

# **Chapter 2**

## **Referencing Files and Setting Options**

# Topics

- Define and view new libraries
- Reference SAS files to be used during a SAS session
- Specify results formats to determine the **type(s) of output** produced (HTML, listing, etc.)
- Set **system options** to determine how date values are read and to control the appearance of **listing output** that is created during your SAS session.

# Define and Verify SAS Librefs

The LIBNAME statement below assigns the *libref* MPS to the SAS data library **c:\classes\STSCI5010**

```
libname MPS 'c:\classes\STSCI5010';
```

To see if the libref was assigned successfully, check the *SAS log window*:

```
libname MPS 'c:\classes\STSCI5010';
```

```
NOTE: Libref MPS was successfully assigned as  
follows:
```

```
Engine:      V9
```

```
Physical Name: c:\classes\STSCI5010
```

# SAS Libraries Created by Default:

- **Sashelp** is a permanent library that contains sample data and other files that control how SAS works at your site. This is a **read-only** library.
- **Sasuser** is a permanent library that contains SAS files in the Profile catalog that store your personal settings. This is also a convenient place to store your own files.
- **Work** is a temporary library for files that do not need to be saved from session to session.

# The Lifetime of SAS Librefs

The LIBNAME statement is **global**, which means that the librefs remain in effect until you modify them, cancel them, or end your SAS session.

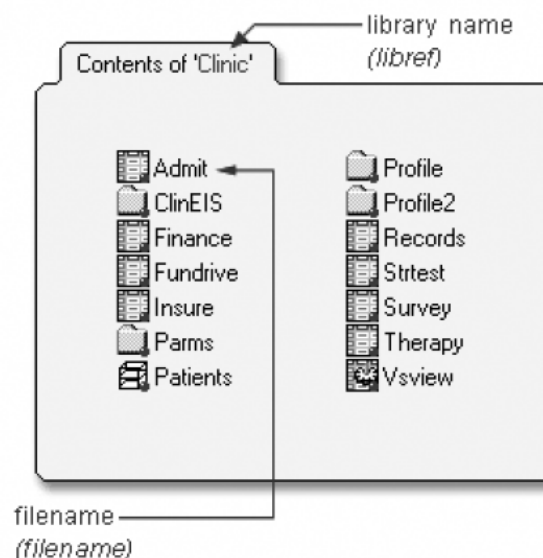
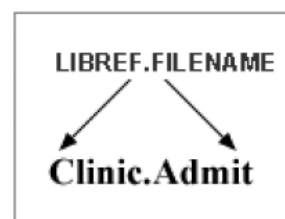
The LIBNAME statement assigns the libref for the current SAS session only. Each time you begin a SAS session, you must assign a libref to each permanent SAS data library that contains files that you want to access in that session (unless the libref was defined in an Explorer Window with the *Enable at Startup* checkbox checked).

# Reference Files in a Permanent SAS Library

Use two-level names: Libref.File Name

## *Specifying Two-Level Names*

This example shows the two-level name for a SAS data set, **Admit**, which is stored in a SAS data library to which the libref **Clinic** has been assigned.

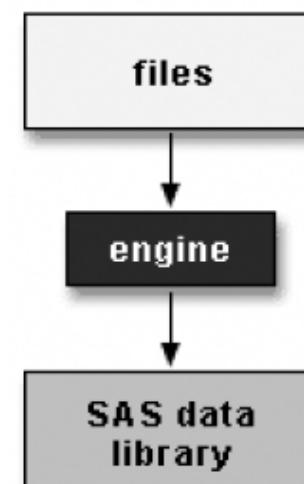


# Reference Files in Other Formats

Use the LIBNAME statement to reference files that are created with other software, e.g., a database. SAS can read or write these files by using the appropriate **engine** for that file type.

- For some file types, you need to tell SAS which engine to use.
- For others, SAS automatically chooses the appropriate engine.

**SAS engine:** a set of internal instructions that SAS uses for writing to and reading from files in a SAS library.



# Reference Files in Other Formats

Syntax:

```
LIBNAME libref engine 'fileName';
```

Example 1:

```
LIBNAME rptdata spss 'g:\myspss.spss';
```



Allows read-only access to an SPSS file



An actual file name

Example 2:

```
LIBNAME wrk EXCEL 'C:\Workbook.xls';
```

(The SAS/ACCESS license is needed.)



# SAS Data Set Documentation:

## PROC CONTENTS

To obtain information about one specific SAS data file called "new":

```
PROC CONTENTS data=mps.new;  
run;
```

To obtain information about all the SAS data files in a library:

```
PROC CONTENTS data=mps._all_;  
run;
```

Some of the information reported:

- Data set name
- Date when the file was created
- Version of SAS used to create it
- Information about variables: type (numeric or character), length (storage size)
- Number of observations in the data set

- Print: The SAS System
- Data Set MPS.NEW
- Print: The SAS System
- Data Set MPS.NEW
- Print: The SAS System
- Contents: The SAS System

### The CONTENTS Procedure

<b>Data Set Name</b>	MPS.NEW	<b>Observations</b>	1
<b>Member Type</b>	DATA	<b>Variables</b>	1
<b>Engine</b>	V9	<b>Indexes</b>	0
<b>Created</b>	Friday, August 30, 2013 02:57:59 AM	<b>Observation Length</b>	8
<b>Last Modified</b>	Friday, August 30, 2013 02:57:59 AM	<b>Deleted Observations</b>	0
<b>Protection</b>		<b>Compressed</b>	NO
<b>Data Set Type</b>		<b>Sorted</b>	NO
<b>Label</b>			
<b>Data Representation</b>	WINDOWS_32		
<b>Encoding</b>	wlatin1 Western (Windows)		

Data Set Page Size	4096
Number of Data Set Pages	1
First Data Page	1
Max Obs per Page	501
Obs in First Data Page	1
Number of Data Set Repairs	0
Filename	c:\MPS\new.sas7bdat
Release Created	9.0301M0
Host Created	W32_7PRO

#	Variable	Type	Length
1	weiGht	Num	8

# Reserved SAS Names

- SAS reserves a few names for automatic variables and variable lists, SAS data sets, and librefs.
- When you create SAS data sets, do not use these names: `_NULL_`, `_DATA_`, `_LAST_`
- When creating variables, do not use the names of special SAS automatic variables (for example, `_N_` and `_ERROR_`) or special variable list names (for example, `_CHARACTER_`, `_NUMERIC_`, and `_ALL_`).

# SAS Data Set Documentation:

## PROC DATASETS

Use PROC DATASETS to view the contents of a SAS library or a SAS data set. PROC DATASETS also enables you to perform a number of management tasks such as copying, deleting, or modifying SAS files. PROC CONTENTS and PROC DATASETS overlap in terms of functionality. Generally, these two functions are the same but use different syntaxes.

```
PROC CONTENTS<options>;  
RUN;
```

```
proc contents data=clinic._all_  
nods;  
run;
```

```
PROC DATASETS<options>;  
        CONTENTS<options>;  
QUIT;
```

```
proc datasets;  
    contents  data=clinic._all_  
    nods;  
quit;
```

# SAS Data Set Documentation: Using the **VARNUM** Option

By default, **proc contents** and **proc datasets** list the variables alphabetically. Using the VARNUM option can list variable names in the order of their logical position (or creation order) in the data set.

```
proc contents data=clinic.admit varnum;  
run;
```

```
proc datasets;  
  contents data=clinic.admit varnum;  
quit;
```

Variables in Creation Order				
#	Variable	Type	Len	Format
1	ID	Char	4	
2	Name	Char	14	
3	Sex	Char	1	
4	Age	Num	8	
5	Date	Num	8	
6	Height	Num	8	
7	Weight	Num	8	
8	ActLevel	Char	4	
9	Fee	Num	8	7.2

# Specifying Results Formats

You may display SAS output in two formats:

- **Listing output**

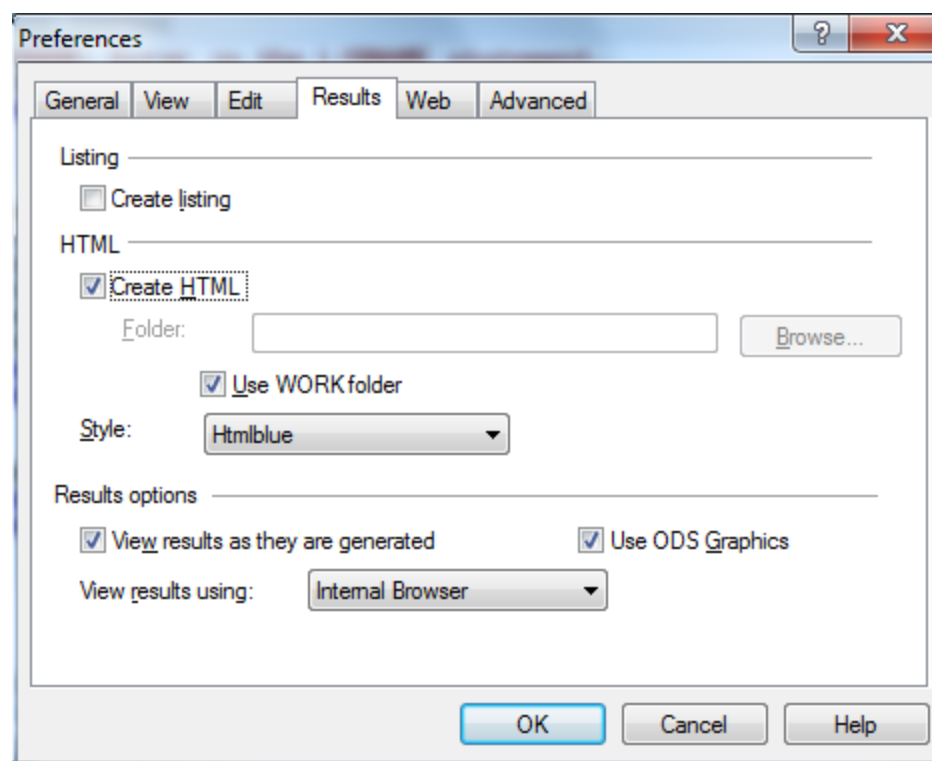
The SAS System				11:02 Tuesday, April 12, 2011
Obs	Date	Aer Class	Walk JogRun	Swim
7	JUL2009	67	102	72
9	SEP2009	78	77	54
10	OCT2009	81	62	47
11	NOV2009	84	31	52
22	OCT2010	78	70	41
23	NOV2010	82	44	58
24	DEC2010	93	57	47

- **HTML output**  
(Default)

The SAS System				
Obs	Date	AerClass	WalkJogRun	Swim
7	JUL2009	67	102	72
9	SEP2009	78	77	54
10	OCT2009	81	62	47
11	NOV2009	84	31	52
22	OCT2010	78	70	41
23	NOV2010	82	44	58
24	DEC2010	93	57	47

# Specifying Results Formats

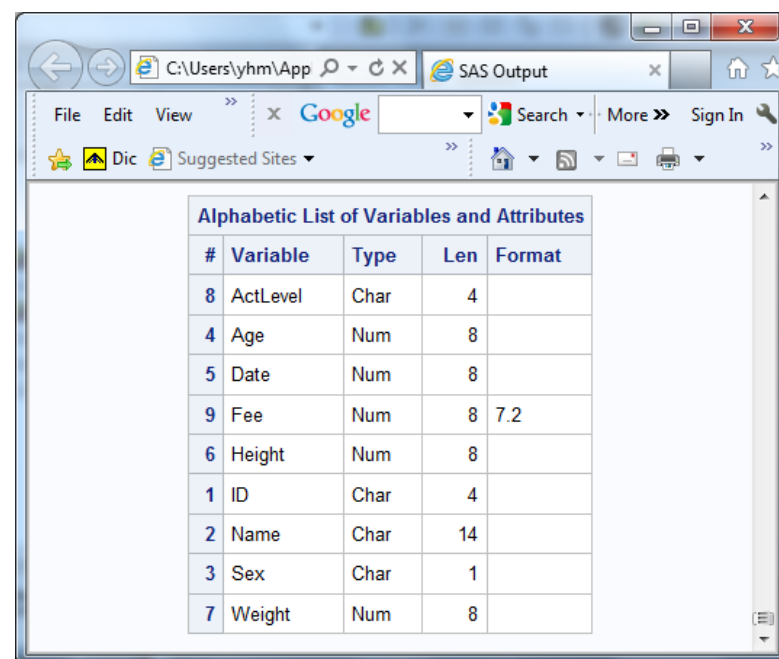
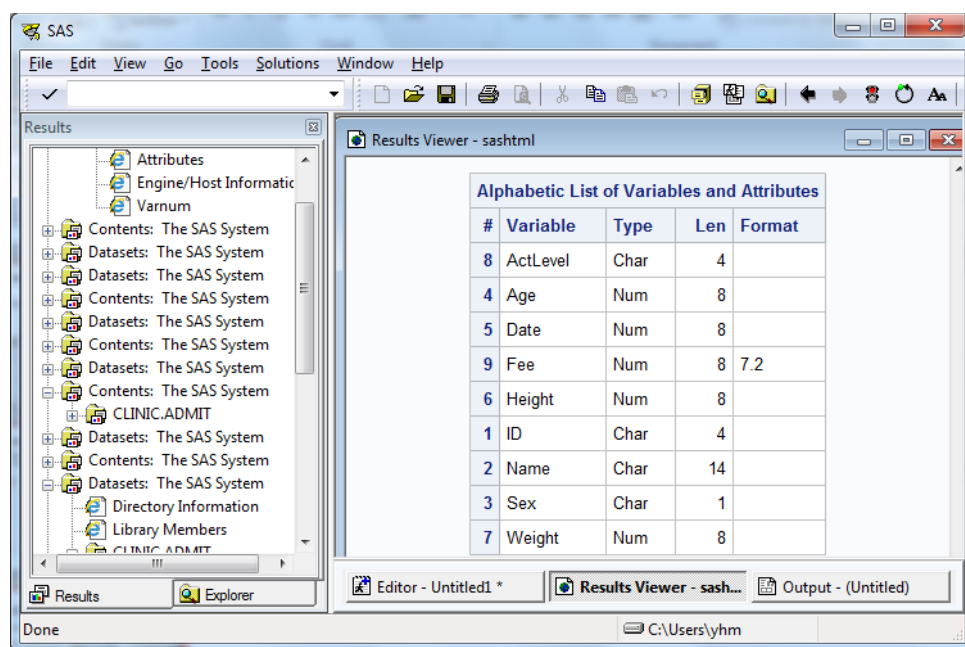
You can use the Preferences Window to set the results format(s):  
Tools → Option → Preferences → Results tab. You may choose Listing, HTML, or both.



# HTML Output:

## Internal Browser vs. Preferred Web Browser

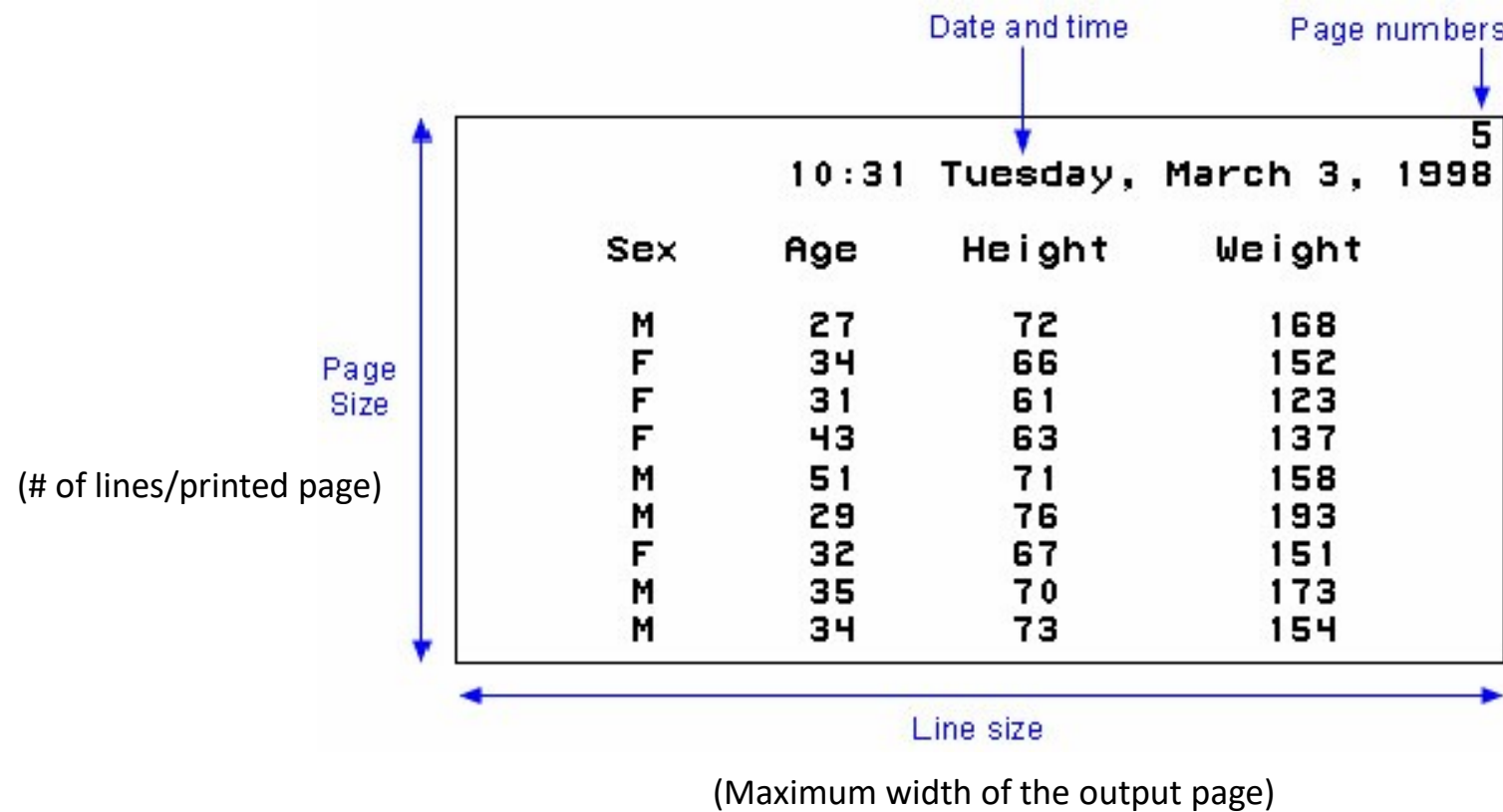
- Internal browser: Result Viewer window, which is part of SAS installation
- Preferred web browser: SAS uses the specified web browser to display your HTML output





# SAS System Options

In the listing output, all SAS system options have default settings that are used unless you specify otherwise. Dates and page numbers are automatically displayed.



# The **OPTIONS** Statement

- modifies **system options** in the listing output.
- is global, i.e., the settings remain in effect until you modify them, or until you end the SAS session.
- can be anywhere in the program to change the settings from that point onward.

Syntax:

**OPTIONS** *options*;

Keyword



One of more system  
options to be changed

# Examples of System Options

- **DATE|NODATE** to display or suppress dates on the output
- **NUMBER|NONNUMBER** to display or suppress page #
- **PAGENO=** to specify the beginning page number
- **PAGESIZE= (or PS=)** to specify the number of line per page of output
- **LINESIZE= (or LS=)** to specify the width of the printed line
- **YEARCUTOFF=** to specify which 100-year span is used to interpret two-digit year vales
- **FIRSTOBS=** to start processing at a specific observation
- **OBS=** to stop processing after a specific observation

# Examples of System Options

We can remove page numbers and dates:

```
options nonumber nodate;  
PROC PRINT data=clinic. payrollmaster;  
run;
```

Or specify the beginning page number and page size:

```
options pageno=1 pagesize=15;  
PROC PRINT data=clinic. payrollmaster;  
run;
```

# Examples of System Options

Selecting and printing a range of observations from 50 to 100:

```
options firstobs=50 obs=100;  
PROC PRINT data=clinic. payrollmaster;  
run;
```

Alternatively by using the **dataset option**, which only affects a single dataset:

```
PROC PRINT data=clinic. payrollmaster  
(firstobs=50 obs=100);  
run;
```

# The YEARCUTOFF= Option

- Use the default value (**1920 or 1926**)

Date Expression	Interpreted As
12/07/41	12/07/1941
18Dec15	18Dec2015
04/15/30	04/15/1930
15Apr95	15Apr1995

- Use the option to override the default value, e.g.,  
**options yearcutoff=1950;**

Date Expression	Interpreted As
12/07/41	12/07/2041
18Dec15	18Dec2015
04/15/30	04/15/2030
15Apr95	15Apr1995