



the standard for

imaging tools

Speed the Flow of *Accurate* Information Into Your Enterprise

A HIGH PERFORMANCE TOOLKIT FOR IMAGE ENHANCEMENT AND BARCODE RECOGNITION

A full-featured toolkit, PixTools®/Image Processing (PixTools/IP) provides different filters that enhance and clean-up document images, and automatically capture embedded barcode information. These filters, which can be applied to both binary and color images, can improve the quality and readability of images, reduce file size(s), enhance the accuracy of optical character recognition (thereby minimizing labor-intensive reject and repair operations), and much more.

The toolkit can be used alone, or in conjunction with other PixTools products (such as PixTools/Scan, PixTools/View, or PixTools/EZ) to empower your business with a more complete and effective development environment, and a rapid flow of usable information into your enterprise systems.

POWERFUL FILTERS FOR BOTH BINARY AND COLOR IMAGES

PixTools/IP provides many different filters geared to perfect the information that enters your enterprise.

Binary Filters

- Deskew (color and binary)
- Border Removal
- Black Overscan Removal
- Margin Cropping
- Halftone Removal
- Noise Removal (Despeckle)
- Line Removal
- Hole Removal
- Smoothing
- Character Erosion
- Character Dilation
- Character Skeletonization
- Image Rotation
- Image Scaling
- Image Inversion

PixTools/Image Processing

Color Filters

- Deskew (color and binary)
- Color Dropout
- Color Detection
- Automatic Color Crop
- Color Rotate
- Black Overscan Removal
- Thresholding

Recognition Filters

- Barcode Recognition
- Blank Page Recognition
- Patchcode Recognition

BUILT-IN STRENGTHS

Speed: The toolkit is optimized for rapid analysis and modification (where appropriate) of images while using a minimal amount of memory. Image enhancement and barcode recognition on binary images can be added to applications for real-time processing at speeds of up to 400 pages per minute.

Easy to Use: PixTools/IP comes with complete documentation, online help, numerous code samples in C, C++, and Visual Basic, and the full backing of Pixel Translations' renowned developer support department.

Easy to Integrate: The toolkit's components are provided in the form of ISIS® drivers, which utilize the ISIS Pipes methodology for interconnecting imaging components with minimal code and effort. Image-processing capabilities of existing ISIS-based applications can be expanded easily to include more advanced features.

Easy to Configure: Each filter in PixTools/IP offers a choice of implementing through configuration dialogs, or using an API, which offers complete programmatic control. The developer is free to choose how the capabilities are presented to the user.

FILTER OPERATION OVERVIEW

Deskew—detects the skew of the page by analyzing the text or image elements and modifies the image to remove the skew on binary, gray and color images.

Color Detection—assesses whether the processed image contains colors.



Color Dropout—removes selected colors from images.

Thresholding—“binarizes” from color or gray text-based images to help increase character recognition.

Border Removal—crops black edges around binary pages.

Black Overscan Removal—removes the black overscan region returned with black background scanners for binary and color images.

Margin Cropping—crops the image edges to a definable margin around the text or image on a binary, gray, or color page.

Halftone Removal—removes halftone backgrounds from an image, while leaving the text alone. When processing a number of pages with halftones in the same area, the filter can be configured to operate on the specified area.

Noise Removal—“noise” is small black marks on a binary image that can come from fax transmission errors, dirty scanners or copiers, etc.

Line Removal—finds and removes horizontal and vertical lines and repairs overlapping text and graphics on binary images. The line removal filter can also be configured to reconstruct horizontal and vertical lines, “redrawing” them straight with smooth edges.

Hole Removal—finds and removes the marks left on a binary image when scanning a document that had binder holes punched in it (for example, a three-hole punch in the left margin).

Smoothing—removes bumps and spurs on characters and fills in small holes, improves the appearance of a binary image, and helps reduce compressed file size without losing image detail.

Character Erosion—thins characters, which reduces file sizes.

Character Dilation—grows characters, which can increase file size, but may provide a higher quality binary image (e.g., when image results from a dot matrix or light-toned printer).

Character Skeletonization—reduces characters to a one-pixel-thick skeleton on a binary image (should only be used in conjunction with certain OCR engines that operate well on this type of data).

Barcode Recognition—detects and reads barcodes, including 2D barcodes, anywhere in the image; up to 30 bar codes can be read on each page. Supported barcodes include Code 39, UPC-A, EAN-13, Code 28, UPC-E, ISBN Addon 2, Code 93, Codabar, ISBN Addon 5, Interleaved 2/5, EAN-8, Airline 2 of 5, BCD Matrix, Matrix 2 of 5, Code 32, Invert 2 of 5, Datalogic 2 of 5, and PDF 417.

Patchcode Recognition—detects and reads patchcode types 2, 3, and T.

Blank Page Recognition—allows users four levels of blank page sensitivity: *Pristine*, *Dirty White*, *Very Dirty White*, or *One Line Acceptable*.

Image Rotation—rotates binary images clockwise, 180 degrees, and counter clockwise; enabling the Mirror option flips the image across its vertical axis.

Image Scaling—using this filter resizes the binary image to a specified width and height.

Image Inversion—inverts white pixels to black pixels and vice versa on binary images.

Automatic Color Crop—automatically crops white space (and pads with white space, if necessary) on color or black and white images.

Color Rotate—rotates color or binary images clockwise, counter clockwise, and 180 degrees.

PRODUCT CONTENTS

PixTools technology is provided in the form of toolkits that include:

- software libraries
- documentation
- sample source code
- engineering support via phone, fax, and Internet

Our developer support group will work with you throughout your project to help you get your application up and running. After development is complete, we'll continue to keep you up to date with information on crucial upgrades and new technology.

Contact us today for a free demo of PixTools/IP!

US HEADQUARTERS

Tel: 1-408-325-3880

Fax: 1-408-232-9292

Email: sales@pixtran.com

EUROPEAN OFFICE

Tel: +49 (89) 1895-1634

Fax: +49 (89) 1895-1645

Web: www.pixtran.com

