Kodak *i*30 Scanner

Kodak *i*40 Scanner

User's Guide

KODAK iNnovation Series Scanners

Contents

1   Introduction

The *Kodak* i30 and i40 Scanners are compact document scanners perfect for workgroups and other decentralized applications. These scanners have a 50-page automatic document feeder that scans 25 pages per minute. For your image processing needs, the TWAIN Datasource and ISIS Driver are included with the *Kodak* i30/i40 Scanners.

- *Kodak* i30 Scanner — desktop simplex color scanner
- *Kodak* i40 Scanner — desktop duplex color scanner

This User's Guide provides information and procedures for the *Kodak* i30 and i40 Scanners using the TWAIN Datasource and ISIS Driver. The information in this guide is for use with both scanner models unless otherwise noted.

Scanner features

- Easy to use
- Small, compact size
- Scans up to 8.5 x 14 inches / A4
- Scans 25 ppm (200 dpi, bi-tonal, duplex, portrait orientation) letter-size documents
- Choose color, bi-tonal, grayscale, simultaneous bi-tonal and grayscale, or simultaneous bi-tonal and color
- Easy cleaning and maintenance
- Output resolutions from 75 to 600 dpi
- Bundled ISIS and TWAIN drivers
- High speed USB 2.0 interface

Safety information

MSDS

Material Safety Data Sheets (MSDS) for chemical products are available on the Kodak website at: www.kodak.com/go/msds. When accessing the MSDSs from the website, you will be required to provide the catalog number of the consumable you want the Material Safety Data Sheet for. See the section entitled, "Supplies and consumables" later in this guide for supplies and catalog numbers.

Safety and regulatory agency approvals

The *Kodak* i30 and i40 Scanners conform to applicable national and international product safety and electronic emission regulatory requirements. This includes, but is not limited to, the following:

Country or Region	Safety Approval	Safety Mark	Electromagnetic Compatibility	EMC Mark
Australia			AS/NZS CISPR 22 Class B	C-Tick
Canada	CAN/CSA-C22.2 No. 60950	C - UL	Canada ICES - 003 Issue 3 Class B	
China	GB4943	CCC "S&E"	GB 9254 Class B GB 17625.1 Harmonics	CCC "S&E"
European Union		CE	EN 55022 ITE Emissions Class B EN61000-3-2 Powerline harmonics EN 61000-3-3 Flicker EN 55024 ITE Immunity	CE
Germany	EN 60950	TUV GS		
International	IEC 60950		CISPR 22 Class B	
Japan			VCCI Class B	VCCI
Taiwan			CNS 13438 Class B	BSMI
United States	UL 60950	UL	CFR 47 Part 15 Subpart B FCC Class B	

Environmental information

- The *Kodak* i30 and i40 Scanners are designed to meet worldwide environmental requirements.

- Guidelines are available for the disposal of consumable items that are replaced during maintenance or service; follow local regulations or contact Kodak locally for more information.

- The *Kodak* i30 and i40 Scanners contain lead in the circuit board solder, glass lens, mercury in the lamps, and Chromium VI used as corrosion protection on the metal frame. Disposal of this material may be regulated due to environmental considerations. For disposal or recycling information, contact your local authorities or, in the USA, visit the Electronics Industry Alliance website: www.eiae.org.

- The product packaging is recyclable.

- The *Kodak* i30 and i40 Scanners are Energy Star compliant.

EMC statements

United States

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for additional suggestions.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Where shielded interface cables have been provided with the product or specified additional components or accessories elsewhere defined to be used with the installation of the product, they must be used in order to ensure compliance with FCC regulation.

Japan

This is a Class B product based on the standard of the Voluntary Control Council for interference by information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

> この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

Acoustic emission

Maschinenlärminformationsverordnung – 3, GSGV
Der arbeitsplatzbezogene Emissionswert beträgt <70 db(A).

[Machine Noise Information Ordinance — 3, GSGV
The operator-position noise emission value is <70 dB(A).]

Power system connection

This product is also designed for Norwegian IT power system with phase-to-phase voltage 230V.

2 Getting Started

What's in the box

Before you begin open the box and check the contents:

- *Kodak* i30 or i40 Scanner
- Input tray
- Output tray
- Feed Module
- USB 2.0 cable
- USB 2.0 board
- Power supply
- Power cord bundle
- Installation and application CDs
- Registration card
- Printed User's Guide, English

IMPORTANT: You must install the Kodak Driver Software on the host PC before you connect the scanner.

System requirements

Following is the minimum recommended system configuration to run *Kodak* i30 and i40 Scanners.

NOTE: The actual performance of the system depends on the scanning application, choice of scanning parameters, and the host PC configuration. If the scanner is not performing at the optimal speed, a faster PC and/or more RAM may be necessary to obtain the rated throughput.

***Kodak* i30 and i40 Scanners**

- Intel Pentium IV, 2.5 GHz processor, 512 MB RAM

- USB port 2.0 (compatible with USB 1.1)

- Windows 2000 Professional, Windows Me, Windows 98SE, Windows XP (Professional/Home)

- 100 MB free hard disk space

- CD-ROM drive

Installing the scanner

Install the scanner in the following order:

1. Assemble the scanner
2. Install the *Kodak* Driver Software
3. Verify that you have a USB port
4. Connect the power cord to the scanner
5. Connect the USB cable between your scanner and PC
6. Turn on scanner power and finalize the *Kodak* Driver Software installation
7. Install other supplied applications (optional)

IMPORTANT:

- ***Install the Kodak Driver Software on the host PC before you connect the scanner.***
- ***Some operating systems will only support USB 2.0, and others only support USB 1.1. For best performance, use USB 2.0 when possible.***

Assembling the scanner

The input and output trays snap into place. They may also be adjusted to fit different document sizes.

Attaching the input tray

1. Locate the input tray slots on the scanner.

2. Align the input tray pins with the slots.
3. Push down on the input tray until it snaps into place.

Attaching the output tray

1. Locate the output tray holes on the scanner.

2. Insert the pin on the left side of the output tray in the hole, then press the ribbed button on the right side of the output tray and insert the pin in the hole on the right side of the scanner.

Installing the *Kodak* Driver Software

Install the driver software *before* connecting the scanner to your PC.

1. Insert the *Kodak* i30/i40 Scanner Installation CD in the CD-ROM drive. The installation program starts automatically.

   NOTE: If the CD does not start automatically, open the My Computer icon on your desktop. Double-click the icon for your CD-ROM drive, then double-click on Setup.exe.

2. Select **Install Scanner Software...**
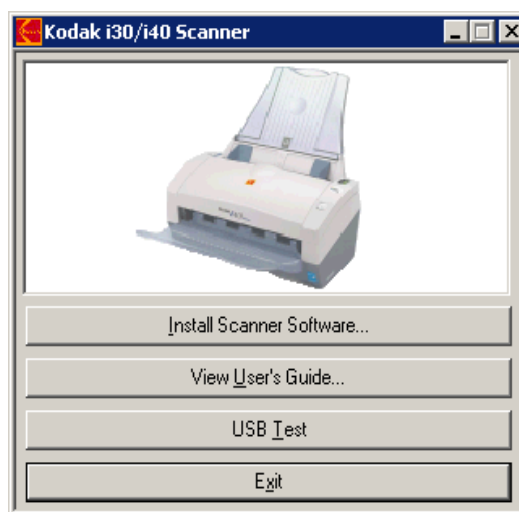
3. Follow the on-screen instructions to install the TWAIN and ISIS drivers and the *Kodak* Scan Validation Tool.

Verifying for a USB port   After you install the *Kodak* Driver Software, check for the presence of a USB port.

• Select **USB Test.**
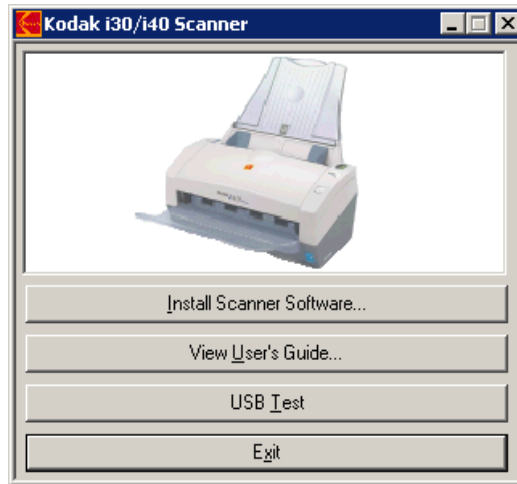
The USB verification tool will check your operating system and hardware capability to determine if you need to install the USB card provided with the scanner.

• If your PC does not have the proper USB port installed, follow the instructions provided with the USB board supplied with the scanner.

• If the correct USB port is present, proceed with the next section, "Connecting the power cord to the scanner".

Connecting the power cord to the scanner   When the drivers have been installed, connect the power supply and power cord to the scanner. Make sure that the power outlet is located within 1.52 metres (5 feet) of the scanner and is easily accessible.

1. Select the appropriate AC power cord for your region from the supply of power cords packed with your scanner.

   NOTE: The power cord for the United States/Canada and China look very similar. The difference is the United States/ Canadian power cord has holes in the prongs, and the Chinese power cord does not.

United States and Canada

China power cord
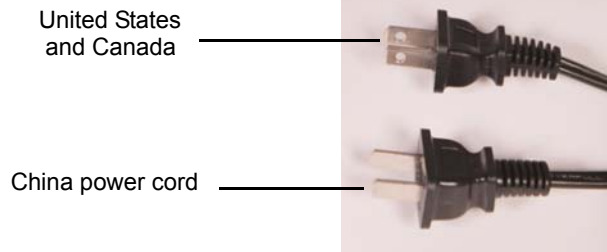
2. Plug the output power cord from the power supply into the power port on the scanner.

3. Plug the other end of the power cord into the wall outlet.

Connecting the USB cable

IMPORTANT: *If you have not installed the Kodak Driver Software, do that now before proceeding.*

The following instructions explain the connection of the USB cable between your scanner and PC. You need to identify the USB port on your PC. If you installed the USB 2.0 card supplied with your scanner, use that port, otherwise use the USB port on your PC.

The USB cable supplied with your scanner has two different ends.

1. Attach the B end of the USB cable to the scanner USB port, located on the back of the scanner.

2. Attach the A end of the USB cable to the proper USB port on your PC.

NOTE: If you installed the USB card supplied with our scanner, use one of those ports, or use your PC's USB port. See your PC manufacturer's documentation for the location of the USB port.

Turning on the scanner and finalizing *Kodak* Driver Software installation

When the USB cable and power connections have been made, and the *Kodak* Software Drivers have been properly installed, the installation will be complete when the scanner is turned on.

1. Use the power switch on the back of the scanner to turn the scanner on (I).

When you turn on the scanner, the scanner goes through a series of self tests, the green LED indicator will flash. When it is finished and ready to scan, the indicator will stop flashing and stay lit.

NOTES:
- If the scanner does not pass the self test, refer to Chapter 6, *Troubleshooting*.
- The following screens are based on Windows 2000. However, depending on the computer operating system you are using, these screens may be different.

Your operating software will now auto detect the scanner.

During the final installation process, this screen may be displayed:
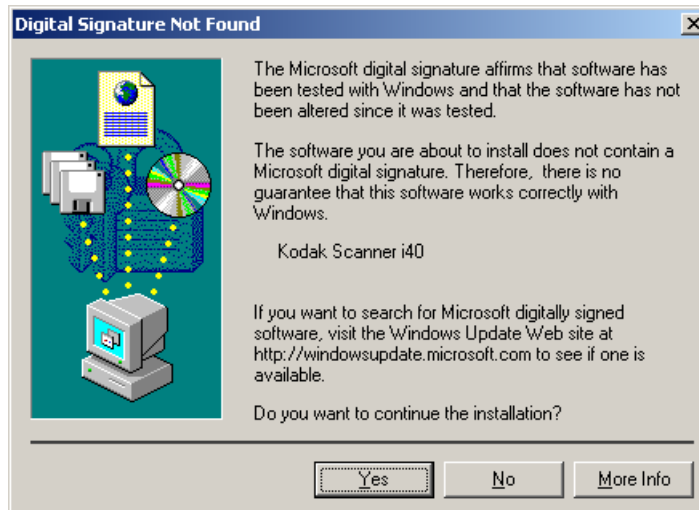
2. If the above screen is displayed, select **Yes**. The installation of the Kodak device driver for the scanner is complete. To test the scanner, refer to the section entitled "Verifying your scanner installation" in Chapter 3.

If the driver installation was unsuccessful, see the section entitled, "Scanner not working" in Chapter 6, *Troubleshooting.*

Installing application software

The following Kodak scanning applications are available on the CDs packed with your scanner.

- *Kodak* Capture Lite Software.

- *Kodak* Scan Validation Tool. Refer the section entitled, "Verifying your scanner installation" in Chapter 3 for installation instructions and use.

Other scanning applications are also provided on the CDs packed with your scanner. Review these CDs for the other applications that are included. You may also use other capture applications not provided. See the User Guides provided with these applications for instructions on how to install and use the software.

Scanner components

Front view
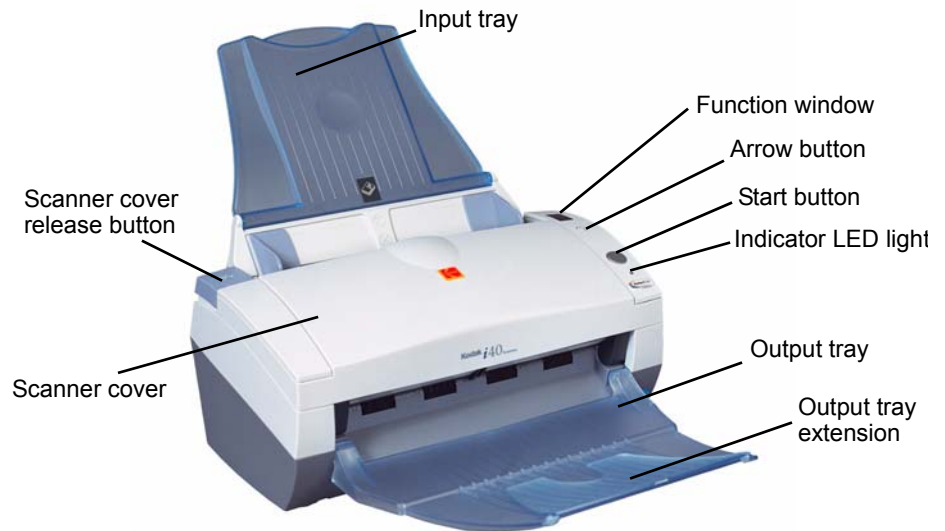
Input tray — holds up to 50 documents in place. Adjusts to fit the document size.

Start button — *reserved for future use.*

Arrow button — allows you to select or scroll through predefined functions or applications for scanning.

Function window — displays 1 through 9. These numbers correspond to a defined function or application (*not implemented yet).* The function window will also display error codes. See Chapter 6, *Troubleshooting* for a listing of these error codes.

Indicator LED light — illuminates or flashes indicating scanner status.
- **Steady green**: ready to scan
- **Flashing green**: preparing to scan
- **Flashing red:** error indication such as, *Scanner Cover Open*, in conjunction with the Function window displaying an "E"

Scanner cover release button — opens the cover on the automatic document feeder.

Scanner cover — provides access to the internal components of the scanner.

Output tray — collects the scanned documents.

Output tray extension — unfold this extension when scanning documents longer than 8.5 x 11 inches (A4).

Inside view

Rollers   Calibration guides   Feed module
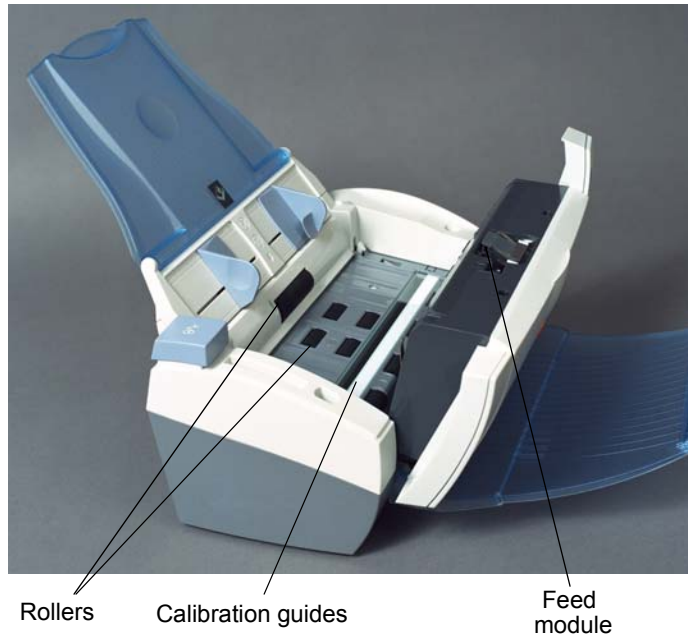
Feed module — provides smooth document feeding and separation of various sizes, thicknesses and textures of documents.

Calibration guides — **for optimum image quality, keep the calibration guides clean.** There are two guides - one upper and one lower. Only the lower guide is shown in the photo above.

Rollers — provides smooth document feeding of various sizes, thicknesses and textures of documents

Back view

Power switch   Power port   USB port
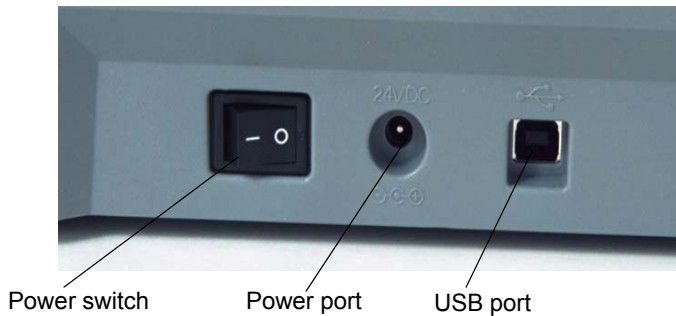
Power switch — turns the scanner on and off.

Power port — connects the power cord to the scanner.

USB port — connects the scanner to the PC.

3 Using the Scanner

Turning the scanner on and off

- Press the button on the back of the scanner to turn the scanner on (I) or off (O).

After you turn on the scanner, wait for it to complete the self-test. When completed, the green indicator light will remain on and constant.

Adjusting the input and output trays

The input tray has side guides that allow you to adjust the feeder to fit different document sizes.

- Grasp the side guides and slide them to the desired position.

If you are scanning documents longer than 8.5 x 11 inches (A4), open the extender on the output tray.

Start and stop scanning

Before you start scanning, make sure the scanner is on and ready for operation, which is indicated by the green indicator light being on and constant.

Scanning is controlled by software developed for your application. To start and stop scanning, refer to the documentation provided with your application software.

Document preparation

- A batch of documents to be fed into the scanner must be arranged so the leading edges of all documents are aligned and centered in the input tray; this allows the feeder to introduce documents into the scanner one at a time.

- Staples and paper clips on documents may damage the scanner and documents. Remove all staples and paper clips before scanning.

- Documents should be in good condition.

Paper Types: Bond, Laser, Inkjet, Offset

NOTE: Coated papers such as NCR paper, may cause excessive wear/ swelling of the rollers.

Paper Weights: 7.3 to 12.7 kg (16 to 28 lbs.)

Minimum Document Size: 8.9 x 5 cm (3.5 x 2 in.)

Maximum Document Size: 21.6 x 35.5 cm (8.5 x 14 in.)

Paper inks: All inks on the paper must be dry before scanning is started. This includes: Standard offset printing, Inkjet printer, Thermal transfer, Handwriting inks.

Correction Fluids: Liquid Paper®, Tipp-Ex®, Wite-out®, and other similar correction fluids.

Verifying your scanner installation

Kodak provides a test application called the *Kodak Scan Validation Tool*. This section describes how to use this tool to perform a basic scan function which includes feeding paper and viewing captured images on your PC.

The following steps help you to verify that your scanner installation was successful. If this procedure is successful, you will be ready to use your scanner. If it is not successful, go back and review the installation procedures outlined in the section entitled, "Installing the scanner" in Chapter 2.

NOTE: Detailed descriptions of all the options on the Scan Validation Tool dialog boxes can be found in Chapter 4, *Image Processing.*

Before you begin, be sure the scanner is on and ready to scan.

1. Select **Start>Programs>Kodak>Document Imaging>Scan Validation Tool**. The Scan Validation Tool dialog box will be displayed.
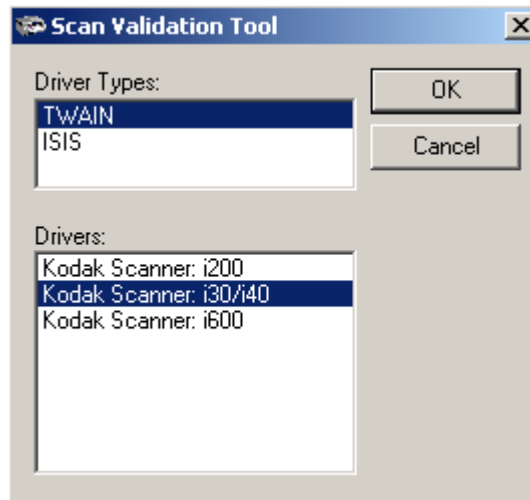
2. Select **TWAIN** (or **ISIS**) for the Driver Types and *Kodak* **Scanner i30/i40** as the Driver. The Scan Validation Tool dialog box will be displayed.

3. Click the Scanner icon to access the Kodak Scanner Properties dialog box.
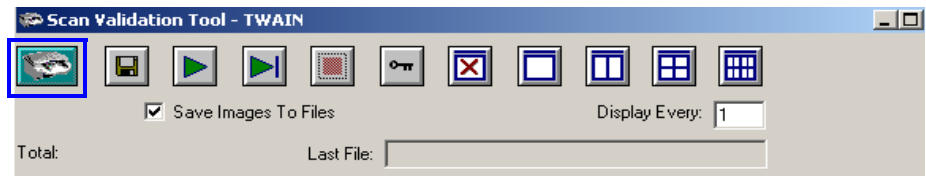
4. Select **Defaults**.
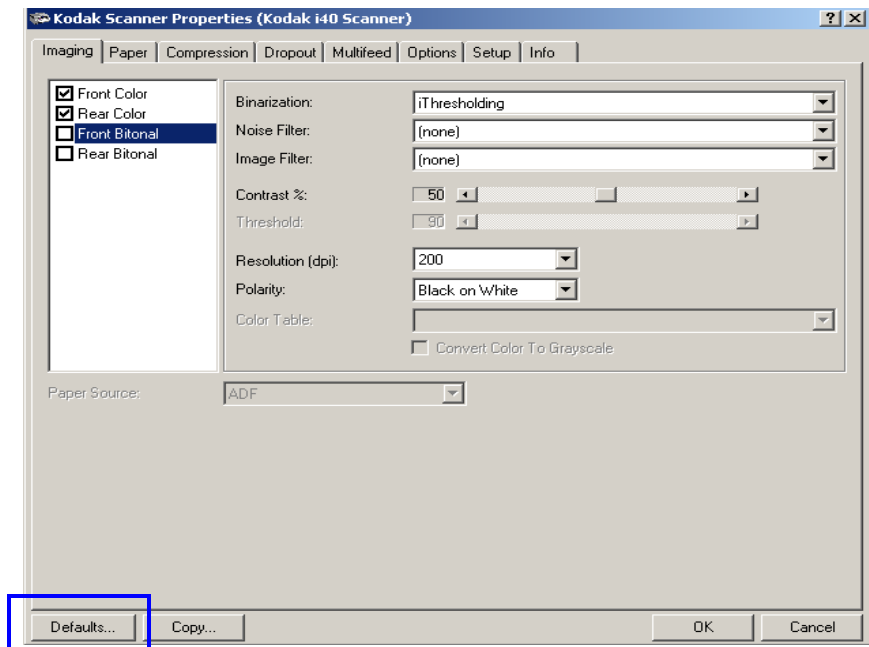
A confirmation message, ***Reset all values to factory defaults*** will be displayed.

5. Click **OK**. This resets the software to the factory-installed default settings. The factory default settings are set to capture color images. For an i30 Scanner one side of the document will be scanned. For an i40 Scanner both sides of the document will be scanned.

6. Click **OK** on the Kodak Scanner Properties dialog box.
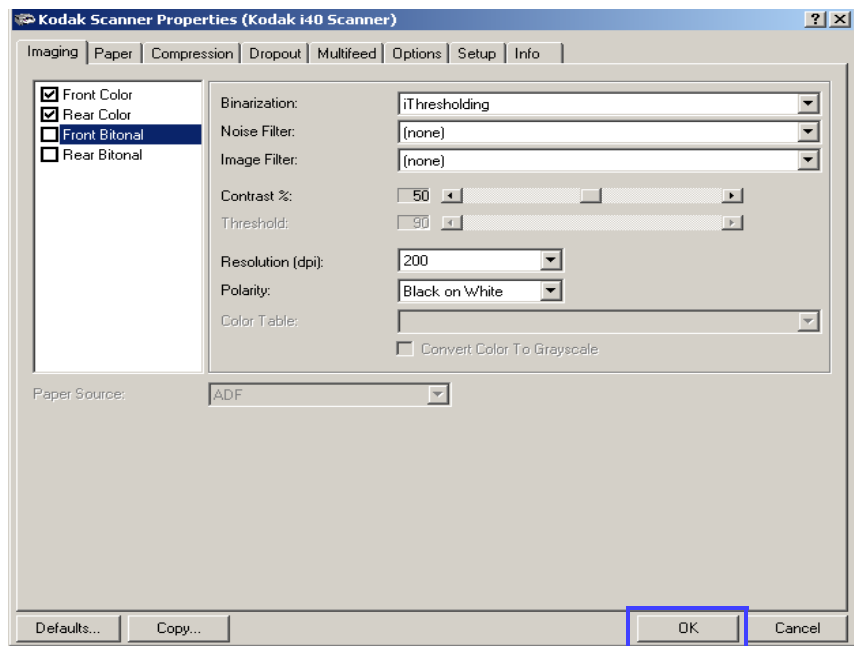
The Scan Validation Tool screen will be displayed:
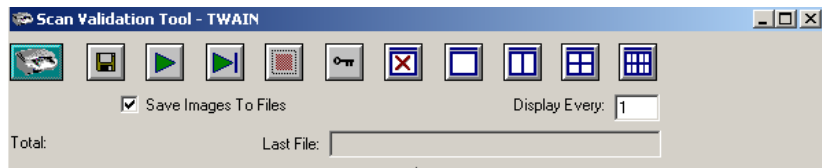
7. Place some test application documents into the input tray of the scanner. The documents should be placed upside down in the input tray. If you are scanning one-sided documents or if you have a *Kodak* i30 Scanner, be sure the side you want to scan is facing the input tray.
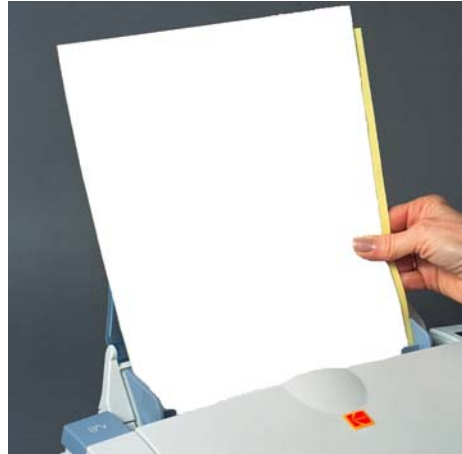
8. Click the **Start** button on the Scan Validation Tool.
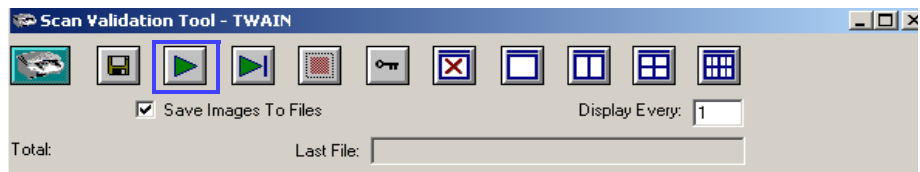
The documents will be scanned and displayed in the Scan Validation Tool window.

NOTE: If the scanner is in lamp saver mode, a message will be displayed that the lamps need sufficient time to warm up.

After the images have been displayed, your scanner installation verification is completed.

9. Click the Close box ☒ to exit the Scan Validation Tool.

Viewing test images

The images you scanned can be found in the TWAIN folder on the C drive. Files will be named using the following naming convention: **image0000001A.jpg** is a front image; **image0000001B.jpg** is a back image. Double-click on this file to open and view the captured image.

Because factory default settings were used, the image quality may not be optimized to meet your needs. To learn more about image processing features, go to Chapter 4, *Image Processing*. The *Image Processing* chapter provides detailed descriptions of the available image processing features.

When testing has been completed, delete the test images.

Application software

Some scanning applications are available on the CD packed with your scanner.

You may also use other capture applications. See the User's Guide provided with these applications for instructions on how to use the software.

Scanning your documents

Standard paper size documents should feed easily through the scanner.

• Place the documents you want to scan into the input tray of the scanner. The documents should be placed upside down in the input tray. If you are scanning one-sided documents or if you have a *Kodak* i30 Scanner, be sure the side you want to scan is facing the input tray.

NOTE: Notebook paper with holes on the side should be fed into the scanner with the holes next to side guides.

4 Image Processing

Overview

This chapter introduces concepts that may be new to many users. The *Kodak* i30 and i40 Scanners provide the ability to process scanned images to improve their quality. Using these features the scanner can sometimes make the scanned image look better than the original document. Basic image processing concepts are reviewed in this chapter to help you take advantage of these powerful features.

Image processing refers to several separate features of the scanner that allow you to automatically adjust each image in a certain way that may improve the resulting images. Common examples of image processing features are correcting any skew in the fed document, cutting the edges of the image off to remove any unneeded border or cleaning up extraneous "noise" on the image. The idea is to do this automatically so you can get better images with a minimum amount of rework.

The information that follows describes the image processing features by walking you through the Scan Validation Tool. The same options should be available on the user interface of the software application you are using (i.e., *Kodak* Capture Software). All fields on the Scan Validation Tool are described in this chapter.

Common terms

Following are a few common terms that are used throughout this chapter:

Bi-tonal or Binary — black-and-white

Simplex — indicates that only one side of the document (the front side) will be scanned, creating a single page image.

Duplex — indicates that both sides of the document will be scanned, creating two page images.

Cameras — it is important to understand the concept of "cameras".

The *Kodak* i30 Scanner is a simplex scanner. This means it scans one-sided documents and uses two cameras; a front color camera and a front bi-tonal/binary camera, allowing you to capture one side of a document either in color/grayscale or black-and-white.

The *Kodak* i40 Scanner is a duplex scanner. This means it scans both - sides of a two-sided document and uses four cameras; a front color camera, a rear color camera, a front bi-tonal/binary camera, and a rear bi-tonal/binary camera, allowing you to capture both sides of a document in either color/grayscale, black-and-white, or a combination of color and black-and-white.

When you use the Kodak Scan Validation Tool, you will need to select which camera(s) you want to use to scan your document to get the desired results. You can use the examples below as a guide when making camera selections.

Making camera selections

When you launch the *Kodak* Scan Validation Tool, you will be making selections on the dialog boxes to set up your images for scanning test documents. Both TWAIN and ISIS have camera selection boxes that refer to the cameras within the scanners. Following are some examples of choosing the correct camera for the desired results. For the purpose of these examples, the TWAIN Datasource has been used.

Example 1: scanning a two-sided color document both sides in color

If you want to scan a two-sided color document, make your camera selections as follows:
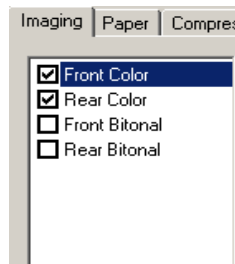
    Camera selection   **Result - Side 1**   **Result - Side 2**

- Select both **Front Color** and **Rear Color.** Depending on which camera (in this example, **Front Color**) is highlighted, will depend on which side of the document is scanned first. The result is two images in color.

Example 2: scanning a two-sided color document, front side only in bi-tonal

If you want to scan only the front side of a color document in black-and-white, make your camera selections as follows:
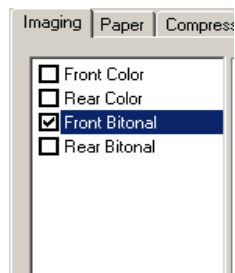
    Camera selection   **Original - Side 1**   **Result - Side 1**
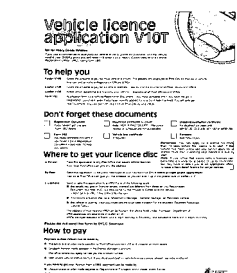
- Select and highlight **Front Bitonal.** The resultant image will be the front side of the document in black-and-white.

Starting the Scan Validation Tool

1. Select **Start>Run** or select **Programs>Kodak>Document Imaging>Scan Validation Tool**. Enter the filename or choose **Browse** to locate the **ScanValidation.exe** file.
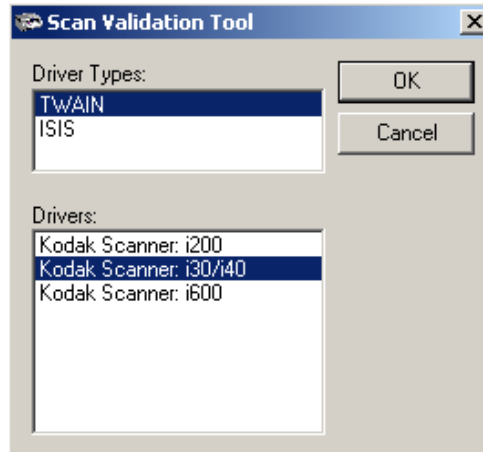
2. Select **TWAIN** (or **ISIS**) for the Driver Type and the *Kodak* **Scanner i30/40 Scanner** as the Driver. The Scan Validation Tool dialog box will be displayed.

3. Double-click the Scanner icon to access the Kodak Scanner Properties dialog box.
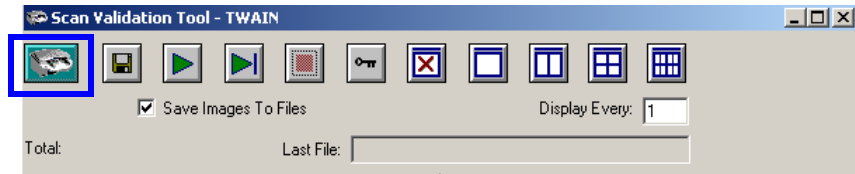
Scan Validation Tool dialog box

The Scan Validation Tool (SVT) is a diagnostic application that Kodak provides with most Kodak scanners. The SVT user interface allows access to all the features of the scanner and is a good way to verify that the scanner is working properly. The Scan Validation Tool allows you to verify scanner functionality using both the TWAIN Datasource and the ISIS Driver.

Displays the user interface for the selected driver.

Enables the scanner

Disables the scanner

Closes the image viewer (no images will be displayed)

Displays four images at a time

Displays eight images at a time

Enables to scanner to feed one page

Displays two images at a time

Displays one image at a time

Allows you to select the directory to store scanned images and their file names. Only available when Save Images to Files is selected.

Displays the License Key window

Display Every — enter the sampling rate of the images you wish to display while scanning. For example, to see every image, enter a value of 1. To see every 10th image, enter a value of 10.

Last File — displays the full path and file name for the last stored image.

Total — displays the total number of images scanned during the current Scan Validation Tool session.

Using the TWAIN Datasource

The TWAIN Datasource is a piece of software that communicates with your scanner. It is provided by Kodak with the i30 and i40 Scanners. Many scanning applications support the TWAIN standard and this datasource can be used to interface with these applications.

This section provides descriptions of the scanner features using options on the TWAIN tabs and how to set these options. If you are using the TWAIN Datasource, follow the procedures in this section to set up your scanner. If you are using the ISIS Driver, see the section entitled, "Using the ISIS Driver" later in this chapter.

For the purpose of this manual, all displayed dialog boxes assume the features available on the *Kodak* i40 Scanner (duplex scanner). If you have a *Kodak* i30 Scanner (simplex scanner) all options are limited to simplex scanning only.

Kodak Scanner Properties dialog box

The Kodak Scanner Properties dialog box allows you to review and configure the scanner's settings. It consists of several tabbed windows each of which will be described within this chapter.

Click on each tab to set all the desired values. You do not have to click **OK** until you have made all selections on all of the tabs.

Buttons on the Kodak Scanner Properties dialog box

Following are descriptions of the buttons located at the bottom of the dialog box.
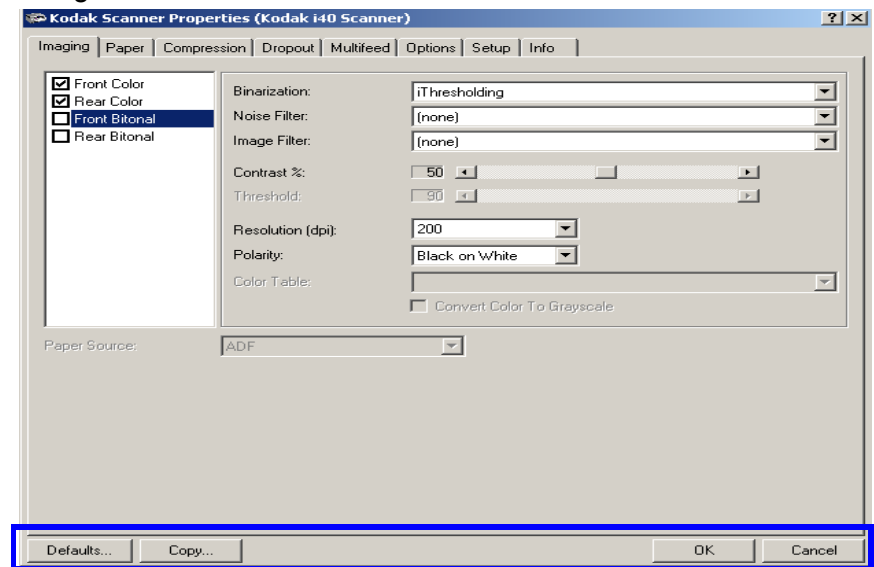
Defaults — when you select **Defaults**, the message *Reset all values to factory defaults?* will be shown. Clicking **Yes** on this message will reset all values on all tabs to the factory default settings.

Copy — copies the settings of the front camera to the rear camera for the selected camera (bi-tonal, color or grayscale). For example, if you have **Front Bi-tonal** highlighted, these values will be copied to the Rear Bi-tonal camera. If you have **Front Color** highlighted, these values will be copied to the Rear Color camera. This option is only available for the *Kodak* i40 Scanner.

OK — saves the values set on all tabs.

Cancel — closes the dialog box without saving any changes.

The Imaging tab

The Imaging tab allows you to define several image processing values that can be applied to your scanner.
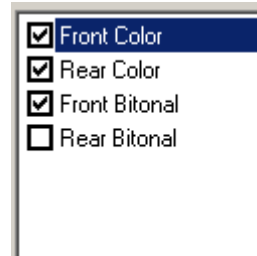
The **Camera Selection box** — lists the available sides (front and rear) of any document where you can define individual image processing values. For detailed information about the cameras, refer to the beginning of this chapter, "Making camera selections".

On the *Kodak* i40 Scanner (duplex) there is a separate camera for each side of the document being scanned. The Kodak scanner drivers allow you to control the camera settings independently. Some settings apply only to bi-tonal images, other apply to color images. By selecting the appropriate camera and image type you can control the scanner's output.

• If you have a *Kodak* i40 Scanner, you can select any individual camera (i.e., **Front Color**, **Rear Color, Front Bi-tonal** and/or **Rear Bi-tonal**) or any combination of the cameras. This means you can do the front side, rear side or both sides of a document.

• If you have a *Kodak* i30 Scanner, you can select either **Front Color** and/or **Front Bi-tonal**. This means you can do the front side of a document depending on how the documents are placed in the feeder.

• Whatever is highlighted in the Camera Selection box determines the values available on the Imaging, Paper, Compression and Dropout tabs.

Scanning bi-tonal images
Bi-tonal images are scanned images that are made up of only black-and-white elements.The descriptions below are for bi-tonal images only.
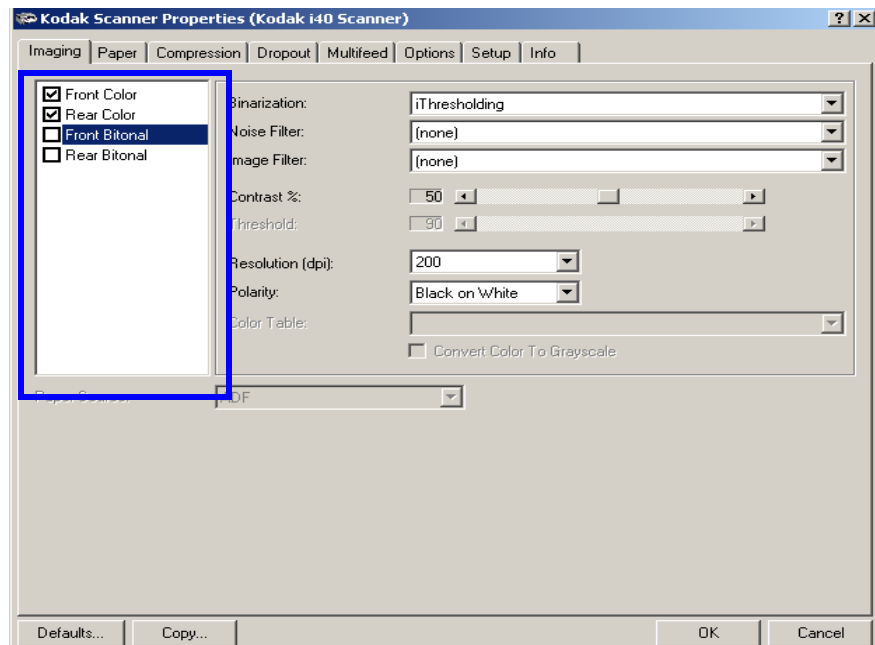
Binarization is the process of converting a grayscale or color image to a bi-tonal image. There are several different methods of performing this conversion. Two of the options are iThresholding and Adaptive Threshold Processing.

These options are applied to grayscale scanned images and outputs a bi-tonal electronic image. Thresholding and Adaptive Threshold Processing 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 still result in excellent scanned images.

- **iThresholding:** selecting 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 may be adjusted.

- **Adaptive Thresholding (ATP):** the Adaptive Threshold Processor 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 may be adjusted.

When Adaptive Thresholding is selected, Contrast values may range from 1 to 100.
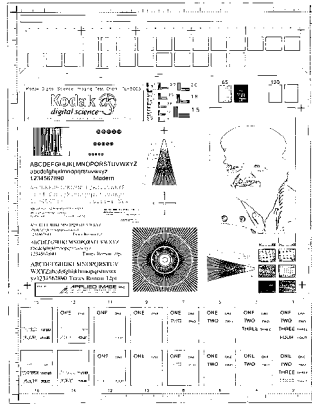
Fixed thresholding ATP disabled

ATP enabled

Fixed Processing — used for black-and-white and other high contrast documents. A single level is set to determine the black-and-white transition. The threshold is programmable over the entire density range. Fixed thresholding sets Contrast to 0. If Fixed Processing is selected, Contrast is not available.

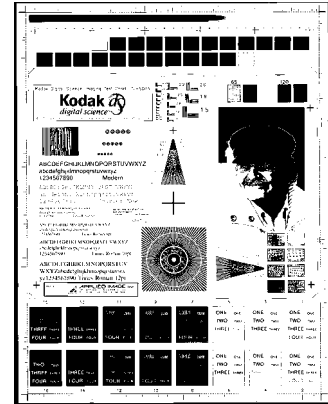**64-Level Bayer Dither, 64-Level 45 Degree Clustered Dot Screen** and **64-Level Dispersed Dot Screen** — represent alternative screening options to emulate gray.

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 Noise Filter when scanning documents with text smaller than 7-point type.

Noise Filter can be used with bi-tonal images only and is front/rear independent. Choose **(none)**, **Lone Pixel** or **Majority Rule**.

- **Lone Pixel** reduces random noise on bi-tonal 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.
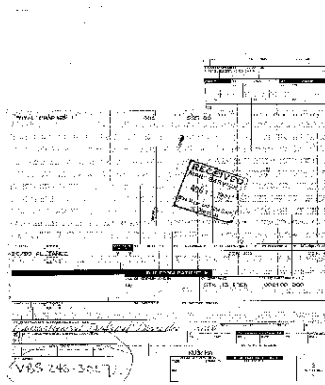
No Noise Filter Used   **Lone Pixel**

Image Filter — used to enhance images containing dot matrix text and/or images printed with shaded or colored backgrounds using halftone screens. This filter effectively eliminates noise caused by the halftone screen. Choose **(none)** or **Halftone Removal**.

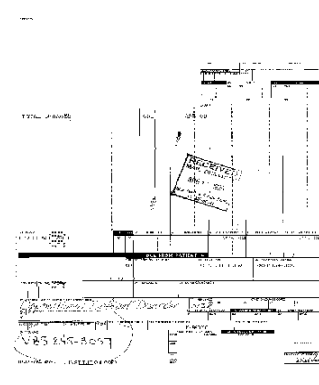- **Halftone Removal** is used to enhance images containing dot matrix text and/or images with shaded or colored backgrounds using halftone screens. This filter effectively eliminates noise caused by the halftone screen.

Contrast % — sets the image contrast by adjusting the difference between black-and-white, thereby making an image sharper or softer.

In a low contrast setting, the difference between black-and-white is small, so the image is softer. In a high contrast setting, the difference between black-and-white is large, so the image is clearer. Select a contrast value from 1 to 100. The default is 50.

Contrast 1
> ABCDEFGHIJKLMNOPQRSTUVWXYZ
> abcdefghijklmnopqrstuvwxyz
> 1234567890   Modern

Contrast 60
> ABCDEFGHIJKLMNOPQRSTUVWXYZ
> abcdefghijklmnopqrstuvwxyz
> 1234567890   Modern

Contrast 100
> ABCDEFGHIJKLMNOPQRSTUVWXYZ
> abcdefghijklmnopqrstuvwxyz
> 1234567890   Modern

Adjust the contrast setting by dragging the Contrast sliding bar to the left or right to achieve the desired contrast setting, or you can enter a value (1 to 100) in the *Contrast* text box. Scan the document to check the contrast.

Threshold — used to convert a grayscale image to a bi-tonal image. The thresholding value is an integer ranging from 0 to 255. A low threshold value produces a lighter image, and can be used to subdue backgrounds and subtle, unneeded information. A high threshold value produces a darker image, and can be used to help pick up faint images.

Adjust the threshold setting by dragging the Threshold sliding bar to the left or right to achieve the desired threshold setting, or you can enter a value (0 to 255) in the *Threshold* text box. Scan the document to check the threshold.
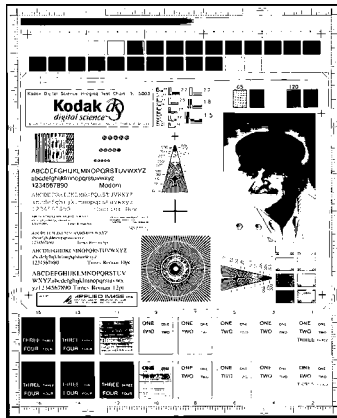
**200 dpi; 80 Threshold
20 Contrast**
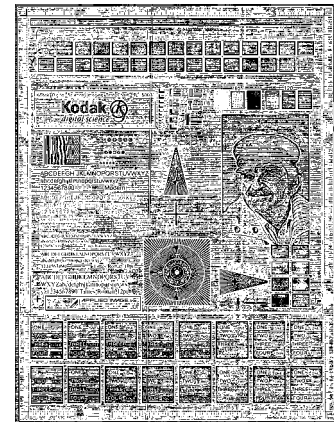
**200 dpi; 80 Threshold
100 Contrast**

Resolution or dots per inch (dpi) — 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. The industry standard is 200 dpi (about 8 pixels/mm).

Choose a resolution value from the drop down list. The default value is 200 dpi. Available resolutions are 75, 100, 150, 200, 240, 300, 400 or 600.

Polarity — the host PC provides information to the scanner defining whether the image should be stored in standard or reverse polarity. The default polarity is Black on a White background. Reverse polarity is White on a Black background.

Black on White polarity

White on Black polarity

Color Table — *Not applicable for bi-tonal images.* See the next section "Scanning color images".

Scanning color images   The descriptions below are for scanning color images only.

Resolution or dots per inch (dpi) — 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: 75, 100, 150, 200, 240, 300, 400 or 600.

Color Tables — the selection of a color table effects how the scanner reproduces the color of a scanned document. Color Tables are look-up tables that store color descriptions which can be used for gamma correction of images being transferred between different equipment (i.e., scanners, printers, monitors, etc.). You can choose from the three Kodak default color tables: **Pictures, Text** and **Text with Pictures,** or if you have created your own custom color tables using the *Brightness and Contrast Control*, these tables will also be available. For more information on the Brightness and Contrast Control, see the Reference Guide, A-61506.

Scanning grayscale images   The descriptions below are for scanning grayscale images only.

Resolution or dots per inch (dpi) — 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: 75, 100, 150, 200, 240, 300, 400 or 600.

Color Tables — the selection of a color table effects how the scanner reproduces the color of a scanned document. Color Tables are look-up tables that store color descriptions which can be used for gamma correction of images being transferred between different equipment (i.e., scanners, printers, monitors, etc.). The selection of a color table effects how the scanner reproduces the color of a scanned document. You can choose from the three Kodak default color tables: **Pictures, Text** and **Text with Pictures**, or if you have created your own custom color tables using the *Brightness and Contrast Control*, these tables will also be available. For more information on the Brightness and Contrast Control, see the Reference Guide, A-61506.

Convert Color to Grayscale — enable this option when you want the captured image to be 8-bit grayscale instead of 24-bit color.

The Paper tab   The Paper tab allows you to define values relating to image output (i.e., cropping values, rotation, paper size and units of measure).
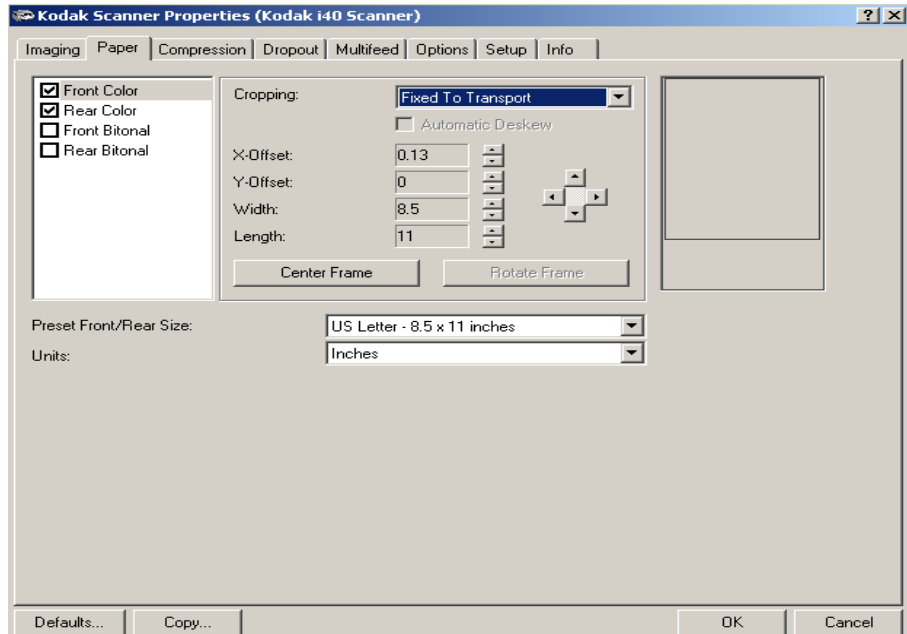
Camera selection box — lists the available sides of an image that you can define individual image processing values.

The display window on the right will display the cropping area you are altering. The cropping area will change as values are being altered.

Cropping values   Cropping allows you to capture a portion of the document being scanned. Cropping options can be used independently with color/grayscale and bi-tonal images and are also front and rear side independent, however for simultaneous output scanning color/grayscale and bi-tonal cropping must be the same per side.

• On an i40 Scanner two cropping options can be set per document.

• On an i30 Scanner one cropping option can be assigned per document.

Cropping — select one of the following options:

• **Automatic:** dynamically adjusts the cropping window for different document sizes based upon the edges of the image. Use this option for batches of mixed-sized documents.

• **Aggressive:** selecting this option will eliminate any residual white/gray border on any image edges. When using Aggressive cropping, there is a possibility that a small amount of image data from the edge of the document may be lost.

- **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 bi-tonal format (a separate window for both bi-tonal and color/grayscale may be defined). Different parameters may be selected for both the front and rear of the image.

  This option may be used in conjunction with Automatic cropping where a separate color/grayscale or bi-tonal 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 bi-tonal).

- **Fixed to Transport:** (used for batches of same-sized documents) allows you to define the area or zone to be imaged. If you select this option, enter the x and y offset values, width and length. You can enter the desired values in the fields or use the arrow keys to define the desired area. The Display window will show image placement as you change the values.

The following options are only available when **Fixed to Transport** or **Relative to Document** is selected.

- **X-Offset** — the distance from the left end of the scanner to the left edge of the scanning area.

- **Y-Offset** — the position from the top end of the document to the top end of the scanning area.

- **Width** — the width of the scanning area.

- **Length** — the length of the scanning area.

- **Center Frame** — automatically calculates the x-offset for center-fed feeding based upon document size selected.

- **Rotate Frame** — automatically calculates the offset values based upon feed orientation of the document size selected (landscape vs. portrait).

Automatic Deskew — select this option to automatically deskew a document within ±0.3 degrees of the leading edge of the document. This option is only available if you have **Automatic** cropping selected.

NOTE: If the skew angle is too great, some of the image may be cut off.

Additional paper selections   In addition to cropping values that can be applied using the Paper tab, the following options are available:

Preset Front/Rear 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.

Units — defines the primary measurement system. **Inches, Centimeters, Picas, Points, 20th of Points,** and **Pixels** are available.

The Compression tab
Compression squeezes a file to decrease the total size. Bi-tonal images are normally compressed using a CCITT standard called Group IV, often used in conjunction with TIFF files. Color and grayscale images are often compressed using JPEG techniques.

TIFF (Tagged Image File Format) is a file format standard commonly used for bi-tonal images. It is often used in conjuction with the CCITT Group IV compression standard to reduce image file size. Color and grayscale images can be saved in this format too, but they are usually found uncompressed and are, therefore, quite large. Use the Compression tab to select compression settings.

JPEG (Joint Photographic Editor Group). 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.
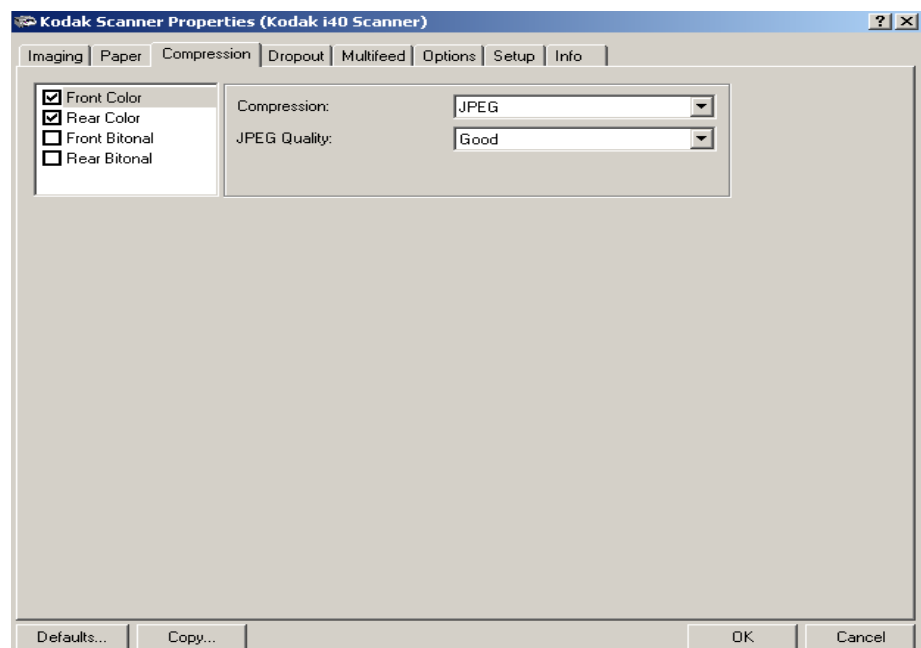
Camera Selection box — lists the available sides (Front Color, Rear Color, etc.) of an image that you can define individual image processing values.

Compression — the i30/i40 Scanners can be configured to output bi-tonal, grayscale, and color images in various supported formats and resolutions independent of each other and each side of the image. These options vary based on the type of scanner.

For bi-tonal scanning the following compressions are available:

• CCITT Group 4

• (none)

The following color/grayscale compression options are available:

- **JPEG** — JPEG compression offers a JPEG quality of **Draft**, **Good, Better, Best, 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

- **(none)** produces an uncompressed bitmap

The Dropout tab

Electronic 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. The i30/i40 Scanners can dropout either red, green or blue. The Dropout tab allows you to select the desired dropout color and alter the filter threshold and background.
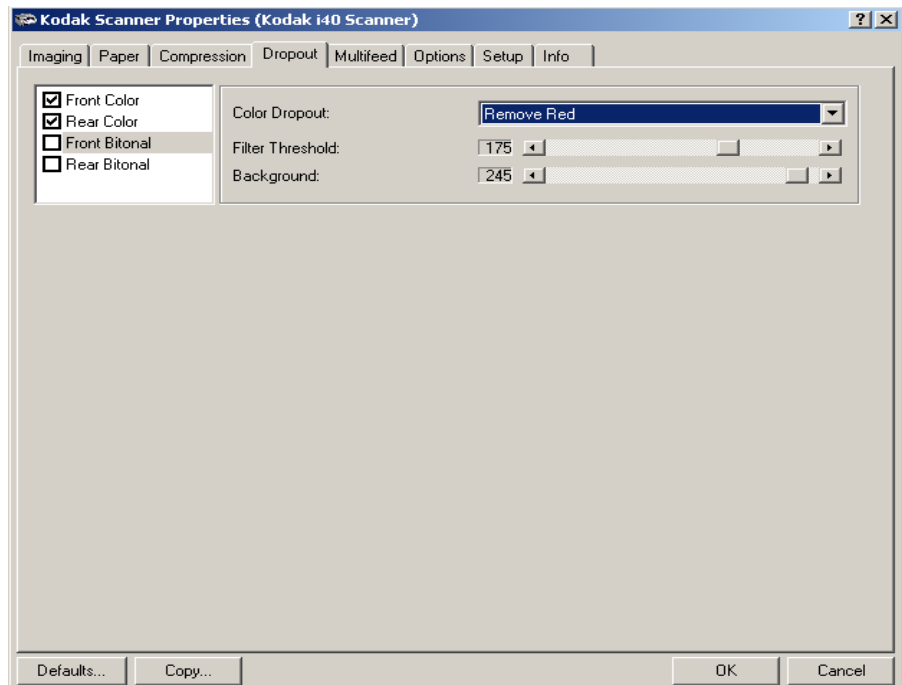
**Camera Selection box** — electronic color drop-out is available only for bi-tonal images.

Color Dropout — choose the color you want to eliminate: **(none) Remove Red, Remove Green, Remove Blue.**

Filter Threshold — the value that is used to identify the color which will be dropped out. This value is applied to the color area. Color with a Red/Green/Blue component more than the entered value is dropped. This setting determines how much of the selected color is dropped out. A lower value will leave more of the selected color in, while a higher value will drop more of the selected color out.

Background — 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 Imaging tab for this pixel to become the background color. For example, if you are scanning a white document with a green form and you have selected a bi-tonal threshold value of 127, you should choose an electronic color drop-out background value greater than 127 so the substituted pixel will be white in the dropped-out image.

The Multifeed tab

Multi-feed Detection aids in document processing by detecting documents that may go through the feeder overlapped.
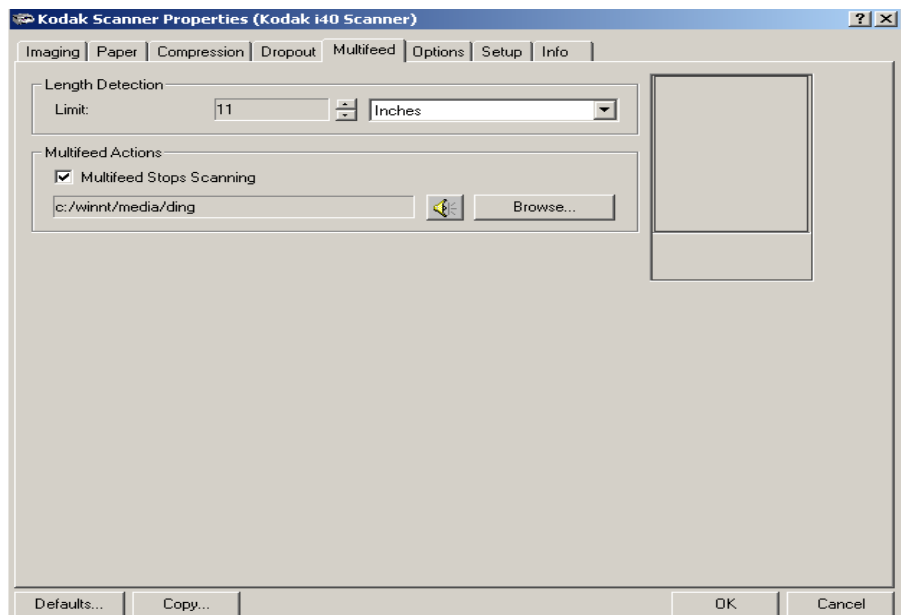
Length Detection — choose the minimum length of the document that can be scanned with a multi-feed being detected. The Display window will show the size of the document as you change the value. You can select to display this amount in **Inches, Centimeters, Picas, Points, 20th of Points** or **Pixels.** A value of 0 indicates no length detection. Length detection is best used when scanning same-sized documents. The maximum value is 14 inches.

Multifeed Stops Scanning — if this option is not selected, the scanner will log the condition but continue to operate. If selected, the scanner will log the condition and stop the feeder (the scanner will be disabled). When an overlap or multi-feed is detected, the scanner stops the feeder, clears the transport of all pages and then the documents can be refed.

The Options tab

The Options tab allows you to set Image Transfer and Transport control.
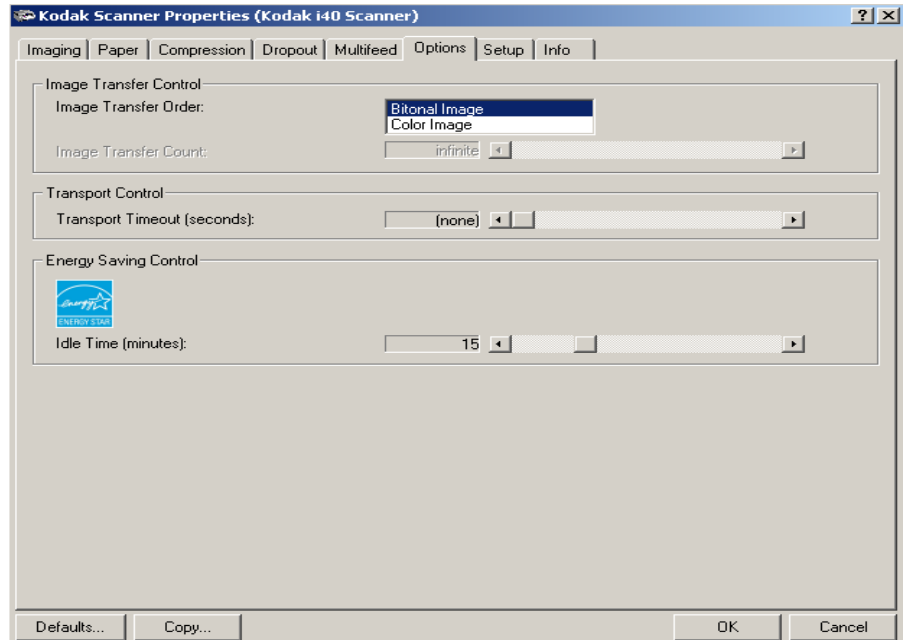
Image Transfer Order — if you are using simultaneous output scanning (bi-tonal and color/grayscale) for either side, this option controls the order in which the scanner returns image data. For example, if you are scanning color and bi-tonal and you select **Bi-tonal Image**, the scanner will return the bi-tonal front image, then the front color image.

Transport Timeout — allows you to set a transport timeout value. This value is 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 30 seconds.

Energy Saving Features of Scanner — allows you to set the amount of time the scanner will remain inactive before the scanner goes into an idle state. Choices are: (none) and 5 to 60 minutes. The default is 15 minutes.

The Setup tab

The Setup tab allows you to download firmware and set the scanner clock. *The Setup tab is only available when running the Scan Validation Tool, via the TWAIN Datasource.*

Package — the scanner firmware runs your *Kodak* i30/i40 Scanners. The value displayed in the Current field is the version of firmware currently in use by your scanner. Periodically Kodak releases updated versions of firmware which are available through Kodak Service and Support. When **Download** is selected, the Select Scanner Firmware dialog box will be displayed.
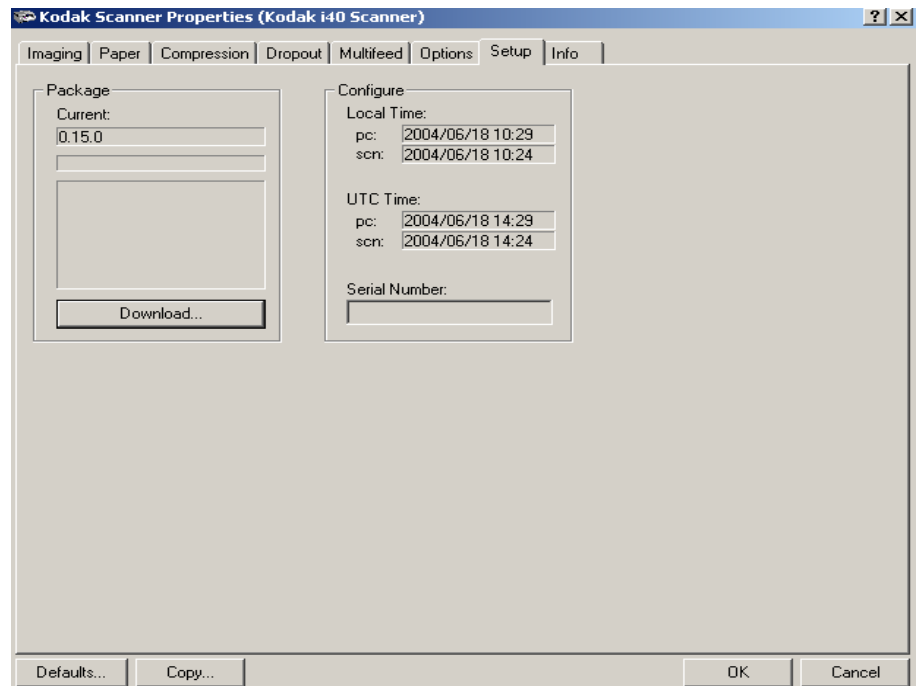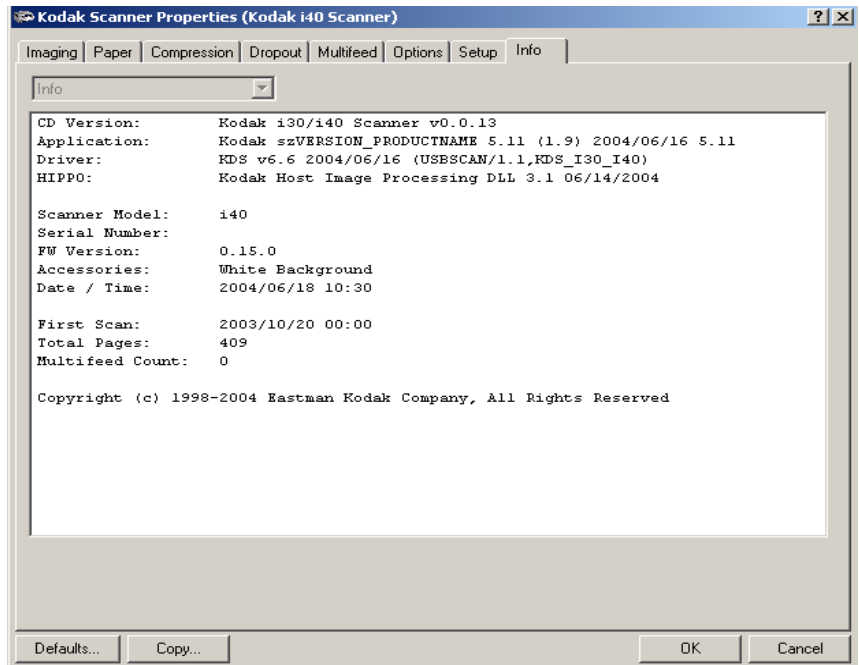

Download… — this option is used to download the latest version of firmware to your scanner.

Configure — displays the local time, UTC (Universal Time Clock) and the scanner serial number. You can use the **Update** button to change the local time only.

The Info tab   The Info tab displays the following scanner information.

```
Kodak Scanner Properties (Kodak i40 Scanner)                              ? X

Imaging  Paper  Compression  Dropout  Multifeed  Options  Setup  Info

Info

CD Version:          Kodak i30/i40 Scanner v0.0.13
Application:         Kodak szVERSION_PRODUCTNAME 5.11 (1.9) 2004/06/16 5.11
Driver:              KDS v6.6 2004/06/16 (USBSCAN/1.1,KDS_I30_I40)
HIPPO:               Kodak Host Image Processing DLL 3.1 06/14/2004

Scanner Model:       i40
Serial Number:
FW Version:          0.15.0
Accessories:         White Background
Date / Time:         2004/06/18 10:30

First Scan:          2003/10/20 00:00
Total Pages:         409
Multifeed Count:     0

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    Defaults...    Copy...                              OK      Cancel
```

Using the ISIS Driver

The ISIS Driver is a piece of software that communicates with the scanner. This driver is created and maintained by Pixel Translations, Inc. 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 section provides descriptions of the options on the ISIS dialog boxes and how to set these options.

For the purpose of this manual, all displayed dialog boxes assume the features available on the *Kodak* i40 Scanner. If you have a *Kodak* i30 Scanner all options are limited to simplex scanning only.

Scanner Settings dialog box

See the section entitled, "Starting the Scan Validation Tool" earlier in this chapter to access the Scanner Settings dialog box.

Buttons on the Scanner Settings dialog box

Following are descriptions of the buttons located at the bottom of the dialog box.
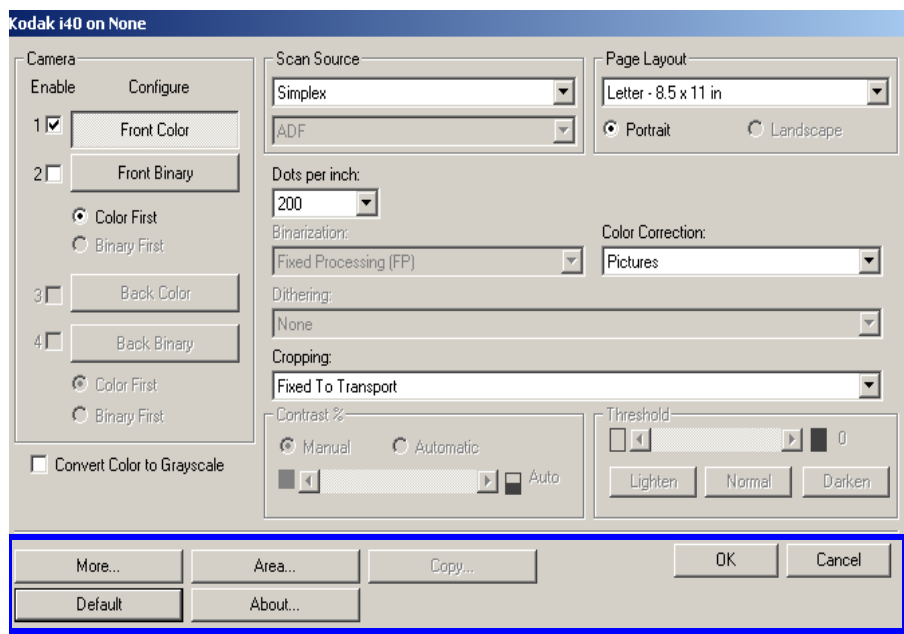
More — displays the More Scanner Settings dialog box. This dialog box provides additional image processing settings unique to i30/i40 Series Scanners.

Area — displays the Scan Area dialog box.

Copy — this function is only available when using the scanner in duplex mode. The Copy button provides a convenient way to set up the color, grayscale or binary image settings on one side and transfer them to the other. For example, if you highlight and set up **Front Binary**, you can use the Copy button to duplicate those settings for Rear Binary.

About — displays the About dialog box. The About dialog box provides detailed information such as the driver version number, certification status and the version of QuickDriver used to develop this driver.

Default — when you select **Default**, the values will be reset to the factory defaults.

OK — saves the values set on all dialog boxes.

Cancel — closes the dialog box without saving any changes.

Camera Settings area

The selections in the Camera area list the available sides (front and back) of an image where you can define individual image processing values. Options include: Front Color, Front Binary, Back Color and Back Binary. For detailed information about Camera selection, see the section entitled, "Making camera selections" earlier in Chapter 4.
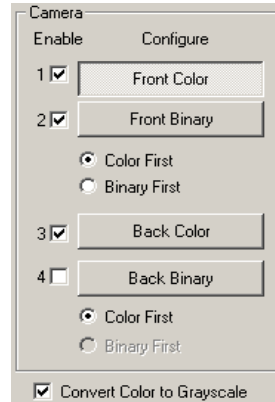
On the *Kodak* i40 Scanner there is a separate camera for each side of the document being scanned. The Kodak scanner drivers allows you to control the camera settings independently. Some settings apply only to *binary* (black-and-white) images, others apply to color/grayscale images. By selecting the appropriate camera and image type, you can control the scanner's output.

When starting the configuration process, use the steps below as a guide:

1. Check the images you wish to capture (Enable camera settings).

2. Select the order to transfer the images (Color First or Binary First).

3. Configure each image by highlighting it (Configure).

Enable camera settings — select the desired checkbox to enable the Front Color, Front Binary, Back Color or Back Binary settings as desired. This indicates the images you wish to capture and transfer to the host PC. (It is possible to capture only rear images.) Enable your selection by putting a checkmark in the desired box.

Color First/Binary First — define the transfer order by selecting the **Color First** or **Binary First** radio button. This determines which image is transferred to the host PC first when using simultaneous output scanning. For example, if you are scanning front color and front binary and you select **Binary First** the scanner will return the front binary image, then the front color image.

Configure — highlight the image you want to setup. As you select the image, other options will become available on the Scanner Settings dialog box. The availability of these options is dependent upon the selection you make.

Convert Color to Grayscale — this option is only available when configuring color cameras. When selected, the scanner will convert the color image data to grayscale before making it available to the host PC.

Image Processing settings

The other options on this dialog box allow you to define image processing values that can be applied to your scanner.
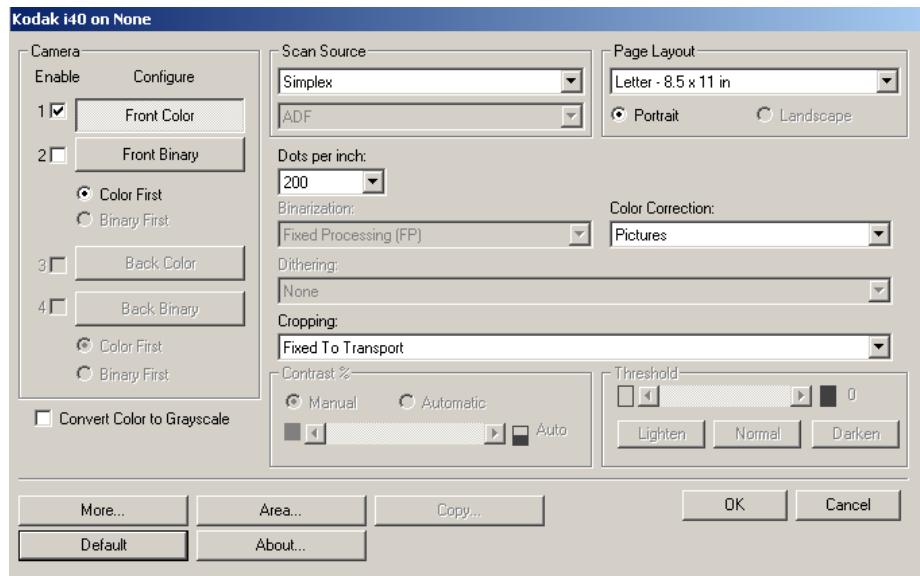
Scan Source — the host PC provides information to the scanner defining whether to scan one or both sides of the document. **Simplex** indicates that only one side (front side) of the document will be scanned. **Simplex – Back** indicates that only one side (back side) of the document will be scanned. **Duplex** indicates that both sides of the document will be scanned.

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: 75, 100, 150, 200, 240, 300, 400 and 600.

Cropping — allows you to capture a portion of the document being scanned. All cropping options can be used with color/grayscale and binary images. Front and Rear cropping are independent, however, for simultaneous output scanning, color/grayscale and binary 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. Use this option for batches of mixed-sized documents.

- **Aggressive:** selecting this option will eliminate 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 or zone 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 **Area** button to define your scan area. See the section entitled "Defining the Scan area" 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 binary format (a separate window for both binary and color/grayscale may be defined). Different parameters may be selected for both the front and rear of the image.

  This option may be used in conjunction with Automatic cropping where a separate color/grayscale or binary 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 binary).

  To define a zone, select **Area** to display the Scan Area dialog b box. See the section entitled, "Defining the Scan area" later in this chapter for more information.

Page size and layout 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: The Page Size and Page Layout selections also appear on the Scan Area dialog box. If you make a change on the Scanner Settings dialog box, the same selections will appear on the Scan Area dialog box 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.

Binarization — *the following descriptions are for binary images only.*

The following binarization options work on grayscale scanned images and outputs a bi-tonal 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.

Available binarization options are:

- **iThresholding:** selecting 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 may be adjusted.

- **Fixed Processing (FP):** used for black-and-white and other high contrast documents. A single level is set to determine the black-and-white transition. The threshold is programmable over the entire density range. Fixed thresholding sets the contrast to 0. If Fixed Processing is selected, Contrast is not available.

- **Adaptive Thresholding (ATP):** the Adaptive Threshold Processor 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 may be adjusted. Contrast values may range from 1 to 100. A Contrast value of 100 is considered fully adaptive thresholding.
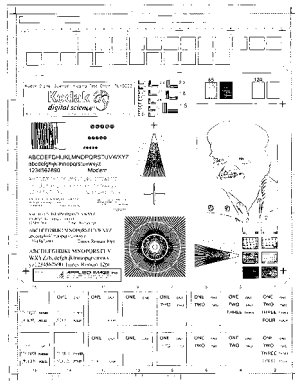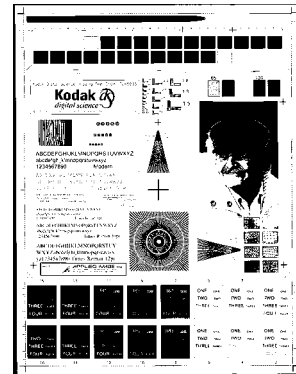
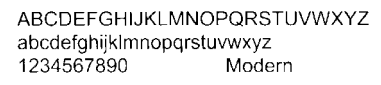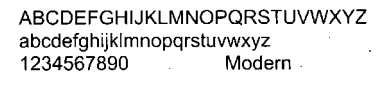**Fixed thresholding ATP disabled**   **ATP enabled**

Dithering — a method used to simulate gray levels. When selected, the Dithering options are available.

- **64-Level Bayer Dither, 64-Level 45 Degree Clustered Dot Screen** and **64-Level Dispersed Dot Screen**: these represent alternative screening options to emulate gray.

Contrast % — sets the image contrast by adjusting the difference between black-and-white, thereby making an image sharper or softer. Contrast is only available for binary images.

In a low contrast setting, the difference between black-and-white is small, so the image is softer. In a high contrast setting, the difference between black-and-white is large, so the image is clearer. Select a contrast value from 1 to 100. The default is 50.

| Contrast 1	ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 1234567890 Modern
Contrast 60	ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 1234567890 Modern
Contrast 100	ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 1234567890 Modern

Manual — is always selected for binary images. Adjust the Contrast setting by dragging the Contrast sliding bar to the left or right to achieve the desired Contrast setting. Scan the document to check the contrast.

Threshold — thresholding is used to convert a grayscale image into a binary (1 bit/pixel) image. The thresholding value ranges from 0 to 255. The default is 90. A low threshold value will produce a lighter image, and can be used to subdue backgrounds and subtle, unneeded information. A high threshold value will produce a darker image, and can be used to help pick up faint images.

Adjust the Threshold setting by dragging the Threshold sliding bar to the left or right to achieve the desired Threshold setting. Scan the document to check the threshold.
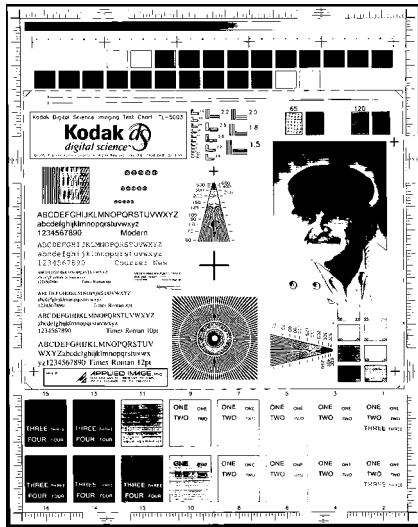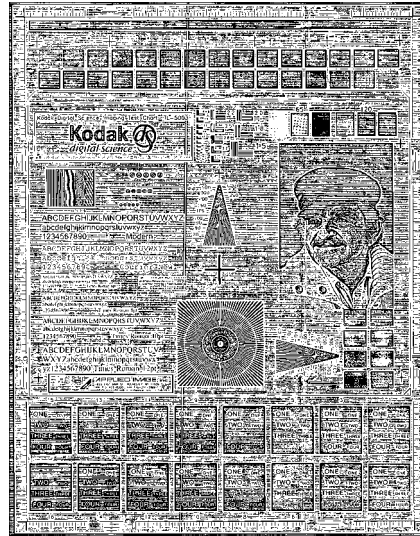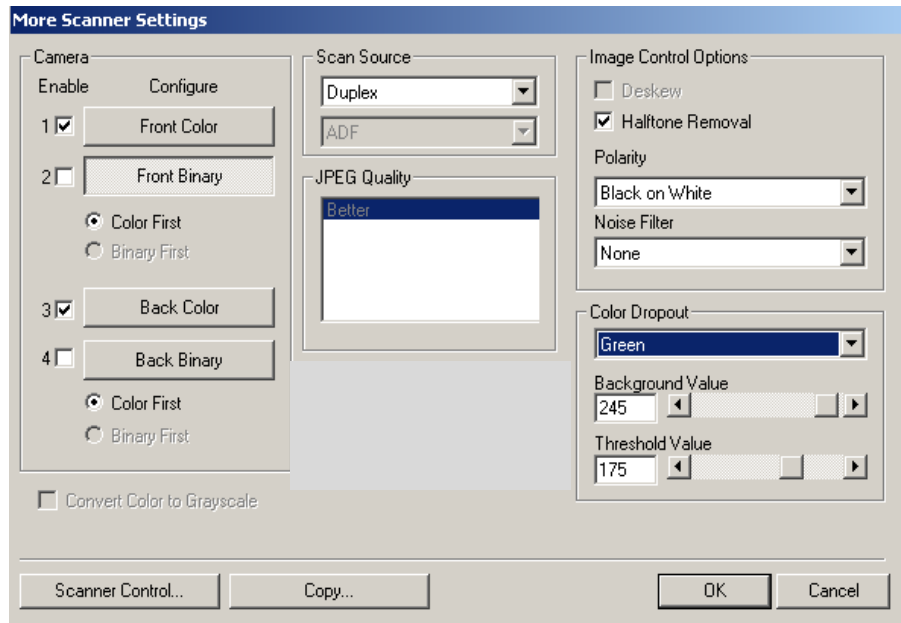

200 dpi; 80 Threshold; 20 Contrast **200 dpi; 80 Threshold; 100 Contrast**

Lighten, Normal and **Darken** are used as quick sets to adjust the threshold. Lighten = 72, Normal = 90 and Darken = 128.

More Scanner Settings dialog box

Additional image processing values unique to the i30/i40 Scanners are available when you choose the More button on the Scanner Settings dialog box.

Camera settings area

The selections in the Camera area list the available sides (front and back) of an image where you can define individual image processing values.

When starting the configuration process, use the steps below as a guide:

1. Check the images you wish to capture (Enable camera settings).

2. Select the order to transfer the images (Color First/Binary First).

3. Configure each image by highlighting it (Configure).

Enable camera settings — select the desired checkbox to enable the Front Color, Front Binary, Back Color or Back Binary settings as desired. This indicates the images you wish to capture and transfer to the host PC. (It is possible to capture only rear images.) You can enable your selection by putting a checkmark in the desired box.

Color First/Binary First — define the transfer order by selecting the **Color First** or **Binary First** radio button. This determines which image is transferred to the host PC first when using simultaneous output scanning. For example, if you are scanning front color and front binary and you select **Binary First** the scanner will return the front binary image, then the front color image.

Configure — highlight the image you want to setup. As you select the image, other options will become available on the More Scanner Settings dialog box. The availability of these options is dependent upon the selection you make.

Convert Color to Grayscale — this option is only available when configuring color cameras. When selected, the scanner will convert the color image data to grayscale before making it available to the host.

Scan Source — the host PC provides information to the scanner defining whether to scan one or both sides of the document. **Simplex** indicates that only one side (front side) of the document will be scanned. **Simplex – Back** indicates that only one side (rear side) of the document will be scanned. **Duplex** indicates that both sides of the document will be scanned.

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.

Image Control options   The following Image Control options are available:
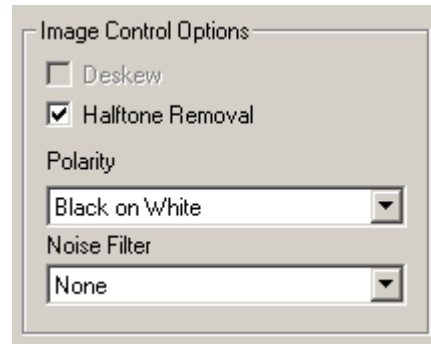
Deskew — check this option to automatically deskew a document within ±0.3 degrees of the leading edge of the document. Automatic deskew can detect up to a 45-degree skew and correct up to a 24-degree angle at 200 dpi or a 10-degree skew angle at 300 dpi. This option is not available when you have **Fixed to Transport** or **Relative to Document** cropping selected.

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

Halftone Removal — used to enhance images containing dot matrix text and/or images with shaded or colored backgrounds using halftone screens. This filter effectively eliminates noise caused by the halftone screen. This option is only applied to binary images.

Polarity — the host PC provides information to the scanner defining whether the image should be stored in standard or reverse polarity. The default polarity is Black on a White background. Reverse polarity is White on a Black background.

   **Black on White polarity**   **White on Black polarity**

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 binary images only and is Front/Rear independent. Choose **None**, **Lone Pixel** or **Majority Rule**.

- **Lone Pixel** reduces random noise on binary 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.
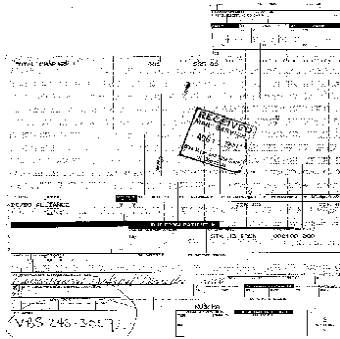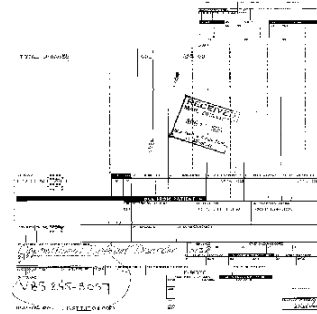

No Noise Filter Used   **Lone Pixel**

Color Dropout options

Electronic 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. You can select the desired dropout color, and alter the filter threshold and background.
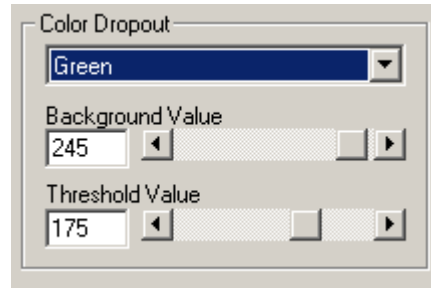
Electronic color dropout is available only for binary images.

Dropout Color — the i30/i40 Series Scanners can drop out red, green or blue. None is the default.

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 Scanner Settings dialog box 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 binary threshold value of 127, you should choose an electronic 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. Color with a Red/Green/Blue component more than the entered value is dropped. This setting determines how much of the selected color is dropped out. A lower value will leave more of the selected color in, while a higher value will drop more of the selected color out. The default value is 175.

Scanner Control dialog box

Selecting the Scanner Control button on the More Scanner Settings dialog box displays the Scanner Control dialog box.
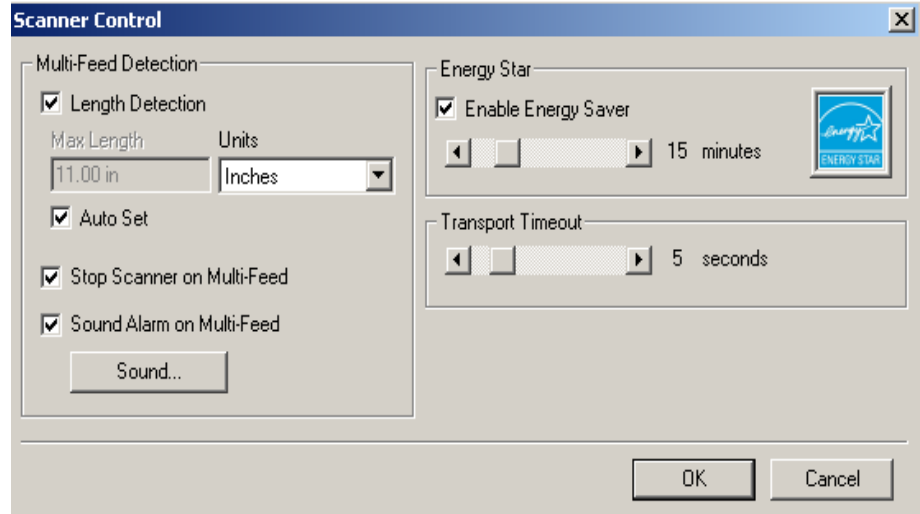
This dialog box allows you to set multi-feed detection, transport control, enable/disable lamp saver and set the programmable key functions. The settings in this dialog box do not effect the quality of the image. See the section entitled, "Setting scanner controls" later in this chapter.

OK — saves the values set on the dialog box.

Cancel — closes the dialog box without saving any changes.

Multi-Feed Detection options

Length Detection — this option can be enabled or disabled. The default is disabled. If Length Detection is enabled, enter the maximum length. This is the minimum length of the document that can be scanned with a multi-feed being detected. Length detection is used when scanning same-sized documents to check for overlap. For example, if you are scanning 8.5 x 11-inch (A4) documents in portrait mode, you may want to enter a value of 11.25 inches (28.57 cm) in the Maximum Length field. The maximum value is 14 inches (35.56 cm).

Units — defines the primary measurement system. **Pixels, Inches,** and **Centimeters** are available.

Auto Set — when enabled, will automatically set the maximum length value to .50-inch (1.27 cm) greater than the length of the currently selected page size.

Sound — select this option to choose the sound you would like your PC to make to alert you of a multifeed.

To choose a sound:

1. Click on the **Sound** button to display the Open dialog box.

2. Choose the desired .wav file.

3. Click **Open** on the dialog box and the sound will be saved.

Energy Saving features of the scanner

Energy Star allows you to set the amount of time the scanner will remain inactive before the scanner goes into an idle state (sleep mode). Choices are: 0 to 60 minutes.

Transport timeout

This feature allows you to set a transport timeout value. This value is 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. The default is 10 seconds.

Defining the Scan area

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

To access the Scan Area dialog box, select **Area** on the ISIS Scanner Settings window.
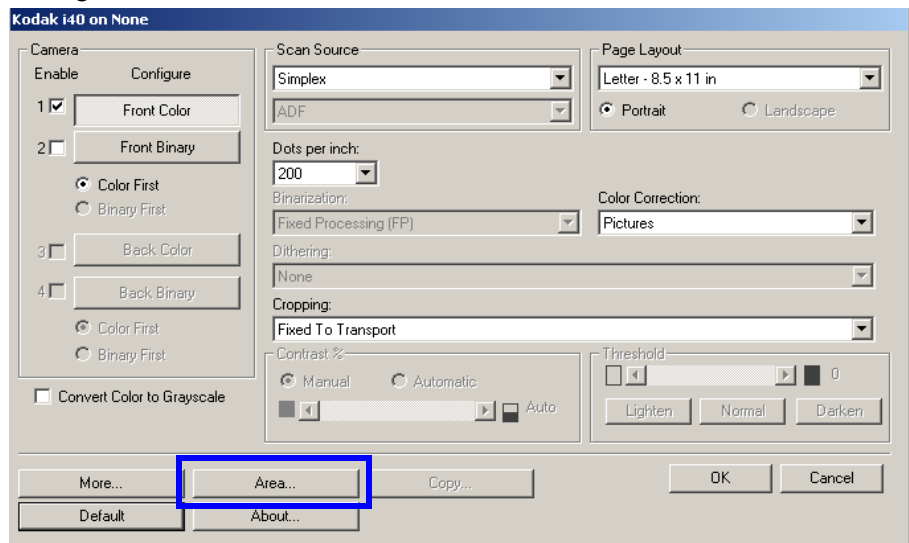

NOTE: Select the side and image to be defined by highlighting Front Color, Front Binary, Front Grayscale, Back Color, Back Binary or Back Grayscale as appropriate based on the cropping option selected for each of these in the Scanner Settings dialog box. The scan areas defined for all camera selections are independent.

Scan Area dialog box

The Scan Area dialog box allows you to define the amount of image data which is returned to the host. The area can be defined in **Pixels**, **Inches** or **Centimeters**.

The Scan Area dialog box is only available when **Fixed to Transport** or **Relative to Document** is selected on the Scanner Settings dialog box.
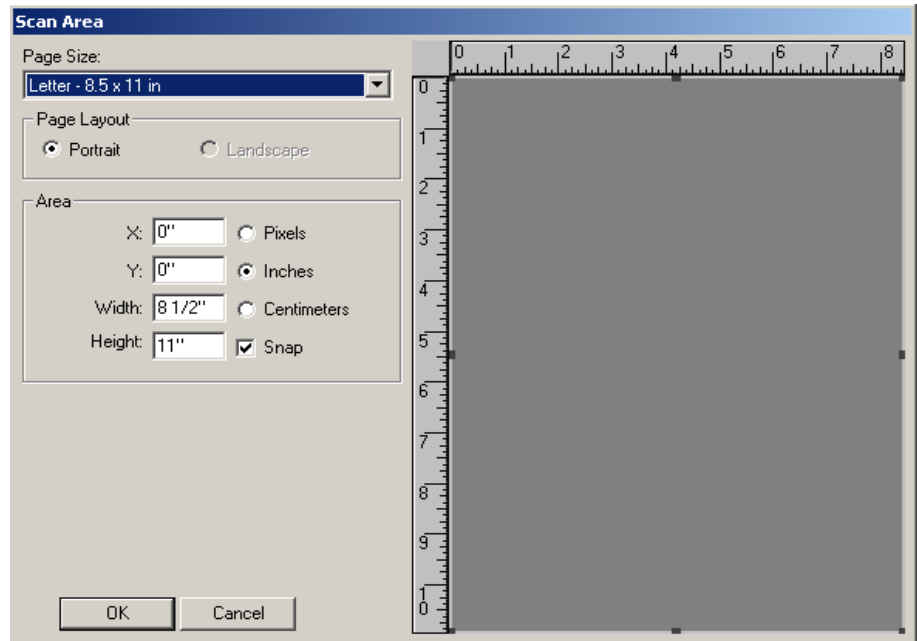
Page size and layout — the default paper size is set when a scanner is first selected. You can choose a different paper size using the drop-down list box.

NOTE: The Page Size and Page Layout selections also appear on the Scanner Settings dialog box. If you make a change on the Scan Area dialog box, the same selections will appear on the Scanner Settings dialog box 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:

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.

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.

5 Maintenance

Cleaning the scanner

Your scanner needs to be cleaned periodically. If your documents do not feed easily, if several documents feed at the same time or if streaks appear on your images, it is time to clean your scanner. The section entitled, "Supplies and consumables" at the end of this chapter provides a listing of the supplies required to clean your scanner.

IMPORTANT: *Use only non-flammable cleaners such as those provided through Kodak Parts Services. Do not use household cleaners.*

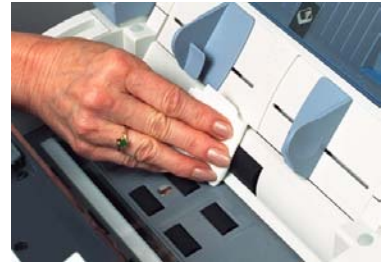*Do not use cleaners in confined areas, use with adequate ventilation.*

Do not use cleaners on hot surfaces. Allow surfaces to cool to ambient temperature before use.

• Open the scanner cover by pressing the release lever.

Cleaning the rollers

1. With a roller cleaning pad, wipe the feed roller from side to side. Rotate the feed rollers to clean the entire surface.

IMPORTANT: The roller cleaning pad contains sodium lauryl ether sulfate which can cause eye irritation. Refer to the MSDS for more information.

2. Dry the rollers with a lint-free cloth.

Cleaning the feed module

• Wipe the feed module from top to bottom with a roller cleaning pad.

Cleaning the calibration area

1. Remove dust and debris from this area by using a Staticide wipe or a small brush. Be careful not to scratch the glass when cleaning.

IMPORTANT: Staticide wipes contain isopropanol which can cause eye irritation and dry skin. Wash your hands with soap and water after performing maintenance procedures. Refer to the MSDS for more information.

2. Wipe the calibration area again with an almost-dry Staticide wipe to remove any streaks.

3. When finished, close the scanner cover.

Replacing the feed module

After scanning approximately 15,000 pages, the feed module may start to wear and you may encounter document feeding problems. Your experience may vary. Certain paper types (such as carbonless paper or newsprint), failure to clean regularly, and/or use of non-recommended cleaning solvents can shorten the feed module life.

For additional feed modules, see the next section "Supplies and consumables".

1. Open the scanner cover by pressing the release lever.

2. Squeeze the plastic clamps that hold the feed module in place and lift the feed module out of position.

3. Insert the new feed module into position aligning the new module into the slots.

4. Close the scanner cover.

Supplies and consumables

Contact your scanner supplier to order supplies.

Description	CAT No.
Kodak Feed Module / for i30/i40 Scanners	174 7849
Kodak Digital Science Roller Cleaning Pads	853 5981
Staticide Wipes for *Kodak* Scanners	896 5519

NOTE: Items and catalog numbers are subject to change.

6 Troubleshooting

Occasionally you may encounter a situation with your scanner where it may not function properly. Refer to the information in this chapter to help you resolve the situation before calling Technical Support.

Indicator lights and error codes

The indicator lights provide information on the current state of the scanner.

Flashing green: indicates the scanner is warming up from a power saving mode and preparing to scan.

Steady green: indicates the scanner is ready to scan.

Flashing red: indicates a scanner error, such as the scanner cover is open.

Following is a listing of the error codes that may be displayed in the function window. When an error is indicated, the indicator light will blink the same number of times as the number displayed in the function window. Therefore, if the scanner cover is open, the number "6" will be displayed in the function window and the indicator will flash red and blink six times.

0	USB cable is not connected.
1 - 5, 7 and 8	Call Service.
6	The scanner cover is open.
9	There is a document jam.

Clearing a document jam

If your scanner stops scanning due to a document jam, follow the procedures below:
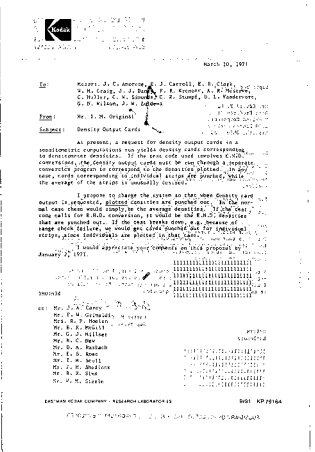
1. Open the scanner cover.

2. Remove any jammed documents from inside the scanner.
3. Close the cover.

Problem solving

Use the chart below as a guide to check possible solutions to problems you may encounter when using the *Kodak* i30/i40 Scanner.

| Problem	Possible Solution
Scanner will not scan; no LED display	Make sure that: • the power cord is plugged securely into the back of scanner and the wall outlet. • the power switch is on. • the wall outlet is not defective (call a licensed electrician). • the PC was restarted after installing the software.
Image quality is poor or has decreased	• Clean the scanner. See the procedures in Chapter 5, *Maintenance*.
Documents are jamming	Make sure that: • the input tray and side guides are adjusted for the width of the documents you are scanning. • the output tray is adjusted for the length of the documents you are scanning. • all documents meet the specifications for size, weight and type as outlined in the section entitled, "Document preparation". • the scanner is clean. • the feed module is installed properly and securely in place.
Distorted images	The feeder holds up to 50 documents in the input tray. While scanning is taking place, you cannot add documents to the feeder. If you do add documents, your images may be distorted.
No images are being displayed	• Documents should only be inserted in the feeder after the scanner is powered up and ready. If you place documents in the input tray before the scanner is powered up, the documents will be feed, but no images will be displayed. • Be sure that the text side of the documents are placed toward the feed tray (not facing you), if you are scanning front sides only or if you have a *Kodak* i30 Scanner. For more information, see the section entitled, "Scanning your documents" in Chapter 3.
Image has clipped corners 	If your images have clipped corners, the skew angle was too large for the scanner to handle. Be sure documents are placed in the input tray with the edges aligned and the side guides positioned correctly to accommodate the size documents you are feeding to avoid large skew angles.
First image in a batch appears "washed out" 	If the scanned documents in a batch have more than a 25 degree skew, the first image in the batch may appear washed out. Be sure that documents are placed in the input tray with the edges aligned and the side guides positioned correctly to accommodate the size documents you are feeding to avoid large skew angles.
Roller marks appear on the document after scanning	Clean the rollers. See the procedures in Chapter 5, *Maintenance*.

| Problem	Possible Solution
Images have black background bleed-through	When scanning translucent documents, black bleed-through may be displayed on the image. To minimize this, adjust the Contrast value or select Fixed Processing to improve the image. For more information on Contrast and Fixed Processing, see Chapter 4, *Image Processing*.

Scanner not working

If your scanner is not working, you may have to reinstall the drivers. To verify this:

1. Click on My Computer and select **Properties.**
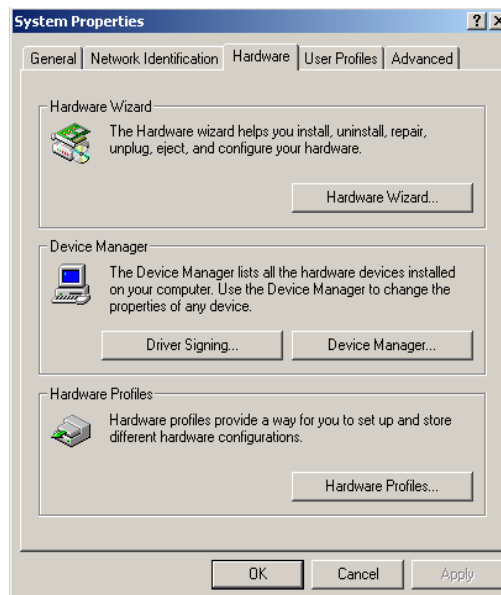
2. Click on the Hardware tab and select **Device Manager.**

3. From the Device Manager screen, select **Imaging devices**. If the *Kodak* i30/i40 Scanner appears, with a **?** before the name, you need to reinstall the driver software.
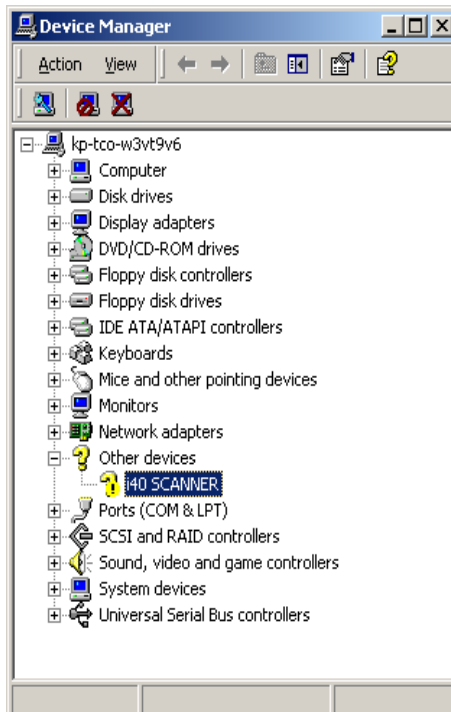
4. Double-click on the *Kodak* Scanner i40 (or i30). The Scanner Properties dialog box will be displayed. Select the Driver tab.
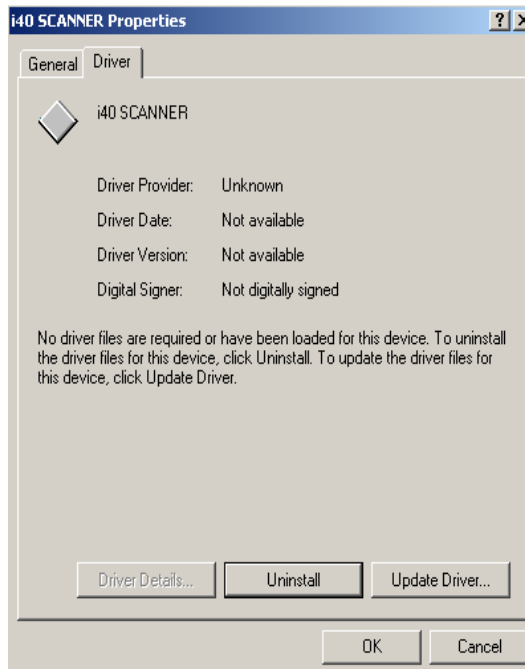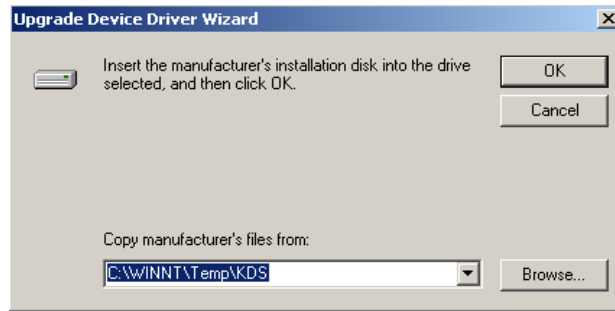

5. Click **Update Driver**. The Upgrade Device Driver Wizard will be displayed.
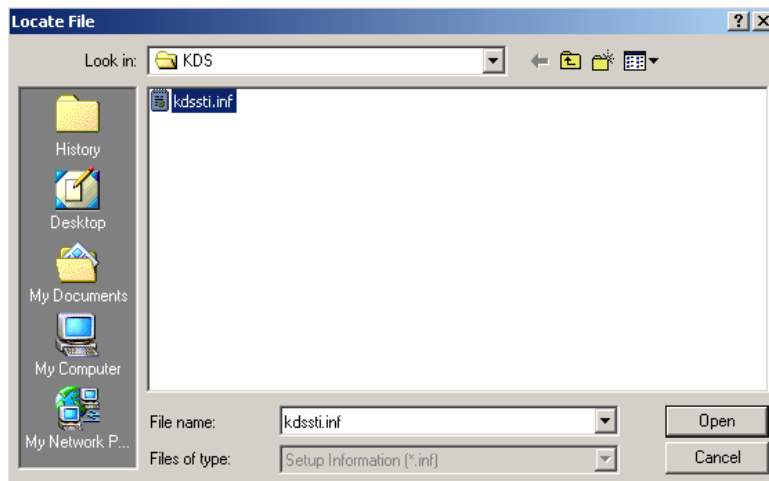
6. Click **Next**.

7. Click **Next**.

8. Insert the Installation CD in the CD-ROM drive and locate the kdssti.in file.

9. Click **Open** and proceed with the prompts to install the driver.

Appendix A Specifications

Scanner Type/Speed	• i30 Scanner: simplex color scanner with an automatic document feeder, 25 pages per minute (landscape) • i40 Scanner: duplex color scanner with an automatic document feeder, 25 pages per minute (landscape)
Scanning Technology	CCD type Grayscale output bit depth is: 16 Color capture bit depth is: 16 Color output bit depth is: 8
Output Resolutions	75, 100, 150, 200, 240, 300, 400 and 600 dpi
File Format Output	BMP, TIFF, JPEG, PDF (with bundled software)
Scan Area	Up to 8.5 x 14 in. (A4)
ADF Capacity	50 sheets
Recommended Daily Volume	1,000
Illumination	Fluorescent
Electrical requirements	100 - 240 V (international), 50/60 Hz
Scanner Dimensions	**Height**: 16.23 cm / 6.4 in. (not including input tray) **Width**: 33.72 cm / 13.3 in. (not including input and output trays) **Depth**: 16.78 cm / 6.6 in.
Scanner Weight	**i30**: 3.6 kg / 8 lbs. **i40**: 4.1 kg / 9 lbs.
Host Connection	USB 2.0
Operating Temperature	10°C to 35°C
Humidity	10 to 85%
Environmental Factors	Energy Star qualified scanners
Power Consumption	i30 Standby: <20 watts i30 Running: <30 watts i40 Standby: <25 watts i40 Running: <40 watts
Acoustic Noise (Sound Power level)	Operating: less than 58 dB Standby: less than 46 dB
Bundled software	*Kodak* Capture Software, Lite Readiris Pro 8 Corporate Edition Captiva QuickScan™ Pro for *Kodak* Scanners Kofax Capio (in United States only)