Take a Whirlwind Tour Around SAS® 9.2

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ABSTRACT

The term "productivity" can mean a number of different things and can be realized in a number of different ways. The bottom line is that you are able to do your job well in the most efficient manner. SAS helps you to be productive in a number of ways, including fast performance, flexible capabilities, and powerful algorithms. But, for the end user, that's just one side of the story. The other side of the story is being able to ask the questions with the confidence to get the right answers when you need them. This means providing user interfaces that allow you to quickly access the power of SAS business analytics in a self-service manner.

This paper takes you on a whirlwind tour of the client applications that help you be more productive. It's not possible to go into detail here of everything that is new in SAS® 9, but it will give you a taste of what you can expect. For more information on SAS 9.2, including comprehensive "What's New" information, please visit http://support.sas.com/documentation/whatsnew/index.html.

INTRODUCTION

The latest release of SAS 9 continues to expand on how data management, analytics, and reporting can be leveraged in your organization to drive better, faster decision making. There are a wide range of enhancements, which focus around three key themes:

- ✓ Helping you to make better decisions
- ✓ Helping you to more easily manage the SAS environment
- ✓ Helping you to be more productive

MAKING BETTER DECISIONS

Base SAS 9.2 includes more analytical and graphical capabilities, such as Output Delivery System (ODS) Statistical Graphics and SAS/GRAPH support for ODS styles. New and enhanced features in SAS/STAT, SAS/Genetics, SAS/ETS, SAS/IML, SAS/QC and SAS/OR software enable you to perform a wider range of statistical and analytical tasks.

EASILY MANAGE THE SAS ENVIRONMENT

SAS 9.2 includes significant performance improvements through better use of the underlying hardware and software. The improvements include more widespread use of 64-bit computing, as well as an increased ability to use and manage grids. Support for multithreaded processing has been extended across the platform, from SAS procedures to SAS servers to grid enablement. In addition, new in-database features substantially improve performance by moving analytic tasks closer to your data.

For configurations that use the SAS Metadata Server, SAS 9.2 provides a substantially higher level of integration with IT infrastructures. Management of SAS servers is improved through a new logging framework, a new management interface in SAS Management Console and integration with industry-standard monitoring software. Security features have been enhanced to be more robust and IT-friendly.
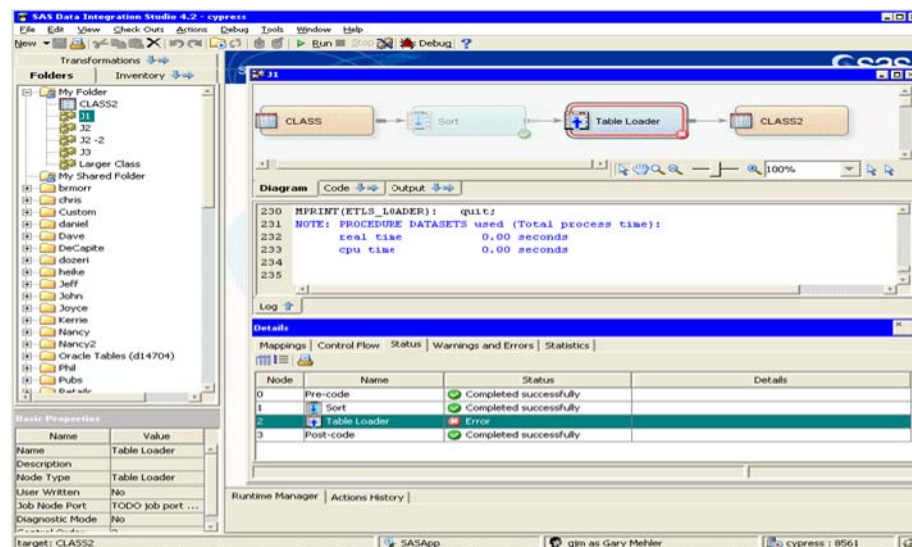
BE MORE PRODUCTIVE

With the enhancements to SAS Data Integration Studio (the GUI component included with SAS Enterprise Data Integration Server and SAS Data Integration Server), you can create and debug jobs more efficiently. In the SAS Business Intelligence applications, all user interfaces have been updated to increase productivity and usability. Analytical applications have also enhanced their interfaces and extended their capabilities.

This paper takes you on a whirlwind tour of the client applications that help you be more productive. These interfaces surface the power of SAS business analytics within guided frameworks to help you build the SAS reports, models, and artifacts needed to help you make better decisions.

ENHANCEMENTS TO DATA MANAGEMENT SOFTWARE CLIENTS
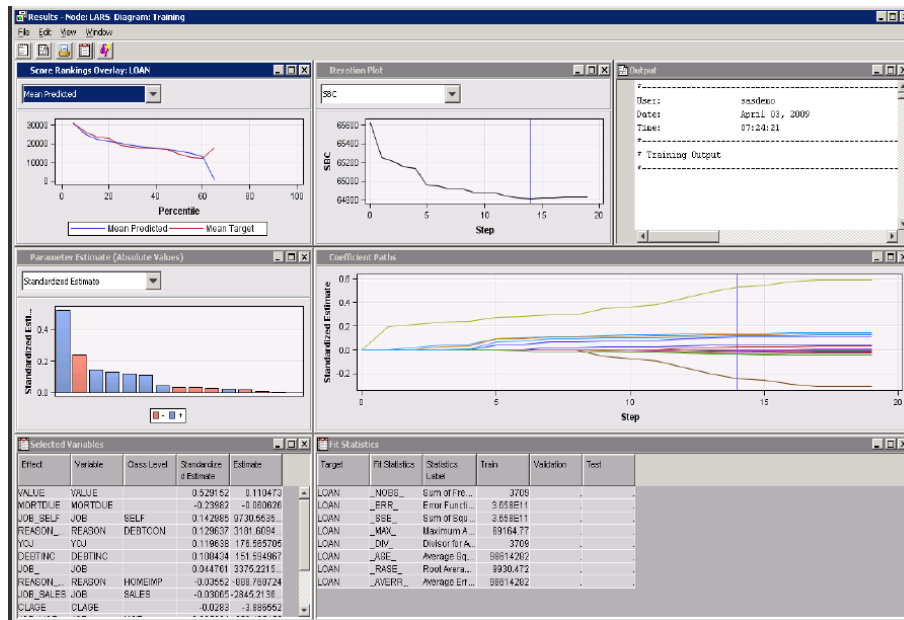
SAS® DATA INTEGRATION STUDIO

The GUI component of SAS Enterprise Data Integration Server and SAS Data Integration Server, SAS Data Integration Studio 4.2 includes the following enhancements:

- An updated user interface for creating and maintaining jobs.
  New zoom and pan features enable you to view large process flows more easily. You can use the overview pane to view the overall flow or use the details panel to view node details. Annotations can be added to diagrams. When a job is reopened, the layout appears in the same state as when it was last saved.

- Usability enhancements that improve the job creation process.
  You can use a table more than once in the same job, you can include a job within a job, and you can import your existing data management code into a job. The new undo feature enables you to reverse an action, and the redo feature enables you to reverse an undo operation.

- Enhanced mapping features.
  These features include intelligent handling of data type conversions, easy and selectable customized mappings, and controlled propagation of changes to mappings.

- New debugging features to use when designing and running jobs.
  Design-time diagnostics inform you about design errors as you build the process flow for a job. Run-time indicators display job progress and provide status, errors and warnings while the job is still running. A debug toolbar includes Run, Stop, Run To/From Selected Transformation, Step and Continue functions. You can restart jobs from any node or from the middle of a load.

- Performance monitoring capabilities that help you identify bottlenecks.
  You can capture and display CPU time, memory use, I/O statistics and record counts in both tabular and graphic formats.
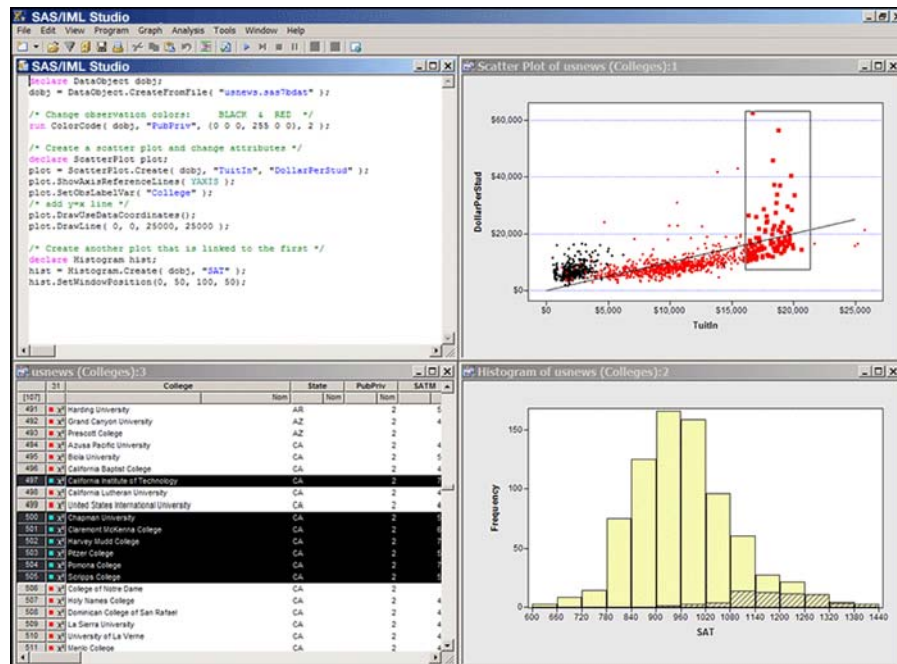
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ENHANCEMENTS TO ANALYTICS SOFTWARE CLIENTS

SAS® ENTERPRISE MINER™

SAS Enterprise Miner 6.1 is a major new release of data mining tools for use with SAS 9.2. The enhancements include the following:

- **Improvements to variable list tables.**
  These tables now include summary statistics. In addition, when configuring variable list table displays, you can now select only the variable attributes that are important to your work.

- **Greater integration with the SAS 9.2 infrastructure.**
  You can register models directly to the SAS Folder tree structure and then use the Model Import node to import a registered model into a data mining process flow diagram. The score code of the imported model is applied to the data in the diagram, generating new model assessment statistics.

- **A switch-targets feature that enables you to select a new dependent variable in a tree leaf and make new splits based on the new target.**
  This is a powerful analytical feature for users who design decision trees for segmentation strategies. In addition, the Interactive Decision Tree is now fully integrated into the application and requires no separate installation or documentation.

- **New File Import and LARS nodes.**
  With the File Import node, you can directly integrate external data files into process flow diagrams. The LARS node uses least angle regression and LASSO algorithms from the SAS/STAT procedure GLMSELECT to perform model-fitting tasks and sophisticated variable selection for interval target models.

- **Many enhancements to existing nodes.**
  For example, the Reporter node provides new ODS functions that create document graphs, process flow diagrams and analytical plots that match the graphics that are displayed in the user interface.

SAS/IML® STUDIO

SAS/IML Studio (formerly known as SAS Stat Studio) is software for data exploration and analysis. It is included with SAS/IML software and provides a highly flexible programming environment where you can run SAS/STAT or SAS/IML analyses and display the results with dynamically linked graphics and data tables. SAS/IML Studio is intended for data analysts who write SAS programs to solve statistical problems but need more versatility for data exploration and model building. The programming language in SAS/IML Studio, which is called IMLPlus, is an enhanced version of the IML programming language. IMLPlus extends SAS/IML to provide new language features, including the ability to create and manipulate statistical graphics, call SAS procedures as functions and call computational programs written in C, C++, Java and FORTRAN. This software also includes an interface to the R language. SAS/IML Studio is a desktop application, running on Microsoft Windows.
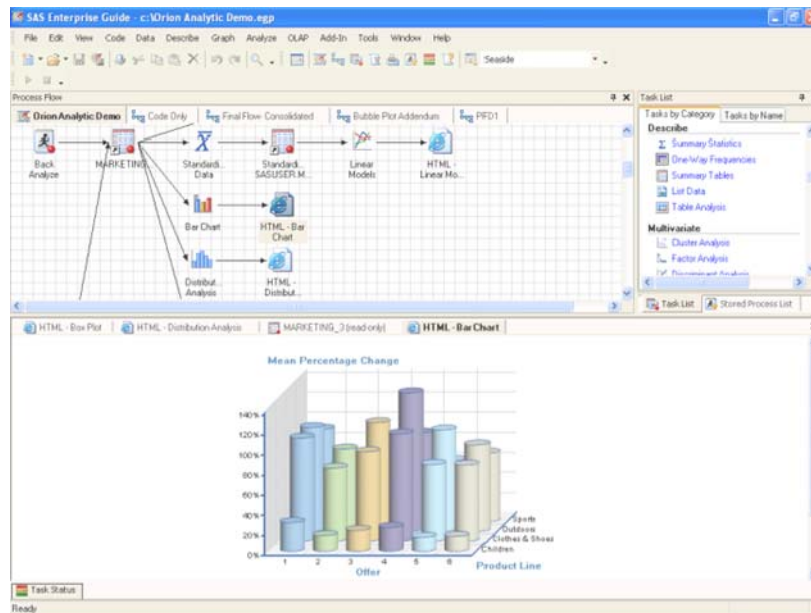
ENHANCEMENTS TO REPORTING SOFTWARE CLIENTS

SAS clients can be Windows applications, Java applications or Web-based applications, and include SAS software components such as SAS Information Map Studio, SAS Add-In for Microsoft Office and SAS Web Report Studio in SAS Business Intelligence software; SAS Data Integration Studio (the GUI component of SAS Enterprise Data Integration Server and SAS Data Integration Server); and standalone products that may also be part of software bundles such as SAS Information Delivery Portal and SAS Enterprise Guide.

The client applications in SAS 9.2 include many enhancements that increase productivity, improve consistency and manageability, and provide better security. The following enhancements are common to most SAS 9.2 client applications:

- Support for dynamic roles.
  With roles, you can manage the availability of application features such as menu items, plug-ins and buttons. This support is available in SAS Enterprise Guide; SAS Management Console (a component of base SAS software); SAS Web Report Studio and SAS Add-In for Microsoft Office (components of SAS Enterprise BI Server and SAS BI Server software); and other applications.

- Consolidated view of metadata is captured in the new SAS Folders tree.
  The tree appears in the SAS Management Console and other client applications as applicable. Personal folders are provided for individual users. Within the overall structure, you can create a customized folder structure to meet your data sharing and security requirements.

- A new prompt framework offers greater functionality and flexibility.
  For relational data, prompts can be cascading and hierarchical. You can create prompts that use dynamically generated value lists and establish dependencies between prompts in a filter expression. When creating prompts for a stored process, you can make them globally available for use in filters. You can also create prompts for OLAP filters.
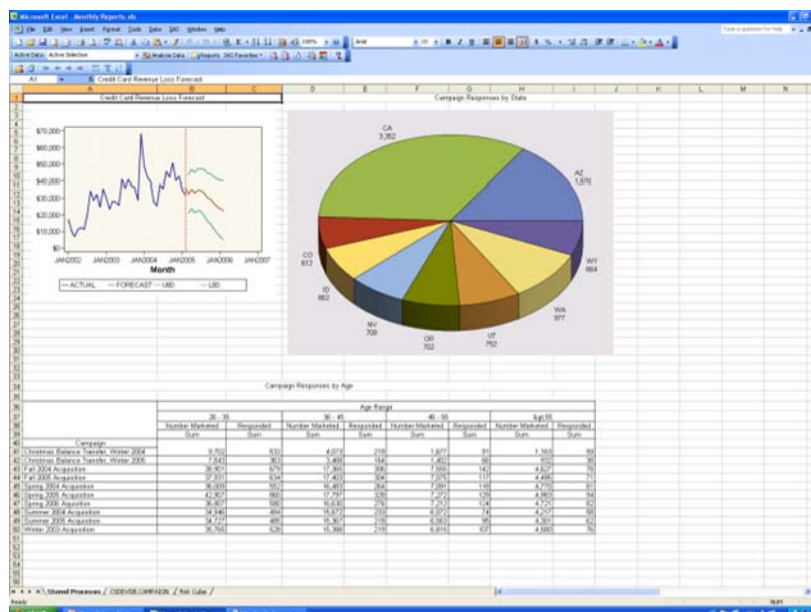
SAS® ENTERPRISE GUIDE®

SAS Enterprise Guide is a project-oriented Windows application that is designed to enable quick access to much of the analytic power of SAS software for SAS business analysts, SAS programmers and SAS statisticians. It includes the following enhancements:

- Enhanced user interface, mimicking the behavior of Microsoft Office menu ribbons.
  The options on menus and toolbars now change according to the task you are performing so that you see only the options that relate to the current task. When creating projects, you can use new conditional nodes to define conditional logic without writing code.

- Improvements to the Query Builder.
  These improvements make it easier to define filters, create computed and recoded columns and build expressions. When you join DBMS tables, PROC SQL pass-through statements are now validated.

- Enhancements similar to those in the SAS Add-In for Microsoft Office.
  These include a new List Report wizard, bar chart and bar-line chart features, support for ODS Statistical Graphics and support of Fisher options for Pearson or Spearman correlations.

SAS® ADD-IN FOR MICROSOFT OFFICE

A component of SAS Enterprise BI Server and SAS BI Server, SAS Add-In for Microsoft Office enables users to transparently leverage the power of SAS data access, reporting and analytics directly from Microsoft Office. SAS 9.2 enhancements include:

- A new List Report wizard.
  You can use this wizard to quickly create detailed and summary reports. Alternatively, you can embed reports that were created in SAS Web Report Studio into your Microsoft Office files.

- Increased functionality when creating reports and graphs.
  When you create PivotTable reports using OLAP cube data, you can now add variables, calculated measures and calculated members. When creating bar charts, you can now define multiple chart variables within a single group variable. Bar-line charts can now include multiple line plots, with different line statistics for each plot. ODS Statistical Graphics are now supported, as are Fisher options for Pearson or Spearman correlations.

- An updated user interface.
  All SAS functions are displayed in logical groupings in the Microsoft Office ribbon bar for easy access. You can now preview results before they are inserted into Microsoft Excel, Word or PowerPoint, and you can restore content that you previously deleted or excluded. You can also save your settings for a specific task to a task template for later use in SAS Add-In for Microsoft Office or SAS Enterprise Guide.

SAS® BI DASHBOARD

A component of SAS Enterprise BI Server, SAS BI Dashboard 4.2 includes the following enhancements:

- Powerful new functionality for users.
  New indicators, using Adobe Flash, enable users to traverse large amounts of detailed data interactively. For example, users can view changes in data over time by simply moving a slider. This eliminates the need to create multiple indicators for different time periods. In addition, you can now create alerts that signal changes to an indicator's value, enabling users to focus on problem areas as they occur.

- Tighter integration across SAS applications.
  When you link to a SAS Web Report Studio report, the report now opens to the area of the report where the indicator value is located. You can now use filters that were defined in SAS Information Map Studio, and you can create data sources based on tables registered in metadata.
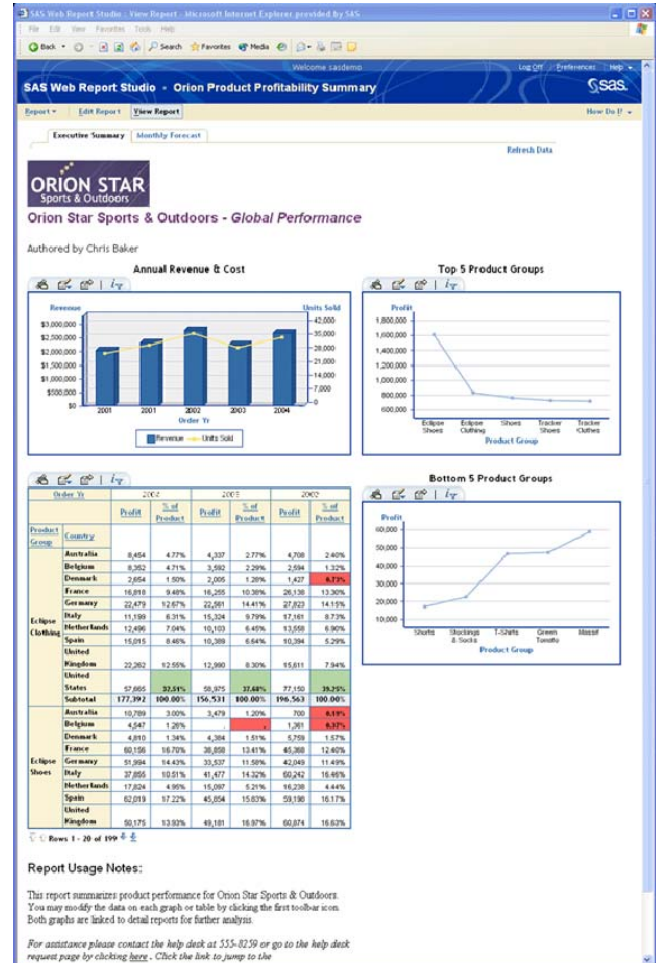
SAS® INFORMATION DELIVERY PORTAL

The SAS Information Delivery Portal is a web application, enabling you to aggregate data from a variety of sources and to present the data in a web browser. It is included as a component of the SAS Enterprise BI Server. SAS Information Delivery Portal 9.2 includes the following enhancements:

- Report editing and viewing can leverage SAS Web Report Studio directly.
  This provides a consistent interface for viewing and editing reports. Actions such as viewing and editing reports can be controlled down to the individual user or group via the use of roles.

- More control over sort order.
  The administrator can now specify default values for package sort order and page navigation. Users can set a preference to sort publication packages in ascending or descending order by creation date. This sort order can be overridden for specific publication channels that are in collection portlets.

SAS® WEB REPORT STUDIO

SAS Web Report Studio is a web-based application that enables you to create, view and organize reports, and is a component of SAS Enterprise BI Server and SAS BI Server. SAS Web Report Studio includes the following enhancements in SAS 9.2:

- An updated user interface that provides a more traditional desktop application experience.
  Application actions support more interactivity with extended use of drag-and-drop and context-sensitive menus. Partial screen refresh is now supported, allowing faster updates when interacting with reports.

- More powerful filtering and linking features.
  A new search feature in the Filter dialog box lets you quickly filter large amounts of detailed data. You can define multiple filter conditions for a data item, filter numeric category data items by unformatted data values and display data source filters that are based on physical columns. You can now link to a specific report section from the same report or a different report. In addition, you can link directly to a SAS Stored Process, include hyperlinks in stored process output for graphs, and add data-driven hyperlinks to tables.

- Updated graph features.
  You can now add vertical and horizontal reference lines to charts with annotations. On bar-line charts, you can include multiple lines, multiple bars or both. The ability to create tile charts has also been added.

SAS® INFORMATION MAP STUDIO

SAS Information Map Studio, a component of SAS Enterprise BI Server and SAS BI Server, enables data modelers and data architects to create and manage SAS Information Maps. Information maps define your physical data as business metadata, allowing you to surface your data in terms that business users understand, while storing key information that is needed to build appropriate queries. SAS 9.2 enhancements include:

- A redesigned user interface.
  A new Resources pane provides a central location for all resources. The new zoom feature on the tab in the main window displays more data sources in a single view. With the new auto-arrange feature, you can rearrange data sources so that they more closely resemble a star schema.

- New features that increase productivity.
  With the new bulk edit feature, you can simultaneously modify multiple data items and custom properties. The new resource replacement feature enables you to replace resources that are unresolved or no longer relevant.

- Enhanced filtering features.
  These include the ability to hide filters from end users, select multiple (non-prompted) filters for a test query and return the names of the user groups and roles that a requesting user belongs to. A new browse-and-search feature locates the values (or members) for a character expression, an OLAP data item or a character data item whose value-generation method provides a dynamically generated list of values.

- Data-related enhancements. Information map tables can now be used as data sources.
  Data values that are hyperlink tags can be rendered as hyperlinks in query results. Totaling of non-additive expressions has also been included.

SAS® OLAP CUBE STUDIO

SAS OLAP Cube Studio is the cube-building component of SAS OLAP Server (which is licensed as a standalone product and also is included in SAS Enterprise BI Server). SAS OLAP Cube Studio 4.2 includes the following enhancements:

- The ability to update and manage cubes using fewer hardware resources.
  In particular, the new incremental cube update feature enables you to add data and members to a cube without rebuilding the cube. This eliminates the time and resources required to rebuild cubes every time new data becomes available.

- New cube building features.
  You can now create multiple hierarchies for a dimension and designate one of them as the default. Time dimensions can be built with user-supplied time hierarchies that automatically populate levels and formats. With the new View Cube function, you can verify the cube-build process and visualize the data structure of a cube.

- New and enhanced wizards.
  The Calculated Members wizard includes an advanced expression builder that enables you to specify user-defined formats, set the solve order and build a custom MDX formula. In addition, you can use the newly designed Aggregation Tuning wizard to build, edit and customize aggregations.

CONCLUSION

For more information on SAS 9.2, including comprehensive "What's New" information, please visit
http://support.sas.com/documentation/whatsnew/index.html.

RECOMMENDED READING

SAS Institute Inc. 2009. *What's New in SAS 9.2*. Cary, NC: SAS Institute Inc. Available at
http://support.sas.com/documentation/whatsnew/index.html.

SAS Institute Inc. 2009. *SAS 9.2 Software*. Cary, NC: SAS Institute Inc. Available at
http://support.sas.com/software/92/index.html.

ACKNOWLEDGEMENTS

Special thanks to Justin Choy for co-sponsoring this paper.

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