

## Pixology IRISS™ Red-eye Detection and Correction Demo CD Guide

## An introduction to red-eye

We are all familiar with the phenomenon known as "redeye" in photographs. The effect is caused by the reflection of flashlight off the thin capillaries in the back of the eye, which is intensified by the lens at the front of the eye.

Moving the flash away from the camera lens can reduce the effect. However, current trends to make digital cameras ever smaller are bringing flash and lens closer together. This has resulted in red-eye being the digital photographic industry's number one problem for consumers.



The automatic detection and correction of red-eye in an image is a very new science. Like any new technology, it can be difficult to fully understand the methods and limitations that apply to its implementation and use.

To a human observer, a glance is all that is needed to detect the presence of redeye. It is human nature to look at the eyes of a person in a picture and any red-eye immediately shouts its presence. It is not so easy for a computer. Digital images are made up of millions of coloured dots and one red dot looks very much like any other. In addition, red-eye is not always red. The effect can range in colour from dark red through pink and orange to gold and white.

Pixology has made several breakthroughs (patents applied for) in advanced mathematical algorithms, which has led to the creation of the most effective red-eye elimination technology available - Pixology IRISS.

Pixology provides this technology to its customers in the form of an SDK (Software Developers Kit). This allows vendors of imaging software and equipment to incorporate whatever level of red-eye correction capabilities they require, directly and seamlessly into their products.

Pixology has also recently announced (just prior to PMA '04) a collaboration with Texas Instruments to develop IRISS as a firmware solution that can run inside a Digital Camera. The company plans to enable IRISS to run on any digital camera chipset with a view to making red-eye photos a thing of the past – a huge benefit for the consumer market.

Just like OCR (Optical Character Recognition in scanners), automatic red-eye detection and correction is not a perfect art – yet. Currently, Pixology IRISS will automatically detect and correct 90% of all obvious and average red-eyes shot with digital cameras.

In order to cater for the small percentage of red-eye not automatically corrected, the SDK carries a one-click feature that allows for manually controlled correction. This is a very simple feature that does not require the user to zoom into their image and draw circles or boxes around the offending eyes; the user just points & clicks.

#### About the IRISS Demo Application

The demo CD will install a small windows application onto your PC that embodies the latest version of the Pixology IRISS SDK. A folder of test images featuring a broad selection of different types of red-eye will be installed at the same time.

# Please note: these images are copyright © Pixology and may not be used for any purpose other then evaluating the Pixology IRISS software.

#### System requirements

Windows 98, 98SE, Millennium, 2000 or XP. Processor speed – 500MHz or greater.

## Installation Instructions

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1. To install the demo application, insert the CD into the correct drive. Once inserted the installation process will then start automatically.

*If the installation does not automatically start, click onto the CD drive and double-click the file setup.exe.* 

- 2. A dialogue box will appear nominating a folder in which to install the demo.
- 3. If you are happy with the default folder setting click **OK**, otherwise specify an alternative folder.
- 4. The CD will then automatically install on your PC. Once installed, remove the CD. There is no need to reboot your system.

#### Using the Pixology IRISS Demo Application

- 1. Click on the Start button, and then click on Programs.
- 2. Hover the mouse pointer over **Pixology IRISS Demo** and the following list of options will appear:

IRISS SDK Demo Samples Uninstall

- Click on Pixology IRISS SDK Demo and the demo application will start.
- 4. The first time you do this you will be prompted to enter the ID and security key that was provided with the CD.
- 5. Please input the ID and key exactly as provided.
- 6. You will only be asked to do this once.

Please e	nter your ID and Key to unlock this software
JD:	
Key.	
If you are please of Pixology,	experiencing problems with this software, ontact your Technical Representative at as detailed on the IRISS Licence

 Once the ID and security key has been entered, an empty Pixology IRISS window will appear. Individual images may be placed in the application by using the File|Open dialogue or by drag-and-drop from an existing image management tool installed on your PC such as Picasa, PhotoSuite or other camera software.

In the absence of any other image management software, simply click on the Samples entry of the **Pixology IRISS Demo** menu and drag-and-drop files into the demo from the Windows folder display. Users of some versions of Windows can choose "Thumbnails" from the View menu to improve the file display.



8. Once an image has been opened, or dropped, into the application the main controls will be available:

9. Ensure the Auto Fix is selected and click on the Correct Now button. The IRISS



algorithms will analyse the entire image and detect, authenticate & correct any red-eye it finds. It will fix all red-eyes in the image at one time. It is not required to execute the process for each eye.

The time taken to perform the process is displayed at the bottom of the window.

Once fixed, just drag (or open) another image and do it again.

10. Selecting the **One-Click** button converts the application into One-Click mode and all subsequent images will operate as One-Click until the button is clicked again.



When in One-Click mode only the *detect and correct* elements of IRISS are employed.

The detect function is applied under the mouse pointer. As the pointer is moved around the image anything that IRISS believes *may* be a red-eye causes a pulsating green circle to be displayed around the suspect feature.

If you agree that what is encircled is a redeye then click in the circle and it will be corrected. This way the *authenticate* element is not needed – if it's not a redeye, don't click it!

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11. Selecting the **Forced Correction** button converts the application into Manual mode. This allows the area of a red eye to be defined, by drawing a circle over the target area, and then correcting by clicking on the **Correct Now** button. This will apply an intelligent correct Now button to the defined area.

In the unlikely event that this does not correct the red eye, the **Override** button can be clicked which will force a correction. By using all of these tools, IRISS offers a solution that can correct 100% of red eyes.

Individual corrected images may be saved by using the **File**|**Save As** option in the main menu. Fixed images may be saved as JPEG or uncompressed TIFF.

Whole folders of images may be automatically fixed by drag-and-dropping the folder into the IRISS demo application. A new sub-folder named "Corrected" will be created and all corrected images will be stored there.

For further information, or technical help with this Demo CD, please contact:

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