

# RFID DEMO APPLICATIONS



**ZEBRA**

## User Guide

72E-160038-05

# **RFID DEMO APPLICATIONS USER GUIDE**

72E-160038-05

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## Revision History

Changes to the original guide are listed below:

Change	Date	Description
-01 Rev A	5/2012	Initial release
-02 Rev A	2/2014	Add features and update figures in PowerSession chapter.
-03 Rev A	4/2015	Zebra Re-branding
-04 Rev A	3/2017	Add FX7500; removed references to the Registration window in chapters 4 and 5.
-05 Rev A	12/2017	Add FX9600

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# ABOUT THIS GUIDE

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## Introduction

The RFID Demo Applications User Guide provides general instructions for using sample applications which demonstrate the capabilities of Zebra fixed and hand-held RFID readers and how these features can be used in everyday applications.

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## Chapter Descriptions

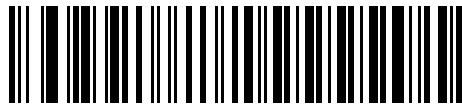
Topics covered in this guide are as follows:

- [Getting Started](#) introduces the RFID demo applications which demonstrate the capabilities of Zebra fixed and hand-held RFID readers.
- [RFID Sample Application](#) provides an overview of the RFID application CS\_RFID3Sample6.exe which assists application developers in developing custom applications for hand-held RFID devices.
- [Tag Locator](#) describes the Tag Locator application which is used on hand-held RFID devices to detect the relative position of tags.
- [SessionOne](#) describes the SessionOne PC-based application used to discover and connect to Zebra fixed and hand-held RFID readers, specifically the FX7400, FX7500, FX9500, FX9600, MC3x90-Z, and MC9x90-Z.
- [PowerSession](#) describes PowerSession, a multi-reader, PC-based application used to discover and connect to Zebra fixed and hand-held RFID readers, specifically the FX7400, FX7500, FX9500, FX9600, MC3x90-Z, and MC9x90-Z.
- [RapidRead](#) describes RapidRead, an application used on hand-held readers to demonstrate inventory, asset counting, tag writing and item locating, specifically the MC3x90-Z and MC9x90-Z.

## Notational Conventions

The following conventions are used in this document:

- **Italics** are used to highlight the following:
  - Chapters and sections in this and related documents
  - Dialog box, window and screen names
  - Drop-down list and list box names
  - Check box and radio button names
- **Bold text** is used to highlight the following:
  - Key names on a keypad
  - Button names on a screen.
- **bullets (•)** indicate:
  - Action items
  - Lists of alternatives
  - Lists of required steps that are not necessarily sequential
- Sequential lists (e.g., those that describe step-by-step procedures) appear as numbered lists.
- Throughout the programming bar code menus, asterisks (\*) are used to denote default parameter settings.



\* Indicates Default ————— \* Baud Rate 9600 ————— Feature/Option

## Related Documents

Refer to the Product Reference Guide for the fixed or hand-held RFID reader for product-specific information.

For the latest version of this guide and all Zebra guides, go to: [www.zebra.com/support](http://www.zebra.com/support).

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## Service Information

If you have a problem using the equipment, contact your facility's technical or systems support. If there is a problem with the equipment, they will contact the Zebra Global Customer Support Center at: [www.zebra.com/support](http://www.zebra.com/support).

When contacting Zebra support, please have the following information available:

- Serial number of the unit
- Model number or product name
- Software type and version number

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If your problem cannot be solved by Zebra support, you may need to return your equipment for servicing and will be given specific directions. Zebra is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty.

If you purchased your business product from a Zebra business partner, please contact that business partner for support.

# Getting Started

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## Introduction

The RFID demo applications demonstrate the capabilities of Zebra fixed and hand-held readers. This guide provides specific information about the following applications:

- **RFID Sample Application**
- **Tag Locator**
- **SessionOne**
- **PowerSession**
- **RapidRead**

---

## System Requirements

[Table 1](#) includes system requirements for the RFID demo applications.

Table 1 RFID Demo Application Requirements

Demo Application	Devices Supported	Application Type	OS Requirement
RFID Sample Application	MC3090-Z, MC3190-Z, MC9090-Z	Hand-held application	Windows Mobile 6.x
Tag Locator	MC3090-Z, MC3190-Z, MC9090-Z	Hand-held application	Windows Mobile 6.x
SessionOne	FX7400, FX7500, FX9500, FX9600, MC3090-Z, MC3190-Z, MC9090-Z	Single reader application	Windows XP 32-bit, 64-bit; Windows 7 32-bit, 64-bit
PowerSession	FX7400, FX7500, FX9500, FX9600, MC3090-Z, MC3190-Z, MC9090-Z	Multi-reader application	Windows XP 32-bit, 64-bit; Windows 7 32-bit, 64-bit
RapidRead	MC3090-Z, MC3190-Z, MC9090-Z	Hand-held application	Windows Mobile 6.x

# RFID Sample Application

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## Introduction

The RFID Application CS\_RFID3Sample6.exe provides an overview of how the application works and assists application developers in developing custom applications.

The RFID hand-held reader can read, write, lock, kill, and program Gen2 tags. Each tag contains the EPC number (64 or 96 bits), CRC, and kill code. The hand-held reader can also collect data by decoding in-range EPC Gen2 RFID tags.

Initiating the read command within the sample application causes the hand-held reader to interrogate all RFID tags within the radio frequency (RF) field of view. The reader captures data from each new tag and adds it to the list box in the EPC ID window. Select Stop Read to stop interrogating tags.

### Launching the RFID Sample Application

Select RFID Demo in the Start menu to start the RFID sample application.

Figure 1 RFID Demo Icon



Figure 2 RFID Sample Application Window



In the sample application window:

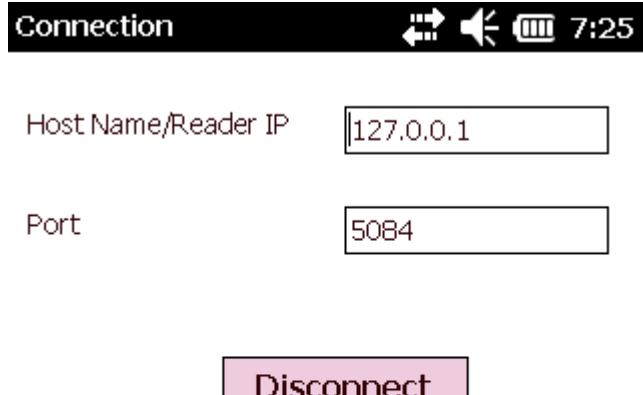
- Tap the Start Reading button to initiate the tag read. Tap Stop Reading to terminate tag reading.
- Use the Mem Bank drop-down to select a tag memory bank to read. The default memory bank is

EPC (None). Other options are TID, Reserved, and User.

## Connection

Tap Connection to display the reader IP and port number.

Figure 3 Connection Window



Select Disconnect to disconnect the reader.

## Capabilities

Select Menu > Capabilities to view the capabilities of the connected reader.

## RFID Sample Application

Figure 4 Capabilities Window

The screenshot shows a mobile application window titled "Capabilities". At the top, there are icons for signal strength, volume, battery level, and the time (7:26). The main area is a table with two columns: "Capability" and "Value". The table contains the following data:

Capability	Value
Reader ID	3815060D0B09...
Firmware Version	1.02.04
Model Name	3190
No. of Antennas	2
No. of GPI	1
No. of GPIO	0
Max Ops in Access Sequen...	8
Max No. Of Pre-Filters	3
Country Code	840
Communication Standard	US_FCC_PART_15
UTC Clock	True
Block Erase	True

At the bottom of the screen are three circular buttons: a Windows logo icon, a keyboard icon, and an "OK" button.

Capability	Value
Reader ID	3815060D0B09...
Firmware Version	1.02.04
Model Name	3190
No. of Antennas	2
No. of GPI	1
No. of GPIO	0
Max Ops in Access Sequen...	8
Max No. Of Pre-Filters	3
Country Code	840
Communication Standard	US\_FCC\_PART\_15
UTC Clock	True
Block Erase	True

## Configuration Menu Options

The Configuration menu includes the following options:

- Tag Storage Settings
- Antenna
- RF Mode
- Singulation
- Power On/Off Radio
- Reset to Factory Defaults

### Tag Storage Settings

Select Menu > Config > Tag Storage Settings to view/configure tag storage settings.

Figure 5 Tag Storage Settings Window



This window includes the following fields:

- Maximum Tag Count - The maximum number of tags to store in the DLL.
- Max Tag ID Length - The maximum tag length.
- Max Size of Memory Bank - Storage to allocate for the memory bank's data.
- Apply - Select to apply the configuration changes.

## Antenna

Select Menu > Config > Antenna to view/configure the antenna.

Figure 6 Antenna Configuration Window



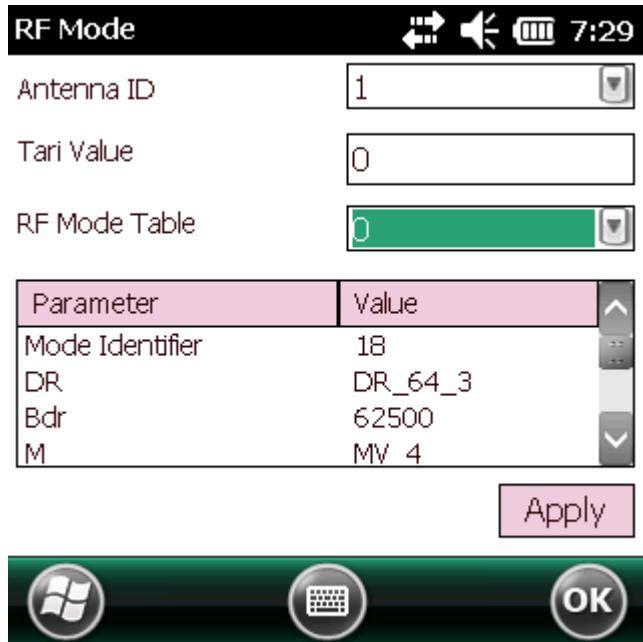
This window includes the following fields:

- **Antenna ID** - Selecting an antenna ID updates the configuration values in the other fields.
- **Receive Sensitivity (dB)** - Lists the reader-supported values for the selected antenna.
- **Transmit Power (dBm)** - Lists the reader-supported values for the selected antenna.
- **Hop Table Index** - Updates the Hop Frequency list with its corresponding frequencies.
- **Apply** - Select to apply the configuration changes.

### RF Mode

Select Menu > Config > RF Mode to view/configure the RF mode for each antenna.

Figure 7 RF Mode Window



This window includes the following fields:

- **Antenna ID** - Selecting an antenna ID updates the configuration values in the other fields.
- **Tari Value** - TARI specified in nsec.
- **RF Mode Table** - RF mode table configured for the current antenna.
- **Apply** - Select to apply the configuration changes.

### Singulation

Select Menu > Config > Singulation to view/configure the singulation control settings for each antenna.

## RFID Sample Application

Figure 8 Singulation Control Settings Window



This window includes the following fields:

- Antenna ID - Selecting an antenna ID updates the configuration values in the other fields.
- Session - The session number for the inventory operation.
- Tag Population - The approximate tag population in the RF field of the antenna.
- Tag Transit Time - The time in milliseconds that the tag typically remains in the RF field of the antenna.
- State Aware - Indicates if the antenna performs state aware or state unaware singulation.
- Inventory State - Select a tag of state A or B. Valid only for State Aware singulation
- SL Flag - Valid only for State Aware singulation
- Apply - Select to apply the configuration changes.

### Power On/Off Radio

Select Menu > Config > Power On/Off Radio to change the power settings of the RFID radio.

Figure 9 Radio Power Settings Menu



### Reset to Factory Default

Select Menu > Config > Reset to Factory Default to restore the default reader configuration.

# Operations Menu Options

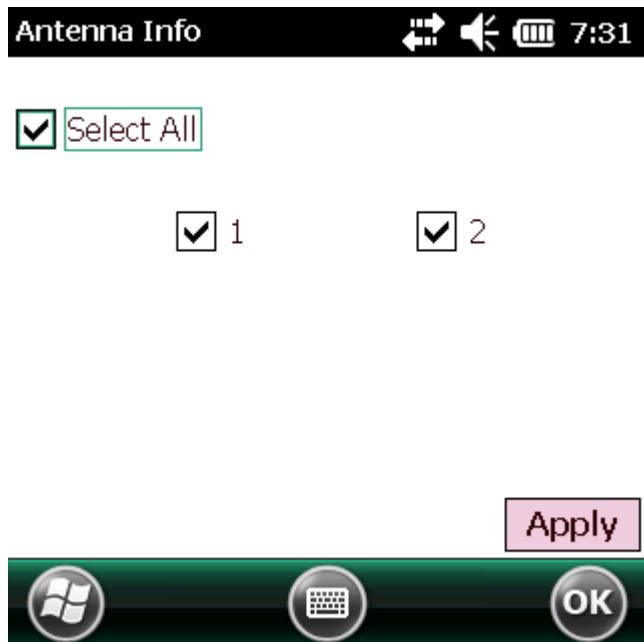
The Operations menu includes the following options:

- Antenna Info
- Filter
- Access
- Triggers

## Antenna Info

Select Menu > Operations > Antenna Info to view/configure the list of antennas that can be used for inventory/access operations.

Figure 10 Antenna Info Window



## Filter

Select Menu > Operations > Filter to view/configure the following filters:

- Pre-Filter
- Post-Filter
- Access-Filter

### Pre-Filter

Select Menu > Operations > Filter > Pre-Filter to view/configure pre-filters.

Figure 11 PreFilter Window



This window includes the following fields:

- **Antenna ID** - Selecting an antenna ID updates the configuration values in the other fields.
- **Memory Bank** - Memory bank on which the filter is applied.
- **Offset** - The first (msb) bit location of the specified memory bank against which to compare the tag mask.
- **Tag Pattern** - The pattern against which to compare the specified memory bank.
- **Filter Action** - Select the required filter action. For more information, refer to the Gen2 specification available at: [www.epcglobalinc.org/standards/](http://www.epcglobalinc.org/standards/).

### Post-Filter

Select Menu > Operations > Filter > Post-Filter to view/configure post-filters.

Figure 12 PostFilter Window



This window includes the following fields:

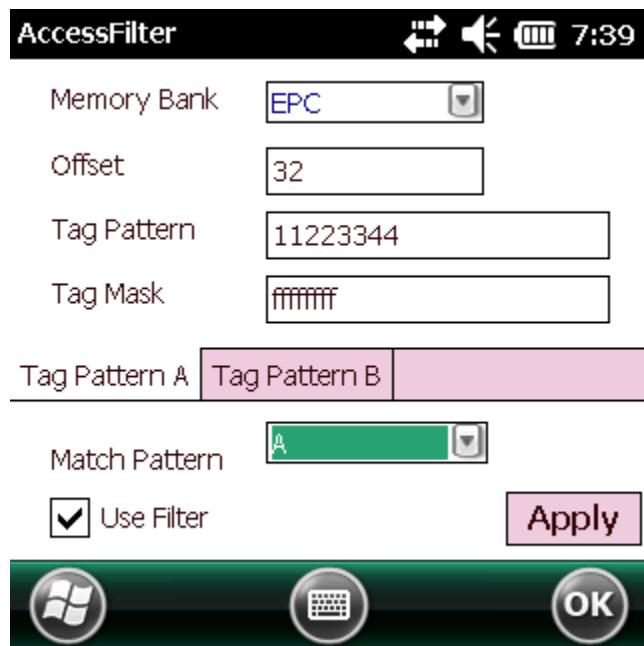
- Memory Bank - Memory bank on which the filter is applied.
- Offset - The first (msb) bit location of the specified memory bank against which to compare the tag mask.
- Tag Pattern - The pattern against which to compare the specified memory bank.
- Tag Mask - The bit mask to facilitate bit wise filtering.
- Match Pattern - Select the tag pattern to match (A, B, both, or neither).

### Access-Filter

Select Menu > Operations > Filter > Access-Filter to view/configure the access-filters.

## RFID Sample Application

Figure 13 AccessFilter Window

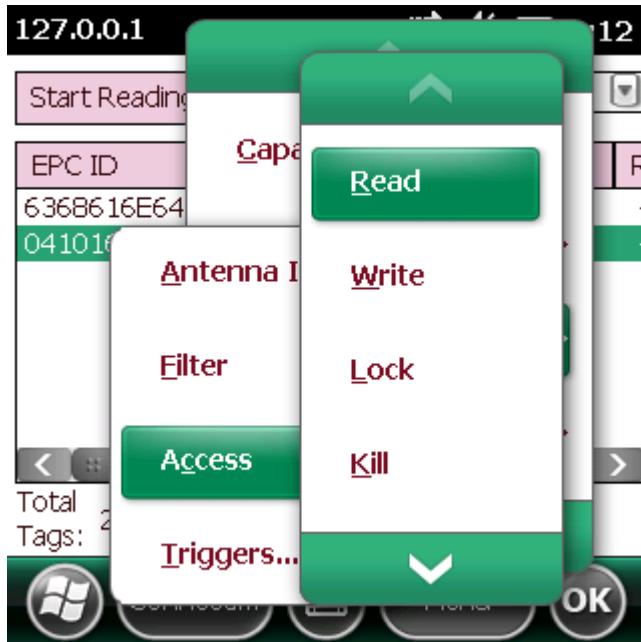


See [Post-Filter on page 23](#) for field descriptions.

### Access

Select Menu > Operations > Access to perform the following access operations.

Figure 14 Access Menu

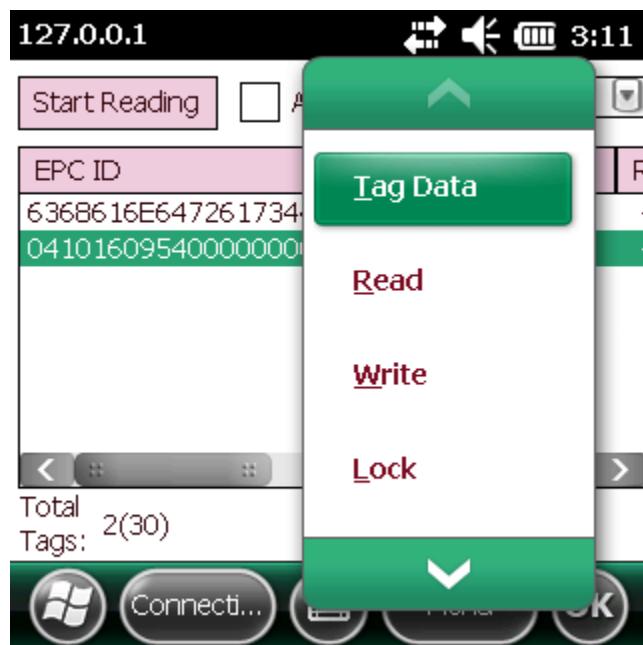


The Access menu includes the following options:

- Read
- Write
- Lock
- Kill
- Block Write
- Block Erase

To perform an access option on a single tag, right-click the tag in the list of read tags on the main window to invoke the tag's context menu.

Figure 15 Tag Context Menu



## Access Operation Windows

The access operation windows include the following fields. Set options as required in the various parameter windows. Not all windows include all options.

- Tag ID - The name of the selected tag.
- Password - Set a password before performing any access operation (except Kill).
- Memory Bank - Select the memory bank (Reserved, EPC, TID, User)
- Offset - Offset of the first word to read from the selected memory bank.
- Length - Tag/data length.
- Write Data - The data to write to the selected tag (Write window only).
- Lock Privilege - Access options for the selected tag (Write window only):
  - None - The user can not change the lock privilege of the particular memory bank.
  - Read\_Write - The user can read and write to the tag.
  - Perma\_Lock - Permanent lock.
  - Perma\_Unlock - Permanent unlock.
  - Unlock - The user can unlock the tag for writing.

## RFID Sample Application

Figure 16 Read Access Operation Window



Figure 17 Write / Block-Write Access Operation Window



## RFID Sample Application

Figure 18 Lock Access Operation Window

Lock

Tag ID (Hex) AD852200485283851400006

Password (Hex) 0

Memory Bank EPC MEMORY

Lock Privilege READ WRITE

Access Filter Lock



Figure 19 Kill Access Operation Window

Kill

Tag ID (Hex) AD8522004852838514000061

Kill Password (Hex) 0

Access Filter Kill



Figure 20 Block Erase Access Operation Window

Block Erase      3:50

Tag ID (Hex)	04101609540000000000000000000000
Password (Hex)	0
Memory Bank	USER
Offset (Bytes)	0
Length (Bytes)	4



## Triggers

Select Menu > Operations > Trigger to view/configure the following triggers:

- Start Trigger
- Stop Trigger
- Report Trigger

### Start Trigger

## RFID Sample Application

Figure 21 Start Trigger - Periodic Window



Figure 22 Start Trigger - GPI Window



## RFID Sample Application

Figure 23 Start Trigger - Hand-held Trigger Window



### Stop Trigger

Figure 24 Stop Trigger - Periodic Window



## RFID Sample Application

Figure 25 Stop Trigger - GPI with Timeout Window



Figure 26 Stop Trigger - Tag Observation with Timeout Window



## RFID Sample Application

Figure 27 Stop Trigger - N Attempts with Timeout Window

Trigger      12:49

Trigger Type: N Attempts

No. of Attempts: 10

Time Out: 1000

Start Trigger | Stop Trigger | Report Trigger

Tag Report Trigger: 0      Apply

OK

Figure 28 Stop Trigger - Hand-held Trigger with Timeout Window

Trigger      12:50

Trigger Type: Handheld Trigger

Time Out: 0

Event:  Trigger Released  
 Trigger Pressed

Start Trigger | Stop Trigger | Report Trigger

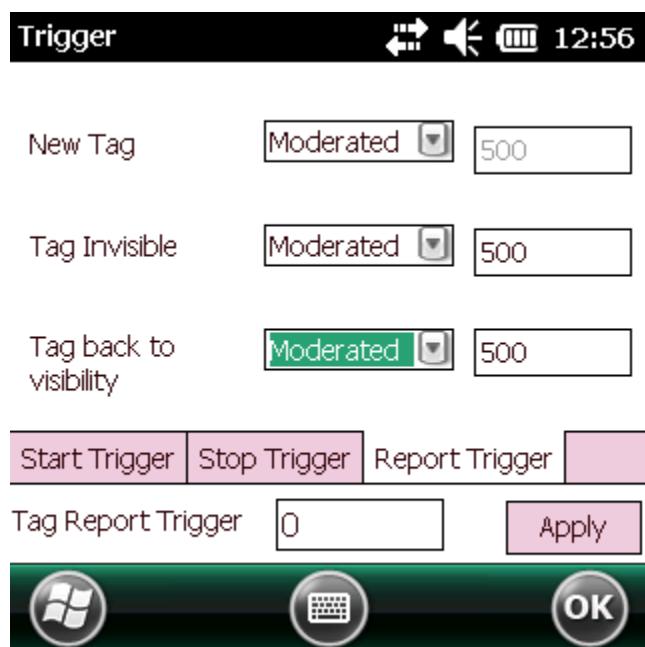
Tag Report Trigger: 0      Apply

OK

**Report Trigger**

## RFID Sample Application

Figure 29 Report Trigger Window



## Management Menu Options

Management options are not applicable for hand-held readers.

## Help Menu

Select Menu > Help to display the version information. The version numbers displayed in this window are examples. Actual version numbers are based on the versions of the files on the device.

Figure 30 Help Window



CS\_RFID3Sample6

C-Dll: 5.1.22, .NET-Dll: 1.1.0.0

Copyright (C) 2010



## Exit

Select Menu > Exit to exit the RFID sample application.

# Tag Locator

---

## Introduction

Use Tag Locator to detect the location of a tag. By providing the TagID of an item, this application can find the relative position of the tag with respect to the hand-held reader. Slowly move the hand-held back and forth. Use the beep frequency and vertical progress bar on the screen to help direct you to the general location of the tag.

The Tag Locater application requires the following components/DLLs on the device:

- **RFIDAPI32.dll (Version 5.1.15 or higher)**
- **Symbol.RFID3.Device.dll (Assembly version 1.1.0.1, File version 1.1.0.7 or higher)**
- **Symbol.Audio.dll**
- **Symbol.dll**
- **Symbol.Notification.dll**
- **Symbol.StandardForms.dll**

# Using Tag Locator

To use the Tag Locator application:

1. Tap TagLocator in the Application folder on the hand-held reader to open the Tag Locater application.

Figure 31 Tag Locator



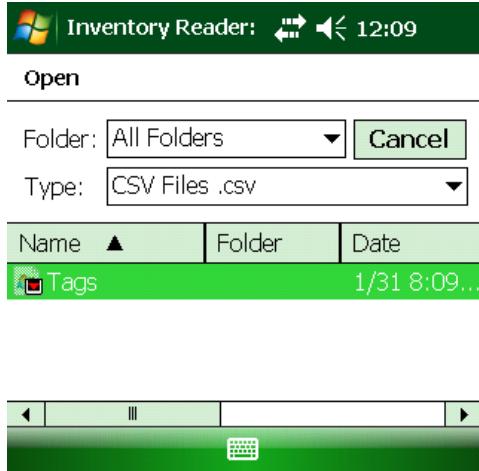
2. Enter the tag ID in one of three ways:

- Type the tag ID in the TagID text box, then select Locate or press and hold the trigger.
- Perform a search operation by selecting the Search Tags button or by pressing and holding the trigger.
- Select the Import Tags button to import a list of saved tags from a .csv file. See [Locating Tags Using a .csv File on page 38](#).

### Locating Tags Using a .csv File

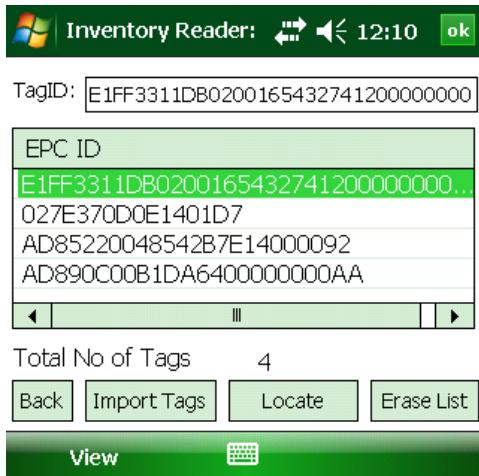
1. Select the Import Tags button to import a list of saved tags from a .csv file. The following window appears.

Figure 32 Opening a .csv File



2. Select the desired .csv file to import the tags to the list.

Figure 33 Tag List



3. Select a tag from the list to search.
4. Select the Locate button or press and hold the trigger. Move the hand-held reader in all directions to find the relative position of the tag, indicated by a beep, the vertical progress bar, or both.

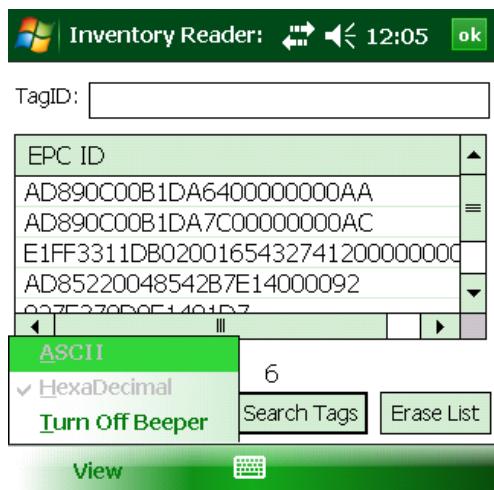
## Tag Locator

Figure 34 Tag Search



Use the Options menu to turn the beeper on and off and to display data in ASCII or hexadecimal format.

Figure 35 Options Menu



# SessionOne

---

## Introduction

**SessionOne** is a single reader, PC-based application used to discover and connect to Zebra fixed and hand-held RFID readers, specifically the FX Series Fixed Readers and MC Series Hand-held Readers. This tool allows users to easily perform tag inventory and access operations.

---

## Installation

To install SessionOne on the host PC:

1. Locate SessionOne at: [www.zebra.com/support](http://www.zebra.com/support).
2. Download the SessionOne zip file to the host PC and unzip the file.
3. Double-click the sessiononesetup.exe file.
4. Follow the screen prompts to complete installation.

## Connecting to the RFID Reader

To connect to the reader through SessionOne:

1. Connect the reader to the host PC. Refer to the reader's Product Reference Guide for instructions.



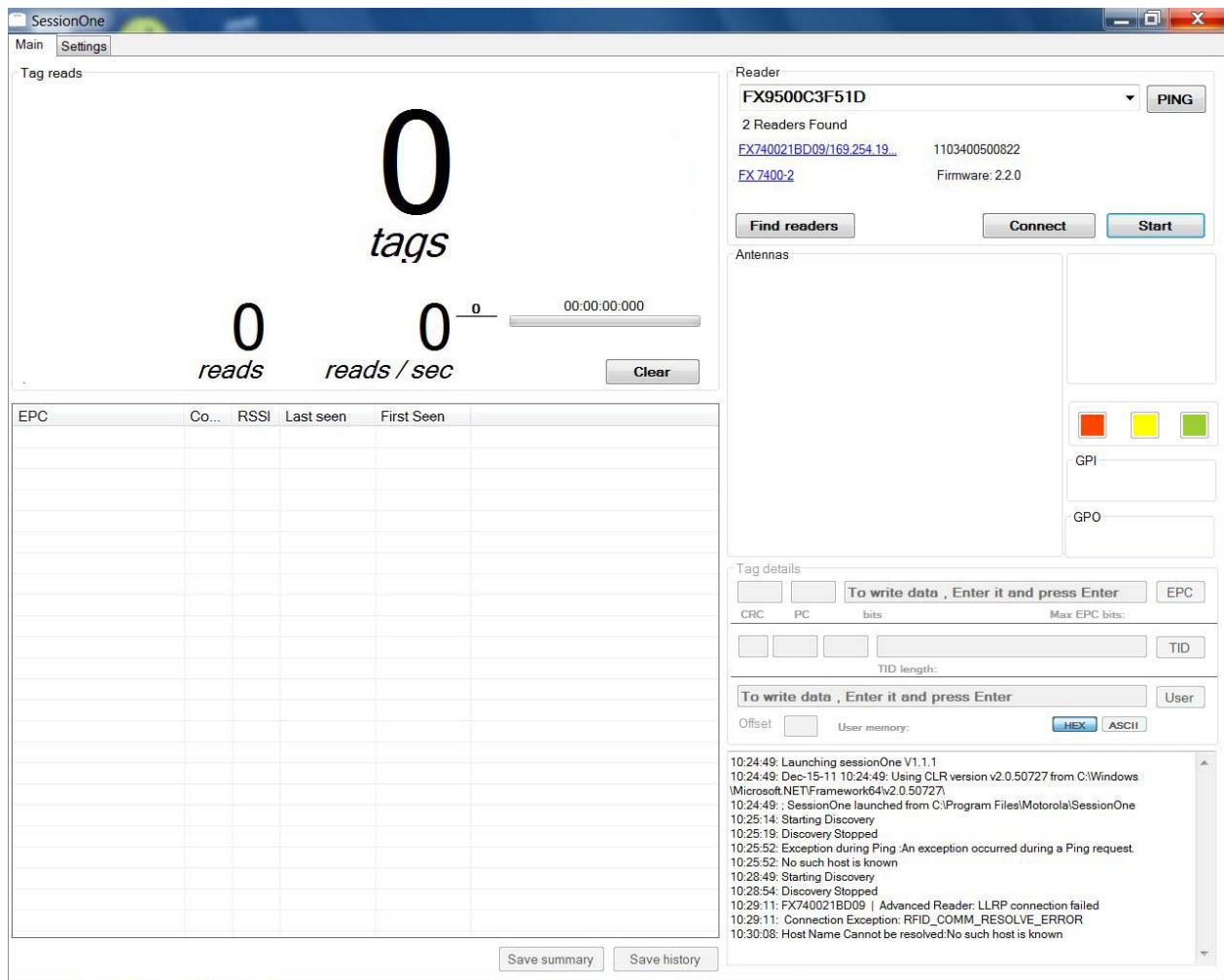
**NOTE:** If connecting to the host PC via a USB cable, note the following:

- For the FX7400, FX7500, and FX9600, ensure the USB mode is set to Network (the default mode). If the USB mode is ActiveSync, use the Administrator Console to change it to Network before connecting to the host PC.
- For hand-held readers, synchronize the device with the host PC.

2. Select SessionOne from the host PC Start menu to launch the application.

3. The SessionOne main window opens.

Figure 36 SessionOne Main Tab



4. Click Find readers to discover all readers in the area. Click on the reader name to connect to that reader, or select from the Reader text box/ drop-down list and click Connect.



**NOTE:** If connecting to the host PC via a USB cable, note the following:

- To select a fixed reader, select USB FX | friendly name from the drop-down list.
- To select a hand-held reader (MC3090-Z, MC3190-Z, or MC9090-Z), select USB Mobile | friendly name from the drop-down list.

See the next section if SessionOne does not locate the reader, or to search for a specific reader.

To use the host name to search for the reader:

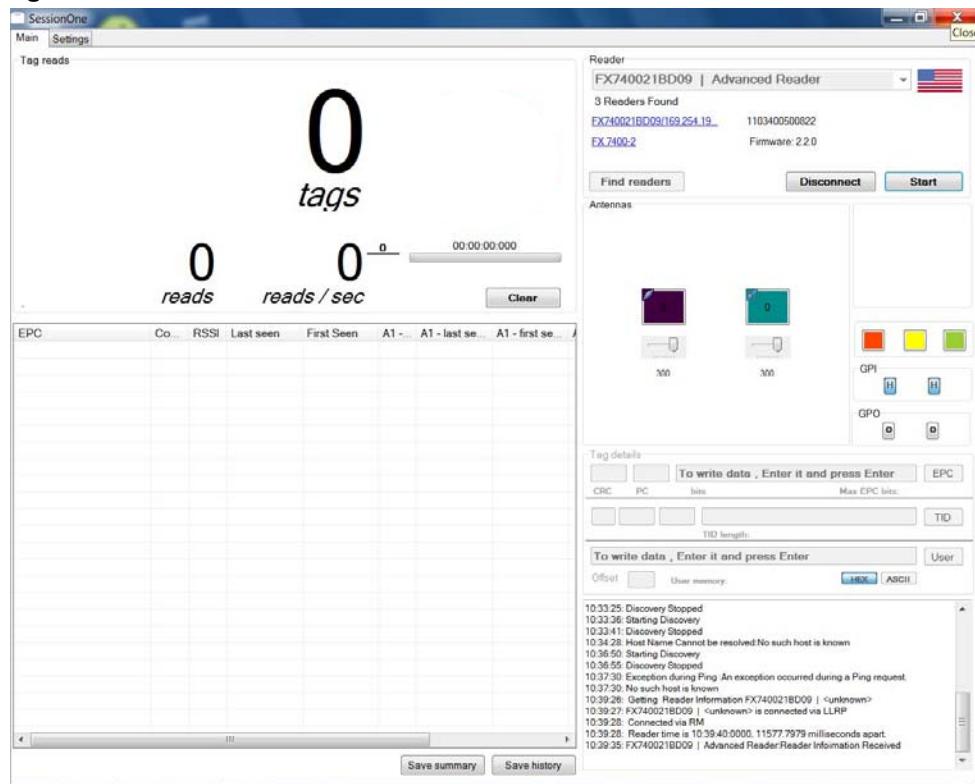
1. Enter the reader host name in the Reader text box (e.g., fx7400cd3b0d) with no spaces. The host name is provided on a label on the reader, or on the CD provided with the reader. Click Find readers. The Find readers button changes to Stop Finding while SessionOne scans for a reader and displays connection activity at the bottom right area of the window.
2. When the message Found Reader appears, select the reader from the Reader drop-down list and click Connect.
3. Click PING to verify that the reader is connected. The button turns green to confirm connection. If the button turns red, continue to the following procedure.

If SessionOne does not find the reader:

1. Open a command prompt on the host PC by selecting Start > Programs > Accessories > Command Prompt.
2. Enter ping <reader host name> and press Return. For example, enter ping fx7400cd3b0d and press Return. Note the reader's IP address that displays.
3. Close the command prompt and return to SessionOne. Enter the reader's IP address in the Reader text box (e.g., 10.11.11.183).
4. Click PING to locate and connect to the reader.

## SessionOne

Figure 37 SessionOne Main Tab - Reader Connected



✓ NOTE: After selecting a reader from the reader text box/drop-down list, if you select Start before selecting the Connect button, SessionOne automatically connects to the reader and begins inventory. Information related to the selected reader appears, including:

- Link to the reader URL
- Serial number or MAC address
- Reader model name and number
- Firmware version.

✓ NOTE: If the reader does not read RFID tags, ensure the reader's region setting is configured. Refer to the reader's Product Reference Guide for instructions.

## Reading Tags

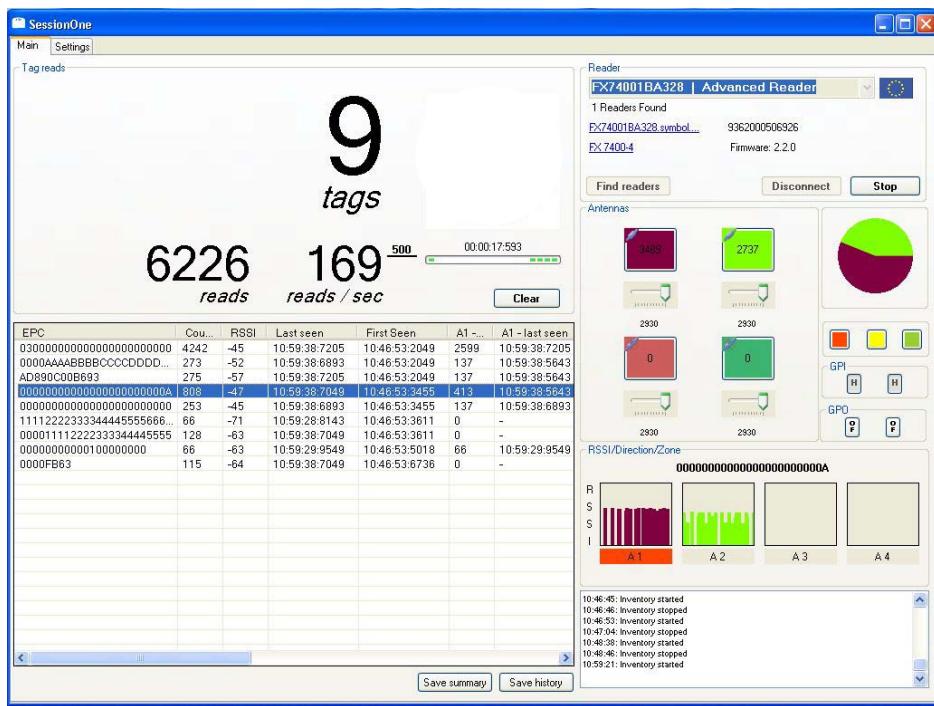
Select Start to read tags in the area. The tags appear in the tag list. Select Stop to stop reading tags.

## Main Tab

The Main tab includes the following fields.

## SessionOne

**Figure 38 Main Tab**



## Tag Reads

This field includes the following items:

- Tags - number of tags read.
- Reads - total number of reads of all tags.
- Reads / sec - number of reads per second.
- Time bar - time elapsed in the current read session.
- Clear button - click to clear all tags from the list.
- Tag table - tracks tag read information:
  - EPC - unique tag EPC ID.
  - Count - number of times that tag was read.
  - RSSI - Received Signal Strength Indication.
  - Last Seen - UTC time (in microseconds) when the tag was last seen.
  - First Seen - UTC time (in microseconds) when the tag was first seen.
  - Ax - number of times that individual antenna read the tag.
  - Ax Last Seen - UTC time (in microseconds) when that antenna last saw the tag.
  - Ax First Seen - UTC time (in microseconds) when that antenna first saw the tag.
- Save summary button - summarizes and saves the details of each tag read.
- Save history button - saves and stores the details of each tag read.

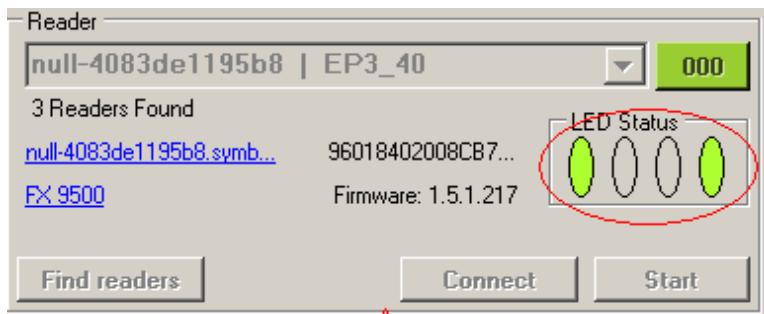
## Reader

This field includes the following items:

- Reader text / drop-down box - enter the reader name, hostname, or IP address to connect to and press enter, or select from the drop-down list to view information related to the reader.
- Ping button - click to locate the reader in the text box. A successful ping appears in green and displays the round trip time of the ping in milliseconds.

Upon a successful reader management (RM) login, clicking Ping also enables the reader's LED to light in green to indicate that reader was pinged.

**Figure 39 Pinging Reader**



- Readers Found - lists all readers discovered in the area.
- Find Readers button - click to find all readers in the area.

- **Connect / Disconnect button** - click to connect to or disconnect from the selected reader. To connect to a reader, first select that reader from the drop-down list or enter the hostname/IP address, and then click Connect.
- **Start / Stop button** - click to start or stop reading tags.

## Antennas

This field includes the following items:

- **Antennas listed by color** - each color represents an antenna port in the reader.
  - A blue icon on top of each antenna indicates whether the antenna is connected or disconnected.
  - An enabled antenna appears in the color selected in the Settings tab. A disabled antenna appears in the control color. To enable or disable an antenna, first ensure you are logged in with a valid user name and password, then click an antenna image. See [Autologin on page 50](#).
  - Number value - the number inside each antenna indicates the total reads by that particular antenna.
  - Slide bar - the slide located under each antenna indicates the power level of each antenna. Use the slide bar to change the antenna's power value.
- **Pie chart** - represents the contribution of each antenna in total tag reads.
- **User LED** (small colored boxes under the pie chart) - the user LED colors available. The LED is set to a particular reader. To enable or disable the LED, first ensure you are logged in with a valid user name and password, then click an LED image. See [Autologin on page 50](#).
- **GPI field (General Purpose Input)** - indicates the status of the GPI input.
- **GPO field (General Purpose Output)** - click on a GPO button to change the pin status of the device.

## Tag Details

This field includes the following items:

- **EPC** - write tags and read the fields.
- **TID** - read only.
- **User memory** - read and write.

## RSSI / Direction / Zone

This field is active when running inventory. Select a tag in the list to display the RSSI value for that tag in each antenna as a dynamic bar graph.

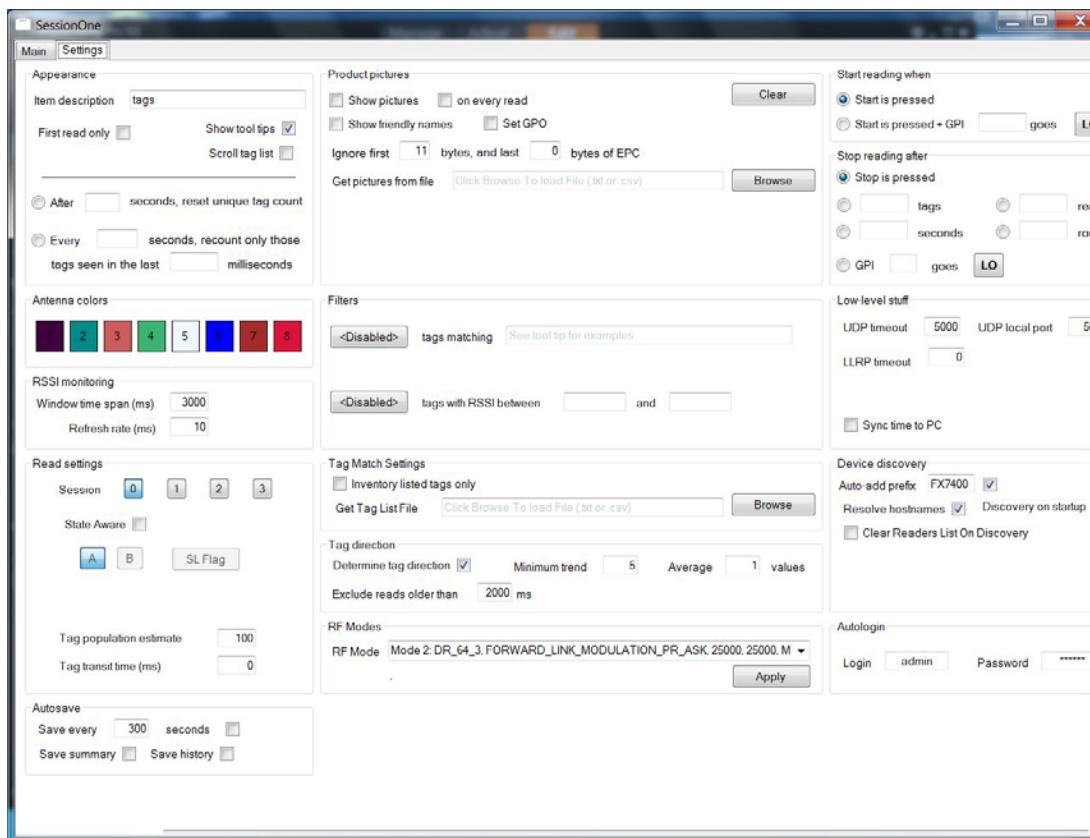
---

## Settings Tab

The Settings tab includes the following fields.

# SessionOne

**Figure 40 Settings Tab**



## Apearance

- Item description - enter text to appear in the Main tab below the unique tag reads count.
- First read only - check to update the list view in the Main tab only for the first read of the tag (no list view update for subsequent tag reads). Leave unchecked to update everything in the list view (all antenna details, RSSI values, etc.) For optimal performance, enable this option.
- Show tool tips - check to display tool tips for some controls.
- Scroll tag list - in a large tag environment where the tags exceed the display limit, check this to automatically scroll the list to ensure that the latest read tag is visible.
- After (text box) seconds, reset unique tag count - select the radio button, then enter the number of seconds after which the count of unique tags resets in the Main tab.
- Every (text box) seconds, recount only those tags seen in the last (text box) milliseconds - for the value entered in the first text box (in seconds), the unique tags count in the Main tab is set by the value of unique tags entered in the second text box (in milliseconds).

## Antenna Colors

Select an antenna color to change the associated antenna's display color in the Main tab.

## RSSI Monitoring

During tag inventory, select a tag to plot an RSSI graph for that tag.

- Windows time span - the time frame within which to consider RSSI values of the tag. Exclude any tag read older than this duration.
- Refresh rate - the time interval for refreshing or redrawing the RSSI graph.

## Read Settings

- Session - specify the session of the reader.
- State aware - check to select state aware singulation.
  - A, B buttons - after checking State Aware, click to specify the inventoried flag value of the selected session (A or B).
  - SL Flag button - after checking State Aware, click to specify the flag (SL) state (asserted or deasserted).
- Tag population estimate - the expected tag population in the field of view of the antenna.
- Tag transmit time - the measure of expected tag mobility in the field of view of the antenna where this inventory operation is executed.

## Autosave

This field includes settings for saving history or a summary.

- Save every - enter the time interval for autosave.
- seconds - check to save the tag list in the application data folder.
- Save summary - check to store consolidated summary for each tag instead of detailed reads in the application data folder.
- Save history - check to store detailed information on every read in the application data folder.

## Product Picture

This field includes settings to show a picture in the Main tab where the Zebra logo appears during inventory.

- Show pictures - check to display the picture.
- on every read - check to display the picture on every read of the tag rather than on the first read only.
- Show friendly names - check to replace the tag ID in the list with a friendly name.
- Set GPO - check to enable GPO (if available in the loaded file).
- Ignore first (text box) bytes, and last (text box) bytes of EPC - specify which part of the tag ID to consider when comparing the tag ID read during inventory with the partial or full tag ID in the loaded file.
- Get pictures from file - click Browse to locate and load the .txt or .csv file. Each line of the file is in the format:  
`<tag ID / part tag ID>,<Location of Image to Show>,<Friendly Name>,GPO<GPO number>`

For example:

`00,\pics\00.png,My Tag,GPO 1`

## Filters

- Include/Exclude/Disable field - choose whether to include/exclude/disable the filter.
- tags matching - enter the filter expression.
- tag with RSSI between (text box) and (text box) - enter the RSSI filter range.

## Tag Match Settings

- Inventory listed tags only - check to load the file which contains the tag list to read.
- Get Tag List File - click Browse to browse tag lists. Select the tag list to inventory.

Tags listed that were read appear in green, tags not yet read appear in red. Inventory stops when all tags in the list are read.

## Tag Direction

This field indicates the directionality of the tag if the tag appears in the bottom of the RSSI graph.

- Determine tag direction - check to enable this option.
- Minimum trend - enter the number of RSSI value averages to take to determine tag direction.
- Average - enter the number of RSSI values to take to calculate the average.
- Exclude reads older than - enter the time in which to exclude RSSI values for older tags read when determining the tag's direction.

## RF Modes

Displays the RF mode set in the reader and allows the user to change this mode (applied to all antennas).

### Start Reading When

- Start is pressed - select to start inventory upon clicking the Start button.
- Start is pressed+GPI - select to start inventory based on the GPI trigger. Enter the trigger (integer) in the text box.
- goes - select whether the required start trigger is HI or LO.

### Stop Reading After

- Stop is pressed - select to stop inventory upon clicking the Stop button.
- tags - select to specify the number of tags after which to stop inventory.
- reads - select to specify the number of reads after which to stop inventory.
- seconds - select to specify the number of seconds after which to stop inventory.
- rounds - select to specify the number of rounds after which to stop inventory.
- GPI - select to stop inventory based on the GPI trigger. Enter the trigger (integer) in the text box.
- goes - select whether the required stop trigger is HI or LO.

### Low Level Stuff

- UDP timeout - enter how long to wait to receive device discovery response information.
- UDP local port - enter the port in which the local host binds to send the device discovery message.
- LLRP timeout - set the timeout of the reader connection.
- Sync time to PC - check to synchronize the reader time with the local time.

### Device Discovery

- Auto-add prefix - check to add an auto prefix while trying to resolve the hostname. For example, enter FX7400. Then, to connect to a series of FX7400XXXX devices, search XXXXX only because FX7400 is already included as an auto-add prefix.
- Resolve hostnames - check to resolve the hostname during device discovery.
- Discovery on startup - select to perform device discovery while the application is starting up.
- Clear Readers List On Discovery - check to discard discovered reader information when performing the next discovery.

### Autologin

Enter the user name and password in these fields to log in to the device. Once logged in, the user can perform all reader management related operations, including enabling and disabling antennas and setting user LEDs.

# PowerSession

---

## Introduction

PowerSession is a multi-reader, PC-based application used to discover and connect to multiple Zebra fixed and hand-held RFID readers, specifically the FX Series Fixed Readers and MC Series Hand-held Readers. This tool allows users to easily perform inventory operations.

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## Installation

To install PowerSession on the host PC:

1. Locate PowerSession at: [www.zebra.com/support](http://www.zebra.com/support).
2. Download the PowerSession zip file to the host PC and unzip the file.
3. Double-click on the powersessionsetup.exe file.
4. Follow the screen prompts to complete installation.

## Connecting to the RFID Reader

To connect to the reader through PowerSession:

1. Connect the reader to the host PC. Refer to the reader's Product Reference Guide for instructions (refer to [www.zebra.com/support](http://www.zebra.com/support) for the latest guides)

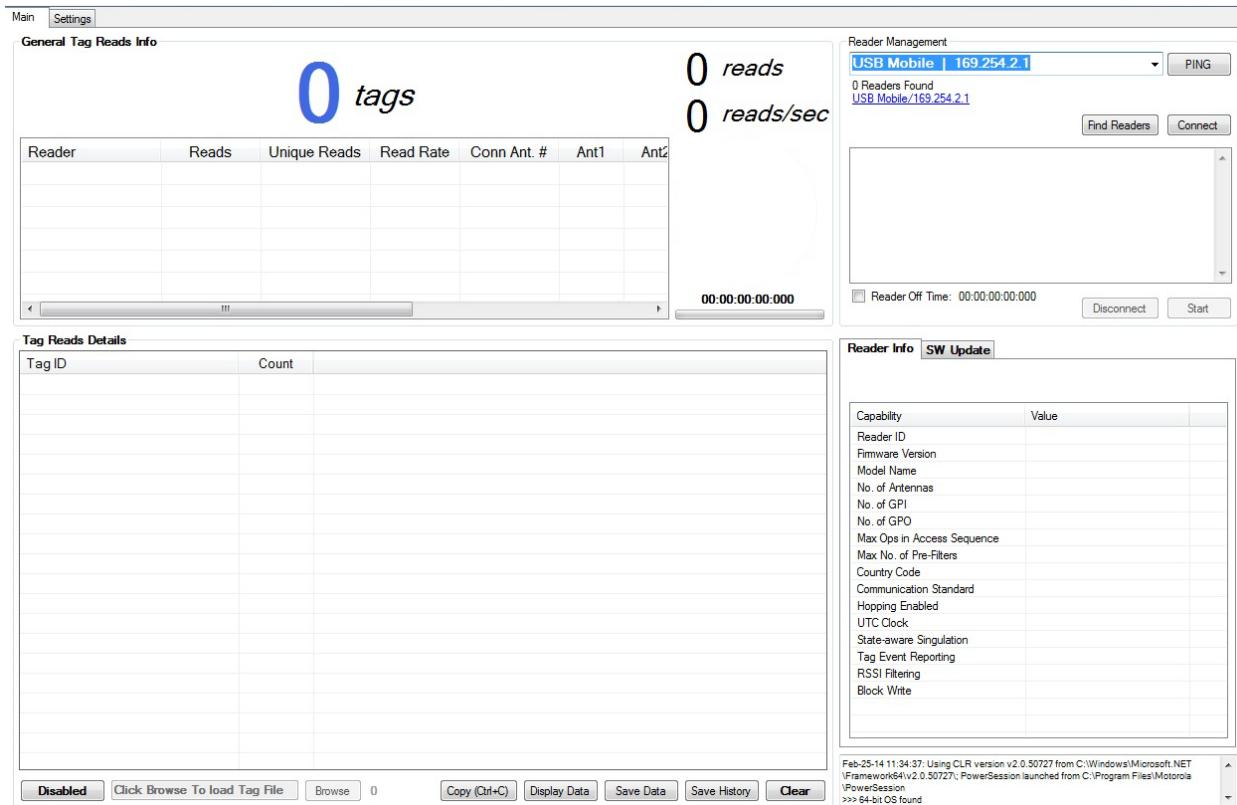
- ✓ NOTE: If connecting to the host PC via a USB cable, note the following:

For the FX7400, FX7500, and FX9600, ensure the USB mode is set to Network (the default mode). If the USB mode is ActiveSync, use the Administrator Console to change it to Network before connecting to the host PC.

For hand-held readers, synchronize the device with the host PC.

2. Select PowerSession from the host PC Start menu to launch the application.
3. The PowerSession main window opens.

**Figure 41 PowerSession Main Tab**



4. Click Find Readers to discover all readers in the area. Click on the reader name to connect to that reader, or select from the Reader Management text box/ drop-down list and click Connect.

- ✓ NOTE: If connecting to the host PC via a USB cable, note the following:

To select a fixed reader, select USB FX | friendly name from the drop-down list.

To select a hand-held reader (MC3090-Z, MC3190-Z, or MC9090-Z), select USB Mobile | friendly name from the drop-down list.

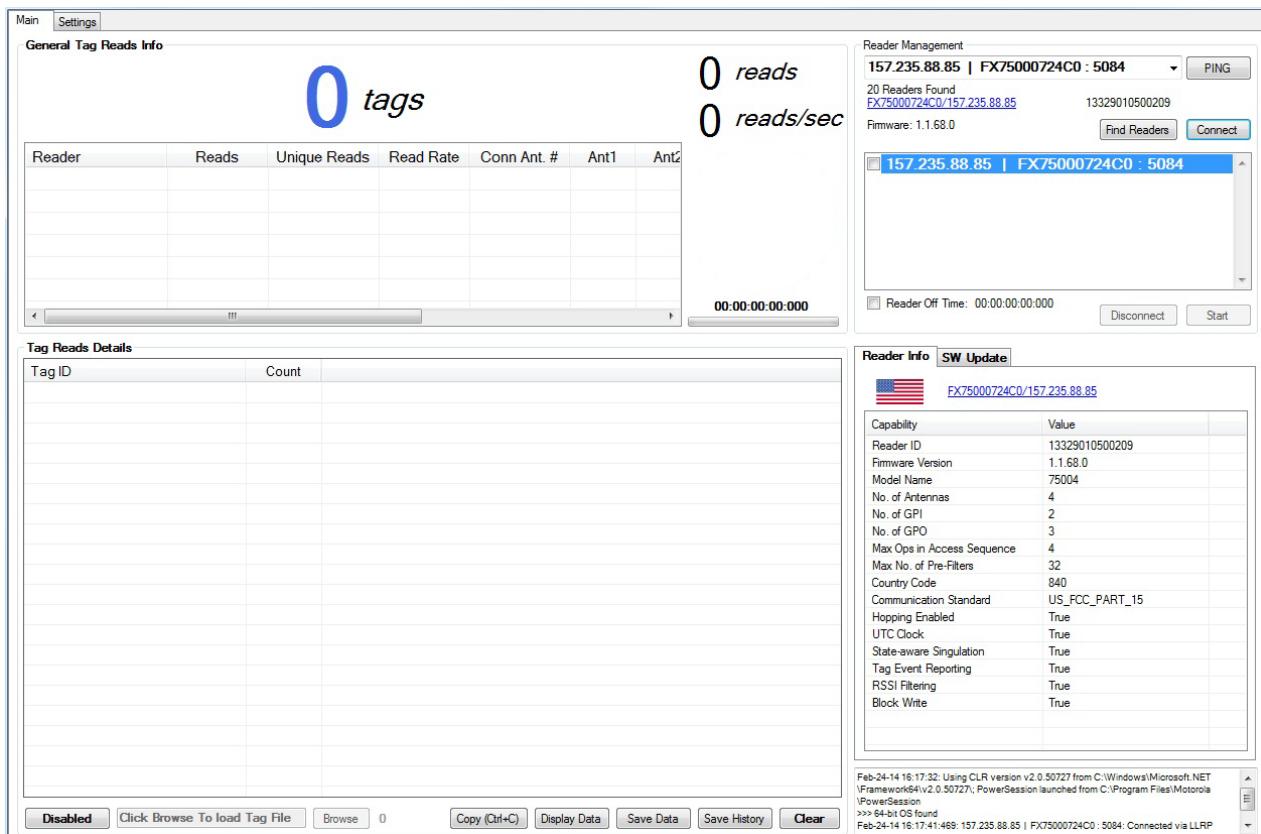
**To search for a reader using the host name:**

1. Enter the reader host name in the Reader Management text box (e.g., fx7400cd3b0d) with no spaces. The host name is provided on a label on the reader, or on the CD provided with the reader. Select Find Readers. The Find Readers button changes to Stop Finding while PowerSession scans for a reader and displays connection activity at the bottom right area of the window.
2. When the message Found Reader appears, select the reader from the Reader Management drop-down list and select Connect.
3. Click PING to verify that the reader is connected. The button turns green to confirm connection. If the button turns red, continue to directions below to search for a specific reader.

**To search for a specific reader:**

1. Open a command prompt on the host PC by selecting Start > Programs > Accessories > Command Prompt.
2. Enter ping <reader host name> and select Return. For example, enter ping fx7400cd3b0d and select Return. The reader's IP address displays.
3. Close the command prompt and return to PowerSession. Enter the reader's IP address in the Reader Management text box (e.g., 10.11.11.183).
4. Select PING to locate and connect to the reader.

**Figure 42 PowerSession Main Tab - Reader Connected**



- ✓ **NOTE:** Select and connect to a reader before executing an inventory operation. Information related to the selected reader appears, including:
  - Link to the reader URL
  - Serial number or MAC address
  - Reader model name and number
  - Firmware version.
  
- ✓ **NOTE:** If the reader does not read RFID tags, ensure the reader's region setting is configured. Refer to the reader's Product Reference Guide for instructions at: [www.zebra.com/support](http://www.zebra.com/support).

---

## Reading Tags

Select Start to read tags in the area. The tags appear in the tag list. To stop reading tags, select Stop.

## Main Tab

The Main tab includes the following fields.

**Figure 43 Main Tab**

The screenshot displays the PowerSession software interface with the following sections:

- General Tag Reads Info:** Shows a summary of reads. The main display shows "439 tags" and "43899 reads" at "543 reads/sec". Below this is a table of readers with their IP addresses, read counts, unique read counts, read rates, and antenna connection details.
- Reader Management:** Lists 20 readers found. One reader, "157.235.88.6 | FX7500065702 : 5084", is selected. It shows the IP address, model, and firmware version. Buttons for "Find Readers" and "Connect" are present.
- Tag Reads Details:** A detailed table listing individual tag IDs, their count, last seen times across four antennas (Ant1-Ant4), and other metadata.
- Reader Info:** Provides detailed configuration and status information for the selected reader, including capability values, communication standards, and event reporting settings.

## General Tag Reads Info

This field includes the following items:

- Tags - total number of unique tags read so far.
- Reads - total number of reads of all tags so far.
- Reads / sec - how many reads occur per second.
- Time bar - time elapsed in the current read session.

The table includes the following items:

- Reader - IP address of each selected reader.
- Reads - total number of reads of all tags so far.
- Unique Reads - total number of unique tags read so far.
- Read Rate - how many reads occur per second.
- Conn Ant. # - Ant1-Ant 8 - number of antenna ports on the reader that are physically connected to antennas.

## Tag Reads Details

**Figure 44 Tag Reads Details**

The screenshot shows the 'Tag Reads Details' window. At the top, it displays statistics: Loaded: 46, Unseen: 9, Seen: 37, Unknown: 9. Below this is a table with columns: Tag ID, Count, IP Address, and Last Seen. The table lists various tag IDs and their corresponding counts and last seen times. To the right of the table is a 'Reader Info' section containing details like Reader ID, Firmware Version, Model Name, and Communication Standard. At the bottom of the window, there are buttons for Search Tags, Browse, Copy (Ctrl+C), Display Data, Save Data, Save History, and Clear.

Tag ID	Count	IP Address	Last Seen
4444444444444444444751	1	157.235.88.6	Antl: 11:20:55.9220
4444444444444444444802	2	2	Antl: 11:20:56.0860
7777222233334445556666	2	2	Antl: 11:20:56.1790
4444444444444444444729	2	2	Antl: 11:20:56.1330
4444444444444444444678	2	2	Antl: 11:20:56.0630
4444444444444444444728	2	2	Antl: 11:20:56.0630
4444444444444444444471	2	2	Antl: 11:20:56.0160
E200680600DDBA1CADE0025	2	2	Antl: 11:20:56.1330
4444444444444444444774	2	2	Antl: 11:20:56.0160
4444444444444444444769	2	2	Antl: 11:20:56.0620
4444444444444444444796	2	2	Antl: 11:20:56.0390
4444444444444444444767	1	1	Antl: 11:20:55.9920
4444444444444444444814	0	0	---
4444444444444444444726	0	0	---
4444444444444444444812	0	0	---
4444444444444444444807	0	0	---
4444444444444444444804	0	0	---
E2006806000000000000000000	0	0	---

Reader Info SW Update

Reader ID: 13245010500748  
Firmware Version: 1.1.68.0  
Model Name: 7504  
No. of Antennas: 4  
No. of GPI: 2  
No. of GPO: 3  
Max Ops in Access Sequence: 4  
Max No. of Pre-Filters: 32  
Country Code: 840  
Communication Standard: US\_FCC\_PART\_15  
Hopping Enabled: True  
UTC Clock: True  
State-aware Singulation: True  
Tag Event Reporting: True  
RSSI Filtering: True  
Block Write: True

FX7500065702/157.235.88.6

This field includes the following items:

- **Loaded** - when the loading tag list functionality is enabled, this field displays the total number of tags loaded from a specific file that are expected to be seen.
- **Seen** - when the loading tag list functionality is enabled, this field displays the number of tags from the loaded tag list which the reader has seen so far.
- **Unseen** - when the loading tag list functionality is enabled, this field displays the number of tags from the loaded tag list which the reader has not yet seen.
- **Unknown** - when the loading tag list functionality is enabled, this field displays the number of tags that the reader has seen but are not included in the loaded tag list.
- **Tag ID** - unique tag ID.
- **Count** - number of times that tag was read.
- **IP Address** - IP address of each selected reader on which the inventory operation is executed.
- **Last Seen** - UTC time (in microseconds) when the tag was last seen.
- **Copy** - select to copy and paste selected tag data records from the table into either a .txt or .csv file. Load this file later into PowerSession for a list of tags to search.

- ✓ NOTE: You can also right-click on the Tag Reads Details table and use the pop-up menu to select and copy tag data records in the table.
- **Save Data** - select to save the read results according to the current operation mode.
  - **Save History** - according to the current operation mode, Save the tag read history information.
- ✓ NOTE: The Record Tag Read History option must be enabled under Settings.
- **Display Data** - select to display tag data in the Tag Reads Details table after performing inventory in Optimization mode.
  - **Clear** - select Clear to clear the current read results.

The searching tags section includes the following items:

- **Disabled/Search Tags button** - click Disabled to enable the loading tag list functionality. The button text changes to Search Tags.
- **Browse** - select Browse to load a tag file. The file can contain one tag ID per line. After each tag ID you can enter comments separated by commas.
- **Start** - select Start to start searching tags.
- **Stop** - select Stop to stop searching tags.

## Reader Management

This field includes the following items:

- **Reader Management text box/drop-down list** - enter the reader name to connect to, or select from the drop-down list, then press enter or select Connect. It also lists all readers discovered in the area.
- **Ping** - select Ping to check the connectivity of the selected reader. A successful ping appears in green and displays the round trip time of the ping in milliseconds.
- **Find Readers** - select Find Readers to find all readers in the area.
- **Connect / Disconnect** - select to connect to or disconnect from the selected reader.
- **Reader List** - lists all readers connected to PowerSession.
- **Start / Stop** - click to start or stop reading tags.

## Reader Info

This field displays the reader capabilities information of a selected reader.

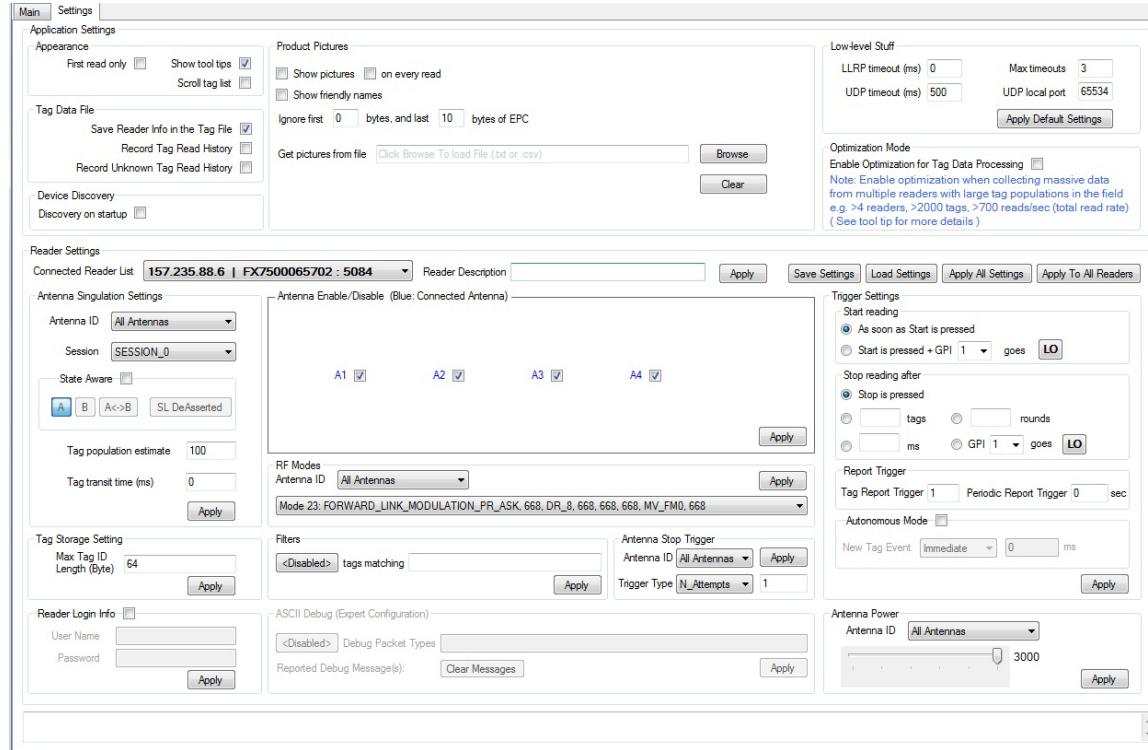
**Figure 45 Reader Info Tab**

Reader Info		SW Update
	FX7500065702/157.235.88.6	
<b>Capability</b>		
Reader ID	Value	
Firmware Version	1.1.68.0	
Model Name	75004	
No. of Antennas	4	
No. of GPI	2	
No. of GPO	3	
Max Ops in Access Sequence	4	
Max No. of Pre-Filters	32	
Country Code	840	
Communication Standard	US_FCC_PART_15	
Hopping Enabled	True	
UTC Clock	True	
State-aware Singulation	True	
Tag Event Reporting	True	
RSSI Filtering	True	
Block Write	True	

## Settings

The Settings tab includes both Application Settings and Reader Settings.

**Figure 46 Settings Tab**



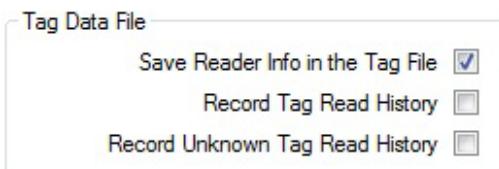
## Application Settings

### Appearance

- **First read only** - select the check-box to update the list view in the Main tab only for the first read of the tag (no list view update for subsequent tag reads). Leave unchecked to update everything in the list view. For optimal performance, enable this option.
- **Show tool tips** - select to display tool tips for some controls.
- **Scroll tag list** - in a large tag environment where the tags exceed the display limit, select check-box to automatically scroll the list to ensure that the latest read tag is visible.

## Tag Data File

**Figure 47 Tag Data File**



**Save Reader Info in the Tag File - select to save reader settings information in the tag file.**

- ✓ NOTE: The saved reader settings are settings applied when the inventory operation was performed.

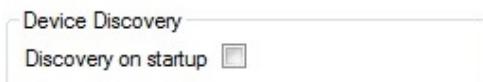
**Record Tag Read History - check to record detailed information on every tag read.**

**Record Unknown Tag Read History - check to record detailed information on every unknown tag read while reading tags in Searching Tags mode.**

## Device Discovery

**Select Discovery on startup to perform device discovery while the application is starting up.**

**Figure 48 Device Discovery Setting**



## Product Picture

This field includes settings to show a picture in the Main tab where the Zebra logo appears during inventory.

- Show pictures - select check-box to display the picture.
- On every read - select check-box to display the picture on every read of the tag rather than on the first read only.
- Show friendly names - select check-box to replace the tag ID in the list with a friendly name.
- Ignore first (text box) bytes, and last (text box) bytes of EPC - specify which part of the tag ID to consider when comparing the tag ID read during inventory with the partial or full tag ID in the loaded file.
- Get pictures from file - click Browse to locate and load the .txt or .csv file. Each line of the file is in the format:  
 <tag ID / part tag ID>,<Location of Image to Show>,<Friendly Name>

For example:  
 00,\pics\00.png,My Tag

## Low Level Stuff

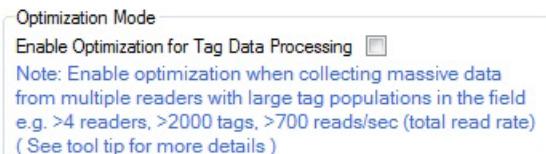
- LLRP timeout - set the timeout for the reader connection and the response from the reader (default is 0).

- **Max timeouts** - enter the maximum allowed UDP timeouts that occur sequentially before stopping discovery.
- **UDP timeout** - enter the time (in ms) to wait for device discovery response information.
- **UDP local port** - enter the port in which the local host should bind to send the device discovery.

## Optimization Mode

Enable the Optimization Mode to improve the data throughput of PowerSession to handle large amounts of tag data from multiple readers.

**Figure 49 Optimization Mode**



- Optimization mode can only be applied to the normal inventory operation.
- ✓ NOTE: Optimization mode cannot be applied to the tag list searching operation and AAR zone-based inventory operation.
- Enabling optimization will disable:
  - The tag list gui update so that no tag data is displayed in the tag list table during the inventory.
  - Displaying the product pictures and tag friendly names even when the features are enabled.
- After the inventory operation is stopped, a user can:
  - Save the tag data and tag read history information.
  - Select the Display Data option to display all tag data in the tag list table.

## Reader Settings

- **Connected Reader List** - select a reader from the Connected Reader List.
- **Reader Description** - enter a description (up to 40 characters) for the selected reader, then click **Apply**. The description appears in the Connected Reader List, associated with that reader's IP address.

## Save/Load/Apply Reader Settings

**Figure 50 Save/Load/Apply Setting**

- **Save Settings** - save the reader settings of a currently selected reader in an XML file.

**Figure 51 XML Saved Reader Setting Example**

```

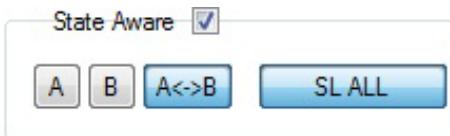
<?xml version="1.0" encoding="utf-8"?>
<ReaderConfig xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <ReaderModelName>FX7400</ReaderModelName>
  <EnabledAntennaList>1-4</EnabledAntennaList>
  <MaxTagIDLength>64</MaxTagIDLength>
  <AntennaListSingulationSettings>
    <AntennaSingulation AntennaID="1" Session="SESSION_S0" TagPopulation="100" TagTransitTime="0" PerformStateAwareSingulation="false" />
    <AntennaSingulation AntennaID="2" Session="SESSION_S0" TagPopulation="100" TagTransitTime="0" PerformStateAwareSingulation="false" />
    <AntennaSingulation AntennaID="3" Session="SESSION_S0" TagPopulation="100" TagTransitTime="0" PerformStateAwareSingulation="false" />
    <AntennaSingulation AntennaID="4" Session="SESSION_S0" TagPopulation="100" TagTransitTime="0" PerformStateAwareSingulation="false" />
  </AntennaListSingulationSettings>
  <AntennaListRFModeSettings>
    <AntennaRFMode AntennaID="1" RFModeTableIndex="0" />
    <AntennaRFMode AntennaID="2" RFModeTableIndex="0" />
    <AntennaRFMode AntennaID="3" RFModeTableIndex="0" />
    <AntennaRFMode AntennaID="4" RFModeTableIndex="0" />
  </AntennaListRFModeSettings>
  <AntennaListPowerSettings>
    <AntennaPower AntennaID="1" AntennaPowerValue="3000" />
    <AntennaPower AntennaID="2" AntennaPowerValue="3000" />
    <AntennaPower AntennaID="3" AntennaPowerValue="3000" />
    <AntennaPower AntennaID="4" AntennaPowerValue="3000" />
  </AntennaListPowerSettings>
  <TriggerSettings>
    <StartTriggerSettings StartTriggerType="START_TRIGGER_TYPE_IMMEDIATE" />
    <StopTriggerSettings StopTriggerType="STOP_TRIGGER_TYPE_IMMEDIATE" />
    <ReportTriggerSettings TagReportTriggerValue="1" />
    <AutonomousMode Enabled="false" />
  </TriggerSettings>
  <PrefilterListSettings Status="Include" FilterMaskValue="3333*" />
</ReaderConfig>

```

- Load Settings** - load reader settings from a saved reader settings XML file and apply to the currently selected reader.
- Apply All Settings** - apply specified reader settings to the currently select reader.
- Apply To All Settings** - apply specified reader settings to all readers listed in the Connect Reader List drop-down.

## Antenna Singulation Settings

- Antenna ID** - select whether to apply singulation settings to all antennas or a specified antenna.
- Session** - specify the session of the reader.
- State Aware** - check to select State Aware Singulation.
  - A, B, A<->B** - Click to specify the inventoried flag value of the selected session: A, B or A<->B (AB Flip)
  - SL Asserted / SL DeAsserted / SL ALL** button - click to specify the flag (SL) state: SL Asserted, SL DeAsserted or SL ALL.

**Figure 52 Antenna Singulation Setting**

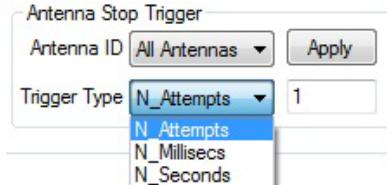
✓ **NOTE:** The A<->B and SL ALL settings are exclusive to the FX7500 and FX9600 devices.

- Tag population estimate** - the expected tag population in the field of view of the antenna.
- Tag transit time** - the time (in milliseconds) that the tag typically remains in RF field of the antenna where the inventory operation is running.

## Antenna Stop Trigger Setting

Specify how long an inventory should be performed on a particular antenna port before it stops and switches to the next available antenna port.

**Figure 53 Antenna Stop Trigger**



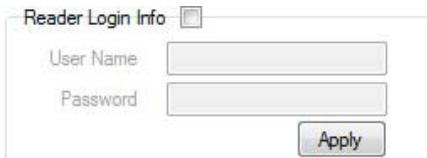
The trigger types are:

- **N\_Attempts:** number of inventory attempts
- **N\_Millisecs:** inventory duration in Milliseconds
- **N\_Seconds:** inventory duration in Seconds.

## Reader Login Info Setting

Specify the reader RM login credentials and select Apply. The credentials are applied when performing the SW update on the reader.

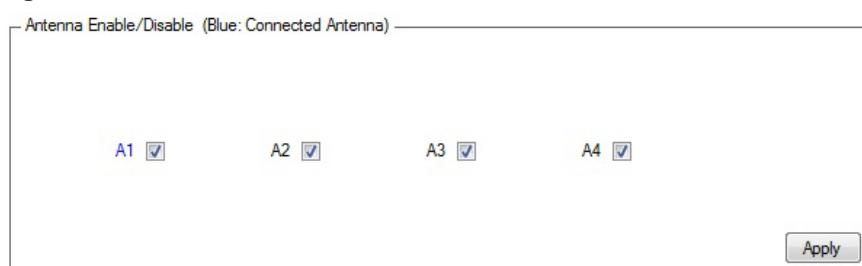
**Figure 54 Reader Login Info**



## Antenna Enable/Disable

- **A(x) check boxes** - the number of antenna check boxes that appear equals the number of antenna ports that the reader supports. Check an antenna check box to perform inventory on this antenna port if it is physically connected to an antenna, then click Apply.
- ✓ **NOTE:** A blue antenna check box indicates that the corresponding antenna port on reader is physically connected to an antenna.

**Figure 55 Antenna Enable/Disable RF Modes**



- **Antenna ID** - select whether to allow changing the RF mode for all antennas or a specified antenna.
- **RF Mode drop-down list** - lists the reader's supported RF modes and displays the mode currently set in the reader.

## Filters

- Select a filter option to Include, Exclude or Disable tags matching a certain criteria to be included in the tags matching field.

## Select Apply.

- ✓ NOTE: Filtering is performed using pre-filters (up to the maximum allowed) and based on 96 bits EPC ID.  
Because pre-filters are based on the current singulation settings, configure required singulation settings before applying filters.

## Antenna Power

- Antenna ID - select whether to apply the antenna power setting to all antennas or a specified antenna.
- Antenna power slide bar - adjust the reader-supported antenna power values.
- Select Apply.

## Tag Storage Setting

- Max Tag ID Length (Byte) - specify the maximum storage size to allocate for a tag EPC ID.

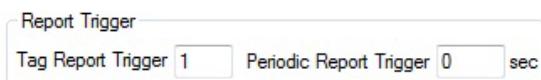
## Trigger Settings

- Start reading
  - As soon as Start is pressed - select to start inventory upon clicking the Start button.
  - Start is pressed + GPI - select to start inventory based on the GPI trigger. Select the value representing the GPI trigger (integer) to use from the drop-down list.
  - goes - select whether the required start trigger is HI or LO.
- Stop reading after
  - Stop is pressed - select to stop inventory upon clicking the Stop button.
  - tags - select to specify the number of tags after which to stop inventory.
  - rounds - select to specify the number of rounds after which to stop inventory.
  - ms - select to specify the number of milliseconds after which to stop inventory.
  - GPI - select to stop inventory based on a GPI trigger. Select the value representing the GPI trigger (integer) to use from the drop-down list.
  - goes - select whether the required stop trigger is HI or LO.

## Report Trigger Settings

The Report Trigger option provides the ability to specify the duration to generate tag reports.

**Figure 56 Report Trigger**



- Tag Report Trigger - enter a value to specify when to report tag data during inventory. The default settings is 1, which implies to report Tag data immediately.

- Periodic Report Trigger (applies to FX7500 and FX9600 only) - specify the time period (in seconds) after which the tag will be reported if the tag is continued to be read after the period. The default settings is 0, which implies that Tag reports will be generated immediately.
- ✓ NOTE: The Tag Report Trigger and Periodic Report Trigger are mutually exclusive. Periodic Report Trigger has priority on Tag Report Trigger.

## Autonomous Mode

- Autonomous Mode - check to enable autonomous mode on the reader.
- New Tag Event - specify the new tag event mode for subscribing:
  - Never - report no tag data.
  - Immediate - report data for a new tag immediately.
  - Moderated - report data for a new tag only after the specified moderation time and that tag was seen for the moderation duration.
  - ms - when Moderated mode is selected, enter the moderation duration for the new tag event.

## Software Update for Multiple Readers

The Software Update option provides the ability to update multiple devices (FX7400, FX7500, and FX9600) simultaneously using FTP/FTPS or local file based methods.

To update software for multiple readers:

1. In the Reader Settings, enter admin privileged User Name and Password login credentials for a selected reader in the Connected Reader List of the main window.
2. Select Apply.

**Figure 57 Reader Login**

The screenshot shows a dialog box titled "Reader Login Info". It contains two input fields: "User Name" with the value "admin" and "Password" with the value "\*\*\*\*\*". Below the password field is an "Apply" button.

## FTP/FTPS Server Based Software Update

To update FTP/FTPS:

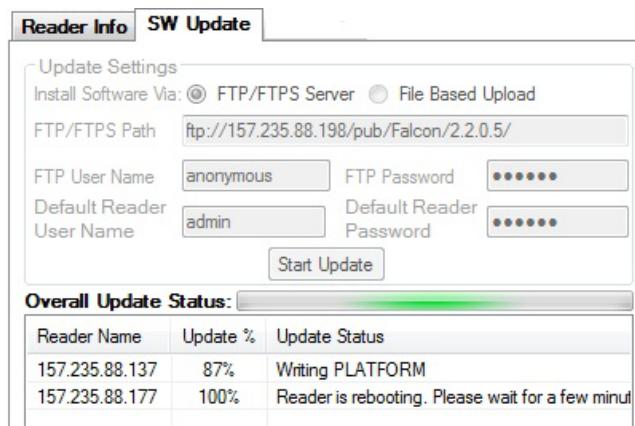
1. Next to Install Software Via, select **FTP/FTPS Server**.
2. Enter the **FTP/FTPS server user account information** that has access to download files from the server.
3. Provide a default admin privileged User Name and Password for the reader.

## Local File Based Software Update

To update local file based software:

1. Next to Install Software Via, select **File Based Upload**.
2. Select the **response.txt** file to specify the reader software package location.
3. Provide a default admin privileged User Name and Password for the reader.

**Figure 58 Software Update Screen**



## Software Update Procedures

Select one or multiple readers from the connected reader list in the main window.

1. Select the **SW Update** tab from the main window.
2. Provide all required inputs for the software update.
3. Select **Start Update** to start software update on selected readers.

✓ NOTE: The software updates for multiple readers only support the FX7400, FX7500, and FX9600.

All selected readers in the connected reader list should have the same reader model name, either FX7400, FX7500, or FX9600.

If a selected reader's login Information is not configured in the Reader Settings, PowerSession defaults to the default reader login credentials provided by the user to update reader software.

# RapidRead

---

## Introduction

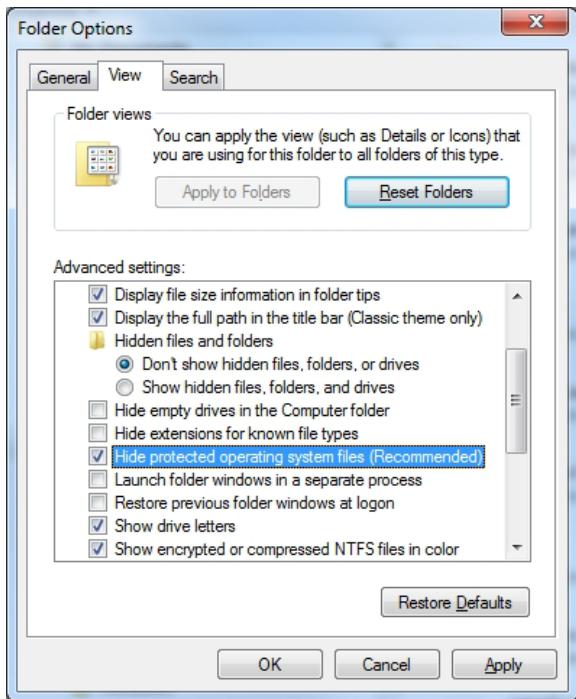
**RapidRead is a RFID hand-held reader application used to demonstrate inventory and asset counting, tag writing and item locating.**

## Installation

To install RapidRead on the hand-held RFID reader:

1. Locate RapidRead at [www.zebra.com/support](http://www.zebra.com/support).
2. Download the RapidRead zip file to the host PC and unzip the file.
3. Using Active Sync (XP) or Windows Mobile Device Center (Win7), connect the PC to the hand-held reader.
4. On the hand-held reader, open File Explorer and double click on the Temp folder (If the Temp folder is not visible, tap Windows icon > File Explorer > Menu > Show All Files).

**Figure 59 Folder Options**



5. From the PC, copy the CAB file to the Temp folder on the hand-held reader (If the Temp folder is not visible, tap Tools > Folder Options > View > uncheck the option Hide protected operating system files > select Yes > tap Apply).
6. On the hand-held reader, tap on the CAB file to install.
7. When prompted, select Device for installation directory.

To access RapidRead, double tap the RapidRead icon on the home screen of the hand-held reader or select File Explorer > Program Files > RapidRead.

Figure 60 RapidRead Icon



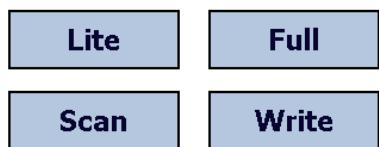
## Options

To select specific options, select Menu > Options.

Figure 61 RapidRead Menu



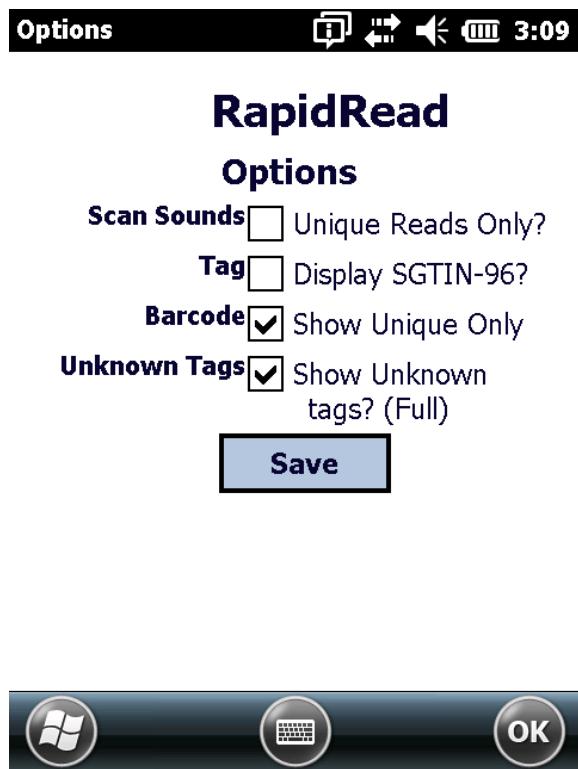
## RapidRead



The following selections are available on the Options screen:

- Scan Sounds (applicable for Lite and Full) - check to produce a sound for unique tag reads only, rather than on each tag read.
- Tag (applicable for Lite only) - check to display tag reads in SGTIN-96 format.
- Barcode - check to display number of unique bar codes read rather than the total number of bar codes read.
- Unknown Tags (applicable for Full only) - check to show tags which are not in the database but have been read.

Figure 62 RapidRead Options Screen



## RapidRead Tag File

RapidRead has the ability to read and compare against an onboard tag database (tags.csv) displaying matching results, missing and unknown items that have been read during a session.

To implement after installation is complete:

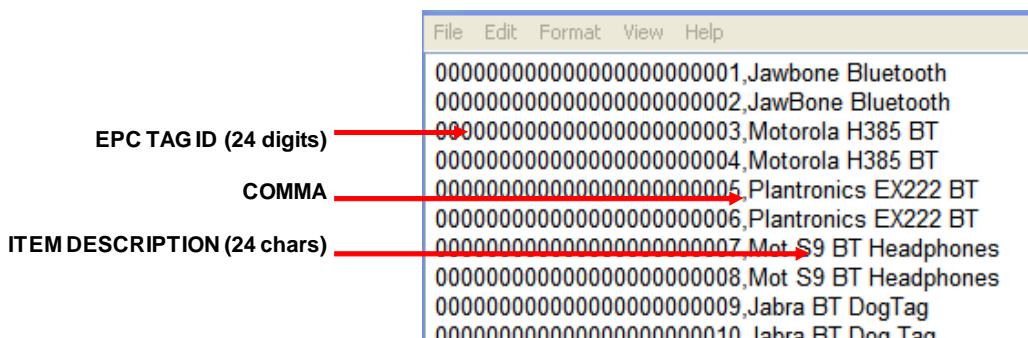
1. Locate the tags.csv file in the RapidRead application folder (under Program files) on the hand-held reader.
2. While connected to the PC through ActiveSync or Windows Mobile Device Center, copy the tags.csv file from the hand-held reader to desktop.

 NOTE: The tags.csv file is a database of tagged inventory and is comma delimited without header information.

3. Using a simple text based application such as, Microsoft® Notepad, modify the file to match your specific tag EPC numbers and enter Item Descriptions. Separate the EPC number and item description with a comma per line for each 'valid' tag.
4. When complete, save the tags.csv file to your PC and copy the file back to the hand-held reader, replacing the original file.

 NOTE: The tag file must be renamed tags as it is the only database name that the hand-held reader recognizes.

Figure 63 Sample List of Tags



	File Edit Format View Help	
EPC TAG ID (24 digits)	000000000000000000000000001,Jawbone Bluetooth	
	000000000000000000000000002,JawBone Bluetooth	
	000000000000000000000000003,Motorola H385 BT	
	000000000000000000000000004,Motorola H385 BT	
COMMA	000000000000000000000000005,Plantronics EX222 BT	
	000000000000000000000000006,Plantronics EX222 BT	
ITEM DESCRIPTION (24 chars)	000000000000000000000000007 Mot S9 BT Headphones	
	000000000000000000000000008,Mot S9 BT Headphones	
	000000000000000000000000009,Jabra BT DogTag	
	0000000000000000000000000010 Jabra RT Dog Tag	

## Using RapidRead

Figure 64 RapidRead Main Screen



The four modes of operation are as follows:

- **Lite** – read all tags in read range via RFID.
- **Full** – read all tags in read range via RFID; compare against database (tags.csv).
- **Scan** – bar code scanning (functions on both RFID enabled hand-held as well as non-RFID hand-held).
- **Write** – function to encode RFID tags by key entry, bar code scanning, or STGIN-96.

## RapidRead Lite

RapidRead Lite offers the following features:

- Ability to scan all standard EPC class1 GEN2 tags within read range and display tag reads.
- Display EPC number read.
- Display number of times a particular tag has been read.
- Display unique tag count.

### Summary Screen

The Summary screen displays the number of unique tags read.

Figure 65 RapidRead Lite Summary Screen

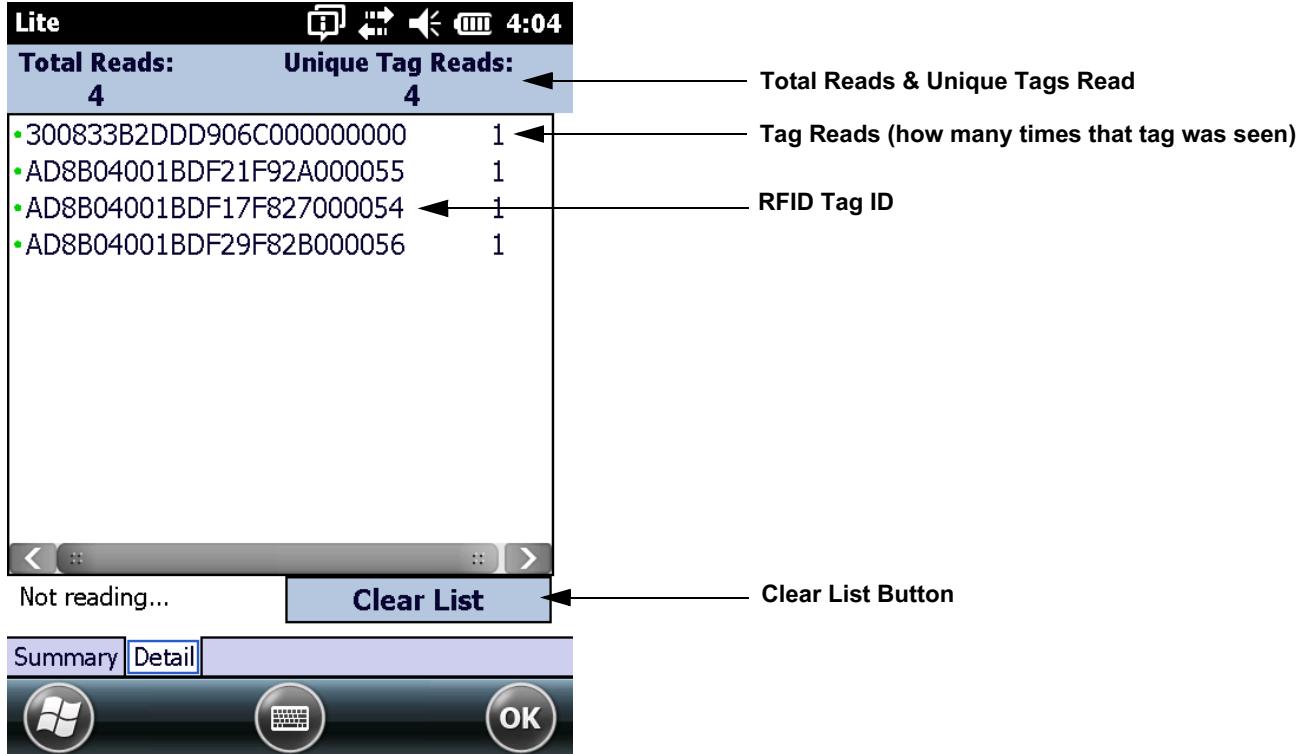


RFID Read occurs only when the trigger is engaged.

## Detail Screen

Select the Detail tab to display a list of individual reads. To clear the list, tap the Clear List button.

Figure 66 RapidRead Lite Detail Screen



- ✓ NOTE: If SGTIN-96 format is selected, tags not in valid SGTIN-96 format appear in HEX format.
- ✓ NOTE: If the reader display cannot accommodate the tag ID length, the application displays only a portion of the tag ID. Select the tag ID to open a window that displays the entire ID.

## RapidRead Full

RapidRead Full offers the following features:

- Ability to scan all standard EPC class1 GEN2 tags within read range and display tag reads.
- Validate read against the tag database (tags.csv) in the RapidRead application folder.
- Display associated asset configurable description.
- Display number of times a particular tag has been read.
- Display total read and unique tag read counts.
- Visual and audible feedback to assist in locating a particular tag (Geiger counter).

### Summary Screen

The Summary screen displays the number of unique tags read.

Figure 67 RapidRead Full Summary Screen



RFID Read occurs only when the trigger is engaged.

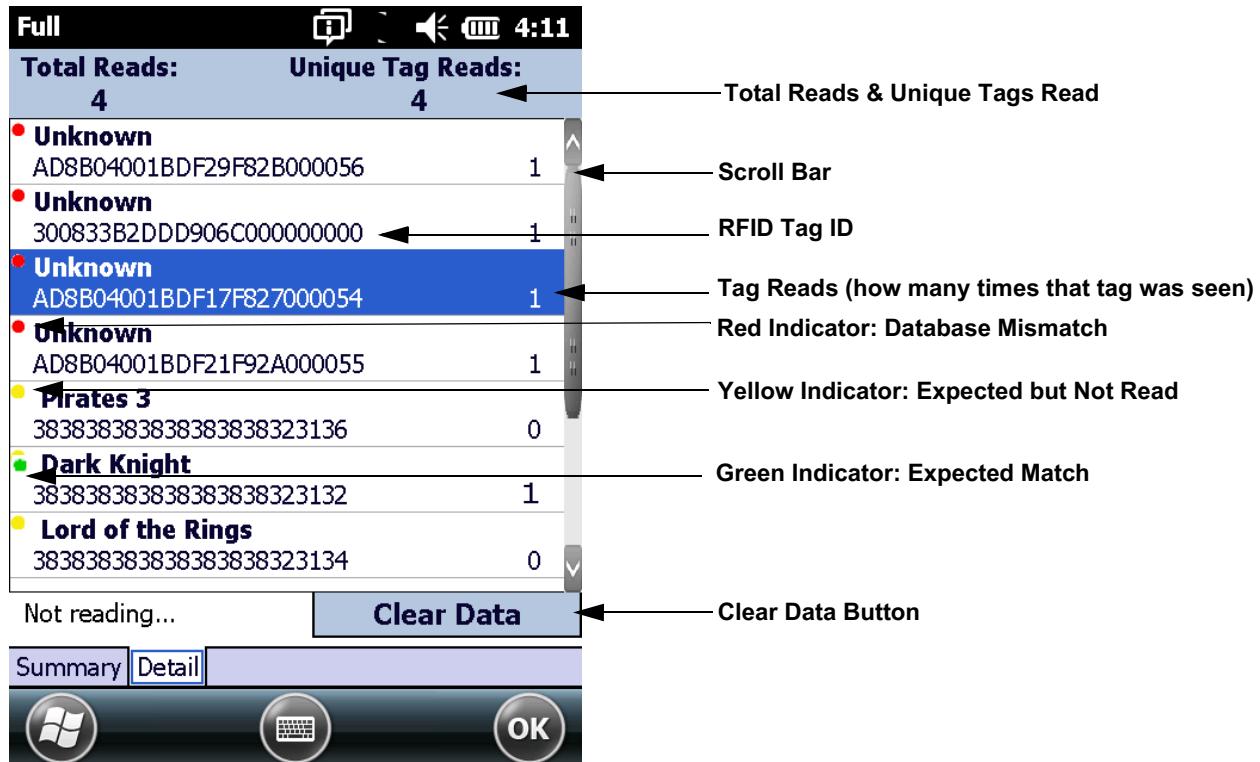
## Detail Screen

The color coded indicators (located next to the titles) are defined as follows:

- Green - read is a match to an asset that has been defined in the tags.csv file.
- Yellow - expected tag but has not been read.
- Red - read does not have a match in the tags.csv file and is classified as unknown.

Select the Detail tab to display a list of individual reads. To clear the list, tap the Clear Data button.

Figure 68 RapidRead Full Detail Screen

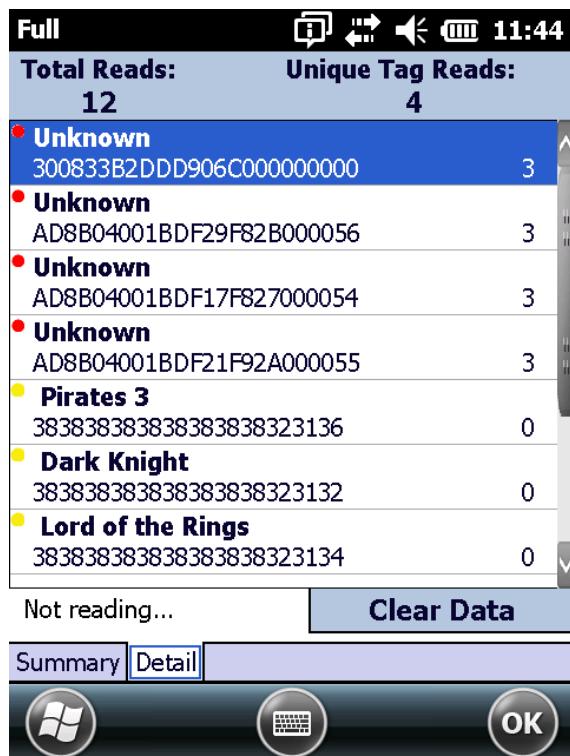


## Gieger Counter

The Gieger counter is a tag locator application that assists with locating missing items (applicable to RapidRead Full only). To use the Gieger counter feature:

1. Select the Detail tab.

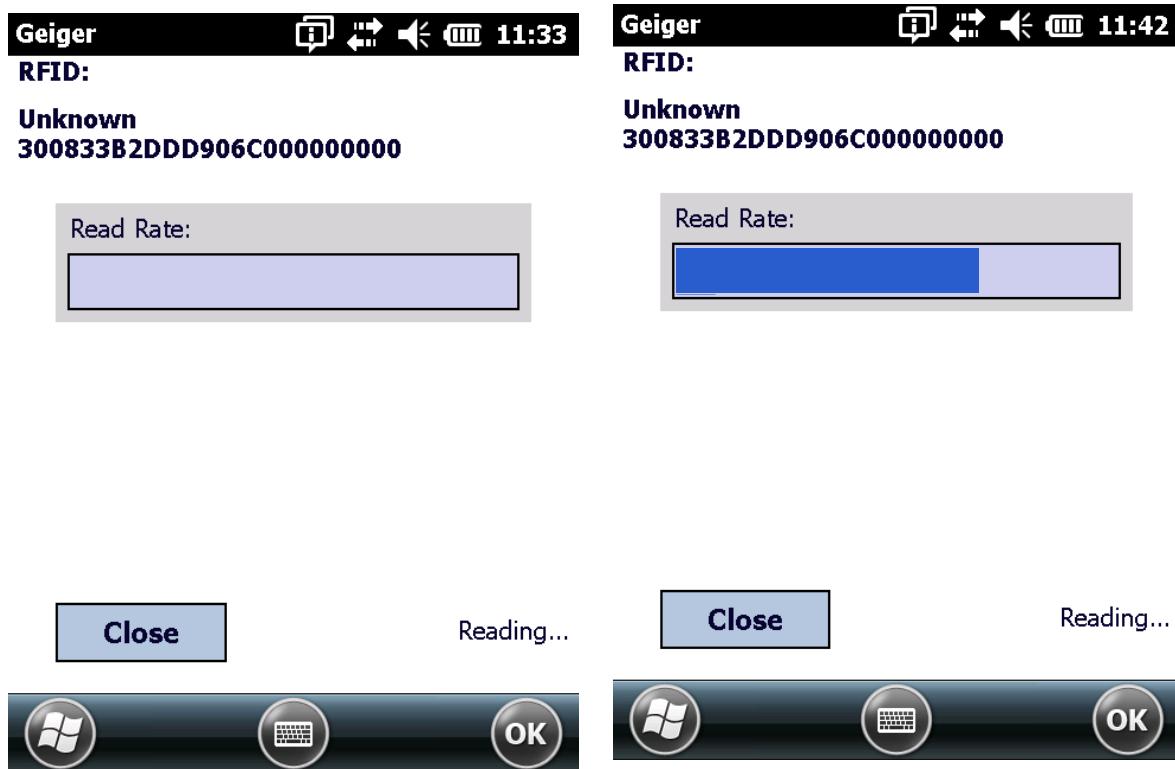
Figure 69 RapidRead Full Detail Tab



2. Tap one of the missing items. The Geiger Counter screen opens as displayed in Figure 70.

3. Pull the hand-held trigger and begin to slowly move the reader around. As the reader approaches the item, beeping frequency increases and the visual bar on the screen will become larger.

Figure 70 Gieger Counter Read Rate



## RapidRead Scan

RapidRead Scan offers the following features:

- Ability to scan bar code.
- Display bar code read.
- Display number of times a particular bar code has been read.
- Display unique bar code count.

✓ NOTE: RapidRead Scan mode also functions on a non-RFID hand-held devices as well.

### Summary Screen

Bar code read occurs only when the trigger is engaged. The Summary screen displays the number of unique bar codes read.

Figure 71 RapidRead Scan Summary Screen



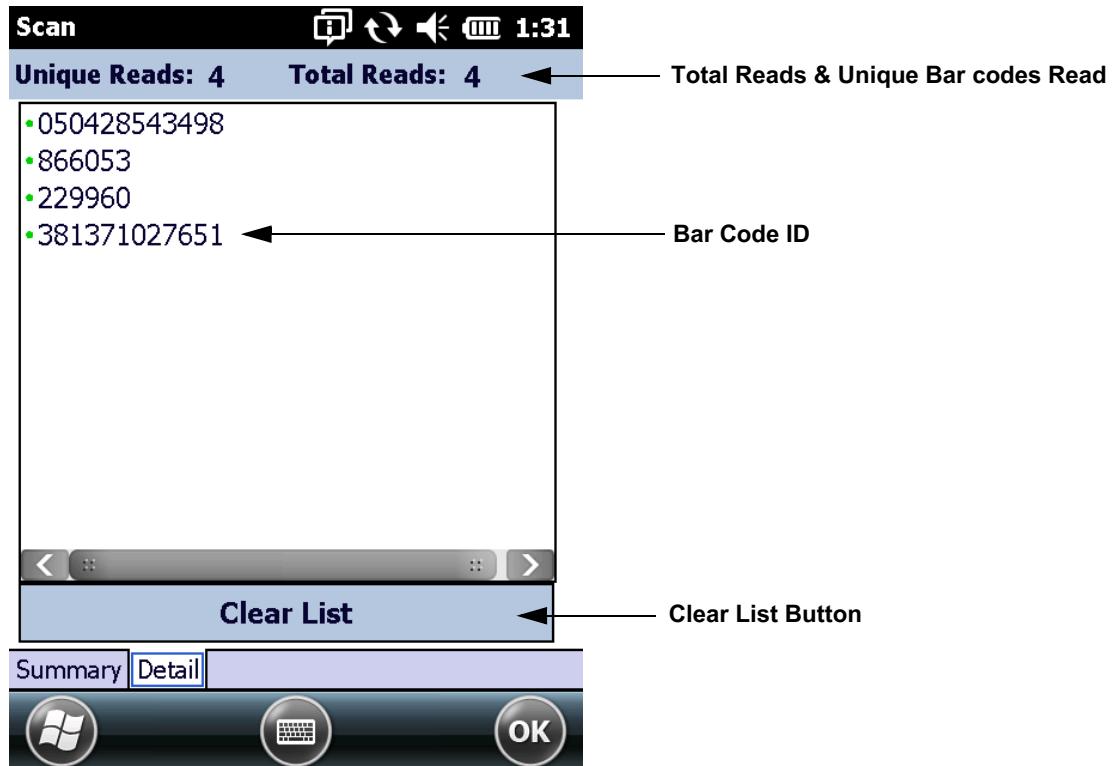
4



## Detail Screen

Select the Detail tab to display a list of individual reads. To clear the list, tap the Clear List button.

Figure 72 RapidRead Scan Detail Screen



## RapidRead Write

The RapidRead Write methods of input are:

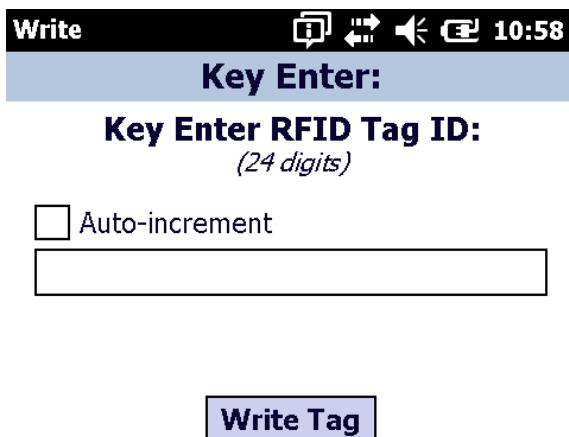
- Key entry
- Scan a bar code
- STGIN-96

### Key Enter Tab

To write to a tag via key entry:

1. Enter 24 digits representing the RFID tag ID.
2. Check Auto-increment to increment the entered number by one digit for the next tag encode.
3. Tap the Write Tag button to write the information to the tag. Once encoded, a successful encode message will be displayed on screen.

Figure 73 RapidRead Write Key Enter Screen

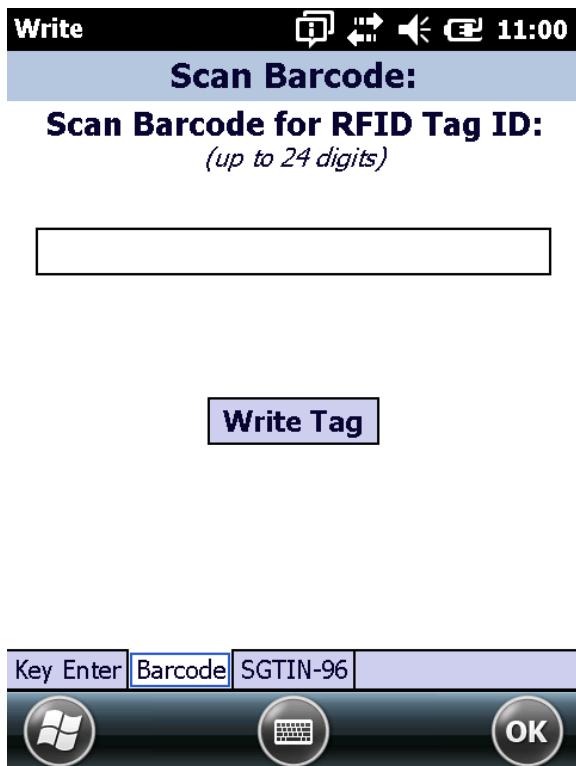


## Bar Code Tab

To write to a tag via bar code scan:

1. Scan a bar code to enter the bar code data in the text field. Leading zeros are added to the front of the ID if the bar code contains less than 24 digits.
2. Tap the Write Tag button to write the information to the tag. Once encoded, a successful encode message will be displayed on screen.

Figure 74 RapidRead Write Barcode Screen

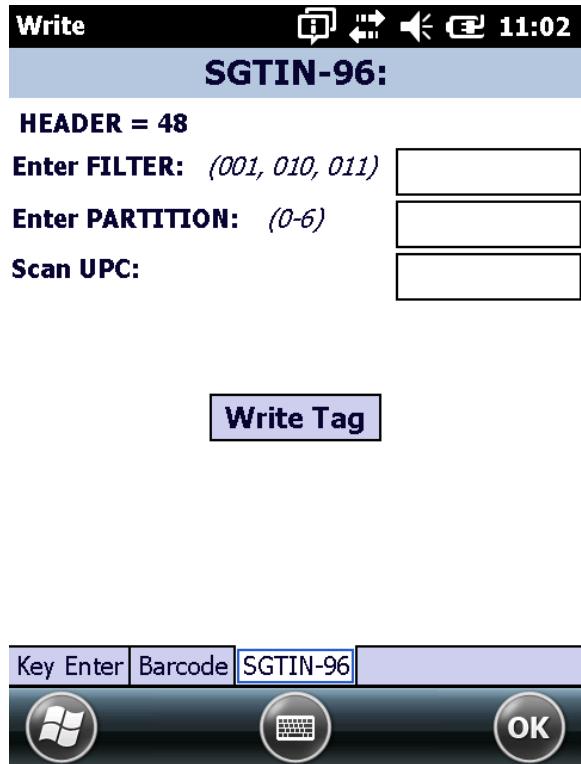


## STGIN-96 Tab

Populate fields with appropriate information.

1. Enter filter data in the Enter FILTER field.
2. Enter partition data in the Enter PARTITION field.
3. Scan the corresponding UPC bar code in the Scan UPC field.
4. Tap the Write Tag button to write the information to the tag. Once encoded, a successful encode message will be displayed on screen.

Figure 75 RapidRead Write SGTIN-96 Screen



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