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Cataloger©: Updated for Version 9

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ABSTRACT

Cataloger©, written entirely in SAS®, is an indispensable tool for any SAS developer working with SAS catalogs and data sets. With Cataloger, SAS developers can easily view, compare, and manipulate catalog entries, search catalog entries and create publication-quality documentation - just to name few of the myriad of features that existed in previous versions. Cataloger has been updated and enhanced for version 9 of SAS with major new features. For example, using Cataloger's easy point and click interface, developers can compare the properties of two SAS data sets and review and set many aspects of SAS data sets such as variable order, indexes and passwords. In addition, the Catalog Documentation Manager has been enhanced and expanded to provide additional ODS destinations for complete documentation of SAS catalogs. Also, the side-by-side comparison logic has been improved with the integration of Difference Detective.

INTRODUCTION

SAS Catalogs, a proprietary file structure in SAS, allow developers to bundle a plethora of SAS related files within a single operating system file. Simple SAS programs, complete applications, and formats are just a few of the files that can be packaged together in a single catalog. However, there is not a broad range of tools native to SAS to allow developers to work with entries stored in SAS Catalogs. Also, manipulating SAS data sets, while certainly easy enough to do in SAS, requires a developer to jump around quite a bit – write a data step for this, run a procedure for that, use a GUI window for something else.

Cataloger provides a developer with an enormous amount of power and one-stop shopping with a suite of functions to investigate, manage and document applications and data. For example, with Cataloger, a developer can easily browse catalog entries (including ones that are not easily browsed such as SAS Formats), search catalog entries for specific text strings, and compare catalog entries. In addition, Cataloger provides a powerful documentation manager for catalogs that allows developers to capture even the more difficult to print catalog entries such as SLISTS and FRAMES in a professional looking document.

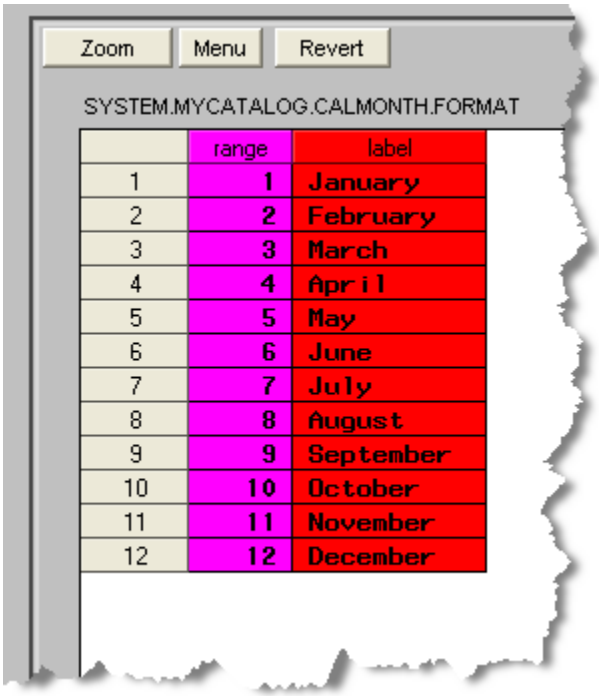
Cataloger has been expanded and updated for SAS version 9 by the enhancement of existing functions and the addition of major new components. For example, additional entry types are now supported and more output ODS destinations have been added to allow a greater range of documentation formats. Also, new features for data set management have been added that encompass many of the common data set actions in one easy to use GUI. For example, developers can easily compare the properties of two data sets, including variables in common, variables not in common, and the attributes of common variables. Developers can also add variables to data sets, change the properties of variables, and reorder variables with a few mouse clicks.

GENERAL FEATURES

While many of the features of Cataloger have been described by previous authors (Roper and Gilman 2000), we will briefly describe some of its functions for those unfamiliar with the application.

VIEWING CATALOG ENTRIES

Cataloger provides a single viewer that allows a developer to browse and, in some cases edit, different catalog entry types in a single window. After selecting a library and catalog, the user can select a specific entry by clicking on it. All the options available for that type of entry appear in a popup menu. By selecting "Browse in Cataloger Window", the selected entry is displayed. This option is not only available for the more common catalog entry types such as SCL and SOURCE, but is also available for some entries that are more difficult to view such a FORMAT and SLIST (How often have you wanted to see what a format looked like quickly but instead had to write a PROC FORMAT?) With Cataloger, an example format would be displayed as follows:



	range	label
1	1	January
2	2	February
3	3	March
4	4	April
5	5	May
6	6	June
7	7	July
8	8	August
9	9	September
10	10	October
11	11	November
12	12	December

SEARCHING CATALOG ENTRIES

Cataloger also allows the user to search text-based entries, such as SCL, SOURCE, and PROGRAM, for a specific text string. For example, suppose a variable name has been changed. One might want to search for instances where that specific variable is referenced in order to make the update. The Cataloger search feature displays all catalog entries that contain the search string in a results window. Clicking on a found line opens the entry for editing at the precise line number and allows the developer to change the code as needed.

CATALOG COMPARISONS

Cataloger also provides comparison capabilities. At the catalog level, Cataloger easily identifies entries that exist in one catalog but not in another. It will also identify date/time differences between common entries.

In addition, Cataloger provides comparison of the contents of individual catalog entries. This is particularly helpful when one is working with two different versions of same application such as in a development and production environment. For example, FRAME entries can be compared to look for differences in the FRAME properties including widgets that are not consistent between frames. To compare the SCL or SOURCE entries (or any other text based entry), Cataloger includes a line-by-line comparison module. Line by line differences between two entries are identified and highlighted. Once a discrepancy is identified, automatic resynchronization occurs so that additional discrepancies can be highlighted without clutter.

PRINTING CATALOG ENTRIES

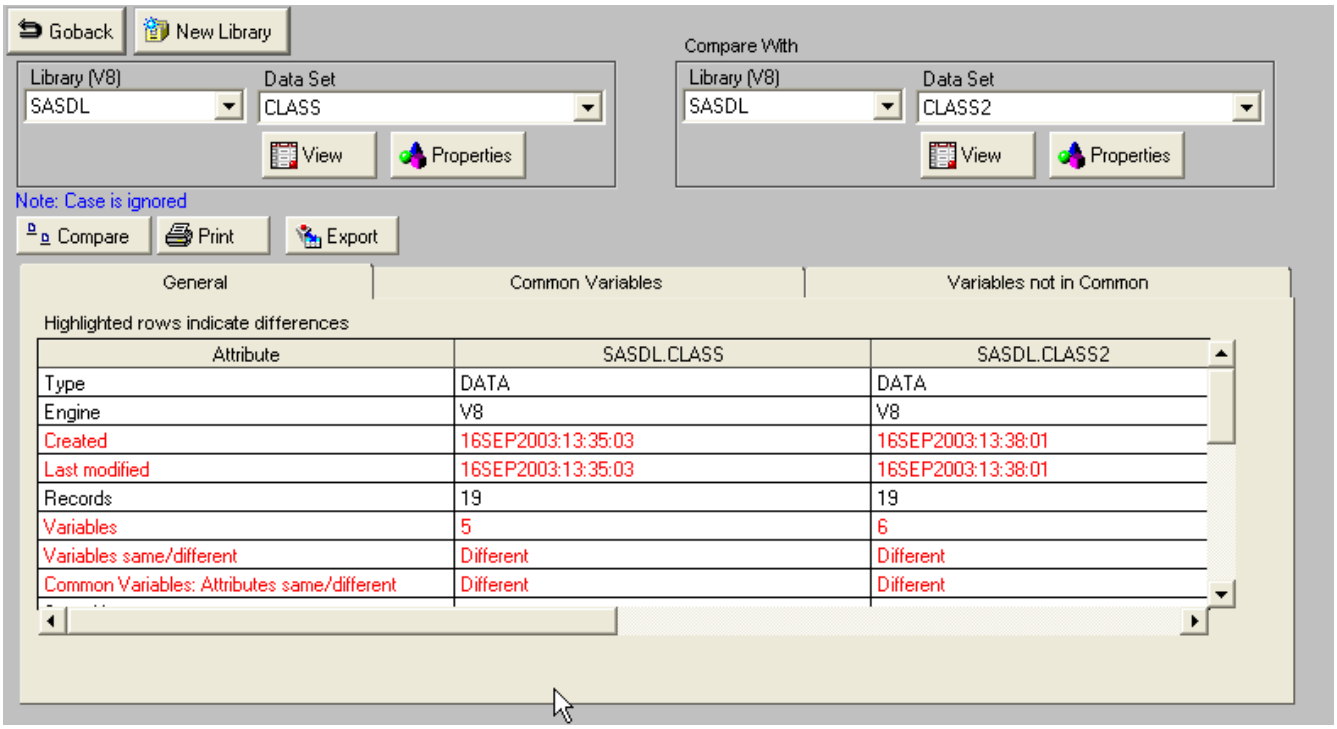
With the Catalog Documentation Manager, developers can completely document catalog entries. Not only text-based entries but also list-based entries such as SLIST and CLASS entries can be easily printed or saved to external files. When FRAME entries are printed, Cataloger even captures an image of the FRAME with all the objects and incorporates it into the documentation automatically saving the developer from doing countless screen captures later on.

NEW FEATURES

DATA SET COMPARISONS

The latest version of Cataloger provides a thorough point and click interface for investigating and comparing the properties of SAS data sets. Using the Menu button on the main Cataloger screen, one can select 'Compare properties of SAS data sets …'. If the data sets to compare have the same name but reside in different libraries then the user can select 'Compare all data sets common to two libraries'. Otherwise, the user can select 'Compare two data sets' where they can specify any two data sets regardless of library or name.

In either case, this will bring the user to the data set comparison screen. After clicking Compare a sample comparison might be as follows:

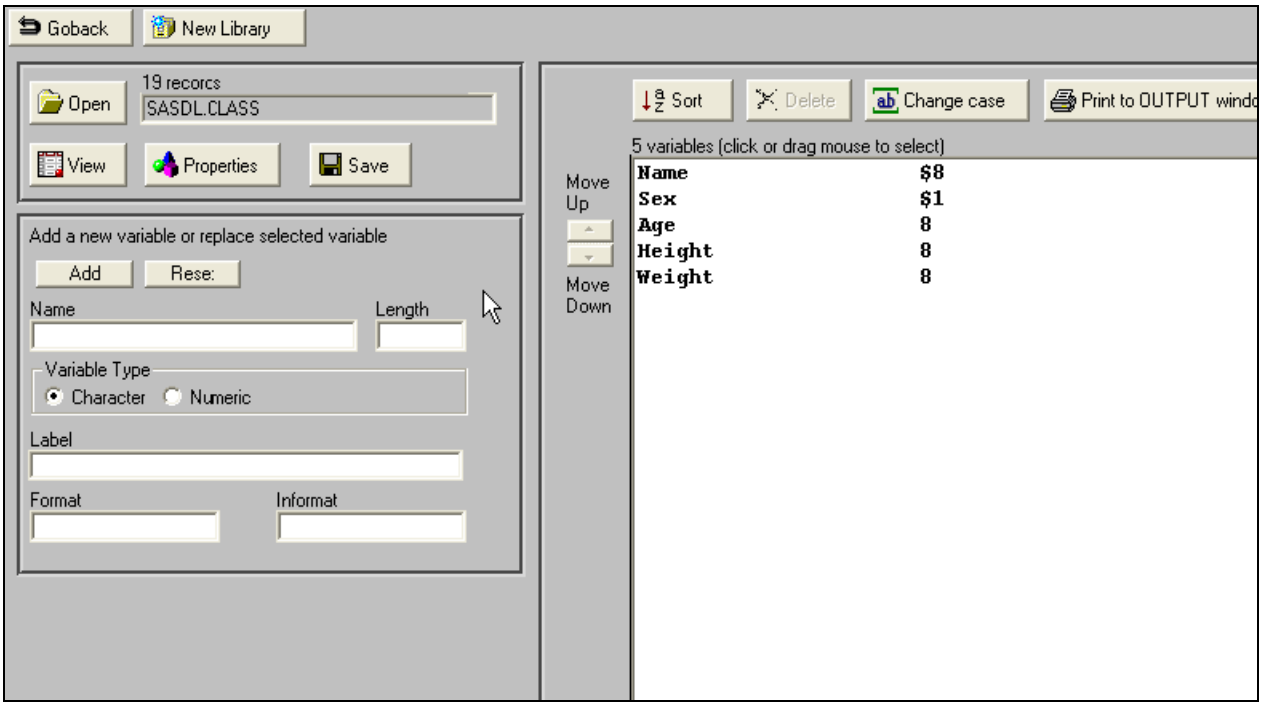


There are three sets of comparison attributes, each with its own tab. The general attributes cover such items as number of variables, number of observations, size, etc. Differences in general attributes are highlighted in red. The variables in common (the second tab) are also displayed with any disparate variable attributes highlighted in red. The variables unique to each data set are listed under the third tab.

Listings of all these differences can be printed directly or saved as a .RTF, .HTML, or .PDF file for later use by clicking Print or Export, respectively. In addition, each data set be viewed or its individual properties examined by clicking View or Properties.

DATA SET MANAGEMENT MODULE

Cataloger also provides an easy to use interface to manipulate individual data sets. The 'Data set Management' module is available by checking the ☑ View Data Library check box and then clicking on any data set that appears in the table. The Data Set Management interface appears as follows:



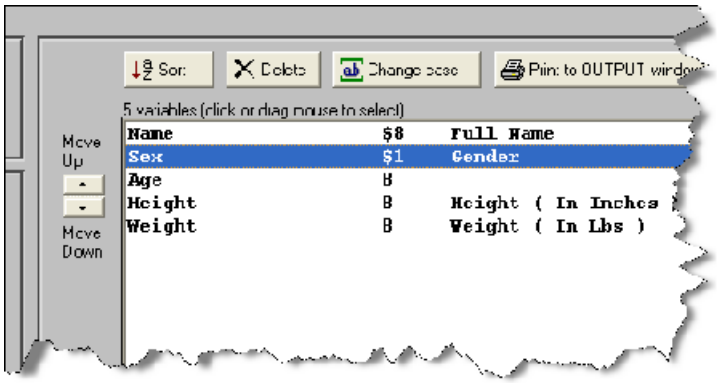
The Data Set Management module is a simple and quick interface to perform many routine data set tasks.

Numerous changes can be made to data sets in the interface and then applied to the data using the 

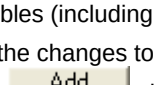
button. From within the Data Set Manager one can define and add new variables as well as delete variables. Also, variable attributes – including length - can be changed. In addition, the order of the variables can be changed. (How many times have you written code to make these kinds of changes?)

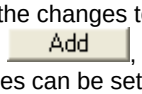
SETTING VARIABLE ATTRIBUTES

The variables in the selected data set are listed at right:



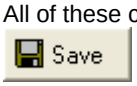
In this window variables can be sorted in order by name or a custom order can be specified by clicking individual variables and then moving them up or down in the list using the controls just to the left of the list. In addition, the case of all variable names can be changed at once to either upper, lower or sentence case.

The attributes of individual variables (including the length) can be changed as well using the attribute fields at left. Clicking on 

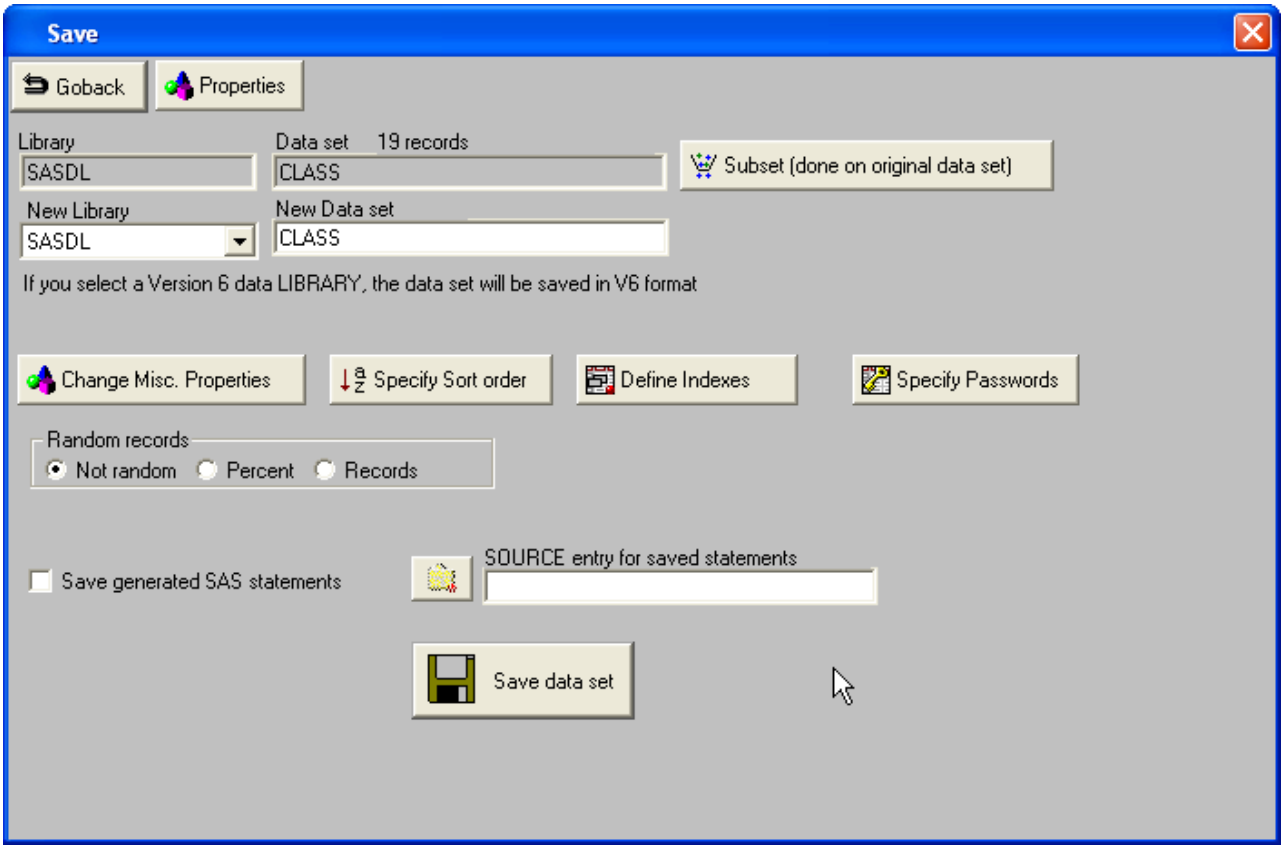
applies the changes to the variable list at right. The attributes of new variables can be specified here also. By clicking 

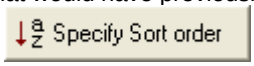
, the new variable immediately appears in the variable list where its order in relation to pre-existing variables can be set.

SETTING GENERAL ATTRIBUTES

All of these changes are not made effective on the actual data until the user specifically requests it. By clicking on the 

button the user is then taken to the Save window where they can make the changes permanent as well as specify additional data set attributes. The save window appears as follows:



From this interface the user can specify many of the attributes of data sets that would have previously required code writing. For example, the sort order of the data set can be set by clicking on 

and selecting variables from the list. Also, indexes – both single and composite – can be created. Passwords for the data set can also be specified.

SAVING CHANGES

These general data set attributes as well as the variable attributes previously selected are not made permanent until the user clicks the Save button. The changed data set can replace the current data set (default) or be saved under a new name and library.

In either case, the user has several options in deciding which records to carry over. All records can be copied to the target data set or random selection of records can be performed. The random selection can be specified as either a percentage or specific number of records. In addition, the records can be subset using a where clause building interface.

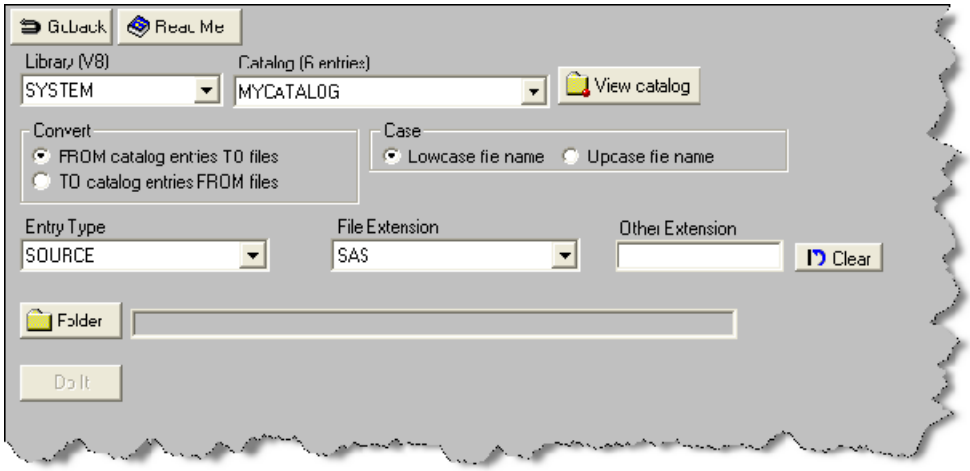
The application uses all of the selections to generate SAS code that implements the attributes specified. The code that is generated by the application can be saved to a SOURCE entry.

All data set attribute selections are then made permanent by clicking the 

button.

CATALOG CONVERTER

The Catalog Converter module allows you to create a copy of all catalog entries of a given type (e.g. SOURCE) to same-named Windows files with an extension of your choosing. The reverse can also be done, that is, create a copy of all files of a given extension (e.g. .SAS) to catalog entries of a given type (e.g. SOURCE). The Catalog Converter interface appears as follows:



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CATALOG AND LIBRARY MANAGEMENT MODULES

The Catalog Management Module is available as a selection from the Menu button. With this module, developers can copy entries from one catalog to another, delete multiple entries in a catalog, delete or create entire catalogs and rename a catalog.

A similar new module is the Library Management Module, which allows the user to easily copy data sets between libraries or delete entries from a library.

NEW ENTRY TYPES

Cataloger has added support for three new types of entries – MENU, TEMPLATE and DIRECTORY. The DIRECTORY entry, while not actually a SAS catalog entry, provides the developer with a quick way to take a peak at Windows file system from within the SAS environment. Selecting the DIRECTORY entry type brings up a dialog box in which the user can chose a Windows folder. The contents of the folder, including sub-folders, are displayed in the Cataloger window in either a DOS mode or in an expandable tree structure. The directory listing can even be printed. If a file has an associated program, the user can click on a file and launch the file with its associated program.

ENHANCEMENTS

CATALOG DOCUMENTATION MANAGER

In the latest version of Cataloger, the already powerful Documentation Manger has been streamlined and expanded. After selecting 'Catalog Documentation Manger' from the

Menu button, the user can select the type of entry to document.

The user then has the choice of printing the documentation directly or saving the documentation to the new ODS destinations of RTF, PDF, or HTML. Each of these new destinations is professionally formatted and styled. For example, consider the following sample widget listing:

SYSTEM.MYCATA_OG.MAIN_MENU.FRAME, Saturday, September 27, 2003, 10.14.36 PM

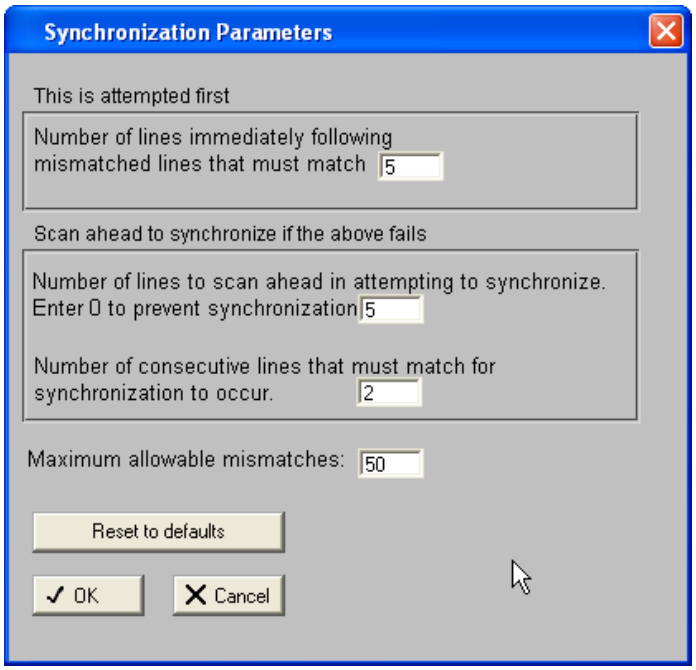
COMPONENT	DESC	PARENT	ROW	COL	LEN	HGT	CLASS	TEXT	TITLE
OBJ1	Excended Text Entry		5.5	21.0	63.0	4.0	SASHELP.FSP.GLABEL.GLABEL		
MENUA	Image Viewer Control		11.5	24.5	15.0	9.5	IMAGEVIEWER_C.IMAGE		
MENUB	Image Viewer Control		12.0	66.5	15.0	8.5	IMAGEVIEWER_C.IMAGE		
OBJ2	Excended Text Entry		22.0	24.0	16.0	2.0	SASHELP.FSP.GLABEL.GLABEL		
OBJ4	Excended Text Entry		22.0	66.5	15.5	2.0	SASHELP.FSP.GLABEL.GLABEL		
EXIT	Excended Text Entry		27.0	43.0	17.0	2.5	SASHELP.FSP.GLABEL.GLABEL		

DIFFERENCE COMPARISONS

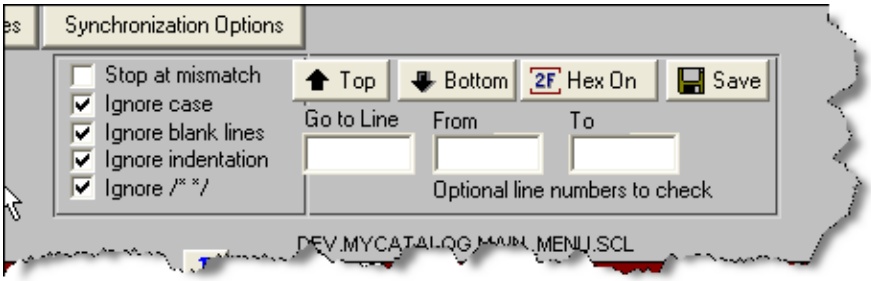
The line-by-line comparison or text based entries has been improved and enhanced in Cataloger with the incorporation of another Qualex tool – Difference Detective. For example, one may want to compare two SOURCE entries – ENTRYA.SOURCE and ENTRYB.SOURCE. Suppose also that the entries are mostly the same. Perhaps even ENTRYB.SOURCE is just a copy of ENTRYA.SOURCE with a couple of additional lines of code at the beginning of the program.

A simple line-by-line comparison will show all lines different beginning with the new lines added in ENTRYB.SOURCE. Cataloger will find the initial discrepancy and then automatically resynchronize the entries so that only further meaningful differences are detected.

This logic has been improved in the latest version of Cataloger and now the user can specify synchronization parameters as follows:

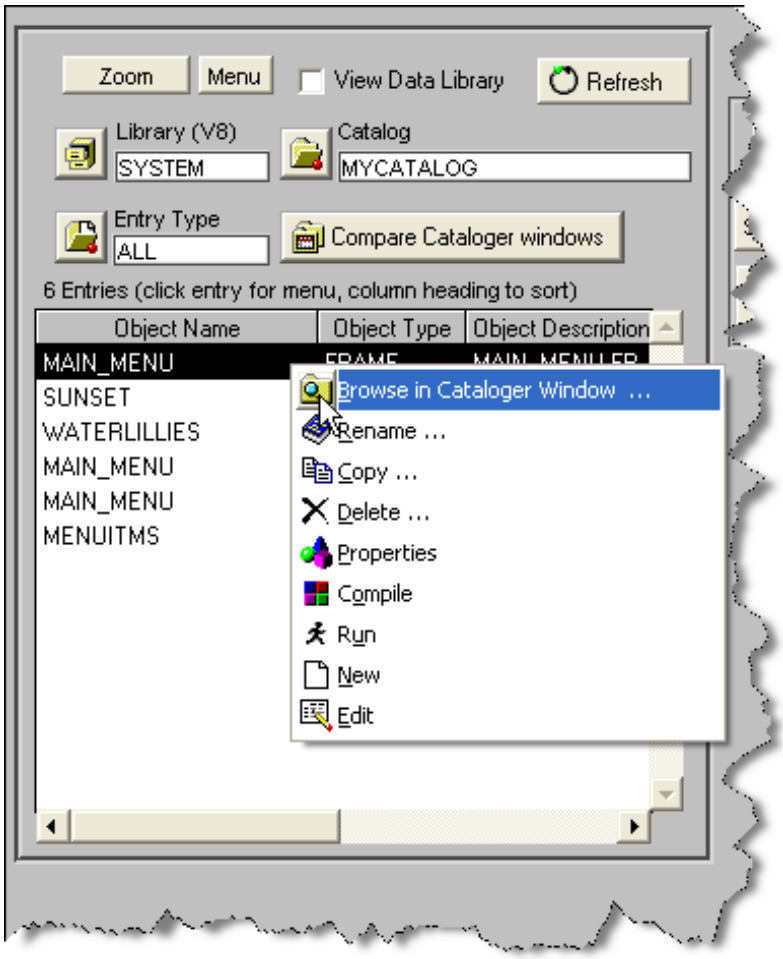


In addition, the user can control several aspects of the search:



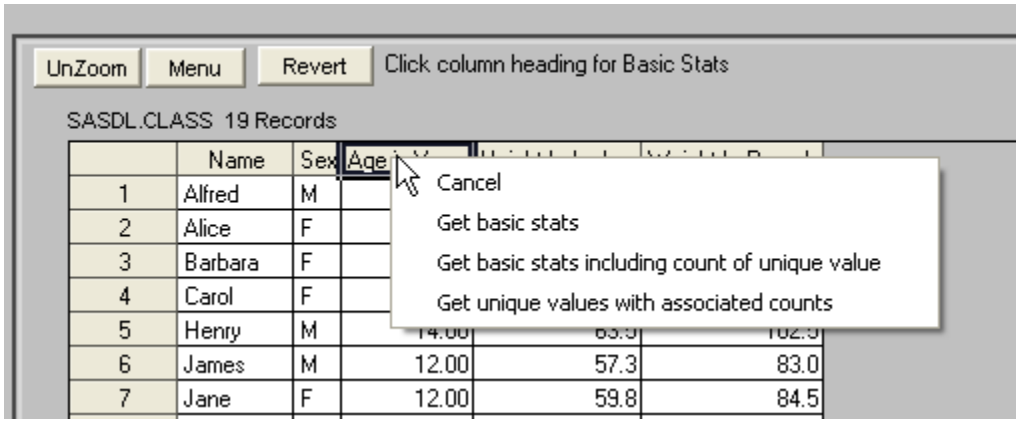
NEW MENU ITEMS

The latest version of Cataloger incorporates new functionality that is available in the pop-up menu when an entry is selected in the Cataloger window:



For example, the 'Properties' option for SAS data sets displays the basic properties of a SAS data set.
Also, the 'New' option allows the creation of new catalog entries. The 'Run' option will issue the AFA command to run SCL, PROGRAM, and FRAME entries.

Also, when browsing a data set in Cataloger you can now quickly view basic statistics about any column by clicking on the column heading. For example, by clicking on the numeric variable AGE the following options are offered:



CONCLUSION

Cataloger is a SAS application written to simplify the task of SAS application development by simplifying many common tasks in one easy to use interface. New features in the latest version make it an even more valuable tool for development and maintenance of SAS applications and data sets.

REFERENCES

Roper, Christopher A. and Gilman, Michael (2000), "CATALOGER©: An Application Development Tool to Search, Compare, and Document SAS® Catalogs and Data Files©", Proceedings of the twenty-fifth SAS Users Group International Conference, Paper 34-25.

TRADEMARK CITATION

DOWNLOAD SITE

Cataloger is freeware for personal or internal business purposes only and can be downloaded at:

www.qlx.com

CONTACT INFORMATION

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