

# E-Notebook 2014



With the launch of E-Notebook 2014, the latest version of the market leader in electronic laboratory notebooks, PerkinElmer introduces the most user friendly, self-service solution for planning, capturing, recording, and analyzing scientific data. Integration with Inventory, Registration and ChemACX has been updated, improved and brought into the latest version of E-Notebook. Seamless integration with the TIBCO Spotfire® data visualization and analysis software, made possible by the Datalytix query tool, creates an environment for bench scientists to quickly and easily manipulate and aggregate data from different origins for thorough analyses across experiments. As part of PerkinElmer's productivity suite, E-Notebook 2014, TIBCO Spotfire®, and Datalytix solutions let scientists do more with their data.

## E-Notebook 2014 Highlights

- **Improved Interface:** If you're still on E-Notebook versions 12 or older, you'll want to see the dramatically improved look, feel, and user experience of E-Notebook 2014. The new user interface looks like what you'd expect in a state-of-the-art software solution, with familiar design features (like ribbons and toolbars) and user actions (drag and drop) to ensure ease of use and greater user adoption.
- **Enhanced Integration with Registration and Inventory:** E-Notebook 2014 serves as your portal to these workflow tools for seamless product registration and inventory management with fewer steps and mouse clicks.
- **Invisible Enhancements:** Changes were made to core components that improve E-Notebook's robustness and adaptability, including experiment size information and enhanced group security options.
- **Upgrade Toolkit:** A significant investment has been made in a tool for our services team to use and make migrating to E-Notebook 2014 more efficient and less costly.

## About E-Notebook



**E-Notebook** is the industry's most widely deployed electronic laboratory notebook. Researchers in the pharmaceutical, biotech, chemical, food/flavor/fragrance, and petrochemical industries, as well as academic and government institutions, rely on E-Notebook to enhance personal productivity and improve data quality. Organizations protect intellectual property and create a shareable archive with E-Notebook, fostering collaboration and innovation.

**E-Notebook 2014** focuses on significantly improving the user experience and features modernizations and updates for easier use and greater productivity. Migrating to the newer solution is more efficient and predictable with a new upgrade toolkit, developed exclusively for PerkinElmer Services to identify customization that must be carried over and accounted for in version 2014.

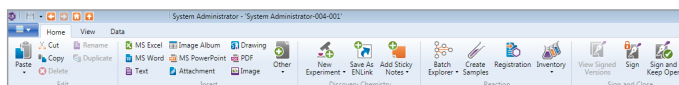


Figure 1. This is a Ribbon menu control from an E-Notebook experiment.

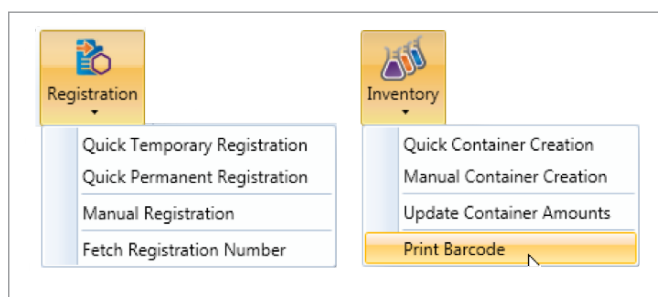


Figure 2. Push directly to registration or print a barcode from inventory.

## What's New in E-Notebook 2014

Logging into E-Notebook 2014 provides a striking clue as to how improved the electronic lab notebook (ELN) has become, especially for users of version 11 and older. Gone is the stale gray interface of older versions. PerkinElmer brought in experts to create a completely new look and feel for the E-Notebook solution, and the results can be noticed at all levels of the application – from new icons and splash screens to context-sensitive ribbon technology. The overall effect is an easier and more intuitive to work with E-Notebook solution. Ribbons provide better navigation, table control is improved, and the autotext feature has been enhanced.

**New Software Support:** E-Notebook 2014 has been updated to support the latest software that constitutes your work environment. You can now use the industry leading electronic laboratory notebook on Microsoft® Windows® 8.1 with Internet Explorer 11 and Microsoft® Office 2013® without compromising your modern environment.

**Drag-and-drop:** To reduce the number of mouse clicks, a new drag-and-drop feature lets users search and find multiple files on their desktop or network, then select and drag files into their experiment. This automatically generates appropriate sections for each of the associated documents. Any files not recognized by E-Notebook are stored as an attachment. E-Notebook recognizes Microsoft® Office® files, including Word® documents, Excel® spreadsheets, and PowerPoint® presentations, as well as PDF, ASCII, and image files. Drag-and-drop extends to moving experiments around within E-Notebook folders, copying an experiment or experiment sections between notebooks, and rearranging sections or tabs in an experiment.

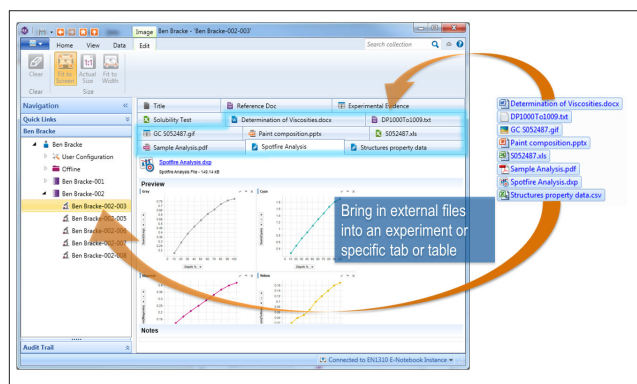


Figure 3. Drag-and-drop files from your computer to add files to an experiment in E-Notebook.

**Tables:** New tables enable users to get to data of interest more quickly through effective sorting, grouping, and filtering. Settings are saved with the experiment for future use. Now, images are more easily moved and stored within tables, too.

**Reading modes:** While some users are comfortable working with tabs or sections, others want information presented in a continuous, scrolling document. E-Notebook 2014 lets users decide and configure the presentation they prefer for most of the content. Users may also move sections up or down or collapse them so they don't clutter the screen.

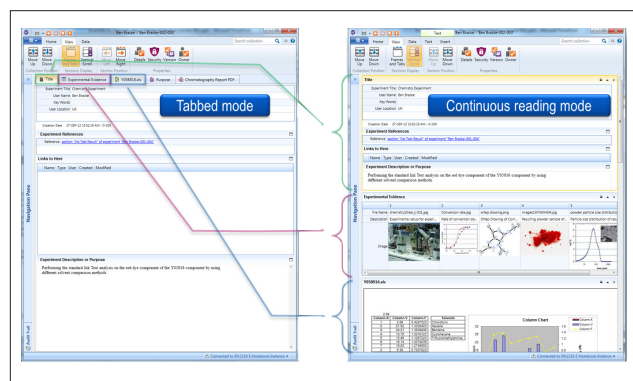


Figure 4. Tabbed versus continuous scroll modes showing where each section is.

**External editing:** The new external editing function allows users to select which part of the document they would like displayed in the preview embedded in the notebook. All of the information is retained in the MS Word®, Excel® or PowerPoint® even when only a portion is displayed as a preview in the notebook. It is accessible by switching into edit mode.

**Improved Supplementary Data Management (SDM):** The new SDM enables a laboratory with multiple instruments and users with immediate, automatic access of all instrument output files, images and PDFs within the E-Notebook experiments, allowing your scientists to reference, import or export most file types at their convenience.

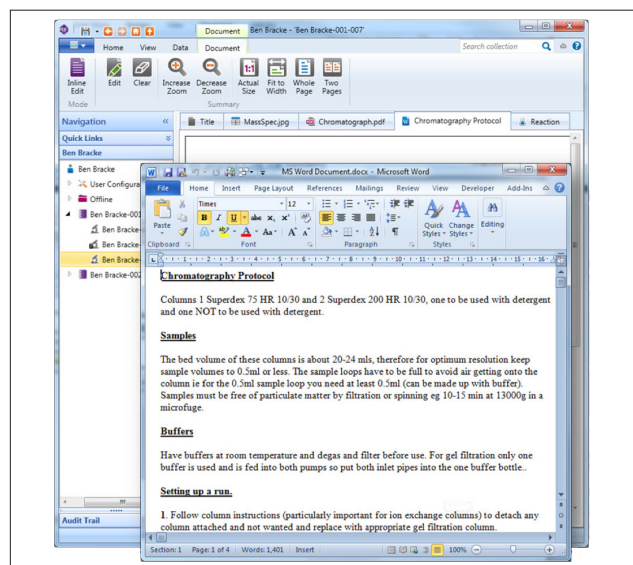


Figure 5. External editing mode in the E-Notebook allowing a user to edit a chromatography protocol in Microsoft® Word®.

**Structured data management:** E-Notebook 2014 introduces a new, highly flexible method of capturing data so that it can be queried and searched more easily. By defining a series of fields and, if required, calculations and curve fit models, E-Notebook constructs a single table or series of hierarchical tables that store and process raw data from a particular experiment or test. Once the section is built, it becomes part of the experiment. E-Notebook then automatically loads, calculates, and displays all the data and results. A comprehensive mapping wizard helps users map their data formats, visually and interactively, using templates that can be reused for multiple experiments.

**Data validation:** Once data is loaded, users can revise results, validate or invalidate data, and leave comments explaining their work. Through a simple workflow users decide what data gets published or is readily viewable, yet all data remains within E-Notebook for proof and audit control.

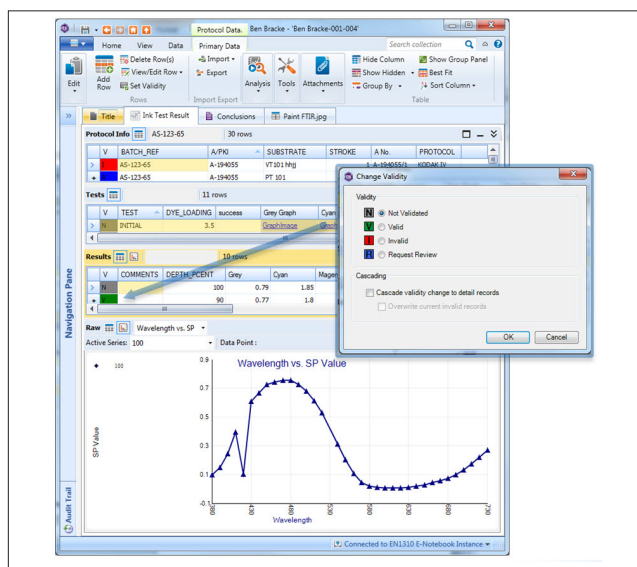


Figure 6. Data validation in the structured data management tool.

**Cross-experiment searches:** Structured data capture enables analyses of results from multiple experiments, in multiple notebooks from multiple users. Visualization tools within E-Notebook allows users to render in several graphing styles.

## Upgrade Services

PerkinElmer has created a set of tools for its Services team to ease the transition from E-Notebook v 11 and 12 to the latest version. The company has made a significant investment in developing the upgrade toolkit (UTK) to enable the team to reduce migration services and associated costs and smooth the transition to the newer software. Key to the UTK is an online diagnostic tool which identifies the customizations made to E-Notebook to determine the carry-over required to 2014. This allows PerkinElmer to take the guess work out of migrations. Both before and after the upgrade is completed, the database is scanned and all deviations from the out-of-the-box E-Notebook configuration are flagged. Not only does this more reliably help predict the time and effort it will take for a customer to upgrade, it also allows the customer to re-evaluate their customizations and ensure they are still relevant. This means customers no longer pay to migrate customizations

they don't need. After the upgrade, the second scan allows customers to check the database to ensure all customizations are accounted for, and no inadvertent errors occurred in the database.

## TIBCO Spotfire® Integration

The TIBCO Spotfire® visualization and analysis software integrates seamlessly with E-Notebook 2014 for a streamlined workflow. A new add-on called Datalytix enables bench scientists to pull data using a simple workflow, from E-Notebook into TIBCO Spotfire® for unprecedented views of aggregated datasets. Users can look across all experiments, aggregate data, see trends, spot outliers, and verify data quality. With the ability to pivot, zoom, re-plot, and otherwise manipulate the visualization of data, TIBCO Spotfire® often helps users develop insights they might not see otherwise.

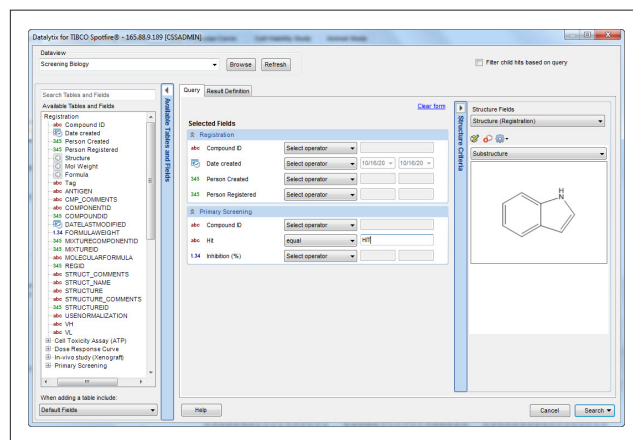


Figure 7. A Datalytix query for a specific substructure used in a primary screen.

PerkinElmer's vision for self-service science, where the end user can easily configure the software and manipulate data in real-time without helpdesk and IT requests, is being realized with improvements to E-Notebook and its integrations. TIBCO Spotfire®, once thought of as an expert tool for informaticians, has become a much more user-friendly solution for scientists who want to analyze and draw conclusions from the vast collection of data. PerkinElmer, in addition to developing enhancements for TIBCO Spotfire®'s usability, has also lowered licensing costs for individuals, making TIBCO Spotfire® an accessible tool for every scientist.

## Reasons to Upgrade to E-Notebook 2014

- The vastly improved look and feel, along with usability updates, make 2014 a pleasure to work with.
- The ability to achieve more in fewer mouse clicks, because of reduced key strokes, makes users more productive.
- Better integration with TIBCO Spotfire® analysis and visualization software creates a more streamlined workflow and delivers significantly more insight, faster.
- Upgrade Toolkit reduces the headaches and costs associated with software migration.
- The support of a modern software environment allows the users greater productivity with the latest informatics packages at their disposal.



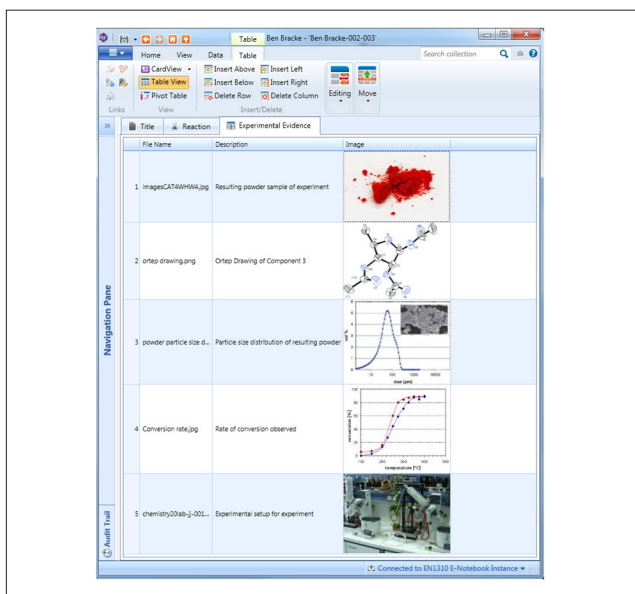


Figure 9. New look and feel demonstrated via the image section which can be displayed either in a table (above) or as a card view where thumbnails are shown (not pictured).

## E-Notebook 2014 for Chemistry: Superior Registration and Inventory Integration

Scientists developing products can record their activities in E-Notebook and in a few easy steps register those products and physical samples in PerkinElmer's Registration and Inventory applications. New registration and inventory buttons enable users to enter data and create hyperlinked files to these integrated applications without leaving the E-Notebook client. For repetitive workflows, PerkinElmer has developed a "quick" registration and inventory process, while manual registration and inventory are still available for more complex products including mixtures.

With E-Notebook 2014, chemists can get all their work done in a single application that pushes data into Registration and Inventory programs. In addition to time savings and increased accuracy, the integration enhances traceability and protects the audit trail with single sign on to all three applications.

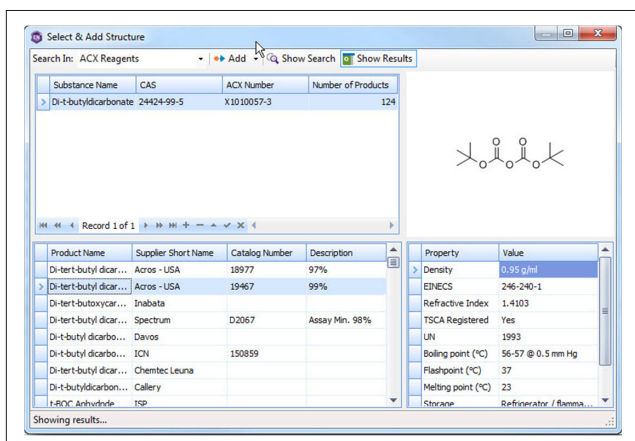


Figure 10. Because Inventory and Registration are also integrated with our Chem ACX Database, you can search over 3 million compounds from many different vendors within the E-Notebook.

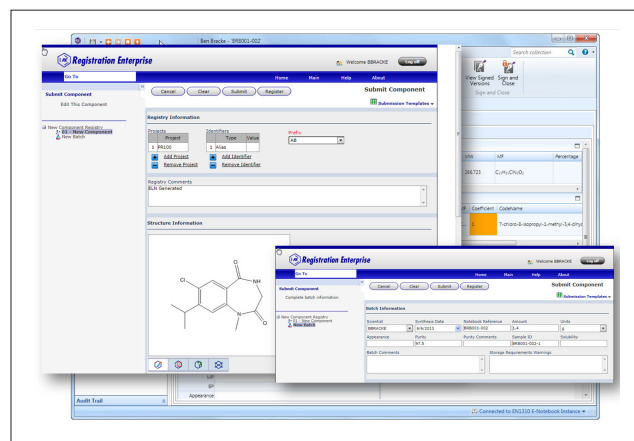


Figure 11. Register a compound to the temporary or permanent register from within the E-Notebook.

The Registration workflow allows users to investigate the uniqueness of their product and register initial or subsequent batches of a compound, creating a sample identification. The Inventory workflow creates a physical container of that material with an identifying barcode that informs users – and their colleagues – what the product is, how much is available, who owns/created it, and where it is stored. It also allows colleagues with the right permissions to use those containers in their experiments.

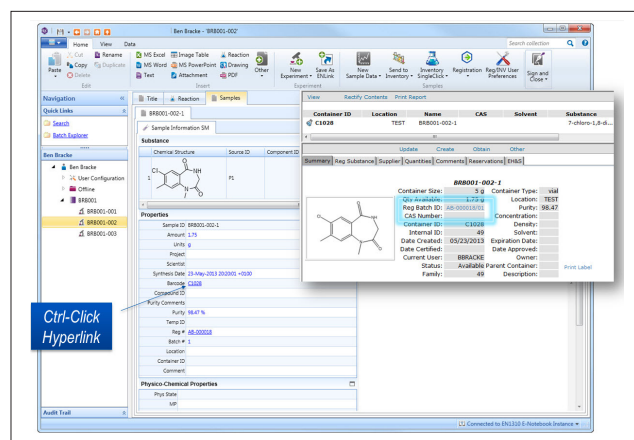


Figure 12. Clicking on the barcode in E-Notebook allows you to view the container holding the material in Inventory.

As integrated applications, E-Notebook, Registration, and Inventory serve as a centralized system that creates an end-to-end workflow within a single application. Researchers not only complete their work within this environment, but also have access to data, results, and other key information from peers within the organization. Sharing this information moves science forward, faster.

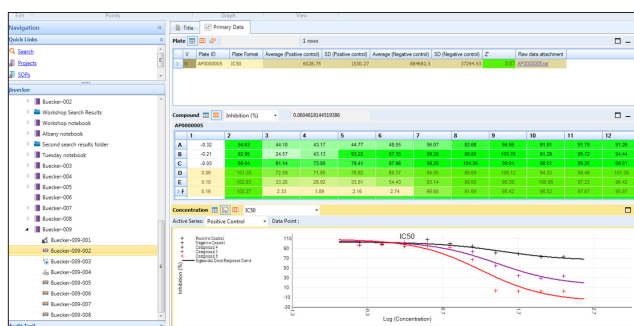


Figure 13. IC50 Protocol in BioAssay comparing curves for three compounds selected from a plate.

## E-Notebook 2014 for Biology: Featuring BioAssay Functionality

For biologists running screening assays, E-Notebook provides BioAssay functionality that loads structured data in a consistent manner. New in 2014 are:

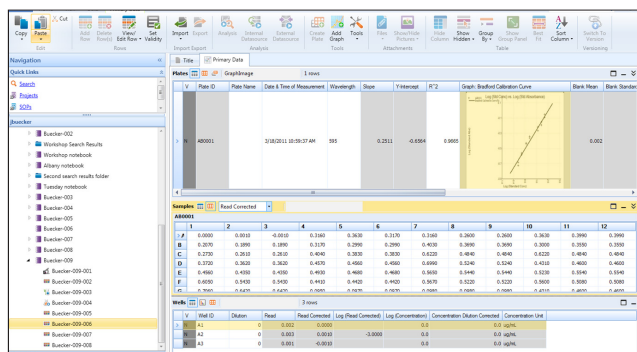


Figure 14. Data from a Bradford protein assay captured in BioAssay. This screenshot shows the ability to include calculations such as a correction applied to the read value.

- Protocol versioning: Users can edit and update protocols without having to create a new version each time. This flexibility enables consistent collection and analysis by querying all the data run in a single protocol, even as that protocol may evolve over time.
- More functions: Additional functions for calculations are now available, such as pulling values from the previous or next row, or choosing the minimum and maximum over a data range. This broadens the scientists' ability to analyze data within the E-Notebook.
- Protocol selection: A new interface presents the available protocols, which users may sort in a variety of ways. This enhancement helps to ensure that the scientist will choose the right protocol, particularly if lab-based.
- Push data: Users can choose what data they want to show, for example, in TIBCO Spotfire® visualization and analysis software. As part of the protocol, the scientist can determine what content will be accessible from TIBCO Spotfire® for further analysis. With a connection between E-Notebook and TIBCO Spotfire® established, more data can be aggregated across experiments for evaluation and analysis. TIBCO Spotfire® analysis file (.dpx) templates can be dragged back into the E-Notebook for safe storage with the experiments and optionally opened up to review the analysis when new data has become available.

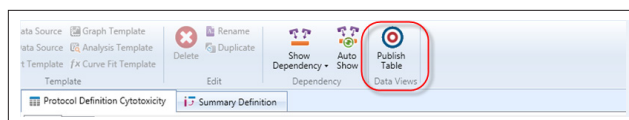


Figure 15. Publish Table to TIBCO Spotfire® button on a Ribbon menu control on an E-Notebook experiment.

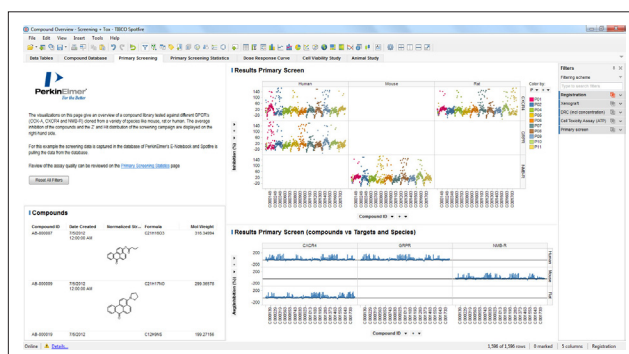


Figure 16. Primary screen data from E-Notebook visualized in TIBCO Spotfire®.

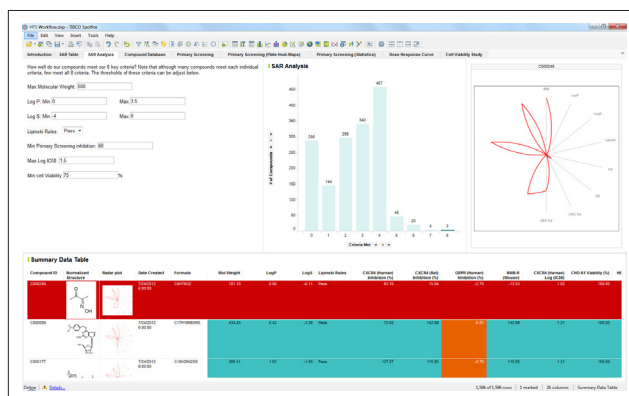


Figure 17. HTS SAR (high throughput screen-structure activity analysis) data from E-Notebook pushed to TIBCO Spotfire®.

## Conclusion

E-notebook 2014 is the latest version of the market leader in Electronic laboratory Notebooks. It is the most user friendly, self service solution for planning, capturing, recording and analyzing scientific data. Bench scientists quickly and easily manipulate and aggregate data from different origins through seamless integration with TIBCO Spotfire® data visualization and analysis software. Made possible by the Datalytx query tool, do more with your data. Do more experiments. Do more exploring. Make a new discovery. With E-Notebook 2014—Do more science.

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