored command. Note that all settings on the EZ Reader Configuration screen are stored in the Trigger (i.e. # of Tags for Anti-Collision, Trigger Power, Trigger Duration).

4.1.2.2. Mode 2 - Low Power Singe Tag Mode

This Mode sets the IR power to a low setting in order to facilitate communication with single Tags in close proximity to other Tags (i.e. as opposed to broadcasting high power to cover a large area and multiple Tags).

Mode 3 - High Power Scan Mode

This Mode sets the IR power to the maximum setting in order to increase the chances of triggering multiple Tags at greater distances.

4.1.2.3. Mode 4 - 24 Tag Anti-Collision Mode

This Mode transmits a Trigger that includes an anti-collision algorithm. This is the preferred Mode when multiple Tags may respond to the same Trigger. The anti-collision algorithm is used by the Tags to stagger their response in order to optimize the chances of receiving all Tags.

4.1.2.4. Mode 5 - Beacon On

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This Mode commands the Tags to go into Beacon Mode and Transmit periodically. Beacon parameters are stored in each Tag and can be changed by writing new configuration data to a Tag with a Trigger or Reader and the EZ Reader software. Tags remain in Beacon Mode until they receive a Beacon Off Trigger.

4.1.2.5. Mode 6 - Beacon Off

Turns Beacon Mode off.

4.1.3. Changing the *Easy-Trak* Trigger Modes

To **change the Trigger Mode** follow the procedure outlined below.

1. **Push blue On button once** to power or wake the Trigger.
2. **Push black Mode button until the LED combination corresponding to the desired Mode is displayed**.
3. **Push the blue On button to transmit a Trigger** as defined by the Mode.

4.2. Examples. Running the Evaluation Kit

The following examples describe a few of the Evaluation Kit configurations and the procedure for running the System. For a review of all configurations see Table 1. Note that the examples are meant to illustrate the functionality of the System only. Not all configurations or functionality is described.

4.2.1. Reading Data From Tags

4.2.1.1. *Easy-Trak* Trigger Used as Serial Device - Tags Respond with RF to Reader

1. The Easy-**Trak Trigger should be attached to the PC** with the Serial Cable
2. **Open the EZ Reader Software**.
3. Select the **Configuration Tab** and **verify that Trigger Address is set to 'Serial'** and **verify that the Tag TX Mode is RF Response**.
4. Select the **Responses Tab** and **click the 'Look for Tags' Button**.
5. The Tags indicate when they are responding by blinking an LED and the Reader will chirp when it receives a Tag transmission.
6. Data from each Tag are displayed on the Response Screen.

4.2.1.2. *Easy-Trak* Trigger Used as a Handheld Device - Tags Respond with RF to Reader

1. The ***Easy-Trak*** **Trigger should be detached from the Serial Cable**.
2. **Open the EZ Reader Software**.
3. Select the **Configuration Tab** and **verify that the Tag TX Mode is RF Response**.

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4. **Select the Responses Tab**.
5. **Point the Easy-Trak Trigger toward the Tags**.
6. **Press the Mode button** on the Easy-Trak Trigger.
7. The Tags indicate when they are responding by blinking an LED and the Reader will chirp when it receives a Tag transmission.
8. Data from each Tag are displayed on the Response Screen.

4.2.1.3. *Easy-Trak* Trigger Used as a Serial Device - Tags Respond with IR to Trigger

1. **Attach the *Easy-Trak* Trigger to the PC with the Serial Cable**.
2. **Open the EZ Reader Software**.
3. Select the **Configuration Tab** and verify **that Trigger Address is set to 'Serial'** and **verify that the Tag TX Mode is IR to Trigger Response**.
4. Select the **Responses Tab** and **click the 'Look for Tags' Button**.
5. The Tags indicate when they are responding by **blinking an LED**.
6. Data from each Tag are displayed on the Response Screen.

4.2.2. Writing Data to Tags

4.2.2.1. *Easy-Trak* Trigger Used as Serial Device - Read/Write to Tags With IR

1. **Attach the *Easy-Trak* Trigger to the PC with the Serial Cable**.
2. **Open the EZ Reader Software**.
3. Select the **Configuration Tab** and verify **that Trigger Address is set to 'Serial'** and **verify that the Tag TX Mode is IR to Trigger Response**.
4. **Load the Memory Map** if it has not been done previously.
5. **Select the Tag Data Screen**.
6. **Type a Tag ID** in the Pull Down Data Entry Field
7. **Click the 'Read Tag' Button**.
8. The Tags indicate when they are responding by **blinking an LED**.
9. Data from the Tag will be read and displayed in the data fields on the Data Screen.
10. **Change data** in one or more fields.
11. **Click the 'Write Changes' Button**.
12. **Click the 'Clear Cache' Button**.
13. **Repeat Steps 6-7** and verify the new data is read from the Tag.

4.2.2.2. *Easy-Trak* Trigger Used as Serial Device - Read RF and Write IR

1. **Attach the Easy-Trak Trigger to the PC with the Serial Cable**.
2. **Open the EZ Reader Software**.
3. Select the **Configuration Tab** and **verify that Trigger Address is set to 'Serial'** and **verify that the Tag TX Mode is RF Response**.

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4. **Load the Memory Map** if it has not been done previously.
5. Select the **Tag Data Screen**.
6. **Type a Tag ID** in the Pull Down Data Entry Field
7. **Click the 'Read Tag' Button**.
8. **The Tags indicate when they are responding by blinking an LED** and the **Reader will chirp** when it receives a Tag transmission.
9. Data from the Tag will be read and displayed in the data fields.
10. **Change data** in one or more fields.
11. Click the **'Write Changes'** Button.
12. Click the '**Clear Cache'** Button.
13. Repeat Steps 6-7 and verify the new data is read from the Tag.

4.3. Review of Easy Reader Software Screens and Functionality

The following sections show examples of each screen from the EZ Reader software and descriptions of each feature, button, or field. Note that some features may not be available due to different configurations of Tags and Memory Maps included with different Evaluation Kits.

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4.3.1. Responses Screen

The Responses Screen displays data received by the Reader or Trigger. Buttons, Data Fields, and Settings are described below. Note that Tags can be triggered from other Screens or from a Handheld Trigger. Data will be displayed on this screen any time it is received by the Reader, regardless of the source of the Trigger.

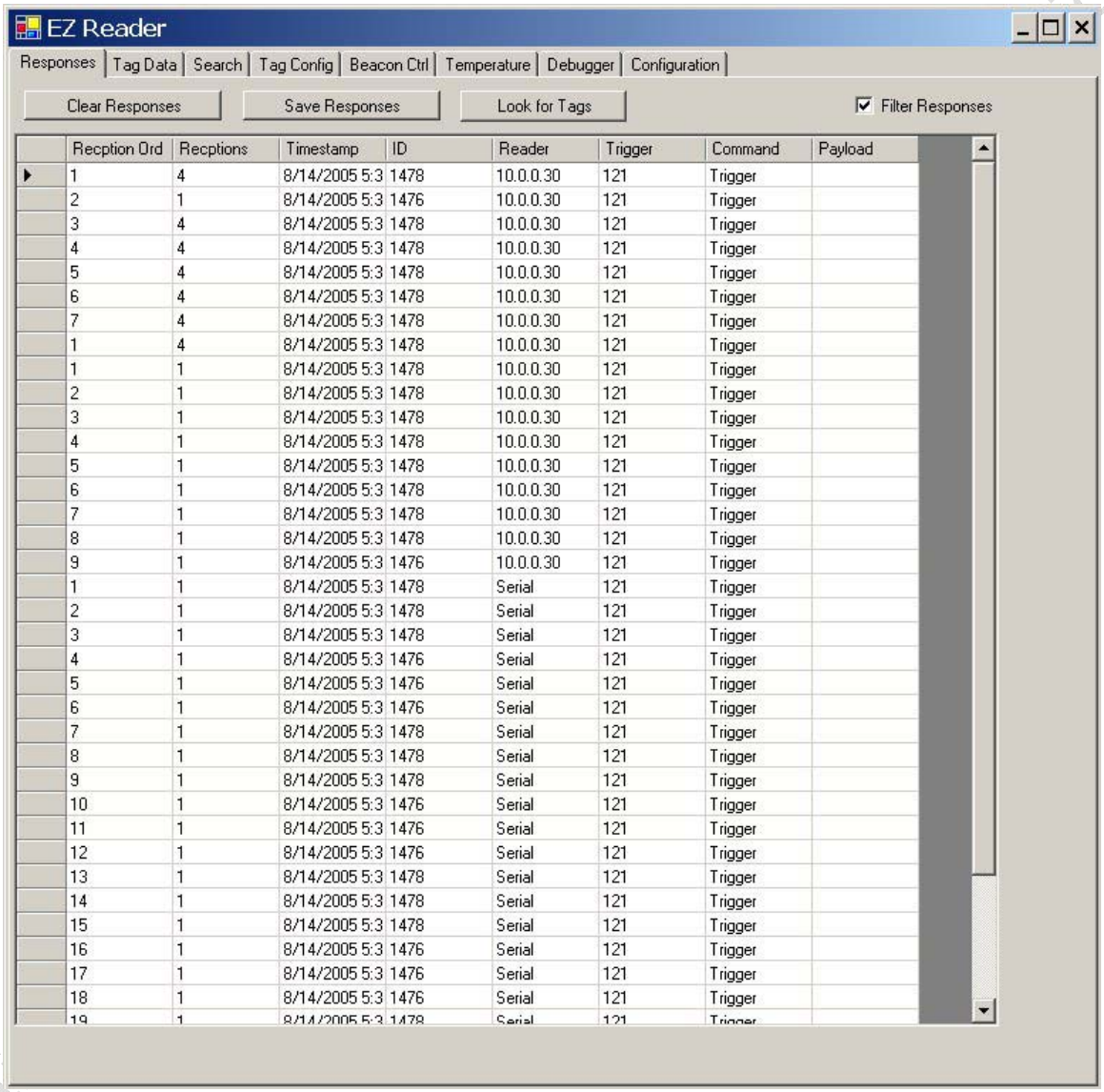

Figure 8 - Responses Screen

Table 3 - Responses Screen		
Clear Responses	Button	Clears Data Display
Save Responses	Button	Saves Data in a .csv

		formatted file.
Look for Tags	Button	Sends a Trigger and Waits for a Response. Trigger and Response methods are determined by the settings on the Configuration Screen.
Filter Responses	Setting/Check Box	Filters duplicate responses (i.e. more than one per Tag). When this box is unchecked every response is displayed.
Reception Order	Data Field	Numerical order of responses.
Receptions	Data Field	Shows number of receptions for each Tag. If Filter Response is checked total receptions is displayed.
Time Stamp	Data Field	Time and Date that data was received.
ID	Data Field	Tag ID
Reader	Data Field	Displays how data was received. Serial = Trigger. IP Address = Reader.
Trigger	Data Field	ID of Trigger
Command	Data Field	Command Sent to Tags by Trigger
Payload	Data Field	

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4.3.2. Tag Data Screen

The Tag Data Screen displays data entries as defined in the Tag Memory Map.

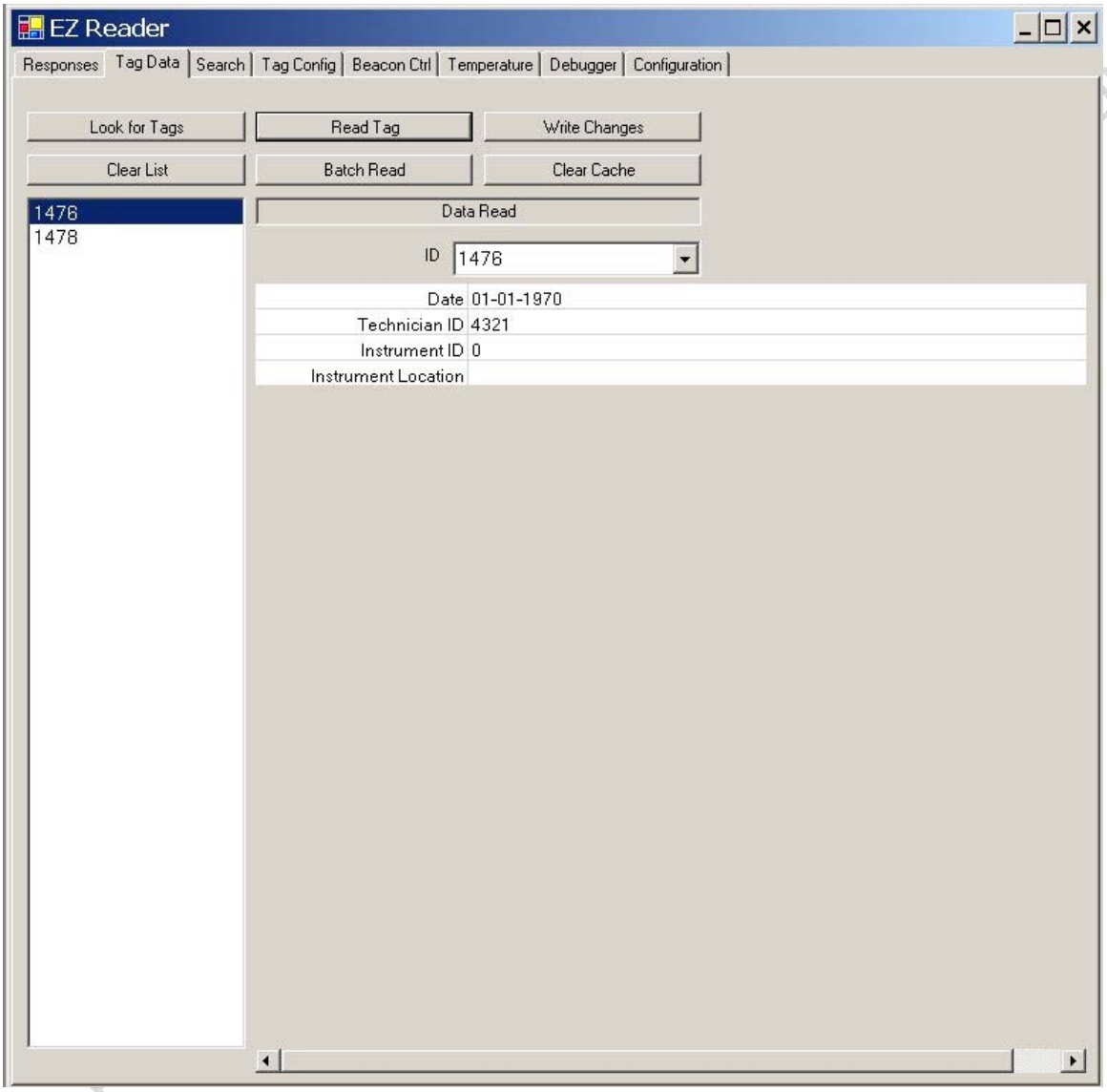

Figure 9 - Tag Data Screen

Table 4 - Tag Data Screen		
Clear Responses	Button	Clears Data Display
Save Responses	Button	Saves Data in a .csv formatted file.
Look for Tags	Button	Sends a Trigger and Waits for a Response. Trigger and Response methods are

		determined by the settings on the Configuration Screen.
Filter Responses	Setting/Check Box	Filters duplicate responses (i.e. more than one per Tag). When this box is unchecked every response is displayed.
Reception Order	Data Field	Numerical order of responses.
Receptions	Data Field	Shows number of receptions for each Tag. If Filter Response is checked total receptions is displayed.
Time Stamp	Data Field	Time and Date that data was received.
ID	Data Field	Tag ID
Reader	Data Field	Displays how data was received. Serial = Trigger. IP Address = Reader.
Trigger	Data Field	ID of Trigger
Command	Data Field	Command Sent to Tags by Trigger
Payload	Data Field	

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4.3.3. Search Screen

The Search Screen can be used to search for specific data stored in a Tag or group of Tags,

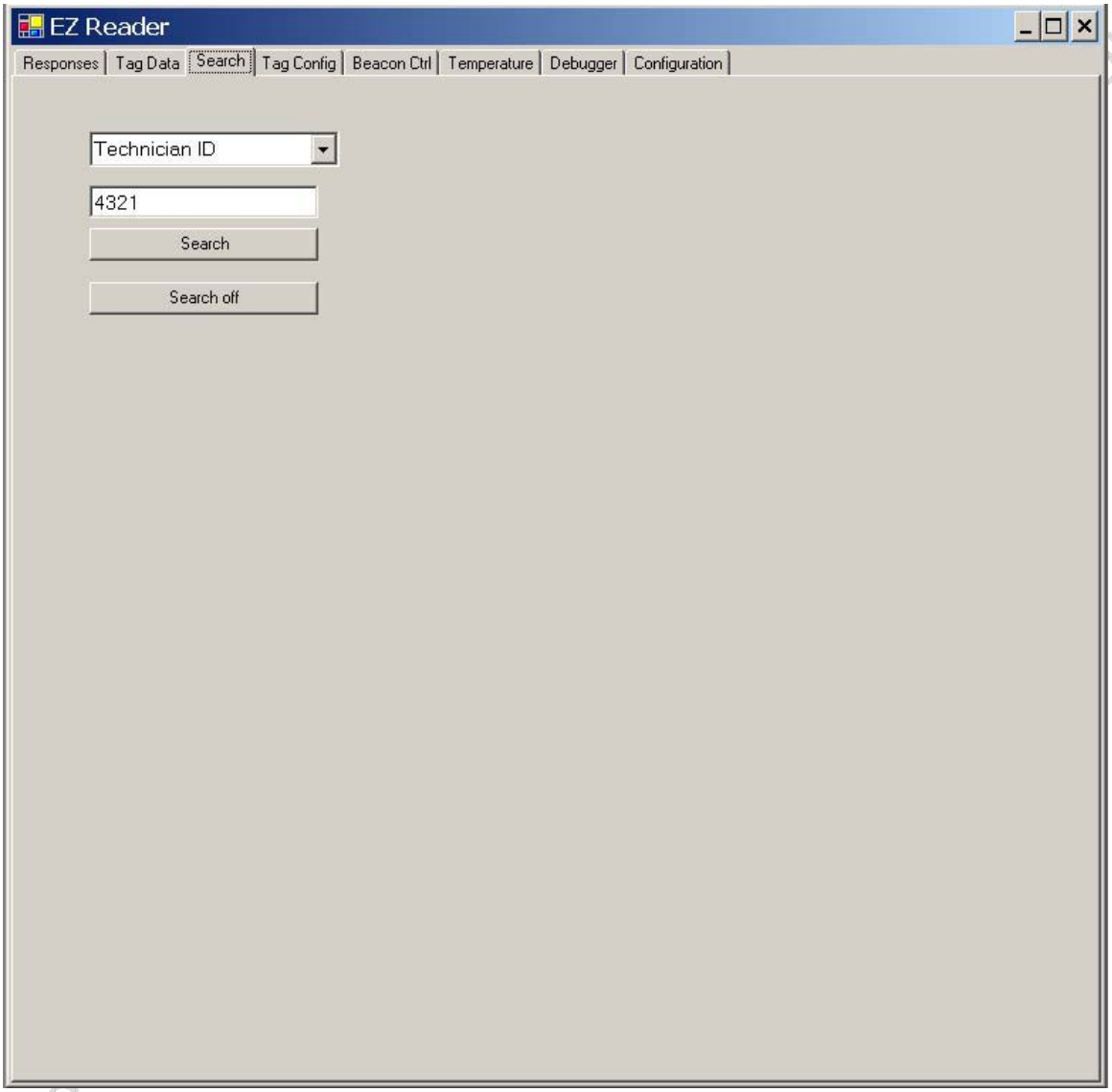

Table 5 - Search Screen		
	Pull Down Menu	Lists Data Fields from Memory Map
	Data Field	Alphanumeric Data Entry Field. Data to be searched for in Tag Memory entered here.

Search	Button	Initiates Search Command
Search Off	Button	Ends Search

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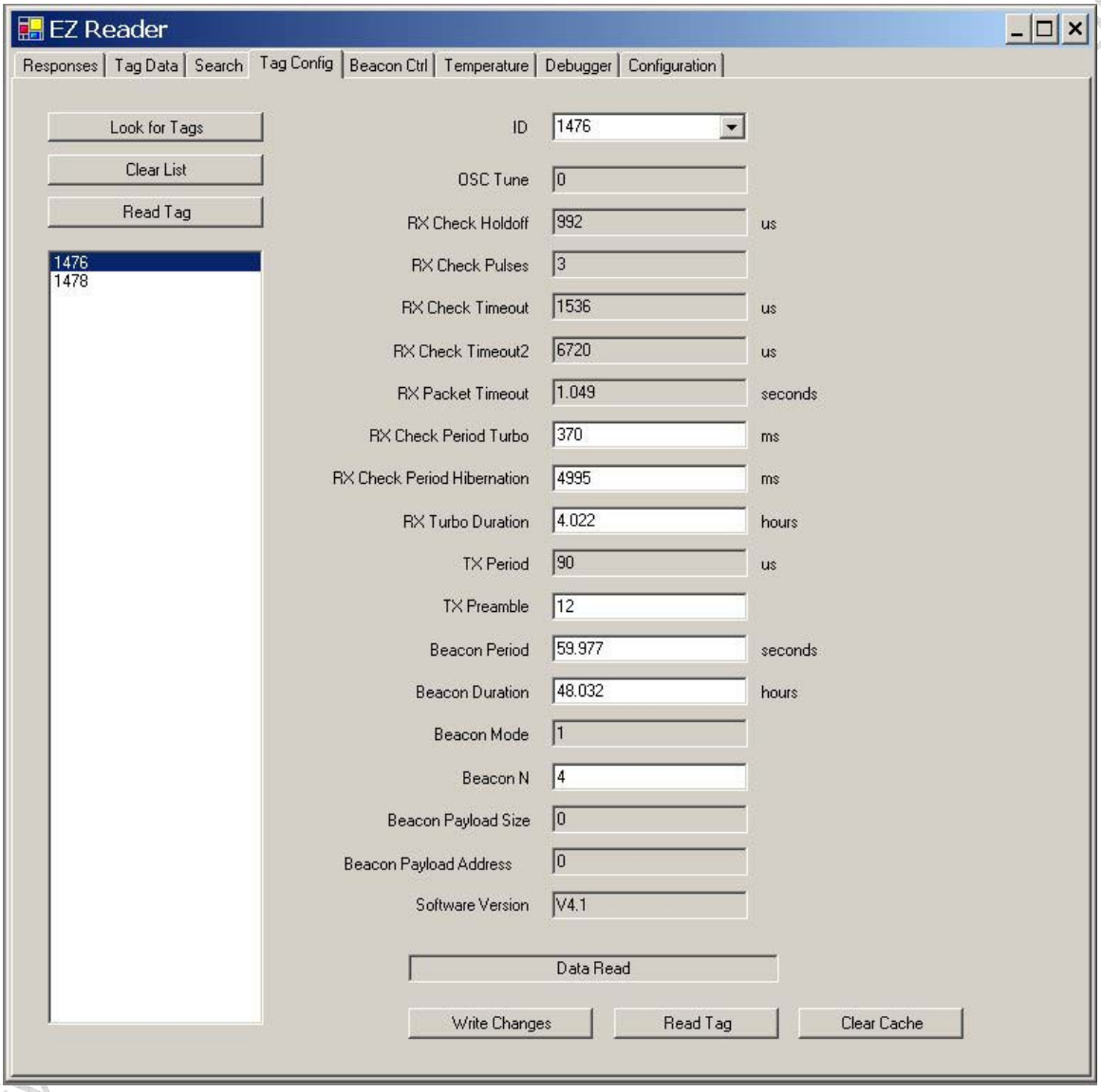
4.3.4. Tag Configuration Screen

The Tag Configuration Screen displays Tag Configuration data, i.e. settings stored in the Tag. ***Tag Configuration data should not be modified.***



4.3.5. Beacon Ctrl Screen

The Beacon Control Screen can be used to turn the Tag(s) Beacon Mode on and Off.

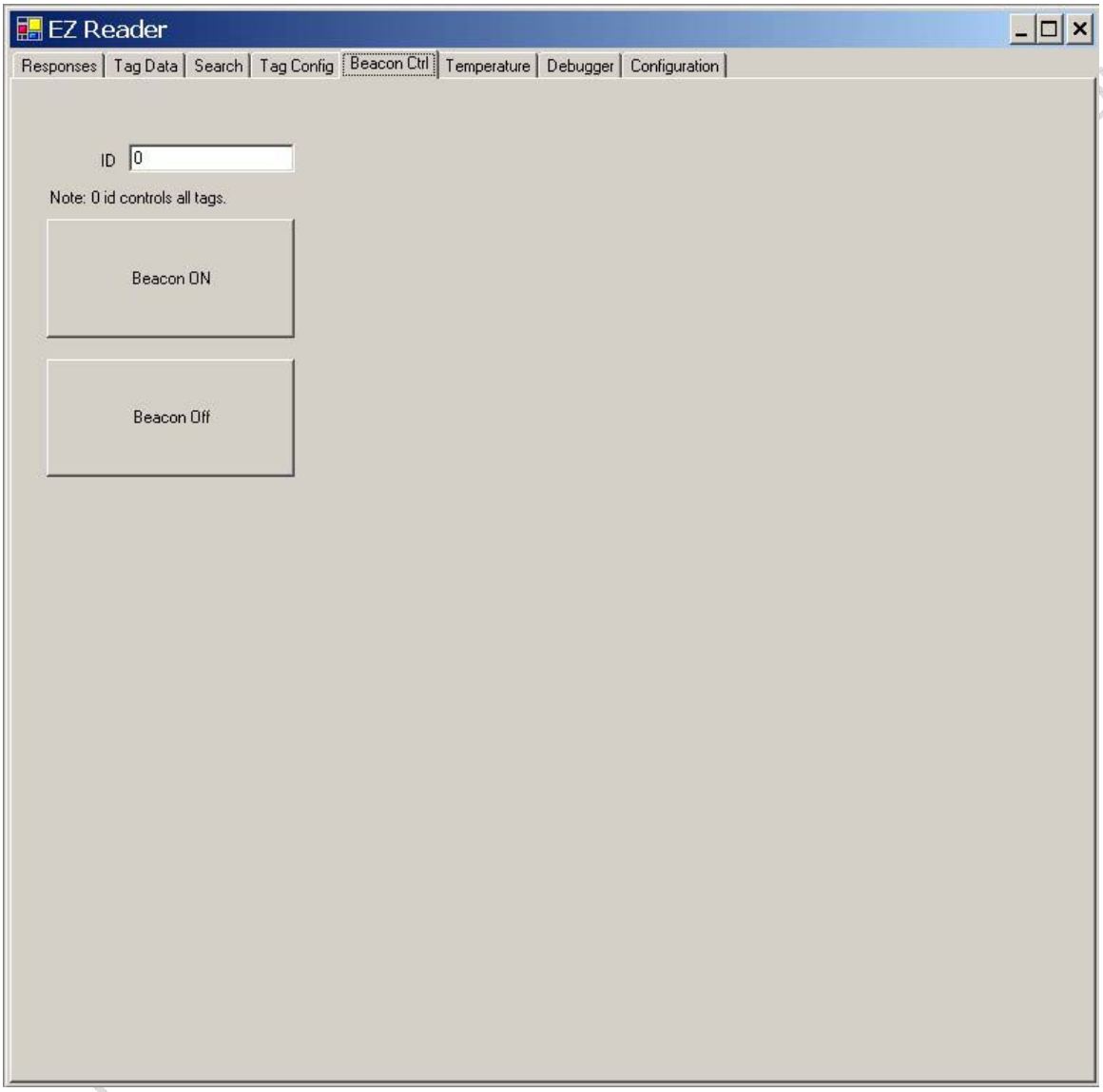


Table 6 - Beacon Control Screen		
ID	Data Entry Field	Enter ID of Tag in this field.
Beacon ON	Button	Initiates Beacon Mode in Tag (or Tags)
Beacon Off	Button	Turns off Beacon Mode in Tag (or Tags)

4.3.6. Temperature Screen

The Temperature Screen is used to read and display the temperature measured by a Tag. Note that not all Tags are temperature enabled.

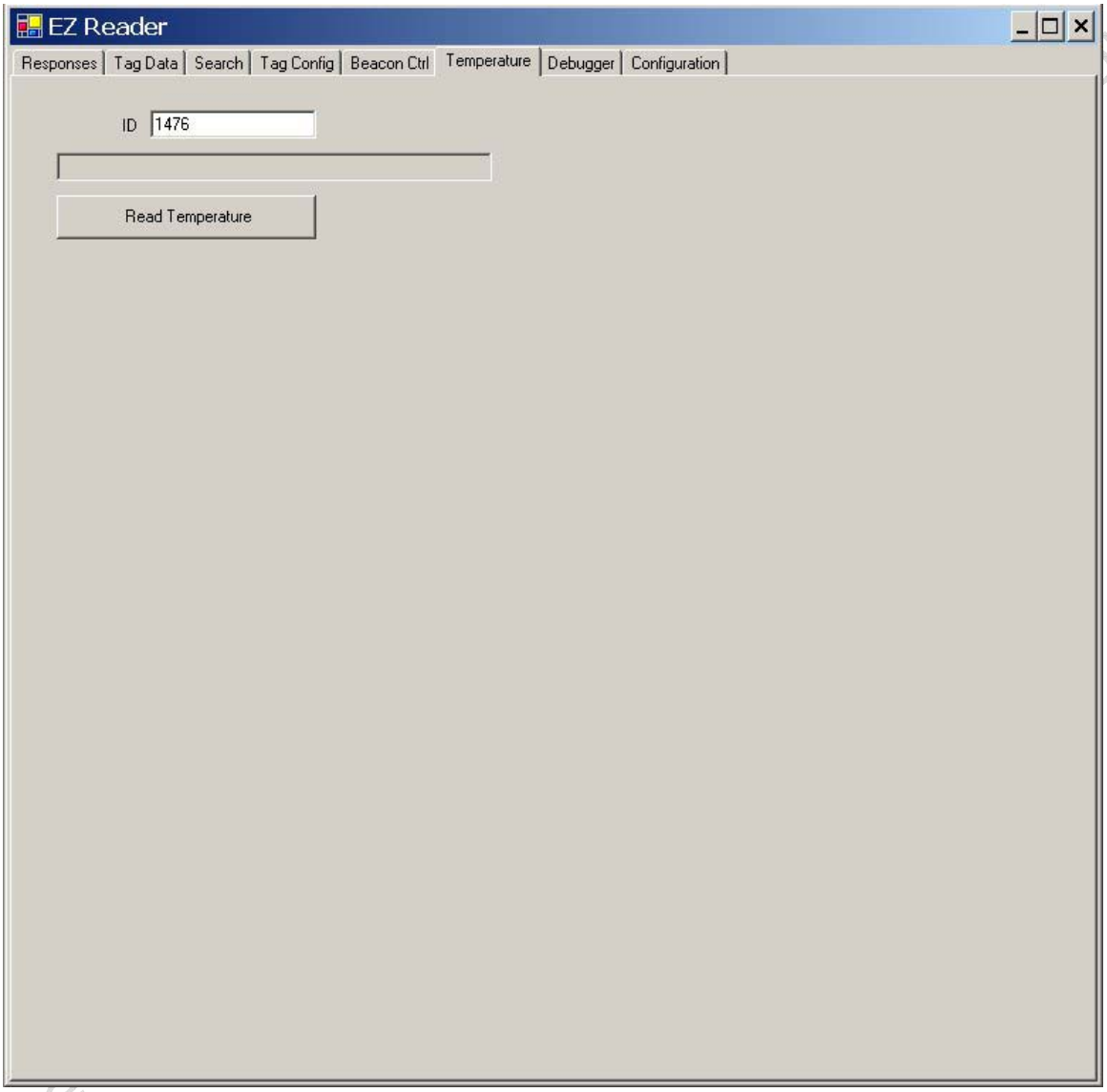


Table 7 - Temperature Screen		
ID	Data Entry Field	Enter ID of Tag in this field.
Read Temperature	Button	Initiates Reading of Tag Temperature

4.3.7. Debugger Screen

Functionality reserved for future use or Technical Support.

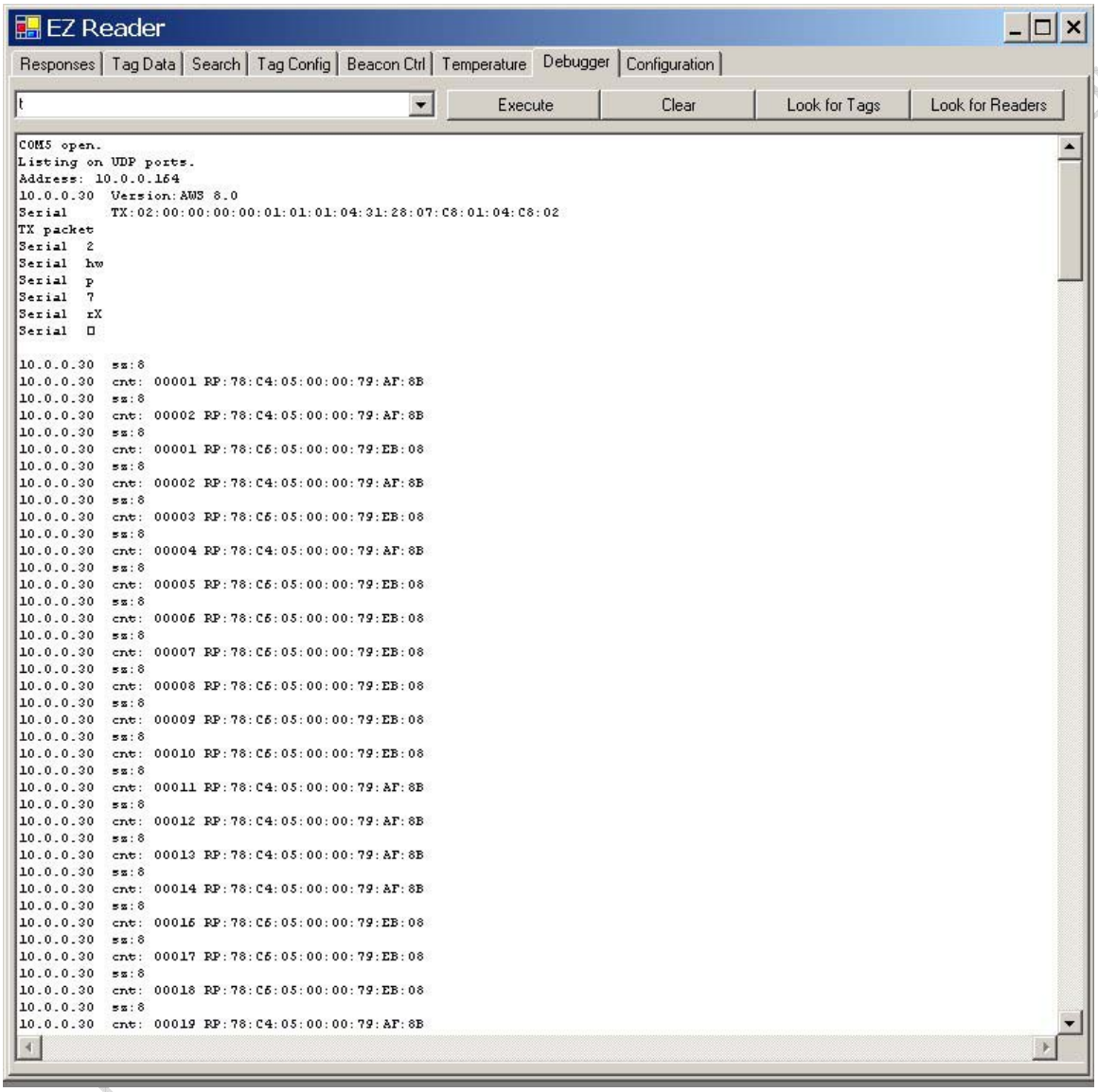


Figure 10 - Debugger Screen

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4.3.8. Configuration Screen

The EZ Reader Configuration Screen contains settings used to control Tag and System (i.e. Reader and Trigger) behavior.

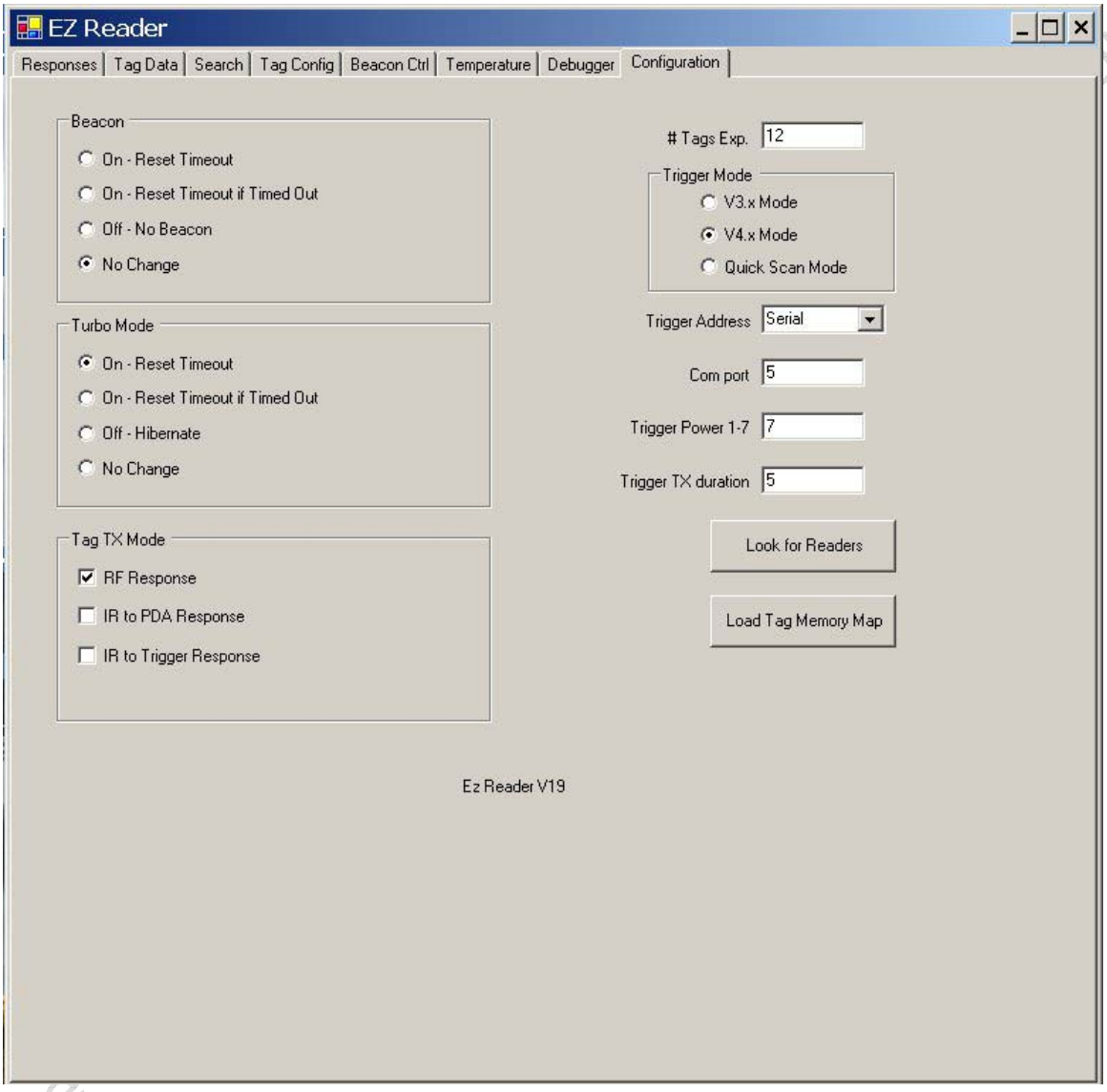

Figure 11 - Configuration Screen

Table 8 - Configuration Screen		
Tag TX Mode	Check Box	Select Modes related to Tag response to a Trigger.
# Tags Exp	Numeric Field	Sets the number of Tags expected to respond to a

		Trigger. Used for anti-collision algorithm.
Trigger Mode	Radio Button	Selects Trigger Software Version
Trigger Address	Pull Down Menu	Selects Trigger as on of the following: Serial = Easy-Trak Trigger IP Address = Easy-Trak Reader
Com Port	Numeric Field	Sets Communications (Serial) Port connected to Easy-Trak Reader
Trigger Power	Numeric Field	Sets IR Power Level of Trigger
Trigger TX Duration	Numeric Field	Sets length of Trigger in Seconds
Look For Readers	Button	Initiates search on serial Ports for Easy-Trak Triggers
Load Tag Memory Map	Button	Opens File Dialog box to allow Tag Memory Map file to be loaded into EZ Reader software

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A.1 Installing the USB/Serial Cable Adapter and Driver (Optional)

The Easy-Trak Trigger connects to the PC via the custom serial cable. If the PC does not have a serial port the USB/Serial Cable Adapter must be used. The required drivers are supplied on the CD. The following procedure should be used to install the driver on the PC.

Connect the supplied Serial Cable to the USB/Serial Adapter.
Plug the USB/Serial Adapter into any USB port on the PC.

NOTE! The USB/Serial Adapter should be plugged into the SAME USB PORT every time. Otherwise the PC will automatically select a different serial port number and the settings in the EZ Reader software will have to be changed.

Windows should recognize that new hardware has been connected to the PC and the 'Found New Hardware Wizard' dialog box should open. See Figure A1.

Figure A1

Select 'No, not this time' and click 'Next'. The Dialog box shown in Figure A2 should appear.

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Figure A2

Be sure the supplied CD is in the PC and click 'Install the software automatically'. Click Next. The Dialog box shown in Figure A3 should appear.

Figure A3

The driver should be loaded from the CD and installed on the PC. The balloon shown in Figure A4 should be displayed. Driver installation is complete.

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Figure A4

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