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scanner value pack

PlugIn for DpuScan

FaceSnap[®]

Face Recognition

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/FaceSnap-English.pdf>

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PlugIns for DpuScan provide expansion of its functionality and must be licensed separately.

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

1 Overview

When personal data are processed, the capture of photos of the relative persons is of ever increasing importance. In most cases, the pictures come in form of sticked photos together with further data on one common form. The process demands, further to scanning the entire paper, also to extract the photo. This photo must meet certain standards so that it can be further processed automatically.

Here, the FaceSnap® PlugIn supports mass processing. The scanned sheets are browsed for faces, in automated manner. The results are returned as separate image. It is irrelevant where the photo is placed on the page.

FaceSnap® is available in two versions:

FaceSnap® Process serves for automated extraction of these photos. The PlugIn is called with pre-defined parameters during the process for every scanned image so that no manual intervention is required.

Due to photo sizes that differ from the prescriptions, or due to other filter criteria, it may happen that the automatic process returns no face clipping on few, single images. Here, **FaceSnap® Interactive** will be used. The parameters to be used can be altered in a dialog. Using this new set of parameters, another search is executed on the source image. The results are immediately visible on the screen. This way, faces can be recognized also on bad originals, without the need to rescan the original.

In the following, we indicate at the start of every chapter for which variant of the PlugIn it holds, like for example:

FaceSnap® Process	<input checked="" type="checkbox"/>	FaceSnap® Interactive	<input type="checkbox"/>
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In this case, the function is not available for interactive post-processing.

2 The PlugIn in the Task Definition

FaceSnap® Process <input checked="" type="checkbox"/>	FaceSnap® Interactive <input type="checkbox"/>
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In the Task definition, after getting the images, by the Task step "Load from scanner" or "Load from directory", you can add the call for the PlugIn FaceSnap® Process or FaceSnap® Interactive, respectively.

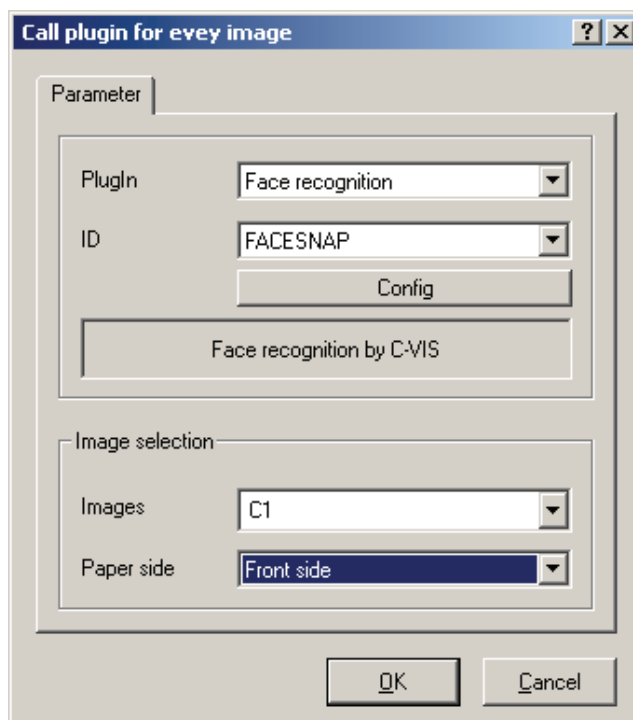


Illustration 1 – Calling the PlugIn in the Task

This Task step is available only if the PlugIn was loaded in the relative Class.

To configure the Task step, select the **FaceSnap®** PlugIn from the dropdown list, then the prior defined configuration, and the color format / image, and finally determine the side to be processed (Front side / Back side / Both sides).

FaceSnap® requires a color image as base.

3 The PlugIn in the Class Definition

FaceSnap® Process	<input checked="" type="checkbox"/>	FaceSnap® Interactive	<input checked="" type="checkbox"/>
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The PlugIn must be loaded and configured in the Class. Open the **Class Configuration**, select the **Process** page and click on the **PlugIns** button.

Via the **Add** button, you reach the dialog to select the available PlugIns.

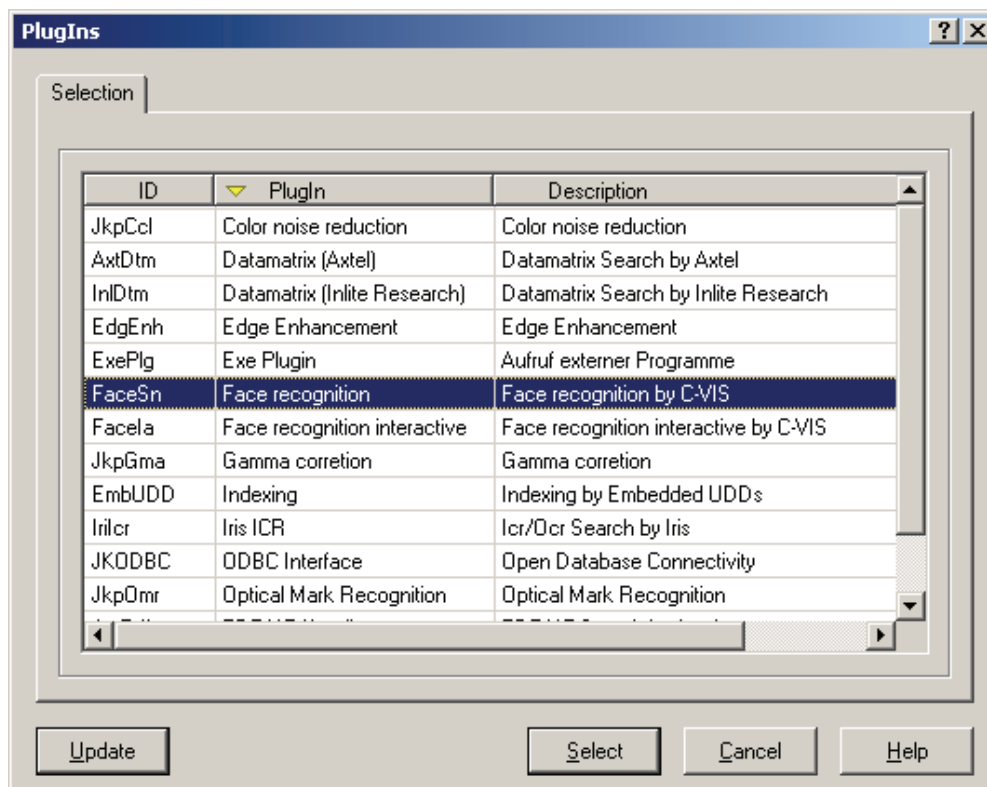


Illustration 2 – Selecting the PlugIn

Now you can select the PlugIn **FaceSn** (FaceSnap® Process) or **Facela** (FaceSnap® Interactive), by selecting on the relative line and clicking **Select** button.

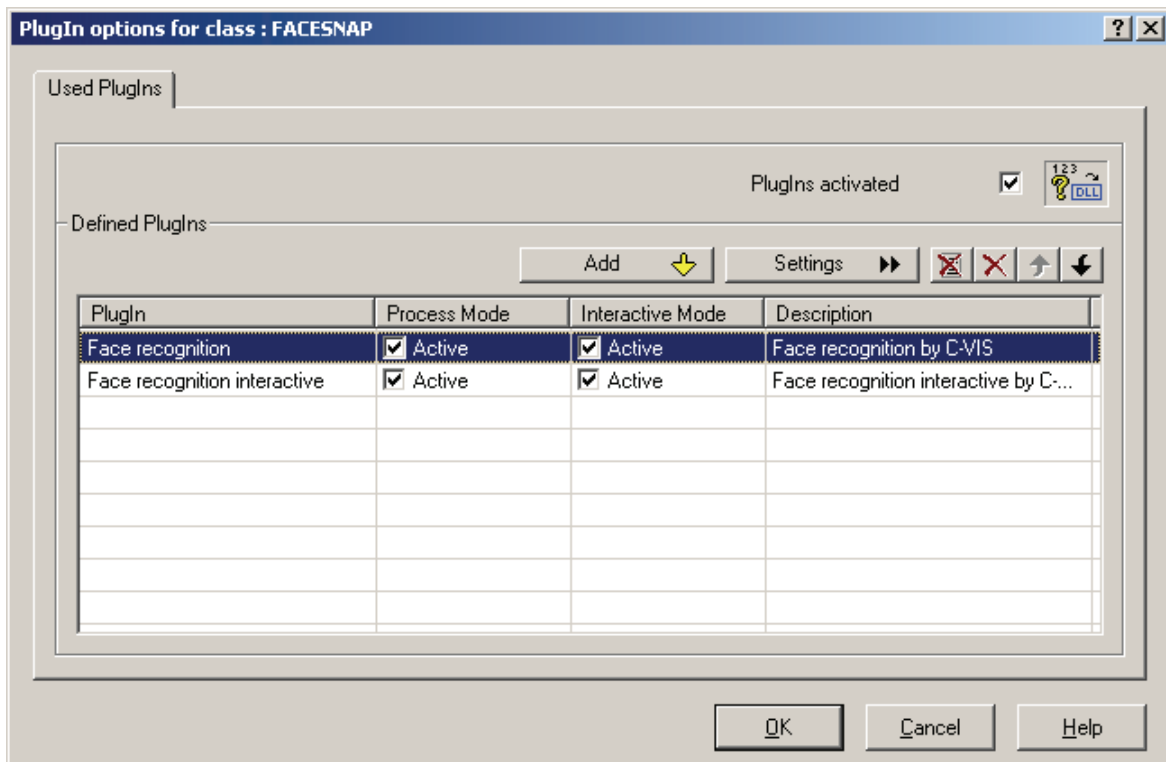


Illustration 3 – PlugIn Configuration for the Class

The PlugIn is now loaded for use in this Class.

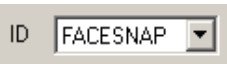
The PlugIn FaceSnap® Interactive is (seen from the Class) also active in the Process Mode, but it cannot be used as a "Load PlugIn" Task step. In contrary, its use is restricted to the "Process image" toolbar.

Please keep in mind that the "PlugIns activated" check box must be ticked as otherwise the PlugIns will not be used.

3.1 Configuration of the PlugIn

FaceSnap® Process	<input checked="" type="checkbox"/>	FaceSnap® Interactive	<input checked="" type="checkbox"/>
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A double click on the line in the list opens the PlugIn configuration – refer [Illustration 7 – PlugIn Configuration](#) on Page 10. At the top are the control elements for administering different PlugIn configurations.



Selects an existing configuration and assigns it to this Class.



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

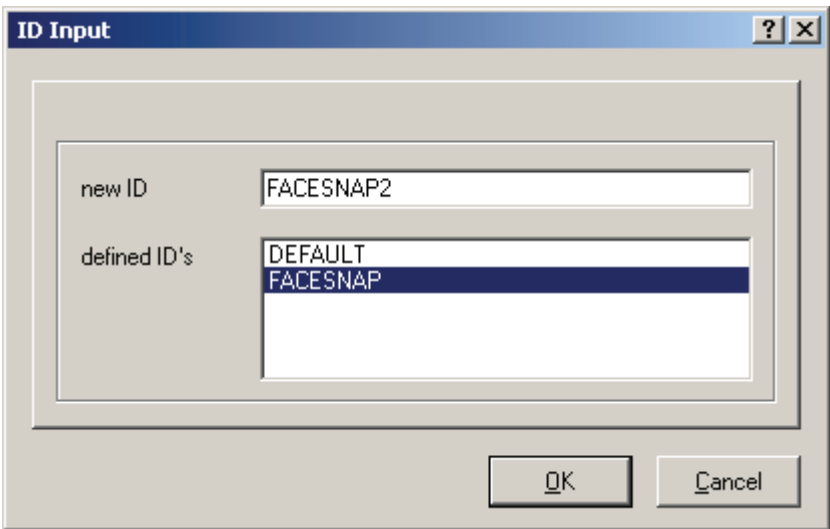


Illustration 4 – Defining a New ID



Deletes the actual configuration. A warning message will be given:

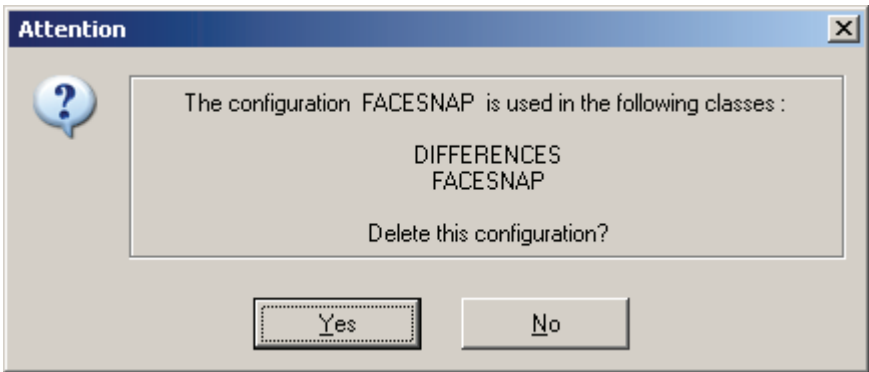


Illustration 5 – Warning before Deletion



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



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

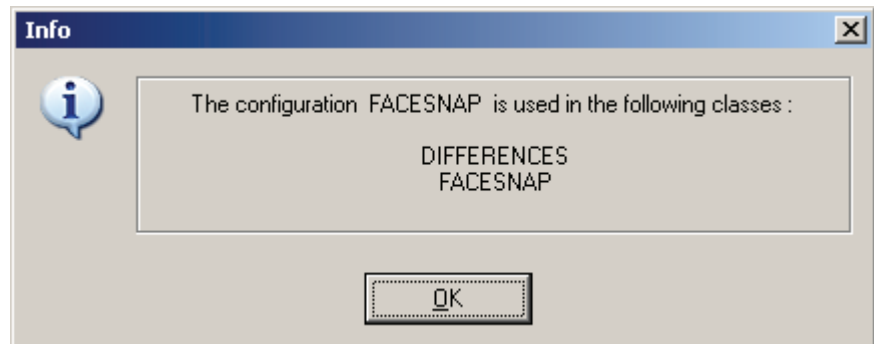


Illustration 6 – Information about Usage of the ID

The remaining area contains three property pages **General**, **Percent Code** and **Information**.

Please keep in mind that the configuration dialogs look the same for both Plugins, but the configurations are saved in different files. A configuration for FaceSnap® Process cannot be used for FaceSnap® Interactive, and vice versa.

3.1.1 Property Page: General

FaceSnap® Process	<input checked="" type="checkbox"/>	FaceSnap® Interactive	<input checked="" type="checkbox"/>
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The **General** page shows detailed information about the PlugIn, in this case about its version and its producer.

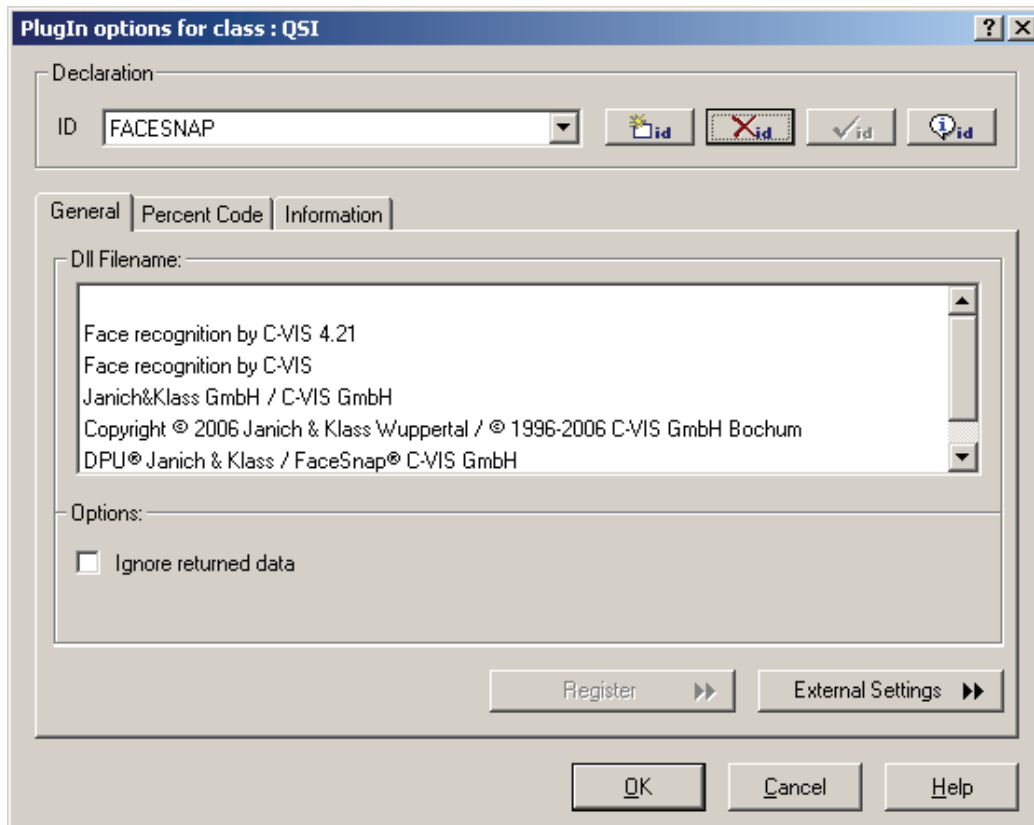


Illustration 7 – PlugIn Configuration, "General" Page

Ignore returned data

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

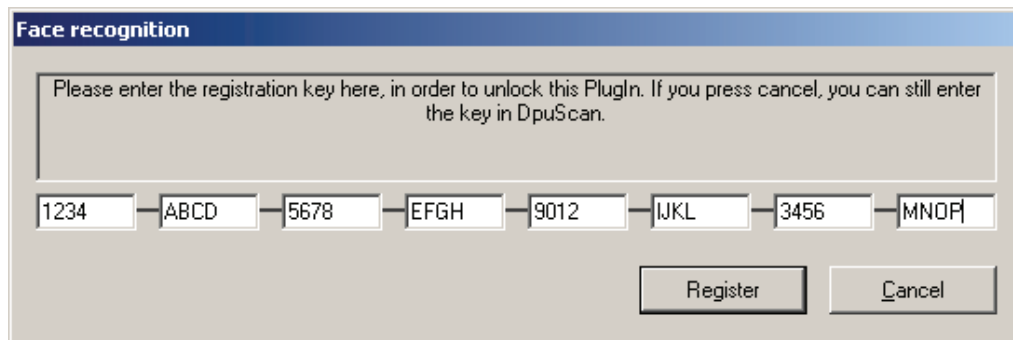
Register

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

External Settings

Opens the dialog for the PlugIn configuration, refer Chapter [4 Configuration for Face Recognition](#) on Page [14](#).

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 the FaceSnap® Plugin.



The dialog box is titled "Face recognition" in a blue header bar. Below the header, there is 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, there is a row of eight input fields, each containing a two-digit number or a two-letter combination: 1234, ABCD, 5678, EFGH, 9012, IJKL, 3456, and MNOP. At the bottom right of the dialog, there are two buttons: "Register" and "Cancel".

Illustration 8 – Registration Dialog

3.1.2 Property Page: Percent Code

FaceSnap® Process	<input checked="" type="checkbox"/>	FaceSnap® Interactive	<input checked="" type="checkbox"/>
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The **Percent Code** page lists the variables which the relative PlugIn uses.

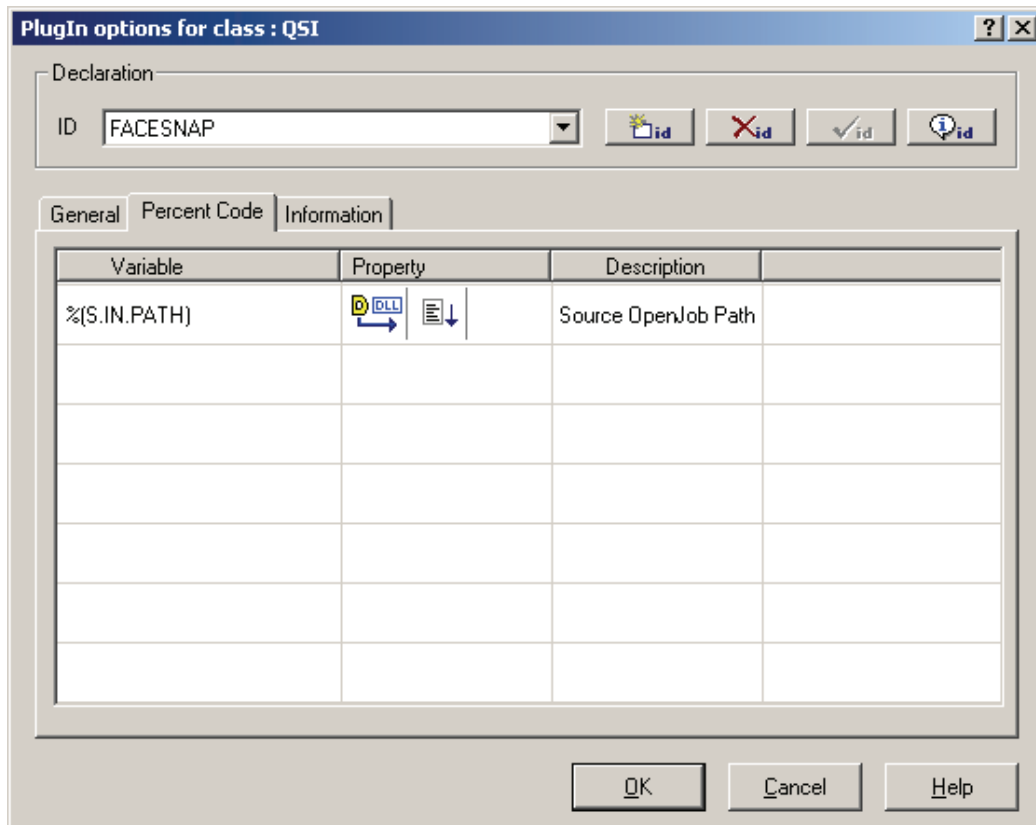


Illustration 9 – List of Variables

The variable `%(S.IN.PATH)` is a system-internal variable that the PlugIn needs to communicate with the scan program. The variable has no meaning for the configuration of a Task. Its name is fixed and cannot be modified.

3.1.3 Property Page: Information

FaceSnap® Process	<input checked="" type="checkbox"/>	FaceSnap® Interactive	<input checked="" type="checkbox"/>
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This page offers, in a tree view, information about the name of the PlugIn, its producer and its version. The ID branch lists the windows, images and variables which PlugIns use. The delivered image is processed and returned to the calling scan application.

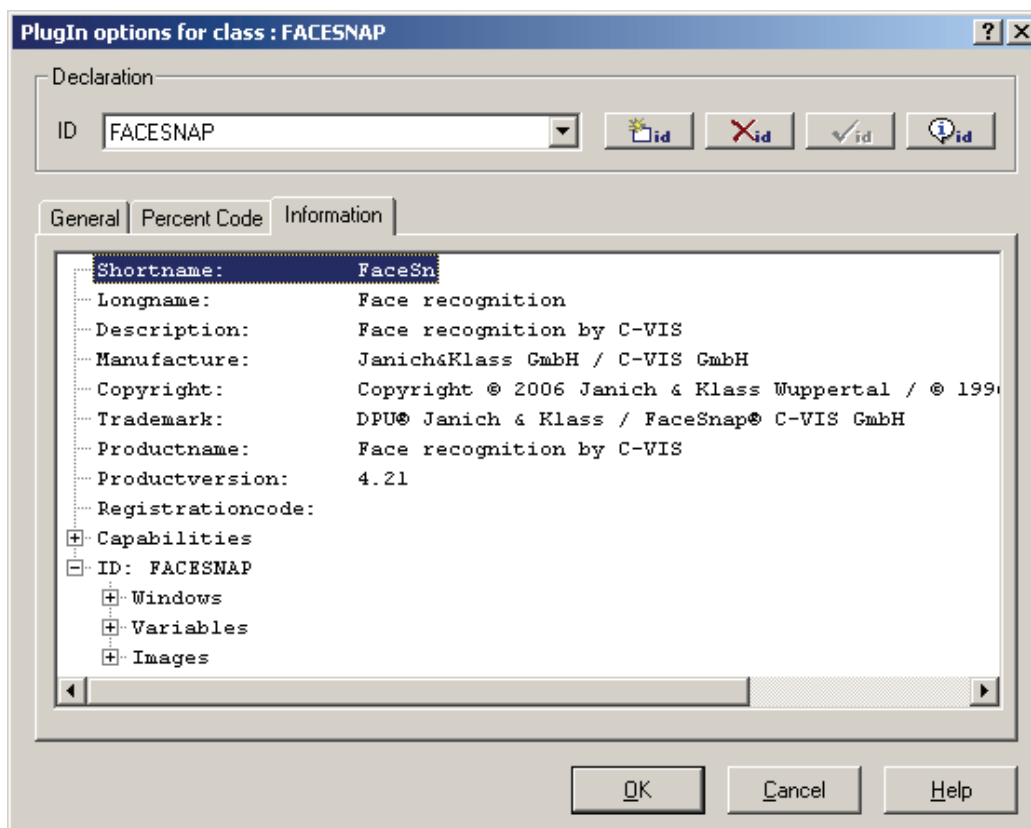


Illustration 10 – Property Page: Information

4 Configuration for Face Recognition

FaceSnap® Process	<input checked="" type="checkbox"/>	FaceSnap® Interactive	<input checked="" type="checkbox"/>
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When you are on the **General** page and click the **External settings** button, the dialog opens for configuration of Face Recognition.

The dialog has two property pages: The **Setup** page that serves for configuration of the PlugIn, and the **Test** page that allows to test the set values.

4.1 Property Page: Setup

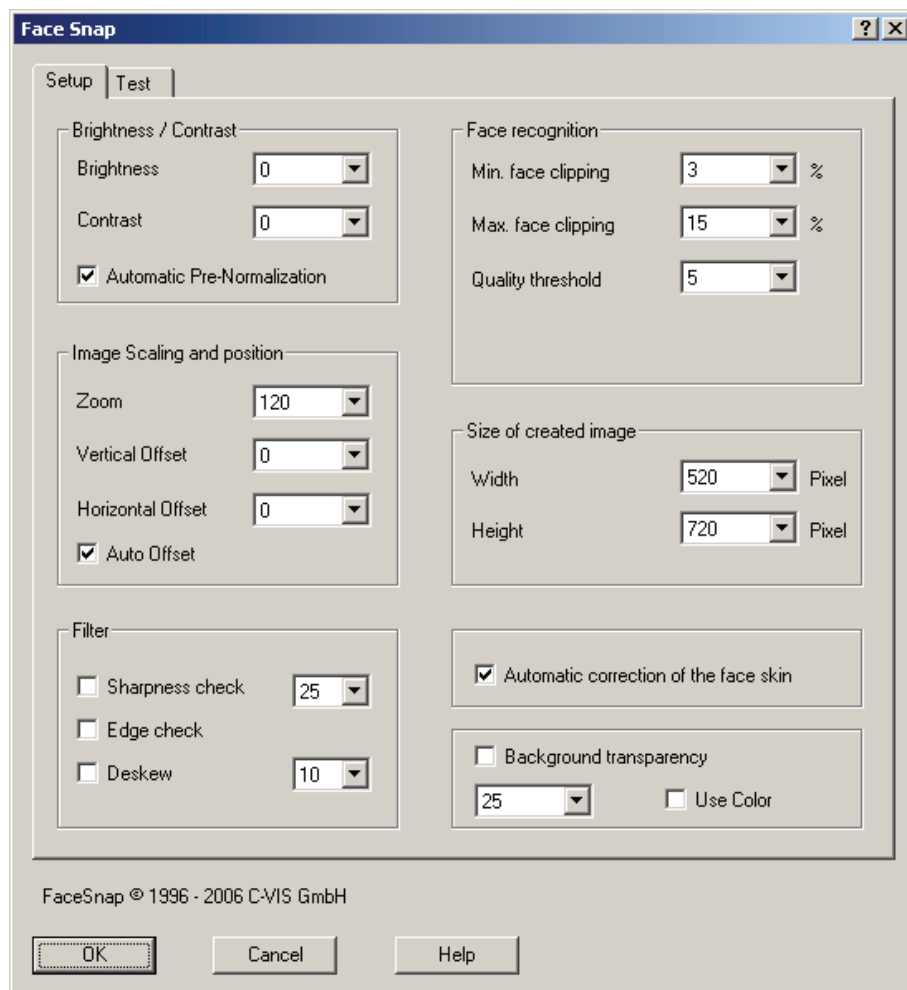


Illustration 11 – Setup Dialog for Face Recognition

The dialog has the following setting possibilities:

Brightness

Influences the brightness value of the returned image. If the check box for "Automatic Pre-Normalization" is deactivated, the brightness is modified in relation to the original image.

If the value is 0, the brightness is not modified. If the check box for "Automatic Pre-Normalization" is activated, this changes the default values of the pre-normalization.

Contrast

Influences the contrast values of the returned image. If the check box for "Automatic Pre-Normalization" is deactivated, the brightness is modified in relation to the original image. If the value is 0, the contrast is not modified. If the check box for "Automatic Pre-Normalization" is activated, this changes the default values of the pre-normalization.

Automatic Pre-Normalization

Executes an automatic pre-normalization of the image. The values for brightness and contrast then relate to the settings with which the pre-normalization is executed.

Min. face clipping Max. face clipping

The values for minimum face clipping and maximum face clipping indicate how large the face may be in relation to the entire source image. The indication is relative, so that you must not alter the settings for the Plugin when you change the resolution. In order to execute the recognition as efficient as possible we recommend to determine the minimum and the maximum face sizes as exactly as possible. The closer these limits can be determined, the faster and more precise will the recognition process run.

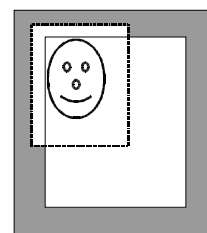
Quality threshold

The Quality threshold indicates the threshold from which on a face is said to be recognized. A very high value will probably refuse faces as not recognized while a very low value might also accept "face-like " structures as faces. This setup is used to filter out bad images.

Zoom

Determines the size of the returned image in relation to the found face. This is assure that the returned images have nearly the same scaling, even mostly independent of the different face sizes on the source images. If the value 0 is entered here, only the area with face topics eyes, nose, and mouth are returned. A value of 200 returns an image where the left and right border match the width of the face area.

If, due to this setup, not the entire target image exists on the source image, for example because the face is placed rather close to the rim of the source image, the missing area is filled up with white.

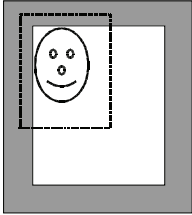


Vertical Offset

Moves the image clipping so that the face is positioned, at choice, higher or lower in the resulting image. If, for example, the shoulders of the shown person shall also appear on the image, the vertical offset must be set to a positive value. However if the face shall be shown below the image center, you must enter negative values.

Horizontal Offset

Positive values place the face at right outside the image center, negative values will position the face at left from the image center.

Auto Offset	With an activated AutoOffset, an automatic correction is executed if the resulting image would cut an area that exceeds the rim of the source image.
Width	Here you determine the width of the target image. Every clipping is scaled to this target size.
Height	Here you determine the height of the target image. Every clipping is scaled to this target size.
Sharpness check	With activated sharpness check, any unsharp source images are refused. Instead of the face clipping, just a white image is returned. A lower value has the consequence that the check will accept also unsharp images; a high value may lead to a situation where very many images are refused as unsharp.
Edge check	<div>When this check box is ticked, an image that would supercede the edge of the source image will not be accepted. Instead of the filled up image, a white image will be returned.</div> <div></div>
Deskew	With this check box ticked, images will be refused where the recognized face shows a larger skew than indicated by the relative value.
Automatic recognition of the face skin	Executes a color correction of the resulting image so that the color of the face skin looks more natural.
Background transparency	<p>When this check box is ticked, homogenous background in the resulting image is replaced by white. The higher the set value is, the more background will be removed.</p> <p>The option for background transparency should be used carefully because of the difficulty to reach a constantly good quality across an entire batch of inhomogeneous source material (images of different provenience with different backgrounds and different exposures.)</p>
Use Color	Decides whether the color information of the image shall be used for determination of the background. This option should not be used for images with only few or bad colors.

4.2 Property Page: Test

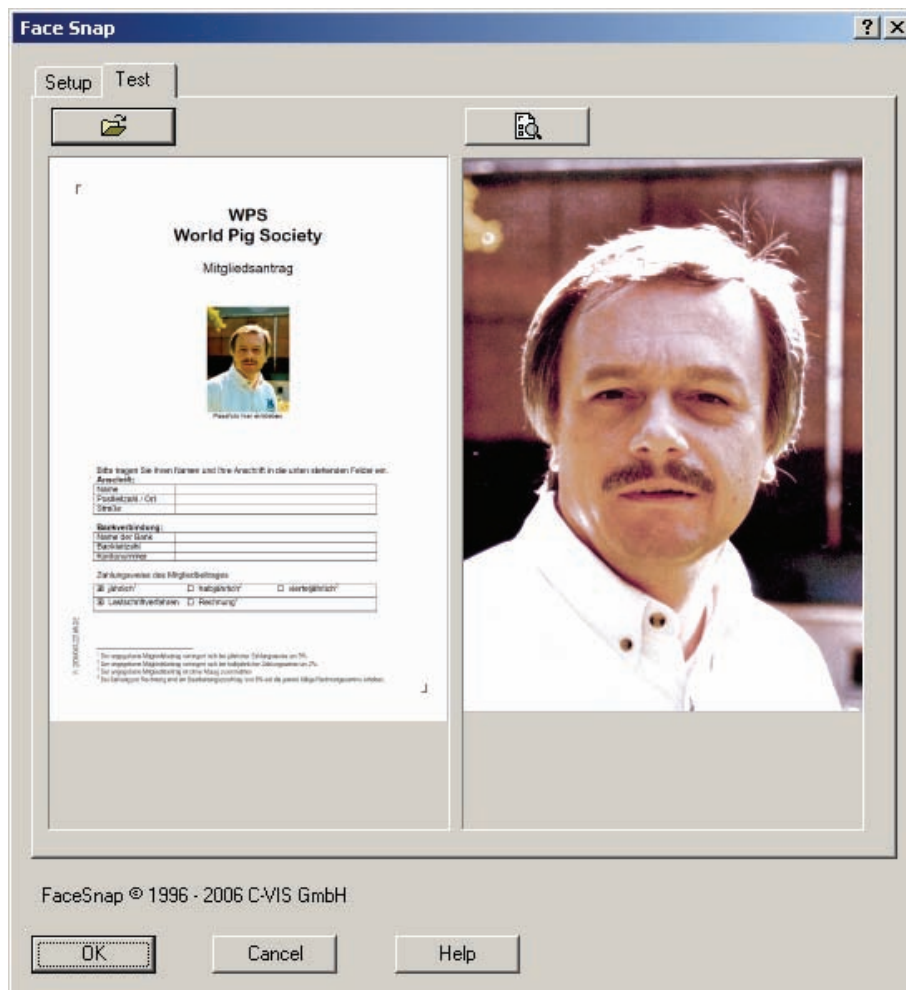


Illustration 12 – Test Dialog for Face Recognition

It contains in its top area the control elements for loading the source image and for executing the search with the actual settings.



Opens the dialog for loading an image. The image is then displayed in the left pane.



Executes the search for a face and presents the results in the preview pane on the right.

The frames / panes under the control elements display the images: The left-hand one shows the image as loaded from the hard disk, and the right-hand one shows the image as it was generated by the PlugIn.

You can enlarge the displayed image by a click with your left mouse button in one of the preview panes. A click with the right mouse button reduces the representation. Keep the right mouse button pressed down to move the image.

5 How to Use the Face Recognition

5.1 General

FaceSnap® Process	<input checked="" type="checkbox"/>	FaceSnap® Interactive	<input checked="" type="checkbox"/>
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Below, we describe the subsequent steps of a configuration.

First, you must scan some example documents and process them (deskew, alignment) in the way that they are suited for being used in the configuration.

Open the configuration of the Class where you want to work with the OMR. Select the **Process** property page and click on the **PlugIns** tool button.


Activate the **PlugIns activated** check box. Click the **Add** tool button and then select the **FaceSn** PlugIn, or the **Facela JkpOmr** PlugIn, respectively.


Use the **Edit** tool button, or double-click the newly added line to enter the configuration dialog of the PlugIn. You must eventually execute your registration.

Click the ID button  to create a new OMR configuration. First, you must define its name.

Use the **External Settings** tool button to start the definition for the filter settings.

You configure the PlugIn on the **Setup** tab.

Switch over to the **Test** tab. Load one of the prior saved images. Click on: 

Start the Face Recognition with the  button and check the results in the preview pane. If necessary, you can modify your settings and load further images for checking the filter setup.

5.2 Process Mode

FaceSnap® Process	<input checked="" type="checkbox"/>	FaceSnap® Interactive	<input type="checkbox"/>
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Now you switch over to the Task configuration. Add the action "Call plugin for every image" after the step "Load from scanner". The dialog opens where you must select the relative PlugIn. Select the FaceSnap® PlugIn and the already created configuration. Determine the image where you want to search for faces. Confirm the settings with the **OK** button.

The PlugIn is now configured for use in the Task.

5.3 Interactive Mode

FaceSnap® Process	<input checked="" type="checkbox"/>	FaceSnap® Interactive	<input checked="" type="checkbox"/>
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First, you must create at least one basic setup, as described in Chapter [4 Configuration for Face Recognition](#) on Page [14](#). This configuration must be linked with a button in the "Process image" toolbar.

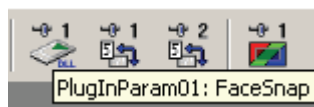


Illustration 13 – Button with Tool Tip

Next, the **Screen layout** for DpuScan must be

adopted; please use the button .

Split the layout accordingly and select the pane where the Interaction dialog shall appear.

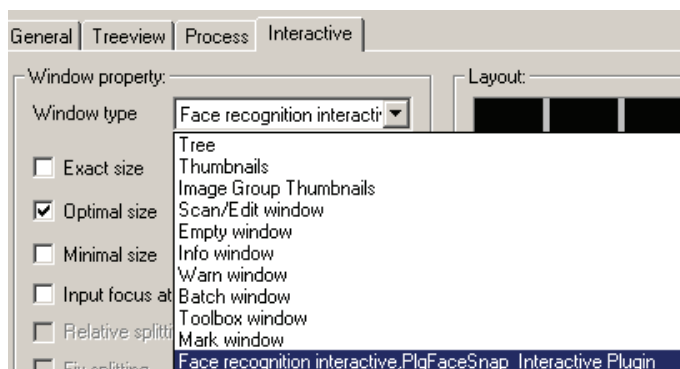


Illustration 14 – Configuration of the Screen Layout

During operation, the window with the dialog of the PlugIn is not active.

In the scan pause, you select the image that was created by FaceSnap® Process and shall be recalculated.

In order to start the interactive Face Recognition process, click on the toolbar button that is linked to the PlugIn. The assigned configuration is loaded and the PlugIn is executed. If the results from the repeated Face Recognition is still not satisfactory, you can now modify the parameters. In order to execute the recognition with these new parameters, you must press the **Process** button. The meaning of the parameters is described in Chapter [4 Configuration for Face Recognition](#) on Page [14](#).

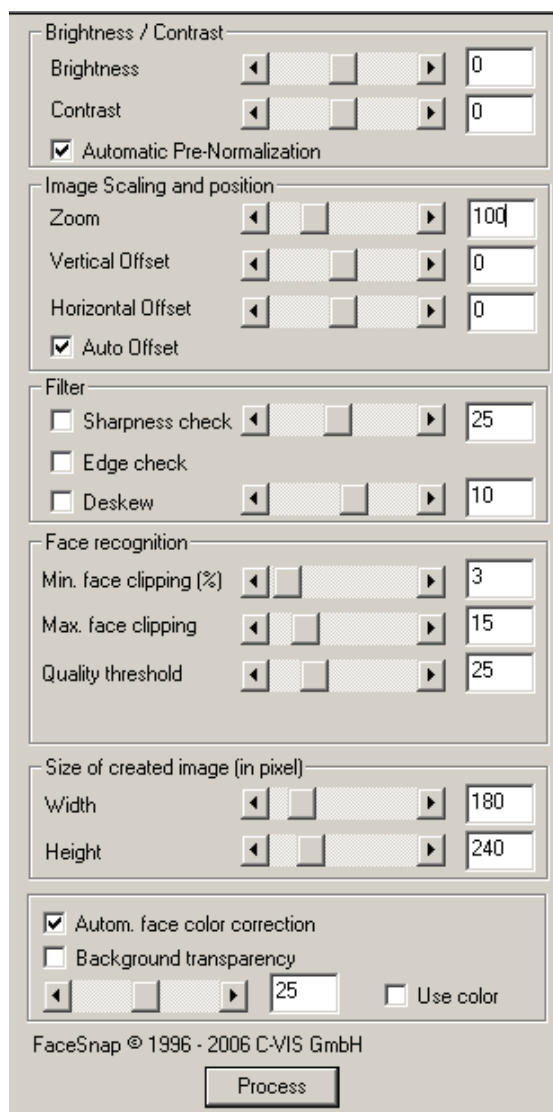
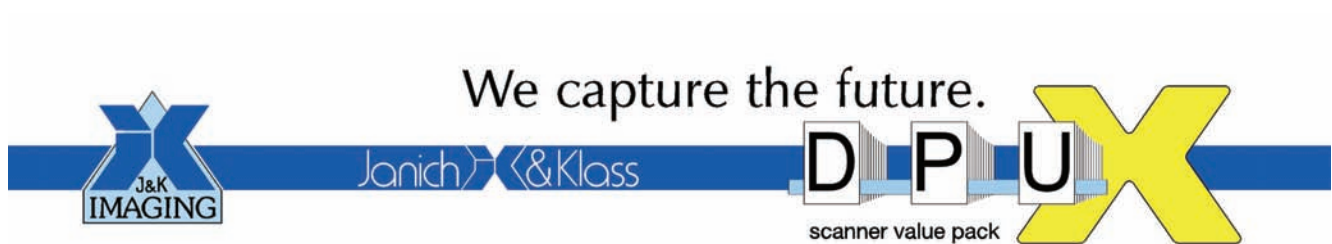


Illustration 15 – FaceSnap® Dialog for Interactive Face Recognition



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