
COMPUTER SOFTWARE REVIEWS

Review of Lotus 123 Release 4 for WindowsScott Van Bramer[†]

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With release 4.0 for Windows, Lotus has greatly enhanced the power and utility of the classic spreadsheet. If you have the hardware to support this program, it is significantly more powerful and easier to use than older versions. If you use a competing spreadsheet, you may want to look at the functions and features that this revision has to offer.

According to the packaging the minimum configuration is a 286 computer with Windows 3.0, 4-MB RAM, DOS 3.3, 7.5-MB hard disk space, and an EGA monitor. I used the program on a 33-MHz 486SX with 4-MB RAM, and it ran smoothly; however, I expect that it is painfully slow on a 286. The optimum configuration includes a 6-MB RAM and 16-MB hard disk space. The additional hard disk space is for the full program and the software tour. The tour quickly introduces many Windows features, three-dimensional spreadsheets, macro recording, @ functions, and graphing improvements. It is well designed and very informative. The installation is very simple and straightforward.

Release 4.0 makes effective use of many Windows features that make spreadsheets easier to view, edit, and create. With the graphics display it is easy to zoom in and out of the spreadsheet to view more of the work space than is possible with a DOS text display. Column width and height adjustments are easy to make with the mouse. The ability to cut and paste to other Windows applications is a very useful feature. This is especially true for scientific writing that often includes tables and graphics intermixed with text. It is important to point out that this does not always work flawlessly. I had particular difficulty getting text within a graph to translate smoothly. The ability to save graphics as *.PIC files would avoid this problem, but this feature is no longer available. Another useful Windows feature is the use of pop-up windows for interactive tasks. This greatly simplifies sorting, editing ranges, and building graphs. Lotus has even added a menu of common Windows features (CUT, PASTE, DELETE, etc.) to the right mouse button that is much more convenient than using the tool bar. This is a good compromise between the GUI interface and the use of control keys. Printing is much easier through Windows. The print preview, automatic scaling, and graphics printing features make it easy to size a work sheet for printing. This eliminates the need to play with fonts to get the last column to fit on a page or the need to switch programs for printing graphs. Just these printing improvements justify an upgrade from previous versions.

If you are a hard core, old-fashioned 123 user, you will be relieved to know that the / key is still fully functional. When you know the key strokes, it is faster than the GUI interface, although it is more work. I found myself using a mixture of

the two, depending upon the task and how much of a hurry I was in. As I use the GUI interface and customize it for my work habits, I use the / key less.

In addition to the improvements of a Windows interface, many features have been added that are very useful for chemistry and for teaching chemistry. Although these programs are designed for business applications, the competition has led to new features that scientists will find very useful.

The most significant improvements are the added graphing functions. This version of 123 has many features that make this task more powerful, easier, faster, and more flexible. First, XY graphs can now include up to 23 data ranges and a second Y-axis. There is a wide selection of other graphing formats available. The most useful looking is the High, Low, Close graph. Although it is designed for plotting stock prices, it is the easiest way I have found to include error bars in a graph. Release 4.0 also has an Auto Chart icon that works surprisingly well. You just block out a range of data with the mouse, click on the chart icon, and select where to place the graph. It will then graph the data using column headers as titles. It does not always work the way you intend, but it is at least close enough to make the job much faster. After you create a graph, it is easy to make changes by clicking on a feature to activate a dialog box for editing. It is even easy to add text, annotation, and drawings to the graph.

Lotus has also added some very useful new @ functions and made them much easier to use. @ functions can be selected by clicking on an icon. This brings up a customizable menu of common functions and a complete listing of all the @ functions, either in alphabetical order or by category. The context sensitive help makes it easy to find the right function, it defines all the variables, and it provides examples of the syntax. After selecting a function, the program inserts the function with prompts for each variable. Lotus has done an excellent job of making @ functions easier to use. It is no longer necessary to look through manuals to discover the right function or decipher the variables it requires. This release also includes many new functions that I have not yet seen in any of the competitors. The statistical functions now include both population and sample statistics, *t*-test, *t*-scores, *q*-tests, and *f*-tests.

Another new feature is the addition of a third dimension to the spreadsheet. Although 123 version 3.0 included three-dimensional work sheets, this release is much easier to use. Individual pages are selected by clicking on a notebook tab at the top of the page. This makes it very easy to move through the stack. This feature can be used for three-dimensional data or to help organize a spreadsheet. Instead of paging and scrolling up and down within a spreadsheet to locate different areas, it is much easier to select a separate page by clicking on the tab. This allows you to place raw data on the first sheet, mathematical manipulations on the second, solutions

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on a third, graphs on a fourth, and macros on the fifth work sheet.

Frequent users of complex work sheets will find that macros are both easier to write and easier to use. The macro recorder follows and records a sequence of key strokes for building a macro. After the macro is written, it can be assigned to a button in the spreadsheet. This makes it possible to create custom icons for performing routine manipulations. You just click on the button instead of trying to remember which alt key to use. The addition of program control still requires an understanding of the macro language and syntax. The macro recorder is a great addition, and the language is now much more powerful, but macros are still not easy to write. The documentation and on-line help are not as well developed as for the @ functions. If you have written macros before, the new tools will be very welcome additions, but if you are new to macros, they will still be confusing.

Lotus has also added some presentation and networking capabilities that have applications for demonstrations and presentations in the classroom. The version and scenario manager, designed for predicting business outcomes, would be useful for showing students how variables affect a mathematical model. The software also includes networking features that allow different levels of access to a spreadsheet. This will let students add information to a spreadsheet posted on a network. It would then save each student's data separately.

There are some disadvantages to this program that will be significant to some users. All these new features come at a price in performance. If you have a 486, this should not be a problem, but the program speed is noticeable on a 386. With a 286 I expect that this program will be very slow when compared to DOS applications. Like all new Windows applications, it requires a substantial amount of RAM. It works with 4 MB, but for large spreadsheets and complex graphics I often wish I had more RAM.

Another complaint is that the GUI interface can take awhile to get used to. The program includes so many different icons and tools that it is often difficult to decipher what they do. I found this very frustrating until I customized the display and used the tools. Now they seem obvious. As with all well-designed software, this package grows on you.

The only other complaint that I have is that Lotus continues to ignore Quattro software. As with other Lotus products, this one will not read Quattro files. On campuses where Quattro is widely used, this may be a serious handicap. At a time when spreadsheets are transferred instantly through the Internet with colleagues at the other side of the world, this lack of compatibility is not acceptable.

I found this to be an excellent product and I feel comfortable giving a very strong recommendation. The program includes lots of new functions and features that make it more powerful, and the Windows interface makes it easier to use.