

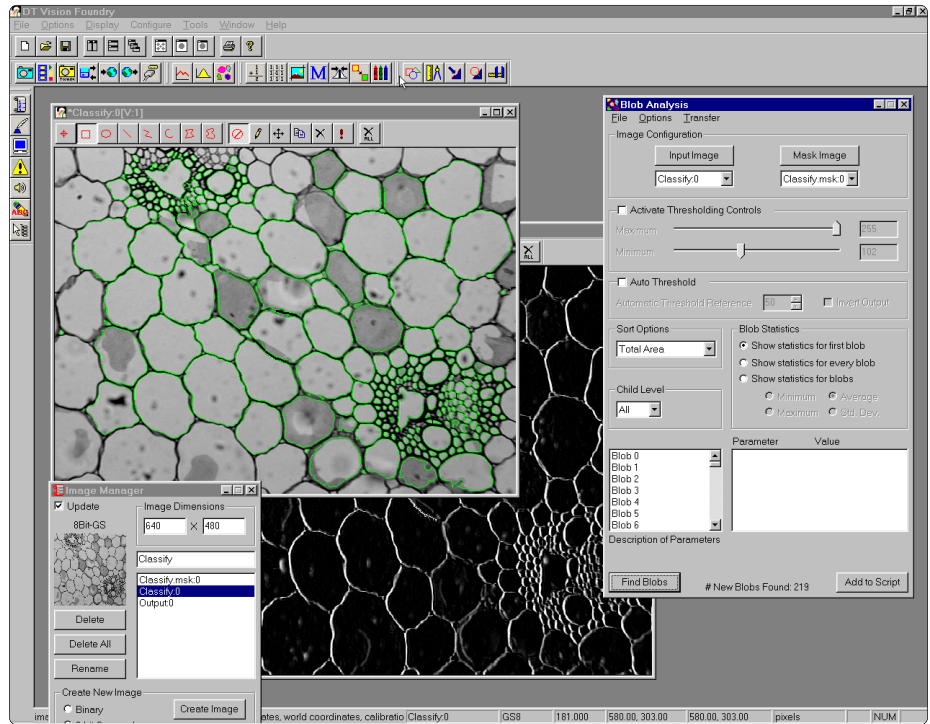
New!
Version 3.5

GLOBAL LAB Image/2®

Flexible, easy-to-use graphical image analysis software for scientific and general-purpose imaging applications

Key Features

- The 3.5 version of GLI/2 adds four new tools, new analysis capabilities, tool enhancements, and more!
- Multiple programming development levels allow you to do everything from code-less graphical program development to developing complete applications and custom tools in Visual C++®.
- A complete library of tools is provided for measurement, analysis, and image processing tasks.
- GLI/2 supports a wide range of Data Translation frame grabbers, allowing you to perfectly match the frame grabber type needed for your imaging requirements.
- **Device Manager** centralizes the device settings of all input devices, such as frame grabbers, digital and serial I/O boards, channels and settings, pixel rates, etc. The option to add third-party settings is also included.



GLOBAL LAB Image/2 is a Windows-based image analysis application that provides powerful tools and an easy-to use programming environment.

GLOBAL LAB Image/2 Tools

System Utility/File Tools:

- Calibration
- ROI Manager
- File Manager
- Text
- **Pixel Change** Enhanced!
- Image Manager New!
- Serial I/O
- Sound
- Color Plane
- Edge Finder
- Prompt
- Image Modifier
- Import/Export
- **Digital I/O** New!
- **ROI Shape Fitter** New!

Image Pre-Processing Tools

- Arithmetic
- Filter
- Threshold
- Morphology
- **Polar Unwrap** New!

Image Capture Display Tools:

- Picture
- Display
- AVI Player
- TWAIN

Programming Script Tools:

- Custom Script
- Point & Click Script

Image Analysis Tools:

- **Blob Analysis** Enhanced!
- Gauge
- Line Profile
- Histogram
- **Match** New!

GLI/2 – A Complete Image Analysis Solution

GLI/2 is a complete, customizable image analysis package that is ideal for scientific and general-purpose imaging applications requiring measuring, classifying, edge-tracking, counting, size distribution analysis, as well as other measurement and analysis tasks. Providing multiple program development levels and a complete library of image analysis tools, GLI/2 is the all-in-one solution you need to solve your complex imaging applications.

Easy, Flexible Program Generation

Designed for a wide range of users with different expertise levels, GLI/2 provides three different development levels for program generation flexibility. You can use GLI/2 three different ways:

- 1 As an out-of-the-box, stand-alone imaging application with an extensive selection of pre-defined image processing and analysis tools. Use the Point & Click Script Tool to quickly build programs by simply pointing and clicking on the tool operations desired — all graphically and without writing code!
- 2 As a development environment for creating custom imaging applications — using GLI/2's object-oriented API function calls.
- 3 As a base for the addition of custom imaging tools — simply modify the library of tools included or create your own using the underlying object-oriented API function calls.

With its multiple development levels, you can use GLI/2 in the way that best suits your programming expertise.

Extensive Tool Library

GLI/2 provides an extensive library of tools, each useable individually in a Point & Click Script Program. All tool user interfaces have been designed for ease-of-use and quick implementation.

Customizable and Extensible

Since no two imaging applications are alike, GLI/2 provides the flexibility you need to easily develop programs and customized imaging tools — allowing you to tailor the software to fit your specific application needs. All of the functionality of the main application and tool library is supplied in the underlying Application Program Interface (API) function calls, accessible using Microsoft Visual C++. The accompanying User's and API manuals include concise information on custom tools, scripting, and the API, as well as step-by-step examples to guide you through the process.

Complete Documentation and On-Line Help

GLI/2 comes complete with hard-copy as well as on-line documentation. A detailed User's and API manual set is provided, as well as context-sensitive on-line help. All tool user interfaces, library calls, and application commands are detailed with step-by-step examples, making it easy to learn how to use the many powerful functions and features available in GLI/2.

Image Analysis Tools:



Blob Analysis Tool

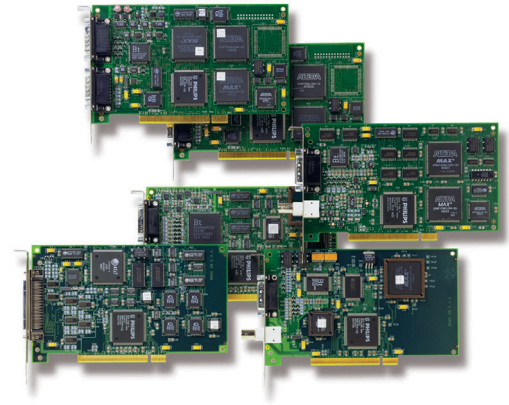
The Blob Analysis Tool calculates over 70 calibrated measurements and statistics quickly and easily for all blobs (particles). You can find blobs in a single image, in multiple images, and even in different parts of multiple images. The tool supports an unlimited number of child blobs.



Gauge Tool

The Gauge Tool contains over 40 gauging and measurement functions, allowing you to measure various parameters of the image in calibrated units. Functions include Height, Width, Round-ness, Perimeter, Min/Max

Enhanced!



GLOBAL LAB Image/2 supports Data Translation frame grabbers, including monochrome, variable-scan, color, and digital-input types.

Distance, Perpendicular Distance, Line Length, Color Average, Intersection Angle and more.



Line Profile Tool

The Line Profile Tool lets you create and analyze line profiles of images. It allows you to add an unlimited number of line profiles to the same graph. You can add line profiles from multiple images and multiple viewports. This tool supports all three line ROI types (straight, poly, and freehand) and they can be any thickness for smoothing out noisy images. You can take any derivative you like and then find edges, sets of edges, peaks, and sets of peaks easily and automatically. The Line Profile Tool also allows you to measure distances along lines with calibrated sub-pixel accuracy.



Histogram Tool

The Histogram Tool lets you create histograms of images, and allows multiple histograms to be placed on the same graph for easy comparison. The graphs can be easily customized, sized, zoomed, printed, and more.



Match Tool

The Match Tool compares the captured image to a known gold standard image and correlates a percentage score.



Image Pre-Processing Tools:



Arithmetic Tool

The Arithmetic Tool performs multiple arithmetic operations on two input images, placing the result in an output image.



Filter Tool

The Filter Tool lets you perform a filter (convolution) on a given image. The tool supports a large number of popular filters like Mean, Sobel, and Laplacian, and allows for adding custom single or dual kernels from 1x1 up to 7x7.



Threshold Tool

The Threshold Tool lets you threshold an image to create a binary image. It provides true color thresholding and multiple region thresholding with histogram support. New capabilities include an automatic thresholding function that operates on monochrome, RGB plane, HSL (hue), and luminance (Y) image data.



Morphology Tool

The Morphology Tool lets you run binary morphology operations on a binary image. It provides Erosion, Dilation, Opening, Closing, Skeletonization, and Watershed morphological operations.



Polar Unwrap Tool

The Polar Unwrap Tool takes a circular image and that can easily be measured. It transforms images from polar co-ordinates to rectangular co-ordinates by using bi-linear interpolation/remapping operations.



System Utility/File Utility Tools:



Calibration Tool

The Calibration Tool takes four pairs of pixel-to-real world coordinate points and creates a calibration object. You can have multiple calibration objects in the system at once, allowing you to support a multiple-camera system. Calibration objects can be re-named and saved/restored to/from disk as needed. The tool supports sub-pixel measurements. It also supports a Full Projective Transformation so your camera can be located anywhere with respect to an object; it does not have to be normal to the plane.



ROI Manager Tool

The ROI Manager Tool lets you create and analyze ROIs. The tool supports point, rectangular, elliptical, straight line, polyline, freehand line, poly-freehand and freehand ROIs. You can add similar groups of ROIs that are aligned with one another quickly and easily.



File Manager Tool

The File Manager Tool lets you import images from disk in any of 23 popular file formats, and write images in either Windows BMP or TIFF file formats.



Text Tool

The Text Tool lets you create multi-line text that can be edited and positioned in the image. You can specify background and foreground color (including transparent), place the text in the image or in its transparent overlay, and specify size and font.



Pixel Change Tool

The Pixel Change Tool lets you easily modify pixel values in an image or the image's transparent overlay.



Image Manager Tool

The Image Manager Tool lets you easily manage images in memory. You can view a list of images in memory, determine the name and attributes of each image, view a thumbnail of an image, delete an image, select an image into the active viewport, create a new image, or rename an image.



Digital I/O Tool

The Digital I/O Tool is a universal tool for all supported Digital Input/Output boards to interface to external peripherals.



Serial I/O Tool

The Serial I/O Tool lets you send and receive data through the serial port(s) of your PC, enabling you to interface GLI/2 to peripheral equipment.



Sound Tool

The Sound Tool lets you play WAV sound files using any standard, configured sound card.



Color Plane Tool

The Color Plane Tool lets you perform operations on color images to extract and separate chromatic information. Enhancements include HSL image

processing which allows for true hue-based operations to be performed in addition to standard RGB, luminance (Y), Inphase (I) and Quadrature (Q) operations. The resultant chromatic data can then be used for performing operations with other tools that handle color data, such as the Measurement Tool, Blob Tool, Histogram Tool, Threshold Tool, etc.



Edge Finder Tool

The Edge Finder Tool lets you extract edges and contours from a binary image. The resultant edge(s) can be used for performing precise measurements with the Measurement Tool.



ROI Shape Fitter Tool

The ROI Shape Fitter Tool allows ROIs to be fit to a particular edge or contour found within a binary by transforming them into the appropriate shape. Used for fitting straight lines to edges, circles to arcs, etc. Provides Center of Gravity, Radius, and other measured criteria. The resultant fitted ROIs can also be used by other tools for additional measurements.



Import/Export Tool

The Import/Export Tool allows you to import and export variable data and images in real-time between GLI/2 and external applications, such as Visual Basic, Delphi, MATLAB, etc.



Prompt Tool

The Prompt Tool allows your program to interact with the user during execution. When encountered in a script, the Prompt Tool presents a dialog box allowing the user to input requested information (i.e. - yes/no, name, sample number, etc.). The program can then act upon the data to perform specific or multiple operations.



Image Modifier Tool

The Image Modifier Tool allows you to select images to be rotated, scaled, cropped, flipped, and zoomed.

Image Capture/Display Tools:



Picture Tool

The Picture Tool lets you acquire images using Data Translation's supported frame grabber boards. The tool includes two forms of live video support, live video acquire, acquire to disk, acquire to memory, capture to AVI file, image

averaging, software selectable board controls, triggering, multiple channel support, multiple frame grabber support, user-configurable default settings and more. New features include user-selectable date and time-stamps for each AVI frame captured and enhanced image capture and data handling.



Display Tool

The Display Tool lets you specify how you would like to view a grayscale image. You can view the same image many different ways in different viewports simultaneously. You can bring out small hidden details, show images with false coloring, increase contrast and brightness, invert, step, and more. You can even modify the output look-up table on a pixel-by-pixel basis using drag-and drop.



AVI Player Tool

The AVI Player Tool lets you play AVI video clips, as well as single-step, pause and select individual images to be saved for further image processing and analysis operations.



TWAIN Tool

The TWAIN Tool lets you import TWAIN format image files from scanners, digital cameras, and many other TWAIN-compatible devices.

Programming/Script Tools:



Point & Click Script Tool

The Point & Click Script Tool makes it simple to design, build and test a custom application. No programming is required. Just point and click on the operations and the tool automatically saves the complete script. Scripts are easily modified to fit your needs.



Custom Script Tool

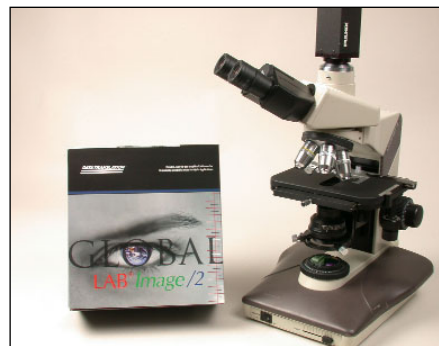
The Custom Script Tool allows you to design, build, and test your custom application using a BASIC-type programming language. Scripts are saved in a text file format.

Flexible Image File Support

GLI/2 supports a wide range of image file types, including binary, 8-, 16-, and 32-bit grayscale, floating point grayscale, and true 24-bit color. 8-, 16- and 24-bit AVI files, as well as TWAIN image formats, are also supported.

Technical Support

As you develop your application, support is available when you need it. Priority Telephone Support is available from your point of purchase during your 90 day warranty period; you can also request complimentary support via e-mail or fax at any time. Extensive information is also available 24 hours a day on our web site at www.datatranslation.com, including example programs, updates, application notes, a searchable Knowledge Base, and much more. Additional support options are available; contact your Data Translation representative for details.



GLI/2 is ideal for scientific applications of all kinds.

System Requirements

- IBM PC compatible (Pentium with Triton PCI chipset or better recommended)
- Minimum 128 MB RAM, 256 recommended
- SVGA monitor
- 100 MB of free hard disk space
- PCI interface if using a frame grabber board
- CD-ROM
- Sound card (optional for multimedia online help)

Software

- Windows 2000/XP operating system
- Visual C/C++ 6.0 or better (optional for creating custom tools and applications)

Frame Grabber (Optional)

Supported Data Translation PCI boards:

- DT3162 — High speed variable-scan frame grabber
- DT3145 — Digital Camera Link frame grabber
- DT3120 — Single-channel composite monochrome and color PCI frame grabber
- DT3152 — Variable-scan frame grabber
- DT3153 — Color NTSC/PAL frame grabber
- DT3154 — RGB color frame grabber
- DT3155 — Monochrome frame grabber
- DT3157 — 8 to 16-bit digital frame grabber

DT3130 Series PCI Frame Grabbers

- DT3131 — Single frame grabber, 3 inputs (muxed), 1 active (RS-170/NTSC, CCIR/PAL)
- DT3132 — Double frame grabber, 6 inputs (muxed), 2 simultaneously active (RS-170/NTSC, CCIR/PAL)
- DT3133 — Triple frame grabber, 9 inputs (muxed), 3 simultaneously active (RS-170/NTSC, CCIR/PAL)

Ordering Summary

All Data Translation software products are covered by a 90-day warranty. For pricing information, see a current price list, visit our web site, or contact your local reseller.

GLI/2 includes a software license, installation CD-ROM, User's manual, and API manual.

GLI/2 Software Packages

- GLI/2 Scientific Imaging Software
SP1500-CD
- GLI/2 3.0 to GLI/2 3.5 Upgrade
SP1500-UD