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Janich & Klass



PlugIn for DpuScan **Color Noise Reduction**

Supplement to the DpuScan Reference Manual

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Actuality

It may happen that a more recent version of this manual for DpuScan is available for download from the Internet. Therefore, it is recommended that you should 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 of the manual.

The Internet version of this annex to the DpuScan Reference Manual is found on the Web at the following address:

<http://www.jkimaging.com/pdf/PlugIns/ColorNoiseReduction.pdf>

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PlugIns for DpuScan are expansions for its functional scope and must be licensed separately.

This documentation describes one such additional module for already existing licenses of DpuScan. The use of this PlugIn is possible only in combination with DpuScan. Therefore, this documentation can also be used only together with the documentation for DpuScan.

1 Color Noise Reduction

The PlugIn for color noise reduction allows to recognize and to correct single colored pixels or areas.

It can be used, for example, when thin translucent paper is scanned on a scanner with black background. In this combination, the background of the scanner will shimmer through the paper, thus producing the so-called color noise.

	Bestellmenge	Liefermenge	Rest	Wochen	Einzelpreis
- 4,7 kWh	100	100			
oetspitze	10	10			
pol. Flach-		30,5			
itze	2	2			
	2	2			
	1	1			
atalog					
Bezahlt					
16. SEP. 1999					
Porto u. Verpackung	MwSt. %	MwSt. DM	Rechnung		
0	8,50	14	38,30		
gen. 14 Tage	2	% Skonto oder innerhalb	30	Tage netto	
Lieferungen erfolgen nur zu den umstehenden Liefer- und Zahlungsbedingungen.					

Illustration 1 – Color Noise Reduction on an Invoice

The above example uses limit values of 0.70 for white and 0.30 for black. The resulting image is a far better readable color image.

Because the PlugIn returns the results from its color analysis, they can be evaluated in the event rules.

So, if you are working in a multistream process (which means that the scanner delivers the color image and the black&white image at one time, or when the black&white images result from a filtering with DpuScan) you can, for example, always take the black&white image if it is not a colored document where the color density supercedes, for example, 5 percent.

You will read more about how to set the configurations in Chapter [5 Configuration of the Color Noise Reduction](#) on Page [18](#).

2 Configuration in the Task

The color noise reduction is a PlugIn that can be utilized either in process mode, or for interactive image processing in Pause Mode, refer Chapter [2.2 Use Color Noise Reduction in the "Process image" Toolbar](#) on Page [7](#).

2.1 Execute Color Noise-Reduction in Process Mode

For usage in process mode, you first must get the images and then execute the Task step "Call PlugIn for every image". This step is available only if the PlugIn is loaded in the actual Class.

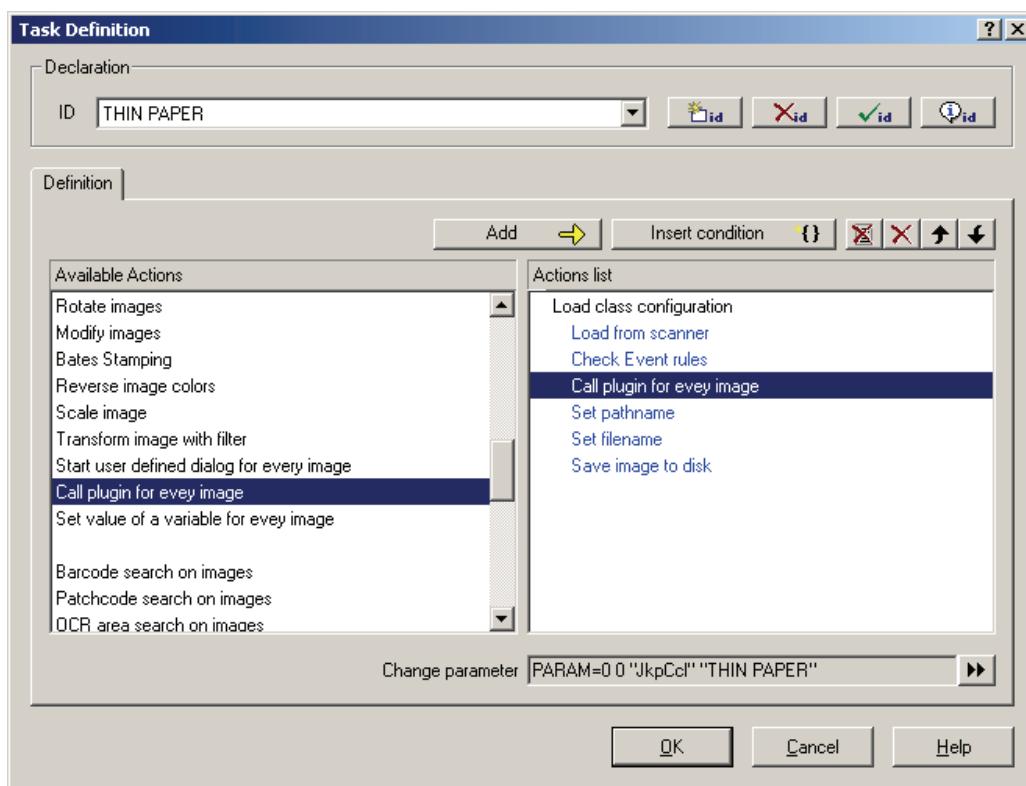


Illustration 2 – Call in the Task

For calling the PlugIn, you can select the **ID** of PlugIn configuration. You can restrict the call to certain images. So you may, for example, first make a copy of the color image and then use the PlugIn only on this copy. In this case, you must select C2.

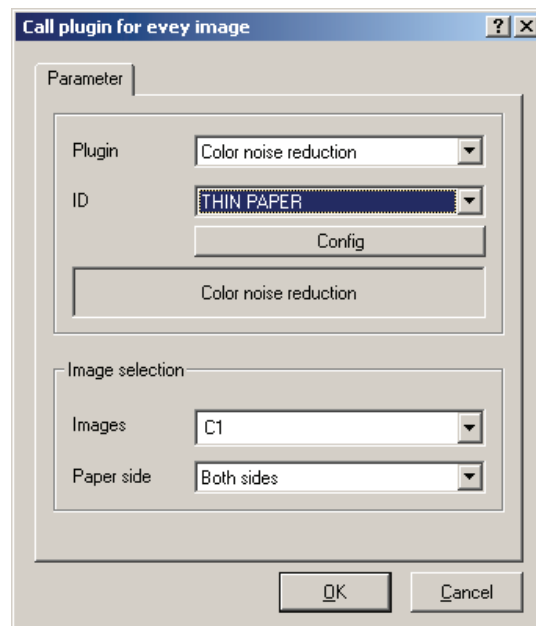


Illustration 3 – Parameter Selection when calling the PlugIn in the Task

When you call this PlugIn, no new images are created, but the delivered images are modified. If you want to keep the original image, you must create a copy of the image before you process it.

The details of the configuration are handled in the Class, refer Chapter [5 Configuration of the Color Noise Reduction](#) on Page [18](#).

2.2 Use Color Noise Reduction in the "Process image" Toolbar

As soon as an Open Job is in Pause mode, the images can be processed individually. There are several symbols available. The default factory setting contains no buttons for using the Plugins; those must be assigned in the [Application Layout | Actions](#).

In the following example, two buttons are inserted for the two PlugIn configurations "THIN PAPER" and "THIN PAPER2".

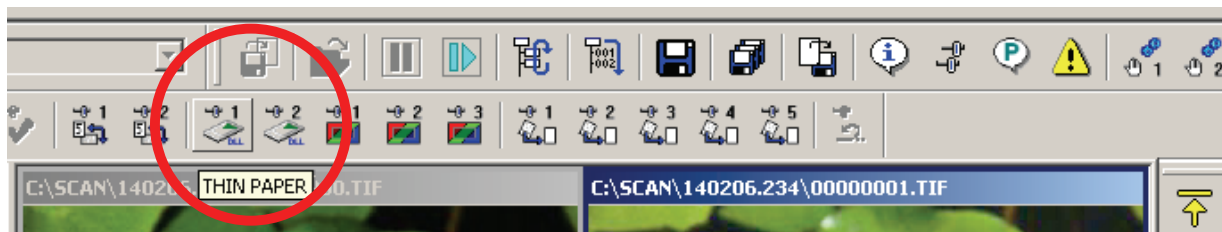


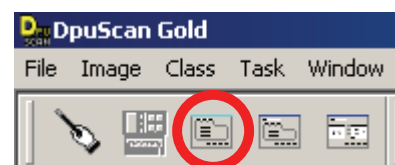
Illustration 4 – PlugIn Call in the "Process image" Toolbar

The active image can be corrected with one of these pre-defined settings, refer [Illustration 1 – Color Noise Reduction on an Invoice](#) on Page 4.

The factory default settings of DpuScan have no such buttons in the "Process image" toolbar. Up to nine different PlugIn configurations ("External Parameters") can be executed in the toolbar. These are either completely different Plugins, or different parameter sets for one PlugIn, or a mixture of these possibilities.

In the main menu, you must click on the button for the Application Layout ...

... and you will reach the dialog for its configuration:



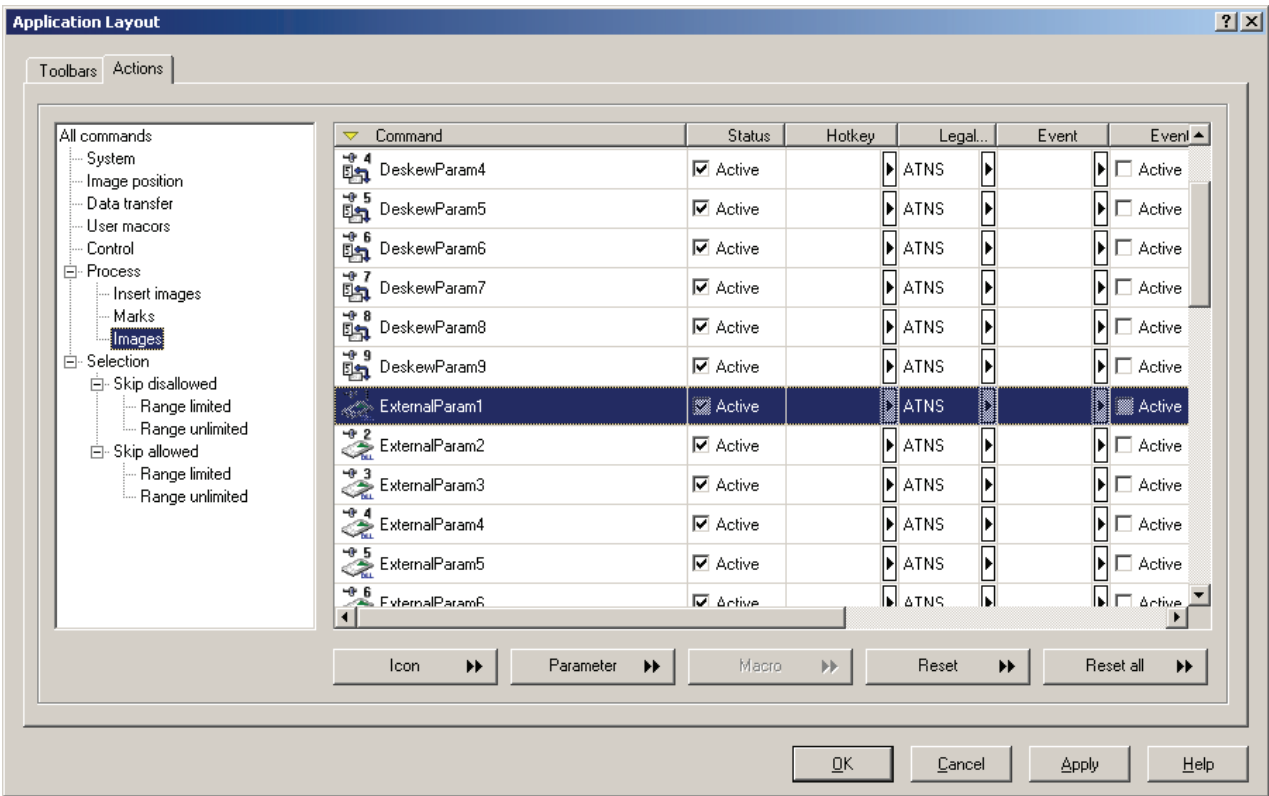


Illustration 5 – Adding a PlugIn Button in the "Process image " Toolbar

The first button shall be assigned with the configuration "THIN PAPER" – please read all details about how to establish such configurations in the following Chapters 3 and 4. For now, we presume that this configuration has already been established, it is there available for selection, after a click on **Parameter**:

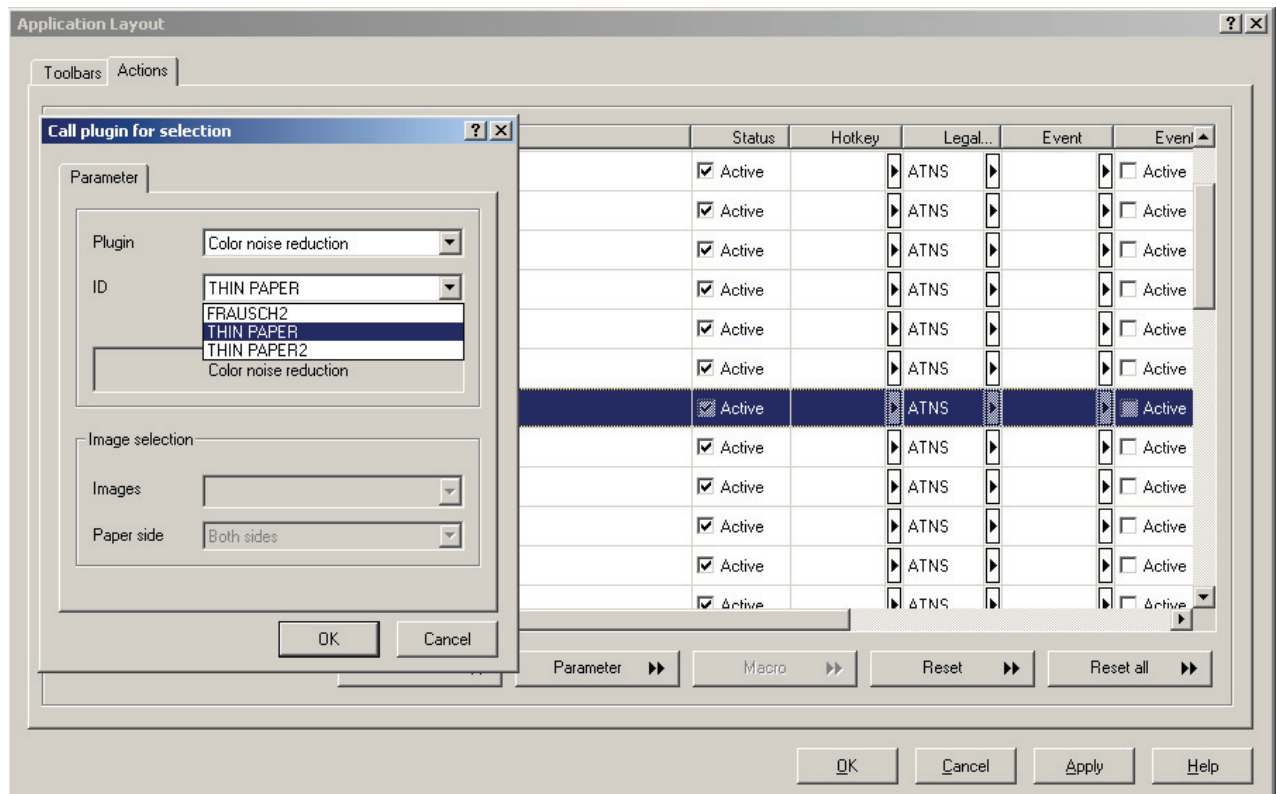


Illustration 6 – PlugIn Button in the "Process image" toolbar, Assign Parameters

You may also select an **Icon** instead of the usual button for the PlugIn:

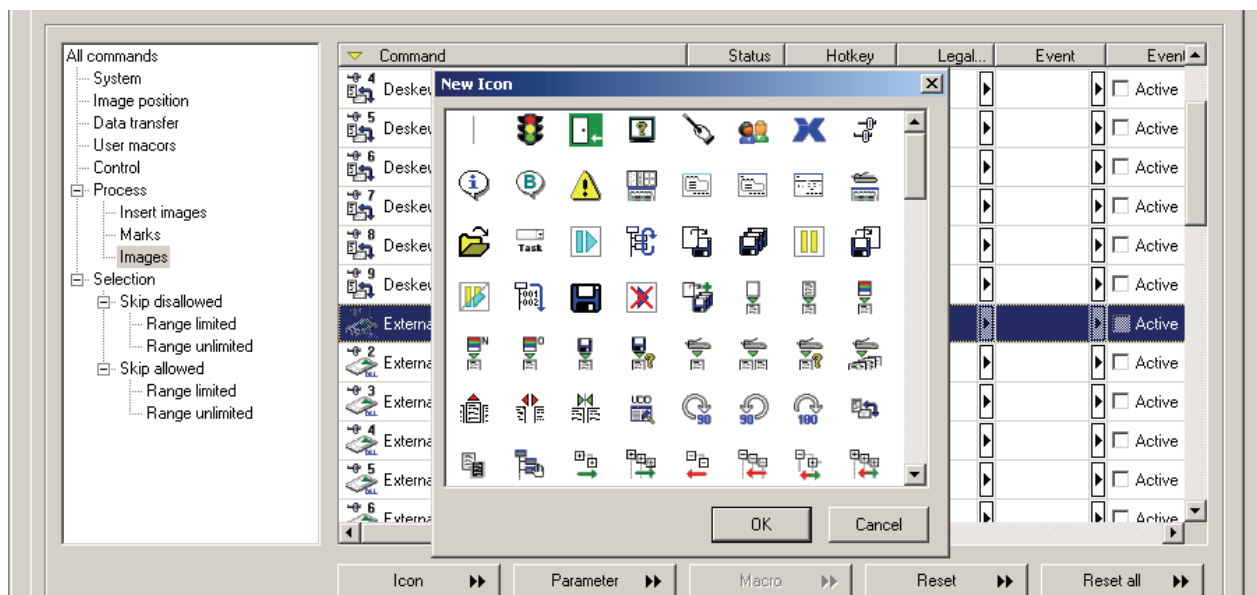


Illustration 7 – PlugIn Button in the "Process image " Toolbar, Assign New Icon

Such an icon can probably better be memorized than a button. In any case, the relative button for executing the PlugIn can be fitted with an explanatory text that will display, as per setup, immediately with the button - or in its place – (Button Text), that will appear in the Status line (Status Text), or when you touch the button with your mouse (ToolTip).

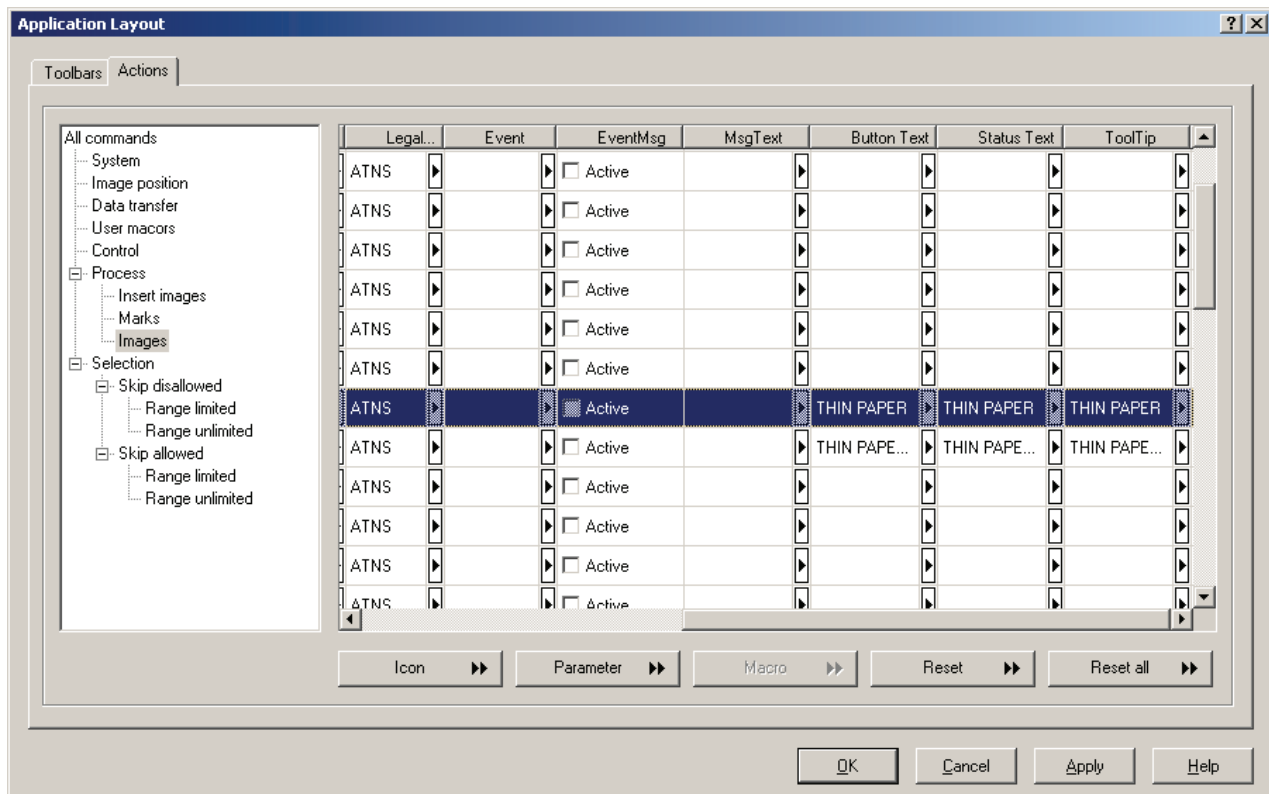


Illustration 8 – PlugIn Button in the "Process image " Toolbar, Texts

The texts should be as short and concise as possible as otherwise they might not display on the DpuScan screen in full length.

The final step is to move the button into the toolbar: In the "Actions," click the symbol with your left mouse key and drag it to the desired position inside the toolbar, please refer [Illustration 5 – Adding a PlugIn Button in the "Process image "](#) on Page 8.

From then on, the PlugIn will be available there for direct execution, and you can continue with further PlugIns, analogously.

3 Configuration in the Class

The PlugIn must be loaded and configured in the Class. This is done in the **Class Configuration**, on the **Process** tab. There, the **Plugins** button opens the dialog with the list of the actually active PlugIn's. Use the **Add** button to reach the selection of the available PlugIns.

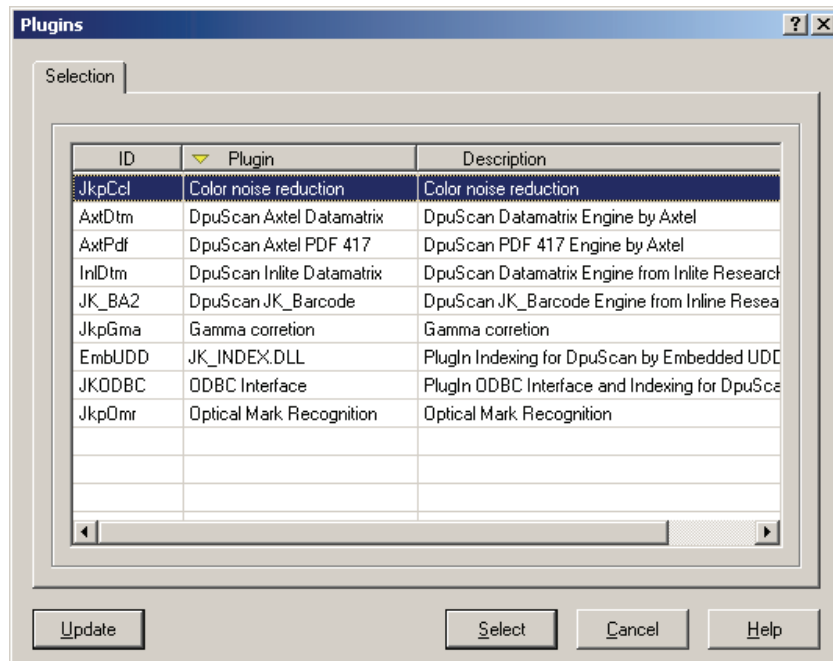


Illustration 9 – PlugIn Selection

After its selection, the PlugIn is displayed in the list of utilized PlugIns.

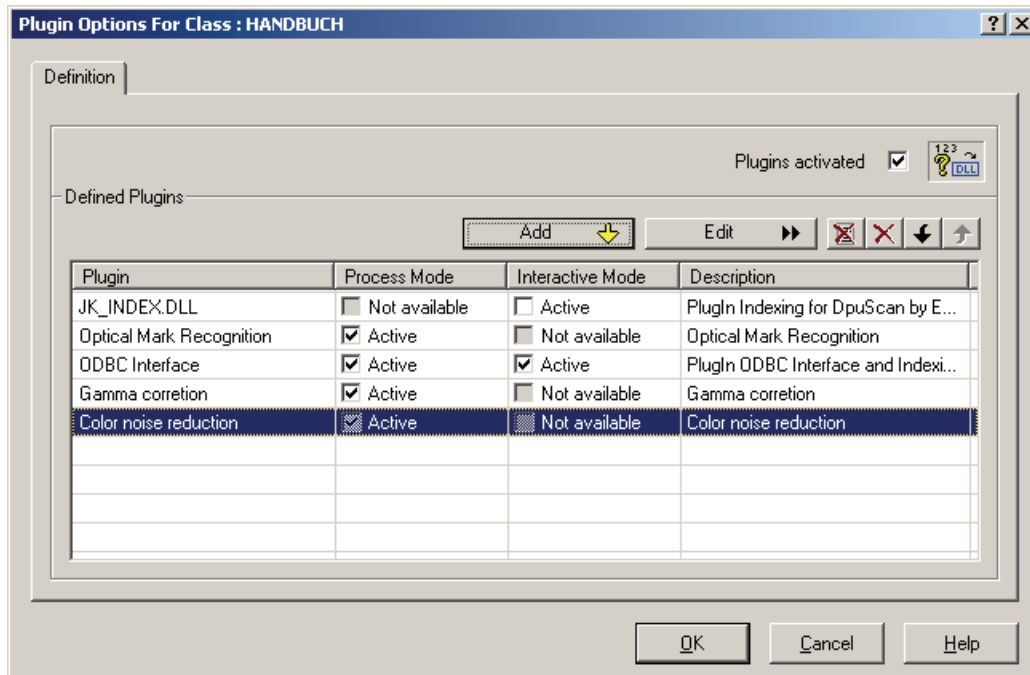


Illustration 10 – PlugIn Configuration for the Class

The color noise reduction PlugIn is now loaded for usage in the Class.

Please note that the "Plugins activated" check box must be marked by a hook as otherwise the PlugIn's would not be used.

The entry in the list of the above Illustration 10 shows, in its **Process Mode** column, an activated checkbox. The **Interactive Mode**, however, is marked as not available. As already mentioned before, the color noise reduction PlugIn can therefore be used only during the scan process.

A click to the **Edit** button opens the dialog for administering PlugIn configurations and the data exchange between PlugIn and DpuScan.

4 Administering the PlugIn Configurations

In its upper area, the dialog offers the usual elements for administering configurations.



Selects an existing configuration and assigns it to this Class.



Defines a new configuration. The settings from the actual configuration are copied.

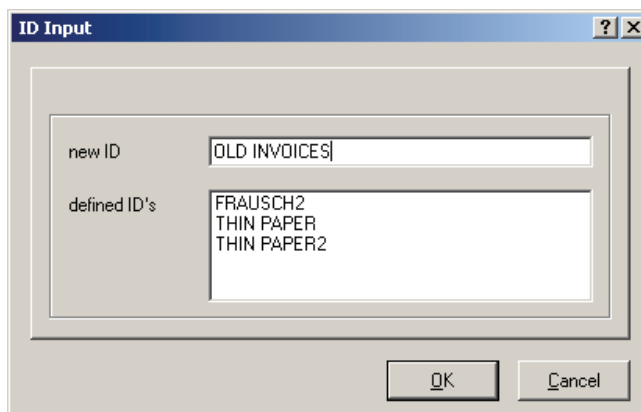


Illustration 11 – Defining a New ID



Deletes the actual configuration; the following safety query is raised, in due course:

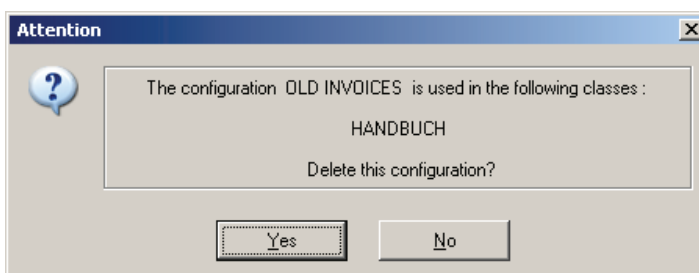


Illustration 12 – Warning before Deletion



Applies the modifications to the actual configuration. You will be asked whether the changes shall be saved:

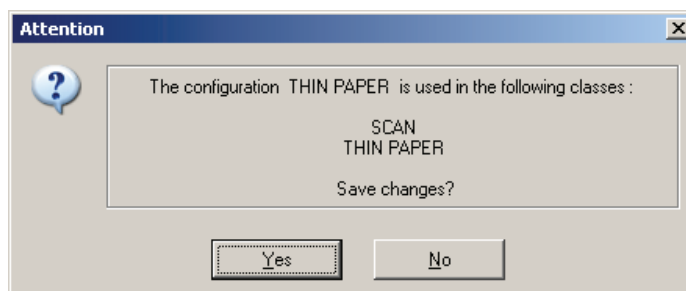


Illustration 13 – Question before Saving



Opens a dialog that displays in which Classes the actual configuration is also used.

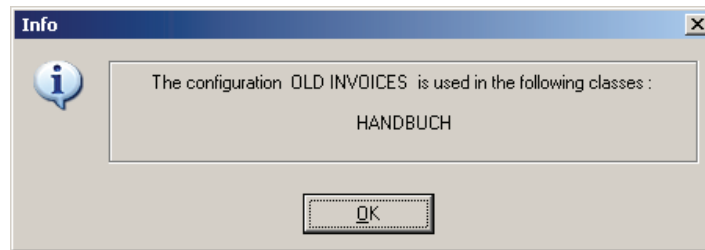


Illustration 14 – Information about Usage of the ID

The remaining area below offers the three property pages **General**, **Percent Code** and **Information**.

4.1 Property Page: General

The **General** page gives detailed information about the PlugIn, in this case about its version and about the producer.

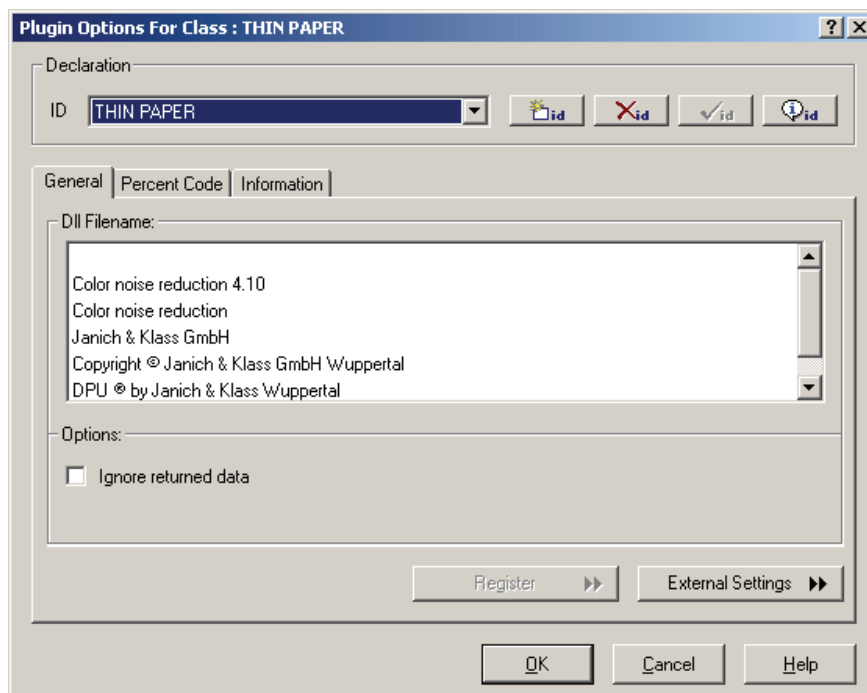


Illustration 15 – PlugIn Configuration, General Page

- Ignore returned data** The variables are not returned to DpuScan if this checkbox is activated.
- Register** Opens the dialog for entering the registration key, refer [Illustration 16 – Registration Dialog](#) on Page 15.
- External Settings** Opens the dialog for the PlugIn configuration, refer Chapter 5 [Configuration of the Color Noise Reduction](#) on Page 18.

Before its first usage, the PlugIn must be registered once. Please click the [Register](#) button and enter the key in the following dialog, in order to unlock the PlugIn for Color Noise Reduction.

The dialog box is titled "Color noise reduction". It contains a text area with the instruction: "Please enter the registration key here, in order to unlock this Plugin. If you press cancel, you can still enter the key in DpuScan." Below the text area is a registration key composed of eight segments: "1234", "ABCD", "5678", "EFGH", "9012", "IJKL", "3456", and "MNOP". At the bottom right of the dialog are two buttons: "Register" and "Cancel".

Illustration 16 – Registration Dialog

4.2 Property Page: Percent Code

On the **Percent Code** page, the variables are listed which the PlugIn uses, or which were defined in the configuration.

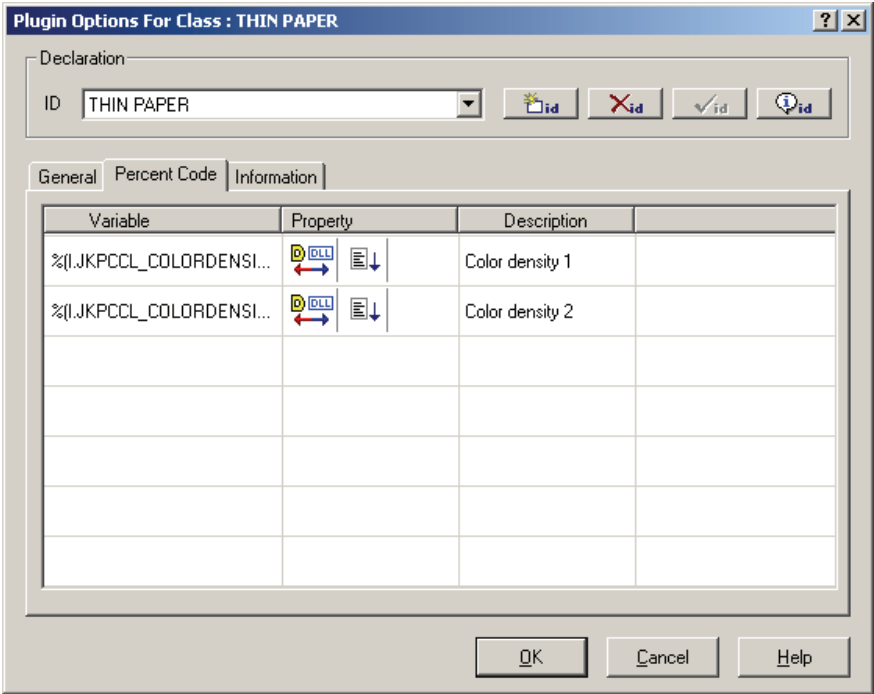


Illustration 17 – List of Variables

In the listing table, next to the name of the **Variable**, you see the **Property** column. It states with symbols how the variables are processed by the system. For the color noise reduction, the following symbols are displayed:

- The variable can be set by DpuScan and by the PlugIn.
- The variable is set while the according Task step is executed.

The color noise reduction returns the variables %(I.JKPCCL_COLORDENSITY1) or %(I.JKPCCL_COLORDENSITY2) to DpuScan.

The PlugIn calculates the colored portion of the image after its transformation and indicates it in 0.01%. A value of 2300 therefore corresponds to 23%. In the Variables, this value for the color density is returned for the parameter set 1 or 2. Please also refer Chapter [5 Configuration of the Color Noise Reduction](#) on Page [18](#).

4.3 Property Page: Information

This page offers, in a tree view, information about the name of the PlugIn, of its producer and its version.

The ID branch lists the windows, images and variables which the PlugIn uses. Here, the Color Noise Reduction PlugIn uses variables and images.

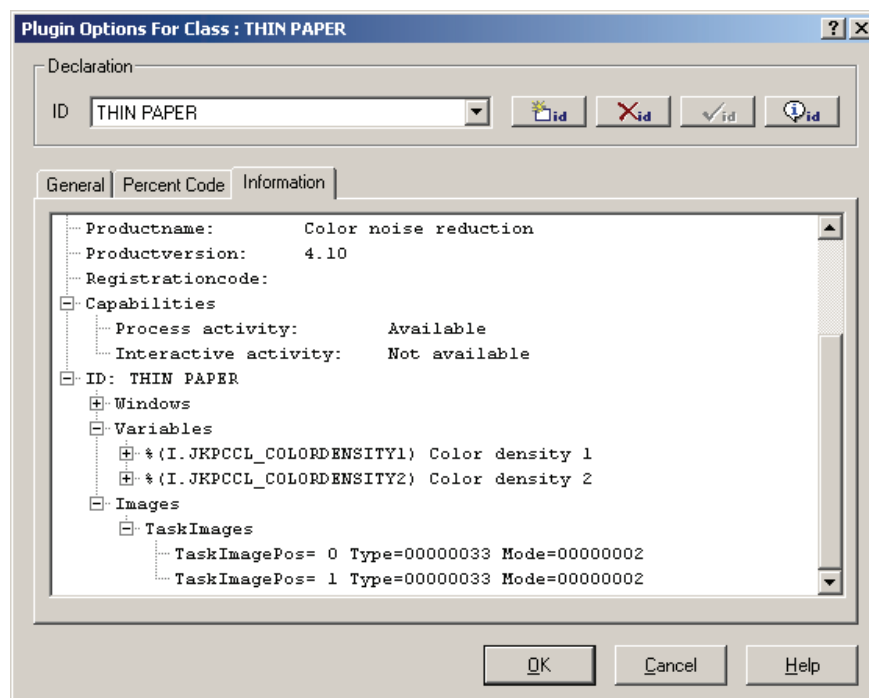


Illustration 18 – Property Page: Information

5 Configuration of the Color Noise Reduction

A click to the **External Settings** button, on the **General** page, opens the dialog for the configuration of the Color Noise Reduction.

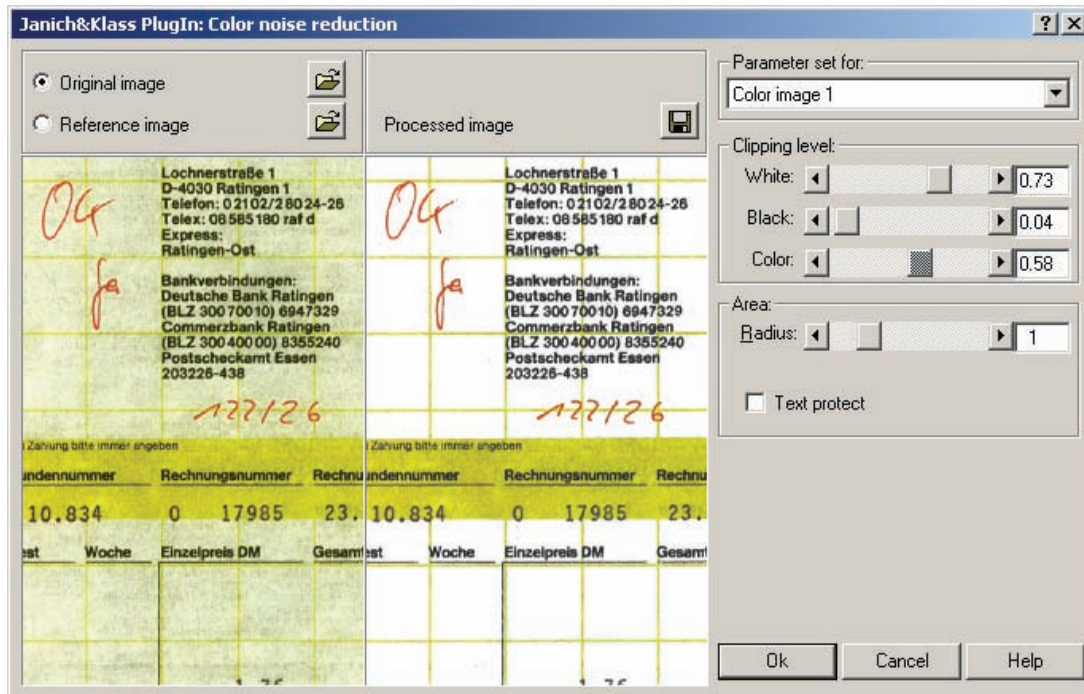



Illustration 19 – Color Noise Reduction Configuration Dialog

Original image


Click on  to reach an Open File dialog in order to load an image from the hard disk.

The right-hand pane (center of the page) will display the Processed image. Use the sliders (refer below) to set the parameters.

Reference image

You can have a second image as a Reference image. This is usually an already filtered image, so that the results from the actual settings with the Reference image can be compared.

Processed image

If the results from filtering are satisfactory, you can use the  button to save processed image under a new name, so that it can be loaded as a **Reference image**.

Then, use the radio buttons to toggle between the (new) original image and the reference image, for better comparison of the results.

Below these control elements, you have the preview windows. All other parameters on the right-hand side of the dialogs determine the effect of the transformation.

Parameter set for:

The color noise reduction can apply two parameter sets for two color images. So you can hand over two images, in the Task, and process them differently in the PlugIn.

A click on the left mouse button enlarges the image section, a right click reduces it again, dragging with the right mouse button pressed down moves the image section. Both image sections will react synchronously, if the **Reference image** option is disabled; otherwise the images can also be enlarged separately.

5.1 Setting the Clipping Level

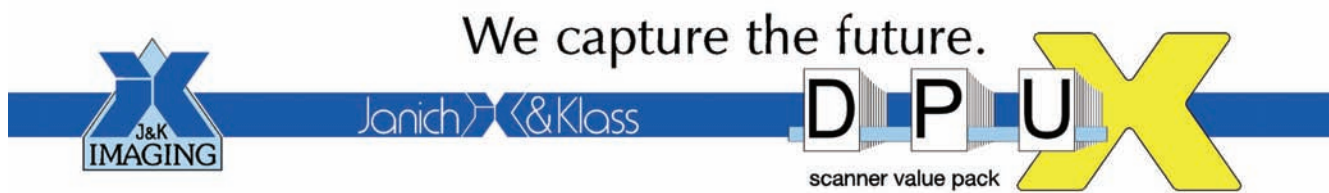
By means of several sliders, you can set the re-calculation for every single pixel, separately for:

White	If a gray value lies above the set white level, the pixel becomes white.
Black	If this gray value is below the set black level, the pixel becomes black.
Color	For every pixel, color and brightness are determined. If the level of color lies below the set value for color, the pixel is re-calculated to a matching gray value.

5.2 Definition of the Area

You can set these two items:

Radius	Whether a pixel must be transformed, or not, also depends on the set Radius . Only if every pixel inside the Radius may be transformed, the transformation will be executed. This way you can prevent that pixels within a graphic on the image are modified.
Text protect	The Text protect option tries to recognize, under consideration of the edges, whether a pixel belongs to a letter, and protects it from deletion, in due course.



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