IDL 8.0

EXELIS

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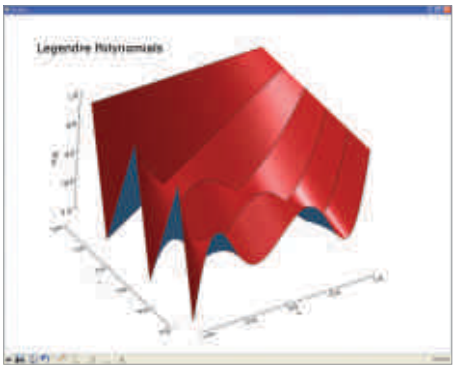
Discover What's in Your Data

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.

The newest release of IDL – IDL 8.0 – 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 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 8.0 workbench programming environment has been streamlined so it's easier to create small programs and large-scale applications.

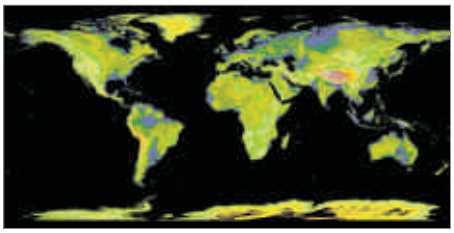


The IDL 8.0 language powering the IDL graphics system makes it easy to create dynamic graphic visualizations, ranging from 2-dimensional plots, graphs, maps, and image displays to complex, interactive 3-dimensional representations. Here, IDL code was used to visualize a 3-dimensional surface plot of Legendre Polynomials.

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. The IDL graphic functions introduced in IDL 8.0 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.

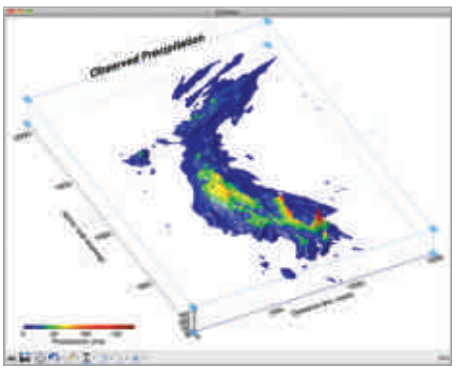
Whether you're creating 2-dimensional plots, graphs, maps, and image displays or complex, interactive 3-dimensional representations, IDL 8.0 allows you to quickly make on-the-fly adjustments to individual graphic elements without reprogramming or regenerating your entire visualization. These interactive and dynamic new capabilities will save you time and effort, while allowing you to produce the high quality output that you demand.



Use the IDL 8.0 graphics system 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.

The IDL 8.0 graphics include:

- New functions for plots, surfaces, contours, images, maps, and more
- Programmatic ability to create and modify visualizations with an intuitive syntax
- Capability 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 PDF



In this image, IDL was used to create a contour image 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 was created and labeled to show how different colors correspond to precipitation amounts.

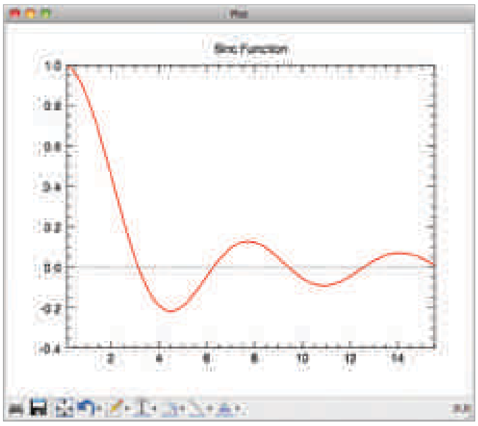
Enhanced, Expanded Programming Language

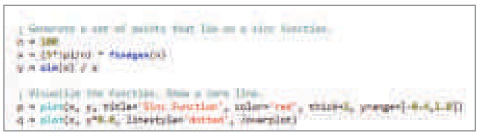
IDL has always been a popular choice among scientists and application developers because it's easy to learn, easy to use, and requires fewer lines of code than most programming languages. In IDL 8.0, the core language has been enhanced to make developing programs and applications fast and easy.

The enhanced IDL 8.0 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 8.0 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
- **!NULL** that provides a null variable or empty array, which is useful in array concatenation
- **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



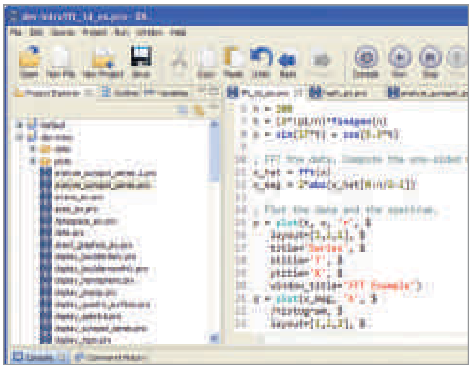


The enhanced IDL 8.0 programming language requires fewer lines of code than many other programming languages, so getting from data to discovery is easier and faster than before. Above, you can see the five lines of code used to create a visualization of the Sinc Function.

Simplified, More Intuitive Development Environment

If you are creating ad hoc visualizations or engineering large, widely deployed applications, you need a programming environment that is intuitive so you can produce professional results as quickly as possible. The new development environment in IDL 8.0 is simple to navigate and makes advanced, modern programming tools easy to find and readily available.

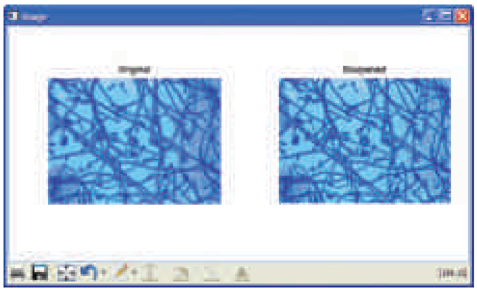
The IDL workbench interface is now simplified and streamlined, allowing you to create visualizations on-the-fly or develop feature-rich scientific applications to distribute commercially or to your colleagues. Regardless of your application, IDL 8.0 provides the feature-rich development tools you need, allowing you to easily access the scientific visualization and data analysis power you've come to depend on from IDL.



IDL 8.0 has an intuitive interface that provides easy access to the programming tools and buttons you use most.

The updated IDL development environment provides you with:

- A **simplified interface** with three main views for the editor, project explorer, and integrated console with command line
- New features for **inserting code templates** in the editor and display of the current working directory
- A **redesigned toolbar** with buttons for the most important file management, editor, and debug features
- **The IDL Help System**, now a robust, example-based experience that helps you solve specific tasks. Thumbnail examples, text links, and a visual navigation paradigm all make finding help for your problems fast and easy



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

IDL The Language for Visualization.

Discover what's in your data today. Learn more at **www.exelisvis.com/IDL**

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