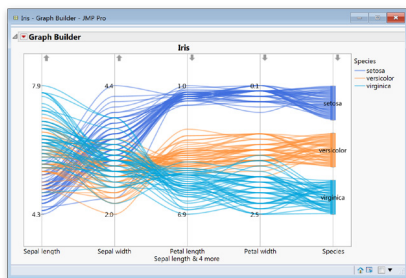


New features in JMP® 13 and JMP® Pro 13

If you like digging around in your data to find patterns and trends, you'll love doing so with JMP® 13 and JMP® Pro 13. This newest release of SAS' statistical discovery software empowers users to play with unstructured as well as structured data, reference data from other tables without the data-storage issues of joining tables, and build dashboards in a few clicks. Of course, those are just a few of our favorite things about 13; you can get a comprehensive list of new features online. Please note: The **PRO** icon indicates features exclusive to JMP Pro 13.

Data Import, Data Table, Cleanup, Data Visualization, General



With Graph Builder, create a Parallel Plot to display multiple variables in a single graph.

- JMP Query Builder: Ability to perform multi-table queries and joins of JMP data tables. This helps you discover interesting data and make correct queries that are repeatable and sharable. Additionally, you can bring in data from various sources (e.g., Excel, JMP, Oracle, SQL) and join them in memory using JMP Query Builder. Use Query Builder for SQL code generation and prototyping. Also included are filter enhancements for categorical variables, expanded preference settings for categorical filters, first N rows sampling, run on open option, auto-join improvements and more.
- Play button to run scripts in a data table in one click rather than a menu choice.
- Improved support for "big data" databases including: Apache Hive, Cloudera Impala, Amazon Redshift, Amazon Aurora and Amazon MariaDB.
- Modeling Types have been expanded with None, Multiple Response and Unstructured Text.
- HDF5 file import: handles simple types of HDF5 files with dimension 2 (data tables without vector cells).
- File > Quick Open lets you search for JMP files by name without having to navigate through the file browser (Windows only).
- Support for Virtual Joins: Join two or more JMP tables without having to make an actual join through the Link ID and Link Reference column properties.
- New HTML-based help system with improvements to search, indexing and speed.
- Retooled formula editor makes it easier to create and view formulas.
- Modeling utilities have been moved to the Screening submenu of the Analyze menu. Predictor Screening (formerly known as Screen Predictors) joins the Screening submenu along with Response Screening and the Process Screening platforms.
- JSON data can be imported and exported.
- The Excel Import Wizard includes options for importing cell coloring, specifying separators in multiple-row headers, stacking data and duplicating headers in spanned rows.
- Parallel plot element available in Graph Builder.
- Improvements to the Treemap element in Graph Builder: support for n-levels, drill down by clicking a subcategory and options for single color tree maps. Also, label and font improvements for creating easy-to-read, complex treemaps.
- General improvements in Graph Builder: Allow specification of alpha level for confidence intervals. Add right-click menu item for Order By. Add option to position legend inside the graph (left or right). Line element has Connect Through Missing options. New Legend Settings menu item. Add Centered Step option to Line Element. Add Geometric Mean. Add Ellipse option to show correlation value. Add Response Axis property to Points, Regression, Smoother, Caption and Formula. For Line and Bar, tolerate absent X variable. Bar was treating no X as a single point at 0. Now it



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Details, details, details...

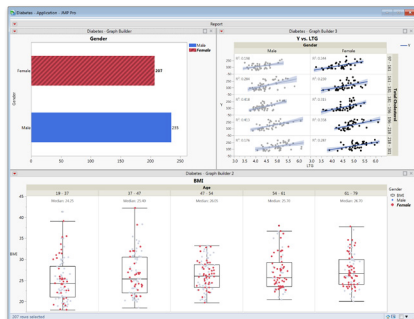
See a comprehensive list of new features for JMP 13 and JMP Pro 13.

jmp.com/release-notes

is carried as a single point with a missing value, which the Line and Bar now handle. Allow up to two color and size variables in Graph Builder so that different elements can use different coloring or sizing. Add Show Labels option to gradient properties.

- Active data tables, journals and scripts are autosaved at regular intervals when the Autosave Timeout preference is set on the General page.
- New transforms: Quantile, Day of Week Abbr, random sampling, moving average, lag.
- New lightness constraints in legend settings dialog.
- New color themes: Viridis and Magma.
- New custom number format option, especially useful for axis labels.

Building Dashboards and Sharing



Use Dashboards for an interactive way to combine reports into a single window and even run and present reports on a regular basis with no scripting required.

- The Dashboard Building mode of Application Builder is now the default. File > New Dashboard will bring up a template screen for easy building of a custom dashboard of JMP reports and data tables. Dashboards provide an interactive way to combine reports into a single window and can become a visual tool that lets you run and present reports on a regular basis with no scripting required.

- Combine Windows now includes options for viewing a combined report in summary view and/or adding a graph (selection) filter on creation. Combine Windows now creates a JMP dashboard in a single click.
- New interactive HTML options enhance your sharing ability:
 - View > Create Web Report option creates a web page in which reports, descriptive text and graphics are displayed. The generated folder, index page and resulting interactive HTML reports can be uploaded to a web server for sharing interactive JMP reports grouped by date or project, for example.
 - Partial support for interactive HTML reports of Graph Builder.
 - Interactive HTML support for dashboard layouts built in Dashboard Builder.
 - Value label support for interactive HTML reports.
 - Interactive HTML pre-flight report for unsupported JMP elements generated to the JMP log.
- The Generate Excel Workbook command in the View menu enables you to save multiple JMP data tables in a single Microsoft Excel workbook.



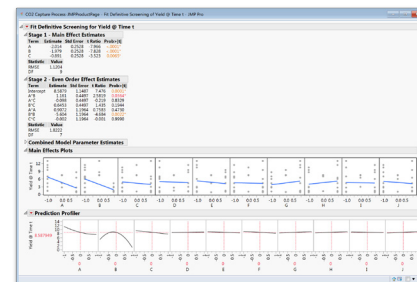
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Join our User Communities

Ask a question and get answers from JMP experts around the world. Share and download add-ins, scripts and sample data. Explore special areas for Discovery Summit resources, academics, JMP administrators and users groups.

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Design of Experiments (DOE)



Design of Experiments Fit Definitive Screening Example.

- Fit Definitive Screening available in DOE menu. Specifically tailored modeling technique for Definitive Screening Designs (DSDs).
- The DOE menu has been modified with many designers grouped under new, descriptive headings.
- Addition of Number of Extra Runs options to the DSD. This creates a design that has all the alias properties of a DSD, but analysis is even more powerful with the extra runs. There are options for zero, four or eight extra runs, which is equivalent to adding extra factors and dropping them.
- Compare Designs platform: In previous versions of JMP, it was difficult to compare designs - especially with more than two designs. Now, a single report lets you make side-by-side comparisons across multiple designs.
- Custom Design can now simulate realistic data for experiments, generating count- or pass-fail-based results with the addition of Binomial and Poisson distributions to the Simulate Responses tool. DOE simulate script is also saved to the design table so that effects and response distributions can be adjusted after the design has been created.
- Max Diff (also known as best/worst) design creation now available in the Consumer Studies submenu of the DOE menu.
- Simulate response outputs formulas for use with general simulation functionality. **PRO**

Statistics, Predictive Modeling and Data Mining



Text Explorer offers a highly interactive platform for analyzing unstructured text data.

- Text Explorer: New platform to analyze unstructured text data. It provides basic tools for analyzing free text in surveys or engineering notes. Regular Expressions (RegEx) interface for creating and storing custom RegExs for extracting part numbers, words between HTML tags, phone numbers, email addresses, currency and more.
- Process Screening performs control chart, stability and capability calculations for thousands of columns and/or groups. Process Screening platform joins the suite of Screening tools, a submenu of the Analyze menu.
- Modifications to Fit Least Squares default layout: Simplification of report output, Studentized Residual Outlier plot and Box-Cox transformations with refit/replace options.
- Fit Model and Distribution now support multiple response modeling type.
- Latent Class Analysis (LCA) platform added. LCA is a clustering technique for categorical variables.
- Much improved SVD imputation in Explore Missing Values.
- Addition of Two One-Sided Test (TOST) equivalence tests in the Distribution platform.
- New curves added to the Fit Curve platform: Probit curve (2P and 4P versions); Rodbard and Hill curves.

Fit Curve has its own launch now instead of requiring the Nonlinear platform to launch Fit Curve.

- Sparse PCA method addition to PCA.
- Addition of a Profiler to the Partition platform.
- New Clustering submenu in the Analyze menu includes hierarchical, k-means, normal mixtures, LCA and cluster variables.
- Cox mixture models now work when there are process variables and when there is pseudocomponent coding. These models are not supported, however, for Scheffe cubic models or when there are terms higher than order 2. Cox component effects report added. Hidden column for the gradient at the reference mixture so that a partial or constrained effect can be created.
- Text Explorer analytics: Use the SVD to do latent semantic analysis. Perform topic analysis and LCA. Save the document term matrix, SVD or cluster probabilities. Options for scoring new observations. The ability to now use text data as potential predictors in other JMP Pro models through the SVD and other saved columns. [PRO](#)
- New modeling launch options in Boosted Trees and Bootstrap Forest, notably the ability to set the random seed and suppress multithreading for reproducible model fits. Also the ability to use a tuning design table and the addition of stochastic gradient descent. [PRO](#)
- Addition of Formula Depot platform to store and manage formulas. Generates score code for SAS, SQL, Python, Javascript and C. [PRO](#)
- Publish commands parallel to save commands for formula column scripts in many fitting platforms. [PRO](#)
- Double Lasso option added to the Generalized Regression personality of Fit Model: Performs an initial Adaptive Lasso pass for a



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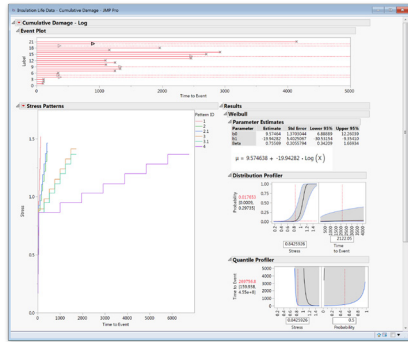
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screening and then uses the results' parameters to form weights for a second Adaptive Lasso pass. [PRO](#)

- Addition of Two-Stage Forward Selection option to the Generalized Regression personality of Fit Model: Initial forward selection considers only main effects, then a second pass of forward selection for the interactions and higher-order terms. This technique has excellent properties for model selection of DOEs. [PRO](#)
- Generalized Regression general improvements: New model selection criteria, ERIC, which has been designed specifically for penalized regression problems, full model upon launch, ROC, lift curves and confusion matrices; CDF and quantile Profilers (like parametric survival), support for no intercept models and ordinal predictors, ability to save simulation formula that can be used in the Simulate utility. [PRO](#)
- Naive Bayes, a new method available in the predictive modeling submenu of Analyze. [PRO](#)
- Gaussian Process in JMP Pro offers faster fitting of large data sets using composite likelihood methods and the Fit Mixed computational framework. [PRO](#)
- Fit Mixed: Interdependence, Toeplitz and Heterogeneous variance models; Indicator Parameterization Estimates option. [PRO](#)
- General Simulation functionality: Power calculations for almost

anything (e.g., logistic regression, mixed models, etc.). Support for parametric bootstrapping and randomization testing. **PRO**

Quality Engineering, Reliability and Six Sigma

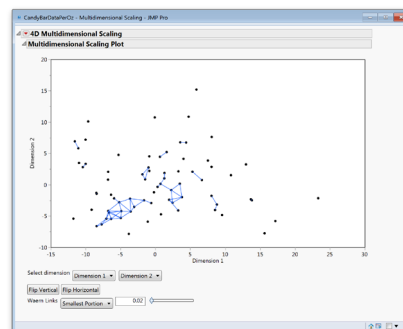


Use Cumulative Damage platform to perform accelerated life tests under increasing stress.

- Process Capability platform supports automated distribution selection (letting the data decide the best distribution); addition of probability plots for assessing distribution model fits.
- Support for non-normal capability analysis.
- Concurrent and Parallel systems reliability growth tabs added to Reliability Growth platform.
- Normal and SEV distributions added to Fit Parametric Survival, and a Fit All distribution.
- New addition of Cumulative Damage platform for analyzing time-varying-stress accelerated life test models.
- Life Distribution option for Fit All Distributions with Cause models will produce reports that are hierarchically organized.
- Life Distribution supports censored observation plot for right censored data. Must turn on using platform preference.
- Support for Location-Scale distributions in Parametric survival.

- Likelihood interval can be set as the default through a preference in Fit Life by X.
- Life Distribution format launch of Reliability Forecast allows user to arrange arbitrary existing risk sets.
- Addition of the Repairable Systems Simulation platform. **PRO**
- Parametric Survival supports variable selection through a bridge to the Generalized Regression personality of Fit Model using a launch button in the report. **PRO**
- The Generalized Regression personality of Fit Model now handles censored data allowing you to do variable selection with survival/reliability data; support for Cox Proportional Hazards in Distribution drop-down menu. Supports Weibull, LogNormal and Normal distributions. **PRO**
- Addition of Reliability Overlay by Component graph to the Reliability Block Diagram. **PRO**

Consumer and Market Research

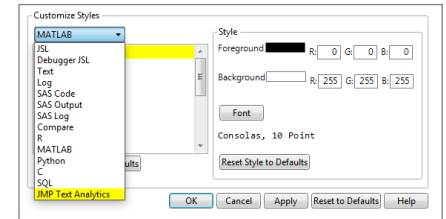


Create a Multidimensional Scaling Plot to make comparisons among items in a network.

- Choice Models: A "No Choice" option for the situation where the study participant does not want any of the proposed choices.
- MaxDiff (best/worst): A new platform providing a variation of choice analyses for ranking customer preference.

- New addition of the MaxDiff design under DOE > Consumer Studies > MaxDiff Design.
- Rate Per Response and Multiple Responses in outer nests added to the Categorical platform.
- Multidimensional Scaling (MDS) platform addition to the Consumer Research submenu of the Analyze menu.
- Association Analysis (Market Basket), a new method available in the Screening submenu of Analyze. **PRO**
- Hierarchical Bayes analysis in Choice. **PRO**

Select JSL Improvements



Customize styles for analysis, such as text exploration, using JSL.

- Document-specific style support in script windows.
- Addition of the Using Namespace () function.
- Significant optimization of the ways JSL handles lists.

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