

## Preprocessing Images

To improve OCR results, you can enhance your images before zoning and recognition using the Image Enhancement tools. To open the Image Enhancement window, click the SET - Enhance Image button in the Image Toolbar, or click Tools and choose SET - Enhance Image. You can also build Image Enhancement steps into your workflows by choosing the Enhance Images step.

The input for Image Enhancement is the Primary image.

We must distinguish three types of image:

**Original image:** The image created by your scanner or contained in a file before it enters the program.

**Primary image:** The state of the original image after it has been loaded into OmniPage, possibly modified by automatic or manual pre-processing operations.

**OCR image:** A black-and-white image derived from the primary image, optimized for good OCR results.

Some tools affect the Primary image, others the OCR image. Be sure you know which image you are editing.

Good brightness and contrast settings play an important role in OCR accuracy. Set these in the Scanner panel of the Options dialog box or in your scanner's interface. The diagram illustrates an optimum brightness setting. After loading an image, check its appearance. If characters are thick and touching, lighten the brightness. If characters are thin and broken, darken it. Use the OCR Brightness tool to optimize the image.



## Image Enhancement Tools

The Image Enhancement tools can also be used to edit images to save and use them as image files. Note that some these tools work on the Primary image, others on the one used for OCR (OCR image). Click the Primary/OCR Image button in the Image Enhancement window, to see the current state of either image.

The Image Enhancement window has two panels. The left panel shows the starting image. Your changes are shown in the right preview panel. When you click Accept, the right image is moved to the left panel to become the new starting image for further enhancement.

The following tools are accessible on the toolbar:



**Pointer (F5)** - the Pointer is a neutral tool carrying out different operations under different circumstances (for example, to pick a color for the Fill operation, or to catch the deskew line.)



**Zoom (F6)** - click the tool then use the left mouse button to zoom in on your image or the right mouse button to zoom out. You can also use the mouse wheel for zooming in and out - even in the inactive view. In the active view the "+" and "-" buttons serve the same purpose.



**Select Area (F7)** - click and draw your selection on the image to use a tool only on the selected area. (Image Enhancement Tools, by default, work on the whole page.) Selection has three modes (in the View menu): Normal, Additive, and Subtractive.



**Primary/OCR Image** - click this tool to switch between the primary and the OCR image in the active view. Primary images can be of any image mode, while an OCR image is its black-and white version, generated purely for OCR purposes.



**Synchronize Views** - click this tool to zoom and scroll the inactive view to the same zoom value and scroll position as the active view. To make the inactive view dynamically follow the focus of the active one, click View then choose the Keep Synchronized command.



**Brightness and Contrast** - click this tool to adjust the brightness and contrast of your primary image or a selected part of it. Use the sliders in the tool area to achieve the desired effect.



**Hue / Saturation / Lightness** - click this tool then use the sliders to modify the hue, saturation and lightness of your primary image.



**Crop** - if you decide to use only a given part of your image, click the Crop tool then select the area to keep and the rest of the image will be removed.



**Rotate** - click this tool to rotate (by 90, 180 or 270 degrees) and/or flip your image, or its selected area.



**Despeckle** - click this tool to remove stray dots from your image. Despeckle works on the OCR image at 4 levels. You can also use this tool not to remove noise from the page but to strengthen letter outlines: to do this mark the checkbox Inverse despeckling.



**OCR Brightness** - use this tool to set Brightness and Contrast of your OCR image. See the diagram showing optimum brightness under Preprocessing Images above.



**Dropout color** - click this tool and pick a color. Sections of the scanned image in this color will be set transparent. The tool has its effect on the OCR image.



**Resolution** - use this tool to decrease the resolution of your primary image in percentages. Note that you cannot adjust a resolution higher than that of the original one.



**Deskew** - sometimes pages are scanned crookedly. To straighten the lines of text manually, use the Deskew tool. (Auto-deskew is also available in the Process panel of Options.)

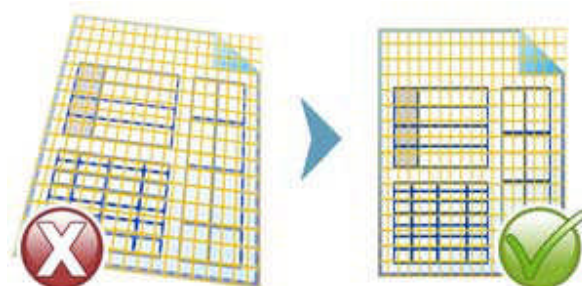


**3D Deskew** - use this tool to remove perspective distortion from digital camera images. This is particularly useful when you want to check the results of automatic 3D Deskew or you prefer to do 3D deskew manually after a Load Files step.



**Fill** - use this tool to apply uniform coloring to selected areas.

3D Deskew works by snapping the distorted image to a grid. All you need to do is to manually straighten this grid, and image coordinates will follow - see illustration below (before - after 3D Deskew).



## Using Image Enhancement History

To commit or undo your image edits (one by one or all the steps), use the History panel in the Image Enhancement window. Once you have modified the original image, its preview displays the changes, but they are not done until you click the Apply button next to the History list. Modifications not added to the History by clicking the Add button will not be applied.

Any time you want to see what output a certain step resulted in, double click it in the History list.

To discard changes you have performed with a given tool, but before applying it, select the step in the list, then click the Reset button.

To restore the image as it was before you started the current enhancement session, click the Discard all changes button.

## Saving and applying templates

If you have a number of similar images to enhance, you can build up a list of enhancement steps to apply to all of them.

To create and store an image enhancement template, first bring an image file into the Image Enhancement window, then carry out your preprocessing steps and add them to the History clicking the Apply button. When you are done, choose Save Enhancement Template from the File menu. Browse to your preferred destination and save the template file (with the extension .ipp).

To carry out the set of modifications saved in the template file on another image, simply open the new image in the Image Enhancement window and choose Load Enhancement Template from the File menu.

## Image Enhancement in Workflows



To incorporate image enhancement in a workflow choose its icon in the Workflow Assistant. The following options are available:

Display images for manual enhancement - during the execution of a workflow, each loaded image will be displayed for manual editing. Apply enhancement template - an already saved enhancement template will be applied automatically to the image while being processed by the workflow.

Apply enhancement template and display - the workflow will apply the selected image enhancement template, and will also display the image so that you can make further edits to it.