

## SAS<sup>®</sup> System Viewer, Release 8.2.1, for Windows<sup>®</sup>

### Overview

The SAS System Viewer is a freely distributed application for viewing and printing files that were created by the SAS System. The Viewer provides a quick and convenient way to view the contents of the following types of files:

- SAS Dataset
- Catalog
- Transport
- JMP<sup>®</sup>
- HTML
- Text-based files

These files may be viewed without invoking the entire SAS System, or even having the SAS System installed on your computer.

When you install the SAS System Viewer under Windows, the Setup procedure automatically updates the Windows registry to associate the Viewer program with certain SAS files, including the following:

- SAS version 6.12 datasets (.sd2)
- SAS version 8 datasets that have been created on MS Windows (.sd7, .sas7bdat)
- SAS version 6.12 catalogs (.sc2)
- output list (.lst)
- log (.log)
- configuration (.cfg)
- data (.dat)

You can double-click the left mouse button or click the right mouse button from an Explorer view and select **SASView** to launch the SAS System Viewer with the selected file(s) loaded for viewing or printing.

**Note:** This list does not include all file formats supported by the SAS System Viewer. Please review the section "Files Supported by the SAS System Viewer" below for a more detailed list of files supported by this release of the SAS System Viewer.

The SAS System Viewer provides enhanced printing capabilities for files generated by the SAS System. Simply click the right mouse button on any of the previously mentioned files and select Print from the context menu. The file automatically prints using the predefined options set in the SAS System Viewer.

To redefine the printed output generated by the Viewer, simply run the Viewer and customize the page setup settings. Your new settings will be saved to the registry for the next time you print a file using the SAS System Viewer. You may also use the mouse to drag a file onto a printer icon located on your desktop. This action will behave in the same way as choosing print from the context menu.

**Note:** Print Preview and Page Setup do not work when viewing SAS datasets in landscape mode. They do work with SAS log and SAS listing files. To circumvent the problem change the print setup of the printer driver itself and print the output directly to the printer.

The Viewer provides a row fetching option to allow a smaller window of data to be displayed at one time. This option provides more resources for other applications and dramatically speeds the viewing process of files generated by the SAS System, when a small range of observations are retrieved from the file.

The SAS System Viewer now natively supports list and log output file formats. This includes correctly viewing and printing the output files. The Viewer supports viewing and printing files that contain pagination and legacy line printer output.

Additional features have been added to the SAS System Viewer and are outlined in SAS System Viewer Help section titled "Features of the SAS System Viewer." Please review this section for a more detailed list of features included in this release of the SAS System Viewer.

## Files Supported by the SAS System Viewer

The SAS System Viewer lets you view the following types of SAS files:

### Read Only

- 7.00 Data Sets created under the windows environment (sas7bdat, sd7, sd2, ssd, ssd0x, saseb\$data)
- 6.06 - 6.12 Catalogs - Directory Information Only (sc2, sct, sct0x, saseb\$catalog)
- 3.2.2 JMP® Data Sets - Macintosh and Windows (jmp)
- 6.12 MDDb - Multi-dimensional Data Base Files (sm2)
- SAS Transport Files (stx, xpt)
- SAS Log Files (log)
- SAS List Files (lst)

### Read and Write Enabled

- Comma Delimited Files (csv)
- Space Delimited Files (prn)
- Text Based Files (sas, dat, cfg, html)

**Note:** SAS datasets, generated by Release 6.04 and later of the SAS System for Windows, OS/2®, or DOS, can be up to 2 gigabytes in size. Datasets can be compressed, encrypted, indexed, or audited. Note that only datasets compressed by using the COMPRESS=YES or COMPRESS=CHAR dataset options (i.e., RLE algorithm) are supported. Datasets compressed by using the COMPRESS=BINARY dataset option (i.e., RDC algorithm) are not supported. Also note that the auxiliary files created to support indexing (i.e., .sas7bndx or .si2) or auditing (i.e., .sas7baud) cannot be opened by the viewer.

## Cross-platform Access

V6 data can be accessed via HTTP and FTP network protocols.

**Note:** The SAS System Viewer cannot open SAS files created under the Digital UNIX® platform.

### *Version 6.12 and Version 7 Cross-platform Files Supported*

- HP-UX®
- INTEL® ABI
- IBM AIX® for RS/6000
- MIPS ABI
- Solaris® 2

- OS/2
- Microsoft Windows® 95 and 98
- Microsoft Windows NT® (Intel versions)
- OpenVMS™ Alpha

***Version 6.12 Only Cross-platform Files Supported***

- Macintosh® 68K
- PowerPC for Mac OS
- Data General UNIX
- OpenVMS VAX™
- SunOS 4

***Version 7 Cross-platform NOT Supported***

- Digital UNIX (also not supported for V6 file types)
- OpenVMS VAX
- OSF Alpha
- MVS
- CMS

## **Software Requirements**

### **Operating System**

***Windows<sup>®</sup> 2000:***

Release 8.2.1 of the SAS System Viewer is supported on Windows 2000 Professional and all Windows 2000 Server Editions.

***Windows NT<sup>®</sup> and Windows NT Server:***

Running Release 8.2.1 of the SAS System Viewer under Windows NT requires Windows NT, Version 4.0 updated with Service Pack 4 or higher (excluding Service Pack 6), plus additional Year 2000 software updates as provided by Microsoft. Administrator privilege is required to install various system updates. To insure that the SAS System Viewer can be completely and safely installed, it is strongly recommended that the installer have administrator privilege.

***Windows:***

Release 8.2.1 of the SAS System Viewer is supported on Microsoft Windows 95, Microsoft Windows 98 and Microsoft Windows Me operating systems. Windows 95 must be updated with additional Year 2000 software updates as provided by Microsoft. Windows 98 must be updated with Service Pack 1 or to Windows 98, Second Edition.

***File System Recommendations:***

- The use of file systems supporting long filenames is required.
- For Windows NT, NTFS is recommended.

## ***Network Installations:***

Long file name support is required on any Windows NT Server, Windows 2000 Server, or Novell Server where a server installation is performed.

## **Web Browser**

Version 7 (and above) of the SAS System can render output as HTML pages in order to view html pages in the viewer. Microsoft® Internet Explorer 5.0 or later must be installed.

## **Hardware Requirements**

### **Machines Supported**

- Intel or Intel-compatible Pentium® class processor (minimum required).

### **Memory Requirements**

4 MB minimum used by the SAS System Viewer (plus the size of the data being viewed for all other observations).

### **Hard Disk Requirements**

The SAS System Viewer requires 4.8 MB of disk space.

## **Running the SAS System Viewer from the Command Line**

The SAS System Viewer can also be launched standalone from a DOS shell command prompt. The SAS System Viewer command line syntax is:

```
SV [SAS file [/p]]
```

or

```
sv [SAS file [/pt printer name]]
```

where:

*SAS file* is the name of a supported SAS dataset (.sd2) or SAS catalog (.sc2) file. *SAS file* can also be any valid PC (Windows or OS/2), UNIX, Macintosh, or OpenVMS SAS dataset or catalog name on a local or server disk, or can be a network protocol name such as these:

```
ftp://[username[:password]@]host[.domain.net][:port]/path
```

```
http://host[.domain.net][:port]/path
```

See “Viewing SAS Files Accessed Using HTTP and FTP” in the SAS System Viewer Help for more information.

/p prints the *SAS file* to the default printer.

/pt printer name prints the *SAS file* to the specific printer named by *printer name*. The available printer names for your system can be found by looking in the Printers folder, accessed from the Start menu in the Settings item. Use quotes around a printer name that contains spaces or special characters.

`/Unregister` or `/Unregserver` unregisters the Viewer and file types supported by the Viewer. This option effectively cleans the registry of any changes made by the SAS System Viewer. This option is called by the Viewer Uninstall Program.

## Examples

- `SV options.sd2`  
Opens the local SAS dataset named `OPTIONS`.
- `SV options.sd2 /p`  
Prints the local SAS dataset named `OPTIONS` on the default printer.
- `SV options.sd2 /pt "HP LaserJet IVsi"`  
Prints the local SAS dataset named `OPTIONS` on the printer named `HP LaserJet IVsi`
- `SV ftp://norman.ftp.sas.com/options.ssd01`  
Opens the UNIX dataset `options.ssd01` residing on `norman.unx.sas.com` after prompting for a valid user name and password.
- `SV ftp://anonymous:guest@ftp.big.org//pub/sas/data/dataset.ssd01`  
Opens the UNIX dataset `/pub/sas/data/dataset.ssd01` residing on `ftp.big.org` after logging in as anonymous.
- `SV http://www.big.org/~JimP/options.ssd01`  
Opens the UNIX dataset `options.ssd01` residing in the `public_html` subdirectory belonging to user `JimP` (assuming that the HTTP server is configured to search the `public_html` subdirectory for content when accessed using a URL).

## Using the Simple Query Language

A query is a string expression that generally conforms to the standard orders of precedence for mathematical and Boolean expressions. The expression uses in-fix notation, with parentheses being used to change the order of precedence for expression evaluation. Identifiers and function names may be used, as well as character string and numeric constants.

Functions are always identified by an argument list enclosed in parentheses and separated by commas. Functions, which require no arguments, must still have an empty set of parentheses.

The following is a list of operands that can be used in an expression:

$x + y$	Adds two values.
$x - y$	Subtracts y from x.
$x * y$	Multiplies two values.
$x / y$	Divides x by y.
$x < y$	Relational comparison of x being less than y.
$x \leq y$	Relational comparison of x being less than or equal to y.
$x > y$	Relational comparison of x being greater than y.
$x \geq y$	Relational comparison of x being greater than or equal to y.
$x = y$	Relational comparison of x being equal to y.
$x \neq y$ $x \neq y$ $x \neq y$	Relational comparison of x being not equal to y.
$!x$ not x	Boolean negation of x. If x is non-zero, then result is zero. If x is zero, result is non-zero.
X and y $x \& y$	Boolean multiplication. If both x and y are non-zero, then result is non-zero. Otherwise, result is zero.
x or y $x   y$	Boolean addition. If either x or y is non-zero, result is non-zero. Otherwise, result is zero.
x contains y	Boolean substring comparison. If the substring y is found in x, then result is non-zero, otherwise result is zero.
$x    y$	String concatenation. Result is a new string created by copying x then y to the new string.
$X ? y : z$	If x is true (non-zero) then y else z.

## Examples

Some examples of valid query expressions follow. Each of these assumes that there are several variables; two strings called NAME and KIND, and numeric variables called AGE, RETIREMENT, and OFFSET.

- `where age < 30`  
Selects all records where age is less than 30. Note that the keyword where is permitted as an optional verb at the start of the expression; this keyword is optional.
- `name contains "Tom" and age > 30`  
The selects records where the name contains the substring "Tom" and the age field is greater than 30.
- `age < retirement / 2 + offset`  
This shows you can include expressions. This divides the value retirement by 2 and adds the variable offset. Records are selected where the field age is less than this calculated value.
- `( age + 30 ) / retirement > 0`  
This shows how parentheses are used to change the order of evaluation; the value 30 is added to value of field age, and the result divided by the field retirement. Records are selected if this result is greater than zero.
- `offset > ( kind contains "F" ) ? age : retirement`  
This statement compares the value of offset to either the value of age or the value of retirement. Which one is used is determined by whether the variable kind contains the string "F". The `? :` operator set allows a subexpression to be conditional on the result of a test or value. A `? :` subexpression takes the place of a single item; if the test value is itself a subexpression (as shown above) it must be enclosed in parenthesis

- `(( kind contains "C" ) ? name : age ) > (( kind contains "C")? title : retirement )`

This expression bases its test on the value of kind containing a "C" or not. If it does, then name is compared to title. If it does not contain a "C", then age is compared to retirement. This actually causes the expression to compare strings or numbers depending on the state of a variable in the record.

## Using the Network Open Dialog to Access SAS Files across a Network

You can also open network files in the SAS System Viewer by entering one of these special file name formats in the *File name* field of the Network Open dialog.

### Using FTP

To view a file that you can access using FTP, the Network Open dialog now contains fields for the User ID and Password.

**username** is your logon name for the host you want to access. This argument is optional; if you don't specify a *username*, the SAS System Viewer will prompt you for one.

**password** is the password for your logon name. This argument is optional; if you don't specify a *password*, the SAS System Viewer will prompt you for one.

**host** is the TCP/IP host that provides access to the file you want, and is acting as an FTP server.

**port** is the TCP/IP port number to connect to. This argument is optional; the SAS System Viewer will use the default port if you don't specify one.

**path** is the complete path and file name of the SAS file you want to view.

### Examples

- `ftp://norman.unx.sas.com/options.ssd01`  
opens the UNIX dataset `options.ssd01` residing on `norman.unx.sas.com` after prompting for a valid user name and password.
- `ftp://anonymous:guest@ftp.big.org//pub/sas/data/dataset.ssd01`  
opens the UNIX dataset `/pub/sas/data/dataset.ssd01` residing on `ftp.big.org` after logging in as anonymous.

### Using HTTP

To view a SAS file that you can access using HTTP (such as on the World Wide Web), enter

`http://[host.domain.net][:port]/path`

**host.domain.net** is the host, domain, and network name of the HTTP site you want to access. If the HTTP server requires a user name for access, the SAS System Viewer will prompt you for one.

**port** is the TCP/IP port number to connect to. This argument is optional; the SAS System Viewer will use the default port if you don't specify one.

**path** is the complete path and file name of the SAS file you want to view, relative to the HTTP access point.

### Example

`http://www.big.org/~JimP/options.ssd01`

Opens the UNIX dataset `options.ssd01` residing in the `public_html` subdirectory (assuming that the HTTP server is configured to search the `public_html` subdirectory for content when accessed using a URL).

SAS® and all other SAS Institute product or service names are registered trademarks or trademarks of SAS Institute in the USA and other countries. Other brand and product names are registered trademarks or trademarks of their respective companies.  
® indicates USA registration.

Copyright (c) 2001 SAS Institute Inc. Cary, NC, USA. All rights reserved.