



We capture the future.

Janich & Klass



## PlugIn for DpuScan **Gamma Correction**

Supplement to the DpuScan Reference Manual

## Copyrights

© 1997 - 2005 J&K Imaging, Marietta/USA and Janich & Klass, D-Wuppertal.

All rights reserved. Printed in Germany.

The information contained in this documentation is the property of J&K Imaging, Marietta and Janich & Klass, Wuppertal. Neither receipt nor possession hereof confers or transfers any right to reproduce or disclose any part of the contents hereof, without the prior written consent of J&K Imaging, Marietta and Janich & Klass, Wuppertal.

## Trademarks

The DPU logo is a registered trademark of Janich & Klass, Wuppertal. DpuScan is a trademark of J&K Imaging, Marietta/USA. All other product names and logos are trademarks or registered trademarks of their representative companies.

## Disclaimer

The instructions and descriptions in this manual were accurate at the time of this manual's printing. However, we reserve the right to alter the description and/or the product at anytime without prior notice.

J&K Imaging and Janich & Klass assume no liability for damages incurred directly or indirectly from errors, omissions, or discrepancies between this manual and the product.

## 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/Gamma-English.pdf>

© 2005..06 Janich & Klass Computertechnik GmbH, Wuppertal, Germany

September 13, 2006

## Table of Contents

1	Gamma Correction .....	4
2	Configuration in the Task.....	5
2.1	Executing Gamma Correction in Process Mode.....	5
2.2	Using Gamma Correction in the "Process images" Toolbar .....	6
3	Configuration in the Class.....	10
3.1	Administering PlugIn Configurations .....	11
3.1.1	Property Page: General.....	13
3.1.2	Property Page: Percent Code .....	14
3.1.3	Property Page: Information .....	14
4	Configuration of the Gamma Correction .....	15
4.1	A Setting Example .....	17

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 Gamma Correction

The Gamma Correction improves the brightness and the contrast of a gray or color image.

It is utilized where originals contain photos or dark graphics, like newspaper advertisements, darkened old technical drawings, or damage claims to insurances, with the photo of bruised black car door.

With "normal" black&white originals, like correspondence, files or so, it will hardly be used.



*Illustration 1 – Example of a for a Gamma Correction on a Photo*

In the above sample image "Water Lilies", the original photo (left-hand) was first processed with a Gamma value of 1.8 (in the middle) and alternatively 2.4 (right-hand). So, the stems of the flowers became obvious that had been hidden in the dark water and had hardly been visible.

Detailed setting instructions are found in Chapter [4 Configuration of the Gamma Correction](#) starting from page [15](#).

## 2 Configuration in the Task

Gamma Correction is a PlugIn that can be used in the process mode, but also for interactive image enhancement, in the Pause mode; refer Chapter [2.2 Using Gamma Correction in the "Process images" Toolbar](#) on page 6.

### 2.1 Executing Gamma Correction in Process Mode

For a usage in the process mode, first the images must be loaded, then the Task action "Call plugin for every image" must be executed. This step will, however, become available only if the PlugIn was loaded in the actual Class.

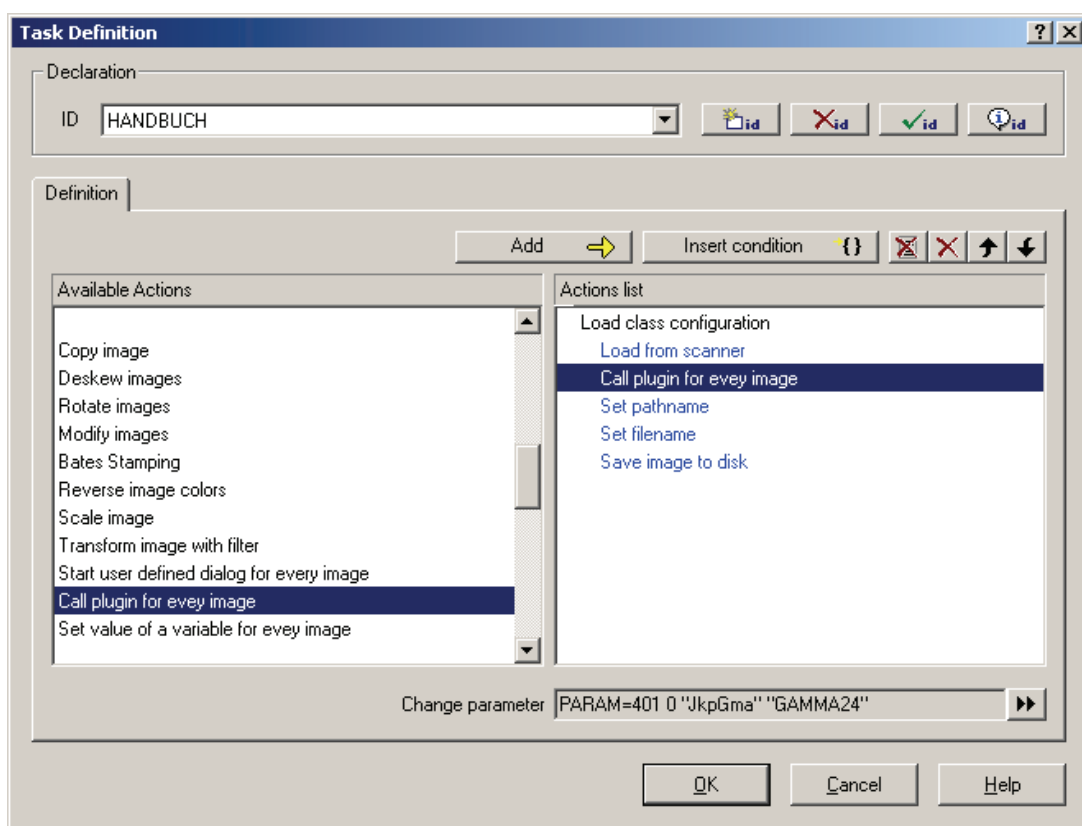
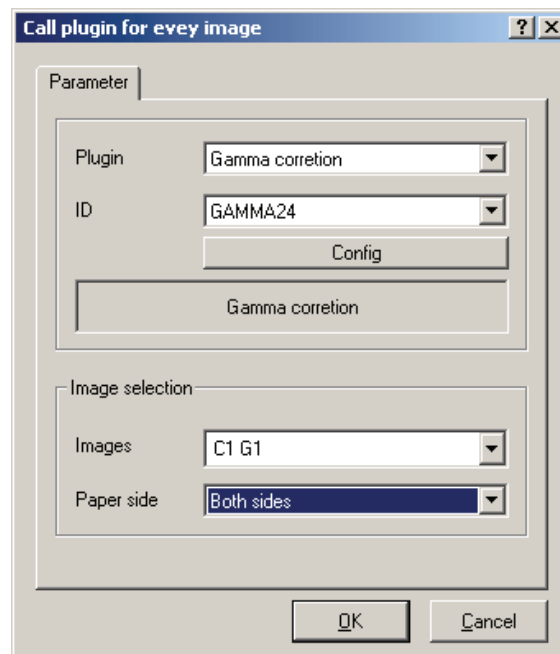


Illustration 2 – Usage in the Task

For calling the PlugIn, you can select an **ID** from the existing PlugIn configurations. Next, the call can be utilized for certain images.



*Illustration 3 – Select Parameter, when Calling it in the Task*

The Gamma Correction PlugIn can be used for **color images and for grayscale images**. In the above call, the first each color and gray image will be processed.

***When this PlugIn is called, it will not create new images, but will change the transferred images. If you want to keep the original image, you must copy the image prior to the PlugIn process.***

The configuration is made in all details in the Class, see Chapter [4 Configuration of the Gamma Correction](#) on page [15](#).

## 2.2 Using Gamma Correction in the "Process images" Toolbar

As soon as an OpenJob is in Pause mode, its images can individually be processed. For it, diverse symbols are available. The factory setting offers no buttons for the usage of PlugIns; they must be assigned in the **Application Layout | Actions**.

In the following example, buttons will be added for the PlugIn configurations "Gamma18" and "Gamma24".

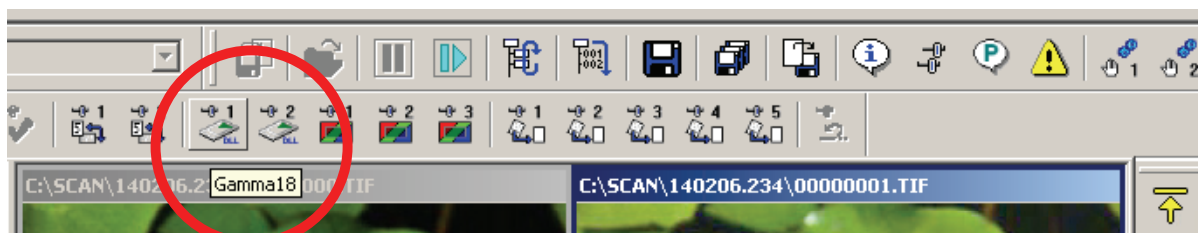


Illustration 4 – PlugIn Call in the "Process images" Toolbar

Then, the active image can be corrected using one of these fix Gamma values, see [Illustration 1 – Example of a for a Gamma Correction on a Photo](#) on page 4.

The factory setting of DpuScan does not yet offer any such buttons in its "Process images" toolbar. Up to nine different PlugIn configurations can be executed in the toolbar, either completely different PlugIns, or different sets of parameters for the same PlugIn, or any mixture of these options.

In the main menu, please click the button for the Application Layout  
... and you reach the dialog for its setup:

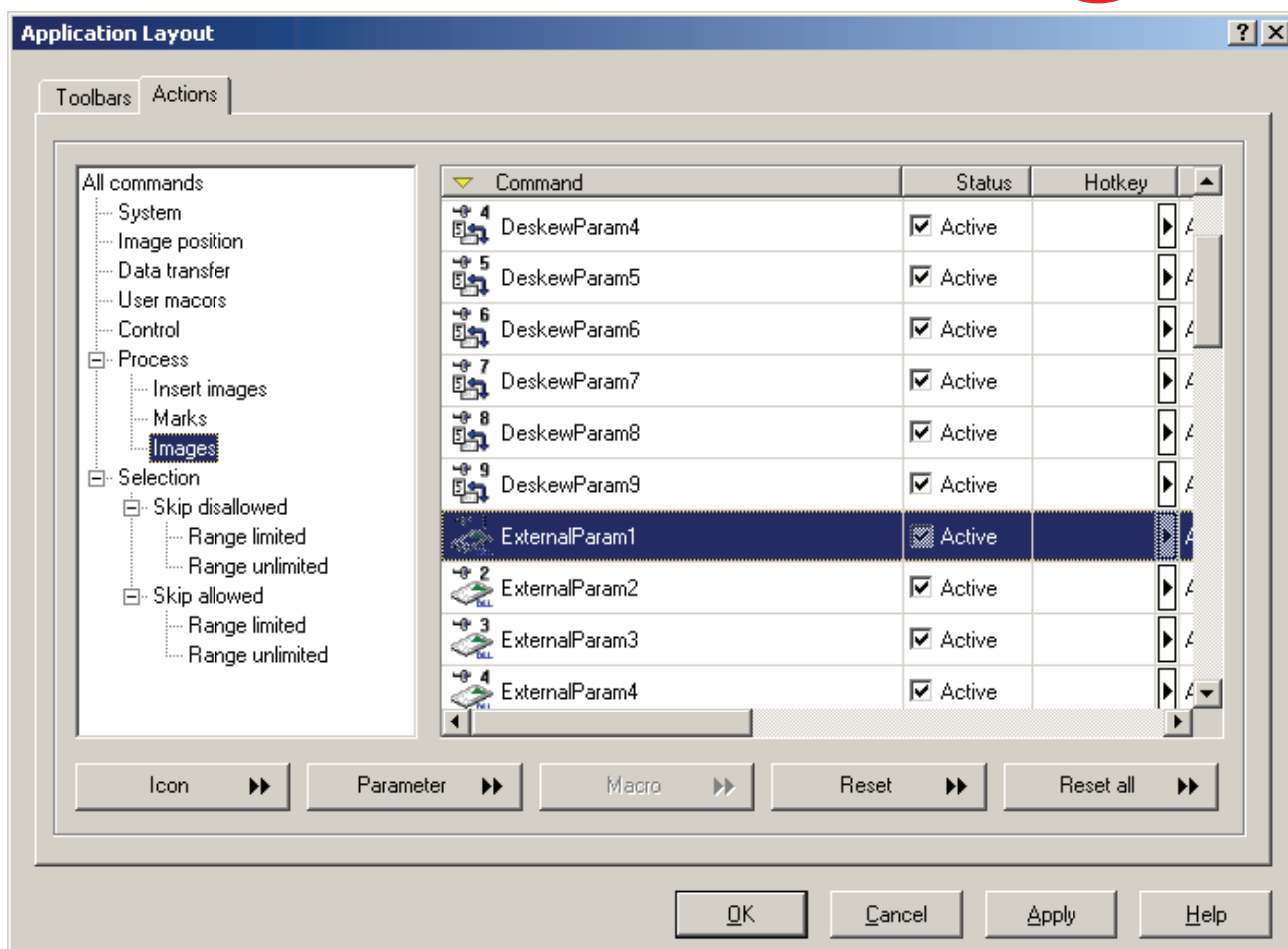
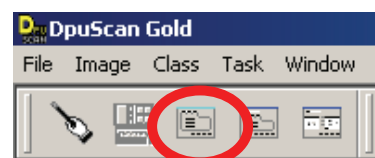


Illustration 5 – Add PlugIn Button to the "Process Image" Toolbar



The first button shall be assigned with the configuration "Gamma18" – You will find details about how to set such configurations in the following Chapters 3 and 4. For now, we assume that these configuration already exist; therefore they can be selected, after a click to **Parameter**:

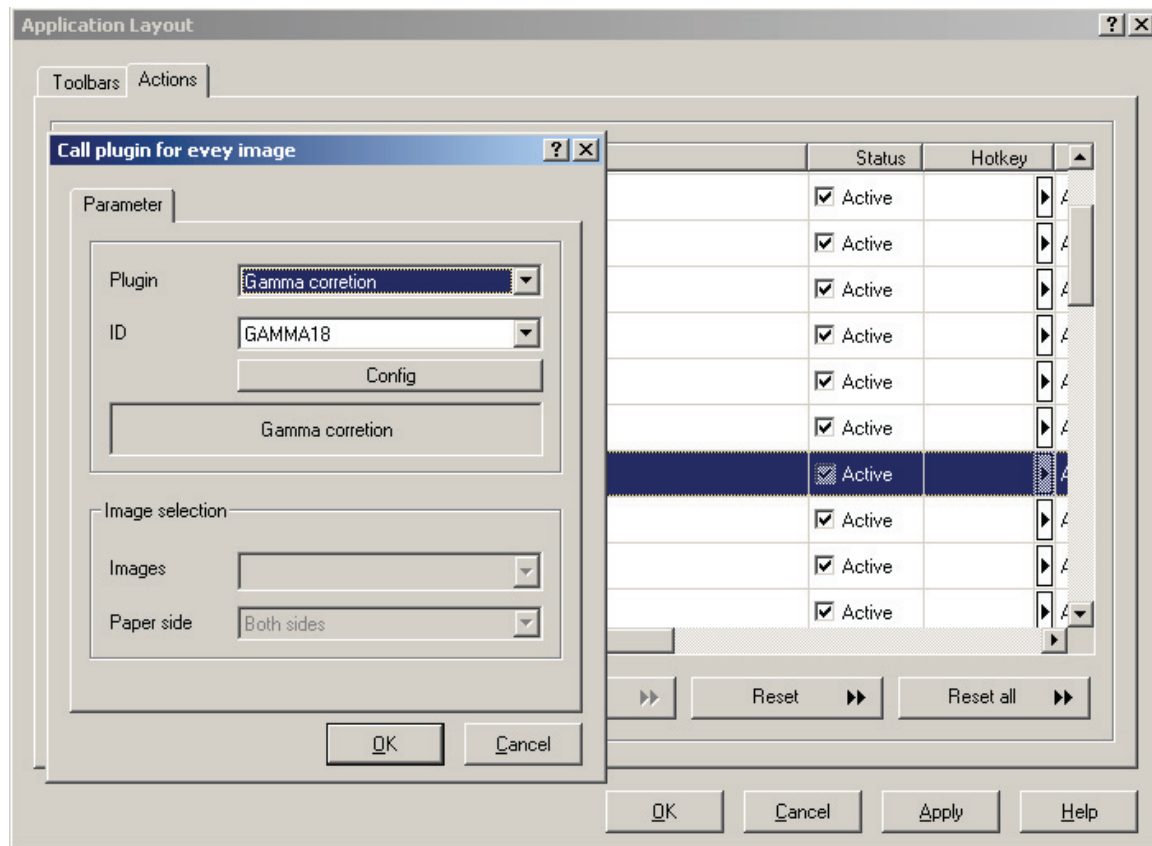


Illustration 6 – Plugin Button in the "Process images " Toolbar, Assign Parameters

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

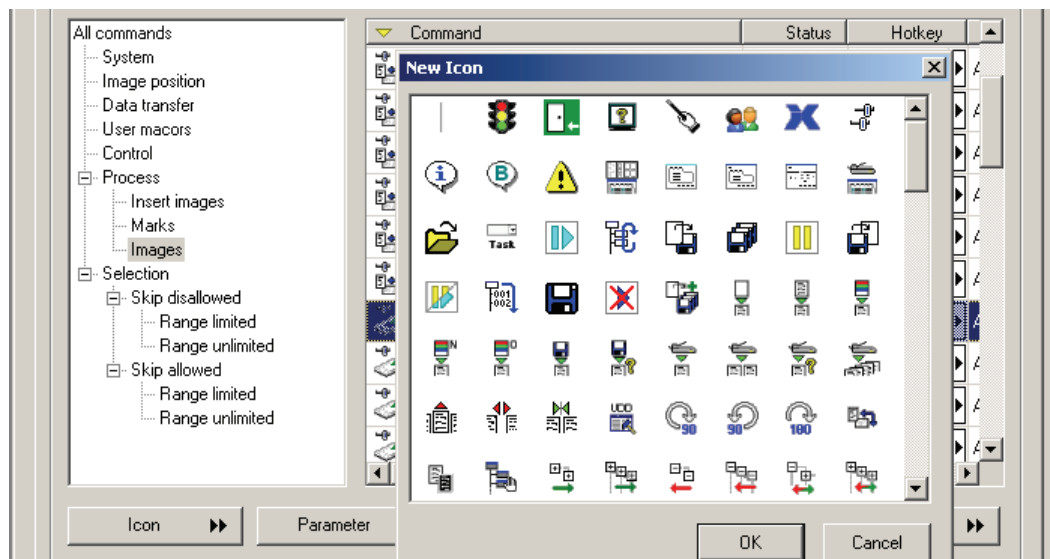
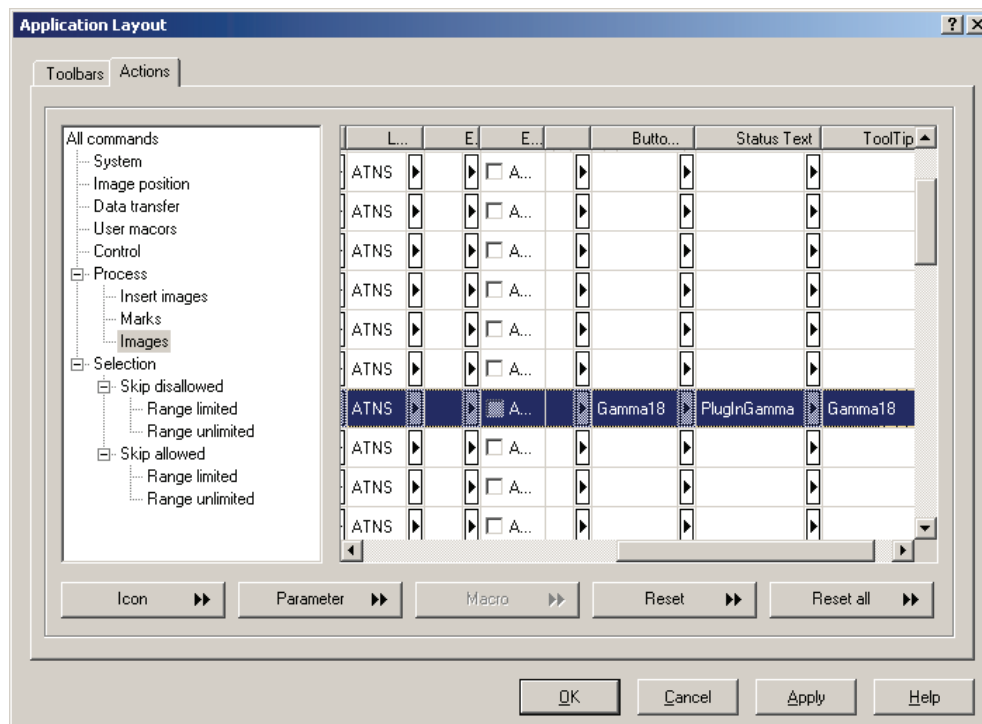


Illustration 7 – Plugin Button in the "Process images " Toolbar, Assign Icon



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, Inscription*

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 – Add PlugIn Button to the "Process Image" Toolbar\*](#) on page 7.

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

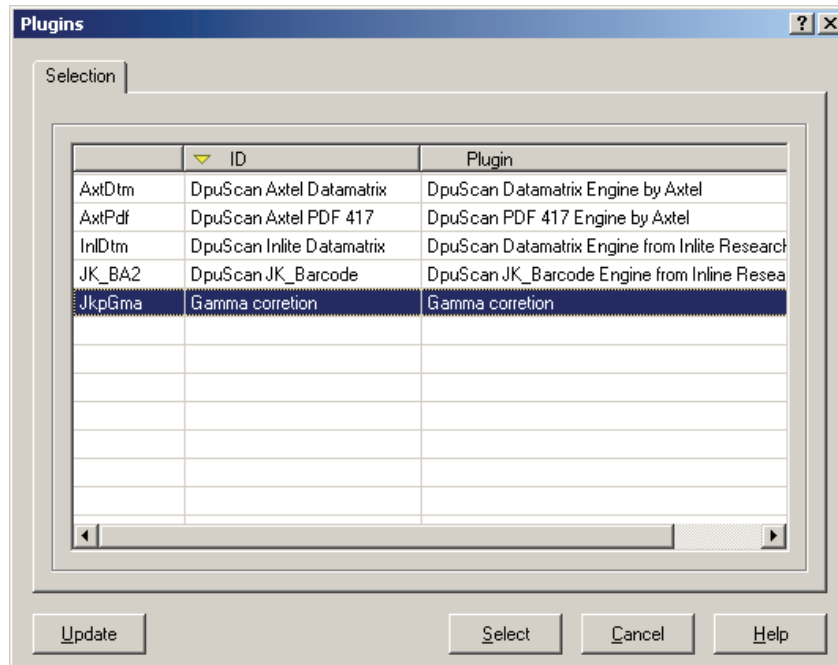


Illustration 9 – PlugIn Selection

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

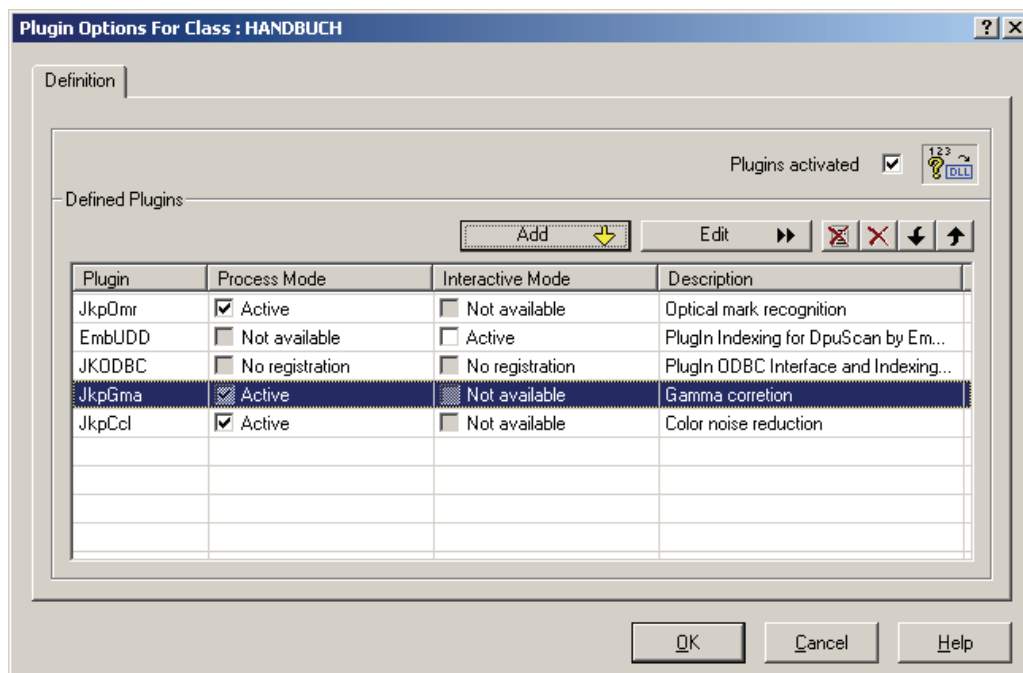


Illustration 10 – PlugIn Configuration for the Class

The Gamma Correction 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 because the "Gamma Correction" PlugIn has no interactive mode of its own.

Still, it is also possible to utilize the Gamma Correction with the "Process Image" toolbar, as described in Chapter [2.2 Using Gamma Correction in the "Process images" Toolbar](#) on page 6.

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

## 3.1 Administering 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.

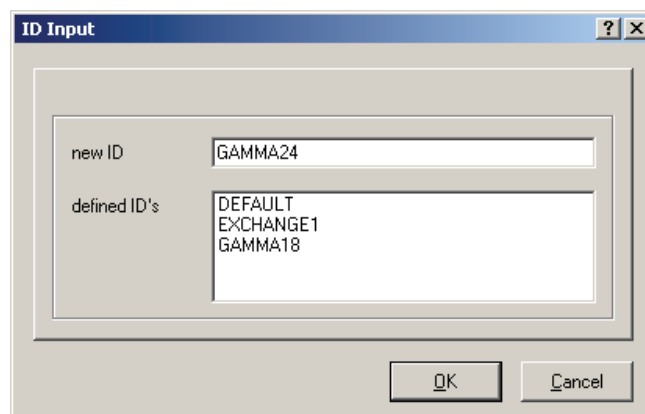


Illustration 11 – Defining a New ID



Deletes the actual configuration. A warning message will be thrown in due case:

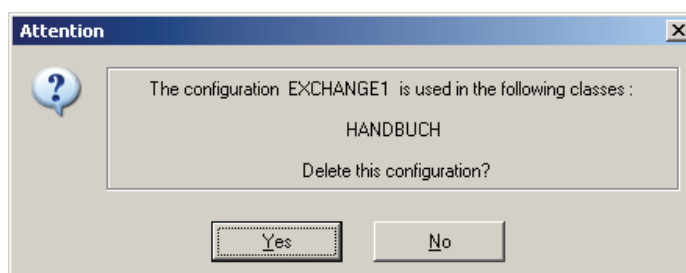
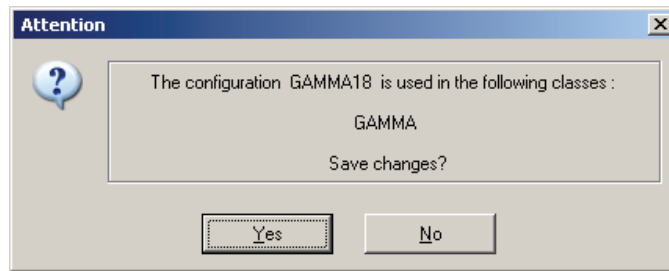


Illustration 12 – Warning before Deletion



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**.

### 3.1.1 Property Page: General

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

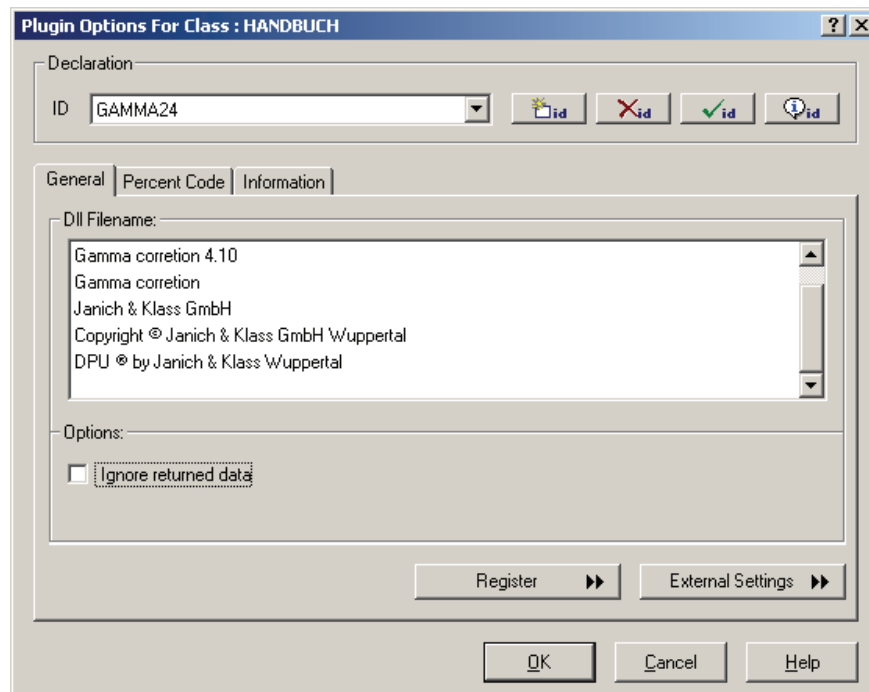


Illustration 15 – PlugIn Configuration

**Ignore returned data** The variables are not returned to DpuScan if this checkbox is activated.

**Register** Opens the dialog for entering the registration key, see below.

**External Settings** Opens the dialog for the PlugIn configuration, see Chapter [4 Configuration of the Gamma Correction](#) on page [15](#).

**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 Gamma PlugIn.**

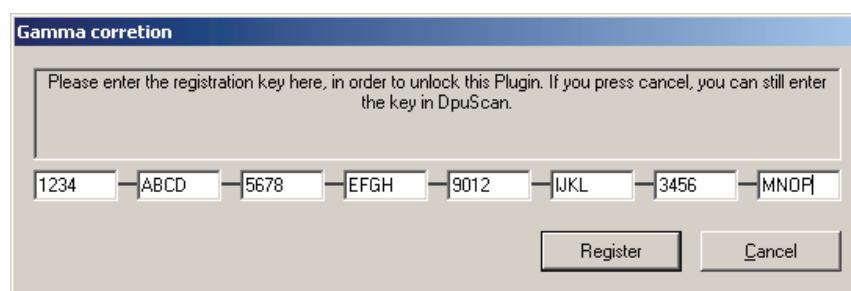


Illustration 16 – Registering Dialog

**With DpuScan Gold and DpuScan QSI, this registration will be void. Here, the Gamma PlugIn belongs to the scope of supply and will be automatically released by the dongle.**

### 3.1.2 Property Page: Percent Code

Usually, the **Percent Code** page lists the variables which the PlugIn used or which are defined within the configuration. As the Gamma Correction exchanges no such variables, this list is always empty.

### 3.1.3 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 Gamma Correction PlugIn uses up to four images.

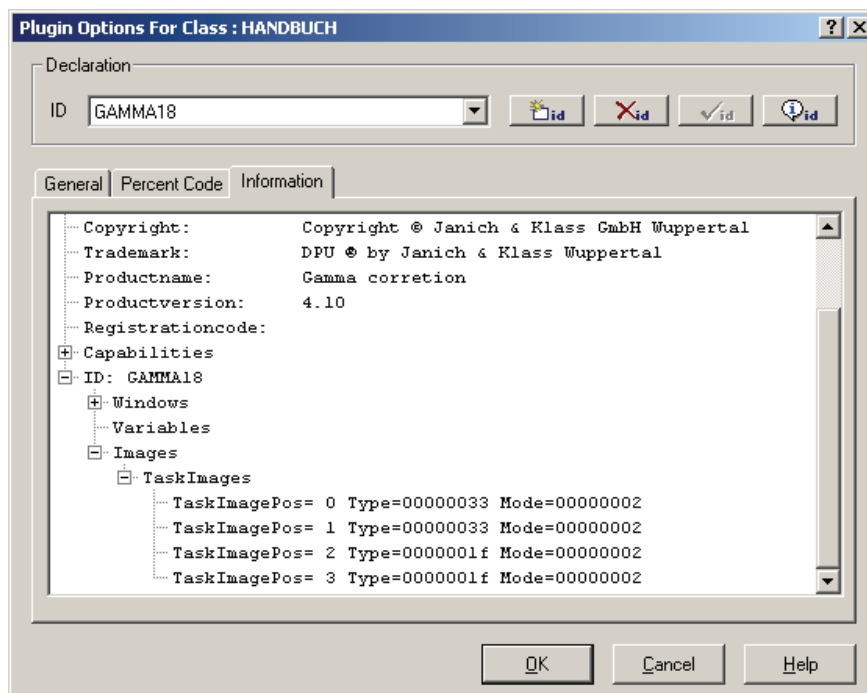
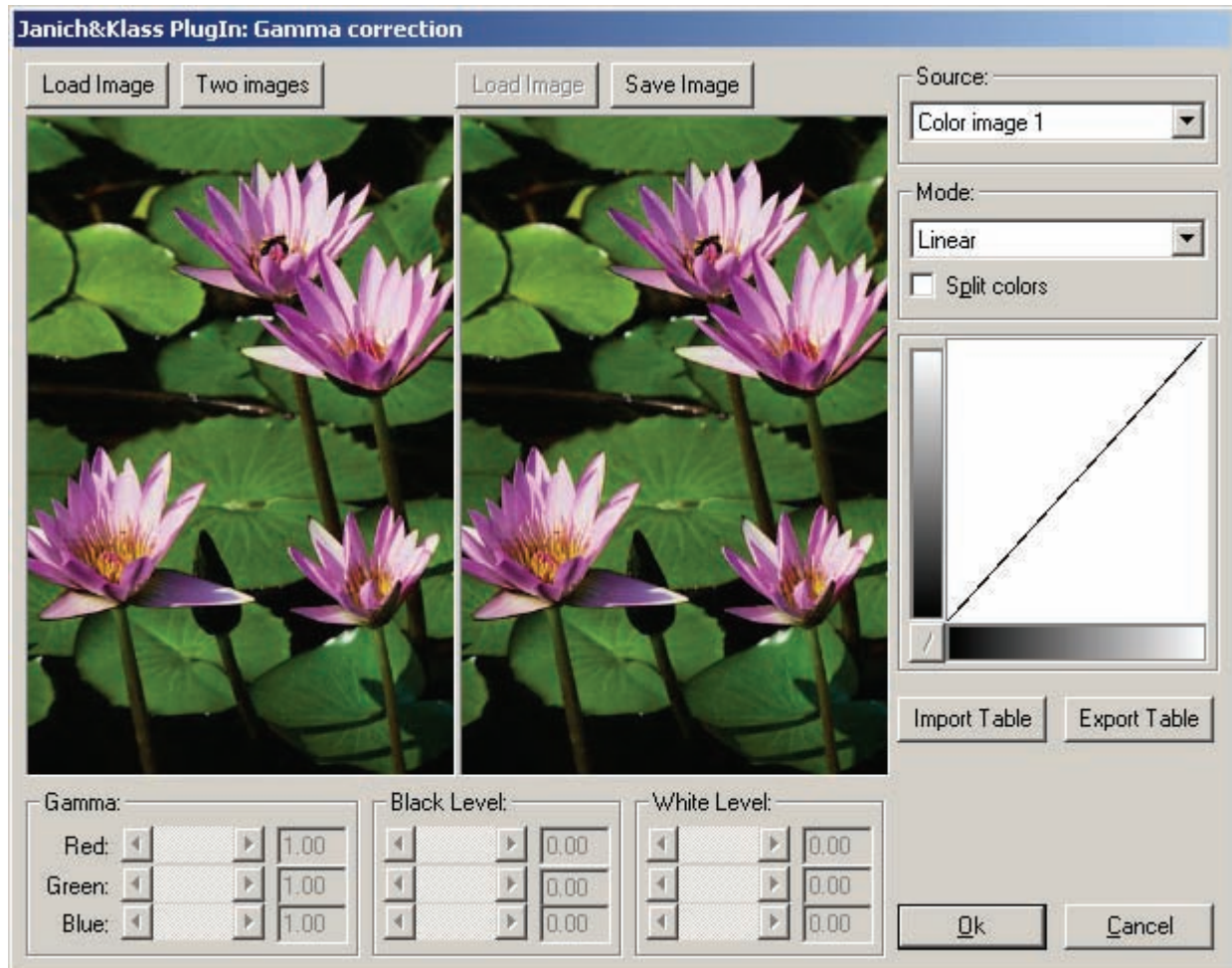


Illustration 17 – Property Page: Information

## 4 Configuration of the Gamma Correction

A click to the **External Settings** button, on the **General** page, opens the dialog for the configuration the Gamma Correction.



*Illustration 18 –Gamma Correction Configuration Dialog*

It features a preview window that will illustrate the effects of the transformation. Initially, the **Mode** supposes a "linear" gradation line. Switch the **Mode** to **Function** to activate the setting elements for **Gamma**, **Black Level** and **White Level**.

### **Load Image** (top left)

Click here to reach an "Open File" dialog and to load an image from the hard disk. The image is then displayed in the left-hand window.

If the **Two images** option is disabled, the processed image is also displayed on the right-hand side.

If the option is enabled, a second image can be loaded to the left half, as a reference.



**Two images**

**Two images** allows to decide between two configuration possibilities:

- In the One image mode, the original image is shown in the left window, and the transformed image is in the right-hand window. When you zoom or move the image, both sides will show the same image section.
- The Two images mode however shows any different image in the left window, while the transformed image remains visible in the right-hand window. The original image is invisible.  
This mode allows to adapt the transformation to a reference image.

**Load image** (right)

As above, but, instead of the loaded image, the already processed image will display.

**Source**

The Gamma Correction can use two each sets of parameters for color images and gray images. So up to four images can be transferred to the Task and can be processed differently in the PlugIn.

If, in process mode, several images are transferred to the PlugIn, they will be distributed to the parameter sets. All further color or gray images are ignored.

Beneath these control elements, the left-hand page is occupied by the preview. The further parameters on the right-hand side of the dialog rule the effects of the transformation.

**left preview /  
right preview**

Click your left mouse button to enlarge the section (zoom in); click the right button to zoom out again. To move the image, press down the right mouse button and move the mouse.

Both image sections will react synchronously if the **Two images** option is switched off, otherwise you can enlarge the images also separately.

**Mode**

Here, you set the method of Gamma Correction:

A **Linear** transformation leaves the image unchanged, an **Inverted** transformation will reverse the image colors.

If you want to use already existing Gamma tables, select the **Userdefined** mode and load them, using the **Import Table** button

The **Function** mode allows interactive setting of the other parameters: **Gamma**, **Black Level** and **White Level**.

### Split colors

Use **Split colors** if you want to set the colors red, green and blue separately.

### Gamma

The human eye focuses on the middle of the full color spectrum; the other colors are invisible.

The **Gamma** value indicates how far the contrast differences that are usually spread evenly must be moved to the medium area of the color spectrum which is most important for the human eye.

### Black Level White Level

The two sliders for the **Black Level** and **White Level** decide from which or until which color value this correction shall be effective.

Colors below the Black Level will be transformed to black, colors above the White Levels are transformed to white.

### Import Table Export Table

If the settings shall be saved or loaded independent of DpuScan, you can do so by using the **Import Table** / **Export Table** button.

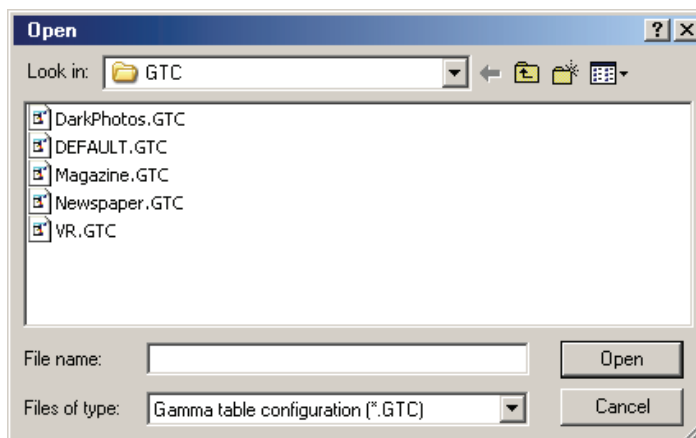


Illustration 19 – Load a Gamma Table

The utilized format is compatible to the format of the Gamma tables which are used in the Janich & Klass drivers for scanners from InoTec and microform.

## 4.1 A Setting Example

Already in the beginning, [Illustration 1 – Example of a for a Gamma Correction on a Photo](#) on page 4 showed the effects of the Gamma Correction. Here, you can now follow the setup of the configuration and the changes in the so-called gradation curve, by means of this examples.

We use the already known example image "Water Lilies" and first set the Gamma Correction to 1.8 – the curve remains at its fix final points, but there is a noticeable bend in the bottom area, see [Illustration 20 – Example: Gamma Correction Gamma 1.80](#) on page 18.

Still. not all details were visible in the black water area, therefore the Gamma Correction was raised to 2.40 in a second trial, see [Illustration 21 – Example: Gamma Correction Gamma 2.40](#) on page 18.

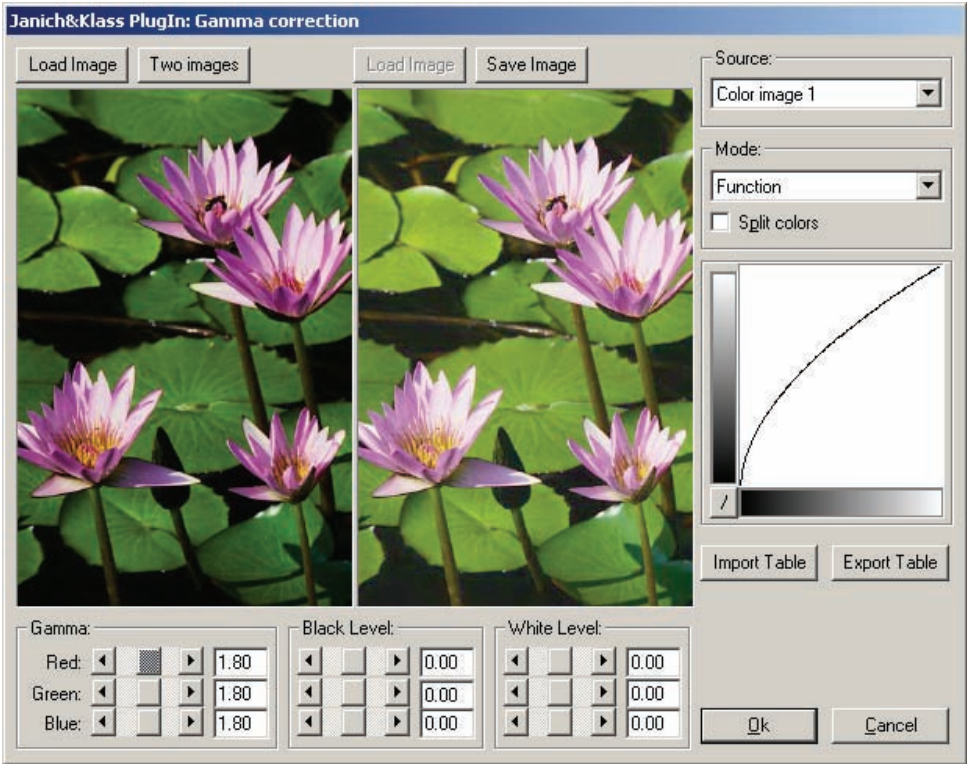


Illustration 20 – Example: Gamma Correction Gamma 1.80

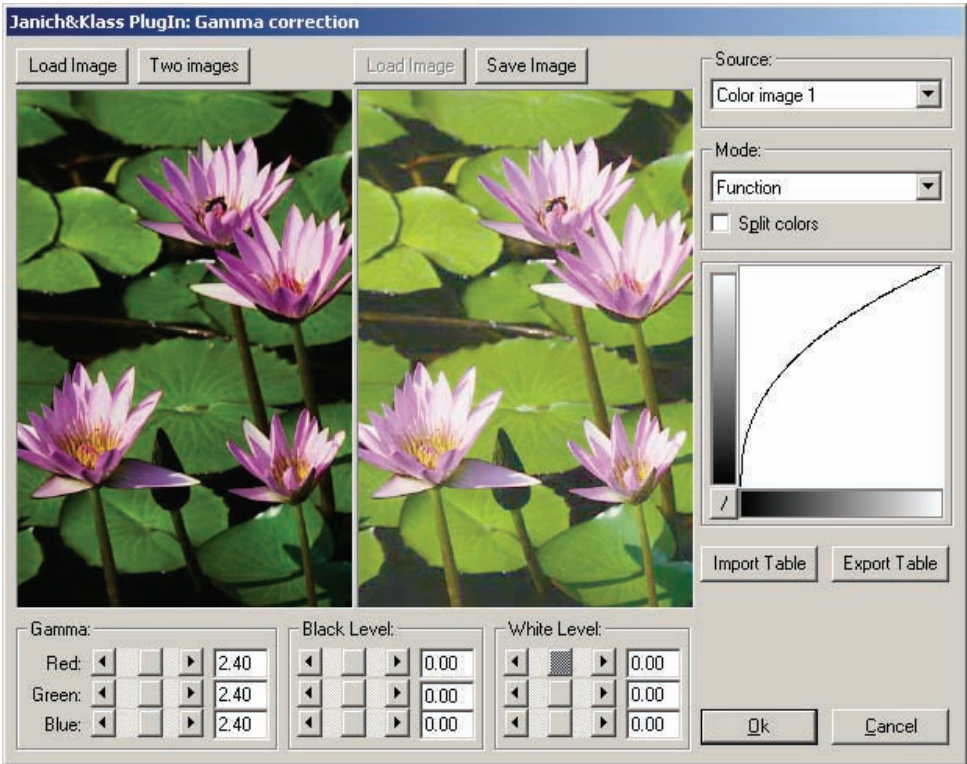


Illustration 21 – Example: Gamma Correction Gamma 2.40

In order to improve the color saturation again, the final step is to slightly raise the Black Level. This moves the starting point of the curve to the right, see [Illustration 22 – Example: Gamma Correction Gamma 2.40 with Black](#) on page 18.

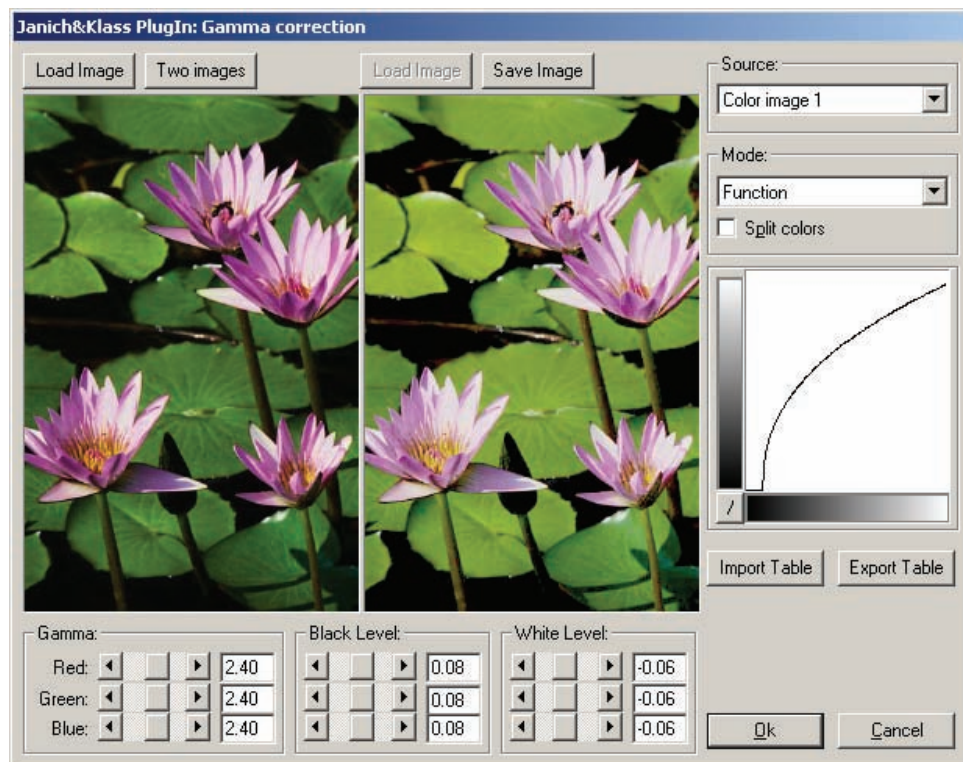
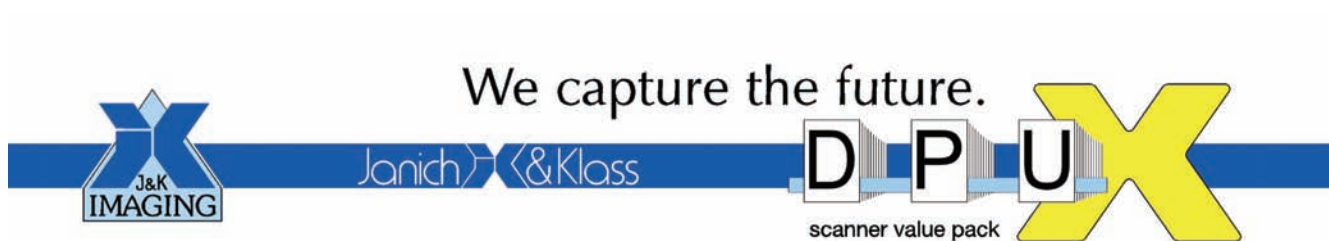


Illustration 22 – Example: Gamma Correction Gamma 2.40 with Black Level 0.08

Vice versa, with a too light motive, you would have to move the White Level to the left in order to make all details visible. In the actual example, the White Level was altered only minimally.



Janich & Klass Computertechnik GmbH  
Zum Alten Zollhaus 24  
D-42281 Wuppertal  
Germany  
Phone: +49 (0)202 2708-0  
Fax: +49 (0)202 700 625  
<http://www.janichklass.com>

J&K Imaging, L.P.  
1633 Sands Place  
Marietta, GA 30067  
USA  
Phone: (770) 984-1212  
Fax: (770) 953-8399  
<http://www.JKImaging.com>

408.200403.001 3