

Introduction to SAS Display Manager Windows in MVS/TSO

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OUTLINE

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Introduction

Welcome to the SAS Display Manager! The Display Manager is a series of windows designed to let the user exploit the power and flexibility of SAS in a full screen interactive environment. It is very useful and helpful for writing and submitting code using small amounts of data. The amount of data that can be processed in an interactive session is limited only by the memory allocated to the user's session. When processing large quantities of data it is more efficient to write and test the code in the interactive environment and then run the final version of the program in batch mode.

Of course, every situation is unique. It is up to the user to decide whether or not to use the interactive environment. Advantages include: online help for code as well as the Display Manager windows and commands; tasks may be performed one data or proc step at a time (which is a tremendous aid for debugging); and in addition, there is no need for JCL or other batch command language. There are some disadvantages to the Display Manager as well. These include longer task time for large quantities of data and possible limited memory space. Also, only one task at a time may be performed, as opposed to submitting several jobs to run at once in batch. Batch also runs in the background, freeing the console for other activities.

This presentation is designed to be an introduction, only. It is by no means comprehensive and is tailored for the beginning Display Manager user - one familiar with SAS code but unfamiliar with the interactive environment. The windows described here are SAS/Base software only. There are many windows for other packages. Because these windows are unique to those packages, they will not be covered here. Enough information is presented here to get you started in the MVS/TSO environment. With a little help from your site consultant, you will be able to move to other environments as well.

In order to get into the SAS Display Manager, from the TSO Ready prompt or the command line in ISPF, type: TSO SAS608. If you are not in the MVS environment, you should still have some kind of command list procedure to bring up SAS. See your site consultant for this information.

The initial display is shown below.

```
+LOG-----
Command ===>

NOTE: Running on AMDAHL Model 5890 Serial Number 020459,
      AMDAHL Model 5890 Serial Number 120459,
      AMDAHL Model 5890 Serial Number 220459,
      AMDAHL Model 5890 Serial Number 320459.

Welcome to the SAS Information Delivery System.

This message is displayed for users in the SAS log when the NEWS
option is specified. You can replace this message with your own by
editing the NEWS file.

NOTE: No options specified.

NOTE: The initialization phase used 0.33 CPU seconds and 2570K.
+-----+
+PROGRAM EDITOR-----
Command ===>

00001
00002
00003
00004
00005
00006
00007
00008
00009
+-----+
```

If you type **cascade** on the command line, the initial display will appear as follows:

```
+OUTPUT-----+
+LOG-----+
+PROGRAM EDITOR-----+
  Command ===>
00001
00002
00003
00004
00005
00006
00007
00008
00009
00010
00011
00012
00013
00014
00015
00016
00017
00018
+ 00019
+ 00020
+-----+
```

The 3 windows displayed above are the **Program Editor Window**, the **Log Window**, and the **Output Window**. As shown, the window name is indicated in the upper left-hand corner of the display.

If you type **TILE** on the command line the following screen will appear.

PROGRAM EDITOR	OUTPUT
Command ==>	Command ==>
00001	
00002	
00003	
00004	
00005	
00006	
00007	
00008	
00009	
00010	
00011	
00012	
00013	
00014	
00015	
00016	
00017	
00018	
00019	
00020	
00021	
00022	
00023	
00024	
00025	
00026	
00027	
00028	

LOG
Command ==>
NOTE: Running on AMDAHL Model 5890 S
AMDAHL Model 5890 S
AMDAHL Model 5890 S
AMDAHL Model 5890 S
Welcome to the SAS Information Deli
This message is displayed for users
option is specified. You can repla
editing the NEWS file.

The cascade or tile appearance may be achieved automatically by specifying configuration parameters in the command sequence used to bring up the interactive environment. To learn more about tailoring your startup environment, see the **CONFIG** and **AUTOEXEC** parameters in the SAS Companion for your Environment.

A Few Commands

A complete list of commands available in the interactive SAS environment is printed in the SAS Language Reference Manual. The following is a brief list of some of the more commonly used commands.

- | | |
|----------------------|---|
| Clear - | is used in many windows to clear the display. Once data has been "clear"ed it is gone for good. |
| Prevwind - | is used to move backward to a previous window. |
| Next - | is used to scroll forward to the next window. |
| Endsas, Bye - | are commands used to exit interactive SAS. Remember, save code or output before exiting. |
| Recall - | recalls code submitted previously into the Program Editor. This code remains as long as you are in the session. To clear the source code memory, type CLEAR RECALL . |

SASUSER.PROFILE

The **SASUSER.PROFILE** is a catalog member of the SASUSER Library. The user profile catalog retains interactive environment customization, so that user changes are carried over from one session to the next. The user profile catalog contains key definitions, printer definitions, appointment and notepad window entries, and Pop-up Menus. The SAS system automatically creates the user profile during system initialization in the first SAS session.

Most Commonly Used Windows

1. Program Editor Window

The Program Editor works much like the ISPF editor in MVS, allowing you to enter, edit, and submit source code and save it to a file. Most of the line commands are the same (M to Move a line, A to place it After this line, C to Copy a line, R to Repeat a line, MM, CC, and DD to move, copy, or delete blocks of text, etc.). Function keys are used to move forward and backward, and left and right, much the same as in ISPF. SAS code that may be submitted for batch processing, may be entered here.

Retrieving Code:

To bring code in from an external library type the following on the command line:

include '<filename>'

e.g. **include 'mylib.lib.sorc(sasexamp)'**

The above example will bring previously written code into the editor to be modified or executed as desired.

Saving Code:

To save code when finished simply type the following:

file '<filename>'

e.g. **file 'mylib.lib.sorc(sasexamp)'**

This example will save code written or modified in the SAS Program Editor to the specified external library.

Submitting Code:

After typing in or including the desired code, submit it to the processor for execution. This is done by typing **submit** on the command line or by pressing the **submit** function key. During execution, any output is written to the output window and the log is written to the log window.

To return to the PROGRAM EDITOR Window from any other window, type **pgm**. To retrieve code submitted to SAS for previous processing, type **recall**.

Note: There is no JCL needed for an interactive session. JCL is required only for batch processing. However, datasets must still be allocated for use within SAS. To allocate a SAS dataset, use the **LIBNAME** statement in the code. To allocate a pds (partitioned data set or source library) or sequential file, use the **FILENAME** statement in your code. Refer to the SAS Companion for your Environment for specifics on these statements.

Once code has been submitted, the upper right hand corner of the Program Editor and Output Windows will indicate that a data step or procedure is running.

The following example shows code included into the Program Editor from an external library and is ready for submission to the SAS processor.

```
+-----+
+OUTPUT-----+
+LOG-----+
+PROGRAM EDITOR-----+
Command ==>
NOTE: 14 line(s) included.
00001 libname kbsas 'mylib.sas608.work';
00002 filename sample 'test.stain.master.consent.form.ksds';
00003 filename sorclib 'test.stain.libsorc';
00004
00005 data one;
00006     infile sample;
00007     %include sorclib(mtlay01);    * file layout;
00008 run;
00009
00010 title 'Consent Form File Frequencies';
00011
00012 proc freq;
00013     tables state / out=kbsas.sample;
00014 run;
00015
00016
00017
00018
00019
00020
00021
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00024
00025
00026
+-----+
```

1a. Titles Windows

Although Title and Footnote statements are still applicable anywhere in SAS code, interactive SAS also has Titles and Footnotes windows. Title 1 defaults to 'The SAS System', but all titles may be browsed, modified, or additional titles added. To reach the TITLES window, type **Title** on the command line. To enter or change a title, tab to the desired line, type the new title, and press enter.

```
+-----+
+OUTPUT-----+
+LOG-----+
+PROGRAM EDITOR-----+
+-----+
Co+TITLES-----+
  Command ===>
00
00 Title      Value
00
00      1      Consent Form File Frequencies
00      2
00      3
00      4
00      5
00      6
00      7
00      8
00      9
00     10
00
00+-----+
00016
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00023
00024
+ 00025
+ 00026
+-----+
```

To close the Title and Footnote Windows, enter **end** on the command line or press the **end** function key. All changes will be saved automatically. Titles and footnotes submitted in code will appear in the appropriate window after execution.

1b. Footnotes Window

Footnotes may be added, browsed, or modified with the footnote statement or by entering them via the FOOTNOTES window. To display the Footnote Window, type `footnote` on the command line. To enter or change a footnote, tab to the desired line, type the new footnote, and press enter.

```
+-----+
+OUTPUT-----+
+LOG-----+
+PROGRAM EDITOR-----+
+Co+FOOTNOTES-----+
| Command ==> |
| 00 |
| 00 Footnote Value |
| 00 |
| 00 1 Counts as of July 20, 1993 |
| 00 2 |
| 00 3 |
| 00 4 |
| 00 5 |
| 00 6 |
| 00 7 |
| 00 8 |
| 00 9 |
| 00 10 |
| 00 |
+-----+
00016
00017
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00024
+ 00025
+ 00026
+-----+
```

Changes made through the Title and Footnote Windows will take affect with the next group of code submitted.

Note: Contents of the Title and Footnote Windows are not saved when code is written to an external file. To save these changes, use the title and footnote statements in the source code.

2. Log Window

Information from the SAS processor goes to the log, just as in batch mode. In the interactive environment, the log may be accessed by typing `log` on the command line or by scrolling to the log through open windows using the `prevwind` or `next` commands. The LOG Window displays the results from the SAS processor after code execution. This is similar to the log received when running in batch, except that in interactive mode, the user will be positioned after the last step processed instead of at the top of the log.

```
+-----+
+LOG-----+
Command ==>

6      infile sample;
7      %include sorclib(mtlay01);      * file layout
90     run;

NOTE: The infile SAMPLE is:
      Dsname=TEST.STAIN.MASTER.CONSENT.FORM.KSDS,
      Volume=VOLUME,Disp=SHR,Unit=3380,Type=INDEXED,
      Spanned=NO,Recordsize=(.,1200),Amp=('AMORG'),
      Records=1509,Keys=(32 0)

NOTE: 1508 records were read from the infile SAMPLE.
      The minimum record length was 1200.
      The maximum record length was 1200.
NOTE: The data set WORK.ONE has 1505 observations and 180 variables.
NOTE: The DATA statement used 2.85 CPU seconds and 3523K.

91
92     title 'Consent Form File Frequencies';
93
94     proc freq;
95         tables state / out=kbsas.sample;
96     run;

NOTE: The data set KBSAS.SAMPLE has 13 observations and 3 variables.
NOTE: The PROCEDURE FREQ used 0.09 CPU seconds and 3814K.
+-----+
```

The above window shows a sample log window after code execution.

Each time SAS code is submitted, it is appended to the log already in the window. SAS saves all log information until you type `clear` on the command line. This will clean out the log window and the former contents are gone for good.

3a. Output Manager Window

After separate executions of code, the output area may become cluttered. The OUTPUT MANAGER Window provides a directory of current output and can be used to choose the output the user wants to look at specifically. If multiple executions have occurred, the Output Manager may be used to "weed out" what is no longer needed. This window may be invoked by typing **Manager** on the command line.

+OUTPUT MANAGER-----+ Command ==>				
Procedure	Page#	Pages	Description	
_ FREQ	1	1	Consent Form File Frequencies	

The OUTPUT MANAGER Window displays the procedure used to produce each set of output, the beginning page number for that output, the length in pages, and the first title line, as shown in the window above. When output is added to the OUTPUT window, it is listed in the OUTPUT MANAGER Window automatically.

Once the OUTPUT MANAGER Window has been opened, the user will be routed to the Manager screen with all subsequent user requests to look at output. To end Output Manager intervention, enter **manager close** on the command line. To bypass the Output Manager and go directly to the Output window, type **listing** on the command line.

To delete a set of output, tab to the desired field, enter a **d** and press enter. You will be prompted to verify the delete with a **v** or cancel it with a **c**. To browse a particular set of output, tab to the desired field and enter an **s**, **b**, or **x** and press enter. This will bring up the output selected. Please see the SAS Language: Reference Manual for more advanced Output Manager functions.

Helpful Windows

4. Keys Window

The KEYS Window is invoked by entering **keys** on the command line. This brings up the current definition of the function keys. Defaults for function keys are given in the SAS Companion for your environment. Key definitions may be changed by tabbing to the desired key value and overtyping the definition field. Any command that can be entered on the command line maybe used as a key definition. The new changes take effect immediately and are saved in your SASUSER.PROFILE so they remain the same from session to session. Each interactive procedure requiring function keys, such as PROC GREPLAY or PROC FSEDIT, has its own unique key definitions. Procedure keys are altered in the same way as window keys and are also saved across sessions.

+OUTPUT-----+KEYS <DMKEYS>-----+	
+LOG-----	Command ===>
+PROGRAM EDITOR-----	
Command ===>	Key Definition
00001	F1 help
00002	F2 zoom
00003	F3 zoom off; submit
00004	F4 pgm; recall
00005	F5 rfind
00006	F6 rchange
00007	F7 backward
00008	F8 forward
00009	F9 output
00010	F10 left
00011	F11 right
00012	F12 home
00013	F13 log
00014	F14 program
00015	F15 manager
00016	F16 cut
00017	F17 paste
00018	F18 store
00019	F19 prevwind
00020	F20 next
00021	F21 pmenu
00022	F22 command
+ 00023	F23 keys
+ 00024	F24 undo

More advanced key functions are described in the SAS Language: Reference documentation.

5. Help Windows

Help may be obtained from anywhere by pressing the assigned function key or by typing **help** on the command line. When the HELP Window appears, tab to the appropriate subject on the displayed menu and press enter. Help is available for language statements as well as for SAS products and Display Manager windows. The Window displayed below is the Main Help Menu. To leave help press the end key or type **end** on the command line. Help returns you to the previously active window.

```

+HELP: SAS System Help-----+
Command ==>

  SAS SYSTEM HELP: Main Menu

DATA MANAGEMENT              REPORT WRITING              GRAPHICS

TUTORIAL                    MODELING & ANALYSIS TOOLS      UTILITIES

SAS LANGUAGE                SAS GLOBAL COMMANDS            SAS WINDOWS

      ABOUT THE SAS INFORMATION DELIVERY SYSTEM

                HOST INFORMATION        BOOKS

                        INDEX
+-----+
+|| 00025
+|| 00026

```

6. Options Window

Typing options on the command line will bring up the first OPTIONS Window. This window displays all the available options for the interactive SAS session. Default or current values are also displayed. Toggle items are listed at the top with arrows pointing to those that are "on". To toggle a value, tab to the field and press enter. To change other values, tab to the appropriate field and enter the desired value.

```
+-----+-----+
|OUTPUT-----|OPTIONS-----|
|+LOG-----+|Command ==>|
|+PROGRAM EDITOR-----+|
|Command ==>|
|00001|> BYERR|> BYLINE|CAPS|
|00002|> CARDIMAGE|> CENTER|CHARCODE|
|00003|> CLEANUP|CMDMAC|> DATE|
|00004|DBCS|DETAILS|> DSNFERR|
|00005|ERRORABEND|> FMTERR|> GWINDOW|
|00006|IMPLMAC|> LABEL|> MAUTOSOURCE|
|00007|
|00008|
|00009|
|00010|
|00011|LAST|WORK.SORTED| | | | | |
|00012|BUFNO|3|
|00013|BUFSIZE|0|
|00014|CBUFNO|0|
|00015|COMPRESS|NO|
|00016|DEVICE|
|00017|DKRCOND|ERROR|
|00018|DKROCOND|WARN|
|00019|ERRORCHECK|NORMAL|
|00020|ERRORS|20|
|00021|FIRSTOBS|1|
|00022|FMTSEARCH|
|00023|FORMCHAR| |----|+|----|=|-/\\<>*|
|00024|FORMDLIM|
|00025|FORMS|DEFAULT|
|00026|INVALIDDATA|.
| |LINESIZE|76|
+-----+-----+
```

Only the first option screen is displayed here. To view more options, press the forward key or type forward until all values have been viewed. Options are retained only for the length of the current session. Options specified in code or during Display Manager startup are reflected here as well.

File Handling and Maintenance Windows

7. Libname Window

The LIBNAME Window is invoked by typing **libname** on the command line. Libname lists all SAS data libraries allocated during the current session, the SAS engine assigned to the dataset and the host name of the dataset. SAS Libraries are assigned with the SAS Libname statement or at SAS startup by the TSO allocate command.

+OUTPUT MANAGER-----+LIBNAME-----+ +LOG-----+ +PROGRAM EDITOR----- Command ==>		Command ==>		
Command ==>		Libref	Engine	Host Path Name
00001		- KBSAS	V608	MYLIB.SAS608.WORK
00002		- MAPS	V608	SYSTEM.SAS607.MAPS
00003		- SASHELP	V608	SYSTEM.SAS608.SASHELP
00004		- SASUSER	V608	MYLIB.SAS608.SASUSER
00005		- WORK	V608	SYS93XXX.T095656.RA000.MYLIB
00006				
00007				
00008				
00009				
00010				
00011				
00012				
00013				
00014				
00015				
00016				
00017				
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00019				
00020				
00021				
00022				
00023				
00024				
00025				
+ 00026				

To examine a dataset further, tab to the field beside the Libref name and type an x or s and press enter. The DIR Window for that SAS data library will appear.

```

+-----+-----+
|OUTPUT MANAGER|DIR|
+-----+-----+
|+LOG|Command ==>|
+-----+-----+
|+PROGRAM EDITOR|Libref: SASUSER|
|Command ==>|Type: ALL|
|00001|SAS File Memtype Indexed|
|00002|APPOINT DATA YES|
|00003|PROFILE CATALOG|
|00004|
|00005|
|00006|
|00007|
|00008|
|00009|
|00010|
|00011|
|00012|
|00013|
|00014|
|00015|
|00016|
|00017|
|00018|
|00019|
|00020|
|00021|
|00022|
|00023|
|00024|
|00025|
|00026|
+-----+-----+

```

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9. Catalog Window

The CATALOG Window may be displayed by choosing a catalog member in the DIR Window or by entering catalog on the command line. Again, if the user types catalog, SAS will prompt for the libref and catalog names. As shown below, the catalog window displays the entries of the chosen catalog, the catalog type, and a description of the catalog. See the description of select fields in the DIR window for valid catalog selection field commands.

```
+OUTPUT MANAGER-----+CATALOG-----
+LOG-----          Command ==>
+PROGRAM EDITOR-----
  Command ==>          NOTE: Catalog SASUSER.PROFILE currently contains 7 ent
                        Libref: SASUSER
                        Catalog: PROFILE

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                        Name      Type      Description
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```


11. Access Window

The access window is invoked by typing `access` on the command line. While it is the start-up menu for SAS/ACCESS software's Access procedure, it is also useful for managing data in the Base environment. It includes features of both the **Libname** and **Dir** Windows. It displays information on currently assigned SAS data libraries and lists the files and types within each library.

There are many commands available to manipulate datasets in the Access Window. Please see SAS Technical Report P-222 for examples.

```
+ACCESS Window-----
Command ==>

      Libname  Name      Memtype  Index
-----
      MAPS     AFGHANIS  DATA
      MAPS     AFGHANI2  DATA
      MAPS     AFRICA    DATA
      MAPS     ALGERIA   DATA
      MAPS     ALGERIA2  DATA
      MAPS     ANOMALY   DATA
      MAPS     ARGENTIN  DATA
      MAPS     ARGENTI2  DATA
      MAPS     ASIA      DATA
      MAPS     AUSTRAL   DATA
      MAPS     AUSTRAL2  DATA
      MAPS     AUSTRIA   DATA
      MAPS     AUSTRIA2  DATA
      MAPS     BELIZE    DATA
      MAPS     BELIZE2   DATA
      MAPS     BENELUX   DATA
      MAPS     BENELUX2  DATA
      MAPS     BOLIVIA   DATA
-----
00020
00021
00022
00023
00024
+ 00025
+ 00026
-----
```

12. Filename Window

The FILENAME Window displays all partitioned datasets or sequential files currently assigned to your SAS session. It displays the fileref and the host name of the file. Filenames are allocated to the session using the SAS filename statement or using the TSO allocate command in the startup sequence.

+OUTPUT MANAGER-----+FILENAME-----+	
+LOG-----	Command ==>
+PROGRAM EDITOR-----	
Command ==>	Fileref Host File Name
00001	SAMPLE TEST.STAIN.MASTER.CONSENT.FORM.KSDS
00002	SORCLIB TEST.STAIN.LIBSORC
00003	
00004	
00005	
00006	
00007	
00008	
00009	
00010	
00011	
00012	
00013	
00014	
00015	
00016	
00017	
00018	
00019	
00020	
00021	
00022	
00023	
00024	
00025	
+ 00026	

MVS Specific File Handling Windows

13. FName Window

The FNAME Window is specific to MVS and displays all datasets, SAS and other types, allocated to your user or session id. This includes all files allocated outside the SAS environment as well as those allocated within. See the SAS Companion for your Environment to see if this window is applicable on your host.

+FNAME-----					
Command ===>					
DDname	Data Set Name	Org	Status	Disp	
- ADMPC	SYSTEM.GDDMSAM	PO	SHR	KEEP	
- ADMSYMBL	SYSTEM.GDDMSYM	PO	SHR	KEEP	
- CONFIG	SYSTEM.SAS608.INSTCNTL(TSOXA)	PO	SHR	KEEP	
- EDCHKDD	SYSTEM.VEND.ISPPLIB(EDCHEKDD)	PO	SHR	KEEP	
- ISPCTL0	SYS93XXX.T095534.RA000.MYLIB.R0000001	PS	NEW	DELETE	
- ISPCTL1	SYS93XXX.T095534.RA000.MYLIB.R0000002	PS	NEW	DELETE	
- ISPCTL2	SYS93XXX.T095534.RA000.MYLIB.R0000003	PS	NEW	DELETE	
- ISPCTL3	SYS93XXX.T095534.RA000.MYLIB.R0000004	PS	NEW	DELETE	
- ISPCTL4	SYS93XXX.T095534.RA000.MYLIB.R0000005	PS	NEW	DELETE	
- ISPFIL	SYSTEM.XXX.ISPFIL	PO	SHR	KEEP	
- ISPLLIB	SYSTEM.XXX.ISPLLIB	PO	SHR	KEEP	
-	SYSTEM.VEND.ISPLLIB	PO	SHR	KEEP	
- ISPLLIB	SYSTEM.ISPLLIB	PO	SHR	KEEP	
-	SYSTEM.ISRMLIB	PO	SHR	KEEP	
-	SYSTEM.ISPFPDF.MESSAGES	PO	SHR	KEEP	
-	SYSTEM.APPL.ISPLLIB	PO	SHR	KEEP	
-	SYSTEM.VEND.ISPLLIB	PO	SHR	KEEP	
-	TEST.GENRL.LIBMESS	PO	SHR	KEEP	

14. Memlist Window

The MEMLIST Window is also specific to MVS and displays information on partitioned datasets. This window is useful when saving or retrieving data or code using a known dataset with an unknown member name. To activate this window, type an **m** next to the partitioned dataset or library displayed at the FName Window, or type **memlist** on the command line. SAS will prompt for the ddname of the desired dataset.

+MEMLIST: TEST.STAIN.LIBSORC-----								
Command ==>								
Name	VV.MM	Created	Last Modified	Size	Init	Mod	ID	
- \$INDEX	01.00	93/04/21	93/04/21 15:16	50	50	0	MYID	
- AUNCT01	01.02	93/03/22	93/03/22 14:42	47	26	0	MYID	
- CSFMT80	01.00	93/04/29	93/04/29 17:49	8	8	0	MYID	
- CSFMT81	01.01	93/04/29	93/04/30 10:03	9	11	0	MYID	
- CSLAY88A	01.15	93/03/25	93/04/29 16:22	155	392	0	MYID	
- CSLAY88K	01.02	93/04/29	93/06/02 10:54	63	416	0	MYID	
- CSLAY90	01.03	93/04/01	93/07/08 18:15	30	143	0	MYID	
- DLCMP02	01.06	93/04/15	93/04/16 15:44	46	74	0	MYID	
- DLEXT01	01.10	93/04/15	93/04/16 15:43	55	41	0	MYID	
- DLMRG01	01.11	93/04/15	93/04/16 15:46	59	36	0	MYID	
- DLRPT01	01.13	93/04/21	93/04/21 17:17	184	55	0	MYID	
- DLRPT10	01.25	93/04/16	93/04/16 18:03	85	29	0	MYID	

- SYSIN	++ TERMINAL ++					PS	NEW	DELETE
- SYSLBC	SYSTEM.BROADCAST					DA	SHR	KEEP
- SYSPRINT	++ TERMINAL ++					PS	NEW	DELETE
- SYSPROC	SYSTEM.ISPEXEC					PO	SHR	KEEP
-	SYSTEM.ISRCLIB					PO	SHR	KEEP
-	SYSTEM.ISPFPDF.CLIST					PO	SHR	KEEP
-	SYSTEM.ISPFPDF.REXX					PO	SHR	KEEP
-	SYSTEM.APPL.ISPCLIB					PO	SHR	KEEP

There are several selection field commands applicable to the FName and MEMLIST Windows. Please see the SAS Companion for the MVS Environment for details.

15. DSinfo Window

The DSINFO Window will display system information about a cataloged dataset. This is useful when needing a reference point to allocate a new dataset from within interactive SAS. This window may be activated by typing `dsinfo` on the command line or tabbing to the desired dataset in the FName Window and typing `x` next to it. An example of the DSINFO Window is shown below.

```
+-----+
|+OUTPUT MANAGER-----+
|+LOG-----+
|+PROGRAM EDITOR-----+
|  Command ==>
|  +DSINFO: TEST.STAIN.LIBSORC-----+
|000| Command ==>
|000|
|000| Volume Serial:          VOLUME      Allocated Tracks:    163
|000| Device Type:           3380        Allocated Extents:    1
|000| Organization:         PO          Used Tracks:          158
|000| Record Format:        FB          Used Extents:           1
|000| Record Length:       80
|000| Block Size:          3120
|000| 1st Extent Tracks:    163
|000| 2nd Extent Tracks:    15
|000|
|000|                      Creation Date:    93/01/05
|000|                      Expiration Date:  **NONE**
|000|
|000+-----+
|00016
|00025
|+ 00026
|+-----+
```

Getting Output

16. Form Window

The Form Window contains 6 successive screens that allow a user to customize printed output. The Forms Window creates a catalog member in the SASUSER.PROFILE, which contains information regarding print control commands, font information, and printer margins. To create or edit a form, type **FSFORMS** and a form name, on the command line. To set up a default printer definition, type **fsforms default**. A brief description of the six screens is given below. To move to the next screen type **NEXTSCR**, to go back to the previous screen type **PRESCR**.

Printer Selection -	Seen only when creating a new Form. This window displays a list of printers available for your system.
Text Body & Margin Information -	Allows users to specify characters per line, lines on the first page, lines on subsequent pages, Margins for the first page and following pages.
Carriage Control -	Prompts users for carriage control information pertaining to output and location of page breaks.
Print File Parameters -	Print file information
Font Control -	Lets users specify color\highlighting, control character definition, and text attribute definition.
Printer Control Language -	Provides an edit screen which permits users to specify printer control sequences.

Printing

To print from the output, log, or program window type **print <form name>** on the command line. When the SAS session is ended, the output will be routed to the printer designated by the **Forms** subsystem definition above.

Summary

This paper has been a brief overview designed to inform the reader of the power and capabilities of the SAS/Display Manager. The information gained from this paper should allow an individual to start using the SAS/Display Manager for writing and testing code. There are more advanced topics relating to Display Manager that were not covered in this paper due to time constraints. For more information regarding how the SAS/Display Manager works in your environment please refer to the manuals listed in the bibliography.

Bibliography

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