

Tables and Views and Forms: Oh My!

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ABSTRACT

New in Release 6.12, the VIEWTABLE window provides a table-like interface for viewing and editing SAS® data files. This is a FRAME entry that displays your data set in a Data Table object. Version 6.11 of the SAS System introduced Data Tables and Data Forms as new data entry classes in the SAS/AF® FRAME product. Major enhancements in Release 6.12 have made VIEWTABLE a very acceptable alternative to PROC FSVIEW, at least for those users with graphics-capable interfaces. Two viewing modes are easily accessed, Table View, and Form View. Moving between them is easy, and so is customizing the appearance of the columns. Enhancements like the Import Wizard enables you to create SAS tables from dBase, tab delimited or comma-separated files. The table just created by VTIMPORT will display in the VIEWTABLE window for you to continue working on. VTQUERY will display the result of an interactive SQL interface. SAS data sets can be searched, subsetted, sorted and saved to a new table using VIEWTABLE. This paper will provide insight into this new product and display in online format some useful features.

INTRODUCTION

In the wonderful land of SAS, you have always had (at least since version 5.18) the ability to display and browse your data using the FSVIEW procedure (also known as PROC FSPRINT) in SAS/FSP® software. This paper is intended as a 'how-to' introduction to the new AF VIEWTABLE window in the SAS System for Windows 95 Release 6.12, which provides us with another way to create, view and edit SAS data sets interactively in both a Table View and a Form View. (Note: SAS/FSP software is required to edit or sort a table, or to use the Form View mode.) Similarities and differences between the two products will be highlighted. Finally we will present a brief overview of the new SAS System Viewer. This freely distributable application lets you view the contents of SAS data sets and catalogs as well as text files without using the SAS System.

The Data

A sample from Maryland Medicaid claims data, containing 17 variables and 2509 observations will be used for the examples. This data set includes information on procedures performed by physicians in a variety of sites: hospitals, clinics, office, etc. A summary of the PROC CONTENTS is shown:

Variable	Type	Len	Label
AGE	Num	4	Age as of March 31
AID1	Num	4	Eligibility Category #1
BGDOS	Num	5	Beginning date of service
COUNTY	Num	4	County
DOSDIS	Num	5	Date of discharge
DX2	Char	5	Secondary diagnosis
MCARE	Char	1	Indicator for Medicare Part Coverage
PAY	Num	8	Payment
PDX	Char	5	Primary diagnosis
PLACE	Num	4	Place of Service
PROCEDURE	Char	5	Procedure code
RACE	Num	4	Race
RECID	Char	11	Record Identifier
SERVCD	Num	4	MA service code
SEX	Num	4	Gender
SPEC	Num	4	Provider specialty
TYPE		4	Professional type

Opening the Windows

You can open the FSVIEW and VIEWTABLE windows from the command line by entering the commands, then selecting a data set from the directory or open file windows respectively, or by specifying a valid data set.

For example;

fsview sasuser.claims (option)

or vt sasuser.claims <argument> (option).

Remember to include the two level name of the SAS data set you wish to view. Check the online help for a list of the invocation arguments you can include.

PROC FSVIEW can also be invoked by submitting the program statements:

```
PROC FSVIEW DATA=SASUSER.CLAIMS;
RUN;
```

The FSVIEW Table

PROC FSVIEW displays a SAS data set as a table of columns and rows with the variable names as the column labels. Numeric variables are right justified and character variables are left justified. In SAS version 6.11, the FSVIEW window was opened by the menu selection **Globals> Manage> Open table**. In release 6.12 this selection will open the VIEWTABLE window

FSVIEW: SASUSER.CLAIMS (B)

OBS	PAY	DOSDIS	BEGDOS	SPEC
1	\$150	07/01/1994	07/01/1994	69
2	\$20	07/01/1994	07/01/1994	19
3	\$20	07/01/1994	07/01/1994	17
4	\$7	07/01/1994	07/01/1994	20
5	\$44	07/08/1994	07/01/1994	93
6	\$44	07/08/1994	07/01/1994	93
7	\$14	07/01/1994	07/01/1994	32
8	\$20	07/02/1994	07/02/1994	18
9	\$54	07/06/1994	07/02/1994	93
10	\$4	07/02/1994	07/02/1994	39
11	\$132	07/21/1994	07/02/1994	64
12	\$9	07/02/1994	07/02/1994	17
13	\$13	07/03/1994	07/03/1994	11
14	\$7	07/03/1994	07/03/1994	20
15	\$18	07/04/1994	07/04/1994	11

The VIEWTABLE Data Table

As noted above, in release 6.12, the menu selection **Globals> Manage> Open table** opens the VIEWTABLE window opens in New mode (the word New appears in parentheses in the title bar). Begin creating a new table or use **File> Open** to display an existing SAS data set as a table of columns and rows in the (AF) VIEWTABLE window. The Data Table can also be displayed by double-clicking a SAS data set in the Libraries window invoked by **Globals> Access> Display libraries**. When the LIBNAME window opens type an **S** beside the library you want and press **Enter** to open the DIR window. Type an **E** or **T** beside the table to open with ROW level edit access mode and press **Enter**, or type a **B** or **L** beside the table to open it in Browse mode. (The table will open in Table View mode by default.)

Note again that you can open the table in Edit mode only if you have SAS/FSP licensed.

The first noticeable difference is the 'spreadsheet' grid appearance, and the larger choice of tool bar icons. By double-clicking on a column heading, a Column Attributes window appears in which fonts, colors, and other variable attributes can be manipulated. Column labels can be added and

displayed (in contrast to the FSVIEW window), and column width can be adjusted by dragging

VIEWTABLE: sasuser.claims

	Payment	Date of discharge	Beginning date of service	Provider specialty code	Primary diagnoses	Secondary diagnoses	Pr ty:
1	\$150	07/01/1994	07/01/1994	69	315	00000	0
2	\$20	07/01/1994	07/01/1994	19	87342	E8842	0
3	\$20	07/01/1994	07/01/1994	17	V20	00000	1
4	\$7	07/01/1994	07/01/1994	20	4264	00000	1
5	\$44	07/08/1994	07/01/1994	93	29660	00000	1
6	\$44	07/08/1994	07/01/1994	93	295	00000	0
7	\$14	07/01/1994	07/01/1994	32	6071	00000	1
8	\$20	07/02/1994	07/02/1994	18	36420	00000	1
9	\$54	07/06/1994	07/02/1994	93	29582	00000	1
10	\$4	07/02/1994	07/02/1994	39	4293	8951	1

NOTE: Table has been opened in browse mode.

The next big difference is that you can switch easily between the two viewing modes, Table View, and Form View. If there are more variables (columns) than will fit on one screen, the Data Form will appear with dog-ears.

VIEWTABLE: SASUSER.CLAIMS

Payment	\$44
Date of discharge	07/08/1994
Beginning date of service	07/01/1994
Provider specialty code	93
Primary diagnoses	295
Secondary diagnoses	00000

Help

The online documentation for the VIEWTABLE window is very comprehensive. To access the extended help system for VIEWTABLE, which provides detailed procedures, explanations of all menu items, and complete command syntax and descriptions, you can use any of these options:

- Select **Help > Online documentation > Base SAS Documentation > VIEWTABLE** window from the SAS pull-down menus.
- Select **Help | Extended help** from the VIEWTABLE pull-down menus.
- Use the **VTHelp** command from the VIEWTABLE command line.
- Select the **Help** button on the VIEWTABLE toolbar.
- To access help information for a dialog box in VIEWTABLE, select the **Help** button on the dialog box.
- To access help in a VIEWTABLE dialog box, type **HELPMODE** in the VIEWTABLE command line. Press **Enter**. When you move the cursor over the dialog box, you will see it is now shaped like a question mark (?). Click on the field, option, or list box for which you want help.

A Look Around the Screen

A good way to get acquainted with the new VIEWTABLE application is to browse through the Pull-Down and Pop-Up Menus that have been provided, and to check out various handy Tool Bar icons.

Pull-Down Menus

In the VIEWTABLE menu bar you will find the following options:

File	Edit	View	Customize
New	Add Row	Form View	DATAFORM Entry...
Open...	Copy Row	Table View	Model SCL...
Import	Commit- New Row		
Query	Delete Row	Column Names	
Save	Cancel Row Edits	FormView Options >	
Save As...	Find...	TableView Options >	
Export	Repeat Find		
Like	Edit Mode		
Include...	Browse Mode		
Print...	RowLevel Access		
Print Setup	TableLevel Access		
Print Preview			
Cancel			
End			
Send...			
Exit...			

Pop-Up Menus

Throughout VIEWTABLE, there are helpful pop-up menus available to help you get things done more efficiently - just click the right mouse button:

Table View Pop-Up	
Column Specific	Row/Cell
Colors...	Clear Active Cell
Fonts...	Clear Selections
Sort...	Print Setup...
Hide	Print...
Hold	Print Preview...
Column Description	Add Row
Column Attributes...	Copy Row
	Commit New Row
	Delete Row
	Cancel Row Edits
	Where
	Where Clear
	Edit Mode
	Override

Form View Pop-Up	
Column Specific	Row/Cell
Colors...	First Row
Fonts...	Previous Row
Sort...	Next row
Hide	Last Row
Column Description	First Page
Column Attributes...	Previous Page
	Add Row
	Copy Row
	Commit New Row
	Delete Row
	Cancel Row Edits
	Where
	Where Clear
	Edit Mode
	Override

Toolbar Options

A toolbar or toolbox can be activated, which gives you access to buttons that perform an action in VIEWTABLE when selected. Each button has a picture on it that depicts what it does, as well as a descriptive label that appears when you place the cursor over the button. See Preferences in the Options pull down menu.

You can perform these activities by selecting the toolbar buttons:

Button	Action
New	Creates a new table
Open	Opens an existing table
Save	Saves changes to the open table
Print	Enables you to specify printing options and print the open table
Print Preview	Previews the print output for the open table
Add Row	Adds a new row
Copy Row	Copies the current row
Commit New Row	Saves current row changes
Cancel Row Edits	Cancels current row edits
Delete Row	Deletes the selected row. If you are in New mode, you can select multiple rows for deletion.
Sort Ascending	Sorts the table in ascending order according to the values in the selected, or highlighted, column(s)
Sort Descending	Sorts the table in descending order according to the values in the selected, or highlighted, column(s)
Table View	Changes the display to Table View mode
Form View	Changes the display to Form View mode (if you have SAS/FSP software licensed)
Column Attributes	Displays column attributes for the selected column(s)
Table Attributes	Displays table attributes for the open table
Edit	Sets the table to Edit mode (if you have SAS/FSP software licensed)
Browse	Sets the table to Browse mode
Help	Activates online help

Scrolling in Table View

To navigate through the table, use the scroll bars at the right and bottom of the table. You can also use the TOP, BOTTOM, FORWARD, and BACKWARD commands.

Selecting Columns in Table View

To select a single column in Table View, click on the column label to highlight the entire column. To select multiple columns, click anywhere on a column and drag the mouse across the columns you want to select. The columns are highlighted as you drag the mouse over them. Or you can click on a single column, called the anchor, then move the cursor to another column in the table (either to the right or left of the anchor column) press Shift, and click the mouse. All the columns are highlighted. To select multiple non-contiguous columns, move the cursor to each column heading you want selected, press **CTRL**, then click the mouse. To select all columns in the data table, click on the upper left box in the corner of the table, above the row labels. To deselect a single highlighted column, move the cursor over the column label, press **CTRL** and click the mouse.

To deselect all highlighted columns, select Clear Selection from the pop-up menu, which you access while the cursor is over one of the currently highlighted columns, or select a cell that is not in one of the currently highlighted columns.

Ordering Columns

Ordering columns does not permanently affect the order of the columns or data in the table. It only affects the view you see in the VIEWTABLE window. To display columns in a particular order select **Data>Hide/Unhide**. When the Hide/Unhide dialog box appears, select one column from the Displayed list box using the mouse, and use the arrow buttons under the Displayed list box to move the column up or down in the list box. By default, columns are listed in the order they appear, left to right, in the table. When you move a column up in the list box, it will appear farther to the left in the table. When you move a column down in the list box, it will move to the right in the table. Select **OK**.

Alternatives: Within Table View, highlight the contiguous column(s) you want to move; then use the mouse button to drag and drop the column(s) on the column that you want to precede the moved columns.

Resizing Rows and Columns

You can resize the height of all rows, as well as the width of each individual column in Table View. To resize the height of all rows position your cursor over the horizontal edge of any row label. When the cursor

changes appearance, click and drag the cursor up or down to increase or decrease the height of the row. When you release the cursor, all rows resize to match the height of the row you resized.

To resize the width of any column: position your cursor along the right hand edge of any column heading. When the cursor changes appearance, click and drag the cursor right or left to increase or decrease the width of the column. When you release the cursor, the column resizes to the width you specified.

Note: When you resize a column, VIEWTABLE adjusts the widths of the other columns in an effort to keep them all visible in the window. If you increase the widths of one or more columns so much that all the columns are not visible in the window, use the horizontal scroll bar to scroll to the unseen columns.

Holding Columns for Scrolling

To hold certain columns in place during horizontal scrolling through a table in Table View select **Data> Hold**. A held column in a data table is similar to an ID column in the FSVIEW window. The Hold dialog box appears. In the Columns list box columns are listed in the order they appear in the table. When you select a column in the Columns list, that column and all columns above it in the list box, are highlighted. In your table, all columns to the right of the selected column will scroll. All columns in the table to the left of and including the selected column will remain in place. To deselect a column, you can select another column or click the **Release** button.

Alternatives: You can also hold and release columns using the **Hold | Release** options on the pop-up menu or the **HOLD** and **RELEASE** commands.

Searching the Data

Select **Edit> Find** to search the data in the open table. The Where expression dialog box opens, where you can search for a row that contains data meeting specific criteria. If the value is found, you are taken to the row where the value is found in Form View. In Table View, the row where the value is found becomes the top row in the display. If the value is not found, you are placed on the last row of the table, and a message displays telling you that the end of the table was reached without a match. To repeat your search, select **Edit> Repeat Find**. If you are on the last row of the table, the search begins at the beginning of the table. For example, if you are halfway through the table when you begin to search the data, then once you reach the bottom of the table, you can use **Repeat Find** to continue the search from the top of the table.

You can also search the data using the **FIND** command. The syntax used for the **FIND** command is the same as used when building a where clause and must be enclosed in quotes.

For example: **find 'procod= "93545" '**

will find the next occurrence of where the column procod is "93545" indicating a coronary angiography procedure. If no value is passed in with the **FIND** command, the Where dialog box opens, in which you can specify a **FIND** string.

Subsetting Data

You can subset your data in two ways:

- By viewing only certain columns
- By viewing only certain rows after applying a where expression.

To view only certain columns, see **Hiding and Displaying Columns**.

To view only certain rows, select **Data> Where** to open the Where expression dialog box. Then you can specify criteria to display a subset of data that meets those specific conditions. If you have already applied a where clause using the Where expression dialog box, and you want to add more criteria to the existing clause, you can continue to do so by reopening the Where expression dialog box. The existing **WHERE** clause will be displayed in the dialog box, and you can continue to select items to further subset the data by adding an **AND** or an **OR**. You can also subset the data and clear the subset using the **Where** and **Where Clear** options on the pop-up menu or the **WHERE** command. To clear a subset of rows: open the Where expression dialog box then select the **Reset** button and click **OK**. All rows in the table are displayed. Alternatives: You can also clear a subset of rows using the **Where Clear** option on the pop-up menu or the **WHERE** command.

Hiding and Displaying Columns

Hiding or displaying columns does not affect the columns or data stored in the table itself. It only affects what is shown in the VIEWTABLE window, as well as what is saved out to a new table if you use the **Save As** feature. To hide or display one or more columns in a table: Select **Data> Hide/Unhide** to reveal the Hide/Unhide dialog box.

To hide a single column: double-click on the column in the Displayed list box that you want to hide, or select the column you want to hide from the Displayed list box, then click the left single-arrow button between the two list boxes. The column now appears in the Hidden list box.

To hide multiple columns: drag the mouse over the contiguous columns in the Displayed list box that you want to hide. Click the left single-arrow button between the two list boxes. The columns you selected now appear in the Hidden list box. To hide all columns, click the left double-arrow button between the two list boxes. All columns now appear in the Hidden list box. To unhide, or display, certain columns in a table move the columns as described above to the Displayed list box. Click the right double-arrow button between the two list boxes to display all columns. Click **OK**. All columns in the table are displayed. Alternatives: You can also hide/unhide one or more columns using the Hide option on the pop-up menu or the **HIDE** or **COLUMNS** commands.

Note: If you have a DATAFORM entry applied to the table, the Hide/Unhide option on the pull-down is unavailable to you. This option, along with the **HIDE**, **UNHIDE**, and **COLUMNS** commands, is invalid because the DATAFORM entry contains the list of columns to be displayed in the window. This list cannot be altered as long as the DATAFORM entry is being used. Once you clear the DATAFORM entry, these options will again be available to you. You then have complete control over which columns to display in the table.

Displaying Column Labels or Column Names

To display columns with labels or names in either Table View mode or Form View mode, select **View> Column Names** or **Column Labels**. (The default is Column Labels.) If no labels are available and you specify Column Labels, then column names are displayed instead. You can also display column names or labels using the **COLNAMES** | **COLLABELS** command.

Note: If you are displaying your table with column names in Table View mode, and you change to Form View mode and request column labels, then those labels may be truncated if VIEWTABLE cannot fit the entire label into the same area previously used to display the column name.

Viewing and Changing Column Attributes

You can view all the attributes of a column. You can also change certain attributes. While viewing an existing table, you can change: the label, the format/informat, the foreground and/or background color of a column or its label, the font of a column and/or its label. These changes are reflected immediately in the display when you select the Apply button, and to "undo" them requires resetting them. However, when viewing an existing table, the changes you make in the Column Attributes dialog box are temporary and are not stored permanently with the table. These changes are only used while the table is currently open in VIEWTABLE. To view and change column attributes for one or more columns: select the column(s) whose attributes you want to view or

change. Select **Data> Column Attributes** (or request a pop-up while your cursor is over a highlighted column). The Column Attributes dialog box appears. If you have a single column selected, the dialog box displays the attributes of the currently selected column. If you have multiple columns selected, the dialog box displays the attributes of the column you selected last. Only those tab pages and fields that are appropriate for multiple columns are available. Make whatever changes you want on the General, Color, or Fonts tab pages, and then select the **Apply** button. Any changes you make to the attributes of a particular column will be immediately displayed in VIEWTABLE.

If you have the color or font attributes set for a particular column, and you want to apply those attributes to other columns:

- Open the Column Attributes dialog box
- Select the columns whose attributes you want to change, then select the "model" column.
- Select Apply from the dialog box.

Alternatives: You can view and change column attributes using the Column Attributes, Color, and Font options on the pop-up menu or the **COLATTRS** command. You can open the Column Attributes dialog box using the VIEWTABLE toolbar buttons, and in Table View, you can open it by double-clicking on the column header.

Viewing Table Attributes

To view your table's attributes, select **Data> Table Attributes**. The Table Attributes dialog box opens, providing a status for the open table. It displays read-only table attributes for existing tables, which you cannot alter. The Table Attributes dialog box contains two tab pages: General and Advanced. In Table View, you can also double-click on upper left cell in the table to open the Table Attributes dialog box (as long as you are not in New mode).

Sorting Data

VIEWTABLE uses the sorting program that SAS supports for your particular operating system. It sorts the actual data in the table, not just the display. **Note:** You can sort the data in the table only if you have SAS/FSP licensed. To sort the data, VIEWTABLE must be able to gain Table Level edit access. VIEWTABLE will try to gain this access for you temporarily in order to perform the sort, regardless of how the current open mode or access level options are set. If access fails, you will see a message indicating that you cannot sort the table in place due to Table Level edit access (or MEMBER lock) being unavailable to you. If VIEWTABLE cannot obtain Table Level edit access, you can still sort the

table by requesting that the results be stored in a new table.

To sort the rows by one or more columns: select **Data> Sort** to display the Sort dialog box, where you can order the rows of your table according to specific criteria for the columns, for example, ascending or descending. Select the column(s) on which you want to sort on from the Available list box. Click the right single arrow located between the two list boxes. The column(s) now appears in the Selected list box. To remove column(s) from the Selected list box select the column(s) you no longer want to sort on and click the left single arrow located between the two list boxes. The column(s) now appears in the Available list box. To place the columns in the order you want them sorted, select a column and move it up or down in the Selected list box using the up or down arrow buttons located below the list box.

For example, if you select AGE and PAY from SASUSER.CLAIMS to sort in ascending order, VIEWTABLE sorts the table first by AGE in ascending order, and then, within AGE, in ascending order by PAY. To indicate whether you want the column(s) sorted in ascending or descending order, select a column in the Select list box, then select Ascending or Descending from the Selected Column Sort Order region. You can assign a sort order to each column in the Select list box. For example, you can sort the SASUSER.CLAIMS table in ascending order by AGE, and then, within AGE, in descending order by PAY. The default is Ascending.

To save the sorted output to another file, select the **Save As** tab from the Sort dialog box. Select the down arrow beside the Path field to see a list of currently allocated librefs. You can select one of these. However, if you want to point to a new directory that does not currently have a libref assigned to it, select the right arrow beside the Path field. The Select Directory dialog box appears where you can identify the path. A libref will automatically be assigned for you, making any SAS data sets or views in that directory accessible to you immediately. Type the name of the new table in the Table field on the Save As tab page. Click **OK**. VIEWTABLE saves the sorted output to the new table and opens this new table in the display.

Printing

Printing is only available when you are in Table View mode viewing either an existing table or creating a new one. You can set up and manage your list of printers by selecting **File> Print Setup** or by selecting the Setup button on the Print dialog box. In either case, the Print Setup dialog box appears where you can set up and manage your list of printers. To preview your printout before you print, select **File> Print Preview**. The Print Preview dialog box appears,

where you can page through your output, view two pages of output at once, and change the size of the preview output. You can also open the Print dialog box by selecting the Print button.

To print an open table: select **File> Print** to open the Print dialog box appears, where you can specify the printer you want, as well as various printing options, such as the printing area and order. Click **OK**. Alternatives: You can also print a table using the Print and Print Setup options on the pop-up menu, the PRINTDIALOG and PRINTSETUP commands, or the VIEWTABLE toolbar buttons.

IMPORT/EXPORT FACILITY WIZARD

The Import Wizard is an interactive application that guides you through creating SAS data sets from external file formats such as dBase, spreadsheet, tab delimited, or comma-separated files. If you importing the external source from within VIEWTABLE the table just created will automatically display in the VIEWTABLE window for you to continue working.

To import data from an external file source select **File> Import**. Follow the required steps for creating a SAS table from an external file. Make your selections, name the external file and click the **Next>** button. Supply a name for the incoming data in the MEMBER entry box and click the **Finish** button.

The Export Wizard is an interactive application you can use to export SAS tables to other external file formats, such as dBase, tab delimited, or comma-separated files. Once you finish creating the external file, you return to VIEWTABLE. To export data to an external file format Select **File> Export** to open the Export Wizard opens. The table you were viewing in VIEWTABLE has automatically been initialized as the SAS source data. You can change the source to a different table if you like. Otherwise, continue stepping through each window to create the export file. Choose from the following: DBF, EXCEL5, EXCEL4, WK1, WK3, WK4, DLM, CSV, or TAB export file formats. You can also define a special file format using the External File Interface (EFI) facility.

Exercise: To transfer selected information from a dBase file into a table for a report using the Import/Export Wizard.

- Import a dBase file, subset it in VIEWTABLE, and save the subsetted data set with a new name.
- Export the new file as a comma delimited file.
- In a Microsoft Word document where you need the table select **Insert> File...** and choose the comma delimited file you exported.
- Select all of the inserted text and choose **Convert Text to Table...** in the **Table** menu. Et Voila! That's French for we're back in Kansas.

For more information on the Import/Export Wizard, open the wizard through VIEWTABLE and then access its online help.

SAS System viewer (for Windows 95 only)

This handy, **free** accessory is invoked from the Windows Explorer by double-clicking or by clicking the right mouse button on a SAS data set (.sd2) or SAS catalog (.sc2) file icon.

You can download the latest version of the SAS System Viewer (sview612.zip) from SAS Institute's World Wide Web site (<http://www.sas.com>) or by

The screenshot shows a window titled "The SAS System Viewer - Claims" with a menu bar (File, Edit, View, Window, Help) and a toolbar. Below the toolbar is a table with the following data:

	Payment	Date of discharge	Beginning date of service	Provider specialty code	Primary diagnosis	Sec. diag.
1	\$150	07/01/1994	07/01/1994	69	315	0000
2	\$20	07/01/1994	07/01/1994	19	87342	E88
3	\$20	07/01/1994	07/01/1994	17	V20	0000
4	\$7	07/01/1994	07/01/1994	20	4264	0000
5	\$44	07/08/1994	07/01/1994	93	29660	0000
6	\$44	07/06/1994	07/01/1994	93	295	0000
7	\$14	07/01/1994	07/01/1994	32	6071	0000
8	\$20	07/02/1994	07/02/1994	18	38420	0000
9	\$54	07/06/1994	07/02/1994	93	29592	0000

At the bottom of the window, it says "For Help, press F1" and "2509 Data set Rel".

anonymous FTP in the download section of the Technical Support FTP site (<ftp.sas.com>) on the internet: log on as **anonymous** then enter **your email address** as the password. When connected enter:

```
cd/techsup/download/misc/additional/sasviewer/production
get sview612.zip
```

To disconnect, enter **quit**.

You can use the SAS System Viewer to view SAS data sets and SAS catalogs that have been created using the SAS System Release 6.04 or later. You can also view SAS files created by versions of the SAS System that run on other platforms, and view and edit SAS programs, text files, LST files, LOG files, and RTF files. Columns and rows in grid displays can be resized by grabbing and dragging the separator between the headers, or just by double-clicking the name or label. You can print, sort and subset any SAS file that you can view, and copy the entire table, or column, row and block selections to the clipboard. Sort your view of a SAS file by selecting a cell in a column and then selecting a sort option from the View menu. Subset the data (using a WHERE clause)

displayed by the viewer by selecting Where from the View menu (or pressing Ctrl-W).

Last but not least you can find text anywhere in a SAS file using regular expressions by selecting Find from the Edit menu (or pressing Ctrl-F).

CONCLUSION

The VIEWTABLE application and the FSVIEW procedure each offer many useful features to simplify data entry, query, editing, validation, display, and retrieval.

So as to conclude the metaphor of the title; the clever wizards at SAS Institute have given us what we wanted, an AF application to let us see our data, although we actually had the ability all along without really knowing it.

REFERENCES

Additional guidance may be found in the following excellent materials, some of which served as sources for the material in this workshop.

- I. Carpenter, Ann E., and Leone Lynn P. (1996), "Introducing a GUI Approach to Data Entry Using Data Table and Data Form Objects in SAS/AF FRAME Software" *Observations First Quarter 1996*, 6-14.
- II. Gagliano, Tammy L., Kumar, Deva and Brideson, Patti (1996), "Objects, Objects and More Objects..." *Proceedings of the Ninth Annual North East SAS Users Group Conference*, 9, 469-476.
- III. Wilkins, Scott. (1997), "Data Table and Data Form Enhancements in Release 6.12" *Observations First Quarter 1997*, 28-35.
- IV. SAS Institute Inc (1996), SAS System for Windows, Release 6.12 Online Documentation, "VIEWTABLE Extended Help"

A great place to learn more about the DataTable and DataForm interactive environments is in the CD-ROM entitled **Solutions@Work™: Data Forms and Data Tables** (cat # SP55753 \$24.95)

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