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# DpuScan 4.0

**Special Scanner Options for  
Scamax 2600 and 5000**

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## Actuality

A more recent version of the scanner options for DpuScan may be available for download from the Internet. Therefore, it is recommended that you compare the version by means of the date printed on this page with the version on the Internet. You should use the most up-to-date version.

The actual version of this addition to the DpuScan Reference Manual is found on the web at:

[www.jkimaging.com/pdf/scanner\\_options/Options-Scamax2600.pdf](http://www.jkimaging.com/pdf/scanner_options/Options-Scamax2600.pdf)

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# 1 Description of the Scanner Options

## 1.1 Introduction

This documentation is valid for the following scanners of the company InoTec:

- Scamax 2600 / Scamax 2500
- Scamax 5000

You must use the following driver: **jukscsi**

The scanner is connected using a standard SCSI interface board, and an ASPI driver must be installed.

This program module was developed to enable the user to set the special options of the Admis S31 scanner. The jukscsi driver from Janich & Klass forwards these settings to the scanner.

The special scanner settings are offered with the user interface, spread over several pages.

## 2 Device Properties

The first page gives setting possibilities for double feed detection, length control, manual feeding mode, and fill color options.

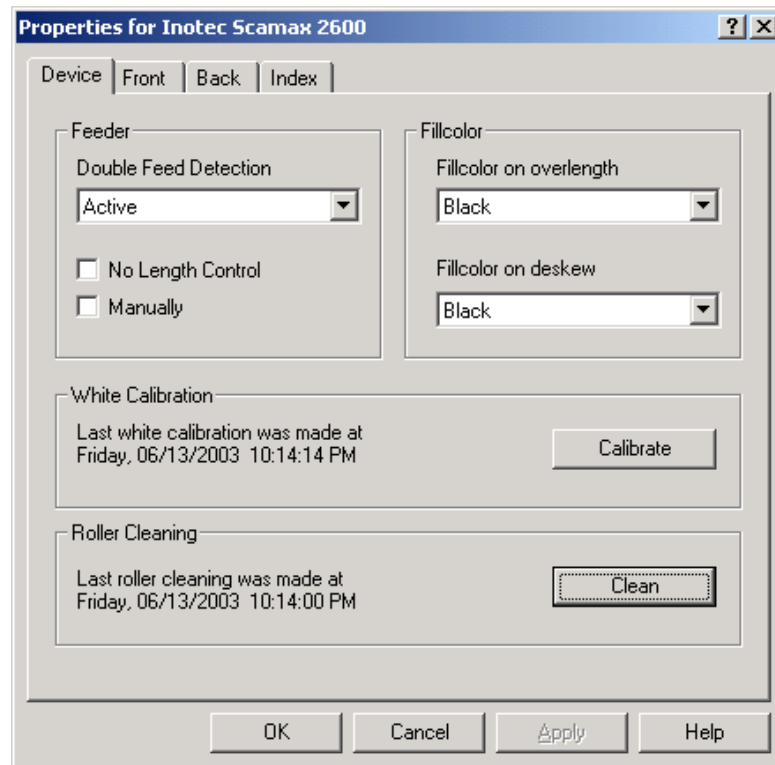


Illustration 1 – Inotec Properties Tab: Device

### Double Feed Detection

Standard Scamax Series document scanners are equipped with an ultrasonic double feed sensor. The sensor is active during the entire scanning process (over the complete length of the document) and gives an error report in the case of a double feed.

The following modes are available for double feed detection:

#### **Active**

Double feed detection is enabled.

#### **Inactive**

Double feed detection is disabled.

#### **Only Start of Document (5cm)**

The ultrasound sensor is active only for the first two inches of each original. Labels, Post-It™ Notes, or other stickers that are not placed on top of the sheet, but at least two inches lower the top, will not cause a double feed error message to appear.



***After Start of Document (5cm)***

The ultrasound sensor becomes active only after the first two inches of each original. In batches with different document types and very thin originals, a second sheet may feed too deeply into the scanner, causing the sensor to report an error even though only one sheet was fed and scanned.

In this mode, the above-mentioned event is unlikely to occur.

***Reduced***

The sensor will react only after a certain length of a detected double feed. These lengths depend on the set paper size. Smaller stickers and labels do not automatically lead to a double feed error message.

**No Length Control**

Normally, the scanner will use the length of the set paper size (paper format) in order to determine when a sheet reaches its end. If the camera still captures paper after the defined paper length, it may be caused by a document that is too long (larger than the set paper format), a staggered double feed, or an extreme skew of the document. In such a case, the device will report an error.

On the other hand, if the paper is shorter than the expected format, the device will continue to scan until enough image lines come together to result in an image of the desired format length. The additional images lines are usually displayed in black. It is not filled up mathematically, so that the Fill Color function has **no** influence here. Only when the image is complete will the next document feed through the scanner. Thus, scanning a smaller original document will take the same amount of time that it takes to scan an original with the defined paper format. The Deskew and Cropping functions can be enabled.

If the length control is disabled (its box is checked), the device will scan in the defined paper format length at a maximum, without regard as to whether the original is longer. Documents over this defined length will be cut to match the defined format length (eventually creating an information loss) and the double feed detection by paper length control will not be active. If, however, the paper is shorter than the defined format length, the scanner will fill up the rest of the image mathematically to meet the defined format length using the function **Fillcolor on overlength**. When the paper is shorter than expected, there will be a gain in speed, because the next original is immediately fed and scanned after the smaller original document.

**Manually*****Delayed feeder-empty-message for hand feeding***

A sensor is located at the paper feeder of the scanner that reports "no paper" or "paper available" to the scan application. If a paper batch is scanned and the last sheet is fed, the sensor reports "no paper" to the software. The feeder rollers will then stand still and are reactivated only when new paper is fed and a new scan command is given by the scan application.

If originals cannot be processed from the batch, it is possible to switch the scanner to manual feed by means of the **Manually** function. Then, the scanner will no longer report "no paper" to the scan application until there is a timeout of eight seconds. During this time, the feeder rollers continue rolling, allowing fast and efficient scanning with the manual feeder.

Please make sure the single sheet processor is switched on at the scanner.

Another possibility to effectively work with the manual feeder is the "Ignore paper status" function on the Options property tab.

### Fillcolor on Underlength

This parameter determines the fill color with which the missing length of an image that is shorter than the defined paper length. This function can be executed only if "No Length Control" is enabled and if the borders of the image are not cut. (Function: Border Cropping).

With a duplex scanner, this fill color is valid for the front side of a document and the back side.

### Fillcolor on Deskew

This parameter determines the fill color for missing parts of an image due to a document skew and automatic alignment.

With a duplex scanner, this fill color is valid for the front side of a document and the back side.

### Roller Cleaning

The transport rolls of the machine should always be cleaned when the scanner no longer feeds the paper from the batch.

To clean the rollers, take a fluff-free cloth or piece of paper and use the recommended cleaning liquid. After starting the process, press the cloth to the underside of the feed rollers.

After pressing the **Roller Cleaning** button, a dialog appears that allows the user to start and stop the process.

### White Calibration

White calibration is required to compensate for differences in brightness that arise in the optical transmission system. The calibration is made at the factory site, but it is also recommended in situations when:

- a new lamp has been mounted in the scanner, or
- there are "stripes" and differences in brightness that are not caused by normal pollution of the machine during the production process. Please make sure to clean the scanner before starting any calibration.

The calibration is best made with the special white calibration sheets that were shipped together with the machine. Put the calibration sheet into the feeder and press the **calibration** button.

Another dialog appears to start the process.

**The process cannot be interrupted, and takes about ninety seconds to complete.**

When the calibration is completed, a corresponding message dialog appears. Please restart the scanner after every white calibration.



### 3 Image Processing Options

To optimize image quality you can set different image processing parameters. They are offered on the next two pages, separately for Front and Back camera.

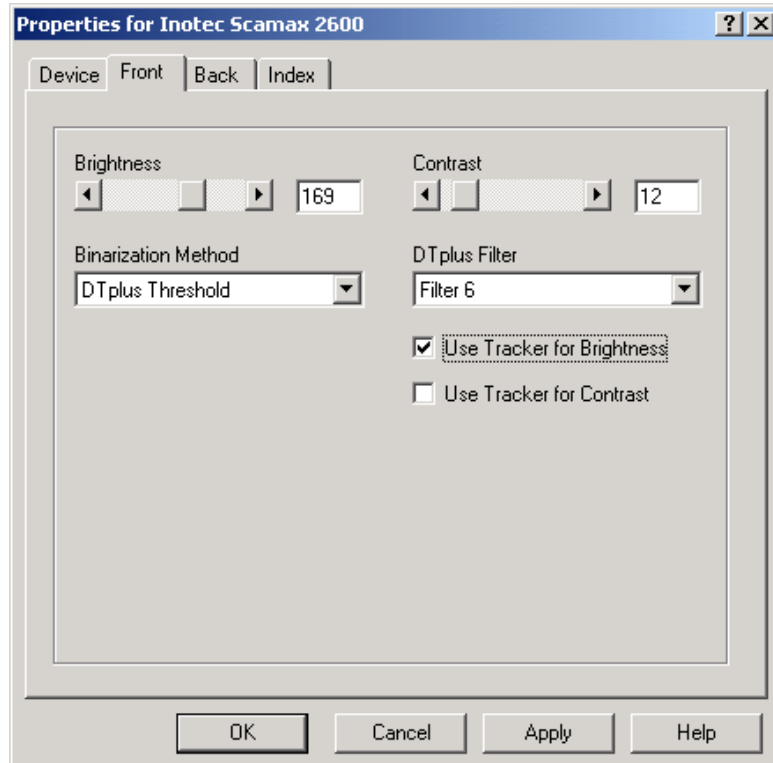


Illustration 2 – Inotec Options: Front Page

#### Binarization Method

The binarization method defines how the 256 possible grayscale values that come from the camera will be transformed into bitonal information (black and/or white pixels).

##### **Fixed Threshold**

One of the 256 grayscale values is defined as the fixed threshold for the brightness. All levels above will be represented as "white", and all others will be represented as "black". This simple method is suited for "normal" documents without special colors, stains, or bad print.

Recommended Value: Brightness = 165

##### **Automatic Threshold (one-dimensional)**

The changes in gray levels in one line of the image are used to decide what is black and what is white.

When deciding black or white, the scanner considers the previously read values of an image line. Depending on the contrast settings, deviation levels in the grayscale values are considered for the black/white decision dynamically.

Recommended Value: Brightness = 165; Contrast = 4

***DTplus Threshold (two-dimensional)***

If the scanner has the DTplus board (optional), several image lines can be considered for the black/white decision. As with the Automatic Threshold, not only the value itself, but also deviations in its surroundings are considered.

The setting for brightness serves as the threshold for areas, and the setting for Contrast as the sensitivity level for graylevel differences.

Recommended Values: Brightness = 165; Contrast = 12

**Contrast**

The contrast value defines the sensitivity for graylevel changes at neighboring pixels that will lead to an interpretation of black or white. The lower the contrast, the higher the sensitivity level of the scanner for graylevel changes.

For the automatic threshold, the Contrast can be set in 8 levels of sensitivity

Recommended Value = 4

If the device features a DTplus board, the two-dimensional DTplus threshold can also be used. Here, 127 theoretical sensitivity levels are available, but sensible settings are in the range between 5 and 25

Recommended Value = 12

**Brightness**

The brightness can be freely selected between values of 0 to 255. This represents the 256 graylevels that the camera can capture. Sensible settings lie, as per the threshold method, between the values of 120 and 180.

With the binarization method "Fixed Threshold", the brightness assumes a graylevel value between 0 and 255 as the limit from where the scan result for a pixel will be white or black.

Recommended Value = 165.

With the "Automatic Threshold", the brightness only serves as a threshold for the start value (white or black) of every scan line.

Recommended Value = 165

With the binarization method "DTplus Threshold", the setting for brightness controls represents which gray value will be represented as black or as white.

Recommended Value = 165

**DTplus Filter**

With the DTplus option, filters are available to reduce unwanted pixel "noise". The filter deletes black and white pixels (despeck function) immediately after scanning, and even before the image is saved. The table below lists the 60 possible values for the filter. With the value of 0, pixels will not be filtered out at all. With the value of 1, black specks of 1x1 pixel are deleted. With the value of 16, black specks of 4x2 pixels size are deleted, and all white specks of 1x1 pixel size (within black areas) are filled with black.

For improved barcode reading, and for results at scan resolutions of any level other than 200 dpi, we recommend that the user selects their settings using notchfilter (values 30 to 59).

Delete Color/Size	Without Notchfilter			With Notchfilter		
	W /	W / 1x1	W / 2x2	W /	W / 1x1	W / 2x2
B / no	0	10	20	30	40	50
B / 1x1	1	11	21	31	41	51
B / 2x2	2	12	22	32	42	52
B / 3x3	3	13	23	33	43	53
B / 4x4	4	14	24	34	44	54
B / 4x1	5	15	25	35	45	55
B / 4x2	6	16	26	36	46	56
B / 1x4	7	17	27	37	47	57
B / 2x4	8	18	28	38	48	58
B / 3x2	9	19	29	39	49	59

B = Black; W = White

### Tracker for Brightness

This tracker can be enabled only if the scanner is equipped with a DTplus board.

The DTplus board also works with a background tracker. It calculates the gray value of the background, using several scan lines.

When enabling the "Use Tracker for Brightness" function, the brightness is adjusted to the gray value of the background, as evaluated by the background tracker, and is reregulated continuously during several scan lines. This dynamic adjustment of brightness should be added for mixed documents if their backgrounds have distinctly different colors (white, green, rose, gray, blue, etc.).

### Tracker for Contrast

This tracker can be enabled only if the scanner is equipped with a DTplus board.

The DTplus board also works with a background tracker. It calculates the gray value of the background, using several scan lines.

When enabling the "Use Tracker for Contrast" function, the contrast value is dynamically reregulated with more sensitivity. The darker the gray value of the background has been calculated by the background tracker, the lower the value. Because black text on a dark background results in a lower gray value difference, the scanner will react more sensitively in this case. As with the "Use Tracker for Brightness" function, this function is advised for mixed document batches with distinctly different background colors.

## 4 Image Index

If the device is equipped with the corresponding option, a header is created for each image. This header may be used for indexing.

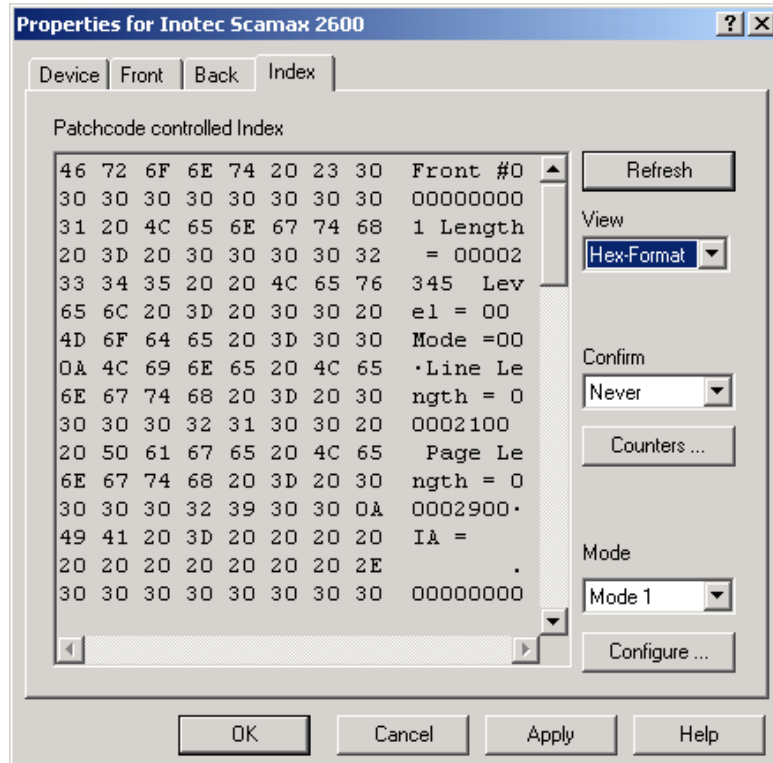


Illustration 3 – Inotec Options: Index

### Refresh

Click the **Refresh** button to get and display the latest Image Header from the scanner.

### View

There are several display possibilities for the data contained within the Image Header:

- Line break**                      Displays the header "as is", including the integrated line breaks.
- Word break**                      Breaks after every coherent sequence of numbers.
- Hex Format**                      Displays the header, byte for byte, in hex format and as printable characters.
- Variables**                      Displays the individual parts of the header as variables.

**Changing the view format has no effect on the contents of the Image Header.**

## Mode

The mode is a combination of all settings made for Patchcode recognition, for counter behavior, for endorser output, and for the rules to control the counters. This option allows the user to select from one of the 16 operating modes.

To load, to change, and to save a mode, the user has to use the module **Patchcode Controlled Index**, which you can reach by pressing the **Configuration** button.

## Confirm

The driver permanently stores the counter positions. This way, they can be used continuously, as well as after longer breaks. Use the following dialog to confirm the current counter position, which you can reach by clicking the **Counters** button. The dropdown list allows you to determine when this dialog shall display automatically:

- Never
- On every scan job start
- Only after an error occurs

The screenshot shows a dialog box titled "Current Counters (Mode 1)". It has a standard Windows-style title bar with a question mark icon and a close button. The dialog is divided into three main sections. The first section, "Counters", contains four input fields labeled D, C, B, and A, each with "4 digits" written below it. The values entered are 1, 20, 7, and 61. The second section, "Document Level and Flags", contains two checkboxes: "Set momentary Flag" (checked) and "Set latched Flag" (unchecked). To the right of these is a "Document Level" dropdown menu currently set to "Level 1". The third section, "Sequential ID", contains a text box with the value "1200761". An "OK" button is located at the bottom right of the dialog.

Illustration 4 – Current Counters

## The Index Counters

Up to four counters can be used, depending on the kind of documents to be scanned:

- Counter A "Sheet counter"
- Counter B "Chapter counter"
- Counter C "Volume counter"
- Counter D "Film Roll number"

If the counters are correspondingly set and enabled in the module **Patchcode-Controlled Index**, they will be set and incremented as per the defined rules. So, for example, a document with the Patchcode "Patch I" can indicate a new chapter. The chapter counter value increases incrementally by one and the sheet counter is reset to zero.

### **The Index Flags**

There are two flags that can be set for a sheet:

The latched flag remains set until it is reset, manually or via a defined Rule.

It can, for example, indicate that certain sheets are addenda to a certain form.

The momentary flag is valid only for the next sheet; it is then automatically reset.

You can use it, for example, to mark only the first document ("main document") of a new batch.

### **Document Level**

The module uses the document level for Patchcode-Controlled Index, for example, to control document separation.

### **Sequential ID**

The scanner assigns a sequential number to the scanned sheets. This number usually cannot be modified by a rule from the Patchcode-Controlled Index.

Exception: The sheet is "voided" or "not counted".



## 5 Expanded Endorser Control for Scamax 2600

### 5.1 What it is and How it Works

The Patchcode Controlled Index by Janich & Klass is intended as a method to **control the scanning** process, to **generate a data structure** specific for each image, and simultaneously **endorse the paper**.

***The Patchcode Controlled Index requires an Agfa Admis S31 with SCSI firmware version 0.131 or higher. For printing on scanned documents the endorser must be built-in.***

It is normally very difficult for a scan application to find out what a built-in endorser has printed on the page, especially when the scanner works with a buffer. It is, for example, fairly impossible to change the printout for page 11 depending on the information on page 10 that just comes right out of the buffer, because by the time this has happened, the scanner is already at page 15 or 16.

A solution for this is to make the decision just before the new scan (and print) command is sent to the machine. That works with a Janich & Klass SCSI scanner interface, which is mounted in several scanner models.

The interface itself utilizes five counters that are incremented by user-defined values on every image. Therefore, it is easy to change the endorsement every 100 images, for example.

Patchcodes are fast, reliable, and easy to identify, so it is ideal when they are printed on separator sheets. The interface can recognize it fast enough to control the further process (e.g. to change the printout for the endorser, to set/reset some counters, to drop/skip the page, or simply to stop the scanner), on the condition that the code is printed at the top of the page.

The SCSI Interface sends the image to the host where it is handled by the application. When Patchcode Controlled Index is utilized, an additional data structure, called a "Header", is sent along with each image.

This header contains everything the interface board "knows" at this moment - the counters, date and time, and the recognized Patchcode.

A scan application such as DpuScan can read this header and use its information to generate directory and file structures. In summary, it is possible, for example, to name all files with exactly the same text that is printed by the endorser.

To be able to print at all, the endorser must be enabled first:

**[Class Configuration](#) | [Data Source](#) | [Scanner](#) | [Options](#)**

At the bottom of the **Options** page, you will find the box labeled **Text**. You must enter the code %%

Because the Patchcode Controlled Index depends on the hardware, the setup dialog for the Index is found within the scanner's setup dialog. For example, the Index setup for the Scamax 2600 is found on the last tab.

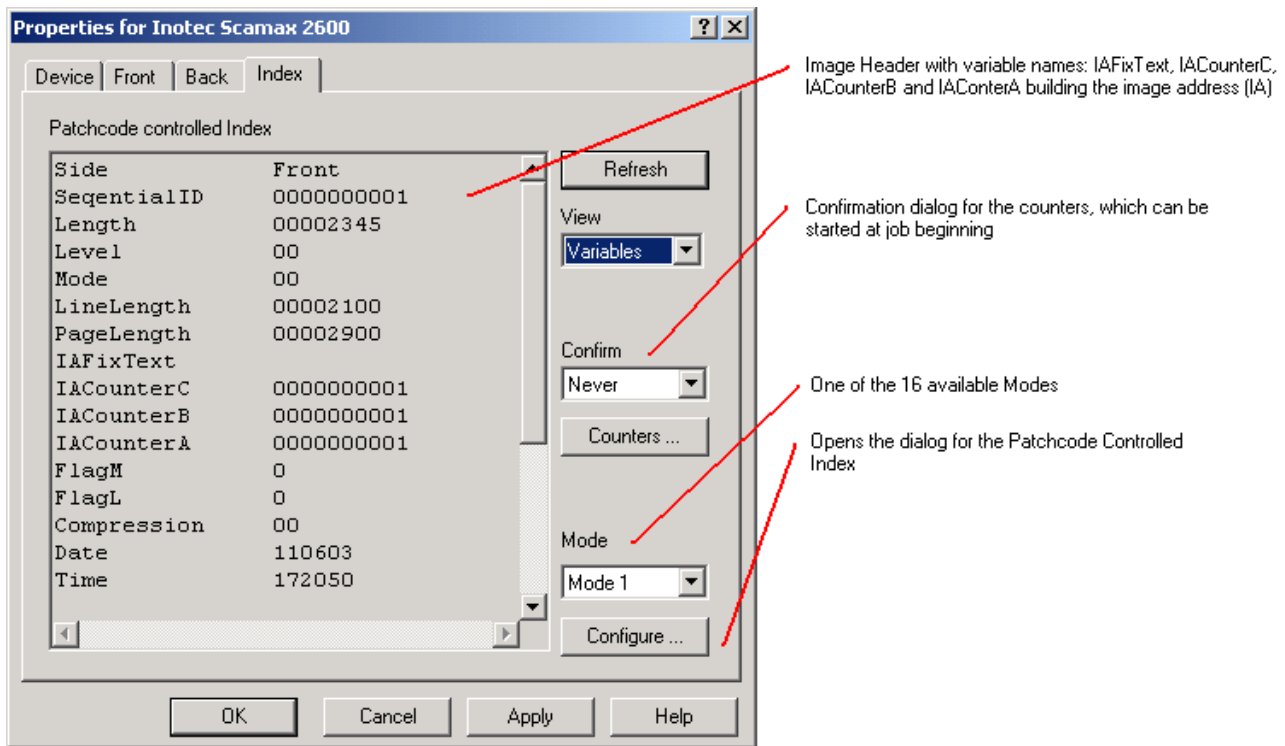


Illustration 5 – Scanner Properties with Links to the Patchcode Controlled Index

**Note:** If the required software modules are not installed, the button and the dropdown list for the modes will not appear. When the scanner has the required hardware, the "Index" page is shown.

## 5.2 Terms and Definitions

Before we go to the configuration, we will take a look on some terms often used in this text:

### 5.2.1 Header

The header is the data structure, 512 bytes long, that is sent along with each image from the scanner interface to the host. It is composed as per the following table:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
F	r	o	n	t		#	-	-	-	-	-	-	-	-	-	0	

18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
L	e	n	g	t	h	=		-	-	-	-	-	-	-	-	0		

37	38	39	40	41	42	43	44	45	46	47
L	e	v	e	l	=		-	0		

48	49	50	51	52	53	54	55	56
M	o	d	e	=		-	0	lf

57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
L	i	n	e		L	e	n	g	t	h		=		-	-	-	-	-	-	-	0		

81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
P	a	g	e		L	e	n	g	t	h		=		-	-	-	-	-	-	-	0	lf

104	105	106	107	108	109	...	118	119	120	...	129	130	131	...	140	141	142	...	151	152	153	
l	A		=		-	-	0	.	-	-	0	.	-	-	0	.	-	-	0			

154	155	156	157	158
-	0	-	0	lf

159	160	161	162	163	164	165	166	167
C	m	p		=		-	0	

168	169	170	171	172	173	174	175	176	177	178	179	180	181
D	a	t	e		=		m	m	d	d	y	y	

182	183	184	184	186	187	188	189	190	191	192	193	194	195
T	i	m	e		=		h	h	m	m	s	s	

196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215
R	o	l	l		#		=		-	-	-	-	-	-	-	-	-	0	

216	217	218	219	220	221	222	223
R	e	s	=	-	-	0	

224	225	226	227	228	229
B	o	=	-	0	

230	231	232	233	234	235	236	237	238
S	k	=	-	-	-	0		lf

239	...	255
nu	nu	nu

256	257	258	...	287
:	lf	nu	nu	nu

288	289	290	291	292	293	294	295
R	e	v	=		-	0	

296	297	298	299	300	301	302	303	304	305	306	307	308	...	322	323
l	A	_	F	i	x	_	e	x	t	=		-	-	-	

324	325	326	327	328	329	330	331	332	333	334	335	336	337
P	a	t	c	h	c	o	d	e	=		-	0	

338	339	340	341	342	343	344	345	346	347	348	349	350
E	n	d	o	r	s	e	d	=		-	0	

351	...	511
nu	nu	nu

**Note:**

This view uses the following measurements:

- Length**            Image size in bytes
- Level**            In range 0 to 3
- Mode**             In range 0 to 15
- LineLength**     In pixels
- PageLength**     In lines
- FlagM**            Momentary flag (Byte 155)            0 or 1
- FlagL**            Permanent flag (Byte 157)            0 or 1
- Compression**   (0=uncompressed, 1=G3(1-dim), 2=G3(2-dim), 4=G4)
- Res**              Resolution in dpi
- Bo**                Bit-Order (0="MSB to LSB", 1="LSB to MSB")
- Sk**                Skew detected (value always remains unchanged)
- Pol**                Polarity (0=black on white, 1=white on black)
- Rev**                Revision Number (defines the additional information from Byte 296 on)

**Patchcode** returns these values:

0	Patch T
1	Patch II
2	Patch III
3	Patch I
4	Patch IV
5	Patch VI

**Endorsed** (0 or 1)

**Note:**

All multi-digit numbers will be aligned to the right without any leading zeros. The format is completely independent of the formats chosen for the printout.

### 5.2.2 Image Address

The image address is the part of the header that is sent to the application software with each image. From left to right, it consists of the following parts:

Fixed Text	Bytes 109 -118
Counter C (Volume Counter)	Bytes 120 -129
Counter B (Chapter Counter)	Bytes 131 -140
Counter A (Page Counter)	Bytes 142 -151

All parts have 10 digits each and are separated by a point. Numbers will be aligned to the right.

### 5.2.3 Counters

Up to four counters can be managed. The name of the counters is based on the idea that there are many "Pages" building several "Chapters". "Chapters" build "Volumes" which will be stored on "Film Rolls".

Of course, these names should show the grouping and hierarchy only. Therefore, in another context they may be called "Document Counter", "Enclosure Counter", "File Counter", etc.

This step in the document hierarchy is called **Level**.

The change from one level to another will be marked either by separator sheets with printed Patchcodes, or will occur after a fixed number of pages.

#### Page Counter A

This counter will be incremented automatically by 1 for every scanned front side **and** back side of a document.

Only after an event that resets the counter can it be incremented "manually" by the user-defined value. After the first image, the counter will be incremented by 1 again automatically.

The Page Counter A is the rightmost part of the Image Address in the Header.

Counter A fills Bytes 142 to 151 of the Image Header.

### **Chapter Counter B**

Several documents form a chapter. The Chapter Counter B may be incremented when a chapter separator sheet (e.g. Patchcode I) is found. On the other hand, it should be reset when a volume separator (e.g. Patchcode II) comes in.

The Chapter Counter B is the second rightmost part of the Image Address in the Header; it fills Bytes 131 to 140.

### **Volume Counter C**

A volume may consist of several chapters. Therefore, the Volume Counter C may be incremented when the volume changes, and reset when a new "Film Roll" begins.

The Volume Counter C is the second leftmost part of the Image Address, and fills the Bytes 120 to 129 of the Image Header.

***The leftmost part of the address is the Fixed Field.***

### **Roll Number D**

The roll number is the next highest level of file order. Several volumes are stored on a "Film Roll". Several volumes are saved on a "Film Roll". The roll number is not part of the image address but it is part of the header, at Bytes 205 to 214.

In addition to these counters, which will be incremented by a fixed or predefined value after scanning a sheet, there is a running number called Sequential ID.

### **Sequential ID**

The Sequential ID is another counter that is incremented automatically by 1 for each scanned document.

It fills Bytes 8 to 17, just after the Front/Rear Information at the beginning of the Image Header.

The Sequential ID cannot be changed using the setup for the Patchcode Controlled Index. If however, the corresponding scanner option is enabled, as seen in [Illustration 5 – Scanner Properties with Links to the Patchcode Controlled Index](#) on Page [16](#), a dialog will appear at job start to confirm the counters.



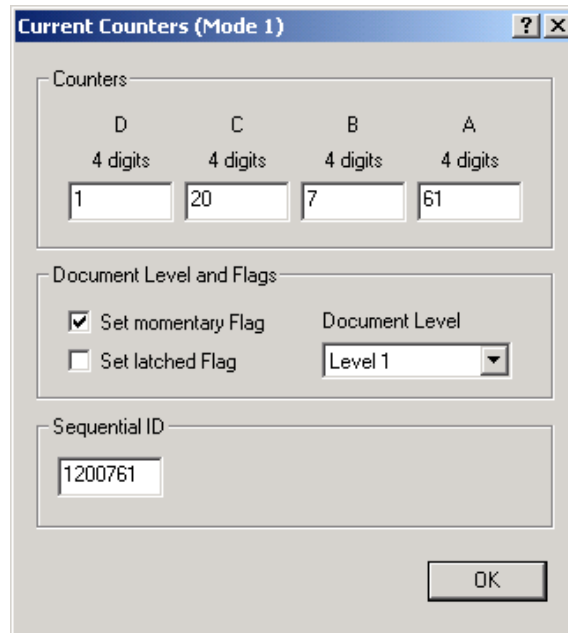


Illustration 6 – Counter Confirmation

#### 5.2.4 Flags

There are two flags that can be managed by the Patchcode Controlled Index.

The latched flag can be set by means of a rule after a specific event. It remains set until it is reset by another rule, or by the beginning of a new scan job. In the latter case, the latched flag must not be set in the "Current Counters" dialog. With this flag, the user can, for example, mark the addendum of a document.

The permanent flag can be set by means of a rule after a certain event has happened. It remains set until it is reset by another rule, or when a new scan job is started. In the latter case, the permanent flag cannot be set in the "Current Counters" dialog. This flag can be used to, for example, mark an addendum to a document.

The momentary flag can also be set using a rule. It remains set only for the next document. Afterwards it is automatically reset. This means that the user can mark the first page of a document after a separator sheet.

If the scanner is equipped with the appropriate hardware, it is possible to handle the flags by pressing a key.

#### 5.2.5 Level

This defines the level in the document hierarchy. For example, many pages (Level 0) build a chapter (Level 1), or an application form (Level 2) contains forms (Level 0) and attachments (Level 1).

With the Patchcode Controlled Index, the level can be a number between 0 and 3.

It is up to the user to define which actions should be executed for a specific level.

If the scanner is equipped with the appropriate hardware, it is possible to handle the level by pressing a key or a foot switch.

### **5.2.6 Mode**

The Mode is the summary of all settings and rules that will be described in the succeeding paragraphs. Depending on the scanner, up to 16 modes can be loaded permanently into the driver.

During a scan job, one mode is selected, as seen in [Illustration 5 – Scanner Properties with Links to the Patchcode Controlled Index](#) on page [15](#).

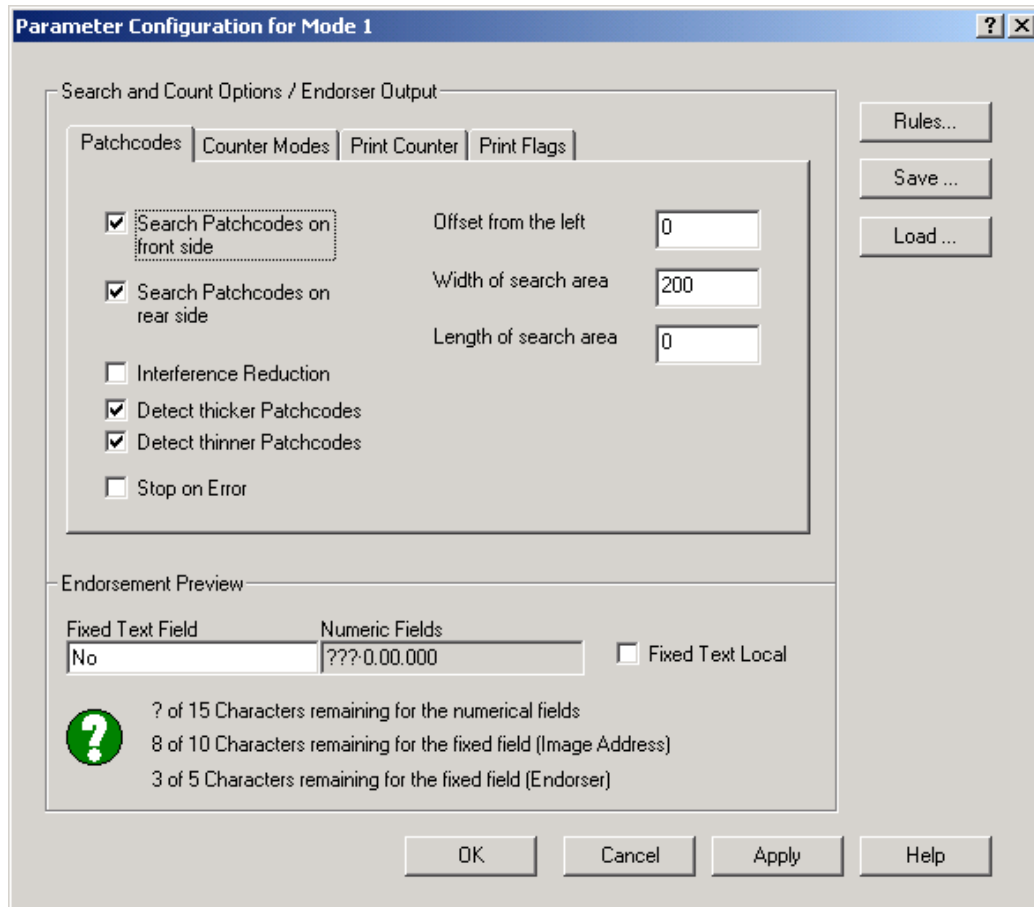
All succeeding settings work only for this selected mode, as shown in the title bar of the setup dialogs in [Illustration 7 – Patchcodes](#) on page [23](#).

After these definitions, we refer to the configuration dialog, which appears when the corresponding button is pressed in the scanner's setup dialog.

## **5.3 Parameter Configuration**

The parameter dialog shows four tabs to set the Patchcode search options, the counter options, and the endorser output. Below the pages there is a preview area to give the user an idea of the endorser's printout.

Placed on the right side of the dialog are buttons to save and reload the setting for this mode, and a button labeled "Rules" that opens the "Control Configuration" dialog described later in this text (see Chapter [5.5](#) on page [38](#)).



*Illustration 7 – Patchcodes*

As with the other dialogs, the buttons along the bottom work in the same well-known manner:

- OK**                                      Closes the dialog box and saves your entries.
- Cancel**                                      Closes the dialog without saving your entries.
- Apply**                                      Saves your entries without closing the dialog.
- Help**                                      Opens the help screen.

The buttons on the right lead to further dialogs, which will be discussed later:

- Rules...**                                      Opens a dialog to define events and resulting actions.
- Save...**                                      Opens a dialog to save the current mode.
- Load...**                                      Opens a dialog to load stored modes.

The following several paragraphs describe the pages for the search and count options as related to the endorser output configuration.

### 5.3.1 Patchcodes

With the "Patchcodes" tab several settings can be adjusted concerning the search for Patchcodes. The search can be restricted to the front or rear side of a document, or to a specific search area on the page. In addition, the quality level can be adjusted to look for thinner or thicker Patchcodes, or to report an error if a code could not be identified exactly.

**Search Patchcodes on front / rear side** Enabling this option turns on the search separately for the front and rear side.

***If you disable the search, Patchcode dependent rules will not be available.***

**Interference Reduction** This filter reduces white pixels from the black area of a Patchcode bar. Noise like this can result from the scanner itself after retreatment of an image by the IP hardware.

**Detect thicker / thinner Patchcodes** Patchcodes are defined with fixed sizes. To detect Patchcodes varying the slightest bit from this size, one can choose this checkbox.

**Stop on Error** With this option enabled, the scanner stops when a Patchcode cannot be identified exactly.

**Position and Size of the Search Area** If the Patchcode bar is not printed over the whole page, but only in a specific area, a search area can be defined.

With the means of these parameters, the location and the size of the search area can be defined.

The values are given in 0.1 mm increments.

Please note that the upper border of the search area cannot be specified because the upper border is always the top of the sheet.

***As a general rule of thumb, the Patchcode should be recognized as soon as possible; that means it should be printed at the upper edge of a sheet (in direction of transport).***

5.3.2 How to Set and to Trigger Counters

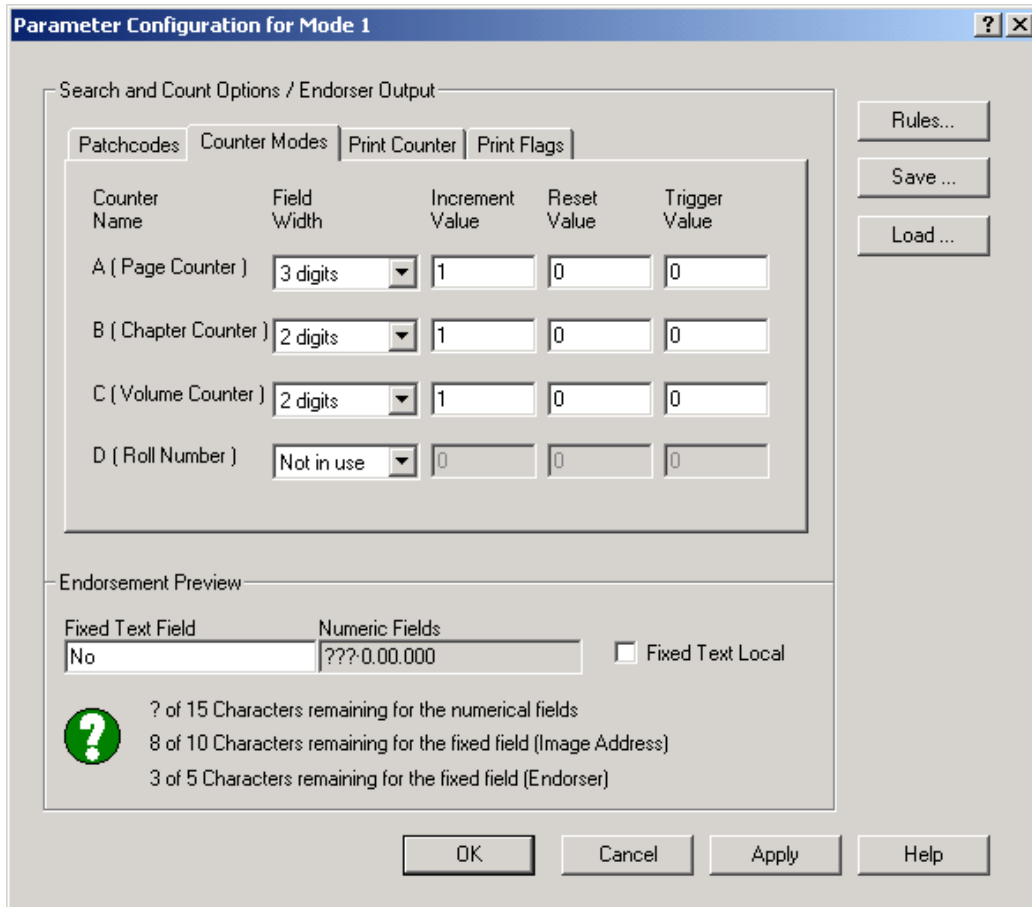


Illustration 8 – Counter Modes

**Field Width**

This define how many digits the counter should have. If it is set to, for example, 3 digits, the counter will count from 0 to 999. After that it resets to 0 again.

**Be aware that the reset and trigger value must be "in range". In this example, use a value before counter 1000, because 1000 will never be reached.**

We recommend the use of higher numbered digits for a lower level, and a lower number of digits for a higher level. For example, if there are many pages in just a few chapters, 6 digits should be chosen for the Page Counter, and 2 digits for the Chapter Counter.

**If a counter – including the automatic Page Counter A - has a field width of zero, this counter will not be incremented and interpreted. The Sequential ID will be incremented always as expected.**

**Increment Value** (by a certain value)

As a reaction to an event, the corresponding counter will be incremented by the entered value. For example, the chapter counter can be incremented while the page counter is at reset value.

**Page Counter A will always be incremented by 1. Only if Counter A was reset as the result of an event (Patchcode found, for example) will the counter be incremented for the next image by a user-defined value. Afterwards, the counter will be incremented by 1 again.**

**Reset Value** (reset the counter to a certain value)

As a result of an event, the corresponding counter will be reset to the entered value. For example, the page counter can be reset to 0 when a new chapter begins. The reset value must be in a valid range, and it must be within the defined field width, as seen in the notes above.

**Trigger Value** (to cause an event)

This defines which count causes an event. For example, the scan job can be stopped after 200 pages.

The trigger value must also be in the valid range, as seen in the preceding notes.



### 5.3.3 How to Print Counters

Here, you configure the format to print counts of the counters on a document after being scanned.

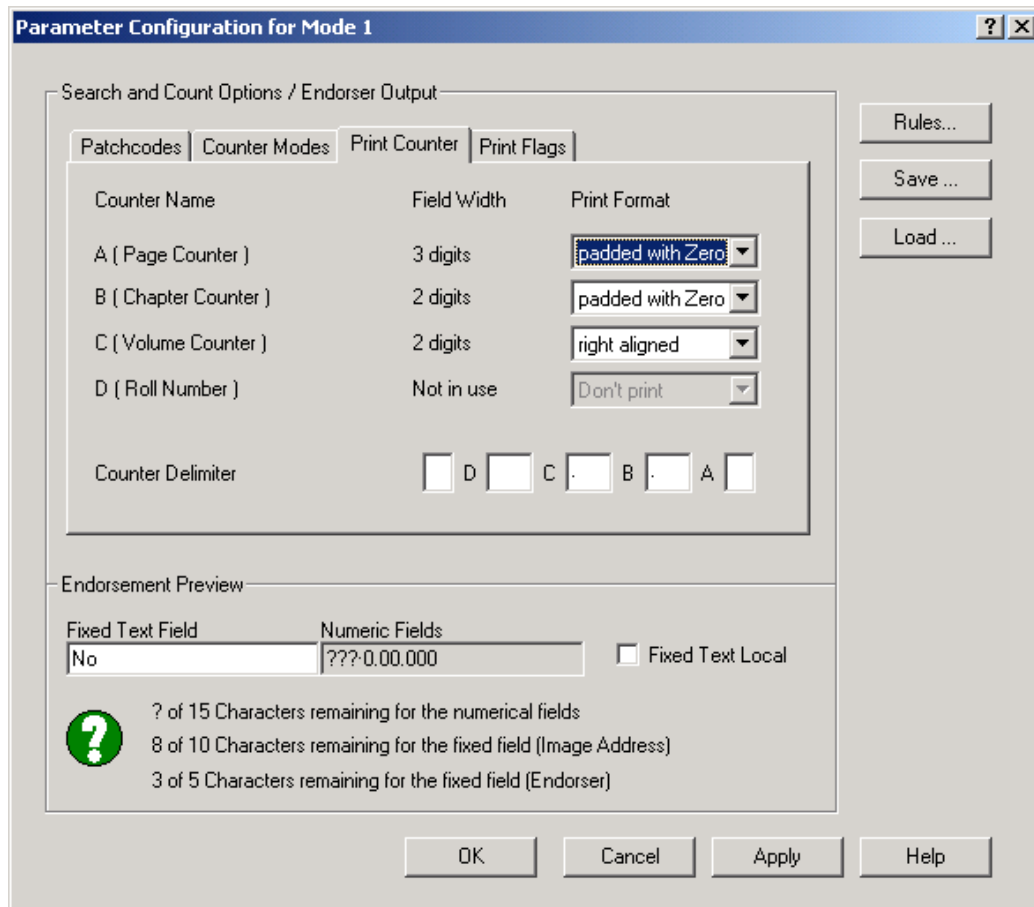


Illustration 9 – Print Counter

It is required that the user selects a field width unequal to 0 on the **Counter Modes** tab. In the Illustration above (Counter D), the Roll Number has a field width of 0, and thus it is not in use.

#### Print Format

Each counter with a field width unequal to 0 can be used to be printed on the page that was just scanned. If the field width is 0, the counter will be disabled.

Within the selected field width, the print can be aligned to the left or right, padded with zero, or unformatted.

You can choose different formats, but the entire length of all counters and delimiters to be printed are limited for technical reasons.

The result of the chosen format can be seen as a preview ("Numeric Fields").

**The order of the counter is predefined and fixed.**

If you want this order changed, you will have to configure the counters by means of levels in events and actions. You can, for example, define that Counter C will be incremented in level zero and Counter B will be incremented in level one (new chapter). In this case, Counter C is the page counter and Counter B is the chapter counter.

**Set Counter Delimiter**

Delimiters are defined to separate the counters for printing. This means that it is possible to separate page, chapter, and volume counters in a different way. In front of the first, and after the last counter, you can enter one character, and between two counters you can enter up to three characters.

In the following example, the volume counter with two digits, the chapter counter with three digits, and the page counter with four digits are separated by different types of brackets and slashes:

```
[00]-(000)/<0000>
```

5.3.4 Level and Mode Output – "Print Flags" Tab

The fourth tab allows the user to select how the Sequential ID, the level, the mode, and the flags should be printed.

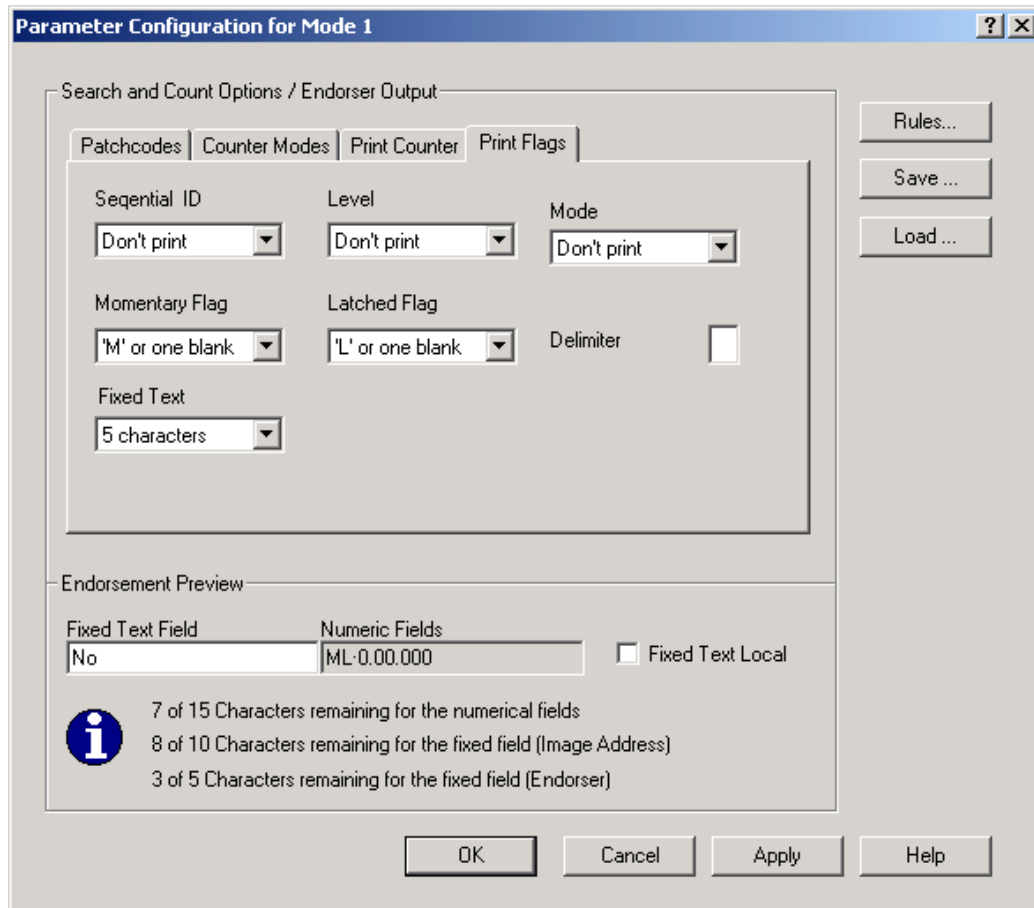


Illustration 10 – Print Flags

**Sequential ID**

The Sequential ID (running number) can be printed with 8 digits, aligned to the left or to the right, with leading zeros, or of variable length.

**Level / Mode**

Mode and Level can be printed with 2 digits aligned, aligned to the left or to the right, with leading zeros, or of variable length.

**Momentary Flag / Latched Flag**

The Momentary and the Latched Flag can be printed this way:

If they are set – as "1", or as "M" or "L"

If they are not set – as "0", as a blank, or just left out ("not in use").

**Fixed Text**

In addition to numeric values such as counters or flags, the endorser can print text.

Only the printout text is limited to the number of characters selected here.

The text itself has to be entered in the field "Fixed Text Field", as seen below. It can hold up to 15 characters.

***It makes sense to enter a long, fixed text a lot of information and send it along with the header to the scan application. On the other hand, it may be applicable to print out only a small part of the text on the original document to keep as close to its "original" state as possible.***

**Delimiter**

You can choose a delimiter to separate Sequential ID, level, mode, and flags. This character will be printed after a parameter, on the condition that in at least one of the boxes "Don't print" is not selected.

**5.3.5 Preview of Endorser and Header**

At the bottom of the Parameter Configuration dialog is a frame titled **Endorsement Preview**. It contains an input field for the fixed endorser text, a grayed field for the summary of all counters and flags output, and some lines that show how many characters are left for the several output fields.

**Fixed Text Field**

In addition to numeric values such as counters or flags, the endorser can print text. The text is limited to 15 characters.

The first 10 characters from this string comprise the first (leftmost) part of Image Address.

**Numeric Fields**

This field gives an idea of the printout; numbers with leading zeros are shown as a sequence of zeros ("000"). Numbers with a fixed length are shown as number/pound signs ("###").

The flags are displayed as their character, where "L" means latched and "M" stands for momentary.


If a number has variable length or a flag may be omitted (if unset), the placeholder is a question mark ("?").


***For a SCAMAX the Counter A and the rightmost delimiter are handled differently by the driver than the other counters, flags, and delimiters. They do not account for the calculation of the maximum field length.***


The overall length for endorser text is limited by several machine dependent parameters. For example, with a SCAMAX scanner, the fixed text field and numeric fields are limited to 15 characters each (except Counter A and its delimiter, as seen above).

**When using the %%l fieldcode and a longer lead or trail text in the endorser setup, the printout may be cut at the end. Hence, it is recommended that the user test the printout on any document before starting a "real" scan job.**

Below the preview areas for the fixed text field and numeric fields there is a display showing how many characters are left for each field.

The symbol  indicates that enough space is available to print the complete text.

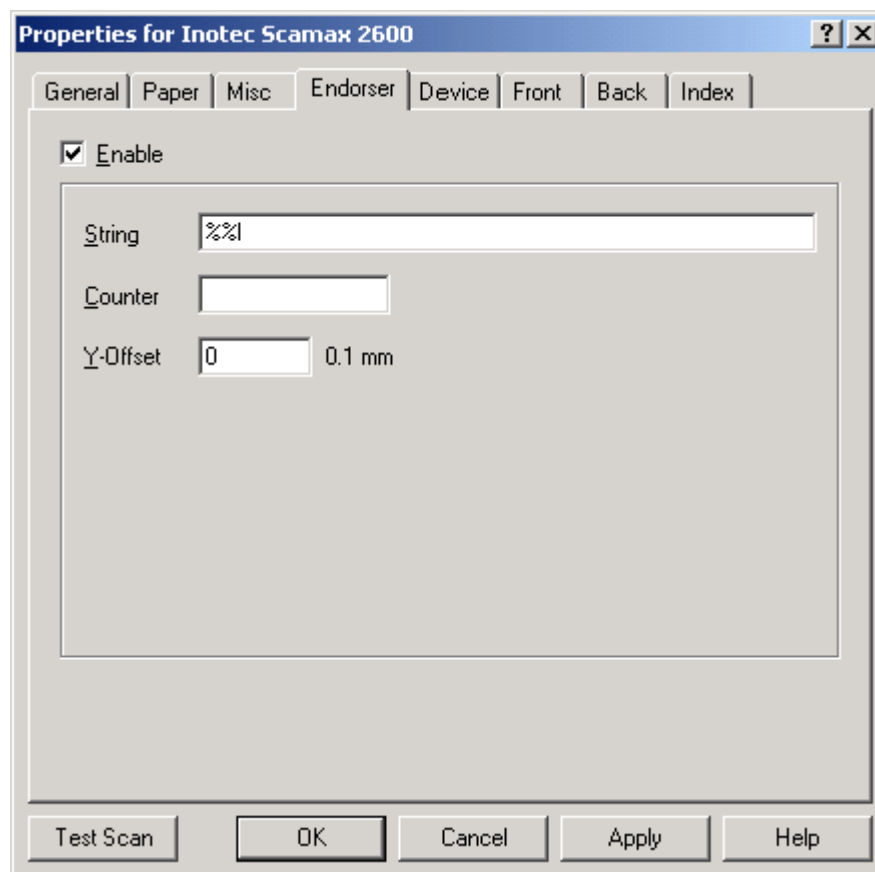
It will change to  when the length of the print may vary. The part where length cannot be calculated is then represented by a question mark.

The symbol changes to  as soon as the valid number of characters is surpassed.

**To enable a printout, the endorser must first be enabled:**

**[Class Configuration](#) | [Data Source](#) | [Scanner](#) | [Options](#)**

At the bottom of the **Options** page the user will find the edit field **String**. Here the code %%l must be entered. This causes the printout of the full endorser text – first the fixed field and then the numeric fields.



*Illustration 11 – Enabling the Endorser*

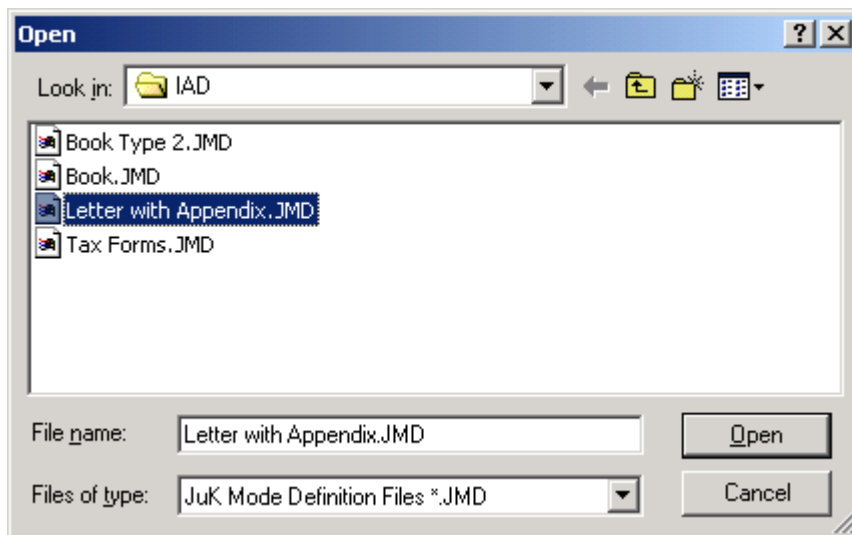
**Note:** Using the normal endorser counter %U when the Patchcode Controlled Index is also in use is not recommended. This is because the endorser counter uses the same resources as Counter A.

The buttons to load and to save the settings and the button for the rules are located on the right side of the Parameter Configuration dialog.

### 5.3.6 Save and Load Modes

All settings for search, count, and output, as well as all rules can be summarized as one mode and can be stored as a JuK Mode Definition (\*.JMD" file). There is no limit in defining and storing different modes, nor is there a restriction for definition and saving different modes. A certain number of such configurations, 15 with an Admis S31 scanner, can be stored directly in the scanner itself, as seen in [Illustration 3 – Inotec Options: Index](#) on Page 12.

The current mode can be stored as a \*.JMD file and can later be reloaded as the current mode, using the **Save** and **Load** buttons.



*Illustration 12 – Load and Save JMD-Files*

It is useful to define modes for recurrent tasks or documents, to store them on a network drive, and to load the required one to their respective workstations.

Pressing the button **Rules**, as seen in [Illustration 10](#) on page 29, opens up the dialog for the Index control of the currently selected mode.



### 5.4 Events and Actions

Use this dialog to set the actions that will happen with which event. The following example defines that when a Patch II is found, the Chapter Counter is incremented and the Page Counter is reset. In other words, a new chapter has started within the batch.

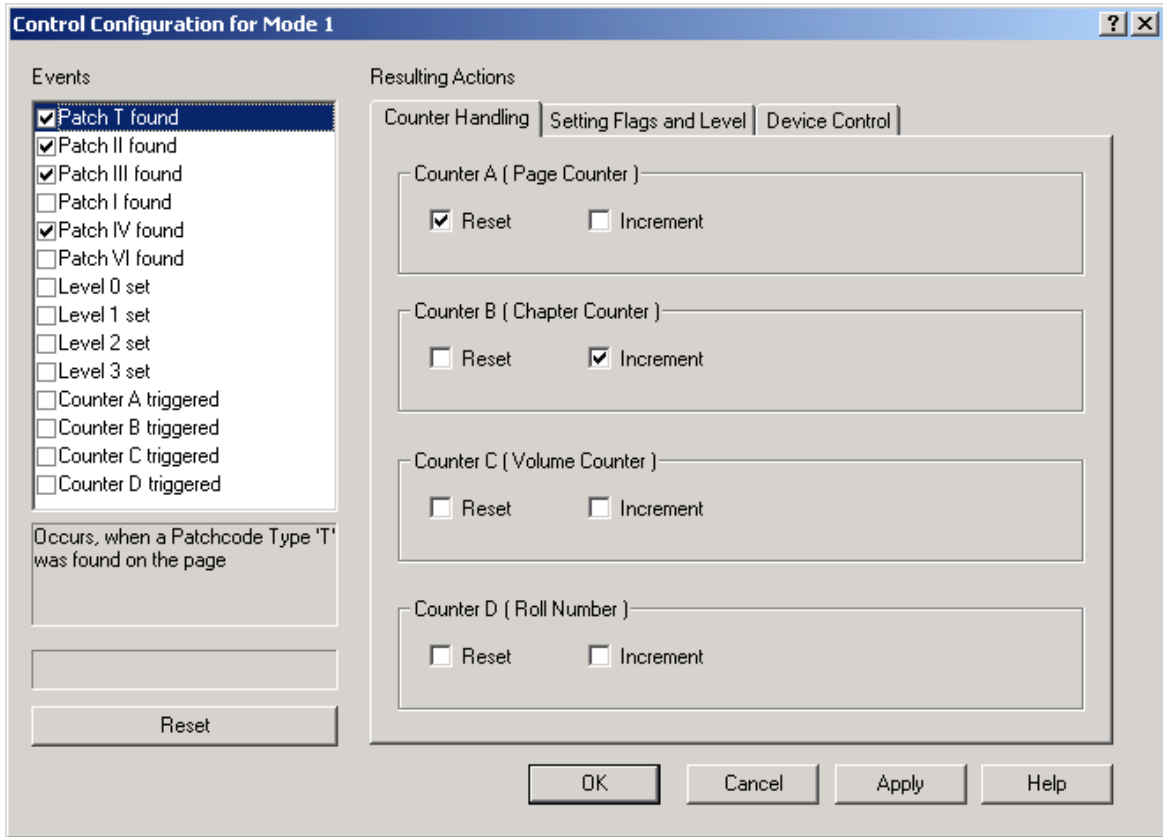


Illustration 13 – NDX Rules Patch II

The title line of the dialog displays to which mode the rules relate. On the left side, there is a list of events that may happen. The box below gives a short description of the selected event; if an event cannot happen, the reason is displayed here. If, for example, the Patchcode search is not enabled, Patchcodes cannot be found.

The boxes at the start of each line can be checked only if at least one action is set. The user can utilize them to make a rule void (e.g. for only the next job) without the need to completely set it again at a later time.

Use the **Reset** button to reset all actions for the highlighted line, or for all events.

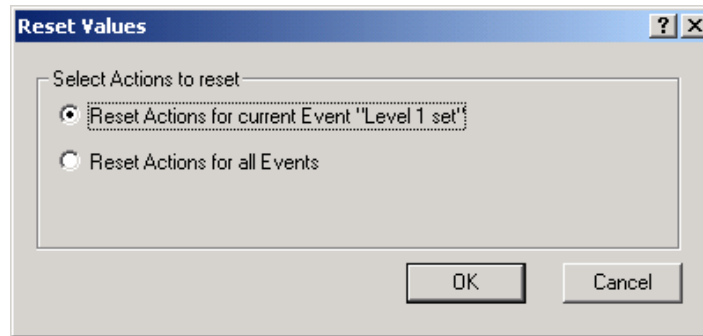


Illustration 14 – Reset Values?

### 5.4.1 Events

There are several groups of events:

#### Patchcode Events

These events happen when a certain Patchcode is recognized. Because the search is stopped after the first Patchcode found, **only one** such event can happen on any one page.

#### Level Events:

These events happen when a certain Level is set. Because only one Level can be valid, there will be **one event at max**. Therefore, you can decide whether a page in a contract belongs either to the contract itself, or to its addenda, for example.

#### Counter Events

Such an event happens when one of the counters reaches its trigger value. Because several counters may reach their trigger value on the same page, **several** such events can happen at one time as well.

### 5.4.2 Actions

There are three groups of Actions:

#### Actions that **set counters**

These can reset and then increment the counters. This may influence the counter-based events or the increment of the automatic counter.

#### Actions that set **flags and level**

These can change the flags, the mode, or the level. Changing the level disables checking for level-based events for the actual sheet, where changing the mode or the flags does not affect the further process.

#### Actions on the **device control**

These can drop the sheet, stop the scanner, or turn the endorser on and off.

### 5.4.3 Course of Events and Actions

Rules define what actions shall be taken when a special event appears. Checking for the events and the execution of the resulting actions follows this procedure:

#### Step 0

Assume that the scanner has scanned a sheet and has done the Patchcode search. Both images (front and rear) and their headers are ready and waiting to be sent to the application.

**Note: The headers for the current images will not be changed. All calculations and settings affect only the next sheet.**

#### Step 1

Patchcode-based events

First of all the software checks if there was a **Patchcode** on the just incoming sheet.

If Patchcode search is disabled this step will be skipped.

If there was a code found on the sheet the search for further Patchcodes stops. So only one Patchcode is found on a sheet in a time.

If no Patchcode was found, the checking of the level (step 3) follows.

When a Patchcode-based rule becomes true the resulting actions take effect:

**Step 2**Patchcode-Based  
Actions

If the **field width** is equal to a value of anything but 0, the Counters A, B, C, and D will be **reset** and then **incremented** by the specified values. For details, see Chapter [5.2.3 Counters](#) on Page [19](#).

Then, the flags, the level, or the mode will be changed.

When the rule changes, the **Counter A** or the **level** will be denoted.

If the **No Count** action is wanted, this will be denoted as well.

In addition, all the hardware related actions such as **Drop Page**, **Stop Scanner**, and **Endorser On/Off** will not take effect immediately. They will be retained until Step 7.

**Step 3**

Level-Based Events

Now the current level will be checked.

This check will be done only if the level was not changed by a Patchcode-based rule before, as seen in Step 2 above. Otherwise, the procedure goes on with Step 5, which is the incrementing of the automatic counters.

Only one level can be active at a time, so only one of the four levels can cause resulting actions.

When a level-based rule becomes true the resulting action will be done:

**Step 4**

Level-Based Actions

This is the same as Step 2.

**Step 5**Increment the  
Automatic Counters

If the **No Count** option was enabled in Step 2 or Step 4, this step will be skipped.

If not, the **Sequential ID** will now be incremented by 1.

If **Counter A** was not changed before, it will be incremented by 1 as well.

***It doesn't make sense to enable the No Count option after this step (i.e. in the "Counter-based" rules).***

**Step 6**Counter-Based  
Events und Actions

The counters will now be checked to reach their **trigger** values. They will be checked in the order A, B, C, and then D.

After each check the resulting actions (except the hardware actions, as seen in Steps 2 and 4) will be performed immediately.

**Step 7**

## Hardware Control

After performing the counter and flag handling, the summary of the hardware actions take effect.

Unless **Drop Page** is enabled, the page and the last header will be sent to the host.

If necessary, the scanner **stops** now.

Otherwise, the **endorser** will be turned **on** or **off** for the following sheet.

Now the counters, flags, and other parts of the header will be updated.

***The newly calculated counters are set for the next image, and not for the current image.***

Then, the next scan command including the print command for the endorser is sent to the machine.

When the machine returns an image, the driver searches for Patchcodes and merges the result and the further image-dependent values into the header.

Then the procedure restarts at Step 1.

The dialog on the next page is intended to define the rules.

## 5.5 Defining the Rule

When defining a rule, the user must first determine the event and then which action shall result when the event happens.

### 5.5.1 Counter Handling

[Illustration 14 – Reset Values?](#) on Page [34](#) shows the tab for counter handling. Depending on an event, the four counters can be **Reset** to their initial start value.

After being Reset, the counters will be **incremented** by a specified value, as seen in Chapter [5.3.2 How to Set and to Trigger Counters](#) on Page [25](#).

Example 1:

If you want to start page counting after a chapter break with 2 (in order to, for example, insert a large formatted leading page at a later time) you can specify that Counter A is reset to zero and then incremented starting from two.

Example 2:

If you want to use only even numbers for page counting only, you cannot use Counter **A** because it is incremented automatically by 1 from the second page on. Therefore, you must disable Counter **A** (set its field width to zero) and use another counter for these pages (such as Counter B). Each time a level 0 (normal page) document was scanned, Counter B will be incremented by 2.

5.5.2 Setting Flags And Level

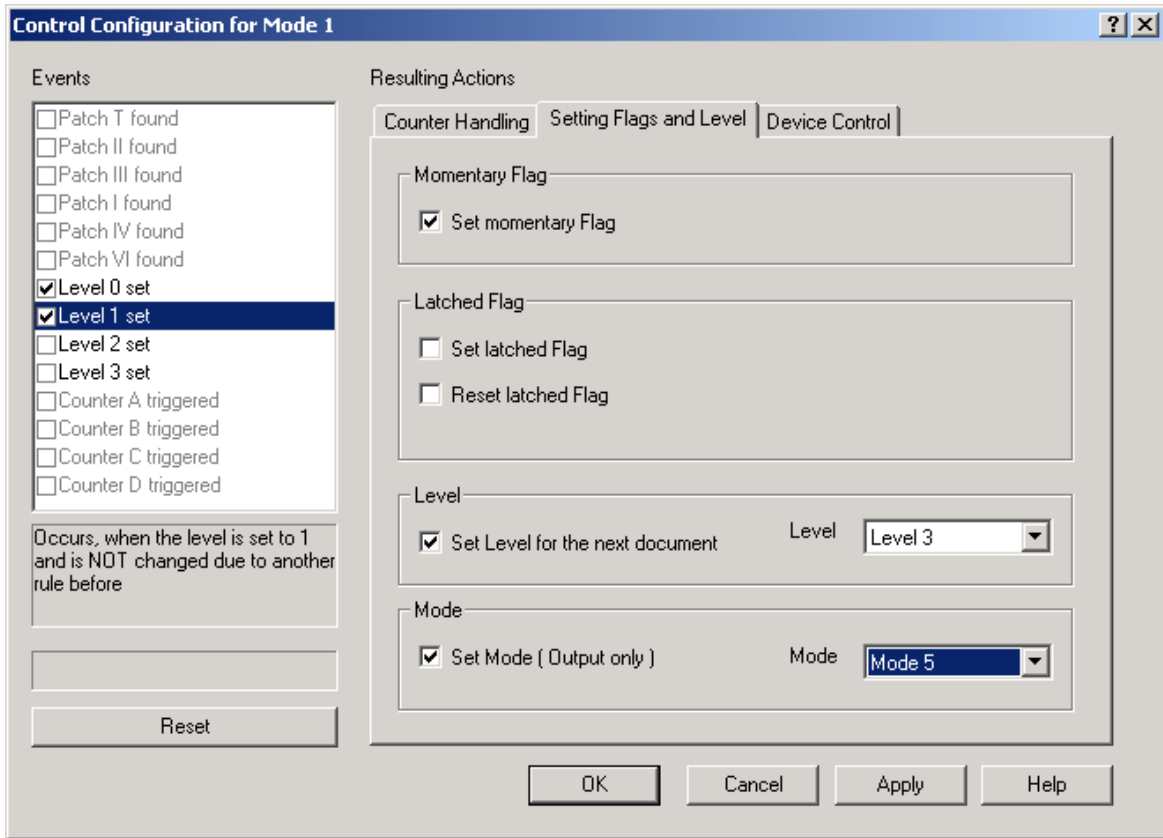


Illustration 15 – Setting Flags and Level

**Set momentary Flag**

Check this box to set the momentary flag in the header at Byte 155. The Patchcode Controlled Index does not verify this flag, but the scan application can use it to do something exactly for this one sheet, such as call a function or start a new chapter.

The momentary flag will be reset automatically for the next sheet.

**Set / Reset latched Flag**

This sets the permanent flag in the header at Byte 157. Once the latched flag is set, it remains set until it is reset by another rule or at the beginning of a new scan job.

Just as with the momentary flag, the Patchcode Controlled Index does not evaluate the permanent flag, but the scan application can use it to, for example, mark the addendum pages of a tax form.

Because the flag setting is not evaluated, it can be done immediately after verifying a rule. That means that the latched flag can be set by a rule and can be reset later by another rule on the same sheet.

**Set Level for the next document**

Setting the level causes all rules dependent on the level to be ignored for this sheet.

Therefore, the new level takes effect for next sheet.

**Set Mode (Output only)**

Setting the mode number works only for the printout or the header.

It does not really select a new mode with new parameters and rules.

The mode can be changed only in the corresponding setup dialog of the scanner, as seen in [Illustration 5 – Scanner Properties with Links to the Patchcode Controlled Index](#) on page [15](#).



## 5.5.3 Device Control

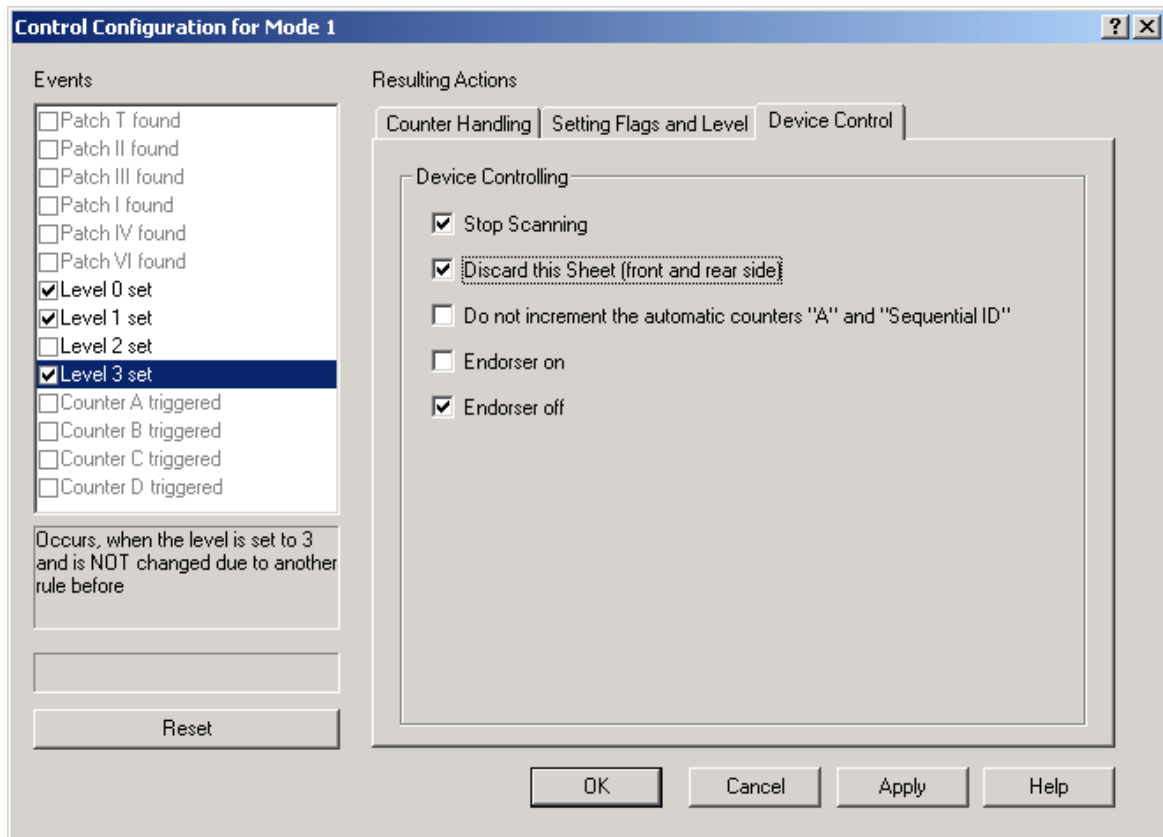


Illustration 16 – Device Control

**Stop Scanning**

This stops the scanner before the next sheet. The current sheet will be sent to the application unless it is not dropped.

**Discard the Sheet (front and rear side)**

If enabled, the document (front and rear side) will not be sent to the host.

**Do not increment the automatic counters**

This suppresses the automatic counting in Step 5 of the procedure as seen in the previous chapter.

**Endorser on / Endorser off**

This enables or disables the endorser from the next sheet on, and the current sheet is not affected.

If different rules enable and disable the endorser, the latter rule takes precedent.

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