

Q&A

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John Sall is Executive Vice President and co-founder of SAS. He also is the primary architect of JMP software.

Why SAS® and JMP® need each other

Welcome to the special JMP edition of **sascom** magazine.

Because many SAS users are new to JMP, and vice versa, perhaps the best way to start is to answer some questions about what is interesting about JMP 7 from both the SAS and JMP users' perspectives.

sascom: You can do everything in SAS, so why do you need JMP?

John Sall: JMP augments other SAS offerings. Think of JMP as a SAS client, like SAS Enterprise Guide® that specializes in bringing your data to you in a way that lets you grab it, slice it, spin it and make it come alive. JMP has an attitude toward data that is close, personal and allows direct data manipulation. JMP has the direct feel of a spreadsheet, but with the supportive structure of a database – and much more graphical responsiveness. Everything in JMP is active on the surface. Changes happen instantly, eliminating the usual step of sending a job to the server and retrieving the results.

sascom: You can do so much in JMP, so why do you need SAS?

JS: SAS provides a much richer environment of support – support for a system of data and metadata repositories, support for a set of developed applications, support for powerful data quality and integration tools, and support for manipulating huge files. While JMP is fine by itself for isolated projects, it needs the server applications to knit together systems of data and applications. And SAS provides a huge number of specific solutions for specific industries.

sascom: Why doesn't JMP carry the SAS brand?

JS: Our original goals and target markets were not tied to SAS' traditional base, so we decided that investing in a new name would be less confusing. JMP was developed entirely within SAS; it was not an acquisition. Pronounced "jump," it was named to suggest a leap in interactivity, a leap in a new direction.

sascom: What is the relationship between JMP and SAS Enterprise Guide?

JS: SAS Enterprise Guide is a powerful client to SAS, providing a complete set of dialogs for creating SAS code to run SAS procedures, and with associated development tools. SAS Enterprise Guide is good at allowing you to author stored processes and generate code. JMP is great at letting you play with your data to "see" key things.

sascom: How does JMP 7 interface with SAS?

JS: JMP 7 interfaces to SAS in many ways: to data, to metadata, to stored processes, to server pools. Basically, if your data or metadata is in SAS, JMP can access it. You can develop SAS jobs in the JMP graphical environment, submit them from JMP, and get back the results

in JMP. You can open SAS data sets and dynamically analyze them in JMP. You can browse metadata libraries for data and stored processes. In a couple of cases (including Fit Model), JMP will even generate SAS code so you can compare SAS and JMP results for the same analysis. This is important in a regulated environment when validation is required.

sascom: What's new in JMP 7 that is important to business intelligence users?

JS: Richer graphics and richer filtering. There are three new graphical platforms. Bubble Plot shows data with sized bubbles that move across time.

Scatterplot 3-D is a complete 3-D environment with density contour ellipsoids, nonparametric density contours, drop lines, connect lines and biplots.

Scatterplot Matrix offers a rich grid of scatterplots with support for categorical variables, and it's very good at graphical queries.

The Data Filter is a master control panel for selecting groups and ranges and, if desired, for isolating them for analysis. And it supports full animation, so you can see how a graph or analysis changes as it runs through the groups.

sascom: JMP is just for engineers and scientists, right?

JS: Actually, that's no longer the case. Engineers and scientists were JMP's original market. But when you have a general-purpose tool, and the willingness to develop and mature, you broaden your perspective and find that it becomes a tool for everyone.

sascom: JMP is just for small problems, right?

JS: Early versions of JMP were limited to 64,000 rows. Now tens of millions of rows are analyzed routinely. Even JMP 6 was limited to 1,000 columns, but JMP 7 supports a virtually unlimited number of columns. Of course, all that became pos-

sible with cheap computer memory. JMP, like a spreadsheet, needs memory to store the whole data set. When computers had only 1 or 2 megabytes of memory, data capacity was restricted. But now computers routinely have 2 gigabytes of memory, more than that virtually, so they can handle big data sets. When the data is already in memory instead of on a disk, everything goes much faster. Even big problems can be solved interactively.

sascom: JMP doesn't have the statistical horsepower of SAS, right?

JS: It is true that SAS has a much more comprehensive library of statistical methods, and that is a good reason to pair JMP with SAS. However, JMP implements the basics that a typical engineer or scientist or business analyst would need and adds rich, interactive visualization.

sascom: JMP is only for interactive analysis, right?

JS: Interactivity is JMP's specialty, but you can script analyses and submit them like batch. JMP's goal is to pair every test with a graph that best represents the statistics.

sascom: What is so powerful about graphical query, aka visual data filtering?

JS: It is easy, and seeing the results graphically leads more quickly to insights. Instead of developing a query in SQL or a prompter, you just drag across points in a graph, or click subsets in a mosaic plot. Because querying is simple and fast, you try more things, discover more things, and have a more intimate relationship with your data.

sascom: What is Visual Six Sigma?

JS: Six Sigma was originally developed in the 1980s, before the graphical user interface was unleashed, before statistical packages had embraced graphical interactivity. This made education about statistical concepts more difficult than it

is today with interactive graphical systems like JMP. Now the concepts behind Six Sigma methodology can be taught more easily and rapidly, and insights for process change developed faster.

With Visual Six Sigma, users spend less time learning statistical theory, and move sooner into problem-solving techniques. There is less chance for burn-out and resistance as prospective Black Belts see success opportunities sooner.

sascom: How can JMP achieve breakthroughs?

JS: Some breakthroughs are matters of immediate discovery: Once you see the data clearly, it becomes obvious what to do to improve the situation. With interactive graphics, you will certainly see things more clearly.

Other breakthroughs will require more commitment, an investment in an experiment to try out new things. JMP has the most advanced design of experiments capabilities, providing the most information for a given experimental budget (optimal design). And once the experiment has been run, JMP gives you the most insight into the results – graphical profilers showing you many views of the response surface, optimizers to obtain optimal factor values, and simulators to evaluate behavior under variable factor inputs to produce a robust product or process.

ONLINE

Dr. Jim Goodnight on SAS:
www.sas.com/corporate

John Sall video on JMP:
www.jmp.com/mag/sall