## COMPUTER SOFTWARE REVIEWS

# Origin 7.5

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## INTRODUCTION

Origin offers extensive scientific graphing and analysis capabilities, and this upgraded version is no exception. Origin 7.5 has several new tools that simplify common operations. The new tools are powerful additions, and for many users it may be worthwhile to upgrade even though this is a "0.5" improvement. Origin 7.5 is still easy to use and highly functional. Anyone interested in a simple yet highly functional graphing and analysis software will find Origin 7.5 rewarding. This is one product whose press reports are accurate! Edwards (2002)[1] provides an accurate detailing of Origin 7.0's features, and Simon (2004) offers an extensive and excellent synopsis of Origin 7.5's new features; thus, this review will briefly discuss Origin 7.5's new features and provide information on several help and documentation features that are worthy of extra discussion.

Origin 7.5 is the latest version of Origin produced by OriginLab, a producer of scientific graphing software and data analysis software. Origin is the first scientific software to combine presentation-quality graphics, the C language, and the Numerical Algorithms Group (NAG) numerical library in a single package. Both Origin 7.0 (Edwards, 2002) and Origin 7.5 (Simon, 2004) received favorable recommendations, and this likewise is a highly favorable review for Origin 7.5.

Origin was first sold in 1991 and today has over 50 000 licensed sites. Sites include a wide variety of academic institutions, large corporations, and personal sites. Origin can be purchases as a single user option up to a company-wide site license. Single user licenses provide for installation on three machines, such as home, office, and laptop, which shows OriginLab's commitment to the busy and often mobile researcher. Multicopy licenses allow for the installation of the software on as many computers as needed. An original equipment manufacturer solution for instrument manufactures is also available.

## SYSTEM REQUIREMENTS AND INSTALLATION

For single licenses, Origin 7.5 includes a CD and a manual. To get access to Origin, users need a **license file** available from OriginLab via the Web or telephone. Both installing files and obtaining and incorporating the license file are relatively straightforward. Users should allow perhaps 5−10 minutes for this process, though, just to be sure.

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Origin 7.5 requires Windows XP Professional on a Pentium III processor and minimum 128 MB of RAM. Additionally a SVG monitor with at least a 800 × 600 screen resolution and 256 colors is recommended. Internet Explorer is needed to view Origin's compiled HTML help, and Adobe Reader is required to read some of the documentation.

## FEATURES

Origin 7.5 has maintained its excellent capabilities found in 7.0 and added several new tools and options that continue to lift Origin into a position above related software. The following is a list of the new features found in Origin 7.5:

1. A more intuitive plotting interface using a "plot setup" dialogue
2. An import wizard to provide visual assistance when importing binary and ASCII data files
3. Enhanced copy and paste functionality to allow the transition of one graph element onto another graph element or to apply a "collection" of graph properties using themes
4. Simplified transfer of data to Origin using LabVIEW VIs for Origin
5. Enabling attachment of almost any file to Origin projects
6. An AutoUpdate feature which will automatically update worksheet calculations for Set Column Values
7. Customization of the format increment lists and color palettes for grouped data plots
8. Custom dialogue creation for graphing and analysis routines using Origin C
9. Data transfer from MATLAB and the import workspace data
10. Customized Origin C classes
11. The ability to serve as an automation server for client applications, such as National Instruments LabVIEW and Microsoft Excel, that support COM programming, which allows data to be passed seamlessly from one application to the next
12. Improved day/time support which can utilize a variety of customized formats and the Inter-Range Instrumentation Group (IRIG) Time Format.

The "import wizard" will visually assist users in importing custom ASCII and binary files which can then be "dragged and dropped" into the Origin workspace. Origin allows data from many different formats to be imported, and the import wizard now simplifies this task. Then, users can apply any of the 60 basic plot types available to efficiently and effectively create 2D, 3D, contour, and image graphs. Users can also simply and instantly change the look of any graph

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by applying graph themes. The analysis tools provide for statistics, curve fitting, signal processing, and peak analysis. Statistics include linear regression, ANOVA, survival analysis, and many more. Users can perform custom analysis and plotting routines with Origin C, a built in programming language, and use an editor and debugger with color coding. Numerical Computational routines from NAG Inc., accessible via Origin C, are available to use. These routines include Fourier transforms, correlation and regression analysis, analysis of variance, and curve and surface fitting.

## DOCUMENTATION AND TRAINING

**Manual.** The manual is exceptional. It is aimed at the average user yet provides tips and tricks for the more experienced. There are plentiful figures and diagrams and easy to follow instructions. The frequent use of lists and step by step displays assists in the usability of the manual. The tutorial sections are especially helpful as they lead the reader through the common processes in a learnable and interesting manner. The manual is also available in pdf format on the CD and, despite its large size, does not take a lot of time to load or to through.

**Demonstrations.** The Origin CD contains multimedia demonstrations. These excellent tutorials include on screen step by step movements and voice overs. The only downfall may be the need for a $1024 \times 768$ or higher resolution. There also are online "webinars" (seminars) although none are currently scheduled at the time of writing this review, nor are there old listings; thus, there is no indication of how frequently these are offered.

## WEB SITE

OriginLab's Web site (www.originlab.com) is also exceptional. From the home page, there is access to "case studies", a recent review of Origin 7.5[2] and technical review articles. The "case studies" provide examples of how Origin can be used in practice. Technical review articles are produced by OriginLab's engineers and guide readers through Origin's features. Online "live" help is available, and other contact information is easily available. There is a searchable knowledge base that provides for searching by keywords, and the user can also limit by category, such as analysis, excel workbooks, patches, system information, and by information type, including bug, case study, and tip. The search can also be limited to a specific version of Origin. In addition, there is a user forum to allow Origin users to share ideas and a file transfer facility where users can share custom files or components.

## SUMMARY

If you are unfamiliar with graphing software packages, it is recommended that you read the manual before using Origin, although this is primarily to ensure that you get the most of Origin more than a need to review the manual to use the software. Origin 7.5's graphical interface is fairly intuitive and relatively easy to use. It provides an array of powerful graphing and analysis tools. Many users will be able to use it immediately with only a cursory glance at the manual. Origin 7.5 is highly recommended for anyone looking for an effective, user-friendly analysis and graphing software.

## REFERENCES AND NOTES

(1) Edwards, P. M. Origin 7.0: Scientific Graphing and Data Analysis Software. *J. Chem. Inf. Comput. Sci.* **2002**, *42*(5), 1270−1271.
(2) Simon, B. Don't Just Plot, Customize Visuals and Analyze Data. *Desktop Engineering Articles* [Online] February 2002. http://www.deskeng.com/articles/reprint/0204Origin7.2.cfm (accessed April 2204).

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