

**ZEBRA SCANNER  
TWAIN DRIVER  
FOR WINDOWS  
PROGRAMMER'S GUIDE**



# **ZEBRA SCANNER TWAIN DRIVER FOR WINDOWS PROGRAMMER'S GUIDE**

72E-163820-03

Revision A

April 2019

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## Warranty

For the complete Zebra hardware product warranty statement, go to:  
<http://www.zebra.com/warranty>.

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## Revision History

Changes to the original guide are listed below:

Change	Date	Description
Rev. A	4/2012	Initial Release
Rev. A	4/2015	Zebra Rebranding
Rev. A	4/2019	Updated: - File directory on pg. 2-1 - Registry key on pg. 2-3 - Copyright statement on the last page.

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# ABOUT THIS GUIDE

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## Introduction

This guide describes the Zebra TWAIN driver for Windows which enables an imaging scanner to capture and transfer images to a TWAIN-compliant application.

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## Chapter Descriptions

Topics covered in this guide are as follows:

- [Chapter 1, TWAIN DRIVER OVERVIEW](#) provides a description of the Zebra TWAIN Driver for Windows.
- [Chapter 2, INSTALLATION & CONFIGURATION](#) describes installation instructions and settings to configure the Zebra Scanner TWAIN driver on a host computer.
- [Chapter 3, PROGRAMMATIC TWAIN INTERFACE](#) provides TWAIN driver supported capabilities.
- [Chapter 4, GRAPHICAL USER INTERFACE](#) provides information about the TWAIN sample application.

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## Notational Conventions

The following conventions are used in this document:

- *Italics* are used to highlight chapters and sections in this and related documents.
- **Bold** text is used to highlight parameter names and options.
- 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.



**NOTE** This symbol indicates something of special interest or importance to the reader. Failure to read the note will not result in physical harm to the reader, equipment or data.



**CAUTION** This symbol indicates that if this information is ignored, the possibility of data or material damage may occur.



**WARNING!** This symbol indicates that if this information is ignored the possibility that serious personal injury may occur.

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## Related Documents

The latest version of this guide and all guides, are available at: <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: <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

Zebra responds to calls by e-mail, telephone or fax within the time limits set forth in service agreements.

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.



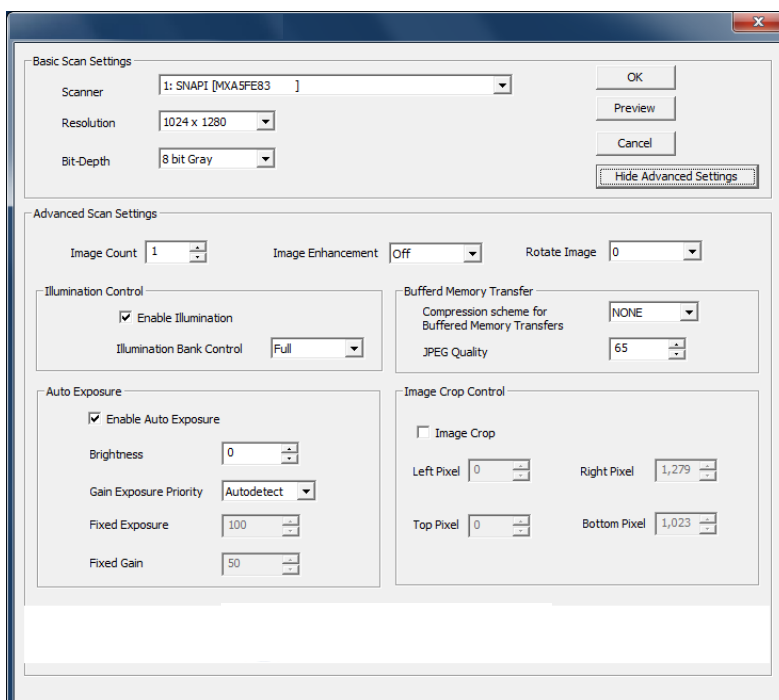
# CHAPTER 1 TWAIN DRIVER OVERVIEW

## Introduction

The Zebra TWAIN Driver for Windows enables an imaging scanner to capture and transfer images to a TWAIN-compliant application. This driver conforms to portions of the TWAIN specification version 2.1 and provides an interface for querying and setting TWAIN capabilities.

The Zebra TWAIN driver provides two interfaces:

- A programmatic (non Graphical User Interface [GUI]) interface that supports capabilities described in the TWAIN version 2.1 specification in addition to custom TWAIN capabilities specific to Zebra imaging scanners.
- A GUI that is accessible through TWAIN-compliant applications (see [Figure 1-1](#)).



**Figure 1-1** GUI for the Zebra TWAIN Driver

For more information, visit [www.twain.org](http://www.twain.org).



# CHAPTER 2 INSTALLATION & CONFIGURATION

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## Overview

This chapter describes installation instructions and settings to configure the Zebra Scanner TWAIN driver on a host computer.

For custom installation instructions, refer to the Zebra Scanner SDK Developer's Guide (p/n 72E-149784-xx).

- ✓ **NOTE** TWAIN components are installed by default with the standard Scanner SDK installation. If a custom Scanner SDK installation is performed, the TWAIN option must be selected to install the TWAIN driver components.

After a successful installation of the Zebra scanner TWAIN components, the Zebra TWAIN data source (TWAIN.ds) is located in one of the following folders:

- 32-bit version: %SystemRoot%\twain\_32\Zebra
- 64-bit version: %SystemRoot%\twain\_64\Zebra

The required Zebra core scanner drivers are located in the folder:  
*%Program Files%\Zebra Technologies\Barcode Scanners\Common.*

Visit <http://www.zebra.com/scannersdkforwindows> to download the Scanner SDK installation program.

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## Configuration

### Scanner Configuration Bar Codes

Scan the **Set All Defaults** bar code below to return all parameters to the scanner's default values. Refer to the scanner's Product Reference Guide for default values.



**Set All Defaults**

### USB SNAPI Communication



**IMPORTANT** Zebra image-capable scanner must be configured in USB SNAPI communication mode to be accessible through the Zebra Scanner TWAIN driver. Scan the USB SNAPI bar code below to configure the scanner for usage with the Zebra TWAIN driver.



**USB SNAPI with Imaging**

## Enabling Logging in the Zebra TWAIN Driver

The Zebra TWAIN driver provides two logging mechanisms to assist with troubleshooting.

- Application event logging viewable through the *Windows Event Viewer* under *Windows Logs -> Application*.
- File logging.

To enable logging, follow these steps:

1. Using the Regedit utility, go to the registry key:  
HKEY\_LOCAL\_MACHINE\SOFTWARE\Zebra\Zebra Scanners\TWAIN.

Name	Type	Data
(Default)	REG_SZ	
Enable	REG_DWORD	0x00000000 (0)
EventViewer	REG_DWORD	0x00000000 (0)
LogFile	REG_SZ	C:\MOTOROLA_TWAIN_LOGS\Log.log
Version	REG_SZ	1.02.0000

**Figure 2-1** HKEY\_LOCAL\_MACHINE Registry Key

2. To enable Windows application event logging, change the value of *EventViewer* from "0" to "1".
3. To enable file logging, change the value of *Enable* from "0" to "1" and provide a valid file path as the value of *LogFile*. Ensure that the application has write permission to the location provided.
4. Restart the application.



# CHAPTER 3 PROGRAMMATIC TWAIN INTERFACE

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## Overview

The TWAIN driver's programmatic (non-GUI) interface supports 34 capabilities from the TWAIN specification version 2.1 in addition to 10 other custom capabilities that are available with Zebra imaging scanners.

For additional information on standard TWAIN capabilities, please visit [www.twain.org](http://www.twain.org).

See [Table 3-2 on page 3-4t](#) for the custom capabilities specific to Zebra imaging scanners.

## Zebra Scanner TWAIN Driver Supported Capabilities

The Zebra TWAIN driver supports the standard TWAIN capabilities (shown in [Table 3-1](#)) through the programmatic (non-GUI) interface.

**Table 3-1** Supported Standard TWAIN Capabilities

Standard TWAIN Capability	Type	Supported Values (default in bold text)
CAP_SUPPORTEDCAPS	TWTY_UINT16	lists the supported capabilities
ICAP_XFERMECH	TWTY_UINT16	<b>TWSX_NATIVE</b> , TWSX_FILE, TWSX_MEMORY
ICAP_PIXELFLAVOR	TWTY_UINT16	<b>TWPF_CHOCOLATE</b>
ICAP_COMPRESSION	TWTY_UINT16	<b>TWCP_NONE</b> , TWCP_JPEG
ICAP_PHYSICALWIDTH	TWTY_FIX32	1024.00
ICAP_PHYSICALHEIGHT	TWTY_FIX32	1280.00
ICAP_MINIMUMHEIGHT	TWTY_FIX32	320.00
ICAP_MINIMUMWIDTH	TWTY_FIX32	256.00
ICAP_UNITS	TWTY_UINT16	<b>TWUN_PIXELS</b>
CAP_DEVICEONLINE	TWTY_BOOL	<b>TRUE</b> , FALSE
ICAP_BRIGHTNESS	TWTY_FIX32	Range: -1000.00 to 1000.00, step 1.00, default = 0.00
ICAP_PIXELTYPE	TWTY_UINT16	TWPT_BW, <b>TWPT_GRAY</b>
ICAP_BITDEPTH	TWTY_UINT16	4, <b>8</b>
ICAP_SUPPORTEDSIZES	TWTY_UINT16	<b>TWSS_USLETTER</b>
ICAP_XNATIVERESOLUTION	TWTY_FIX32	512.00
ICAP_YNATIVERESOLUTION	TWTY_FIX32	640.00
ICAP_XRESOLUTION	TWTY_FIX32	<b>1024.00</b> , 512.00, 256.00
ICAP_YRESOLUTION	TWTY_FIX32	<b>1280.00</b> , 640.00, 320.00
CAP_XFERCOUNT	TWTY_INT16	-1
ICAP_IMAGEFILEFORMAT	TWTY_UINT16	TWFF_TIFF, <b>TWFF_BMP</b> , TWFF_JFIF
ICAP_ROTATION	TWTY_FIX32	<b>0.00</b> , 90.00, 180.00, 270.00
CAP_UICONTROLLABLE	TWTY_BOOL	<b>TRUE</b> , FALSE
CAP_ENABLEDSUIONLY	TWTY_BOOL	<b>TRUE</b> , FALSE
ICAP_LAMPSTATE	TWTY_BOOL	<b>TRUE</b> , FALSE
ICAP_EXTIMAGEINFO	TWTY_BOOL	TRUE, <b>FALSE</b>
CAP_REACQUIREALLOWED	TWTY_BOOL	TRUE, <b>FALSE</b>
CAP_POWERSUPPLY	TWTY_UINT16	<b>TWPS_EXTERNAL</b>
ICAP_BITORDER	TWTY_UINT16	TWBO_LSBFIRST, <b>TWBO_MSBFIRST</b>



**Table 3-1** *Supported Standard TWAIN Capabilities*

<b>Standard TWAIN Capability</b>	<b>Type</b>	<b>Supported Values (default in bold text)</b>
ICAP_PLANARCHUNKY	TWTY_UINT16	<b>TWPC_CHUNKY</b> , TWPC_PLANAR
CAP_SERIALNUMBER	TWTY_STR32	Serial number of imaging scanner
CAP_CUSTOMDSDATA	TWTY_BOOL	TRUE, <b>FALSE</b>
ICAP_IMAGEFILTER	TWTY_UINT16	<b>TWIF_NONE</b> , TWIF_LOWPASS, TWIF_BANDPASS, TWIF_HIGHPASS
ICAP_ORIENTATION	TWTY_UINT16	<b>TWOR_ROT0</b>
ICAP_JPEGQUALITY	TWTY_UINT16	Range: 0 to 100, step 1, default = 65

*Table 3-2* below shows the custom TWAIN capabilities specific to Zebra imaging scanners which are available through the Zebra TWAIN driver's programmatic (non-GUI) interface. See *Advanced Settings on page 4-4* for descriptions of advanced capabilities. For additional information on features, consult the specific Zebra imaging scanner's Product Reference Guide available at: [www.zebra.com/support](http://www.zebra.com/support).

**Table 3-2** Custom TWAIN Capabilities Specific to Zebra Imaging Scanners

Zebra Imaging Scanner Capability	Cap ID	Item Type	Supported Msg(s)	GetContainerType	CurrentContainer Type	Supported Values (default in bold text)
IMOTCAP_AUTOEXPOSURE	0x8001	TWTY_BOOL	TWQC_GET, TWQC_GETDEFAULT, TWQC_GETCURRENT, TWQC_RESET, TWQC_SET	TWON_ONEVALUE	TWON_ONEVALUE	<b>TRUE: Enable</b> FALSE: Disable
IMOTCAP_GAINEXPOSUREPRIORITY	0x8002	TWTY_UINT16	TWQC_GET, TWQC_GETDEFAULT, TWQC_GETCURRENT, TWQC_RESET, TWQC_SET	TWON_ENUMERATION	TWON_ONEVALUE	GAIN_EXPOSURE_PRIORITY_LOW_GAIN: 0 GAIN_EXPOSURE_PRIORITY_LOW_EXPOSURE: 1 <b>GAIN_EXPOSURE_PRIORITY_AUTO: 2</b>
IMOTCAP_FIXEDEXPOSURE	0x8003	TWTY_UINT16	TWQC_GET, TWQC_GETDEFAULT, TWQC_GETCURRENT, TWQC_RESET, TWQC_SET	TWON_RANGE	TWON_ONEVALUE	Range: 5 to 5000, Default = <b>100</b>
IMOTCAP_FIXEDGAIN	0x8004	TWTY_UINT16	TWQC_GET, TWQC_GETDEFAULT, TWQC_GETCURRENT, TWQC_RESET, TWQC_SET	TWON_RANGE	TWON_ONEVALUE	Range: 1 to 100, Default = <b>50</b>
IMOTCAP_ILLUMINATIONBANKCONTROL	0x8005	TWTY_UINT16	TWQC_GET, TWQC_GETDEFAULT, TWQC_GETCURRENT, TWQC_RESET, TWQC_SET	TWON_ENUMERATION	TWON_ONEVALUE	<b>ILLUMINATION_BANK_CONTROL_FULL: 0</b> ILLUMINATION_BANK_CONTROL_AUTO: 1 ILLUMINATION_BANK_CONTROL_LEFT: 2 ILLUMINATION_BANK_CONTROL_RIGHT: 3
IMOTCAP_CROP	0x8006	TWTY_BOOL	TWQC_GET, TWQC_GETDEFAULT, TWQC_GETCURRENT, TWQC_RESET, TWQC_SET	TWON_ONEVALUE	TWON_ONEVALUE	<b>FALSE: Disable</b>

**Table 3-2** Custom TWAIN Capabilities Specific to Zebra Imaging Scanners (Continued)

Zebra Imaging Scanner Capability	Cap ID	Item Type	Supported Msg(s)	GetContainerType	CurrentContainer Type	Supported Values (default in bold text)
IMOTCAP_LEFTPIXEL	0x8007	TWTY_UINT16	TWQC_GET, TWQC_GETDEFAULT, TWQC_GETCURRENT, TWQC_RESET, TWQC_SET	TWON_RANGE	TWON_ONEVALUE	0 - <b>1279</b>
IMOTCAP_RIGHTPIXEL	0x8008	TWTY_UINT16	TWQC_GET, TWQC_GETDEFAULT, TWQC_GETCURRENT, TWQC_RESET, TWQC_SET	TWON_RANGE	TWON_ONEVALUE	<b>0</b> - 1279
IMOTCAP_TOPPIXEL	0x8009	TWTY_UINT16	TWQC_GET, TWQC_GETDEFAULT, TWQC_GETCURRENT, TWQC_RESET, TWQC_SET	TWON_RANGE	TWON_ONEVALUE	<b>0</b> - 1023
IMOTCAP_BOTTOMPIXEL	0x8010	TWTY_UINT16	TWQC_GET, TWQC_GETDEFAULT, TWQC_GETCURRENT, TWQC_RESET, TWQC_SET	TWON_RANGE	TWON_ONEVALUE	0 - <b>1023</b>



# CHAPTER 4 GRAPHICAL USER INTERFACE

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## Overview

The TWAIN driver's GUI provides an alternate method to access the supported TWAIN capabilities.

## TWAIN Sample Application

A TWAIN sample application is provided with the default TWAIN driver installation and can be used to demonstrate the TWAIN driver GUI interface.

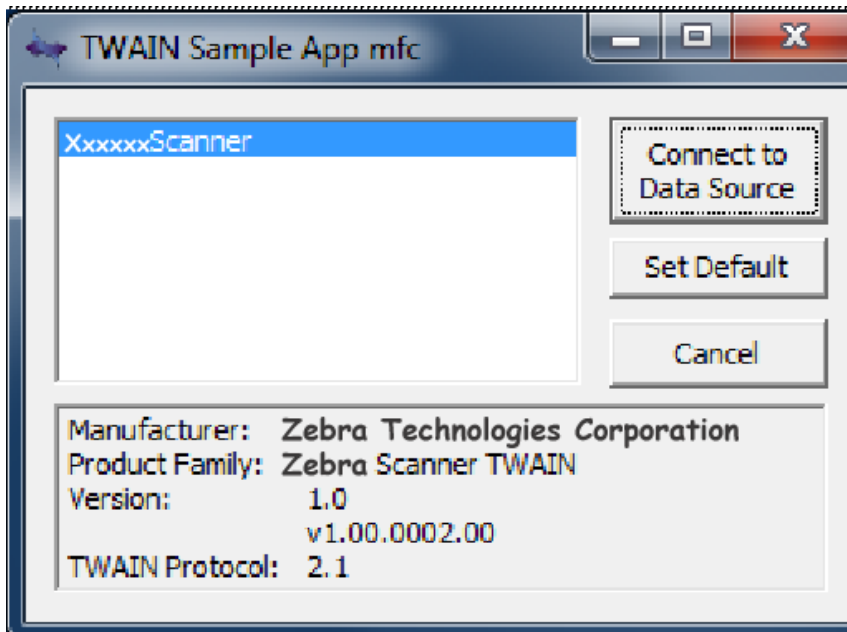


Figure 4-1 TWAIN Sample Application Screen

## TWAIN Configuration Screen

From the *TWAIN Sample Application* screen, select *ZebraScanner* and click **Connect to Data Source** to display the *TWAIN Configuration* screen ([Figure 4-2](#)).

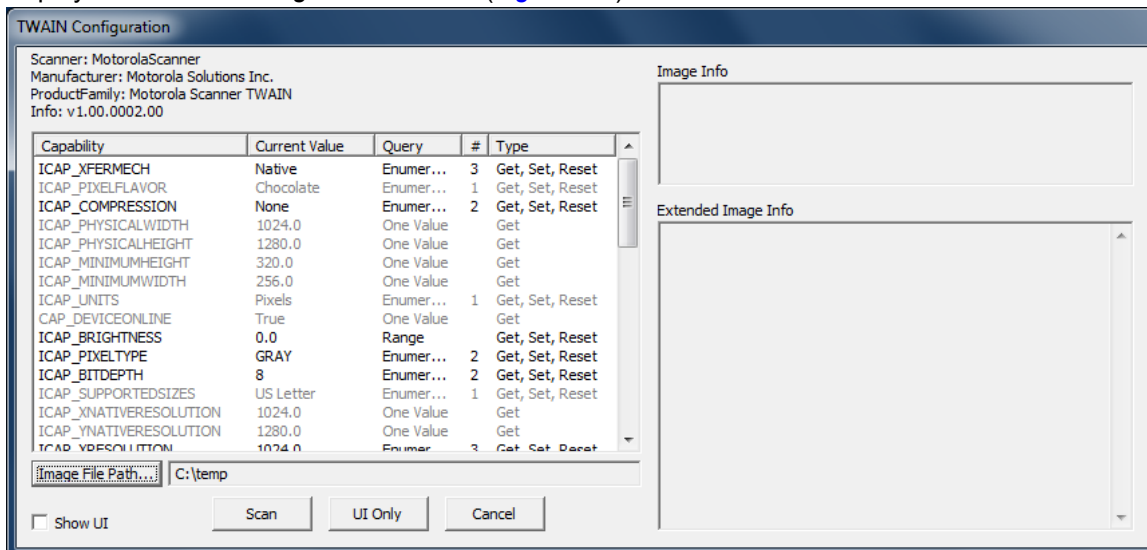


Figure 4-2 TWAIN Configuration Screen

The *TWAIN Configuration* screen lists the supported capabilities with their current values. A user can change a value by double clicking the capability. Capabilities that are grayed out cannot be changed and are read-only,

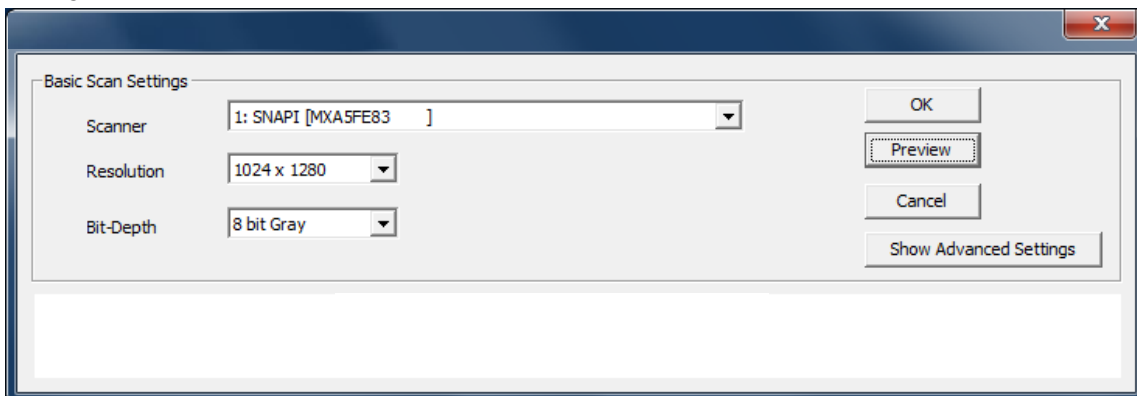
✓ **NOTE** The ICAP\_BRIGHTNESS and ICAP\_JPEGQUALITY capabilities can only be set graphically through the advanced settings (see [Advanced Settings on page 4-4](#)).

*TWAIN Configuration* screen:

- **Image File Path** button: Allows the user to browse to a folder in which the scanned image file can be saved.
- **Show UI** box: If checked, the basic GUI screen described below displays when the **Scan** button is clicked.
- **Scan**: Click this button to initiate an image capture.
- **UI Only**: Click this button to display the *Basic GUI* screen without initiating an image capture.
- **Cancel**: Click this button to close the *TWAIN Configuration* screen.

## Basic GUI Screen

From the *TWAIN Configuration* screen ([Figure 4-2 on page 4-2](#)), click **UI Only** to display the basic *GUI Scan Settings* screen.



**Figure 4-3** Zebra TWAIN Driver GUI - Basic Screen

*GUI Scan Settings* screen:

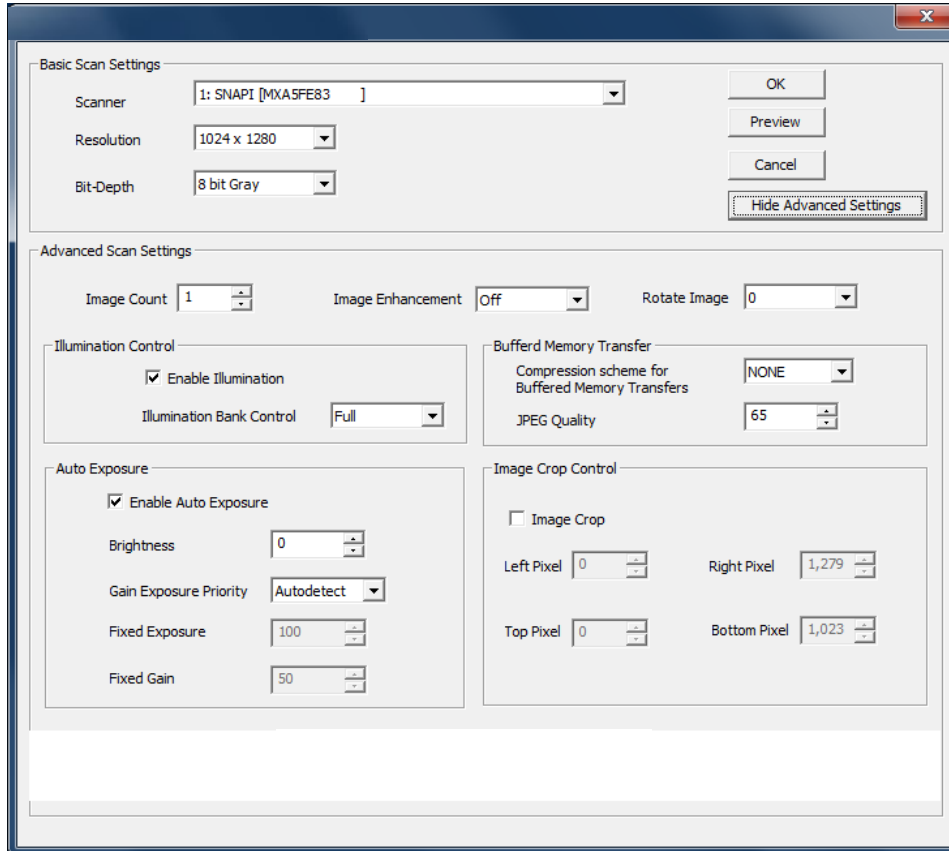
- **Scanner** drop-down list: Shows available sources.
- **Resolution** drop-down list: Shows supported resolution values, and determines the pixel size of the captured image.
- **Bit-Depth** drop-down list: Shows supported bit depth values.
- **Preview**: Click this button to capture an image, and display it in the GUI.
- **OK/Scan**: Click this button to capture an image, and transfer it to the calling application.

✓ **NOTE** On this screen, the **OK** button is renamed **Scan** if the *Show UI* box is checked in [Figure 4-2](#).

- **Cancel**: Click this button to close the GUI screen.
- **Show Advanced Settings**: Click this button to open the *Advanced Settings* sections of the GUI

## Advanced Settings

When you click **Show Advanced Settings** from the *GUI Scan Settings* screen, the *Advanced Settings* section extends. This displays the basic *GUI Scan Settings* screen plus advanced setting options.



**Figure 4-4** Zebra TWAIN Driver GUI - Advanced Settings Screen

*Advanced Settings* screen:

- *Image Count*: Corresponds to the CAP\_XFERCOUNT capability in the range of 1 to 25 for the number of image transfers the application transfers throughout the current session.
- *Image Enhancement*: Sets the imaging scanner's ability to automatically enhance an image through a combination of edge sharpening and contrast enhancement. *Off* disables automatic enhancement; *Low*, *Medium*, and *High* perform those levels of image enhancement.
- *Rotate Image*: Sets the degree of rotation of the captured image - 0, 90, 180, 270.
- *Enable Illumination*: Enables the illumination banks on the scan engine. Check the box to enable *Illumination Bank Control*.
- *Illumination Bank Control*: Determines the operation of the illumination banks. *Full* enables both banks; *Auto* switches the illumination system from left to right; *Left* enables the left bank; *Right* enables the right bank.
- *Enable Auto Exposure*: Enables the imaging scanner to automatically determine the gain and exposure settings to best capture an image. Checking this box also enables the Gain Exposure Priority setting. If Enable Auto Exposure is unchecked, the Fixed Exposure and Fixed Gain settings will be enabled allowing the user to manually set those values.



- *Gain Exposure Priority*: Sets the scanner's gain/exposure priority when the *Auto Exposure* setting is enabled - *Autodetect*, *Low Gain* or *Low Exposure*. *Low Gain* priority sets the scanner to favor longer exposure time over higher gain to capture an image. *Low Exposure* priority sets the scanner to favor higher gain over exposure for image capture. *Autodetect* sets the priority based on the scanner's configuration. For example, if the scanner is mounted in a magnetic switch read enabled stand, it uses *Low Gain* priority. Refer to the imaging scanner's Product Reference Guide for more information on this setting.
- *Fixed Exposure*: The manual exposure setting in the range of 5 to 5000.
- *Fixed Gain*: The manual gain setting in the range of 1 to 100.
- *Brightness*: Sets the relative brightness of the captured image in the range of -1000 to 1000.
- *Image Crop*: Enables Image Crop Control. The Left, Right, Top and Bottom Pixel values determine the rectangular sub-region of the full size captured image that will be displayed or transferred.
- *Left Pixel*: Sets the left pixel column used to crop a captured image. This value ranges from 0 to (Xresolution - 2) depending on the selected resolution (image size).
- *Right Pixel*: Sets the right pixel column used to crop a captured image. This value ranges from 0 to (Xresolution - 1) depending on the selected resolution (image size).
- *Top Pixel*: Sets the top pixel row used to crop a captured image. This value ranges from 0 to (Yresolution - 2) depending on the selected resolution (image size).
- *Bottom Pixel*: Sets the bottom pixel row used to crop a captured image. This value ranges from 0 to (Yresolution - 1) depending on the selected resolution (image size).



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