

IDL 8

IDL is the trusted scientific programming language used across disciplines to create meaningful visualizations out of complex numerical data. From small-scale analysis programs to widely deployed applications, IDL provides the comprehensive computing environment you need to effectively get information from your data.

IDL 8 introduces significant improvements to simplify your data analysis and visualization workflow. New graphic functions are more powerful, making it easy to produce dynamic, presentation-quality, visual and video representations of your data for display and publication. In addition, the core IDL programming language is now easier to use so you can create programs and applications faster than ever before. And, the IDL 8 workbench programming environment has been streamlined so it's easier to create small programs and large-scale applications.

New Graphics for Data Visualization

To better understand your complex numerical and statistical data, you need a programming tool that allows you to easily produce meaningful, sophisticated visualizations of your data. IDL 8 graphics combine the advantages of the popular, visually appealing object graphics with the programming simplicity of direct graphics, giving you the ability to quickly produce presentation quality results.

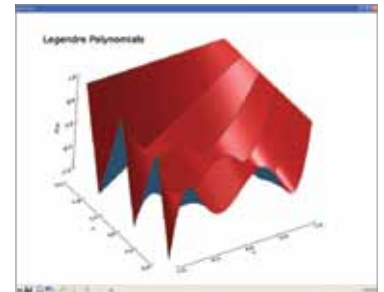
Whether you're creating 2-dimensional plots, graphs, maps, image displays or complex, interactive 3-dimensional representations, IDL 8 allows you to quickly make on-the-fly adjustments to individual graphic elements without reprogramming or regenerating your entire visualization. These interactive and dynamic new capabilities will save you time and effort, while allowing you to produce the high quality output that you demand.

IDL 8 GRAPHICS INCLUDE:

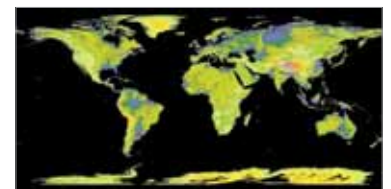
- New functions for creating plots, surfaces, contours, images, maps, and more
- Programmatic ability to create and modify visualizations with an intuitive syntax
- Improved mapping tools that include better symbology and resolution
- Ability to interactively manipulate and modify properties of visualizations
- Resizable graphics windows that automatically scale the visualization
- Easy-to-use colors, line styles, symbols and annotation, including TeX-like formatting for math and Greek characters
- Easy programmatic or interactive output to a variety of standard formats; e.g., PNG, TIFF, JPEG, GIF, EPS, and multi-page PDF

Enhanced, Expanded Programming Language

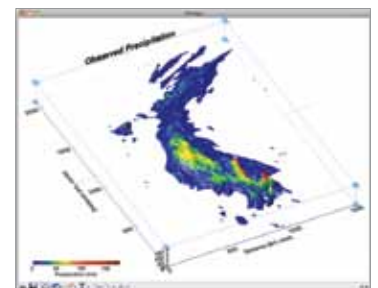
IDL has always been a popular choice among scientists and application developers because it's easy to learn, easy to use, and requires fewer lines of code than most programming languages. In IDL 8, the core language has been enhanced to make developing programs and applications fast and easy.



IDL 8 graphics makes it easy to create dynamic graphic visualizations, ranging from 2-dimensional plots, maps, and image displays to complex, interactive 3-dimensional representations. Here, IDL code was used to visualize a 3-dimensional surface plot of Legendre Polynomials.



Use IDL 8 graphics to quickly create various types of map projections, including Mercator, conic, cylindrical, and more. This example shows a map projection of land elevation around the globe.



In this image, IDL was used to create a contour of the observed levels of precipitation on the plains of Texas. Labels have been used to create an image title and identify axes. Additionally, a color legend shows how different colors correspond to precipitation amounts.

The enhanced IDL 8 language introduces many improvements to help you get from data to discovery with your complex data easier and faster than before. New programming features, including additional data types, control structures, and a simplified syntax, make it easier to code your programs and applications while requiring even fewer lines of code. In addition, IDL 8 is fully compatible with code written in previous releases, so you don't need to recreate your programs or visualizations.

NEW LANGUAGE FEATURES INCLUDE:

- **List and hash** containers that allow you to manage variables consisting of different data types
- **Negative array indices** that allow subscripting from the end of an array
- **FOREACH operator** that iterates over the elements in an array, list, hash or structure
- **Automatic garbage collection** for simplified memory management
- **Operator overloading** on object methods that allows for new definitions for IDL operators and routines such as PRINT and HELP

FILE INPUT AND OUTPUT SUPPORT

IDL has a history of supporting many file types for both input and output. With so many supported file types, you can easily access the wide variety of data available to you and output your work to share with colleagues in the format(s) they are most accustomed to. An example of what you can do with some of the new supported file types in IDL 8 are:

- Write your image files to either an .mp4 or .avi video file with the ability to include a soundtrack
- Read and write GRIdded Binary (GRIB) 1 and GRIB 2 files
- Upload IDL graphic results to Google Maps™ or Google Earth™ by saving files as Keyhole Markup Language (KML) or KMZ files (ZIP files containing KML and image files)

The Power of IDL Analysis

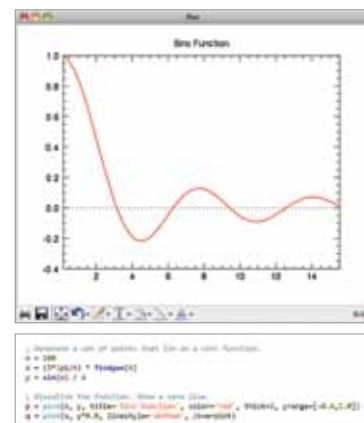
IDL 8 provides you with a powerful and robust analysis engine, so you can get the specific statistical and numerical information you need from your data.

IMAGE PROCESSING AND MAP PROJECTIONS WITH IDL

If you need to convert raw images to information, IDL contains an extensive library of image processing and analysis routines. IDL allows you to extract useful information from nearly any type of digital image with tools for transforming image geometry, mapping, masking and statistics, warping, analyzing regions of interest, and contrasting and filtering.

MATH AND STATISTICAL ROUTINES IN IDL

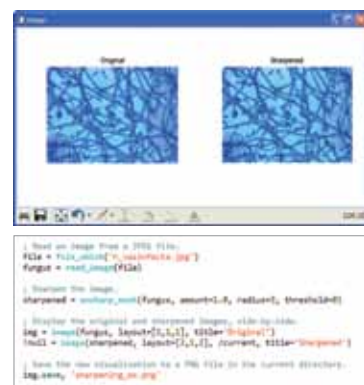
If you need to quickly add advanced mathematical and statistical functionality to an IDL application, the IDL Advanced Math and Stats Module is an add-on solution that combines advanced data visualization and analysis capabilities with the comprehensive mathematical and statistical routines of the IMSL™ C Numerical Library – a set of pre-written mathematical and statistical algorithms that can be embedded into your program.



The enhanced IDL 8 programming language requires fewer lines of code than other programming languages, so getting from data to discovery is easier and faster. Above, you can see the five lines of code used to create a visualization of the Sinc Function.



IDL 8 has an intuitive interface that provides easy access to the programming tools and buttons you use most.



In the example above, six lines of IDL code are used to sharpen an image of fungus, display the before and after images, and save the sharpened image to a directory.

Discover what's in your data today. Learn more at www.exelisvis.com/IDL or call your IDL representative at 303.786.9900.

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IDL 8. Discover What's in Your Data.

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