New features in JMP® 14
Explore the new capabilities and enhancements of our most recent release.

You’ve been exploring your data with the statistical discovery tool of choice for scientists, engineers and other data explorers. Now you’ll want to dig deeper using the improved platforms in the newest release of JMP. Here is a selection of enhancements in JMP 14 and JMP Pro 14—many of them requested by users.

For the complete list of new features, visit jmp.com/release-notes.

Note: The PRO icon indicates features exclusive to JMP Pro 14.

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

• New Projects system provides a way to organize files and use JMP with a tabbed interface to manage multiple open windows during analysis. Projects allow single document interface to JMP, selection of specific files to include, organization of a reconfigurable workspace, analysis sharing and archiving and document launching (of supported file types PPT, DOC, PDF) directly from JMP.

Use Projects in JMP to organize files and manage multiple open windows with a drag-and-drop tabbed interface.

• New multiple file import launches a dialog to load several files into a single JMP data table. Allows filtering of files by size, date, name and type and supports one-column import, useful for Text Explorer document preparation. Within platform support for editing text import options.

• Virtual join improvements offer access to data in one table by another table with just a few clicks.

• Graph Builder improvements include:
  o New chart type, packed bar chart, shows skewed data across hundreds of categories.
  o More control over graph customization.
  o Easily incorporated customized error bars.
  o Marker Sizes from legend.
  o Support for more basic statistical analysis directly in Graph Builder.
  o More control over contours including smoothing and shape clipping.
  o Bootstrap confidence intervals for Smoother element.
  o Point dodging and jittering options.
  o Parallel coordinates in box plots, points, histogram and violin plots.
• New data table features include:
  o Use column images as markers.
  o Paste into cell.
  o Grouping and nesting of table scripts for better script organization.
  o Clickable links afforded by the Event Handler column property.
  o Invert column selection option.
  o New transforms are now in New Formula Column.
  o Labels to Codes and Codes to Labels columns utility.
  o Select duplicate rows added to rows menu.
• Interface enhancements improve workflow:
  o Preference searching and filtering makes it easy to find a preference to be changed.
  o Updated scripting index with better search and a compact mode that works well in a project.
  o Preview results in Formula Editor before clicking OK.
  o Better automatic sorting algorithm using natural sort (e.g. Lot 1, Lot 2…Lot 10, Lot 11).
  o Grouping of scripts in a data table.
  o File quarantine alert to protect against unknown executable code within JMP files.
  o Updated OpenGL View Settings dialog for easier customization any 3D graph.

Building Dashboards and Sharing
• Animated GIF recording and saving in JMP where there is a play button (Bubble plot, local data filter, column switcher for example) make it possible to embed a moving JMP visualization in a PPT slide, for example, without having to rely on Flash.
• Dashboard Builder adds easier-to-read drop zones, a blank dashboard template and the ability to store custom templates.
• Create Web Report functionality allows organization and sharing of the steps of an analysis project with an index page and links to interactive HTML reports. Create Web Report is now scriptable so the creation of the web report can be added to the end of a standard report script.
• Filter support in interactive HTML reports adds filtering through selection, but does not recalculate models, for example.
• Now select data in HTML5 report output.

Design of Experiments
• New A-optimality criterion in Custom Design helps when optimal design must focus more heavily on certain effects.
  o A-optimality criterion added to Custom Design. This feature is useful when the optimal design needs to focus more heavily on certain effects rather than others, since there isn’t a natural way for D- or l-optimality to do this.
  o Ability to create balanced incomplete block designs.
  o Improvements to the way priors are specified when building accelerated life test designs.
  o In Compare Designs, up to 10 designs can now be compared through a JSL interface, and up to five with the UI.
  o Improvements to the Fit DSD algorithm and options let the platform find weakly quadratic terms and interactions that have weak heredity.
  o New option to create a data table from color map on correlations.
  o Addition of pairwise incidence heatmap to MaxDiff designs.
  o Improved space-filling over levels of a categorical factor.
  o New option to create a run order column in Custom Design.
With Functional Data Explorer, understand, clean, align and build models from sensor streams or batch process data.

- New Functional Data Explorer platform simplifies handling of sensor/signal/streaming or batch process data. With this platform, clean up, align and conform data coming from sensors, build surrogate models using a variety of techniques and use output models and features in other predictive modeling platforms.

- Text Explorer enhancements include:
  - Support for Asian languages (Chinese and Japanese).
  - Better filtering options for tabular output, including terms, phrases and report lists.
  - Per topic word clouds.
  - Support for discriminant analysis.
  - Support for validation column in the platform launch for use in a predictive modeling workflow.

- Generalized Regression has new features:
  - Additional distributions, including more censoring (Gamma and exponential distributions add support).
  - Multinomial response support (nominal responses with more than three levels).
  - Additional selection techniques, including best subset regression, backwards elimination, pruned forward selection and the Dantzig selection (which has gained popularity in the DOE community and is good for n<<p problems, liked supersaturated designs).

- Other features, including a reset solution button, VIFs, adjusted R-square, RMSE, QQ-Plots and F-tests. Finally, custom tests are supported, cross-validation support has been added for two-stage forward selection and the platform has been adjusted to perform faster with large and/or complex problems with many effects.

- In Explore Missing Values, the addition of a new SVD/Matrix Completion-based approach incorporates validation into the dimension reduction step and scores new observations using the V matrix and a least squares estimate of the U for new rows of data. Explore Missing Values supports a validation column for imputation.

- Addition of simulation for responses in Profiler Simulator.

- Distribution platform: Addition of SHASH distribution.

- Extended support for MR modeling type.

- Adjustment made to the PCA algorithm using a sparse implementation that makes computing principal components much faster (even on non-sparse data). Also support for supplementary variables.

- Fit Stepwise uses transforms instead of formula columns for saving terms for parts of categorical effects.

- K-NN and Naïve Bayes now have profilers. K-NN adds model selection to interactively change K and explore various model fits. Improved model diagnostics available in Naïve Bayes platform.

- Performance improvements to Formula Depot, including ability to publish recode columns, more model support and support for derived columns.

CUSUM charts offer quality engineers the familiar look, feel and interpretation of traditional control charts.

- Drift Detection, Goal Plot, three-way chart metric and numerous UI enhancements in Process Screening.

- New platform for managing spec limits.

- Addition of Bayesian Inference for Fit Life by X.

- For parametric survival, the addition of a nested model tests in addition to graphical comparisons to match Fit Life by X.

- Improved Fit Censored JSL function to improve performance of Life Distribution with very large data sets containing Interval Censoring.

- New Probability plot of Standardized Residuals in Cumulative Damage.

- New side-by-side comparison of fixed parameter results along with unconstrained results in the density profiler.

- Improved interface for censor indicator in failure cause column for life distribution now works like censor with dropdown list.

- Recurrence analysis includes a calendar event plot, interarrival by age plot and save simulation command for the non-homogeneous Poisson process models fit within the platform. Stepwise models saved as prediction columns now require only a single column.

- Repairable system simulation, cross-component event/action links can be turned off with the diagram operation option, which is useful for
cleaning up a complicated diagram. Individual links can be viewed by selecting an action or event block to view a relationship when the cross-component link option is turned off.

**PRO**
- CUSUM Control Chart platform added to the Quality Engineering menu.
- Three-way control charts in Control Chart Builder address within-group and between-group variation.
- Process capability: additional distributions, measures of variability and new Process Performance Plot.

### Automation, Scripting and Programming Interfaces

- **New ways to access data:**
  - New JMP interface to Python allows connection to local install of Python, sending data to Python, executing Python code from a JSL script and returning data and results from Python programs.
  - New HTTPRequest() function in JSL allows access to web data using APIs.
    - Allows you to communicate with external web servers using JSL.
    - Communication occurs through APIs (Application Programming Interfaces).
    - Used with the new JSL JSON parsing functions, HTTP Request makes it much easier to get web data into JMP with JSL.
  - Interface improvements to Scripting Index, including the option to show search results by relevance.
  - Option to save encrypted scripts to data tables.

### Consumer and Market Research

- **New Multiple Factor Analysis platform helps identify groupings of similar products and detect outliers that can skew results.**
- **New Multiple Factor Analysis platform helps with sensory analysis, identifies similar products and outlying panelists and facilitates pre-evaluation studies, later-stage consumer panels and studies that have untrained panelists.**
- Hierarchical Bayes calculations in Choice have improved starting values before the MCMC sampling begins to reduce shrinkage for variance calculations and model parameters. **PRO**

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