

**Guidelines for  
demonstrating  
iThresholding with  
*Kodak 3520 Scanner***

# Perfect Page *now with* iThresholding

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## Overview

More of the challenging documents that stopped work in the past – including those with highlights and low contrast – are now sailing through without the need for manual adjustments. Perfect Page scanning with iThresholding handles more of these tough imaging problems automatically. Often with the same, or better, readability than the original document.

Perfect Page with iThresholding captures images and optimizes them at full processing speed. Edges are sharper. Images are deskewed. OCR read rates are excellent. And, in many cases, file sizes are small, too.

**ATP (Adaptive Threshold Processing)** – 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).

Adaptive Thresholding works on grayscale scanned images and outputs a bi-tonal electronic image. Its 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. If mixing documents of different colors, paper qualities and textures and print quality, the Adaptive Thresholding features optimize each image automatically.

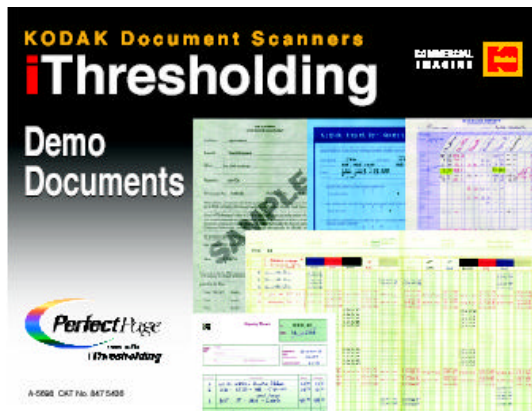
## What is iThresholding?

iThresholding is an enhancement of Kodak's Perfect Page Scanning. iThresholding reduces presorting, rescans and post-image processing by automatically adjusting for highlighting, low contrast and light-weight paper situations that previously required manual adjustments.

Perfect Page with iThresholding captures images and optimizes them at full processing speed. Edges are sharp, images are deskewed and borders removed without loss of information. Imaging problems that iThresholding can solve are: bad photocopies, multi-shaded documents, dot-matrix images, low contrast originals, and carbonless forms.

## Demo documents

The iThresholding Demo Document Kit includes 5 blue folders (A-5698). Each folder contains 6 demo documents.

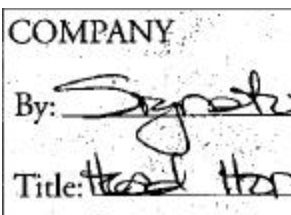
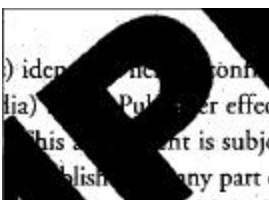


- ◆ Copyright document (white background)
- ◆ Copyright document (gray background)
- ◆ Questionnaire (blue background)
- ◆ Shipping Ticket
- ◆ Expense Report
- ◆ General Ledger

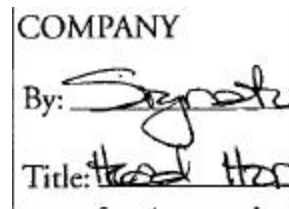
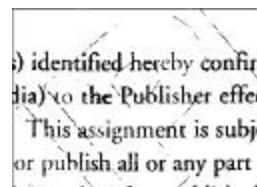
The following images were scanned from a *Kodak Scanner* with iThresholding at 200 dpi. Areas of the documents have been highlighted to illustrate the benefits of iThresholding.

### Copyright document (white background)

With Adaptive Threshold Processing (default)



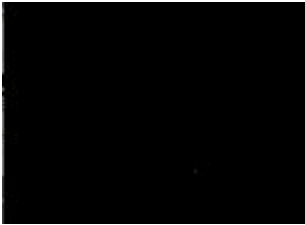
With iThresholding



NOTE: With ATP you can't read the text under "SAMPLE" and there is more noise and speckling in the document.

## Copyright document (gray background)

With Adaptive Threshold Processing (default)



THE COMPANY  
COPYRIGHT AGREEMENT

Publisher: Summerville

Editor: Robert Summers

Work: The 2000 Challenge

Author(s): John Doe

Manuscript No.: 1000-01 Publication No.: 2000-01

The Company is a publisher of the Publisher's material and is hereby notified of its copyright in the Work (including all forms and media) and its right to enforce it and where the Work is accepted for publication by the Publisher, it is agreed that the Publisher, for its own use and for the use of its business or to publish the material, or for publication by or for the Company or its designee or licensee, (1) may copy, reproduce, and use the Work for the Publisher's purpose in the Company's business as provided for in the license and copyright are indicated, and the Publisher's endorsement of a product or service is not a recommendation, and no copies are allowed for sale (2) create all proprietary rights in the Work, including any patents, subject matter contained in the Work, (3) control all distribution of the Work in any form or any right in the Work, and (4) agree to defend the Work from all third parties.

Date: 10/1/00

You warrant that the Work was prepared by you or under your supervision for the Company. It is original work and contains no material that is not your own copyright or other rights in any third party. This agreement shall be binding on the Company in publishing the Work.

Date: 10/1/00 Author: John Doe

Date: 10/1/00 Author: John Doe

Date: 10/1/00 Author: John Doe

Perfect/Top

With iThresholding

COMPANY

By: Signature

Title: Head of

**NOTE:** Image is black, unreadable.

## Questionnaire (blue background)

With Adaptive Threshold Processing (default)



Kodak Reseller Questionnaire

The questionnaire will only take a few minutes of your time and will be a great help to us as we try to improve the reader ship of our products.

First Name: John Last Name: Jones

Phone No.: 555-555-1234 Fax No.: 555-555-4321

E-mail: john.jones@cs.com

Country: USA

1) How satisfied are you with the service provided by Kodak with respect to ORDER PLACEMENT on the Kodak Reseller site?

Very Dissatisfied 1 2 3 4 5 6 7 Very Satisfied

2) How satisfied are you with the overall ease of accessing the Kodak Reseller site?

Not Very Easy 1 2 3 4 5 6 7 Very Easy

3) Overall, how satisfied are you with the ease of checking ORDER STATUS (including order tracking) on the Internet?

Not Very Easy 1 2 3 4 5 6 7 Very Easy

4) What would improve your general experience with doing business over the Kodak Reseller site?

Can't think of anything to improve it!

5) Would you be willing to participate in tests of future improvements to the site?

Yes No

6) Would you like to receive informational and promotional communications from Kodak Commercial Imaging in the future?

Yes (please select the type and frequency of Kodak Commercial Imaging products and services)

No (I'm not interested in further marketing/communications from Kodak Commercial Imaging)

If you answer no to this question we will remove you from the Kodak Commercial Imaging marketing communications subscriber list. This step takes up to 4 weeks to finish. It is a slight chance you may receive further information from us in that time period.

Perfect/Top

With iThresholding

tionnaire

time and will be o  
for you.

**NOTE:** Image is black, you are unable to read anything.

## Shipping Ticket (green)

### With Adaptive Threshold Processing (default)

Company	GAC EQUIPMENT CO
Street Address	500 UNIVERSITY A
City	ROCHESTER

499	95	499	95
TOTAL		600	75
2003			

**Shipping Ticket**

NO: 0372-32  
DATE: Feb 16 2003  
RECEIVED

SHIP TO: GAC EQUIPMENT CO  
500 UNIVERSITY A  
ROCHESTER

ORDER NO: A1526-3  
INVOICE NO: 52197  
SALESPERSON: ZJM

QUANTITY	DESCRIPTION	PRICE	AMOUNT
1	WLJ-41800-Printer Ribbons	63.00	63.00
2	LED-LS20-MB-Clip-on desk lamps	18.75	37.50
1	BRT-PT-580C-Labels	499.95	499.95
TOTAL			600.75

SPECIAL INSTRUCTIONS: Ship to customer at no charge.  
AUTHORIZED BY: Frank Smith DATE: Jan. 15, 2003

### With iThresholding

Company	GAC EQUIPMENT CO
Street Address	500 UNIVERSITY A
City	ROCHESTER

499	95	499	95
TOTAL		600	75
2003			

**NOTE:** Either image processing works well for this document.

## Expense Report

### With Adaptive Threshold Processing (default)

112	62	--	-
484	00	249	00
17	21	12	00
-	-		

SPENT FOR LEGITIMATE COM

Mike How

APPROVAL

**EXPENSE REPORT**  
DATE: 3/19/99  
BY: Mike Howard

DATE	DESCRIPTION	AMOUNT
3/19/99	New Jersey - Attended trade show with clients - C. H. Roberts, J. Stewart	590.74
3/20/99	Rochester - Client meetings at their site both days	18.74
3/21/99	Eagan MN - Presented new material to Stewart Enterprises - took them to dinner and lunch	93.31
3/22/99	Client dinner	251.71
3/23/99		153.00
3/24/99		65.91
3/25/99		45.00
3/26/99		11.00
3/27/99		1.00
3/28/99		37.26
3/29/99		236.01

APPROVED BY: Mike Howard DATE: 3/22/99

### With iThresholding

112	62	--	-
484	00	249	00
17	21	12	00
-	-		

SPENT FOR LEGITIMATE COM

Mike How


APPROVAL

**NOTE:** With ATP characters are broken and unreadable.

## General Ledger

With Adaptive  
Threshold Processing  
(default)

3			Handwritten
4			
5	B		Handwritten
6	OLA		Handwritten
7	07A R		Handwritten
8	08A		Handwritten

			
<b>RUBBER STAMP</b> <b>LEGIBILITY</b>			
3			Handwritten
4			
5	B		Handwritten
6	OLA		Handwritten
7	07A R		Handwritten
8	08A		Handwritten

With iThresholding

3			Handwritten
4			
5	B		Handwritten
6	OLA		HANDWRITTEN
7	07A R		Handwritten
8	08A		HANDWRITTEN

**NOTE:** With ATP characters are broken and unreadable.



## Set-up instructions for demonstration with 3520 Scanners

Use the instructions below to set-up iThresholding demonstrations with *Kodak Capture Software* for the *Kodak 3520 Scanner*. Demonstrations can be performed using an attached 3520 Scanner or in Capture Software emulation mode.

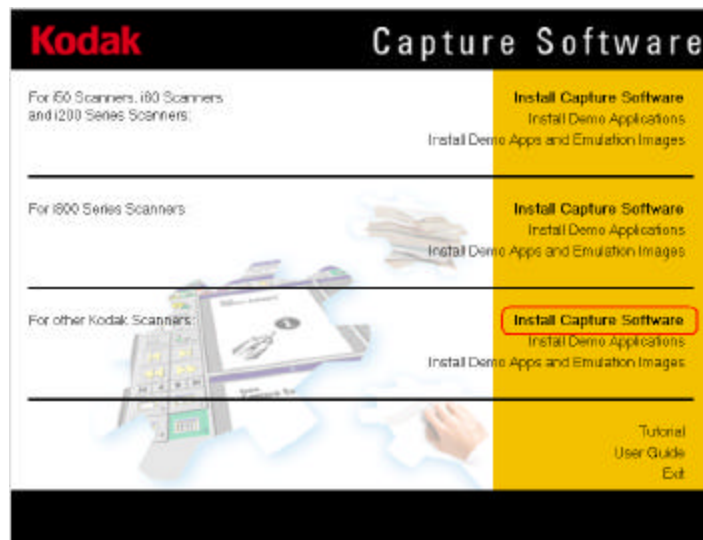
When demonstrating iThresholding with a 3520 Scanner, you need to have *Kodak Capture Software*, Version 6.0 or higher installed on your PC. Follow the instructions below to install this version.

### 1. Install Capture Software, Version 6.0 on your PC.

- ◆ If downloading from the Kodak website ([www.kodak.com/go/capturesoftware](http://www.kodak.com/go/capturesoftware)), select the link for Demo Software for 3000/4000 Series Scanners.



- ◆ If installing from a Capture Software CD, select the **Install Capture Software** option *For other Kodak Scanners*:



2. Run the **iThresholding\_Demo\_Apps\_for\_3520** executable (.exe file) located in the root directory on the iThresholding CD. In addition, this file can be downloaded from the Kodak website ([www.Kodak.com/go/CSDemoApps](http://www.Kodak.com/go/CSDemoApps)). This will install the iThresholding demo applications and emulation images in your current installation of *Kodak Capture Software for IL or DS Scanners*.

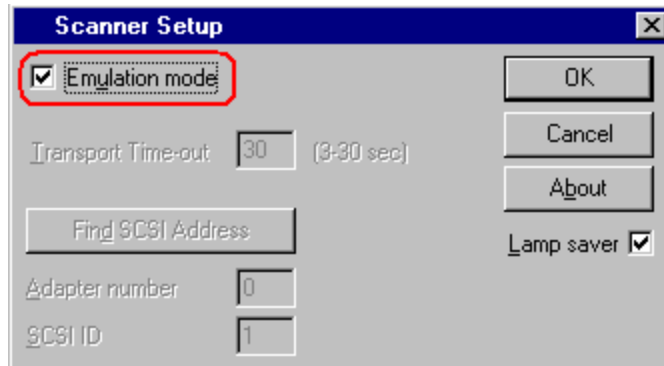
## Demonstrating iThresholding in emulation mode

Demonstrating iThresholding in emulation mode may only be done using *Kodak Capture Software for IL and DS Scanners*.

- ◆ Start Capture Software (in the *Kodak Capture Software for IL and DS Scanners* program group) and be sure Emulation mode is enabled.

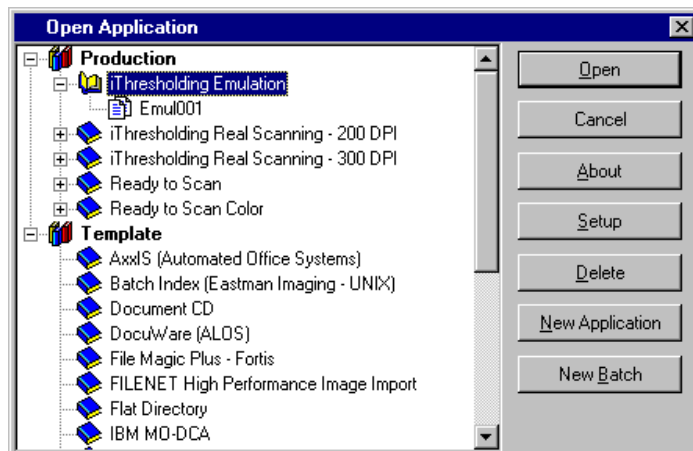
To enable Emulation mode:

1. Select **Setup** from the **Scanner** menu and check **Emulation mode**.



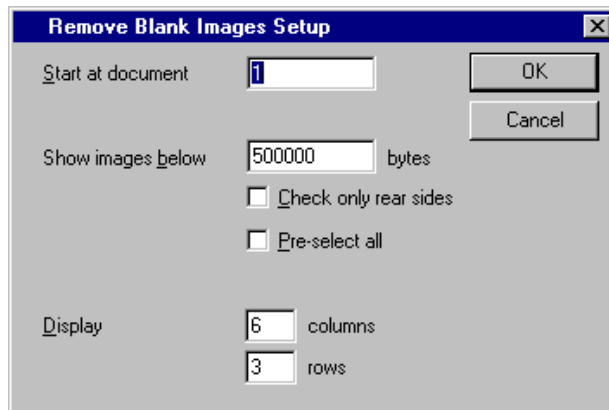
NOTE: If you enabled Emulation mode, you must restart Capture Software.

2. From the Open Application window, select the iThresholding Emulation demo applications and open the Emul001 batch.

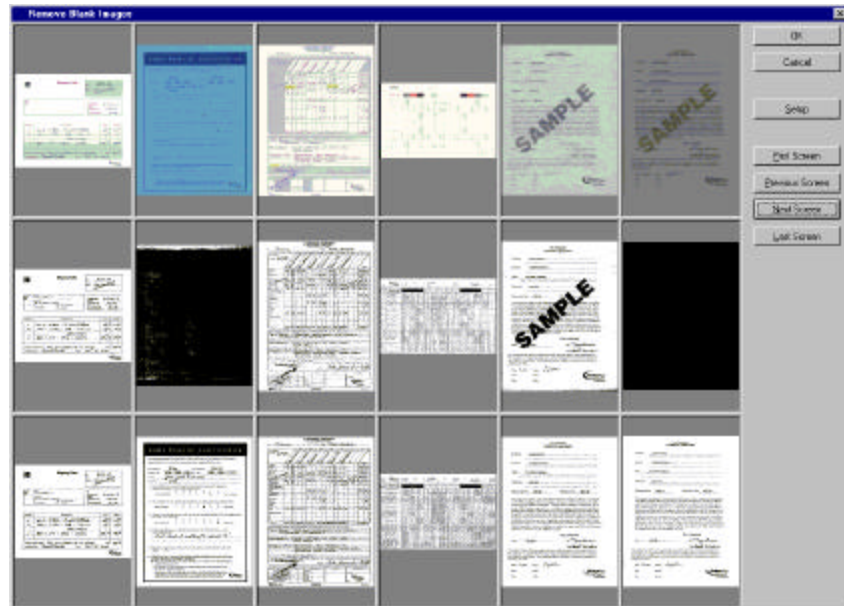




3. From the main Capture Software window, click the green Scan button. For the iThresholding Emulation demo application, there will be 18 emulation images displayed:
  - ◆ 6 color images
  - ◆ 6 bi-tonal images scanned with the default threshold and contrast settings
  - ◆ 6 bi-tonal images scanned with the new iThresholding settings
4. Select **Remove Blank Images** from the **Batch** menu. The following setup screen will be displayed:



5. Click **OK** to display all 18 images on the same screen.

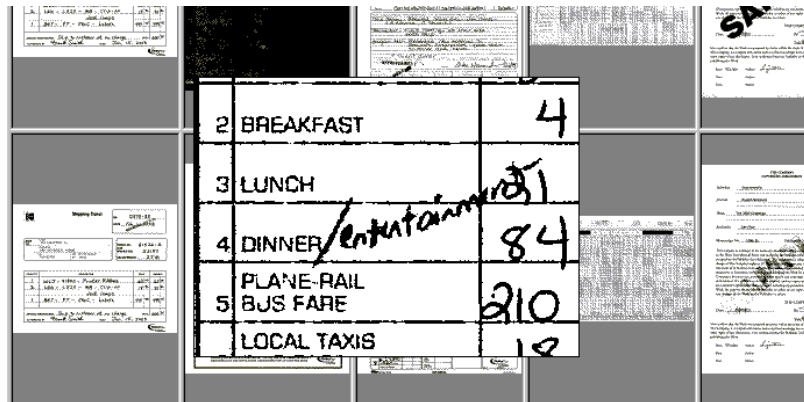


Notice the differences between the standard ATP scanned images and images scanned with iThresholding. The color images provide a reference to the original paper document.

To show some of the benefits of iThresholding up close:

- ◆ Click and hold the right mouse button on any image. The Capture Software magnifying glass becomes activated. While still holding down the right mouse button, move the mouse to view any portion of the magnified image.

**NOTE:** See the section entitled “Demo documents” for more information regarding highlighting the differences between documents scanned using the default Adaptive Threshold Processing and iThresholding settings.



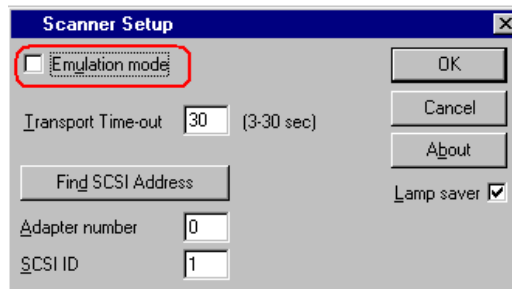
6. Using the magnifying glass, compare the same ATP image (2<sup>nd</sup> row) with the iThresholded image (3<sup>rd</sup> row).
7. When finished, click **Cancel** from the Remove Blank Images screen. The following message is displayed, ***Do you want to quit without removing the blank images?***
8. Click **Yes** to return to the main Capture Software screen.

## Demonstrating iThresholding with a 3520 Scanner attached

- ◆ Start Capture Software (in the *Kodak Capture Software for IL and DS Scanners* program group) and be sure Emulation mode is disabled.

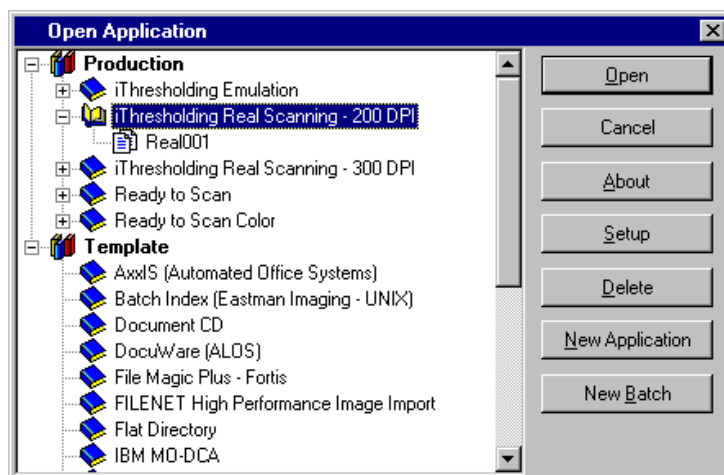
To disable Emulation mode:

1. Select **Setup** from the **Scanner** menu and uncheck **Emulation mode**.



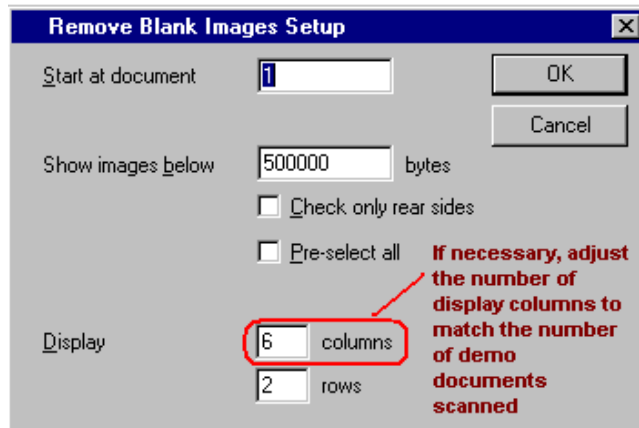
NOTE: After installing the *iThresholding\_Demo\_Apps\_for\_3520*, Capture Software will be in Emulation mode. If you disabled Emulation mode, you must restart Capture Software.

2. From the Open Application window, select one of the iThresholding Real Scanning demo applications and open the **Real001** batch.



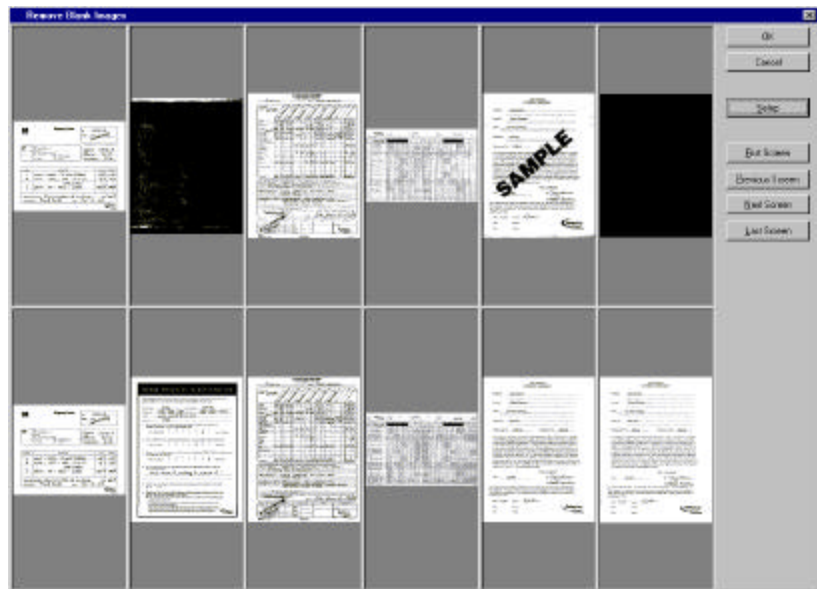
3. Using the **200 DPI – Deskew – Simplex** page setup, scan the iThresholding demo documents (6 pages) twice.
  - ◆ Use the default Threshold setting of 90 and scan the demo documents.
  - ◆ Click on iThresholding (Threshold setting will be 255) and scan the demo documents again.
  - ◆ When finished, reselect the Page Setup and set the Threshold value back to 90.

4. From the Batch menu, select **Remove Blank Images**. The Remove Blank Images screen is displayed:



NOTE: Make sure the number of Display columns matches the number of iThresholding demo documents that were scanned. By default, the number of Display columns will be 6 to match the total number of the demo documents. If you decide to scan a subset of the demo document set, then adjust the Display columns setting accordingly.

5. Click **OK** to display all of the scanned images on the same screen.

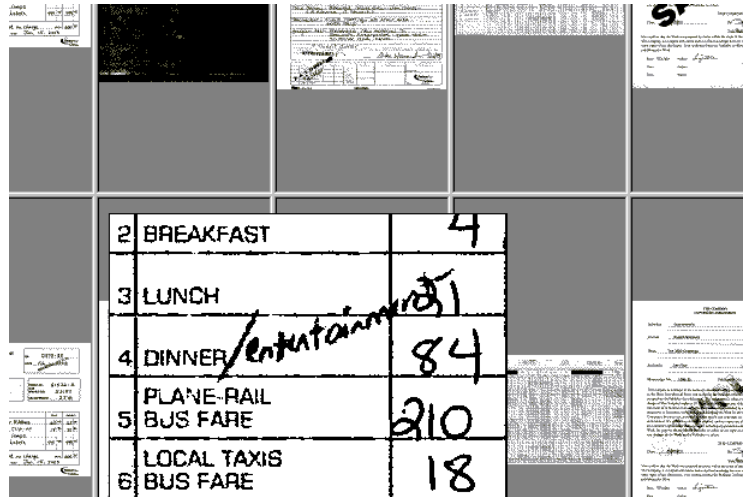


Notice the differences between standard ATP scanned images and images scanned with iThresholding.

To show some of the benefits of iThresholding up close:

- ◆ Click and hold the right mouse button on any image. The Capture Software magnifying glass becomes activated. While still holding down the right mouse button, move the mouse to view any portion of the magnified image.

NOTE: See the section entitled "Demo documents" for more information regarding the differences between Adaptive Threshold Processing and iThresholding.



6. Using the magnifying glass, compare the same ATP image (1st row) with the iThresholded image (2nd row).
7. When finished, click **Cancel** from the Remove Blank Images screen. The following message will be displayed, ***Do you want to quit without removing the blank images?***
8. Click **Yes** to return to the main Capture Software window.

## Comparison tables

The following tables compare 200 dpi (Table A) and 300 dpi (Table B) scanned image files sizes for the 6 demo documents using iThresholding at different contrast settings.

The variables that affect scanning are:

- ◆ Different results are possible from scan to scan and from scanner to scanner.
- ◆ The age of the lamps in the scanner.
- ◆ Lamp warm-up time.
- ◆ Frequency of calibration.
- ◆ Condition of the documents being scanned.
- ◆ Content in documents being scanned.

**Table A – 200 dpi**

Demo Documents	Kodak 3520D iThresholding (Threshold: 255) Contrast: 50	Kodak 3520D Default ATP Threshold: 90 Contrast: 50	Fujitsu 4097/VRS	Fujitsu 4099/VRS	Fujitsu 4860C/VRS	Bowe B&H 8125D Spectrum/VRS
Copyright White	37K	95K	178K	151K	35K	94K
Copyright Gray	34K	2K	51K	36K	27K	31K
Questionnaire	34K	15K	28K	29K	31K	31K
Shipping Ticket	20K	15K	42K	15K	14K	47K
Expense Report	57K	49K	64K	120K	54K	59K
Ledger	161K	121K	165K	159K	133K	170K

**Table B – 300 dpi**

Demo Documents	Kodak 3520D iThresholding (Threshold: 255) Contrast: 50	Kodak 3520D Default ATP Threshold: 90 Contrast: 50	Fujitsu 4097/VRS	Fujitsu 4099/VRS	Fujitsu 4860C/VRS	Bowe B&H 8125D Spectrum/VRS
Copyright White	56K	312K	383K	551K	68K	289K
Copyright Gray	50K	2K	92K	97K	43K	93K
Questionnaire	49K	37K	44K	50K	48K	54K
Shipping Ticket	38K	44K	108K	137K	23K	133K
Expense Report	105K	128K	119K	284K	105K	122K
Ledger	296K	247K	282K	295K	270K	275K



## Frequently asked questions

### What is iThresholding?

With the new iThresholding feature, both bi-tonal brightness and contrast are automatically adjusted for each individual document in any scan order. iThresholding analyzes the entire gray scale image to optimize the conversion to bi-tonal. iThresholding renders high quality images from a large range of low- to high-contrast documents using minimal or no user intervention.

#### ***iThresholding benefits:***

- ◆ Reduces pre-sorting, rescans, and post-image processing.
- ◆ Delivers cleaner, sharper image at full speed.
- ◆ Auto deskew and auto cropping combine with iThresholding to maximize throughput.

### What kind of improvement can I expect with iThresholding features?

Using the iThresholding feature will result in an overall improvement in productivity, since you can scan a wider range of documents without intervention, often with a smaller file size.

### Are there times when iThresholding should not be used?

Using iThresholding is not recommended when scanning documents containing photographs. For these applications, you may wish to use dithering or error diffusion.

### Does iThresholding work for color images?

iThresholding is designed to work with bi-tonal images only.

### Do I need to update my current version of **Kodak Capture Software** or my application software to get the benefit of these new features?

**Capture Software:** Version 6.0 (and higher) is designed to support the iThresholding features of the 3520 Scanner. If you have a software service agreement (or are under warranty) you are eligible to receive the upgrade to Capture Software 6.0 as a benefit of your service agreement. You must call Kodak Service to receive the upgrade.

**Other Application Software:** New ISIS and TWAIN drivers have iThresholding as a binarization option (in the binarization drop-down menu). If your application works directly with the ISIS or TWAIN GUI (graphical user interface), then you can use iThresholding. However, if you have created your own custom interface under programmatic control, you will have to update your application to access the new feature.

## Miscellaneous

### Supporting documentation

**A-5563** – Scanner 3500/3520 Sell Sheet

**A-5697** – Brochure – “Introducing iThresholding, new feature of Perfect Page scanning”

**A-5698** – iThresholding Demo Documents

See the Kodak website ([www.kodak.com/go/PerfectPage](http://www.kodak.com/go/PerfectPage)) for additional information on iThresholding.

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