CHAPTER 1

Getting Started

SAS: Exploiting the Power of Windows

SAS Runs in Enterprise Environments

The Windows enterprise environment provides a flexible, easy-to-use working environment by which you can integrate SAS into your enterprise solutions. The following Windows environments are supported in SAS 9.2:

Table 1.1 Supported Windows Editions for SAS 9.2

Chip Architecture	Operating System	Edition
x86, x86-64 (x64)	Windows XP	Professional
	Windows Server 2003	Standard Edition
	Windows Vista	Business
	Windows Vista	Enterprise
	Windows Vista	Ultimate
x86, x86-64 (x64), EPIC (Itanium)	Windows Server 2003	Enterprise Edition
	Windows Server 2003	DataCenter Server

Note: All other versions of Windows are not supported. △

An Integral Part of Your Windows Editions

SAS under Windows is designed to let you complete your data– and computation-intensive tasks while integrating with the Windows applications that are already in place on your desktop and within your enterprise. SAS supports information sharing through the most powerful tools and techniques that Windows has to offer, including

- OLE
- Dynamic Data Exchange (DDE)
- Open Database Connectivity (ODBC)
- e-mail system
- Lotus Notes
- pipes and named pipes
- the Windows clipboard.

Compatible and Maintainable

Read and Write SAS Data Sets from Previous Releases

SAS can read and write SAS data sets that were created by earlier releases of SAS.

However, in order to bridge the upgrades in the SAS catalog architecture and differences in the operating environment structure, catalogs must be converted from earlier formats (such as Release 8.2 under Windows) to SAS 9.2 format using the transport procedures CPORT and CIMPORT.

Use the Graphical Interface or the Command Line Interface

You can still use the command line as you did in previous releases. However, you can also use the graphical user interface (GUI) to issue commands. Most existing SAS commands and windows are available through the GUI. In some cases, you select operations through dialog boxes and various other GUI controls.

Starting SAS

Use SAS Interactively or in Batch Mode

When running SAS under Windows, you can start an interactive session to submit programs and view the resulting output, or you can execute batch SAS jobs, and view the output later.

By default, invoking SAS begins an interactive SAS session. If you have a SAS program that you want to submit as a batch job, specify the SYSIN system option with the name of the SAS program file when you invoke SAS.

When you start SAS in an interactive session for the first time, you are asked if you want to learn some basic tasks by taking the Getting Started Tutorial. To start the tutorial, click **`Start Tutorial`**. If you do not want to be prompted to take the tutorial, select **`Don't show this dialog box again`**. You can start the tutorial at any time by selecting **Help ▶ Getting Started with SAS Software**

Starting from the Start Menu

To start SAS from the Windows Start Menu:

1 Click **`Start`**.

2 Select **`Programs`**.

3 Select **`SAS`**.

4 Select **`SAS 9.2`** .

Starting from Custom Shortcuts or Program Items

During installation, the Setup program automatically creates a program item in the Start menu that you can use to start SAS. However, you can create multiple SAS items within a folder to represent several differently configured SAS sessions. Also, if you want SAS to start every time you start Windows, you can place a program item or shortcut in the Startup folder. For information about creating shortcuts, see your Windows documentation.

After you have created a shortcut to SAS, you can append system options to the SAS command. To append system options:

1 Open the SAS Properties window and click the **`Shortcut`** tab.

2 In the **`Target`** field, append the system options to the SAS command. Remember that double quotation marks are required around pathnames. For example,

```
"c:\program files\SAS\SASFoundation\9.2\sas.exe" -config "c:\mydir\sasv9.cfg"
```

Starting from the Run Dialog Box or a Command Prompt

Specifying the SAS Configuration File

If you start SAS by using a command line (either from the Run dialog box or the Command Prompt window), you might want to specify the SAS configuration file location through the CONFIG system option. Even if you use the default configuration file SASV9.CFG, specify the file to ensure that SAS uses the configuration file that you want. For more information about how SAS searches for the configuration file, see "How SAS Finds and Processes Configuration Files" on page 15.

When the WORK and SASUSER system options are set, the Work and Sasuser data libraries reside in the specified paths regardless of the path from which you invoke SAS. For more information about the Sasuser data library, see "Profile Catalog" on page 20. For more information about the Work data library, see "Work Data Library" on page 21.

Using the Run Dialog Box

To start an interactive session by using the **`Run`** dialog box

1. Select **Start ▶ Run**
2. In the **`Open`** field, type the path and the exact name of the program file, including the extension and options.
3. Click **`OK`**.

For example, if SAS is installed in the default folder **`c:\Program Files\SAS\SASFoundation\9.2`**, you type **`c:\program files\SAS\SASFoundation\9.2\sas.exe`**, and the options that you want to specify.

Using the SAS Command from the Command Prompt

You can start either an interactive SAS session or a batch SAS job by typing the SAS command at the command prompt. For example, the following command starts an interactive session, specifies the page size and line size, and indicates the location of the SAS configuration file:

```
c:\program files\SAS\SASFoundation\9.2\sas.exe -ls 80 -ps 60
   -config c:\program files\SAS\SASFoundation\9.2\sasv9.cfg
```

This command starts a batch SAS job in a similar manner:

```
c:\program files\SAS\SASFoundation\9.2\sas.exe
   -sysin c:\mysas\programs\prog1.sas
   -config c:\program files\SAS\SASFoundation\9.2\sasv9.cfg
```

Note: These examples are displayed on multiple lines because of space limitations. When you enter a command from the command prompt, the command must be on one line. △

Starting from a SAS File

There are two ways to start SAS from a SAS program file in Windows Explorer.

- Double-click on a SAS program file
- Right-click on a SAS program file and select the appropriate action.

Submitting a Batch SAS Job

How to Submit a Batch SAS Job

There are several ways to submit a batch SAS job:

- □ Specify the SYSIN system option in the SAS command (issued from the command prompt or from the Run dialog box) to specify the SAS program to submit.
- □ Right-click a file that has a .sas or .sasv7bpgm file extension. From the pop-up menu, select **`Batch Submit`**.
- □ Use the Windows Explorer and drag your SAS program file icon (the file that contains the SAS code) to the SAS.EXE file icon or shortcut.

The Status Window

When you run SAS in batch mode, SAS displays a Status window for the SAS job that you submit. This window tells you the name of the SAS job that is running and where your log and procedure output files are written. This window remains open until the SAS job is complete.

If you do not want to see the status window while your batch SAS job is running, invoke SAS with the ICON system option so that the status window becomes an icon when your job is running. You can also minimize the status window by clicking the **`Icon`** button when the window appears. The icon shows the busy cursor (usually an hourglass) while the SAS job is running. The icon disappears when the job is complete.

Canceling a Batch Job

You can cancel a batch job by using either the keyboard or the mouse:

- □ press CTRL+BREAK
- □ click **`Cancel`** in the Status window.

Windowing Procedures in a Batch Job

You can run windowing procedures along with SAS/GRAPH, SAS/INSIGHT, and SAS/ACCESS software, in a batch SAS job. When SAS reaches a point in your program where interaction is required, it opens the main SAS window.

Starting the Program Editor When SAS Starts

The Enhanced Editor is the default editor that starts when you start SAS. If you prefer to use the Program Editor, use one of the following methods to start the Program Editor when SAS starts:

- □ Start SAS with the NOENHANCEDEDITOR system option:

```
sas.exe -noenhancededitor
```

- □ Disable the Enhanced Editor in the Edit tab of the Preferences dialog box.

For additional information, see “Switching from the Enhanced Editor to the Program Editor” on page 111, “Edit Preferences” on page 61, and “ENHANCEDEDITOR System Option” on page 513.

Determining the Current Folder When SAS Starts

By default, SAS determines the current folder. SAS uses the current folder as the location to read and write SAS files when you do not specify a different pathname.

SAS also searches the current folder, based on the following statements, for the AUTOEXEC.SAS file or INITSTMT files. In this case, the path that the SASINITIALFOLDER system option specifies is disregarded.

However, you can specify a pathname to use for the current folder by using the SASINITIALFOLDER system option when you start SAS. Alternatively, you can use the following rules to determine the current folder:

1. If you use a program item or shortcut to start SAS and if a path is specified in the Windows Properties **`Shortcut`** tab (**`Start in`** field), SAS uses that path as the current folder.
2. If you use a command to start SAS by using either the Run dialog box or a command line and if the command contains a path to the SAS.EXE file, the current folder is the path that you specify as part of the SAS command, regardless of where Windows actually finds the SAS.EXE file.
3. If you use a command to start SAS and if you do not specify a path as part of the SAS command, then the current folder is specified by the path from which you issued the command.

If Windows cannot find the SAS.EXE file in the specified folder, the folder that is specified in the SAS command still becomes the current folder and Windows searches for the SAS.EXE file by using the Windows PATH environment variable.

For example, if you specify the following command, **`C:\MYSAS`** is the current folder, regardless of whether the SAS.EXE file is actually in that folder:

```
c:\mysas\sas.exe -config c:\mysas\sasv9.cfg
```

For more information, see “Changing the SAS Current Folder” on page 39 and “SASINITIALFOLDER System Option” on page 560.

Note: Do not confuse the current folder with the Work data library. For more information about the Work data library, see “Work Data Library” on page 21. △

Sample SAS Session

This section illustrates

□ invoking SAS from the Start menu

□ submitting a sample SAS program

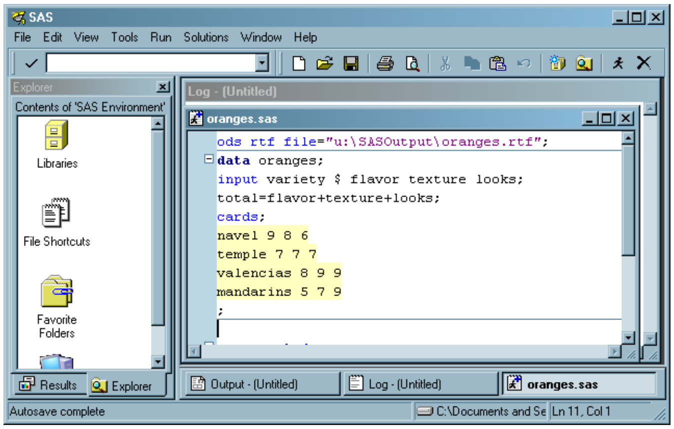
□ examining the program output

□ ending the SAS session.

You can invoke SAS from the Start menu by, selecting **Programs ▶ SAS ▶ 9.2**.

The following display shows the Enhanced Editor and Log windows with a sample SAS program that is ready to be submitted. This program creates a SAS data set called Oranges, which contains the results of a taste test on four varieties of oranges. The program sorts the data set by the total test score and prints the data set.

Display 1.1 Submitting the Sample SAS Program



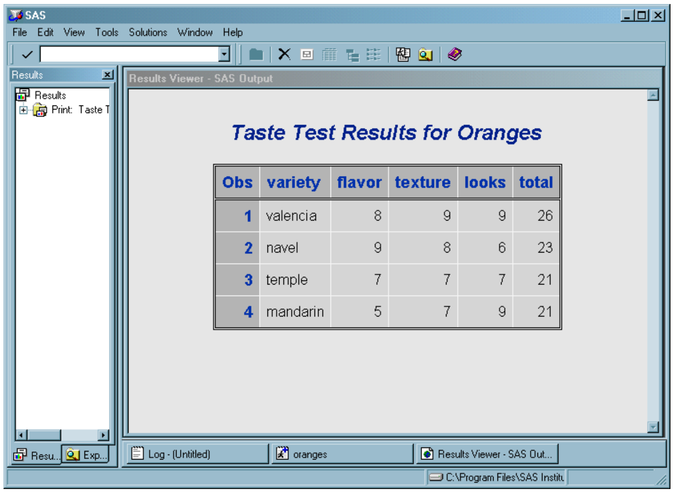
```
ods rtf file="u:\SASOutput\oranges.rtf";
data oranges;
input variety $ flavor texture looks;
total=flavor+texture+looks;
cards;
navel 9 8 6
temple 7 7 7
valencias 8 9 9
mandarins 5 7 9
;
```

The following SAS code appears in the Enhanced Editor window:

```
ods rtf file="c:\em\oranges.rtf";
data oranges;
   input variety $ flavor texture looks;
   total=flavor+texture+looks;
   cards;
navel 9 8 6
temple 7 7 7
valencia 8 9 9
mandarin 5 7 8
;
proc sort data=oranges;
   by descending total;
run;
proc print data=oranges;
   title 'Taste Test Results for Oranges';
run;
ods rtf close;
```

After you submit the program, the output appears in the Results Viewer window as follows:

Display 1.2 Looking at the Program Output

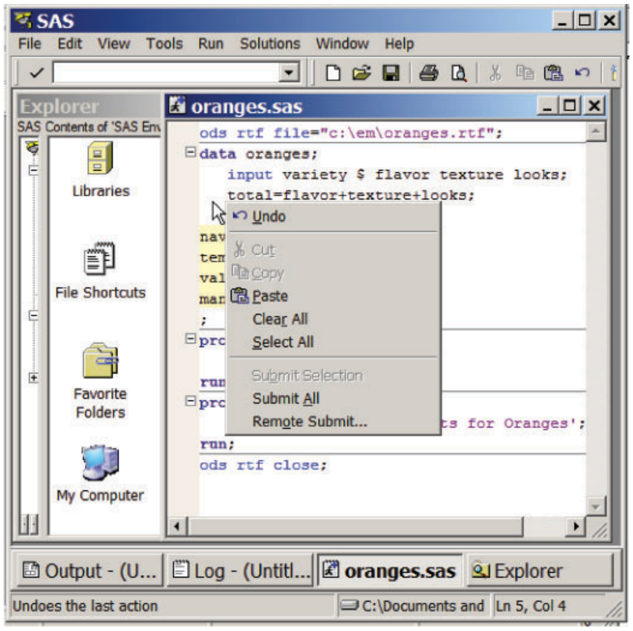

SAS
File Edit View Tools Solutions Window Help
Results
Results
Print: Taste T
Results Viewer - SAS Output
Resu... Exp...
Log - (Untitled)
oranges
Results Viewer - SAS Out...
C:\Program Files\SAS Institu

Taste Test Results for Oranges

Obs	variety	flavor	texture	looks	total
1	valencia	8	9	9	26
2	navel	9	8	6	23
3	temple	7	7	7	21
4	mandarin	5	7	9	21

The items in the SAS menu bar at the top of the main SAS window change, depending on which window is active within the SAS session. In addition, you can access window-specific pop-up menus, which offer the same menu choices. The pop-up menu in the following display was generated by right-clicking in an Enhanced Editor window.

Display 1.3 Pop-up Menu in the Enhanced Editor Window



```
ods rtf file="c:\em\oranges.rtf";
data oranges;
   input variety $ flavor texture looks;
   total=flavor+texture+looks;

nav
tem
val
man
;
prc

run
prc
                              ts for Oranges';
run;
ods rtf close;
```

When you are ready to end your SAS session, double-click the SAS control menu (the small icon in the upper-left corner of the main SAS window) or click the **`X`** (in the upper-right corner) and click **`OK`** when the dialog box verifies your request.

Note: If you have disabled the **`Confirm Exit of SAS`** option in the Preferences dialog box, your SAS session ends without asking if you are sure you want to end the session. For more information about how to customize your SAS session, see “Setting Session Preferences” on page 59. △

What If SAS Does Not Start?

If SAS does not start, the SAS log can contain error messages that explain the error. Any error message that SAS issues before the SAS log is initialized is written to the MSG window, if it is available, or to the SAS console log, which is a Windows file. Under Windows Vista, the SAS console log is typically located in **`c:\Users\`***user-ID***`\AppData`**. In all other Windows operating environments, the SAS console log is typically located in **`c:\Documents and Settings\`***user-ID***`\Application Data`**. You can obtain the location and filename for the SAS console log from the application event log. To open the application event log, submit **`eventvwr`** from the Run dialog box and click **`Application`**.

If SAS does not start, if the screen appears and then disappears, or if SAS is very slow to open, you might have a problem with a missing printer, a damaged printer driver, or a failed network printer connection. Use the following steps to correct this problem:

1. Verify that the printers are linking to valid network servers. If the printers are linking to invalid servers, then delete the printers by accessing **Start ▶ Settings ▶ Control Panel ▶ Printers**.
2. Download a new printer driver from the printer's Web site and replace the current driver with the new driver.
3. Rename profile2.SAS7bcat to profile2.old and rename profile.SAS7bcat to profile.old at **`c:\Documents and Settings\`***user-ID***`\My Documents\My SAS Files\9.2\`**.
4. Start SAS.

Files Used by SAS

Introduction to Files Used by SAS

SAS uses many files while it is running; however, some of these files are especially important from a user's perspective. These files include the

- SAS configuration files (SASV*x*.CFG by default, where *x* is the release number)
- SAS autoexec file (AUTOEXEC.SAS by default)
- user Profile catalog (Profile.sas7bcat)
- user printer Profile catalog (Profile2.sas7bcat)
- Work data library ("SAS Temporary Files" folder in your system's designated TEMP area)
- SAS Registry Files.

SAS Configuration Files

Purpose of Configuration Files

The SAS *configuration file* enables you to specify SAS system options that are used to establish your SAS session. These system options indicate, among other things, the location of your SAS Help and Documentation files as well as the location of message files and the pathnames to SAS executable files. The SAS configuration file is particularly important because it specifies the folders that are searched for the various components of SAS products. You must have at least one configuration file in order for SAS to initialize; you can have multiple configuration files that are all processed while your SAS session begins. For a list of system options that you can use in your SAS configuration file, see “Summary of System Options for Windows” on page 481. For more information about system options, see Chapter 23, “SAS System Options under Windows,” on page 475 and “SAS System Options” in *SAS Language Reference: Dictionary*.

The Default Configuration File

In previous releases of SAS, the default configuration file was stored in the !SASROOT folder. The !SASROOT folder is the folder in which you install SAS. Starting with SAS 9, SAS creates two default configuration files during installation. Both configuration files are named SASV9.CFG.

SAS stores one of these files in the !SASROOT folder and the other in the **!sasroot\nls\***language-code* folder. The *language-code* is a two-letter language code that indicates the SAS default language.

The SASV9.CFG file that is located in the !SASROOT folder contains a CONFIG system option that specifies the location of the configuration file for the SAS default language. The default system options that are used to start SAS are specified in the **!sasroot\nls\***language-code***\SASV9.CFG** file. For example, if SAS is installed in the default folder and the default language is English, the SASV9.CFG file in the !SASROOT folder contains **-config "c:\program files\SAS\SASFoundation\9.2\nls\en\sasv9.cfg"**.

SAS requires a configuration file, so you must use a SAS configuration file regardless of whether you are using interactive or batch mode.

SAS uses the default configuration file if you start SAS by double-clicking a registered SAS file type, such as .sas.

For more information about the !SASROOT folder, see “SAS Default Folder Structure” on page 22.

Specifying System Options in a Configuration File

Any system option can be specified when you start SAS. It is often more convenient to place frequently used system options in a configuration file. The syntax for specifying system options in a SAS configuration file is discussed in “Syntax for System Options in the SAS Invocation or SAS Configuration File” on page 479.

You can edit the default configuration file to add to or change the system option settings, or you can create your own configuration file. “Creating a Customized Configuration File” on page 14 discusses how to modify your configuration file.

Your configuration file is divided into two sections. The first section specifies system options that are not updated by the SAS Setup application. The second section is used by the setup application for updating information about where SAS software is installed. The sections are divided by the following warning:

```
WARNING:   INSTALL Application edits below this line. User
           options should be added above this box comment.
           INSTALL Application maintains and modifies the
           following options; -SASAUTO, -SASHELP, -SASMSG
           -PATH, and -MAPS. It also maintains and modifies
           the following CONFIG variables with the -SET option;
           INSTALL, USAGE, LIBRARY, SAMPSIO, SAMPSRC, SASCBT,
           and SASEXT01--SASEXT50. It preserves all lines above
```

```
        the line containing 'DO NOT EDIT BELOW THIS LINE'.
```

The setup application deletes all data below this warning but does not affect the options that are specified above it. The SET system option defines the following SAS environment variables: SASROOT, SASEXT0, SASFOLDER, MYSASFILES, SASCFG, SASAUTOS, SAMPSIO, SAMPSRC, EISIMAGE, and INSTALL. The setup application appends the following system options below this warning: SASUSER, WORK, HELPLOC, DMSEXP, APPLETLOC, TEXTURELOC, RESOURCESLOC, JREOPTIONS, SASSCRIPT, SASHELP, MSG, and PATH.

CAUTION:

To avoid corrupting your configuration file, use a SAS text editor or an ASCII text editor to edit your configuration file. The text editor that you choose to edit the configuration file is important to preserve some of the special character formatting in the file. The recommended method is to edit your configuration file by using a SAS text editor (such as the Enhanced Editor) and save it by using the Save As dialog box. If you do not use a SAS text editor, be sure to use another ASCII text editor (such as Windows Notepad). Do not use a specialized editor such as the WordPad application or Microsoft Word. Using such editors can insert carriage control characters into your configuration file or corrupt the characters that are there. △

Creating a Customized Configuration File

When you install SAS, a SASV9.CFG file is created in the **!SASROOT\nls\***language-code* folder. The *language-code* is a two-letter language code for the SAS default language. You can specify your own file to act as the configuration file, thus overriding the default file, SASV9.CFG.

The filename that you choose must follow the file-naming conventions for the Windows operating environment. The file extension must be .CFG.

When you use your own configuration file instead of the default configuration file, you must add several required system options. For example, you must either use the SET system option to define the environment variable, !SASROOT, or define SASROOT as a Windows environment variable.

To ensure that all required system options are defined in your configuration file, copy the default file (**!SASROOT\nls\***language-code***\SASV9.CFG**) and modify the copy instead of creating your own file.

You can create a customized configuration file and name the file either SASV9.CFG or .SASV9.CFG in your Windows user profile folder. During SAS invocation, SAS looks for either of these files in the Windows user profile folder if the -CONFIG options are not specified. Under Windows Vista, the path for Windows user profile folder is **c:\Users\***user-ID***\Documents\My SAS Files\9.2**. In all other cases, the user profile folder is **c:\Documents and Settings\** *user-ID***\My Documents\My SAS Files\9.2**.

Starting SAS with an Alternate Configuration File

When you use a file that is located in a different folder or that has a different name as your default configuration file, you must tell SAS where to find the configuration file. Use the CONFIG system option to specify the location of this configuration file. For example, the **Target** field of the SAS Properties dialog box might contain

```
''c:\program files\SAS\SASFoundation\9.2\sas.exe -config c:\mysas\mysasconfig.CFG''
```

If SAS cannot find the configuration file, an error message is displayed, and SAS does not initialize.

For more information about the CONFIG system option, see “Processing Options Specified by Additional CONFIG Options” on page 18 and “CONFIG System Option” on page 507.

How SAS Finds and Processes Configuration Files

When you invoke SAS, SAS automatically searches several locations for configuration options that can affect your SAS session. SAS looks in the following areas and processes them in this order:

SAS_SYS_CONFIG operation system environment variable
: This environment variable, if defined, must resolve to a valid configuration file. In a multi-user Windows system, this environment variable would most likely be defined as a system environment variable (instead of as a user environment variable) so that it is processed for all users on that system. Use the SAS_USER_CONFIG user environment variable to specify a user-specific configuration file.

files specified by CONFIG system options
: In the SAS invocation command, you can specify one or more -CONFIG options with the names of the configuration files that you want to use. You must include a separate -CONFIG option for each file that you want to specify.

SASV*x*.CFG in the folder where SAS.EXE resides
: SAS looks for a file that is named SASV*x*.CFG (*x* is the SAS version number) in the folder that contains the SAS.EXE file *only if* you do not specify a -CONFIG option at SAS invocation. This configuration file contains only a CONFIG system option that specifies the configuration file for the SAS default language.

.SASV*x*.CFG in the Windows user profile folder
: SAS looks for a file that is named .SASV*x*.CFG (*x* is the SAS version number) in the Windows user profile folder only if you do not specify a -CONFIG option at SAS invocation. Under Windows Vista and Windows Server 2008, the Windows user profile folder is **c:\Users\***user-ID***\Documents\My SAS Files\9.2**. In all other cases, the user profile folder is **c:\Documents and Settings\** *user-ID***\My Documents\My SAS Files\9.2**.

SASV*x*.CFG in the Windows user profile folder
: SAS looks for a file that is named SASV*x*.CFG (*x* is the SAS version number) in the Windows user profile folder only if you do not specify a -CONFIG option at SAS invocation. Under Windows Vista and Windows Server 2008, the Windows user profile folder is **c:\Users\***user-ID***\Documents\My SAS Files\9.2**. In all other cases, the user profile folder is **c:\Documents and Settings\** *user-ID***\My Documents\My SAS Files\9.2**.

SASV*x*.CFG in the current folder
: SAS looks for a file that is named SASV*x*.CFG (*x* is the SAS version number) in the current folder *only if* you do not specify a -CONFIG option at SAS invocation.

SAS_USER_CONFIG operating system environment variable
: This environment variable, if defined, must be a path to a valid SAS configuration file. In a multi-user Windows system, this environment variable would likely be defined as a user environment variable (instead of as a system environment variable) so that it is processed only for the current user on that system. Use the SAS_SYS_CONFIG system environment variable to specify a system-wide configuration file.

SAS_OPTIONS operating system environment variable
: This environment variable, if defined, contains a string of option specifications for any other SAS system options that you want to process each time that you invoke SAS. For example, this environment variable might contain **-obs 2m -sasinitialfolder c:\myfolder -linesize max**.

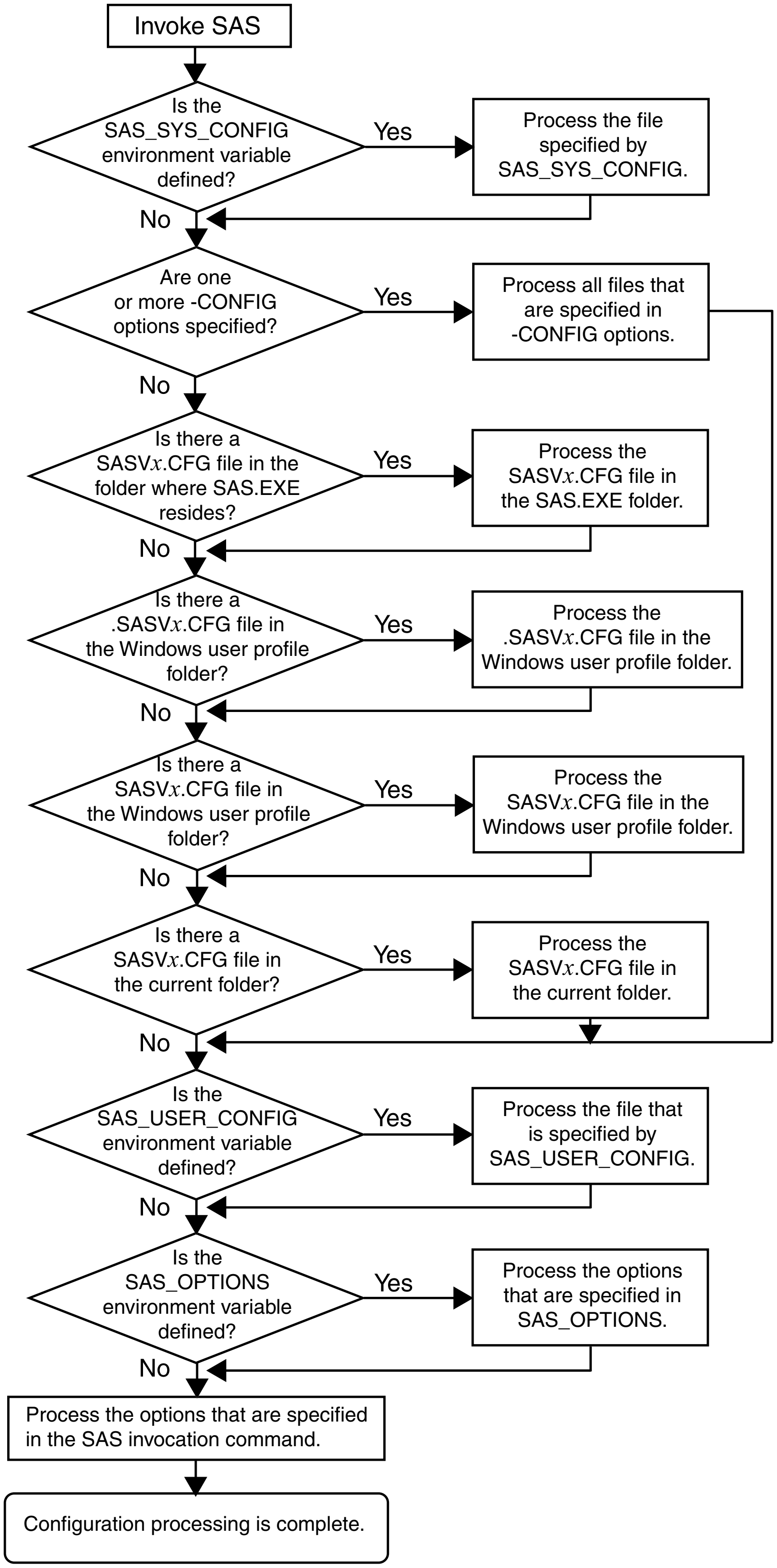
SAS invocation command line

You can specify additional system options in the command that you use to invoke SAS. These system options always override option values that are set within any of the configuration files.

If you start SAS from the Windows Start menu, the last configuration file to be processed is the one that is specified in the Start menu shortcut for SAS. The options that are specified in this configuration file override any options that have previously been processed. By default, the Start menu shortcut specifies
-config !SASROOT\nls\*language-code***\SASV***x***.CFG**

SAS uses the default configuration file if you start SAS by double-clicking on a registered SAS file type, such as .sas or .sas7bpgm.

Figure 1.1 Order of Processing for SAS Configuration Files


Invoke SAS
Is the SAS_SYS_CONFIG environment variable defined?
Yes
Process the file specified by SAS_SYS_CONFIG.
No
Are one or more -CONFIG options specified?
Yes
Process all files that are specified in -CONFIG options.
No
Is there a SASVx.CFG file in the folder where SAS.EXE resides?
Yes
Process the SASVx.CFG file in the SAS.EXE folder.
No
Is there a .SASVx.CFG file in the Windows user profile folder?
Yes
Process the .SASVx.CFG file in the Windows user profile folder.
No
Is there a SASVx.CFG file in the Windows user profile folder?
Yes
Process the SASVx.CFG file in the Windows user profile folder.
No
Is there a SASVx.CFG file in the current folder?
Yes
Process the SASVx.CFG file in the current folder.
No
Is the SAS_USER_CONFIG environment variable defined?
Yes
Process the file that is specified by SAS_USER_CONFIG.
No
Is the SAS_OPTIONS environment variable defined?
Yes
Process the options that are specified in SAS_OPTIONS.
No
Process the options that are specified in the SAS invocation command.
Configuration processing is complete.

Processing Options Specified by Additional CONFIG Options

You can also specify additional –CONFIG options within any configuration file. When SAS encounters a –CONFIG option, SAS immediately processes the options in that named file and then returns to process the remainder of the current file. SAS options that are encountered later in the processing always override those options that are specified earlier. For example, if you specify -ICON in the file that is specified by the SAS_SYS_CONFIG environment variable, and then –NOICON in the file that is specified by the SAS_USER_CONFIG environment variable, the –NOICON option is used. Since the options that you specify in the SAS invocation command are always processed last, those option values will always override the option values that are specified in configuration files. Figure 1.1 on page 17 illustrates the flow of the SAS configuration file processing.

For more information about the CONFIG system option, see “CONFIG System Option” on page 507.

SAS Autoexec File

Introduction to the SAS Autoexec File

The SAS *autoexec file* contains SAS statements that are executed immediately after SAS initializes and before any user input is accepted. These SAS statements can be used to invoke SAS programs automatically, set up certain variables for use during your SAS session, or set system options.

Use a SAS text editor to create your autoexec file. The text editor that you choose to create the autoexec file is important. The recommended method is to create the file by using a SAS text editor (such as the Enhanced Editor window) and save it using the Save As dialog box. If you do not use the SAS text editor, be sure to use another ASCII text editor (such as Windows Notepad). Do not use a specialized editor such as the WordPad application or Microsoft Word. Using such an editor can insert special carriage control characters into your autoexec file that SAS cannot interpret when it tries to execute the statements in the file.

The Default Autoexec File

Unlike the configuration file, a SAS autoexec file is not required in order to run SAS. But, if you do have an autoexec file, the default name is AUTOEXEC.SAS. SAS uses the following search order to find the AUTOEXEC.SAS file:

1. Search the current folder.

   Note: For information on determining the current folder, see: “Determining the Current Folder When SAS Starts” on page 9. △

2. Search the paths that are specified by the Windows PATH environment variable.
3. Search the root folder of the current drive.
4. Search the folder that contains the SAS.EXE file.

If an AUTOEXEC.SAS file is not present in one of these folders and if you did not specify the -AUTOEXEC option on the command line or within any of your configuration files, then SAS assumes that there is no autoexec file to process. For more information, see “AUTOEXEC System Option” on page 498.

Locating a Renamed Autoexec File

You do not have to name your autoexec file AUTOEXEC.SAS, but if you name it something else, you must use the AUTOEXEC system option to tell SAS where to find the autoexec file. For example, you can specify the following option after the path specification for the SAS.EXE file in the **Target** field of the SAS Windows shortcut:

```
-autoexec c:\mysasfiles\init.sas
```

If the specified autoexec file is not found, an error message is displayed, and SAS terminates.

Uses for the Autoexec File

The autoexec file is a convenient way to execute a standard set of SAS program statements each time that you invoke SAS. You can include OPTIONS, LIBNAME, or FILENAME statements, or any other SAS statements and system options that you want the system to execute each time you invoke a SAS session. For example, if you want to specify a script file for SAS/CONNECT software, you can place the following statement in the AUTOEXEC.SAS file:

```
filename rlink 'c:\program files\SAS\SASFoundation\9.2\connect\saslink\
startSession.scr';
```

Or you can use the OPTIONS statement to set the page size and line size for your SAS output and use several FILENAME statements to set up filerefs for commonly accessed network drives, as in the following example:

```
options linesize=80 pagesize=60;
filename saledata 'f:\qtr1';
filename custdata 'l:\newcust';
filename invoice 'o:\billing';
```

Other system options, in addition to the AUTOEXEC system option, provide ways to send SAS information as it is initializing. These options are listed below in the order in which they are processed:

1. CONFIG (at SAS invocation only)
2. AUTOEXEC
3. INITCMD
4. INITSTMT
5. SYSIN

For more information about the CONFIG, AUTOEXEC, INITSTMT, and SYSIN system options, see "SAS System Options under Windows" on page 477. For more information about the INITCMD system option, see *SAS Language Reference: Dictionary*.

Suppressing the Autoexec File

If you have an AUTOEXEC.SAS file in your current folder, but you want to suppress it, specify the NOAUTOEXEC option in the SAS command, as in the following example:

```
c:\program files\SAS\SASFoundation\9.2\sas.exe -noautoexec
```

Profile Catalog

Introduction to the Profile Catalog

Each time that you invoke a SAS session, SAS checks the Sasuser data library for your user Profile catalog (named Sasuser.Profile), which defines the start-up profile for your SAS session, including key definitions, display configurations, and other personal customizations. If you invoke SAS without accessing an existing Profile catalog, SAS creates one with the default key definitions and window configuration.

If Sasuser.Profile does not exist and Sashelp.Profile (in the Sashelp data library) does exist, SAS copies Sashelp.Profile to Sasuser.Profile before invoking a SAS session.

The Profile catalog is not re-created if it already exists. Any customizations (such as key definitions or color modifications) that are defined during subsequent sessions are stored in your Profile catalog in the specified folder.

The Default Profile Catalog

The default configuration file for SAS specifies the SASUSER system option as follows:

Table 1.2 The Default SASUSER Locations for the Windows Operating Environment

Windows Vista	Windows XP, and Windows Server 2003
`-sasuser "c:\Users\`*`user-ID`*`\Documents\My SAS Files\9.2"`	`-sasuser "c:\Documents and Settings\`*`user-ID`*`\My Documents\My SAS Files\9.2"`

Changing the Location of the Profile Catalog

Use the SASUSER system option to specify a location for the Profile catalog other than the default (which is a folder named **`\My SAS Files\9.2`**). This option is useful if you want to customize your SAS sessions when sharing a machine with other users or if users are accessing SAS from a network.

The SASUSER system option takes the following form:

-SASUSER ("*library-specification*")

Parentheses () are used to specify multiple library-specifications, and quotes (") are used when special characters and spaces are used in the library-specification.

If *library-specification* (which specifies a valid Windows pathname) does not exist, SAS attempts to create it. For example, if you specify the following option, a Profile catalog is created in a folder named MYUSER that resides in the root folder of the C: drive:

```
-sasuser "c:\myuser"
```

For more information, see “SASUSER System Option” on page 561.

Deleting the Profile Catalog

When you delete your Profile catalog, you lose the key definitions, window configurations, and option settings that you might have defined, as well as any other entries that you saved to your Profile catalog. In addition, any text that you stored in NOTEPAD windows is erased. For this reason, it is a good idea to make a backup copy of your Profile catalog after making significant modifications to your SAS session settings.

Work Data Library

Introduction to the Work Data Library

SAS requires some temporary disk space during a SAS session. This temporary disk space is called the *Work data library*. By default, SAS stores SAS files with one-level names in the Work data library, and these files are deleted when you end your SAS session. You can change the Work data library in which SAS files that have one-level names are stored. For more information, see "Using the User Libref" on page 136.

The Default Work Folder

The default configuration file for SAS specifies the WORK system option to be a folder in your system's designated temporary area (as defined by the TEMP environment variable). For example: **`!TEMP\SAS Temporary Files`**.

To determine TEMP environment variable, refer to the System Properties dialog box that you access from the Control Panel.

For more information about using the Work data library and overriding the default location, see "Using the Work Data Library" on page 135.

Specifying the Location of the Work Data Library

The WORK system option controls the location of the Work data library. You can specify the WORK option in your SAS configuration file or when you invoke SAS. Usually, you use the WORK option that is specified in the default configuration file.

Temporary Subfolders

Because you can run multiple SAS sessions at one time, SAS creates temporary subfolders under the folder that you specify with the WORK option. These temporary subfolders are created in the unique form _TD*nnnnnnnnnn*, where TD means temporary folder and *nnnnnnnnnn* is the process ID for each SAS session. These subfolders enable multiple SAS sessions to be invoked, each using the same configuration file, and they prevent the Work folder from being shared. SAS creates any temporary files that are required within each temporary folder. As with all temporary files that are created in the Work data library during a SAS session, these temporary folders are deleted when you end the SAS session. If SAS terminates abnormally, you might need to delete the temporary files.

Deleting the Work Folder

If SAS terminates abnormally, determine whether the Work library was deleted. If not, remove it by using Windows commands.

Note: Do not attempt to delete the Work folder while SAS is running. △

You can verify the location of the current Work folder by opening the Libraries folder in the SAS Explorer window. Click the right mouse button on the Work folder and select **`Properties`** from the pop-up menu.

SAS Registry Files

The SAS registry files are used to store information about the SAS session applications. The registry entries can be customized by using the SAS registry editor or by importing the registry files. To invoke the SAS registry editor, select **Solutions ▶ Accessories ▶ Registry Editor**.

CAUTION:

Incorrect registry entries can corrupt your SAS registry. Registry customization is generally performed by more advanced users who have experience and knowledge of SAS and their operating environment. △

SAS Default Folder Structure

The SAS Setup program creates a number of subfolders during the installation process. Understanding the organization of the SAS folders can help you to use SAS more efficiently.

The root folder of SAS is the folder in which you install SAS. Within SAS, this folder has the logical name !SASROOT. If you use the default provided by SAS, this folder is **`c:\Program Files\SAS\SASFoundation\9.2`**. (The examples in this document assume the !SASROOT folder is called **`c:\Program Files\SAS\SASFoundation\9.2`**.)

SAS creates a folder for shared components, such as the Enhanced Editor and images, that are used by other SAS products. For SAS 8, the default path for shared components is **`c:\Program Files\SAS Institute\Shared Files`**. For SAS 9 and 9.2, the default path for shared files, if shared components are installed, is **`c:\Program Files\SAS\Shared Files`**. If shared components are not installed, the default path is **`c:\Program Files\SAS\SharedFiles`**. There is no blank space in the spelling of SharedFiles.

One important subfolder of the !SASROOT folder is the CORE subfolder. The CORE subfolder contains many subfolders, three of which are described here:

!SASROOT\CORE\RESOURCE
contains SAS resources such as fonts and images.

!SASROOT\CORE\SAMPLE
contains the SAS sample programs.

!SASROOT\CORE\SASINST
contains the installation process software.

For each SAS product that is installed, the following subfolders might be created (not all products contain all of these folders):

!SASROOT*product*\SASEXE
contains the SAS executable files.

!SASROOT*product*\SASHELP
contains many specialized catalogs and files.

!SASROOT*product*\SASMACRO
contains SAS autocall macro files.

!SASROOT*product*\SASMSG
contains the SAS message files.

!SASROOT*product*\SAMPLE
contains the Sample Library programs.

!SASROOT\product\\SASTEST
contains Test Stream programs.

!SASROOT\product\\SASMISC
contains miscellaneous external files shipped with the product.

Some products, such as SAS/CONNECT software, also have other subfolders that are associated with them. For details about each product's structure, see the specific SAS product documentation.

For more information about how the SAS folders are configured at your site, contact your on-site SAS support personnel.

Submitting SAS Code

Introduction to Submitting SAS Code

SAS under Windows provides several methods for you to submit your SAS programs for processing. SAS supports a variety of work strategies, whether you run SAS interactively or in batch, and in conjunction with other Windows programs or as a stand-alone application.

Submitting Code from the Enhanced Editor or Program Editor

To submit SAS code that you have typed into the Enhanced Editor or Program Editor window, you issue the SUBMIT command. SAS provides several ways to do this:

□ Press F8 when the editor window is active.

□ Click the Submit toolbar button.

□ Enter `submit` in the command bar.

□ From the Run menu, select `Submit`.

You can use the SUBTOP command from either the command line or the Run menu to submit one or more lines of your SAS code. For more information, see "SUBTOP Command" on page 356.

Submitting Code from the SAS NOTEPAD Text Editor

SAS allows you to submit SAS code that you have typed into the SAS NOTEPAD text editor. NOTEPAD can be invoked by selecting **Tools ▶ Text Editor** when the Enhanced Editor is disabled. SAS provides several ways to submit the code in NOTEPAD:

□ Click the Submit toolbar button.

□ Enter `submit` in the command bar.

□ From the menu, select **Run ▶ Submit**.

Running SAS in Batch Mode

You can run SAS jobs in batch mode in the Windows operating environment. Place your SAS statements in a file and submit them for execution along with the control statements and system commands that are required at your site.

You can run windowing procedures, such as those that are associated with SAS/GRAPH, SAS/INSIGHT, and SAS/ACCESS software in a batch SAS job.

Submitting a Batch SAS Job

When you run SAS in batch mode, a status window is displayed. The status window displays the job that is running and also the location of the log and procedure output files. The status window remains open until the SAS job is complete.

If you do not want to see the status window while your batch SAS job is running, use the ICON system option to invoke the SAS System so that the status window becomes an icon when your job is running. You can also minimize the status window by clicking **`Icon`** when the window appears. The icon shows the busy pointer (usually an hourglass) while the SAS job is running, and then disappears when the job is complete. You can cancel a batch job either by pressing CTRL+BREAK or by clicking **`Cancel`** in the status window

The maximum line length is 32767 bytes.

If you want to establish a permanent libref, then enable the STARTLIB system option when you begin the batch job.

You can submit a batch SAS job by using the following methods:

□ Specify the SYSIN system option in the SAS command (issued from the command prompt or in the Run dialog box) and specify the SAS program to submit. For example: **`C:\SAS\SAS.EXE -SYSIN C:\SAS\PROGRAMS\PROG1.SAS -CONFIG C:\SAS\SASV9.CFG`**.

□ Right click to select a file that has either a .SAS, .SS2, SS7, or .SASV7BPGM file extension. From the pop-up menu, select **`Batch Submit with SAS 9.2`**.

□ Select and drag your SAS program file icon (for the file that contains the SAS code) in Windows Explorer, and drop the file on the SAS.EXE file icon or shortcut.

Submitting Code from the Clipboard

Using the Enhanced Editor or the Program Editor, you can submit SAS code that you copied from another Windows application (such as an editor or word processor) or from SAS Help and Documentation. When you copy text from another Windows application, that text is stored in the Windows clipboard.

From the Run menu in the Enhanced Editor or from the Program Editor window, select **`Submit clipboard`**. The code is submitted from the clipboard directly to SAS (without appearing in the Enhanced Editor or in the Program Editor window). Notes and results are sent to the SAS Log and to the Output window, respectively. You can still issue the RECALL command (or press F4) to recall the submitted program into the Enhanced Editor or into the Program Editor window.

You can also use the GSUBMIT command to submit SAS code that is stored in the clipboard. For more information, see “GSUBMIT Command” on page 351.

Submitting Code by Dragging and Dropping

Introduction to Submitting Code by Dragging and Dropping

You can drag SAS programs from other Windows applications onto an open SAS session and submit them. You can also drag files that contain SAS code and drop them on an open SAS session to submit them.

Dragging Text from Other Windows

If you drag text from another Windows application or SAS window to the Enhanced Editor or the Program Editor window, that text is moved to the window by default. It is not submitted until you press F8 or issue the SUBMIT command.

However, you can override this default action by right-clicking the text to select it and then dragging it (if the application supports nondefault dragging). When you drop the selection on the Enhanced Editor or the Program Editor window, a menu appears and you can choose between moving the code or copying the code. The menu for the Program Editor also enables you to submit the code.

Dragging Files in an Interactive Session

By using the My Favorite Folders window, you can access files that exist outside the SAS environment. Files that contain SAS code can be dragged into your interactive SAS session for execution. Access the My Favorite Folders window by using the View menu.

If you drop a file that contains SAS code on the Enhanced Editor window or on the Program Editor window, that code is included in the window (but not submitted). If you drop the file on the Log or Output window or on a minimized SAS session, the code is automatically submitted.

When you minimize a SAS session, its icon appears on the Windows task bar. You cannot drop a file onto the task bar. Instead, you can drag the file to the SAS icon on the task bar and hold it there, without releasing the mouse button. After about one second, the SAS window resumes its normal size. Then you can drop the file on the open SAS session.

Dropping the file **`C:\MYPROG.SAS`** onto a window (other than the Enhanced Editor or Program Editor windows) of an open SAS session is the same as issuing this command:

```
gsubmit "%include 'c:\myprog.sas'";
```

You can submit more than one file at a time by selecting a group of files that contain SAS programs and then dropping them onto the open SAS session. The order in which the programs are run when they are submitted as a group is determined by Windows. Therefore, if order is important, you should drop each program file separately.

If SAS is busy when you drop a SAS program icon, the dropped file is ignored. The only indication that the dropped file was ignored is a warning beep.

Submitting Code Stored in Registered SAS File Types

During installation, the SAS Setup procedure registers certain file types with Windows to invoke specified actions when you double-click those types of objects. For example, files that have a file extension of .SAS are registered as SAS programs. These registered file types are displayed in Windows with a special icon, as shown here:

When you double-click a file that has this extension (or that has this icon) SAS is invoked and the contents of the file are included in the Enhanced Editor or Program Editor window. The SAS code that is contained in the file is not processed until you submit it (for example, by pressing F8 or by clicking the Submit tool). If you already have a SAS session running, double-clicking a file begins a second SAS session; it does not use the already-existing session.

SAS uses the default configuration file if you start SAS by double-clicking a registered SAS file type, such as .sas or .sas7bpgm.

Interrupting Your SAS Session

You can click the circled exclamation point (!) in the toolbar or press CTRL+BREAK to interrupt processing in your SAS session. Depending on what tasks SAS is performing at the time of the interrupt, you can cancel submitted statements or cancel an upload or download request. SAS prompts you with various choices (such as to continue the interrupt or cancel it) in a dialog box.

Note: Depending upon what tasks are in progress when you interrupt your session, SAS can require several seconds to stop processing. △

SAS also supports the common Windows methods of issuing interrupts: you can click the Control menu icon and choose to close the application, or you can select **`Close`** from the pop-up menu for SAS on the Windows Task Bar (or **`End Task`** from within the Windows Task Manager). If you use either of these methods, SAS displays a dialog box to allow you to verify your selection. Note that the task might not close until SAS has completed processing.

Running Windows or MS-DOS Commands from within SAS

Overview of Running Windows or MS-DOS Commands from within SAS

You can execute Windows or MS-DOS commands from within SAS by using the X statement or the X command. You can also use the CALL SYSTEM statement or the SYSTASK statement from within a DATA step. Windows or MS-DOS commands can be issued either asynchronously or synchronously. When you run a command as an asynchronous task, the command executes independently of all other tasks that are currently running. When you run a command as a synchronous task, the command must complete before another task can run.

To issue a command asynchronously, use either the SYSTASK statement with the NOWAIT option or specify the NOXSYNC system option. To issue a command synchronously, use either the SYSTASK statement with the WAIT option or specify the XSYNC system option. For more information about running asynchronous commands using the SYSTASK statement, see "SYSTASK Statement" on page 469.

Running Windows Commands Using the X Statement or the X Command

You can use the X statement or the X command to run Windows commands. The X statement can be run outside of a DATA step. You can enter the X command in the command bar or any SAS command line.

The X statement is similar to the X command in the SAS windowing environment. The major difference between the two is that the X statement is submitted like any SAS statement; however, the X command is issued as a windowing environment command. This section uses the X statement in its examples, but the information applies to the X command as well.

When you submit the X statement you exit your SAS session temporarily and gain access to the Windows command processor. The X statement has the following syntax:

X <'*command*'>;

The optional *command* argument is used either to issue an operating system command or to invoke a Windows application such as Notepad. This discussion concentrates on using the X statement to issue operating system commands; however, you should be aware that the X statement can also be used to invoke Windows applications.

If you want to run only one operating system command, include the command as an argument to the X statement. When you submit the X statement, the command is executed, and you cannot issue any additional commands.

If you want to run several operating system commands, submit the X statement without an argument. A command prompt appears where you can issue an unlimited number of operating system commands. Remember, any environment variables you define are not available to SAS. If you submit an X statement or command without a *command* argument, type EXIT to return to your SAS session.

The X command is a global SAS statement; therefore, it is important to realize that you cannot conditionally execute the X command. For example, if you submit the following code, the X statement is executed:

```
data _null_;
   answer='n';
   if upcase(answer)='y' then
      do;
         x 'md c:\extra';
      end;
run;
```

In this case, the **C:\EXTRA** folder is created regardless of whether the value of ANSWER is equal to **'n'** or **'y'**.

Using a DATA Step to Issue Conditional Operating System Commands Conditionally

If you want to issue operating system commands conditionally, use the CALL SYSTEM routine, as in the following example:

```
options noxwait;
data _null_;
```

```
      input flag $ name $8.;
      if upcase(flag)='Y' then
         do;
            command='md c:\'||name;
            call system(command);
         end;
      datalines;
   Y mydir
   Y junk2
   N mydir2
   Y xyz
   ;
```

This example uses the value of the variable FLAG to conditionally create folders. After the DATA step executes, three folders have been created: **C:\MYDIR**, **C:\JUNK2**, and **C:\XYZ**. The **C:\MYDIR2** folder is not created because the value of FLAG for that observation is not **Y**.

For more information about the CALL SYSTEM routine, see "CALL SYSTEM Routine" on page 393 and the section on the CALL SYSTEM routine in *SAS Language Reference: Dictionary*.

XWAIT System Option

The XWAIT system option controls whether you have to type EXIT to return to your SAS session after an X statement or X command has finished executing an MS-DOS command. (The XWAIT system option is not used if an X statement is issued without a *command* argument or if the X statement invokes a Windows application such as Notepad.) This option and its negative form operate in the following ways:

XWAIT
: specifies that you must type EXIT to return to your SAS session. This is the default value.

NOXWAIT
: specifies that the command processor automatically returns to the SAS session after the specified command is executed. You do not have to type EXIT.

If you issue an X statement or X command without a *command* argument, you must type EXIT to return to your SAS session, even if NOXWAIT is in effect.

When a window created by an X statement is active, reactivating SAS without exiting from the command processor causes SAS to issue a message box containing the following message:

```
The X command is active. Enter EXIT at
the prompt in the X command window to
reactivate this SAS session.
```

If you receive this message box, click **Command Prompt** on the Windows Task Bar. Enter the EXIT command from the prompt to close the window and return to your SAS session.

XSYNC System Option

The XSYNC system option specifies whether the operating system command you submit executes synchronously or asynchronously with your SAS session. This option and its negative form operate in the following ways:

XSYNC specifies that the operating system command execute synchronously with your SAS session. That is, control is not returned to SAS until the command has completed. You cannot return to your SAS session until the command prompt session spawned by the CALL SYSTEM statement, the X command, or the X statement is closed. This is the default.

NOXSYNC specifies that the operating system command execute asynchronously with your SAS session. That is, control is returned immediately to SAS and the command continues executing without interfering with your SAS session. With NOXSYNC in effect, you can execute a CALL SYSTEM statement, an X command, or an X statement and return to your SAS session without closing the window spawned by the X command or X statement.

Specifying NOXSYNC can be useful if you are starting applications such as Notepad or Excel from your SAS session. For example, suppose you submit the following X statement:

```
x notepad;
```

If XSYNC is in effect, you cannot return to your SAS session until you close the Notepad. But if NOXSYNC is in effect, you can switch back and forth between your SAS session and the Notepad. The NOXSYNC option breaks any ties between your SAS session and the other application. You can even end your SAS session; the other application stays open until you close it.

Comparison of the XWAIT and XSYNC System Options

The XWAIT and XSYNC system options have very different effects. An easy way to remember the difference is the following:

XWAIT means that the command prompt session waits for you to type EXIT before you can return to your SAS session.

XSYNC means that SAS waits for you to finish with the other application before you can return to your SAS session.

The various option combinations are summarized in Table 1.3 on page 29.

Table 1.3 Combining the XWAIT and XSYNC System Options

Options in Effect	Result
XWAIT XSYNC	The command prompt window waits for you to type EXIT before closing, and SAS waits for the application to finish.
XWAIT NOXSYNC	The command prompt window waits for you to type EXIT before closing, and SAS does not wait for the application to finish.

Options in Effect	Result
NOXWAIT XSYNC	The command prompt window closes automatically when the application finishes, and SAS waits for the application to finish.
NOXWAIT NOXSYNC	The command prompt window closes automatically when the application finishes, and SAS does not wait for the application to finish.

Terminating a SAS Process

You can terminate a SAS process using several methods. A SAS server is a specific type of SAS process.

Note: Before you terminate SAS using one of the following methods, you should try to end the process using one of the methods described in “Ending Your SAS Session” on page 30 or in the documentation for the SAS server. △

If the SAS process was instantiated as a Windows service, then you can terminate the process using one of the following methods:

□ at the command prompt, submit one of the following commands:

  □ **net stop <*service name*>**where *service name* is the name of the Windows service.

  □ **sc <*server*> stop <*service name*>**where *server* is in the form “\\ServerName” and *service name* is the name of the Windows service.

□ in the Microsoft Management Console Services snap-in, select the service that you want to terminate and select **Stop**.

To terminate a SAS process, use one of the following methods:

□ At a command prompt submit

```
taskkill/pid <process ID>
```

where *process ID* is the SAS process ID. You can get this process ID from the output of the **tasklist** command.

□ in the Windows Task Manager, select the process and click **End Process**.

CAUTION:

Using the taskkill command or the Windows Task Manager to terminate a SAS process might result in data loss or data corruption. △

Ending Your SAS Session

You can end your SAS session using several methods, including

□ selecting **Close** from the control menu of the main SAS window

□ selecting **Cancel** in the Status window. This window appears when you are running in batch mode.

□ double-clicking on the control menu of the main SAS window, or clicking on the **X** in the upper-right corner of the main SAS window

□ issuing the BYE or ENDSAS command from a SAS command line

□ submitting an ENDSAS statement

- □ closing the SAS session from the Task List by selecting the session process (the process name differs depending on how you started SAS) and selecting **`End Task`**
- □ selecting **`Exit SAS`** from the File menu in the main SAS window menu bar
- □ selecting **`Exit`** from the File pop-up menu
- □ pressing the ALT+F4 accelerator-key combination that is defined by Windows.

If SAS terminates with errors the SAS log might contain error messages that explain the failure. Any error message that SAS issues before the SAS log is initialized are written to the MSG window if it is available or to the SAS console log, which is a Windows file. Under Windows Vista, the Windows SAS console log is typically located in **`c:\Users\`***user ID***`\AppData`**. Under all other Windows operating environments, the SAS console log is typically located in **`c:\Documents and Settings\`** *user ID***`\Application Data`**. You can obtain the location and filename for the SAS console log from the Application Event Log. To open the application Event Log, submit **`eventvwr`** from the Run dialog box and click **`Application`**.