Kodak

# i600 Series Scanners

## Image Processing Guide

A-61504

# 1 Introduction

The *Kodak* i600 Series Scanners is a high-volume production scanner which includes image processing technology that can improve image quality and sometimes make the reproduction better than the original.

You can use the ISIS Driver or TWAIN Datasource (both are available on the CD that is included with the scanner) or *Kodak* Capture Software to enable image processing.

Other popular scanning applications are also compatible with these scanners, however these applications may not be able to access all of the image processing options. Please refer to your vendor's documentation for specific information.

The *Kodak* i600 Series Scanners provides both color/grayscale and black and white scanning simultaneously with throughput speeds up to 200 ppm.

## About this manual

This manual provides the following:

*Chapter 1, Introduction* includes a brief summary of the *Kodak* i600 Series Scanners.

*Chapter 2, Best Practices* includes information to use when setting up applications, recommendations on how to handle jam recoveries, image addressing information, controlling print streams, electronic color drop-out and much more.

*Chapter 3, Using the TWAIN Datasource* includes information on using the dialog boxes presented by the TWAIN Datasource and an explanation of the fields on each tab.

*Chapter 4, Using the ISIS Driver* includes information on using the tabs presented by the ISIS driver and an explanation of fields on each tab.

*Appendix A, TWAIN Image Processing Terminology* — the TWAIN Datasource for the *Kodak* i600 Series Scanners has been updated to include new terminology for traditional Kodak image processing functions. See this appendix for a comparative chart to map between terms.

NOTE: The scanned images used in this guide were selected for the challenges presented to a typical scanner due to the low-contrast characteristics of the images.

## Image outputs

The i600 Series Scanners are duplex scanners This means both the front and the rear side of each document may be captured. For each side captured, the scanner creates a black and white and color/ grayscale image. The host application controls which of these images is transferred to the host to be stored as an image file.

The *Kodak* i600 Series Scanners can return black and white, grayscale or color images to the host. Below is a description of the valid combinations.

- **Front black and white**: FB.tif. This image file represents the contents of the front side of the document using one-bit per pixel.
- **Front color:** FC.jpg. This image file represents the contents of the front side of the document using 24-bits per pixel.
- **Back black and white**: BB.tif. This image file represents the contents of the rear side of the document using one-bit per pixel.
- **Back color**: BC.jpg. This image file represents the contents of the rear side of the document using 24-bits per pixel.

NOTE: Actual file formats are determined by the host application.

These image files can be controlled through the application independently.


**FB.tif (front black and white)**


**FC.jpg (front color)**


**BB.tif (back black and white)**


**BC.jpg ( back color)**

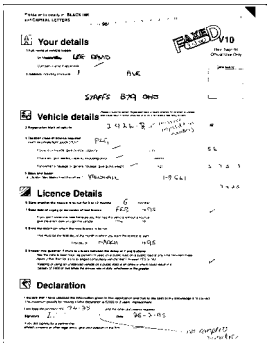
Another example of a simultaneous output where all four images are returned to the host would create the following four files:

- **Front grayscale**: FG.jpg. This image file represents the contents of the front side of the document using 8-bits per pixel.
- **Front black and white:** FB.tif. This image file represents the contents of the front side of the document using 1-bit per pixel.
- **Back grayscale**: BG.jpg. This image file represents the contents of the rear side of the document using 8-bits per pixel.
- **Back black and white**: BB.tif. This image file represents the contents of the rear side of the document using 1-bit per pixel.

NOTE: Actual file formats are determined by the host application.

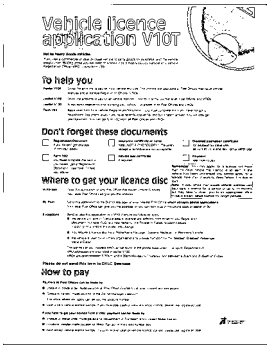
These image files can be controlled through the application independently.

**FG.jpg**
**(front grayscale)**



**FB.tif**
**(front black and white)**


**BG.jpg**
**(back grayscale)**




**BB.tif**
**(back black and white)**

# 2 Best Practices

This chapter provides you with recommendations for program logic, which will allow you to interact efficiently with the i600 Series Scanners. This high-level information is not intended to be used as a coding guide. The following information is provided in this chapter:

- Basic image capture
- Switching between color/grayscale and black and white
- Jam recovery
- Image file storage locations
- Bar code recognition
- Controlling print strings
- Electronic Color Dropout (form design, drop-out colors)
- Available image header information and its uses
- Zone processing (recombining images, especially for viewing)

NOTE: The term *host* in the sections that follow refers to either the driver or application.

## Basic image capture

Basic image capture is a high-level logic flow for retrieving images from the scanner.

Follow this sequence to scan documents:

- set up the scanner,
- enable scanning,
- initiate polling,
- feed documents
- and disable scanning.

## Scanner setup

To set up the scanner:

1. Set up your scanner operating conditions:
   - simplex/duplex
   - image order
   - transport timeout
   - transport timeout response
   - length detection status and response
   - multi-feed detection status and response
   - starting document count
   - Energy Star timeout
   - printing parameters (printing status, print font, orientation and strings)
   - confirmation tone

   For information on programming these conditions, see Chapters 3 or 4 (depending on your driver). For other vendor tool kits, refer to their documentation.
2. Determine if any changes to the Image Processing parameters need to be made for the current application.

   NOTE: This check needs to occur for up to four separate images from the six available options depending on your application: Front Color, Front Black and white, Front Grayscale, Rear Color, Rear Black and white, Rear Grayscale.

   Image Processing parameter changes remain in effect until one of the following conditions occur:
   - The scanner is powered down using the power switch.
   - New imaging parameters are sent from the host.
3. Prepare documents according to the instructions found in the *Kodak* i600 Series Scanners User's Guide.

**Enable scanning**

The host must issue a Scan command to enable scanning before documents can be transported through the scanner. If scanning has not been enabled, the feeder and transport system will not turn on.

**Initiate polling**

Initiate host system polling of the scanner to ensure scanned document images are transferred from the image buffer to the host system. Polling should continue until scanning is disabled.

For more information see the sections entitled, “Controlling image transfer order” and “Image header information” later in this chapter.

**Feed documents**

Feed documents according to the instructions found in the *Kodak* i600 Series Scanners User’s Guide.

**Disable scanning**

Scanning is disabled to allow the host to download configuration/setup changes between jobs and to handle certain types of errors.

Scanning is also disabled when one of the following conditions occur:

- The scanner is first powered on using the power switch.
- A 1394 bus device Reset command is executed.
- A scanner unique End-of-Job command is issued by the host computer.
- Transport timeout is set to End-of-Job.
- An error occurs requiring fault recovery.

NOTE: When scanning is disabled, documents cannot be scanned until the host enables scanning.

## Error handling

The scanner recognizes and reports a variety of error conditions.

Some errors are reported to the host (via the 1394 interface) or via the LEDs on the scanner while others are reported to both the host and the LEDs.

An error (via the 1394 interface) is defined as either a current or deferred error.

A current error results from a problem in processing the current scanner command. This can include sending an invalid command, trying to read from an empty image buffer, or an end-of-job condition. Since one or more errors may be pending at any time, current errors are reported first.

A deferred error results from an error condition within the scanner, such as a document jam. Deferred errors are reported after current errors.

NOTE: Low-level 1394 commands and information are handled by the device driver. The following information is provided for reference only.

Some error conditions disable scanning and cause the document transport to stop. This is done to prevent additional images from entering the image buffer while allowing the host to perform fault recovery activities.

NOTE: The scanner cannot determine exactly which images were affected by the error and which images were not.

If an error occurs that disables the scanner, the host can continue to read images from the image buffer without enabling the scanner. However, when the image buffer has been emptied, an error will be generated indicating fault recovery is required. This differentiates between an end-of-job disable and a disable caused by an error. The operator may continue scanning documents after the host enables the scanner.

## Controlling image transfer order

This section provides job stream examples which can be used in scanning applications.

The host application is responsible for determining the order in which the scanner returns images. Front images must always be retrieved before rear images.

### Black and white only - duplex

This job stream is available for all i600 Series Scanners.

1. Prepare documents.
2. Start the scanner to do black and white duplex scanning (front black and white and rear black and white).
3. Setup the scanner to retrieve black and white images.
4. Enable the scanner and start polling.

   Loop
   Read front black and white image header
   Read front black and white image
   Read rear black and white image header
   Read rear black and white image
   End loop

**Color only - duplex**

This job stream is available for i620, i640 and i660 Scanners.

1. Prepare documents.
2. Start the scanner to do color duplex scanning (front color and rear color).
3. Setup the scanner to retrieve color images.
4. Enable the scanner and start polling.

```
Loop
Read front color image header
Read front color image
Read rear color image header
Read rear color image
End loop
```

**Grayscale only - duplex**

This job stream is available for all i600 Series Scanners.

1. Prepare documents.
2. Start the scanner to do grayscale duplex scanning (front grayscale and rear grayscale).
3. Setup the scanner to retrieve grayscale images.
4. Enable the scanner and start polling.

```
Loop
Read front grayscale image header
Read front grayscale image
Read rear grayscale image header
Read rear grayscale image
End loop
```

**Dual stream - black and white and color - duplex**

This job stream is available for i620, i640 and i660 Scanners.

1. Prepare documents.
2. Start the scanner to do dual stream duplex scanning by selecting front black and white, front color, rear black and white and rear color.
3. Setup the scanner to retrieve black and white images first.
4. Enable the scanner and start polling.

```
Loop
Read front black and white image header
Read front black and white image
Read front color image header
Read front color image
Read rear black and white image header
Read rear black and white image
Read rear color image header
Read rear color image
End loop
```

**Dual stream - black and white and grayscale - duplex**

This job stream is available for all i600 Series Scanners.

1. Prepare documents.
2. Start the scanner to do dual stream duplex scanning by selecting front black and white, front grayscale, rear black and white and rear grayscale.
3. Setup the scanner to retrieve black and white images first.
4. Enable the scanner and start polling.

```
Loop
Read front black and white image header
Read front black and white image
Read front grayscale image header
Read front grayscale image
Read rear black and white image header
Read rear black and white image
Read rear grayscale image header
Read rear grayscale image
End loop
```

### Single-stream duplex alternating between black and white and color/ grayscale (Toggle patch)

This job stream is available for i620, i640 and i660 Scanners. For the i610 Scanner, you can only toggle between black and white and grayscale.

1. Prepare documents with a Type 4/Toggle patch before and after any color/grayscale documents.
2. Configure image processing parameters for all four images. Before enabling the scanner, select only the front and rear black and white images to be retrieved.
3. Select **Both Sides** from the Toggle Patch drop-down box.
4. Start scanning.

Images begin in black and white and will change to color/grayscale when the first toggle patch is detected. Images remain in color/ grayscale until the next toggle patch is detected. Images of the toggle patch sheets will not be returned to the host.

### Single-stream duplex alternating between black and white and color/grayscale using automatic color detection

This job stream is available for i620, i640 and i660 Scanners. For the i610 Scanner, you can only toggle between black and white and grayscale.

1. Configure image processing parameters for all four images. Before initiating the scanner, select only the front and rear black and white images to be retrieved.
2. Enable **Auto Color Detection** by choosing **Low**, **Medium**, **High** or **Custom**.
3. Start scanning.

The scanner will determine if it should return a black and white or color/ grayscale image based on a document-by-document analysis of the color content.

## Jam and fault recovery

This section provides recommendations for application logic associated with scanner jam and fault recovery.

If your scanner is enabled and you are polling when a document jam or other fault occurs, use the following procedure to restart scanning.

*IMPORTANT: Before beginning fault recovery, make sure all the headers and images have been transferred from the image buffer to the host system.*

When a document jam or other fault occurs, the feeder and the transport will stop and the scanner will be disabled.

1. When all images have been retrieved from the scanner (image buffer empty), display the last image retrieved for operator viewing.
2. Use the image header of the last image retrieved to determine sequential counter.
3. Use the information above +1 to seed the sequential counter before re-enabling the scanner.
4. Instruct the operator to sort through the stack of documents being scanned to find the document that produced the last successfully scanned image. They must rescan all of the documents that follow the last successfully scanned document.
5. Enable the scanner.

## Image file storage locations

This section provides general recommendations regarding the impact of image file storage locations on the overall throughput of the scanner.

You can receive up to four image files per document. Decisions about where to write these files when retrieving them from the scanner could impact the overall throughput of the scanner. In order to prevent overwriting data the scanner stops feeding paper when the internal image buffer is almost full. Scanning will not resume until enough images are retrieved by the host to clear sufficient buffer memory. In order to minimize the number of times this condition might occur, it is recommended that image files are written to a local hard drive in order to avoid the potential overhead of transferring files across the network to remote drives during scanning.

## Bar code recognition

The i600 Series Scanners do not include a bar code accessory. The host system provides bar code functionality. The main imaging parameter, which may effect bar code read rates, is *resolution*. Either black and white, grayscale or color images may be used for bar code applications. Refer to your software documentation for their recommendations and/or requirements for image quality to achieve desired read rates.

### Controlling print strings

Full control and access to the scanner's print string functionality is available to the host application. In addition, the print string information is returned to the host in the image header.

#### Print string formatting

- Maximum character length — 40.
- Character set — full alphanumeric, including special characters.
- Distance from lead edge — a minimum of a .035-inch.
- Can print to within ½-inch of the trial edge.

## Electronic color dropout

The i600 Series Scanners provides the ability to create dropout images without changing lamps. Red, green, blue dropout functionality can be selected. Only one color can be dropped out at a time. This dropout performance is equivalent to color dropout functionality when using the traditional color lamp technique.

Electronic color dropout is used with OCR and ICR applications. See your vendor's documentation for recommendations on image quality characteristics.

Electronic color dropout is applied to the black and white image only.

There are four imaging parameters, which effect electronic color dropout: Threshold Value/Filter Threshold, Background Value/ Background, Contrast %, and Threshold. The default settings are:

**Contrast%** = 0
**Threshold** = 90
**Color Filter** = 175
**Background** = 245 — this value should be set to match background color of your document.
If the values above do not give you the desired results, you may need to vary these values accordingly.

**Red dropout**

Following is a list of Pantone colors which may be used with the red dropout option.

**Red Dropout — Complete Dropout.**

| | | | | | | |
|---|---|---|---|---|---|---|
| 100U | 129U | 155U | 177U | 1925U | 231U | 372U |
| 101U | 130U | 156U | 178U | 196U | 232U | 379U |
| 102U | 134U | 157U | Warm Red | 197U | Rhodamine Red U | 380U |
| Yellow U | 135U | 158U | 1765U | 198U | 236U | 386U |
| 106U | 136U | 1555U | 1767U | 199U | 237U | 387U |
| 107U | 137U | 1565U | 1775U | 203U | 238U | 393U |
| 108U | 1345U | 1575U | 1777U | 204U | 239U | 394U |
| 109U | 1355U | 1585U | 1785U | 205U | 2365U | 395U |
| 113U | 1365U | 162U | 1787U | 206U | 2375U | 3935U |
| 114U | 1375U | 163U | 1788U | 210U | 2385U | 3945U |
| 115U | 141U | 164U | Red 032 U | 211U | 2395U | 3945U |
| 116U | 142U | 165U | 182U | 212U | 243U | 3965U |
| 120U | 143U | 1625U | 183U | 213U | 244U | |
| 121U | 144U | 1635U | 184U | 217U | 245U | |
| 122U | 148U | 1645U | 185U | 218U | 246U | |
| 123U | 149U | 1655U | 189U | 219U | 250U | |
| 1205U | 150U | 1665U | 190U | Rubine Red U | 251U | |
| 1215U | 151U | 169U | 191U | 223U | 252U | |
| 1225U | 1485U | 170U | 192U | 224U | 256U | |
| 1235U | 1495U | 171U | 1895U | 225U | 2562U | |
| 127U | 1505U | 172U | 1905U | 226U | 263U | |
| 128U | Orange 021 U | 176U | 1915U | 230U | 2706U | |

**Red Dropout — Near Complete Dropout**

| | | | | | | |
|---|---|---|---|---|---|---|
| Purple U | 2635U | | | | | |

### Green Dropout — Complete Dropout

| | | | | | | |
|---|---|---|---|---|---|---|
| 100U | 113U | 1345U | 3375U | 374U | 387U | 3935U |
| 101U | 114U | 155U | 351U | 375U | 388U | 3945U |
| 102U | 120U | 2706U | 352U | 379U | 389U | 3955U |
| Yellow U | 1205U | 317U | 365U | 380U | 393U | 3965U |
| 106U | 1215U | 3245U | 366U | 381U | 394U | |
| 107U | 127U | 331U | 372U | 382U | 395U | |
| 108U | 134U | 332U | 373U | 386U | 396U | |

### Green Dropout — Near Complete Dropout

| | | | | | | |
|---|---|---|---|---|---|---|
| 121U | 2975U | 318U | 324U | 3242 | 344U | 358U |
| 148U | 304U | | | | | |

### Blue Dropout — Complete Dropout

| | | | | | | |
|---|---|---|---|---|---|---|
| 100U | 256U | 2716U | 284U | 298U | 311U | 3242U |
| 1205U | 2562U | 2707U | 290U | 2975U | 312U | 3252U |
| 217U | 263U | 2717U | 291U | 2985U | 3105U | 3245U |
| 230U | 264U | 2708U | 292U | 2995U | 3115U | 3255U |
| 2365U | 2635U | 277U | 2905U | 304U | 317U | 331U |
| 243U | 2645U | 278U | 2915U | 305U | 318U | 332U |
| 244U | 270U | 279u | 2925U | 306U | 319U | 393U |
| 250U | 2705U | 283u | 297U | 310U | 324U | 3935U |
| 251U | 2706u | | | | | |

### Blue Dropout — Near Complete Dropout

| | | | | | |
|---|---|---|---|---|---|
| 101U | 236U | 299U | | | |

## Image header information

An image header is associated with every image captured by the scanner. Following is a list of information available in the image header.

**Image length** — size of the image.

**Image identifier** — indicates whether the image is front black and white, rear black and white, front color or rear color.

**Resolution** — the scanner records the selected scanner image resolution in dots per inch.

**X-axis upper left** — pixel horizontal offset to upper left corner of the image. For more information, see the next section entitled, “Zone processing”.

**Y axis upper left** — pixel vertical offset to upper left corner of the image. For more information, see the next section entitled “Zone processing”.

**Width** — the scanner records the number of pixels-per-line in the image. Width is also referred to as *line length*.

**Length** — the scanner records the lines-per-page in the image. Length is also referred to as *page length.*

**Bits-per-pixel** — bits-per-pixel can equal 1 for black and white imaging. 8 for grayscale or 24 for color imaging. Bits-per-pixel is also referred to as *pixel depth.*

**Compression type** — the scanner records the compression type used. Values for black and white images are: No Compression, Group III, Group III 2D or Group IV. The values for grayscale or color images are No Compression or JPEG.

**Polarity** — the scanner records image polarity. White pixels can be indicated as 0 or 1.

**Multifeed —** indicates whether or not a multifeed was detected when the image was scanned. This information can be used by the host to assist operators during error recovery.

**Deskew enabled —** a flag in the image header reflects whether the scanner was asked to perform deskew. If deskew is enabled, the image header also indicates whether or not the document was deskewed.

**Deskewed** — a flag the image header indicates whether or not the image was deskewed.

**Skew angle** — image header records the skew angle which was determined for the scanned image. A severe skew angle may result in no deskew being performed. If the scanner is unable to determine a skew angle, the image will not be deskewed. The skew angle field of the image header will be set to 0.

**Print string** — the actual character string printed on the document is returned in the image header. This string may be up to 40 characters in length. Print strings are defined in the host application.

**Sequential counter** — the scanner assigns a unique Sequential ID Number to each document which is returned in the image header. The host application controls the setting of the starting value for this counter.

**Patch Detect** — indicates whether or not the scanner detected a toggle patch on the document (side independent). If a toggle patch appears on a document, all images created from this document will have this indicator set in their image header.

**Toggle Patch** — indicates the side of the document where the where the toggle patch was detected. If a toggle patch appears on a document, only the images created from the side of the document containing the patch will have this indicator set in their image header.

## Zone processing

Some applications have a requirement to store part of an image in color or grayscale and the rest of the image in black and white format (this saves storage space by not storing the entire image in color or grayscale). Zone processing is a fixed crop window (the zone) located relative to the upper left corner of a document. It allows the operator to select via the host application an area on the document to be delivered in color, grayscale or black and white format (a separate window for both black and white and color/grayscale may be defined). Different zones may be selected for both the front and rear of the image.

This feature may be used in conjunction with auto cropping. Following is an example of producing a color zone.


**Original**


**Black and white image**

**Relative Cropping**

1. Prepare documents.
2. Start the scanner to do dual stream simplex scanning (front black and white and front color).
3. Setup the scanner to retrieve black and white images first.
4. Setup front black and white to be auto cropping.
5. Setup front color to be relative cropping.
6. Enable the scanner and start polling.

Loop
    Read front black and white image header
    Read front black and white image (will return full image)
    Read front color image header
    Read front color image (will return only the color zone)
End loop

# 3 Using the TWAIN Datasource

## Installation

The TWAIN Datasource is included with the scanner. You can install the Datasource from the CD.

1. Insert the CD into the drive.
2. If auto-run is not enabled, double-click the setup.exe file.
3. Follow the instructions on each screen as prompted.

After installation is complete, install your application software on the host PC.

A sample application called the Scan Validation Tool, is also provided as part of this installation. This application can be used to validate scanner functionality. The screen shots in this chapter (from the Scan Validation Tool) document the TWAIN Datasource graphical user interface (GUI) which can be one option when creating your own Setting Shortcut.

## Overview

All *Kodak* Scanners have the capability of providing a wide variety of electronic images. This can be accomplished by using the provided TWAIN Datasource in concert with your scanning application. The TWAIN Datasource is the part of the capture system which links the scanner to your scanning application.

When using the TWAIN Datasource, the main *Kodak* Scanner window will display a list of Setting Shortcuts. Each Setting Shortcut is a group of specific image and device settings. The supplied Setting Shortcuts represent some common electronic image outputs. If none of the Setting Shortcuts meet your scanning needs, you can create a customized Setting Shortcut.

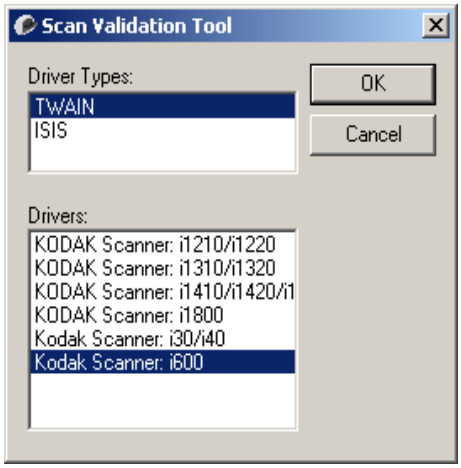
This chapter provides descriptions of the scanner features using options on the TWAIN Datasource tabs. If you are using the TWAIN Datasource, follow the procedures in this chapter to set up your scanner. If you are using the ISIS driver, see Chapter 4, *Using the ISIS Driver*.

## Terminology and features

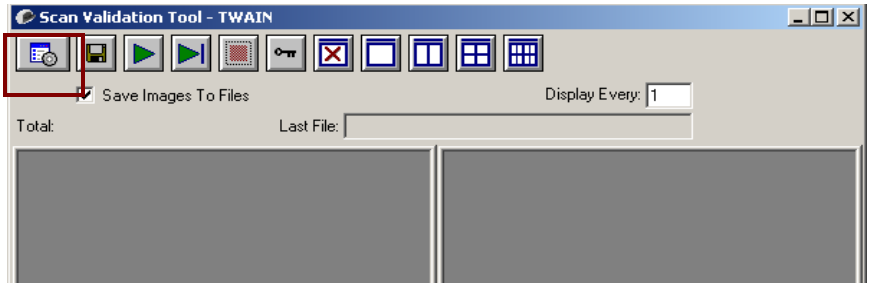
If you have used previous scanners from Kodak, you may be familiar with many of the image processing features already. With the new graphical user interface in the TWAIN Datasource, some of the names of those features have changed. Refer to *Appendix A, TWAIN Image Processing Terminology* for a cross reference of previous names with new names.

## Accessing the Scan Validation Tool

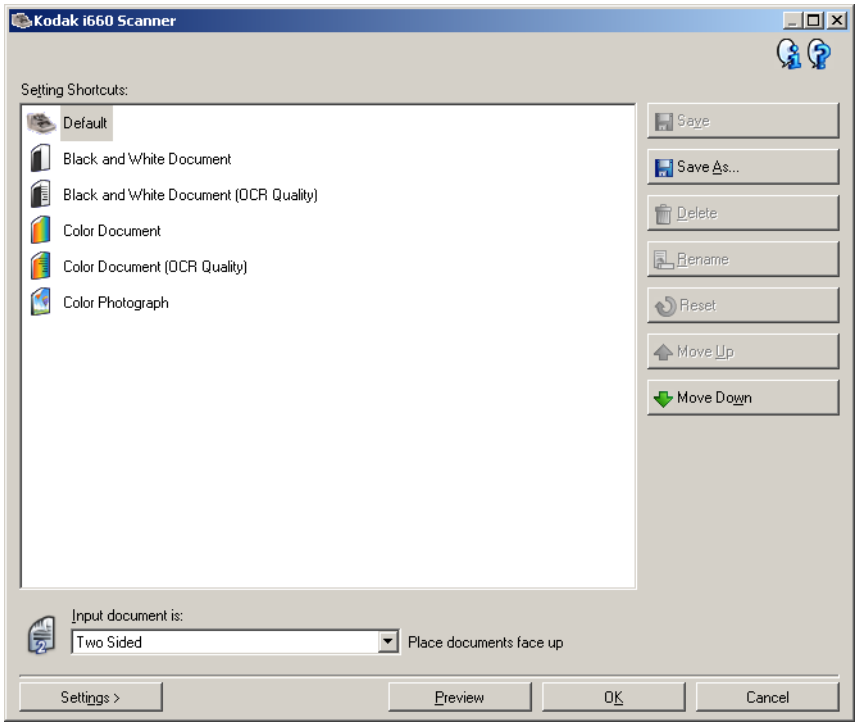
1. Select **Start>Programs>Kodak>Document Imaging>Scan Validation Tool**.
2. From the Driver Types box, select **TWAIN**.
3. From the Drivers box, select **Kodak Scanner: i600** and click **OK.**




4. Select the Setup icon.




The main *Kodak* Scanner screen will be displayed.

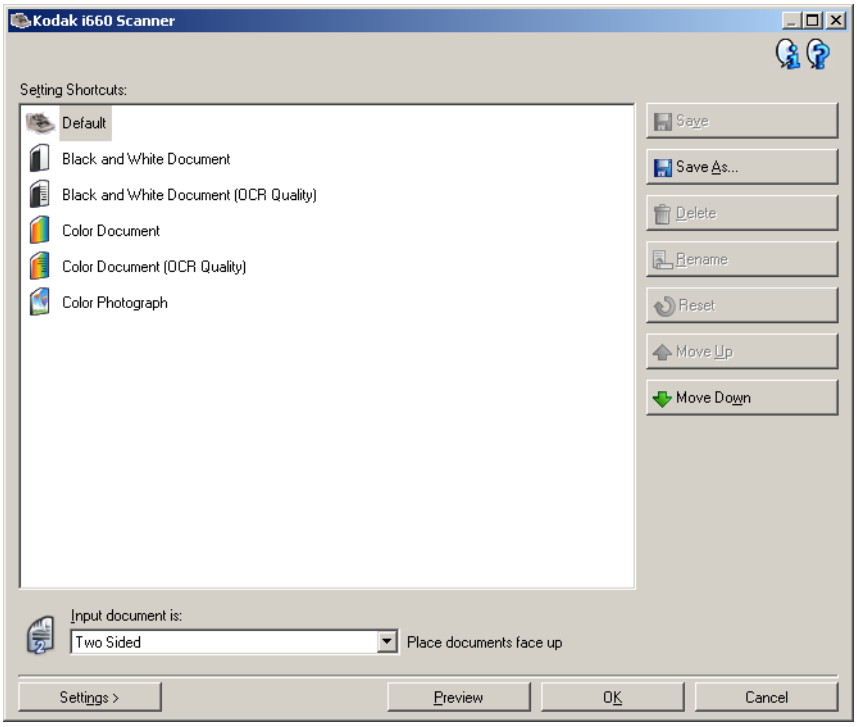


The TWAIN interface is divided into three main sections:

- **Image** Settings: clicking the Settings button on the main *Kodak* Scanner window, displays the Image Settings window. From this window you can set your image processing parameters by using the General, Size and Enhancements tab.
- **Device** Settings: the Device button is located on the Image Settings window. From this window you can set all scanner control functions by using the General, Printer, Multifeed and Patch tabs.
- **Diagnostics**: the Diagnostics button is located on the Device Settings window. From this window you can access diagnostic functions of the scanner. The Diagnostics window includes the following tabs: General, Debug and Logs.

## The main *Kodak* Scanner window

The main *Kodak* Scanner window is the home window of the scanner's user interface. You can scan by selecting a **Setting Shortcut** and then selecting **OK/Scan**.




**Setting Shortcuts** — provides a list of the Setting Shortcuts. The supplied shortcuts are:

- **Default** — the scanner's default settings
- **Black and White Document**
- **Black and White Document (OCR Quality)**
- **Color Document**
- **Color Document (OCR Quality)**
- **Color Photograph**

NOTES:

- Select an OCR Quality shortcut if you want to have the electronic images processed by an OCR application.
- If you have made changes to a Setting Shortcut and have not saved your changes, the Setting Shortcut will be appended with the text <*changed*>, and the name will be displayed in italics (e.g., **Default<changed>*).

**Input document is** — allows you to select which sides of the document have information that you want an electronic image of:

- **Two Sided:** scans the front and back of the document.
- **One Sided - Front**: scans only the front side of the document.
- **One Sided - Back**: scans only the back side of the document.

NOTE: Be sure to place your documents face-up in the input elevator.

**Save** — saves any changes made on the selected Setting Shortcut. This is only available for shortcuts you have created.

**Save As** — displays the Save As window allowing you to save your current settings as a new Setting Shortcut.

**Delete** — deletes the selected Setting Shortcut; you will be prompted for confirmation. This is only available for shortcuts you have created.

**Rename** — allows you to rename a Setting Shortcut. This is only available for shortcuts you have created.

**Reset** — allows you to undo any changes that have been made to the selected Setting Shortcut. This is only available for shortcuts you have modified (e.g., those shortcuts that are in italics and appended with <*changed*>).

**Move Up** — moves the selected Setting Shortcut up one position in the Settings Shortcut list. When you move a Setting Shortcut, it will stay in that position until you move it again.

**Move Down** — moves the selected Setting Shortcut down one position in the Settings Shortcut list. When you move a Setting Shortcut, it will stay in that position until you move it again.

**Settings** — displays the Image Settings window which allows you to make changes to the selected Setting Shortcut. From this window you can also access the Device settings and Diagnostic windows.

**Preview** — initiates a scan and then displays the Image Settings window with the scanned image placed in the preview area. The image displayed is a sample based on your current shortcut setting.

**OK/Scan** — when selected, you will be prompted to save any unsaved changes.

NOTE: If this button is OK, any unsaved changes will remain in affect for the current scan session.

**Cancel** — closes the main *Kodak* Scanner window without saving any changes.

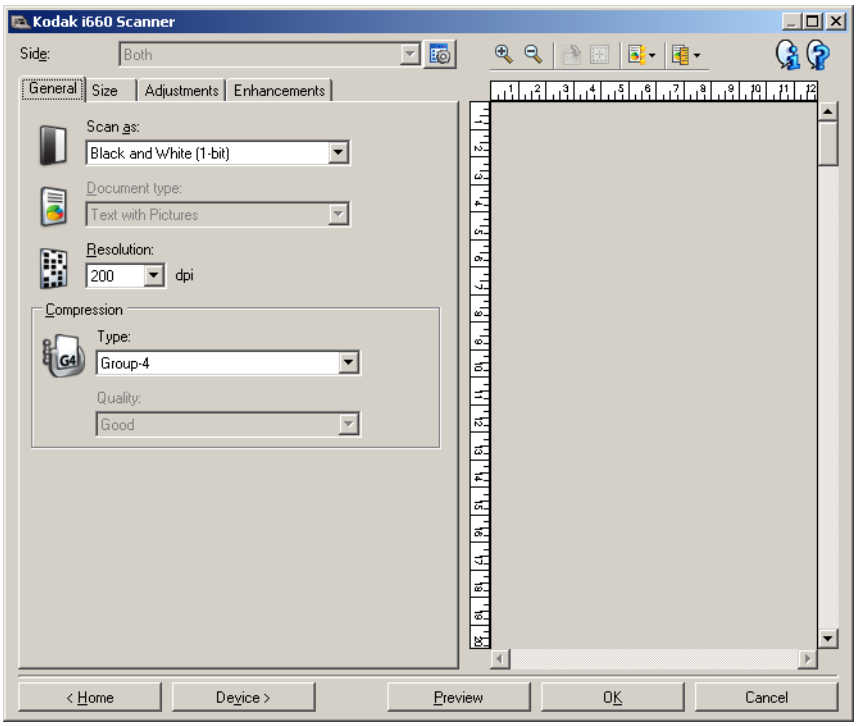
**Information icons**

**About**: displays the scanner's version and copyright information.

**Help**: displays help information for the window currently being displayed.

## The Image Settings window

The Image Settings window allows you to define image processing options by using the available tabs. The values used in Image Settings are saved in the selected Setting Shortcut. The Image Settings window includes the following tabs: General, Size, Adjustments, and Enhancements.




**Side** — allows you to select which side and image to configure (e.g., Front, Back: Color (24-bit), etc.). All image settings will be applied to the selected image.

This option is only available when advanced settings have been selected on the Advanced tab.

**Advanced Image Setup**: displays the Advanced tab. For more information see the section entitled, “Advanced tab” later in the chapter.

### Toolbar buttons

| | |
|---|---|
|  | **Zooms In**: enlarges the image that is currently being displayed in the preview area. |
|  | **Zooms Out**: reduces the image that is currently being displayed in the preview area. |
|  | **Rotate Outline**: rotates the outline 90 degrees. This is only available if the rotated outline will fit in the scanner's maximum width. |
|  | **Center Outline** — adjusts the X origin of the outline such that the outline is centered within the scanner's maximum width. |
|  | **Preview Quality:** selects the quality of the scanned image. **Normal**: displays acceptable image quality at a lower resolution. **High**: displays the most accurate representation of the actual image. The image displayed in the preview area is a good representation of what the final image will look like. |
|  | **Units**: selects the unit of measurement for the scanner; this includes the preview area and any size-related options. The Units options are: **Inches, Centimeters** and **Pixels**. |

### Preview area

The main purpose of the preview area is to display a sample image that is based on your current shortcut setting. An image will be displayed in this area after a preview scan has been performed.

- Outline: If you choose **Document: Manually Select** or **Image: Part of a document** on the Size tab, the preview area will also show the current *Outline* selections. If the outline does not align with your preview image, you may use the mouse to adjust the size and location of the outline. As the mouse cursor moves around the outline, the cursor will change indicating that you can adjust the outline by pressing and holding the left mouse button.
  - **Move**: place the mouse cursor within the outline to adjust the location of the outline.
  -  **Corner**: place the mouse cursor over one of the corner graphics to adjust two sides at the same time.
  -  **Side**: place the mouse cursor over one of the side graphics to adjust that side.

**Home** — returns you to the main *Kodak* Scanner window.

**Device** — displays the Device Settings window.

**Preview** — initiates a scan and places the image in the preview area. The image displayed is a sample based on your current shortcut setting.

**OK/Scan** — when selected, you will be prompted to save any unsaved changes.

NOTE: If this button is OK, any unsaved changes will remain in affect for the current scan session.

**Cancel** — closes the main *Kodak* Scanner window without saving any changes.

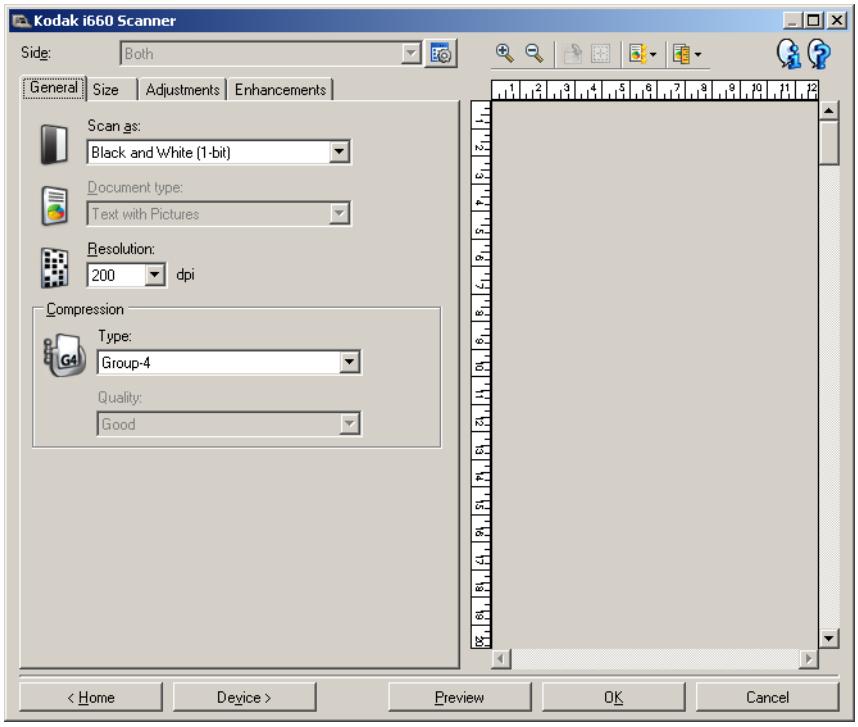
**Information icons**

**About**: displays the scanner's version and copyright information.

**Help**: displays help information for the window currently being displayed.

## Image Settings - General tab

The General tab contains the commonly used image options. In most cases you will not have to change options on other tabs.




**Scan as** — allows you to select the electronic image format.

- **Color (24-bit)**: the scanner will produce a color version of your document.
- **Grayscale (8-bit**): the scanner will produce a grayscale version of your document.
- **Black and white (1-bit)**: the scanner will produce a black and white version of your document.

NOTE: The *Scan As* option is only available when **Images per side: One** is selected on the Advanced tab.

**Document type** — allows you to select the type of content on your documents.

- **Text with Pictures**: the documents contain a mix of text, business graphics (bar graphs, pie charts, etc.) and line art.
- **Text**: the documents contain mostly text.
- **Pictures**: the documents contain mostly photos.

**Resolution** — allows you to select the dots per inch (dpi), which largely determines the quality of the scanned image. While scanning at a greater resolution produces a better quality image, it may also increase scanning time and image size. The options are:

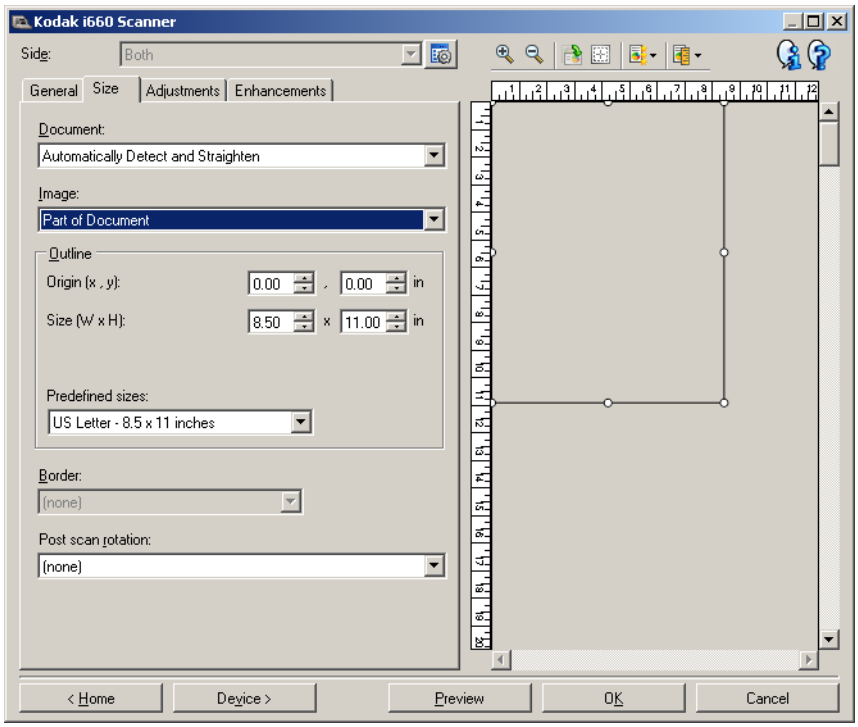
**Color/grayscale**: 100, 150, 200, 240, and 300 dpi
**Black-and-white**: 200, 240, 300 and 400 dpi

**Compression** — allows you to reduce your electronic image size.

- **Type**: the scanner will produce a color version of your document.
  - **(none)**: no compression, which may produce a large image size.
  - **Group-4:** uses CCITT standard to compress the image, often used in conjunction with TIFF files.
  - **JPEG:** uses JPEG techniques to compress the image.
  - **(none) - Internal on**: the scanner will compress the image, however, an uncompressed image will be returned to the scanning application.
- **Quality** — allows you to select the quality of the compressed JPEG image.
  - **Draft:** maximum compression which produces the smallest image size.
  - **Good**: a fair amount of compression but still produces acceptable image quality.
  - **Better**: some compression which produces decent image quality.
  - **Best**: minimal compression which produces very good image quality.
  - **Superior**: the least amount of compression which produces the largest image size.

## Image Settings - Size tab

The Size tab provides the following options.




**Document** — allows you to select how the scanner will detect your document as it is being fed through the scanner.

- **Automatically Detect and Straighten**: the scanner will automatically find each document (regardless of size) and straighten any document that may have been fed crooked.
- **Automatically Detect:** the scanner will automatically find each document (regardless of size). If a document is fed crooked, it will not be straightened.
- **Manually Detect**: the scanner will return an image based on the area you specify with the *Outline* options. It is suggested that you only use this option for scan jobs that contain same-sized documents.

**Image** — allows you to select which part of the document you want for your electronic image.

- **Entire document**: returns the entire document.
  - if you select **Document**: **Automatically Detect and Straighten, Document: Automatically Detect** or **Document: Manually Detect**, returns the entire document.
- **Part of the document**:
  - if you select **Document**: **Automatically Detect and Straighten,** returns the portion of the document which you specify with the *Outline* options.

**Outline** — allows you to select the location and size to use for creating your electronic image. The preview area will show the outline.

- **Origin (x, y)**:
  - if you select **Document**: **Automatically Detect and Straighten** (x) is the distance from the left edge of the document and (y) is the distance from the top edge of the document.
  - if you select **Document**: **Manually Select**, (x) is the distance from the left edge of the scanner's paper path and (y) is the distance from the first portion of the document detected by the scanner.
- **Size (W, H):**
  - if you select **Document: Automatically Detect and Straighten** or **Document: Manually Select**, this is the width and height of the electronic image.

    NOTE: The electronic image may be shorter than you specified if the outline goes beyond the end of the scanned document.

- **Predefined sizes**: provides a list of commonly used paper sizes. Selecting an item in this list will automatically set the size of the outline to that paper's size. **Custom** will be displayed when the outline size does not match any sizes in this list.

NOTE: You can also adjust the outline displayed in the preview area using your mouse.

**Border** — allows you to select what action to perform on the edges of your electronic image.

- **(none)**
- **Add**: includes up to approximately 0.1 inches of border around all of the image edges.

  NOTE: This option is only available for the following selections: when both **Document: Automatically Detect and Straighten** and **Image: Part of Document** are selected; **Document: Automatically Detect;** or **Document: Manually Select.**

- **Remove**: produces an image that contains just the document by eliminating any residual border. Residual border can be caused by variations in a document edge; for example, when a document is not a perfect rectangle and/or was fed crooked.

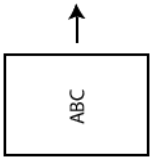
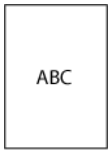
  NOTES:

  - While this option will not remove large amounts of residual border, there is a possibility that a small amount of the document will be lost.
  - This option is only available when both **Document: Automatically Detect and Straighten** and **Image: Entire Document** are selected.

**Post scan rotation** — allows you to select any rotation to be applied to the electronic image after it has been scanned.

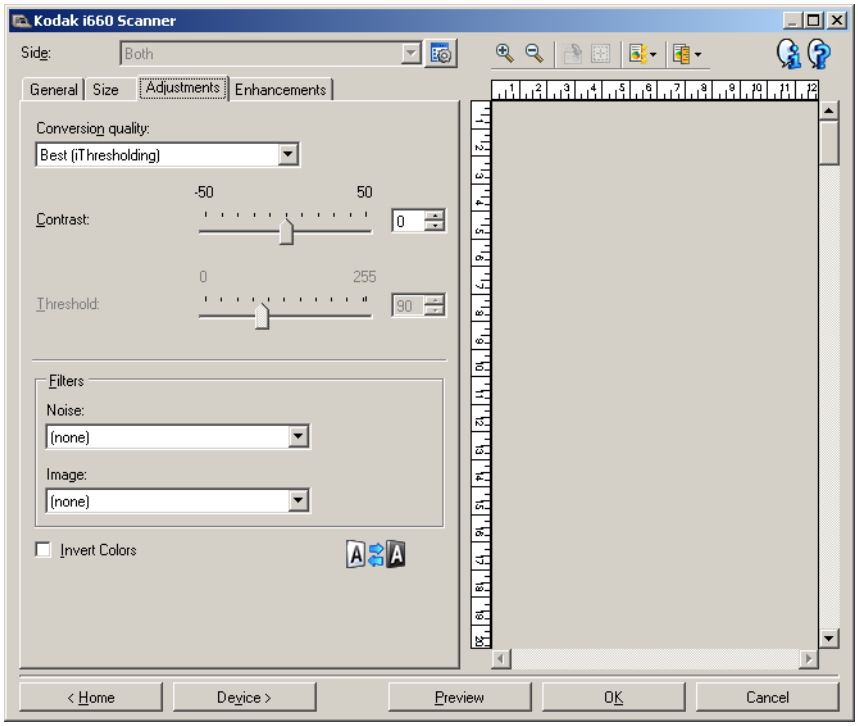
- **(none)**
- **90, 180, 270 degrees:** the amount of rotation.

The following example shows how these settings effect a document that was fed landscape.

| Landscape Feed Orientation | 90 degrees | 180 degrees | 270 degrees |
|---|---|---|---|
|  |  |  |  |

## Image Settings - Adjustments tab - Black and White

The options available on the Adjustments tab depend on the *Scan as* selection on the General tab. The following options are based on a *Scan as* selection of **Black and White**.




**Conversion quality** — these settings effect how the scanner analyzes a grayscale version of the document which is used to produce the black and white electronic image.

- **Best** (iThresholding): the scanner analyzes each document to determine the optimal settings to produce the highest quality image. This option allows scanning of mixed documents with varying quality (i.e., faint text, shaded backgrounds, color backgrounds) and when scanning with consistent document sets.
- **Normal (ATP)**: allows you to determine the optimal settings to produce the desired image quality. This option works best when scanning with consistent document sets. You may also want to use this option if you have difficult documents such that you cannot find a *Contrast* setting for *Best* that produces the desired quality.
- **Draft (Fixed)**: allows you to select the grayscale threshold used to determine if a pixel is black or white. This option works best for high contrast documents.
- **64-Level Bayer Dither, 64-Level 45 Degree Clustered Dot Screen, 64-Level Dispersed Dot Screen,** and **Error Diffusion**: these options are no longer recommended, however, they are still available for use with existing applications that require them.

  NOTE: Using these options with *Compression Type: Group 4* may produce a much larger file size than *Compression Type: (none)*.

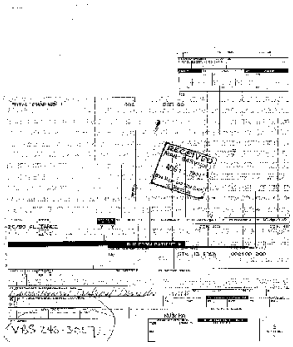
**Contrast** — allows you to make an image sharper or softer. Decreasing this setting will make the image softer and reduce noise in the image. Increasing this setting will make the image clearer and make light information more visible. The options range from **-50** to **50**. The default is 0.

NOTE: This is only available for *Conversion quality: Best* and *Conversion quality: Normal.*

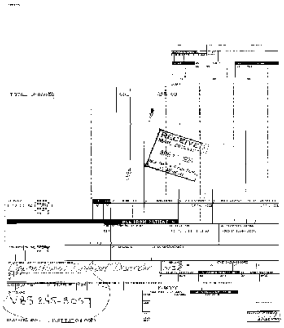
**Threshold** — aids in controlling the level at which a pixel is considered black or white. Decreasing this setting will make the image appear lighter, and can be used to subdue background noise. Increasing this setting will make the image appear darker, and can be used to help pick up light information. The options range from 0 to 255. The default is 90.

NOTE: This is only available for *Conversion quality: Draft* and *Conversion quality: Normal.*

- **Filters: Noise**
  - **(none)**
  - **Lone Pixel:** reduces random noise by converting a single black pixel to white when it is completely surrounded by white pixels or by converting a single white pixel to black when it is completely surrounded by black pixels.
  - **Majority Rule**: sets each pixel based on its surrounding pixels. The pixel will become white if the majority of the surrounding pixels are white and visa versa.



**No Noise Filter Used**



**Lone Pixel**

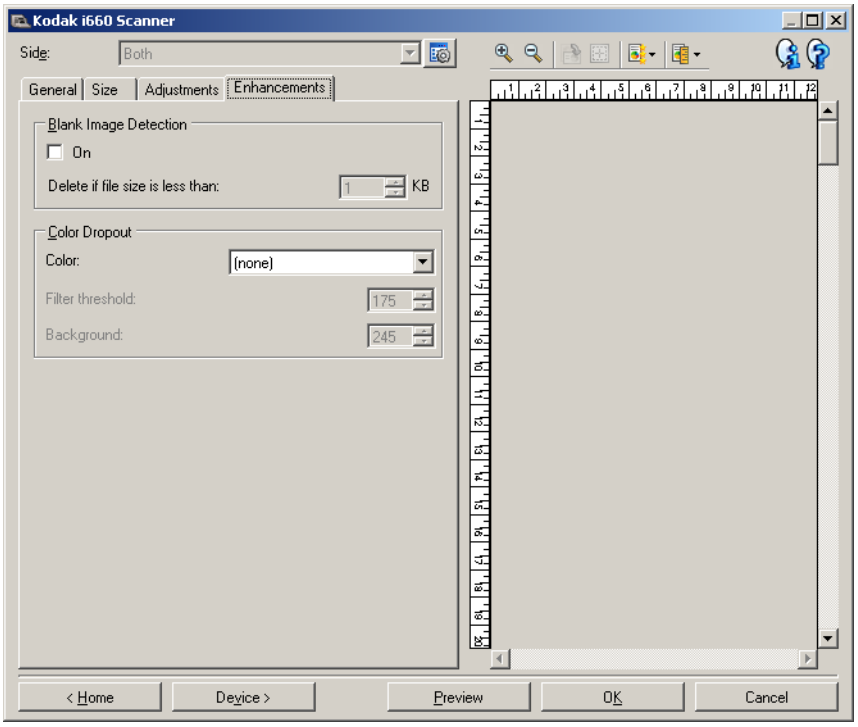
- **Filters: Image**
  - **(none)**
  - **Halftone Removal**: enhances dot matrix text and images made with halftone screens (e.g. newspaper photographs).

NOTE: These are not available for the following conversion qualities: *64-Level Bayer Dither, 64-Level 45 Degree Clustered Dot Screen, 64-Level Dispersed Dot Screen,* and *Error Diffusion.*

**Invert Colors** — allows you to select how the black pixels will be stored in the image. By default the black pixels are stored as black and the white pixels are stored as white. Turn this option on if you want the black pixels stored as white and the white pixels stored as black.

## Image Settings - Enhancements tab

The options available on the Enhancements tab depend on the *Scan as* selection on the General tab.




**Blank Image Detection** — allows you to configure the scanner to not include blank images.

- **On**: turns Blank Image Detection on and makes the rest of the Blank Image Detection options available.
- **Delete if file size is less than**: allows you to select the minimum image size that the scanner will consider to be non-blank. Any image that is less than this value will be considered blank and will not be given to the scanning application. The values range from **1** to **1000 KB** (1 KB equals 1024 bytes).

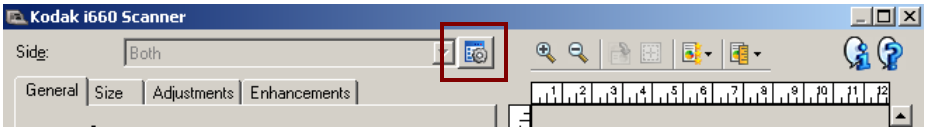
**Color Dropout** — used to eliminate a form's background so that only the entered data is included in the electronic image (i.e. remove the form's lines and boxes). For black and white images, these settings effect the grayscale version of the document which the scanner analyzes to produce that electronic image.

- **Color**: select the desired dropout color. Options are: **(none), Red, Green,** and **Blue**.
- **Filter Threshold:** allows you to adjust how the scanner identifies the color to be dropped. The values range from **0** to **255**. The default is 175.
- **Background:** allows you to select the grayscale value to replace the dropped color with. It is suggested that this value be higher than the Threshold value selected on the Adjustments tab in order for the dropped color to appear to be part of the background. The values range from **0** to **255**. The default is 245.

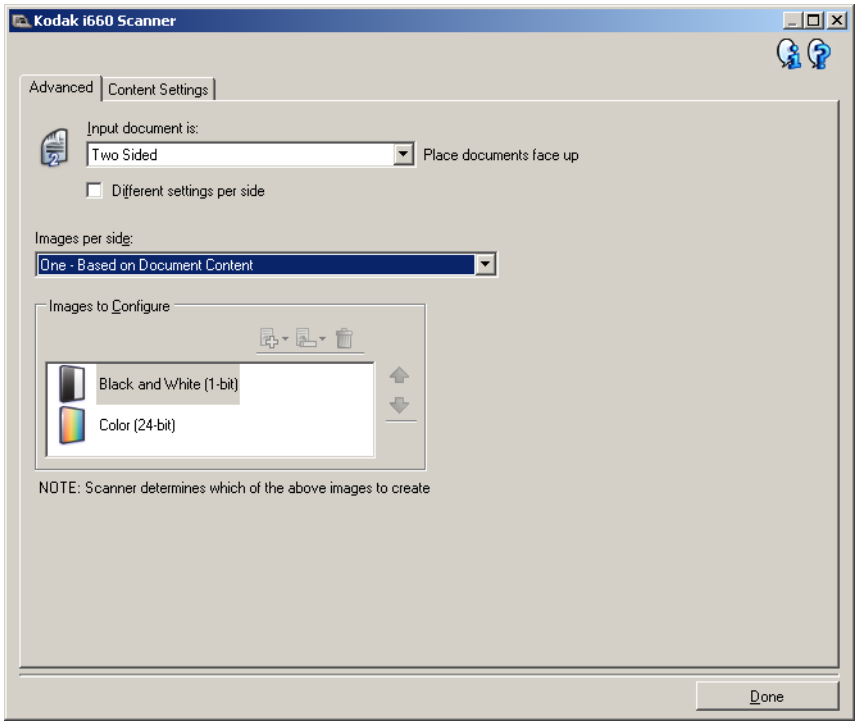
NOTE: The Color Dropout options are only available when the *Scan as* selection is **Black and White**.

## Advanced tab

The Advanced icon is located at the top of the Image Settings window next to the **Side** drop-down box.

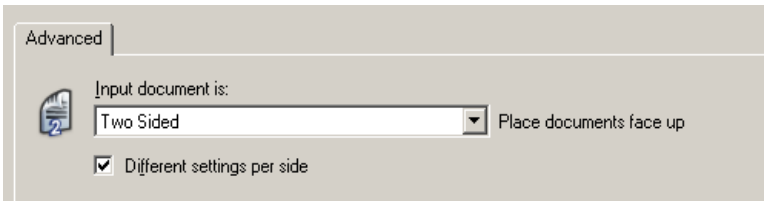



When you select the Advanced icon, the Advanced tab will be displayed.




**Input document is** — select **Two Sided, One Sided - Front,** or **One Sided - Back** depending on what side(s) you want to configure.

**Different settings per side** — by default, the settings you select in the TWAIN Datasource apply to both sides of the image. Turn this option on if you want you to select different image processing settings for each side of the document you are scanning. For example, if you want the front side to be color and the rear side to be black and white, first make sure that you have selected the **Two Sided** option of *Input document is*, then turn on **Different settings per side**.

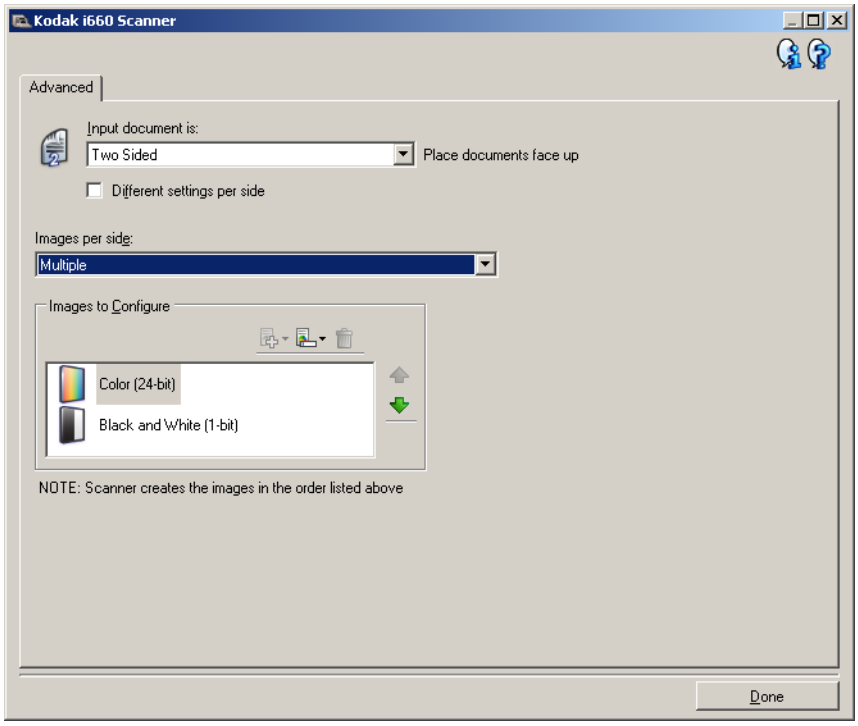


Once you have done this, the *Side* option on the Image Settings window will no longer be grayed out and you can select different settings for each side. Now that you have turned on **Different settings per side**, your selections will apply only to the front side of the document you are scanning. After you have made your selections for the front side, use the Side option to select the back side and then make the settings you want to apply to the back.

NOTE: The *Different settings per side* option is only available for duplex scanner models.

**Images per side** — indicates how many images the scanner will create for a side, based on your imaging selection.

- **One**: indicates you want the scanner to create one image.
- **One - Based on Document Content**: indicates you want the scanner to automatically detect if the document is color/grayscale or black and white.
- **One - Based on Toggle Patch**: indicates you want to tell the scanner, via a toggle patch document, if the document is color/grayscale or black and white.
- **Multiple**: indicates you want the scanner to create more than one image.




NOTE: If you select **One - based on Document Content** from the *Images per side* option, the Content Settings tab will be displayed.

**Images to Configure** — indicates which electronic images you need to configure.

NOTE: This is only available if you select anything other than **One** from the *Images per side* option.

Refer the examples later in this chapter for procedures on how to configure advanced options.

When available, use the up and down arrows to select the order the images will be delivered by the scanner to the scanning application.

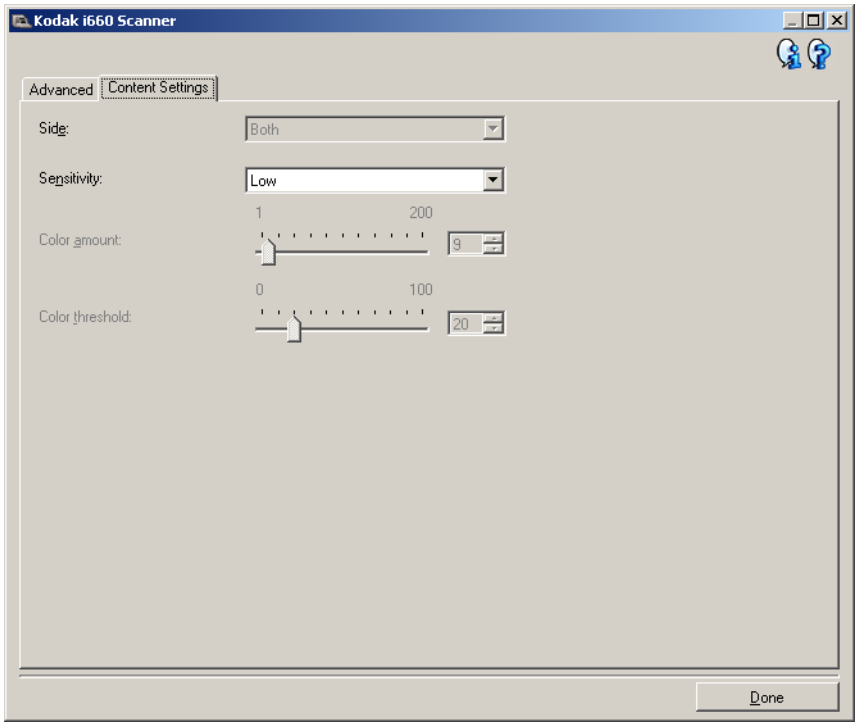
**Toolbar buttons**

| | |
|---|---|
|  | **Add**: adds an image type to the bottom of the configuration list. |
|  | **Change**: allows you to change the currently selected image type. |
|  | **Delete**: removes the selected image type. |

**Done** — returns you to the Image Settings window.

## Content Settings tab

The options on the Content Settings tab can be used for either one- or two-sided jobs.




**Side** — determines which side the *Sensitivity* settings are applied to. This option is only available if **Different settings per side** is turned on from the Advanced tab.

### Sensitivity

- **Low**: documents requiring only a small amount of color to be saved as color/grayscale images. Used for capturing documents that are primarily black text with small logos, or contain small amounts of highlighted text or small colorful photos.
- **Medium**: documents requiring more color, as compared with the Low option, before they are saved as color/grayscale images.
- **High**: documents requiring more color, as compared with the Medium option, before they will be saved as color/grayscale images. Used for distinguishing documents containing medium- to large-size colorful photos from plain black text. Photos with neutral colors may require adjustments to the *Color threshold* or *Color amount* values in order to be captured correctly.

- **Custom**: allows you to manually adjust the *Color amount* and/or *Color threshold.*

  NOTE: When setting Sensitivity values, it is suggested that you start with the **Medium** option and scan a typical job set. If too many documents were returned as color/grayscale vs. black and white, then change to the **High** option and re-run the job. If too few documents were returned as color/grayscale vs. black and white, then change to the **Low** option and re-run the job. If none of these options provide the desired result, select **Custom** to manually adjust *Color amount* and/or *Color threshold*. **Custom** also allows access to the **Learn** mode which provides a method for the scanner to analyze documents and recommend settings.

**Color amount** — the amount of color that needs to be present in a document before it will be saved as color/grayscale. As the value of Color amount increases, more color pixels are required. The options range from **1** to **200**.

**Color threshold** — the color threshold or saturation (i.e., pale blue vs. dark blue) at which a given color will be included in the color amount calculation. A higher value indicates that a more intense color is required. The options range from **0** to **100**.

**Learn** — allows you to calculate your settings based on representative color documents scanned. Before clicking **Learn**, place at least 5 representative color documents in the input elevator. The documents will be scanned and analyzed to determine the recommended color amount.

NOTE: The *Color amount* and *Color threshold* sliders will be updated automatically. If these values do not provide the desired results with your job set, you may need to adjust the Color threshold manually.

### Creating color/grayscale or black and white images based on the content of your documents

In this example, let's assume you want to configure a scan session that has a mix of color and black and white documents with information on both sides. In addition, you want the scanner to detect whether the page is color or not, and then output either a color or a black and white image based on that.

1. Select a **Setting Shortcut** from the main *Kodak* Scanner window that closely describes your desired output.
2. Select **Settings** to display the Image Settings window.
3. Select the **Advanced Image Setup** icon on the Image Settings window to display the Advanced tab.
4. Select **Input document is: Two Sided**.
5. Select **Images per side: One - based on document content.**

   NOTE: The *Images to Configure* area will now be displayed on the Advanced tab and contain a color image item and a black and white image item. The Content Settings tab will also be displayed.

6. If you want a grayscale image instead of a color image, when enough color is detected in the document:
   - make sure *Color (24-bit)* is selected
   - select **Change** to display a list of options
   - select **Grayscale**
7. Go to the Content Settings tab.
8. Select a **Sensitivity** option.
9. Select **Done** to return to the Image Settings window.

   NOTE: You will notice that the *Side* option now has two entries: **Both: Color (24-bit)** and **Both: Black and White (1-bit)**.

10. Select **Sides: Both: Color (24-bit)**.

    Make any other adjustments to the color image settings on the rest of the tabs on the Image Settings window.

11. Select **Sides: Both: Black and White (1-bit)**.

    Make any other adjustments to the black and white image settings on the rest of the tabs on the Image Settings window.

12. When finished, select **Home** to return to the main *Kodak* Scanner window and then select **Save** to save your selections to the shortcut.

### Creating multiple images for each side of a document

In this example, let's assume you want to configure a scan session that has documents with information on both sides and you want the scanner to produce both a color and a black and white image for each side of each document.

1. Select a **Setting Shortcut** from the main *Kodak* Scanner window that closely describes your desired output.
2. Select **Settings** to display the Image Settings window.
3. Select the **Advanced Image Setup** icon on the Image Settings window to display the Advanced tab.
4. Select **Input document is: Two Sided**.
5. Select **Images per side: Multiple**.

   NOTE: The *Images to Configure* area will now be displayed on the Advanced tab and will contain a color image item and a black and white image item. The Content Settings tab will also be displayed.

6. If you want a grayscale image instead of a color image, when enough color is detected in the document:
   - make sure *Color (24-bit)* is selected
   - select **Change** to display a list of options
   - select **Grayscale**
7. By default the scanner will produce the color/grayscale image first and deliver it to the scanning application, then it will produce and deliver the black and white image. If you want the black and white image to be produced and delivered first:
   - make sure **Black and White (1-bit)** is selected
   - select **Move up** to place the black and white image first in the list
8. Select **Done** to return to the Image Settings window.

   NOTE: You will notice that the *Side* option now has two entries: **Both: Color (24-bit)** and **Both: Black and White (1-bit)**.

9. Select **Sides: Both: Color (24-bit)**.

   Make any other adjustments to the color image settings on the rest of the tabs on the Image Settings window.

10. Select **Sides: Both: Black and White (1-bit)**.

    Make any other adjustments to the black and white image settings on the rest of the tabs on the Image Settings window.

11. When finished, select **Home** to return to the main *Kodak* Scanner window and then select **Save** to save your selections to the shortcut.

## Creating different settings for each side of a document

In this example, let's assume you want to configure a two-sided document stream of business documents that have color on the front of the document but the rear side is fine in black and white.

1. If you are not already on the Advanced tab:
   - Select a **Setting Shortcut** from the main *Kodak* Scanner window that closely describes your desired output.
   - Select **Settings** to display the Image Settings window.
   - Select **Advanced Image Setup** icon on the Image Settings window to display the Advanced tab.
2. Select **Input document is: Two Sided**.
3. Turn on the **Different settings per side** option.
4. Select **Images per side: One**.
5. Select **Done** to return to the Image Settings window.

   NOTE: You will notice that the *Side* option now has two entries: **Front** and **Back**.

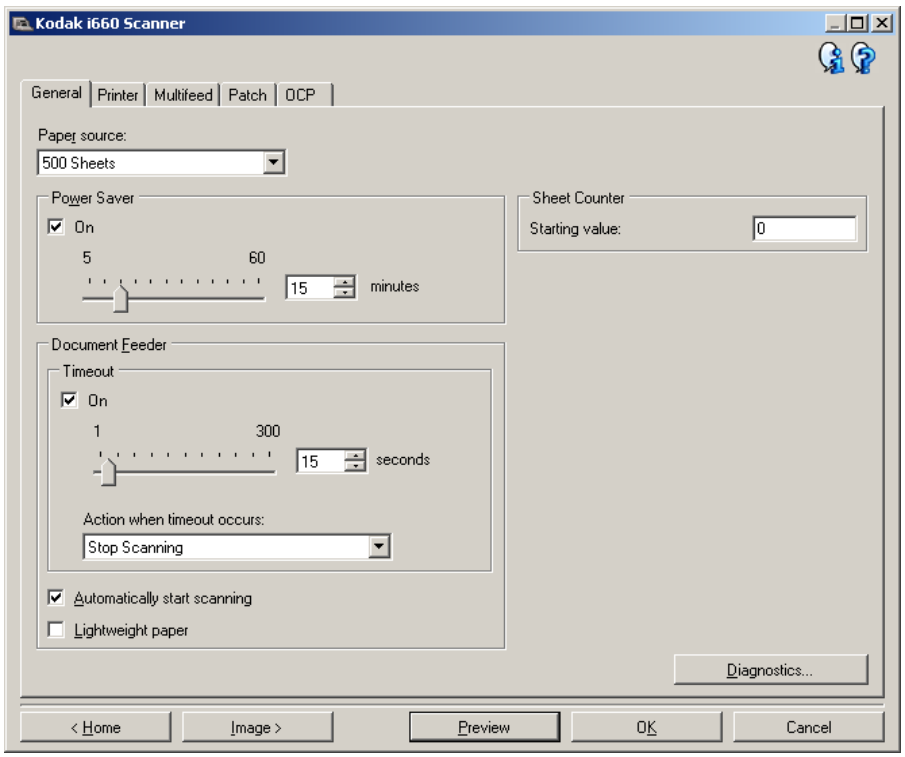
6. Select **Sides: Front**.
7. Select **Color (24-bit)** for the *Scan As* option on the General tab.

   Make any other adjustments to the front side settings on the rest of the tabs on the Image Settings window.
8. Select **Black and White (1-bit)** for the *Scan As* option on the General tab.

   Make any other adjustments to the back side settings on the rest of the tabs on the Image Settings window.
9. When finished, select **Home** to return to the main *Kodak* Scanner window and then select **Save** to save your selections to the shortcut.

## The Device Settings window

From this window you can set all scanner-specific options, as well as diagnostics, by using the available tabs. The values used in Device Settings are saved in the selected Setting Shortcut. The Device Settings window includes the following tabs: General, Printer, Multifeed and Patch.




**Home** — returns you to the main *Kodak* Scanner window.

**Image** — displays the Image Settings window.

**Preview** — initiates a scan and then displays the Image Settings window with the scanned image placed in the preview area. The image displayed is a sample based on your current shortcut setting.

**OK/Scan** — when selected, you will be prompted to save any unsaved changes.

NOTE: If this button is *OK*, any unsaved changes will remain in affect for the current scan session.

**Cancel** — closes the main Kodak Scanner window without saving any changes.

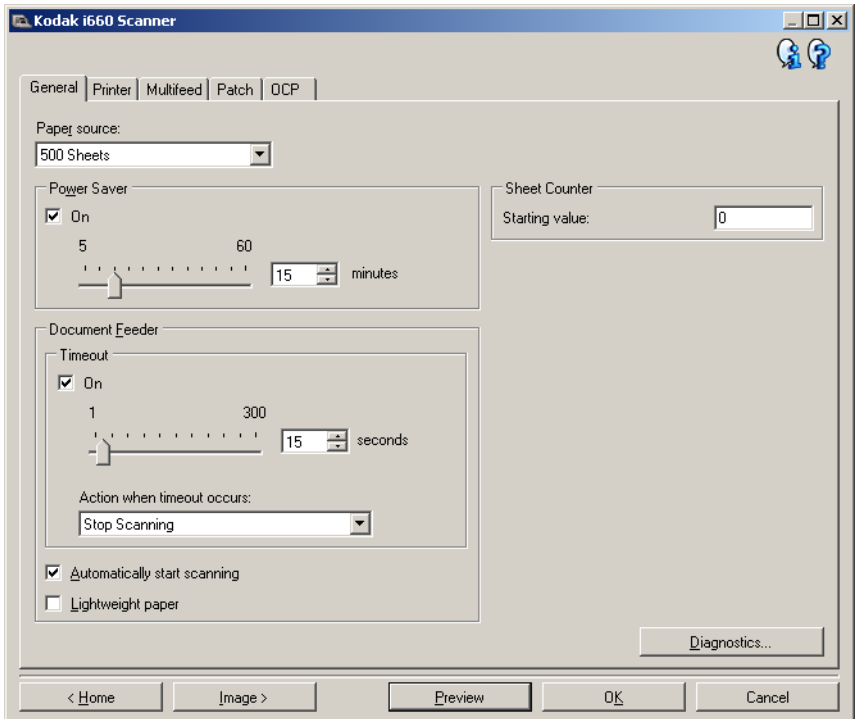
### Information icons

**About**: displays the scanner's version and copyright information.

**Help**: displays help information for the window currently being displayed.

## Device - General tab

The General tab allows you to set scanner-specific options and provides access to scanner diagnostics.




### Paper source

- **Document Feeder**: the input elevator is in the highest position. This selection is recommended when you are scanning 25 sheets or less.
- **100 Sheets**: this selection is recommended when you are scanning between 25 and 100 sheets.
- **250 Sheets**: this selection is recommended when you are scanning between 100 and 250 sheets.
- **500 Sheets**: this selection is recommended when you are scanning between 250 and 500 sheets.

**Power Saver** — allows you to set the amount of time the scanner has to be inactive before going into power saver mode. You can turn this option **off** or set a time from **5** to **60** minutes.

### Document Feeder

- **Timeout**: allows you to select the amount of time the scanner will wait once the last document enters the feeder before the timeout occurs. You can turn this option off or set a time from **1** to **300** seconds.

- **Action when timeout occurs**: allows you to specify the action that will be taken when the document feeder timeout has been reached.
  - **Stop Scanning**: scanning will stop and control will return to the scanning application (i.e. ends the job).
  - **Pause Scanning:** scanning will stop but the scanning application will be waiting for additional images (i.e. stops the feeder). Scanning may be resumed by pressing the **Start/Resume** on the scanner. Scanning may be stopped by pressing the Stop/Pause button on the scanner or via the scanning application.
- **Automatically start scanning**: if selected, the scanner will automatically start the feeder, without pressing the Start/Resume button on the scanner. The scanner will wait the amount of time specified by the document feeder timeout for a document to be fed into the scanner. Once the input elevator has been emptied, the scanner will pause scanning; scanning is resumed by pressing the **Start/Resume** button on the scanner.
- **Lightweight paper**: improves output stacking when scanning lightweight paper. When selected, the scanner will increase the gap between documents in order to allow each document to settle in the output tray before the next document gets to the output tray.

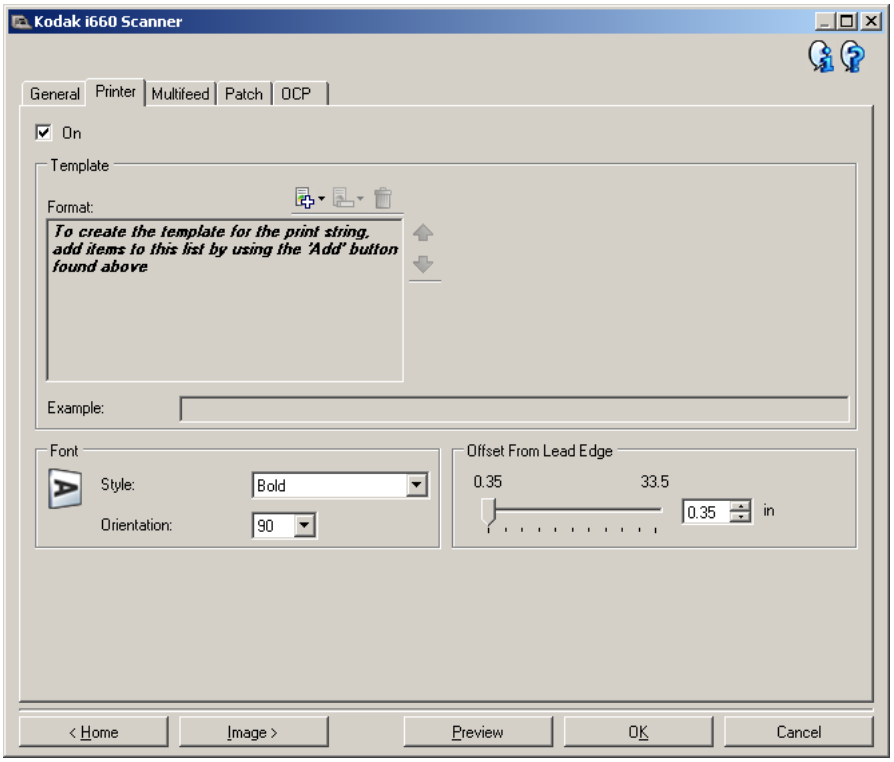
  NOTE: Using this option will decrease overall throughput.

**Sheet Counter** — enter a value that will be used to assign the document count for the next document entering the scanner. This is incremented sequentially by the scanner and is returned in the image header.

**Diagnostics** — displays the Diagnostics tab.

## Device - Printer tab

The Enhanced Printer provides a vertical print capability and supports alphanumeric characters, date, time, document count and custom messages. All print information is captured in the image header of each document.




**On** — turns printing on and makes the rest of the options on this tab available.

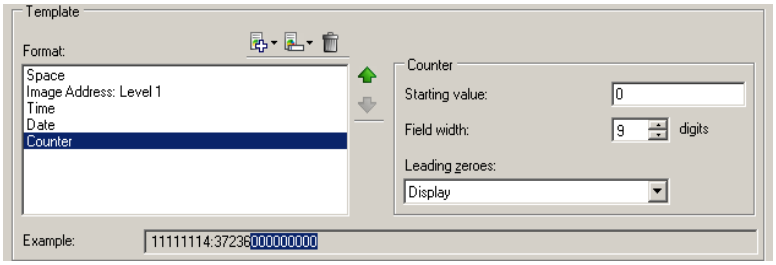
**Template: Format** — allows you to define your print string. The maximum amount of characters for the print string is 40 characters (including spaces).

| | |
|---|---|
|  | **Add** — displays a list of items you can add to your print string. When you select an item, that item will appear at the end of the Format list. |
|  | **Change** — allows you to change the currently selected item in the Format list with one of the items from the list that is displayed. |
|  | **Delete** — allows you to remove the currently selected item from the Format list. |

NOTE: As you build your print string, only items that will fit in the 40-character limit will be available from the *Add* and *Change* lists.

**Items** — when an item is selected, any associated options will be displayed to the right of the *Format* list.

- **Counter**: this is the document count for the scan session. This value is incremented sequentially by the scanner and returned in the image header.




  - **Starting value**: allows you to set the document count for the next document that will be scanned.
  - **Field width**: allows you to configure the width of the counter from 1 - 9. However, if for example, you only have 6 characters left in the print string, then the field width would be limited to 6.
  - **Leading zeroes**: allows you to configure the format of the counter when the width of the value is less than the field width (the examples indicate a field width of 3 and the counter at 4).
    - Display: "004"
    - Do Not Display: "4"
    - Display As Spaces: "  4"

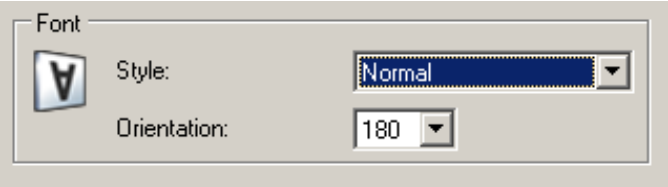
- **Date**
  - **Format**:
    - **MMDDYYYY**
    - **DDMMYYYY**
    - **YYYYMMDD**
    - **DDD (Julian)**
    - **YYYYDDD (Julian)**.
  - **Separator**: (the examples indicate a format of YYYYMMDD)
    - **None:** 20060824
    - **Slash**: 2006/08/24
    - **Hyphen**: 2006-08-24
    - **Period**: 2006.08.24
    - **Space**: 2006 08 24
  - **Specific date:** allows you to select a specific time if you do not want to use the current date within the scanner.
- **Time**: the format is HH:MM.
  - **Specific time:** allows you to select a specific time if you do not want to use the current time within the scanner.

- **Space**: adds a space.
- **Message**: allows you to specify custom text to be included in your print string. A maximum of 20 characters is allowed. You can have up to 6 unique messages.

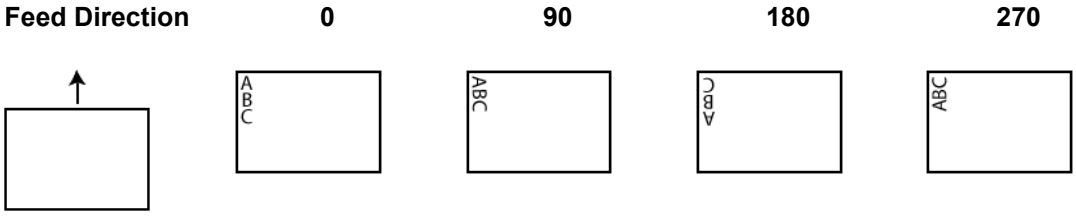
NOTE: To view the Japanese characters correctly you must get the MS Gothic font set by installing the Microsoft Global IME 5.01 for Japanese - with Language Pack, English Language Version which can be found at http://www.microsoft.com/msdownload/iebuild/ime5_win32/en/ime5_win32.htm.

**Template: Example** — shows a sample of what the print string will look like. As you select items in the Format list, the corresponding portion within the example will be highlighted.

**Font** — you can select what orientation you want your information to be printed.




- **Style:** available character styles are: **Normal** and **Bold**.
- **Orientation**: while the characters are printed vertically (starting at the lead edge of the document) this allows you to select the orientation of the print string. Available options are: **0, 90, 180, 270**.



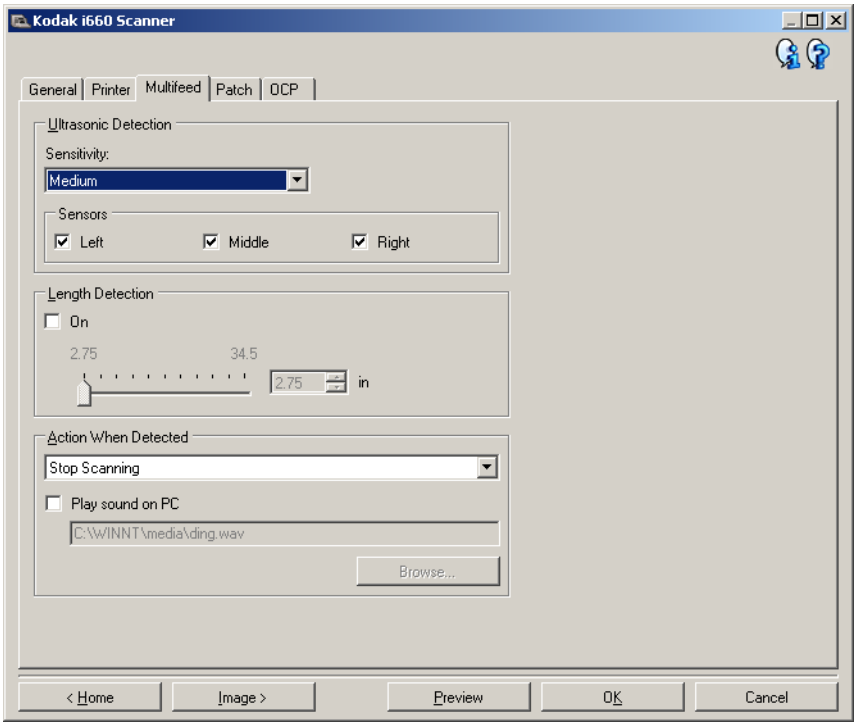

**Offset from lead edge** — select a value from **0.35** to **33.5** inches to determine how far the printed information will appear from the leading edge of the document.

NOTES:

- Printing automatically stops 6.3 mm (1/4-inch) from the trailing edge of the document even if the information has not been completely printed.
- The horizontal print position is set manually on the scanner. See Chapter 4, *The Enhanced Printer*, in the User's Guide for information on changing the horizontal print position.

## Device - Multifeed tab

Multifeed detection aids in document processing by detecting documents that may go through the feeder overlapped. Multifeeds can happen due to stapled documents, adhesives on documents, or electrostatically charged documents.




### Ultrasonic detection

**Sensitivity** — controls how aggressively the scanner will work to determine if more than one document is fed into the scanner. Multifeeds are triggered by detecting air gaps between documents. This allows multifeed detection to be used with job sets containing documents with mixed thicknesses.

- (**none**)
- **Low**: least aggressive setting and is less likely to detect labels, poor quality, thick or wrinkled documents as multi-fed documents.
- **Medium**: use if your job set has varying document thicknesses or labels attached to the document. Depending on the label material, most documents with labels should not be detected as a multi-fed document.
- **High**: most aggressive setting. This is a good setting to use if all documents are similar in thickness no greater than 20-lb. bond paper.

NOTE: Regardless of the setting, “sticky” notes will be detected as multi-fed documents.

**Sensors** — three sensors cover the width of the paper path. In order for multi-fed documents to be detected correctly, they must pass under one of these sensors.

- **Left, Middle, Right:** this allows you to select which sensor(s) you want turned on. For example, if you know that the left side of the document has a “sticky” note on it, you can turn off the left sensor.

**Length Detection** — allows you to select the maximum length of the documents in your job set. If the scanner detects a document of that length or longer, it will determine that a multifeed has occurred. You can turn this option off, or set a length of up to **34.5** inches.

**Action When Detected** — select what action you want the scanner to take when a multifeed is detected. With all options, the condition will be logged in the scanner.

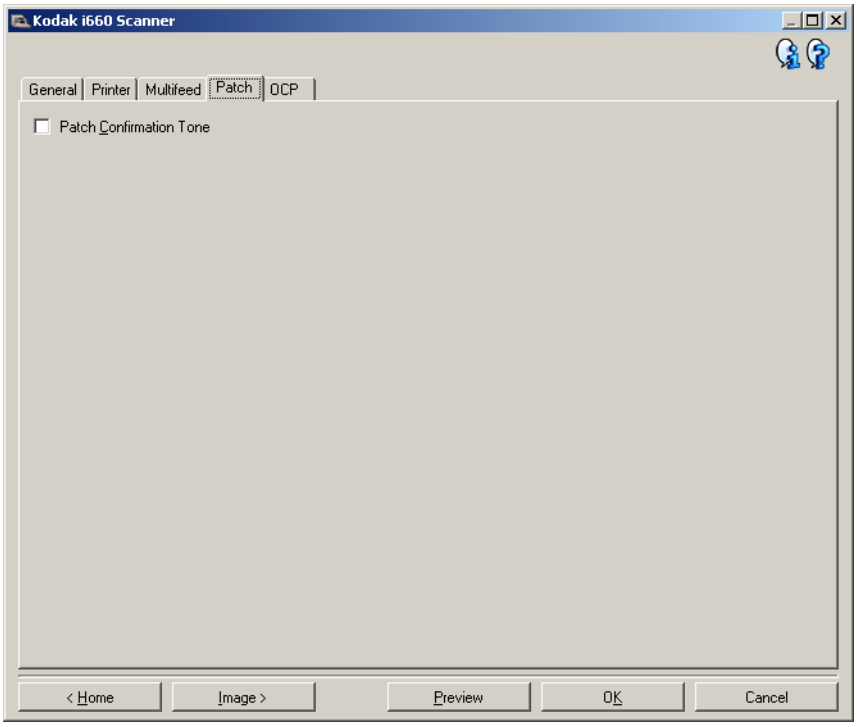
- **Stop Scanning**: scanning will stop and control will return to the scanning application (i.e., ends the job). Verify that the paper path has been cleared and restart the scan session from the scanning application.
- **Continue Scanning**: the scanner will continue to scan.
- **Pause Scanning**: scanning will stop but the scanning application will be waiting for additional images (i.e., stops the feeder). Scanning may be resumed by pressing the **Start/Resume** on the scanner. Scanning may be stopped by pressing **Stop/Pause** on the scanner or via the scanning application.

**Play sound on PC** — turn this option on if you want the PC to make a sound when a multifeed is detected. You can click the **Browse** button to select the desired .wav file.

NOTE: The sound on the PC may not occur at the exact time the multifeed is detected by the scanner.

## Device - Patch tab

The Patch tab allows you to enable a patch confirmation tone. For more information regarding patch codes, see the Kodak publication A-61599, *Patch Code Information for Kodak Document Scanners* for complete information.




**Patch Confirmation Tone** — the confirmation tone may be used to signal that a patch has been recognized by the scanner. The default is no confirmation tone.

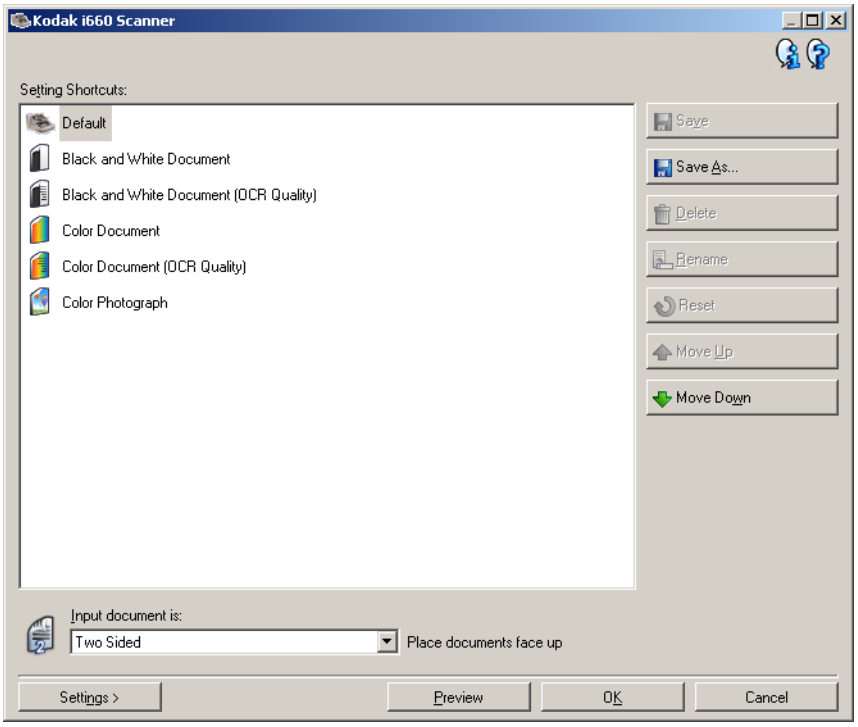
## Creating a new Setting Shortcut

Setting Shortcuts are separately named and contain all scanner settings required to do a certain scanning job. By default, the i1860 Scanner comes with predefined Setting Shortcuts for the most common scanner tasks. You can use these default Setting Shortcuts or use them as a template to create your own Setting Shortcut.

You cannot modify the default Setting Shortcuts.

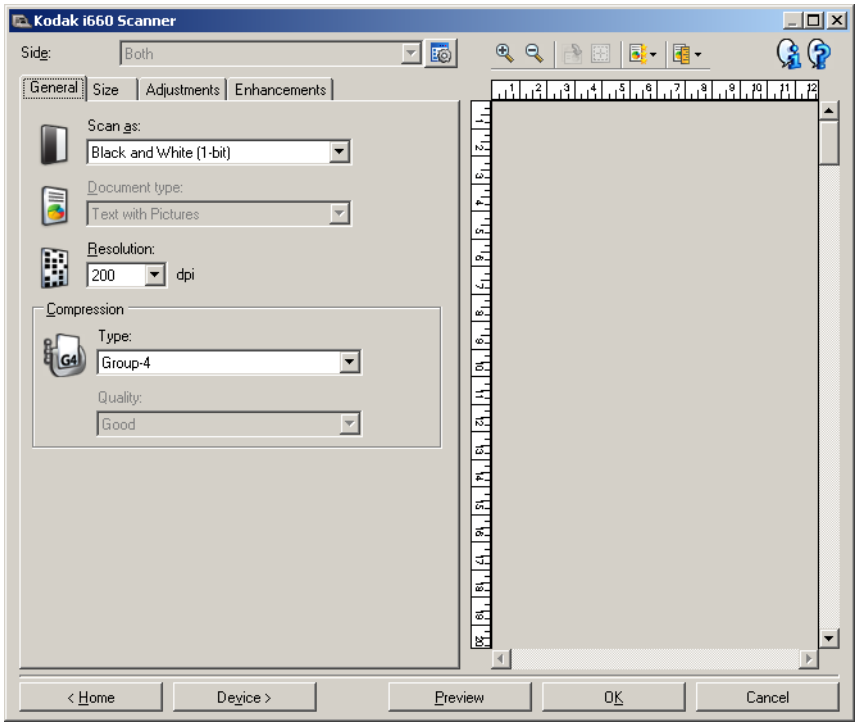
The procedures that follow describe how to configure a customized Setting Shortcut. Complete descriptions of the options on the main *Kodak* Scanner window and tabs are found in the section entitled, “The main *Kodak* Scanner window”.

From the main *Kodak* Scanner window:




1. Select a Setting Shortcut from the list. It is recommended that you select a shortcut that best describes the desired image output.
2. Determine if you want to capture an electronic image of the front of your document, back of your document or both sides of your document and make the selection from the *Input Document is* field.

3. Select **Settings** on the main *Kodak* Scanner window. The General tab of the Image Settings window will be displayed.




4. Select the appropriate options on the General tab.

   NOTE: If necessary, review each setting on the other tabs and make any changes.

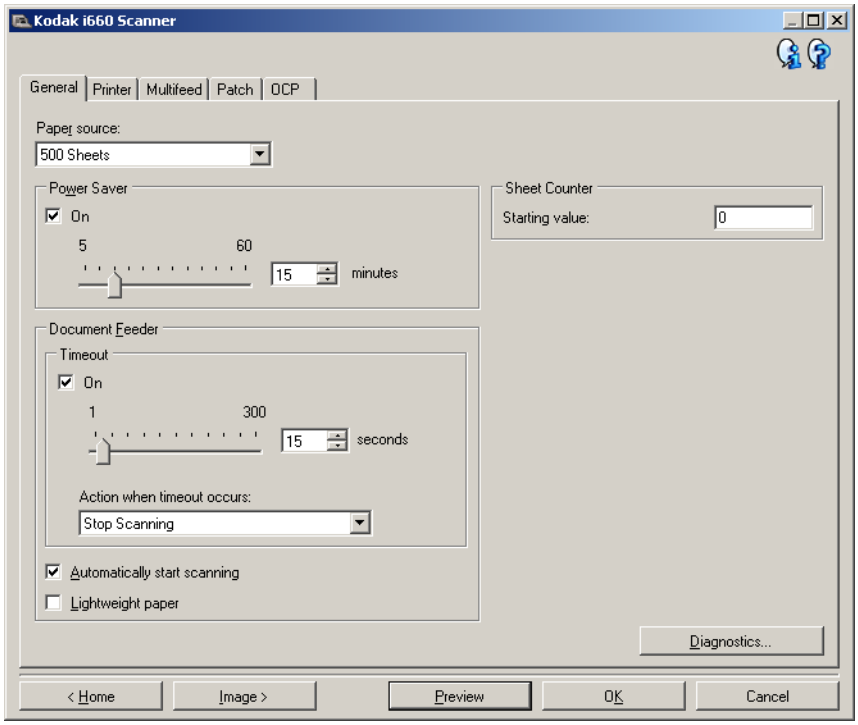
5. Place one representative document in the input elevator of the scanner.
6. Click **Preview** to review the resulting image.

   If the images are not acceptable, you can either select a different predefined Setting Shortcut or make additional changes on the rest of the tabs on the Image Settings window.

7. Define the desired Device settings by selecting Device on the Image Settings window to display the Device Settings window.
8. Review each tab and select the appropriate options or actions you want the scanner to perform
9. Select **Home** to return to the main *Kodak* Scanner window.
10. Select **Save As**. The Save As window will be displayed.
11. Enter a new Setting Shortcut name that is meaningful to you and click **Save**.

**Changing Device settings**

1. Select the Setting Shortcut from the main *Kodak* Scanner window that closely describes your desired output.
2. Select **Settings** to display the Image Settings window.
3. Select **Device** to display the Device Settings window.




4. Before making any adjustments, browse through the tabs on the Device Settings window to get familiar with features that are available. See the section entitled, “The Device Settings window” for information about these features.
5. For each option you want to use, make the appropriate selections you want the scanner to perform when scanning.
6. On each tab, select the appropriate options or action you want the scanner to perform.
7. When finished, select **Home** to return to the main *Kodak* Scanner window and then select **Save** to save your selections to the shortcut.

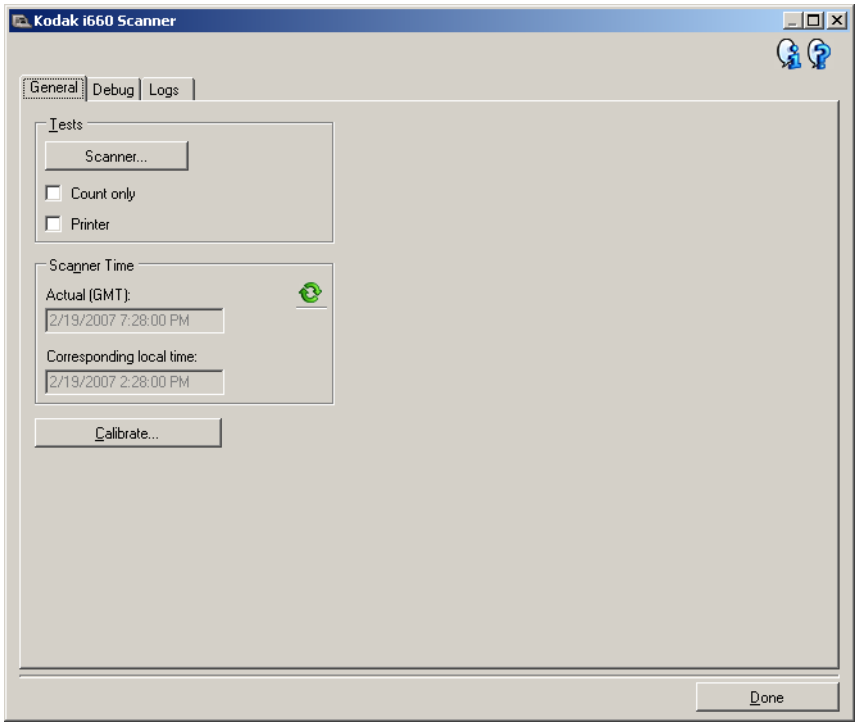
## The Diagnostics window

From this window you can access the diagnostics functions of the scanner. The Diagnostics window includes the following tabs: General, Debug and Logs. The Diagnostics window can be accessed via the Diagnostics button which is located on the General tab of the Device Settings window.

**Done** — returns you to the Device Settings window.

## Diagnostics - General tab

The General tab allows you to perform a scanner test, calibrate the scanner and displays the scanner time.




### Tests

- **Scanner** — similar to, but more extensive than, a power-on self test, selecting this will immediately put the device through a series of checks to determine that all the scanner hardware is working.
- **Count only** — counts the number of documents entering the scanner without actually sending the images to a scanning application. This test is performed during any scan session in which this option is turned on.

  NOTE: This test is automatically turned off when the scanning application disconnects from the scanner.
- **Printer** — tests the functionality of the Enhanced Printer, e.g. are all ink jets working. This test is performed during any scan session in which this option is turned on.

  NOTE: This test is automatically turned off when the scanning application disconnects from the scanner.

**Scanner Time**

- **Actual (GMT)**: displays the Greenwich Mean Time of the scanner.
- **Corresponding local time**: displays the scanner's Greenwich Mean Time in the PC's local time zone.

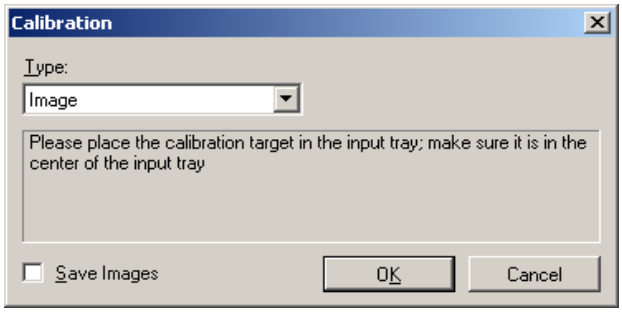
**Refresh**: displays the scanner time.

**Calibrate** — displays the Calibration window allowing you to perform an Image or UDDS calibration.

- **Image** calibration: optimizes your scanner to achieve the best image quality and feeding performance. Frequent calibration is not necessary or recommended.
- **UDDS** calibration: ensures that the ultrasonics system that detects multi-feeds and document edges is properly adjusted for best performance. Frequent calibration is not necessary or recommended.

Use the calibration target provided with your scanner. Be sure to use a good, clean calibration target.

1. Click **Calibrate**. The Calibration dialog box will be displayed.

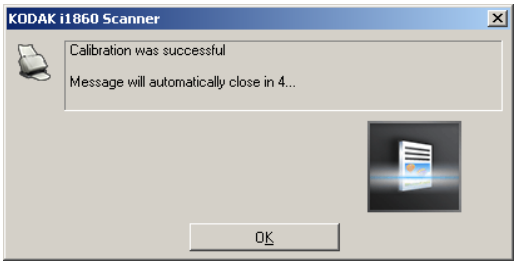



2. Select **Image** or **UDDS** from the *Type* drop-down box.
   - If you select **Image**, use the calibration target provided with your scanner. Be sure to use a good, clean calibration target. Place the calibration target in the input elevator face up and click **OK**.

     *IMPORTANT:If the White Background Accessory is installed, it must be replaced with the black background stirps, and the scanner must be restarted prior to calibration.*

   - If you select **UDDS**, place a 20 lb. or 75 g.m2 bond sheet of paper in the input elevator. Do not use the calibration target and click **OK**.

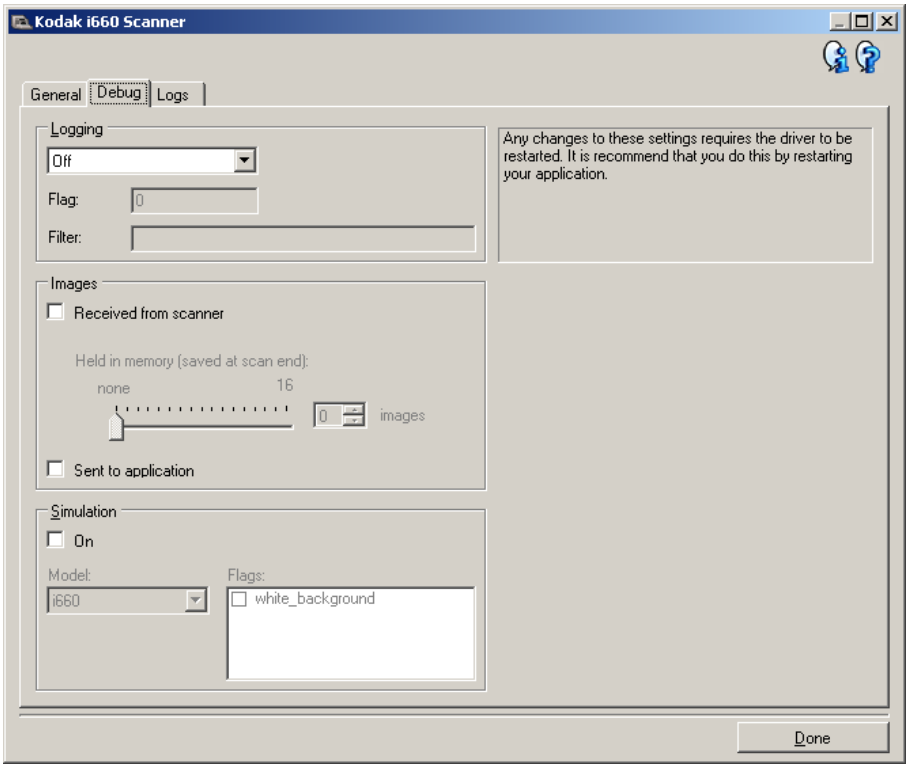
- While calibration is being performed, the following message will be displayed.




3. Click **OK** when the calibration is successful.

## Diagnostics - Debug tab

The Debug tab allows you to turn on options that allow support personnel to diagnose any issues you may encounter with using your scanner. It is suggested that you only make changes on this tab when instructed by Kodak support personnel.




**Logging** — saves the communications between the scanner and the scanning application. The options are: **Off** (the default), **On** or **Custom**.

NOTES:

- **Flag** and **Filter** are only available for **Custom**; only make changes as directed by Kodak support personnel.
- For changes to take effect, you must restart your application.

**Images**

**Received From Scanner**: saves the images received at the PC from the scanner.

- **Held in memory:** if scanning a large job and you only need to save the last few images, then turn this on by selecting the number of images you want to save.

  NOTE: Turning this on will use more PC memory.

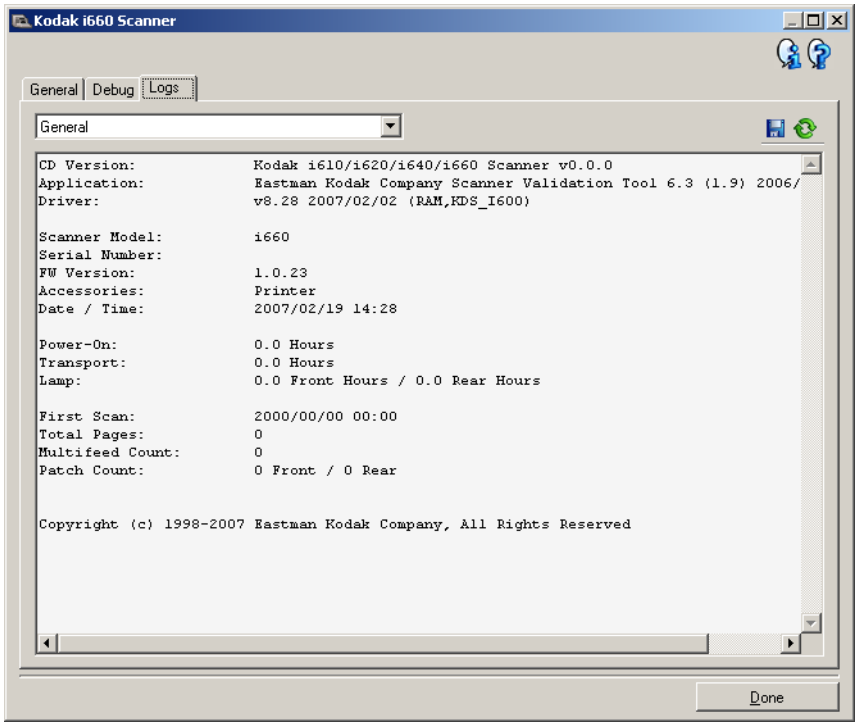
**Sent to Application**: saves the images received at the scanning application from the scanner.

**Simulation** — allows you to use the TWAIN Datasource without using the actual scanner.

- **Model**: allows you to select the specific scanner model to simulate.
- **Flags**: if supported by your TWAIN Datasource, this will contain a list of accessories your simulated scanner has installed.

## Diagnostics - Logs tab

The Logs tab allows you to view scanner information.




### Logs

- **General**: displays the scanner's version information, serial number, attached/installed accessories, meters, etc.
- **Operator**: displays the scanner's log. This log can only be cleared by Kodak support personnel.
- **Debug**: displays communications between the scanner and a scanning application. This option is only available when Logging is turned on in the Debug tab on the Device Settings window. This log is cleared each time the scanning application connects to the scanner.

### Toolbar buttons

**Save As**: saves all the logs for viewing by Kodak support personnel. When selected, you will be prompted for the location to save the logs along with the option of including any debug images.

**Refresh**: redisplays the log.

# 4 Using the ISIS Driver

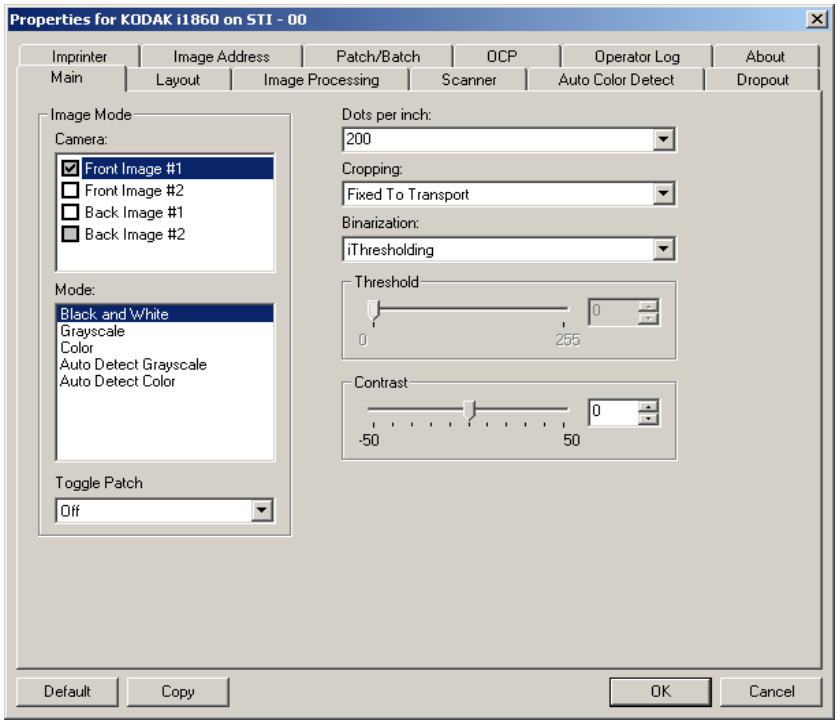
The ISIS Driver is software that communicates with the scanner. This driver is created and maintained by EMC Captiva and is provided with the scanner by Kodak. Many scanning applications support ISIS drivers and this driver can be used to interface with them.

This chapter provides descriptions of the options on the tabs of the main ISIS Driver window and how to set these options.

See the section entitled, “Starting the Scan Validation Tool” in Chapter 3 to access the main ISIS Driver window.

## The main ISIS Driver window

The main ISIS Driver window provides a set of tabs that you can select and make any choices necessary to meet your scanning needs. The buttons on the bottom of the window apply to all the tabs.




**Default** — the values on all tabs will be reset to the factory defaults.

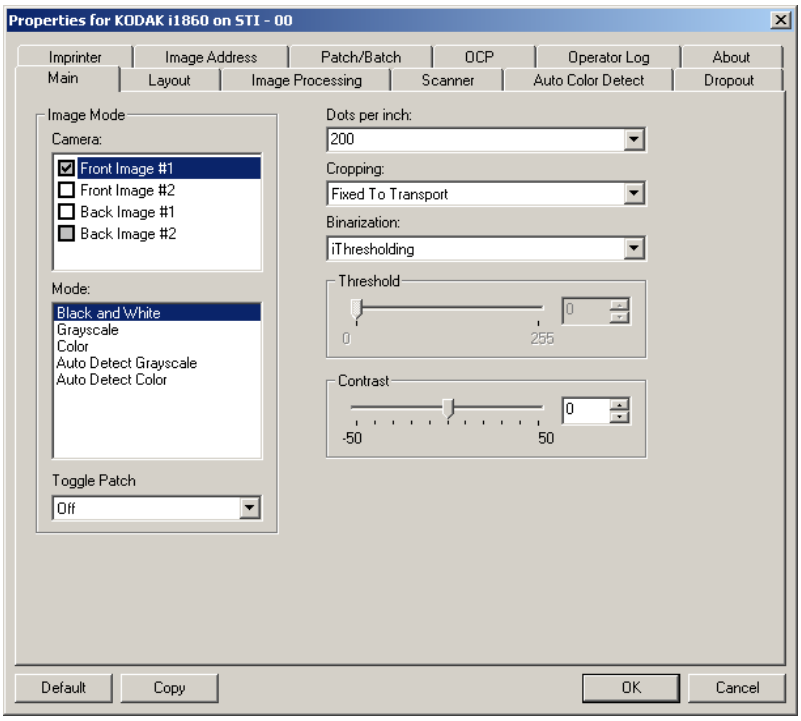
**Copy** — this function is only available when scanning two-sided documents. The Copy button provides a convenient way to set up the color, grayscale or black and white image settings on one side and transfer them to the other. For example, if you highlight and set up **Front Image #1**, you can use the Copy button to duplicate those settings for Back Image #1.

**OK** — saves the values set on all tabs.

**Cancel** — closes the window without saving any changes.

## Main tab

The Main tab provides the following options:




### Image Mode

**Camera** — the selections in the Camera box list the available sides (front and back) of an image where you can define individual image processing values. Options include: Front Image #1, Front Image #2, Back Image #1 and Back Image #2.

The *Kodak* Scanner drivers allow you to control the camera settings independently. Some settings apply only to black and white images, others apply to color/grayscale images. By selecting the appropriate camera and image mode, you can control the scanner's output.

**Mode** — provides the following options:

- **Black and white**: if you want your electronic image to represent all elements of your document in black and white.
- **Grayscale**: if you want your electronic image to have a range of varying shades of gray from black to white.
- **Color**: if you want your electronic image to be in color.
- **Auto Detect Grayscale:** sets auto color detect for grayscale. See the section entitled, "Auto Color Detect tab" for more information.
- **Auto Detect Color**: sets auto color detect for color. See the section entitled, "Auto Color Detect tab" for more information.

**Toggle Patch** — the toggle patch is a type 4 patch that is used to trigger the scanner to change from the current image stream (black and white) to the alternative image stream (color/grayscale). This provides color-on-the-fly functionality for customers who want to scan the majority of their documents black and white with the option to switch to color and back when desired. When a toggle patch is detected, this determines the side(s) whose image output is toggled between black and white and color/grayscale. Select either **Off, Same Side, Both Sides** or **Detect Only**.

- **Off**: no patches will be used.
- **Same Side**: only the side which recognizes the patch sheet will toggle. For example, if a patch sheet contains a patch on the front side only, the front stream will toggle but the rear stream will not.
- **Both Sides:** if a patch is recognized on either the front or the rear, both front and rear streams will toggle.
- **Detect Only:** this option should be used when the capture application software (not the scanner) is responsible for determining when to toggle. When using this option, information in the image header will indicate that the scanner has recognized a type 4 patch. The scanner will not take any other action.

**Dots per inch** (dpi) or resolution — indicates the scanning resolution, which largely determines the quality of the scanned image. The greater the resolution, the better the reproduction. However, scanning at a higher resolution also increases scanning time and file size.

Choose a resolution value from the drop-down list. The default is 200 dpi. Available resolutions are:

- **Color/Grayscale:** 100, 150, 200, 240 and 300
- **Black and white:** 200, 240, 300 and 400

**Cropping** — allows you to capture a portion of the document being scanned. All cropping options can be used with color/grayscale and black and white images. Front and Back cropping are independent, however, for dual stream scanning, color/grayscale and black and white cropping must be the same per side. Only one cropping option can be assigned per image. Select one of the following options:

- **Automatic:** dynamically adjusts the cropping window for different document sizes based on the edges of the image.
- **Aggressive:** eliminates any residual black border on any image edges. In order to achieve this, there is a possibility that a small amount of image data from the edge of the document may be lost.
- **Fixed to Transport:** (used for batches of same-sized documents) allows you to define the area to be imaged. Fixed to Transport cropping is used in conjunction with paper size and page layout and assumes you are center-feeding your documents. If you are not using center feeding, you must select the Layout tab to define your scan area. See the section entitled “Layout tab” later in this chapter.

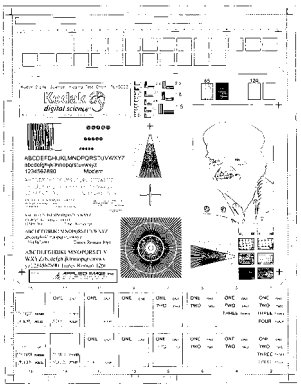
- **Relative to Document**: (zone processing): (used for batches of same-sized documents) — zone processing is a floating fixed crop window (the zone) located relative to the upper left corner of a document. It allows you to select an area on the document to be delivered in either color/grayscale or black and white format (a separate window for both black and white and color/grayscale may be defined). Different parameters may be selected for both the front and back of the image.

  This option may be used in conjunction with Automatic cropping where a separate color/grayscale or black and white area to be saved is desired. It is useful in applications where a photograph, signature, embossment or seal appears in a consistent area for an application (you may want that small area in color/grayscale and the rest in black and white). To define a zone, select the Layout tab.

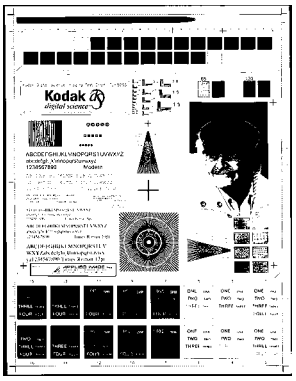
**Binarization** — these options work on grayscale images and outputs a black and white electronic image. Their strength lies in the ability to separate the foreground information from the background information even when the background color or shading varies, and the foreground information varies in color quality and darkness. Different types of documents may be scanned using the same image processing parameters and results in excellent scanned images.

- **iThresholding:** allows the scanner to dynamically evaluate each document to determine the optimal threshold value to produce the highest quality image. This allows scanning of mixed document sets with varying quality (i.e., faint text, shaded backgrounds, color backgrounds) to be scanned using a single setting thus reducing the need for document sorting. When using iThresholding, only Contrast can be adjusted.
- **Fixed Processing (FP):** used for black and white and other high contrast documents. If Fixed Processing is selected, only Threshold can be adjusted.
- **Adaptive Thresholding (ATP):** separates the foreground information in an image (i.e., text, graphics, lines, etc.) from the background information (i.e., white or non-white paper background). When using Adaptive Thresholding, Threshold and Contrast can be adjusted.

**Threshold** — changes the amount of white in the color and grayscale image. Use the slider to select a value from 0 to 255. The default is 90.



**Threshold: 50**



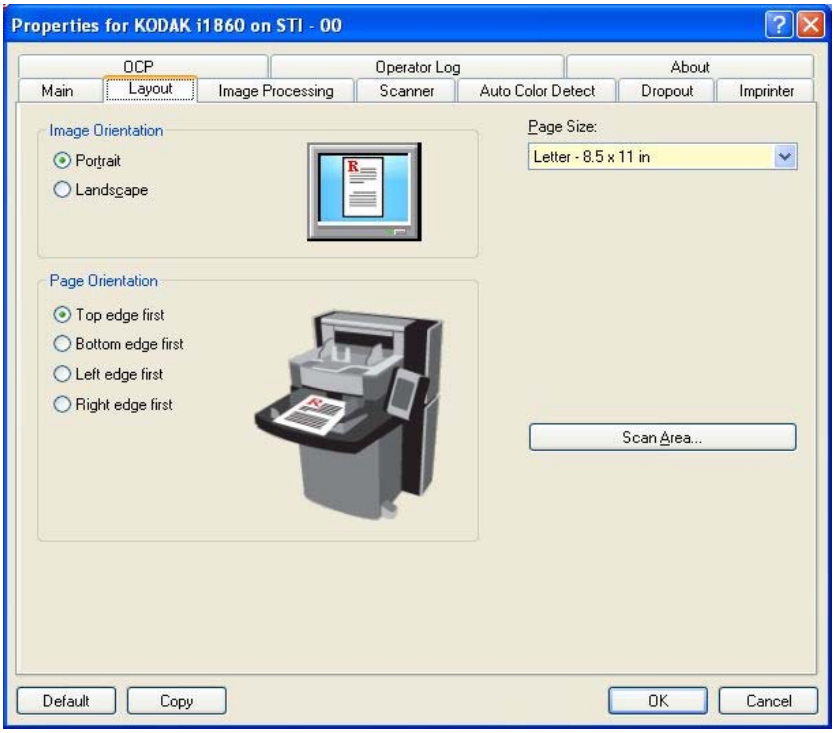
**Threshold: 127**

**Contrast** — adjusts the difference between black and white, thereby making an image sharper or softer.

The difference between black and white is small with a low contrast setting, so the image is softer. With a high contrast setting, the difference between black and white is large, so the image is clearer. Select a contrast value from -50 to 50. The default is 0.

## Layout tab

The Layout tab provides these options:




**Page Orientation** — allows you to select the way you place your documents in the scanner, **Top first, Bottom first, Left first** or **Right first**.

**Image Orientation**

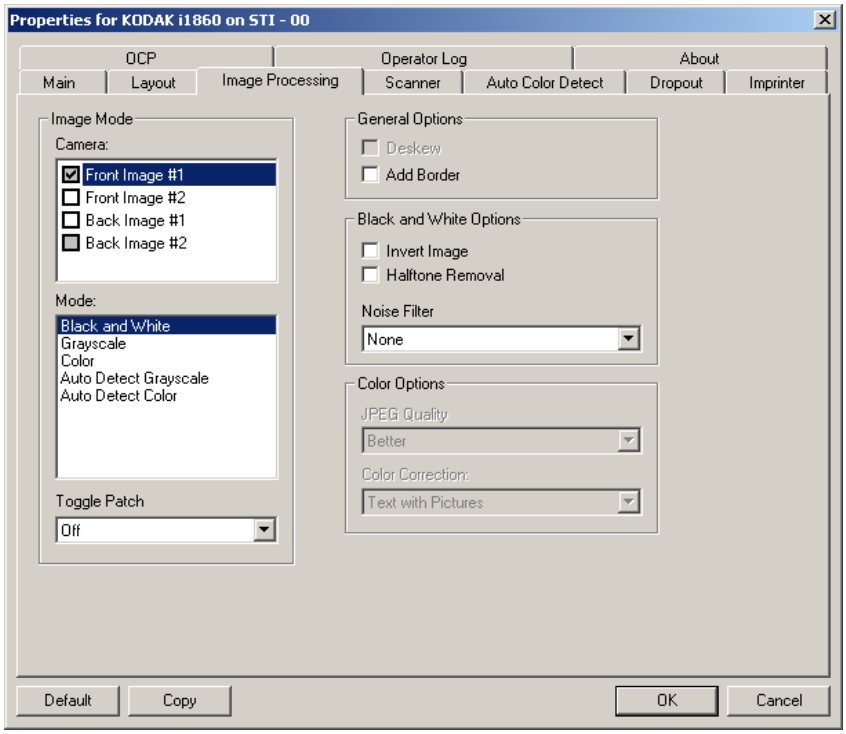
- **Portrait**: displays the image orientation in the shape of a conventional portrait, where height is greater than width.
- **Landscape:** displays the image orientation in the shape of a conventional landscape painting, where width is greater than height.

**Page size** — the default page size is set when a scanner is first selected. You can choose a different page size using the drop-down list box.

**Scan Area** — displays the Scan Area dialog box. The Scan Area options are only available for images when the cropping option is **Fixed to Transport** or **Relative to Document**. See the section entitled “Defining the scan area” later in the chapter for more information.

## Image Processing tab

The Image Processing tab displays the Image Mode, Mode and Toggle Patch information that was previously described. Refer to the section entitled “Main tab” earlier in this chapter for descriptions.




### General options

- **Deskew** — automatically straightens a document within ±0.3 degrees of the leading edge of the document. Deskew can detect up to a 45-degree skew and correct up to a 24-degree angle at 200 dpi or a 10-degree skew angle at 300 dpi. This option is not available when **Fixed to Transport** or **Relative to Document** is selected.

  NOTE: To prevent data loss, the document must have all four corners within the image path.

- **Add Border —** allows you to add a fixed amount of border to the left, right, top and bottom edge of the image.

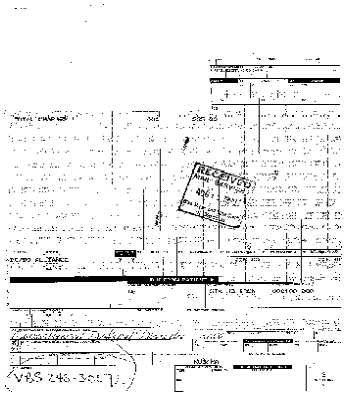
### Black and White options

- **Invert Image** — defines whether the image should be stored in black on a white background or white on a black background. The default is **Black on White**. If you want white on a black background, check this option.
- **Halftone Removal** — enhances images containing dot matrix text and/or images with shaded or colored backgrounds using halftone screens and effectively eliminates noise caused by the halftone screen.

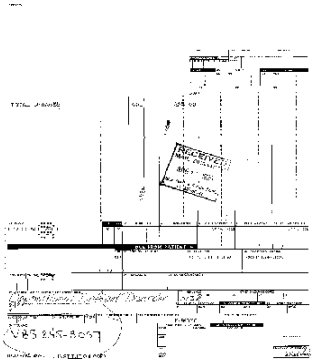
**Noise Filter** — occasionally small dots or specks appear in the background of a scanned image. These specks increase file compression size and usually contain no image information. Using the Noise Filter on documents containing very fine detail (e.g., the dot on an "i" in 4-point type) may cause information to be lost. It is recommended that you do not use the Noise Filter when scanning documents with text smaller than 7-point type.

Noise Filter can be used with black and white images only and is Front/Back independent. Choose **None**, **Lone Pixel** or **Majority Rule**.

- **Lone Pixel:** reduces random noise on black and white images by converting a single black pixel surrounded by white to white or by converting a single white pixel surrounded by black to black.
- **Majority Rule:** sets the central pixel value in a matrix according to the majority of white or black pixels in a matrix.



**No Noise Filter Used**



**Lone Pixel**

**Color options**

**JPEG** (Joint Photographic Editor Group) **Quality** — this group developed and lent their name to a file compression standard for color and grayscale images that is widely used by scanners, digital cameras and software applications. On Microsoft Windows-based systems, a file with the extension .jpg has normally been compressed using this standard. JPEG compression offers a JPEG quality of **Draft**, **Good, Better, Best** and **Superior**.

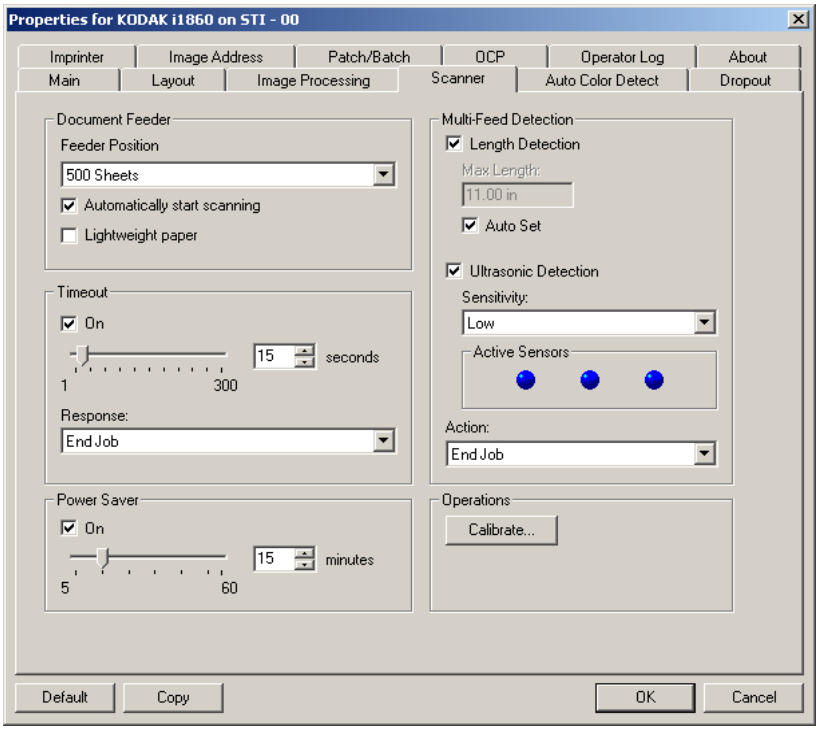
- **Draft**: smallest file size with draft image quality.
- **Good**: larger file size with good image quality.
- **Better**: larger file size with better image quality.
- **Best**: larger file size with the best image quality.
- **Superior**: largest file size with superior image quality.

**Color Correction** — select one of the following based upon the documents you are scanning:

- **Mixed**: when the documents you want to scan contain a mix of text, business graphics (bar graphs, pie charts, etc.) and line art.
- **Pictures**: when the documents you want to scan are comprised mainly of photos.
- **Text**: when the documents you want to scan contain mostly text.

## Scanner tab

The Scanner tab provides the following options.




### Document Feeder

**Feeder Position** — select the desired paper source.

- **Normal**: select when you are scanning a stack of documents of 25 sheets or less. The input elevator is in its highest position.
- **100 Sheets**: select when you are scanning a stack of documents between 100 and 25 sheets.
- **250 Sheets:** select when you are scanning a stack of documents between 250 and 100 sheets.
- **500 Sheets:** select when you are scanning a stack of documents between 500 and 250 sheets.

**Automatically start scanning** — if selected, the transport and feeder will automatically start when the scanner is enabled from the host without touching the Scan button.

**Lightweight paper** — improves output stacking when scanning lightweight paper. When selected, the scanner will increase the gap between documents in order to allow each document to settle in the output tray before the next document leaves the transport. Using this option will decrease overall throughput.

**Timeout**

**On** — enable this option to set the amount of time the scanner will wait after the last document enters the transport before the transport timeout action is taken. You can specify a time delay setting from 1 to 300 seconds.

**Response** — allows you to specify the action that will be taken when the transport timeout has been reached.

- **End Job:** stops the feeder and the transport but leaves the scanner enabled. Scanning may be resumed by touching the **Scan** button on the touchscreen.
- **Stops Feeder and Transport:** stops the feeder and the transport and disables the scanner.

**Power Saver**

The Power Saver option allows you to set the amount of time the scanner will remain inactive before the scanner goes into an idle state. Choices are: 5 to 60 minutes; or Off.

**Multi-feed Detection options**

Multifeed detection aids in document processing by detecting documents that may go through the feeder overlapped. Multi-feeds can happen due to stapled documents, adhesives on documents, or electrostatically charged documents. Multi-feed Detection combines ultrasonics (amplitude and phase) with physical length detection to help eliminate the chance of loosing data due to multi-feeds.

**Length Detection** — if you enable this option, select the minimum length of the document that can be scanned with a multi-feed being detected. A value of 0 indicates no length detection. Length detection can be used when scanning same-size documents. The maximum value is 34.5 inches.

- **Auto Set:** automatically sets the maximum length value to .50-inch (1.27 cm) greater than the length of the currently selected page size.

**Ultrasonic Detection** — check this option to set multi-feed detection.

**Sensitivity** — controls how aggressively the scanner will work to determine if more than one document is fed into the transport. Multi-feeds are triggered by detecting air gaps between documents. This allows multi-feed detection to be used with job sets containing documents with mixed thicknesses. You may set the Multi-Feed Detection to **Low**, **Medium** or **High** sensitivity. When determining the appropriate setting for your workflow, you should start at the **Medium** sensitivity. If you select **None**, no multifeed detection will occur.

NOTE: Regardless of the setting, Post-It™ notes will be detected as multi-fed documents.

- **Low**: least aggressive setting and is less likely to detect labels, poor quality, thick or wrinkled documents as multi-fed documents.
- **Medium**: use Medium sensitivity if your Settings Shortcut has varying document thickness or labels attached to the document. Depending on the label material, most documents with labels should not be detected as a multi-fed document.
- **High**: most aggressive setting. This is a good setting to use if all documents are similar in thickness to 20-lb. Bond paper.

**Active Sensors** — three multi-feed sensors cover the width of the transport. In order for multi-feed documents to be detected correctly, they must pass under one of these sensors.

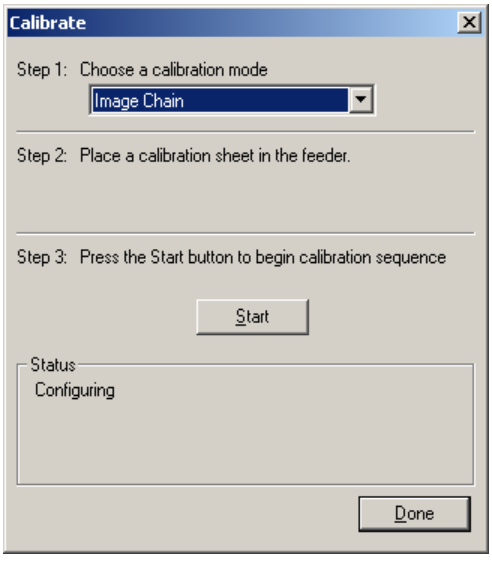
- **Left, Middle, Right:** if you want to turn one, two or all sensors off, you can select which sensor(s) you want to disable. e.g. if you know that the left side of the document has a Post It™ note on it, you can disable the left sensor.

**Action** — select an option of how you want the scanner to perform if it detects a multi-fed document.

- **Detect Only:**
- **End Job:** stops the feeder and the transport but leaves the scanner enabled. Scanning may be resumed by touching the **Scan** button on the touchscreen.
- **Stop Feeder and Transport:** stops the feeder and the transport and disables the scanner.

**Operations**

**Calibrate** — displays the Calibrate dialog box which allows you to perform an Image Chain or UDDS calibration. Only calibrate the scanner when prompted to do so.




- **Image Chain**: optimizes your scanner to achieve the best image quality and feeding performance. Frequent calibration is not necessary or recommended.
- **UDDS**: ensures that the ultrasonics system detects multi-feeds and document edges are properly adjusted for best performance.

Use the calibration target provided with your scanner.

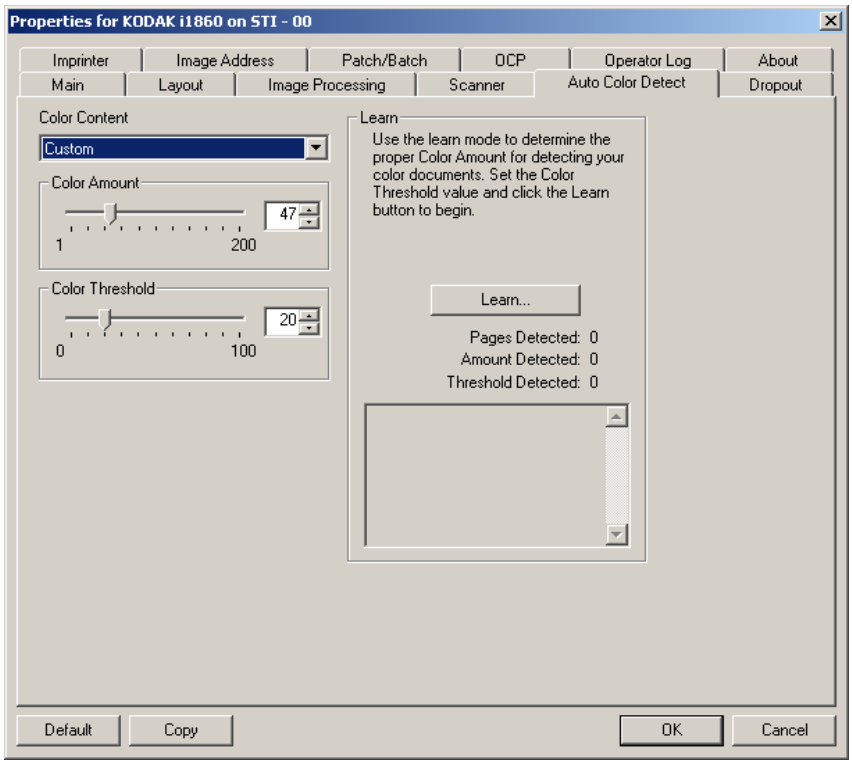
1. Click **Calibrate**. The Calibrate dialog box will be displayed.
2. Select **Image Chain** or **UDDS** from the drop-down box.
   - If you select **Image Chain,** use the calibration target provided with your scanner. Be sure to use a good, clean calibration target. Place the calibration target in the input elevator face up and click **OK**.

     *IMPORTANT:If the White Background Accessory is installed, it must be replaced with the black background strips, and the scanner must be restarted prior to calibration.*

   - If you select **UDDS,** place a 20 lb. or 75 $g/m^2$ bond sheet of paper in the input elevator. **Do not use the calibration target** and click **OK**.
3. Click **Start**. While calibration is being performed a status will be provided in the Status box.
4. Click **Done** when the calibration is successful.

## Auto Color Detect tab

The Auto Color Detect tab provides the following options.




### Color Content

Select one of the following options for automatic color detection.

- **Low**: documents require only a small amount of color to be saved as color or grayscale images. Used for capturing documents that are primarily black text with small logos, or contain small amounts of highlighted text or small colorful photos.
- **Medium**: documents require more color, as compared with the Low option, before they are saved as color or grayscale images.
- **High**: documents require more color, as compared with the Medium option, before they will be saved as color or grayscale images. Used for distinguishing documents containing medium- to large-size colorful photos from plain black text. Photos with neutral colors may require adjustments to the Color Amount or Color Threshold values in order to be captured correctly.
- **Custom**: makes the **Color Amount** and/or **Color Threshold** options available.

  NOTE: When setting Auto Color Detect values, start with the **Medium** option and scan a typical job set. If too many documents were returned as color/grayscale vs. black and white, then change to the **High** option and re-run the job. If too few documents were returned as color/grayscale vs. black and white, then change to the **Low** option and re-run the job. If none of these options provide the desired result, select **Custom** to manually adjust Color Amount and/or Color Threshold.

**Color Amount:** the amount of color that needs to be present in a document before it will be saved as either color or grayscale. As the value of Color Amount increases, more color pixels are required. Valid values are 1 to 200.

**Color Threshold**: the color threshold or intensity (i.e., pale blue vs. dark blue) at which a given color will be included in the color amount calculation. A higher value indicates that a more intense color is required. Valid values are 0 to 100.

**Learn**

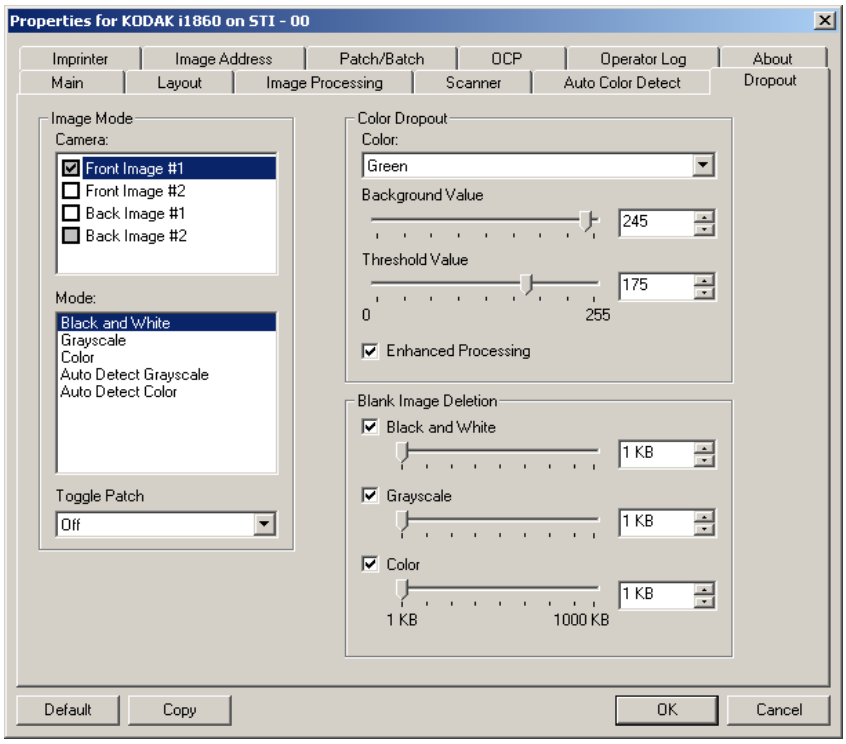
If **Low, Medium** and **High** options do not give you the desired results, use the **Learn** option.

1. Click **Learn** and follow the prompts.
2. Place at least 5 representative color documents in the input elevator and click **OK**. These documents will be analyzed and the recommended color amount will be calculated.
3. Write down the **Color Amount** and **Color Threshold** values that are displayed in the dialog box as these are the settings you will be required to use in your application.

NOTE: These settings were calculated based on the representative color documents scanned. If these values do not provide the desired results with your production job set, you may need to manually adjust the **Color Threshold**.

## Dropout tab

The Dropout tab displays the Image Mode, Mode and Toggle Patch information that was previously described. Refer to the section entitled “Main tab” earlier in this chapter for descriptions.




### Color Dropout

Color Dropout is used to eliminate a form's background so that a document management system may automatically - through OCR (Optical Character Recognition) and ICR (Intelligent Character Recognition) technology - read pertinent data without interference from the lines and boxes of the form. *Kodak* Scanners can drop out either red, green or blue. Color Dropout options are only available when **Black and White** or **Grayscale** is selected.

**Red** — changes the amount of red in the color image.

**Green** — changes the amount of green in the color image.

**Blue** — changes the amount of blue in the color image.

**Background Value:** this value will be substituted in the grayscale (pre-thresholded) image for the color being removed. Therefore, this value should be higher than the threshold value selected on the Main tab for this pixel to become the background color. The default value is 245. For example, if you are scanning a white document with a green form and you have selected a black and white threshold value of 127, you should select a color dropout background value greater than 127 so the substituted pixel will be white in the dropped-out image.

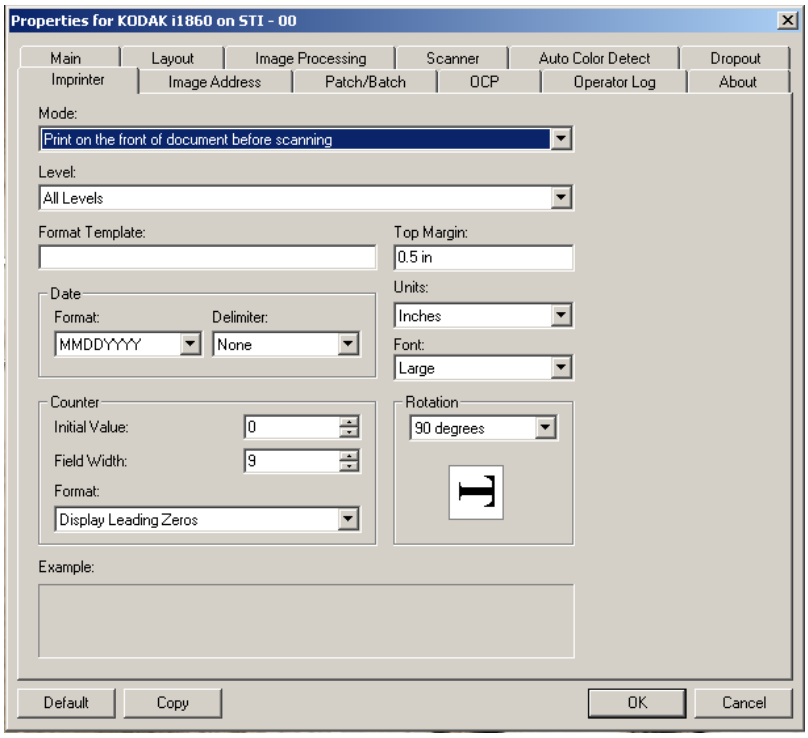
**Threshold Value:** the value that is used to identify the color which will be dropped out. This value is applied to the color area. The default value is 175.

**Blank Image Detection**

Use the slider bar to select the image size before which an image is determined to be blank. Images with sizes less than the size number you select (ranges from 1 to 1000 KB) will not be created. If you use this option, you must specify a blank image size for each image type (**Black and White, Grayscale** and **Color**) you want to delete. The default is **none**, which means you keep all images.

## Imprinter tab

The Enhanced Printer provides a vertical print capability that is programmed to support alphanumeric characters as defined by the host. It supports date, time, document count and custom messages. All print information is captured in a document header record. These printer controls and functions are accessed via the Imprinter tab.




### Mode

- **Do not print**: disables the options on the Imprinter tab.
- **Print on the front of document before scanning**: enables the options on the Imprinter tab.

### Defining your print string

**Format Template** — the format template is used to build the print string. The print string is what is printed on documents as they travel through the transport. The print string is printed before the document is scanned, therefore, it is part of the image. The maximum amount of characters for each print string is 40 characters (including spaces).

**Date** — if you want to add a date to the print string, select one of the following formats:

- **Format**: MMDDYYYY, DDMMYYYY, or YYYYMMDD.
- **Delimiter:** select one of the following separators: **Slash: /, Hyphen: -, Period: . , Blank** or **none**. For example: 08/24/2006, 08-24-2006, 08.24.2006 or 08 24 2006 or 08242006 (none).

**Counter** — if you want to add a Counter to the print string, you can enter one of the following options:

- **Initial Value**: this value is used to assign the document count for the next document entering the transport and is incremented sequentially by the scanner unless another document count is received from the host. This value is returned in the image header.
- **Field Width:** used to control the width of the document counter. Values range from 1 to 9.

**Top margin** — allows you to define the distance from the lead edge before the print string begins. Enter the desired amount in the text box.

NOTE: Printing automatically stops 6.3 mm (1/4-inch) from the trailing edge of the document even if the information has not been completely printed.

**Units** — select **Inches**, **Centimeters** or **Pixels**.

**Font** — two different character styles, referred to as **Normal** and **Large**, are available.

**Rotations** — you can select either 90, 180 or 270.

**Horizontal print position**

The horizontal print position is set manually. You can change the front or rear print position. The front printer has 11 print positions and the rear printer has 8 print positions. See Chapter 4, *The Enhanced Printer*, in the User's Guide for information on changing the horizontal print position.

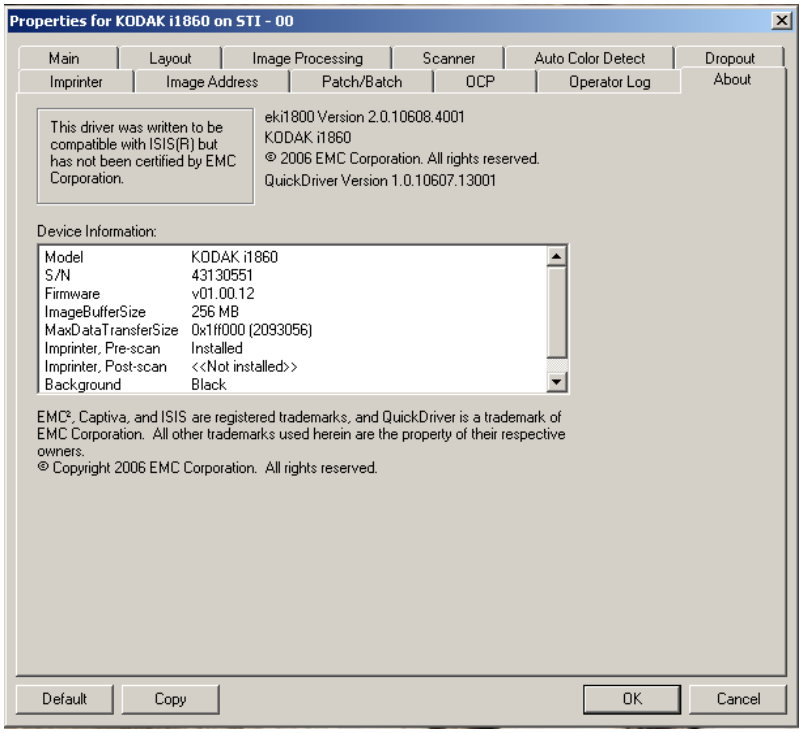
## Operator Log tab

The Operator Log tab provides a listing of any errors that have been encountered.

You can either save this information to a file by clicking the Save icon, or click the Copy icon to copy the information to the clipboard.

## About tab

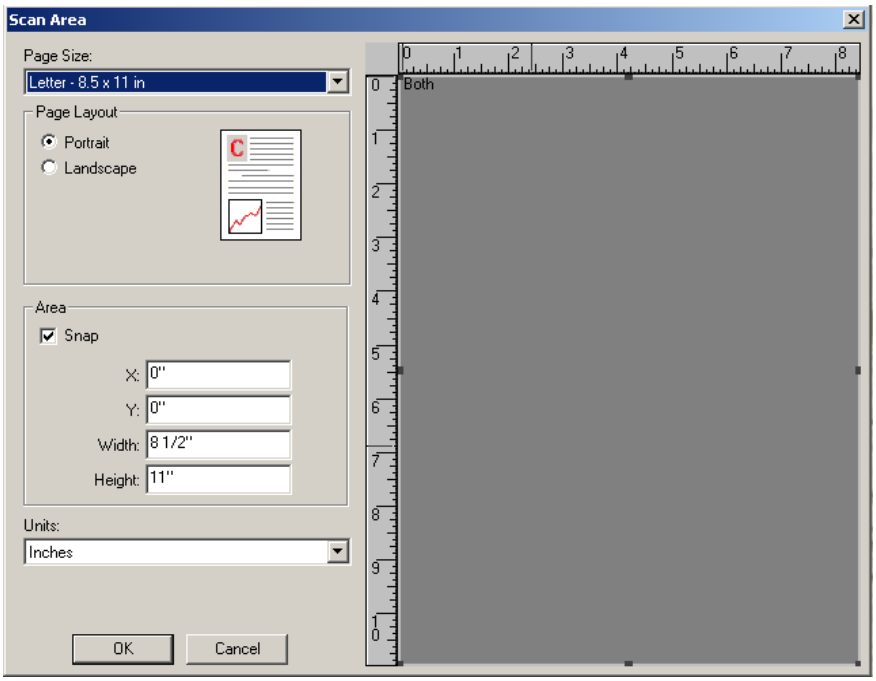
Displays information about your scanner and driver.



## Scan Area dialog box

The Scan Area dialog box is only available for images when the Cropping option selected on the Layout tab is either **Fixed to Transport** or **Relative to Document**.

To access the Scan Area dialog box, select **Scan Area** on the Layout tab.




NOTE: Select the side and image to be defined by highlighting **Front Image #1, Front Image #2**, etc. based on the cropping option selected for each of these on the main ISIS Driver tab. The scan areas defined for all camera selections are independent.

**Page Size** — the default paper size is set when a scanner is first selected. You can choose a different paper size using the drop-down list box.

NOTE: Page Size and Page Layout selections also appear on the Layout tab. If you make a change on the Scan Area dialog box, the same selections appear on the Layout tab and vice versa.

The Page Layout area allows you to select either **Portrait** or **Landscape**.

- **Portrait** will display the image orientation in the shape of a conventional portrait, where height is greater than width.
- **Landscape** will display the image orientation in the shape of a conventional landscape painting, where width is greater than height.

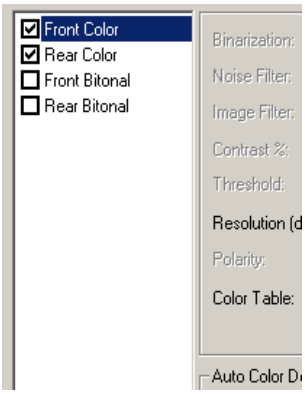
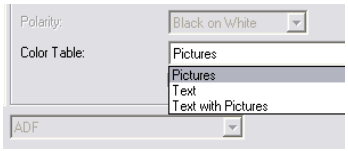
**Area**

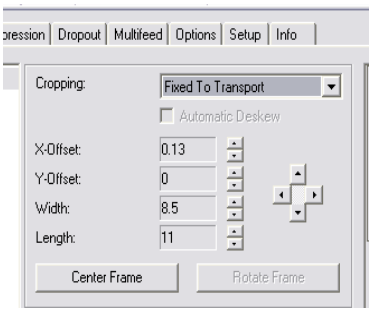
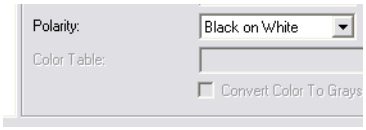
- **Snap** — causes the dimensions of the Area box to be controlled in fixed 1/8-inch increments. This option is not available in **Pixels** mode.
- **X**: the distance from the left end of the scanner to the left-edge of the scanning area.
- **Y:** the position from the top end of the document to the top end of the scanning area.
- **Width**: the width of the scanning area.
- **Height:** the height of the scanning area.

**Units** — select whether you want the area to be defined in **Pixels**, **Inches** or **Centimeters**.

# Appendix A TWAIN Image Processing Terminology

If you have used previous scanners from Kodak, you will notice that the user interface has been updated. Many of the image processing features you are familiar with may have been renamed or moved. The table below will help you to find the feature's new name and/or location.

| Previous Location/Name | | Current Location/Name |
|---|---|---|
| **Feature: Camera Selections** | | |
|  | **Location**: Imaging tab | **Location**: Advanced tab and Content Settings tab |
| | **Options**:<br>• Automatic Color Detect | **Options**:<br>• Images per side: One - based on document content<br>When selected, the Content Settings tab will be displayed which contains the additional options. |
| | • Duplex Dual Stream (check Front Color, Rear Color, Front Bi-tonal, Rear Bi-tonal) | • Images per side: Multiple<br>When selected, the *Images to Configure* options will be displayed which allows selection of the streams to create. |
| **Feature: Color Tables** | | |
|  | **Location**: Imaging tab | **Location**: Image Settings - General tab |
| | **Options:**<br>• Text with Pictures | **Options**:<br>• Document Type: Text with Graphics<br>Media type: Plain Paper |
| | • Text | • Document Type: Text<br>Media type: Plain Paper |
| | • Pictures or Photographs | • Document Type: Photograph<br>Media type: Glossy Paper |

| Feature: Cropping | | |
|---|---|---|
|  | **Location**: Paper tab | **Location**: Image Settings - Size tab |
| | **Options:** | **Options**: |
| | • Automatic with Automatic Deskew | • Document: Automatically Detect and Straighten<br>Image: Entire Document<br>Border: (none) |
| | • Automatic without Automatic Deskew | • Document: Automatically Detect |
| | • Aggressive | • Document: Automatically Detect and Straighten<br>Image: Entire Document<br>Border: Remove |
| | • Fixed to Transport without Overscan | • Document: Manually Select<br>Border: (none) |
| | • Fixed to Transport with Overscan | • Document: Manually Select<br>Border: Add |
| | • Relative to Document | • Document: Automatically Detect and Straighten<br>Image: Part of Document |
| **Feature: Polarity** | | |
|  | **Location**: Imaging tab | **Location**: Image Settings - Adjustments tab |
| | **Options:** | **Options**: |
| | • Polarity | • Invert colors |

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Kodak

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