

How to Redirect WORK and SASUSER for Enterprise Guide

INTRODUCTION

WORK and SASUSER are reserved library names that have specific functions within Foundation SAS and Enterprise Guide/SAS (EG/SAS) installations. The purpose of this paper is to explore these functions, present reasons to redirect these libraries, and offer examples on how to redirect WORK and SASUSER for EG/SAS installations that use EG Repositories.

This paper is intended for two audiences: the EG/SAS user with administrative capabilities on his personal PC and the system administrator with rights on the server where SAS may be located. Even though most methods and techniques in this paper can be applied to a local installation of EG and SAS, the primary emphasis is for SAS installed on a server used by multiple EG clients.

OVERVIEW

Section I, HOW FOUNDATION SAS USES WORK AND SASUSER LIBRARIES helps you understand how Foundation SAS uses WORK and SASUSER. Note that this is not a comprehensive discussion of how Foundation SAS uses these two libraries and only reviews those features that apply to EG/SAS installations.

Section II, HOW EG/SAS USES WORK AND SASUSER LIBRARIES describes operational differences between Foundation SAS installations and EG/SAS installations for WORK and SASUSER. This section presents reasons to redirect WORK and SASUSER for EG/SAS installations.

Section III, TECHNIQUES TO REDIRECT WORK AND SASUSER FOR EG/SAS INSTALLATIONS describes how to make changes to EG/SAS's WORK and SASUSER for installations that use EG Repositories. Although these techniques can be applied to EG and local SAS installations, they are primarily oriented toward EG and SAS server installations. Techniques are organized according to the versions of SAS and EG as follows:

- 3.1. For SAS9 and any compatible version of EG
- 3.2. For EG3/EG4 and any compatible version of SAS
- 3.3. For SASV8 and any compatible version of EG
- 3.4. For EG2 and any compatible version of SAS

For background information about how Foundation SAS uses WORK and SASUSER, read through Section I. If you are already knowledgeable on SAS's use of WORK and SASUSER, go to Section II to read about differences between SAS and EG/SAS's use of the two libraries. You can also go directly to the "how to" section in Section III.

Section IV, This section has a SAS website location for further EG documentation.

Section V, SUMMARY.

Section I. HOW FOUNDATION SAS USES WORK AND SASUSER LIBRARIES

This section describes how Foundation SAS installed on a local PC uses WORK and SASUSER. All drive and folder references in this section are on a local PC.

The SAS configuration files

By default, the WORK and SASUSER libraries are defined in SAS configuration files. The configuration file for SASV8 is called SASV8.CFG and its default location is *C:\Program Files\SAS Institute\SAS\V8*. The configuration file for SAS9 (English) is called SASV9.CFG and its default location is *C:\Program Files\SAS\SAS 9.1\en*. The configuration files are flat text files can be edited using a text editor, such as the Window's Notepad.exe application.

The configuration file is read once when SAS is launched. After the configuration file is read and the WORK and SASUSER libraries are established, they cannot be modified for that SAS session.

How SAS uses the WORK library

Each time a SAS program is run, it generates temporary work files. Note that these files can consume a lot of disk space. The individual temporary files might not get big but the end result could be a lot of disk space usage. The temporary files are placed in subfolders in the SAS user's personal WORK area. A new subfolder is created for each SAS session. The naming scheme for each SAS session's subfolder is *_TD<process_id#>*, such as *_TD1152*.

The *_TD<#>* folders and their temporary work files are deleted when the SAS session terminates normally. If a SAS session terminates abnormally (e.g., due to a system crash), these work files remain until they are manually deleted.

The default entry for *-WORK* in the configuration file is:

```
/* Setup the default SAS System user work folder      */
-WORK "!TEMP\SAS Temporary Files"
```

The primary point of interest in this library assignment statement is the *TEMP* variable in the *-WORK* line entry. *TEMP* is a Windows environment variable that SAS uses to point to the location of the WORK library. A typical path for the WORK library with this *TEMP* variable is *C:\Documents and Settings\<username>\Local Settings\temp\SAS Temporary Files*. For example, a SAS user with a Windows userid of *johndoe* will have a default WORK library folder of *C:\Documents and Settings\johndoe\Local Settings\temp\SAS Temporary Files*.

Note that because the default *TEMP* variable includes the C: drive designator, it cannot be used to redirect the WORK library to, say, the D: drive. To redirect *-WORK*, modify the *-WORK* entry in the configuration file.

Concepts that relate to an EG/SAS configuration are:

- 1) Each SAS user has his own personal WORK folder.
- 2) Temporary WORK files can consume a lot of disk space.
- 3) Creation and deletion of WORK files are dynamically handled by SAS. Users do not make changes to these files except when removing old work temporary files remaining after abnormal exits from SAS sessions.
- 4) The C: drive designator is part of the default *TEMP* environment variable.

How SAS uses the SASUSER library

For Foundation SAS, a user's SASUSER folder will contain and use three small files:

PROFILE.SAS7BCAT, PROFILE2.SAS7BCAT, and REGSTRY.SAS7BITM. The SAS user can modify his personal settings for SAS (for example, colors, keys settings and so on) and their customizations will be stored in these files.

The default entry for -SASUSER in a SASV8.CFG file is as follows:

```
/* Setup the default SAS System user profile folder      */  
-SASUSER "?CSIDL_PERSONAL\My SAS Files\V8"
```

The default entry for -SASUSER in a SASV9.CFG file is:

```
/* Setup the default SAS System user profile folder      */  
-SASUSER "?CSIDL_PERSONAL\My SAS Files\9.1"
```

The primary point of interest in these two previous SASUSER examples is the *CSIDL_PERSONAL* variable. *CSIDL_PERSONAL* is a Windows-specific environment variable that serves as a pointer to a storage location for documents.

A typical path for *CSIDL_PERSONAL* is *C:\Documents and Settings\<username>My Documents*. For example, a SAS user with a Windows userid of *johndoe* would have a default SASUSER library of *C:\Documents and Settings\ johndoe\My Documents\My SAS Files\9.1*. Note that because the *CSIDL_PERSONAL* variable includes the C: drive designator, it cannot be used to redirect the SASUSER library to, say, the D: drive. To redirect -SASUSER, modify the -SASUSER entry in the configuration file.

Concepts that relate to an EG/SAS configuration are:

- 1) Each SAS user has their own personal SASUSER folder.
- 2) The SASUSER library folder is used by Foundation SAS to store personal profile files for the SAS user. EG/SAS does not use these files.
- 3) The C: drive designator is part of the *CSIDL_PERSONAL* value.

Section II HOW EG/SAS USES WORK AND SASUSER LIBRARIES

SAS location and library assignment

EG is client software installed on the local PC. EG can access SAS that has either been installed on the local PC or on a remote PC (or server).

It is important to realize that libraries assigned within EG point to drives and folders located on the PC where SAS is installed – not where EG is installed.

For example, say that EG and SAS are both on a local PC. A library assigned within EG that points to drive D: is pointing to drive D: on the local PC. Alternatively, if EG is local and SAS is on a remote PC (or server), a library assigned within EG that points to drive D: is pointing to the remote PC's (or server's) D: drive.

If many EG clients are using SAS on a server, the impact on disk usage on the server can be significant. Although concepts and techniques in this paper can be applied to EG and SAS on a personal PC, the consequences for "local EG/server SAS" installations using EG Repositories are the primary emphasis for the rest of this paper.

How WORK is used in EG

An EG/SAS installation uses the WORK library the same way as a Foundation SAS installation. A `_TD<process_id#>` folder is created for each EG user's SAS session and the resident temporary files are automatically managed by SAS.

How SASUSER is used in EG

An EG/SAS installation uses the SASUSER library differently than a Foundation SAS installation uses it. *Each EG user's SASUSER folder is the default disk storage location for his personal task and project output files.* These files are managed by the EG user and not by the EG/SAS system.

Consider a user had been using EG for five years. If he never deletes any of his task or project output files, his five years worth of files would remain in his SASUSER folder. Multiply this by all the EG users accessing SAS on the server and you can see that this could have a significant impact on disk space on the SASUSER drive.

EG/SAS does not use the SASUSER profile files to store customizations. These files lose their functionality when you run EG.

Reasons to Redirect WORK and SASUSER

Again, if SAS is installed locally for an EG/SAS installation, the EG users' WORK and SASUSER files remain local. If SAS is installed on a remote PC (or server) for an EG/SAS installation, all EG users' WORK and SASUSER files reside on the remote PC (or server). If the default location for these libraries is not changed, all WORK and SASUSER files will be directed to the C: drive of the SAS PC (or server).

There might be reasons that you want to redirect WORK and SASUSER to other drives or partitions. One reason is that you may want to move potentially very large files off of a SAS server's C: drive. Another reason is that there may be a site policy that limits a C: drive to operating system files only.

Should you decide to redirect WORK and/or SASUSER to another drive, there are several considerations:

- 1) Libraries created in EG refer to drive and folder locations on the PC where SAS is installed – not where EG is installed.
- 2) WORK files can consume a lot of disk space. Each user can have his own folder for WORK files or all users can share one WORK folder. Temporary `_TD` subfolders are managed internally by the EG/SAS system.
- 3) Each user should have a personal folder for task and project output files.
- 4) The default `TEMP` and `CSIDL_PERSONAL` environment variables have an embedded C: drive designator so they cannot be used when redirecting to a different drive.

With these considerations in mind, there are several techniques we will explore. Note that the following techniques are dependent on the versions of software.

Section III. TECHNIQUES TO REDIRECT WORK AND SASUSER FOR EG/SAS INSTALLATIONS

This section presents several ways to redirect WORK and SASUSER for EG/SAS installations using EG Repositories. Notice that the techniques are based on the version of SAS and/or EG. For example, section 3.1 "For SAS9 and any compatible version of EG" describes methods that could be used for EG4, EG3, or EG2 running with SAS9.

These methods are not an exhaustive listing of all the different methods available to you but are intended to provide you with examples on how you can modify your own EG/SAS environment.

3.1 For SAS9 and any compatible version of EG

3.1.1 Redirecting WORK for EG when SAS is installed on a Server

You can edit the SASV9.CFG file to redirect WORK for EG users. You can choose between directing all EG users' WORK files to a single folder (see 3.1.1.1.) or keeping a unique WORK area for each EG user (see 3.1.1.2.).

3.1.1.1. If you have one shared WORK folder for all EG users, SAS will create and manage a `_TD<#>` folder for each EG user's SAS session within this one shared folder. You can do this by creating a single hardcoded WORK library location used by all EG users. The `-WORK` entry in the SASV9.CFG file could look like this:

```
/* Setup the default SAS System user work folder      */  
-WORK "C:\SASWORK"
```

You can also redirect WORK to a shared location on the D: drive:

```
/* Setup the default SAS System user work folder      */  
-WORK "D:\SASWORK"
```

3.1.1.2: To separate each EG user's use of WORK disk space you can redirect each EG user's work files to a personal folder. You can use the default Windows environment variable of `USERNAME` to build the unique path for each user. In this example, folders will be located on the D: drive and called `D:\<username>\SASWORK`. Edit the `-WORK` entry in the SASV9.CFG file as follows:

```
/* Setup the default SAS System user work folder      */  
-WORK "D:\!USERNAME\SASWORK"
```

Note the use of the exclamation point in front of `USERNAME` indicates a Windows environment variable. Also note that the environment variable in this example is embedded in the path statement. (Embedding a Windows environment variable within the path statement will not work with SASV8). For this example, if `USERNAME` were set to the Windows userid of `john DOE`, the path to the WORK area would resolve to `d:\johndoe\saswork`.

3.1.2. Redirecting SASUSER for EG when SAS is installed on a Server

You should maintain a unique SASUSER or SASUSER-like library location for each EG user so that each EG user has their own personal EG task and output location. You can do this by editing the SASV9.CFG configuration file.

3.1.2.1: Let us say that you want to redirect all EG task and project output files to individual SASUSER folders on the D: drive. Just as in the WORK example 3.1.1.2. above, you can use the default environment variable of `USERNAME` to build the unique path for each user. Edit the `-SASUSER` entry in the SASV9.CFG file as follows:

```
/* Setup the default SAS System user work folder      */  
-SASUSER "D:\!USERNAME\SASFILES"
```

Note the use of the exclamation point in front of *USERNAME* indicates a Windows environment variable. Also note that the environment variable in this example is embedded in the path statement. (Embedding a Windows environment variable within the path statement will not work for SASV8). For this example, if *USERNAME* was set to the Windows userid of *johndoe*, the path to the SASUSER folder would resolve to *d:\johndoelsasfiles*.

3.2. For EG3/EG4 and any compatible version of SAS

3.2.1. Redirecting WORK for EG when SAS is installed on a Server

-WORK reassignment is best handled as in the WORK examples described previously under 3.1.1.

3.2.2. Redirecting SASUSER for EG when SAS is installed on a Server

You can redirect users' task and project output to non-default locations via the EG Administrator (EG3) or EG Explorer (EG4). These examples are for EG installations using EG Repositories.

To open EG3's Enterprise Guide Administrator click on the Start>Programs>SAS>Enterprise Guide Administrator menu option.

To access EG4's Enterprise Guide Explorer first open Enterprise Guide and go to Tools>SAS Enterprise Guide Explorer.

3.2.2.1. Let us say that you want to redirect each EG user's task and project output to their own personal folder on the D: drive. Using the EG Administrator's (EG3) or EG Explorer's (EG4) New Library Wizard, create a new library called EGTASK. EGTASK is used as the preferred library if defined (see page 86 of the EG3 Administrator's Guide or page 40 of the EG 4.1 Administrator's Guide). The New Library Wizard's Path field supports the following wildcards:

<userid>	substitutes the Windows userid
<sample>	substitutes the SAS EG sample directory
<serveruser>	substitutes the server login userid
<serverpassword>	substitutes the server login password
<libraryuser>	substitutes the library login userid
<librarypassword>	substitutes the library login password

As an example, you can enter the following Path field entry:

D:\<USERID>\SASUSER

For a Windows' userid of *janedoe*, this path entry would resolve to *d:\janedoelsasuser*.

To verify this redirection, open the EG Client and go to the menu option Tools->Options->Administration->Output Library (EG3) or Tools->Options->Tasks->Output Library (EG4). The library order of the libnames shown here determines which library will be the acting SASUSER library. The first library in the list (if it exists!) will be the output library.

The reason that EGTASK is the recommended library name is that, by default, the EGTASK library is at the top of the list. If an EGTASK library has been created, EGTASK will be the default library for output. If an EGTASK library has not been created, the next existing library on the list (which is SASUSER by default) will be the output library. The library order can be changed in this menu option window.

To complete this task, create a folder for each EG user. For this example, create a *d:\janedoelsasuser* folder and assign appropriate access rights.

3.2.2.2. Let us say that you have redirected all EG users' SASUSER libraries to EGTASK on the D: drive as outlined in 3.2.2.1. Now, one EG user wishes to redirect her task and project output data to a folder on the E: drive.

Use the EG Administrator's (EG3) or EG Explorer's (EG4) New Library Wizard to create a new library called, for example, JANEDATA, and enter the following Path field entry:

E:\JANEDATA\SASUSER

Then create an *e:\janedata\sasuser* folder and assign appropriate access rights.

To activate this redirection, the *janedoe* user needs to open her EG Client and go to the menu option Tools->Options->Administration->Output Library (EG3) or Tools->Options->Tasks->Output Library (EG4). As instructed, she will add the newly created JANEDATA library to her library listing. (Note that the library name needs to be uppercase.) She will need to insure that the JANEDATA library is moved to the top of the list of libraries.

3.2.2.3. If you prefer that the default storage location for EG task and query results be temporary (that is, deleted when the EG client session is closed), the EGTASK library can be configured to point to the WORK library. Use the EG Administrator's (EG3) or EG Explorer's (EG4) New Library Wizard to create an EGTASK library and enter a Path field entry of:

(WORK)

3.2.2.4. You want to redirect each EG user's task and project output to a personal folder on the D: drive.

For example, first create a program file in a shared location accessible to all EG users (example, *d:\startup\startup.sas*). In this file, enter the following code:

```
LIBNAME EGTASK "D:\&SYSUSERID\SASFILES";
```

Open EG Administrator (EG3) or EG Explorer (EG4), right-click on the *servername*, select "Properties", and open the "Options" tab. Enter the following in the "SAS server startup statements" box:

```
%INCLUDE "D:\STARTUP\STARTUP.SAS";
```

Be sure to include the ";" at the end of the statement. When EG is first started, the *startup.sas* program runs and assigns the EGTASK libname. If *&sysuserid* is *johndoe*, the path for EGTASK will be *d:\johndoelsasfiles*.

To complete this task, create a folder for each EG user and assign appropriate access rights.

3.2.2.5. Another way to redirect EG task and output to personalized folders is to put an *-autoexec* entry in the SASV9.CFG file. In this example, *-autoexec* will point to a SAS program called *startup.sas* residing in the *d:\startup* folder. Make sure that *d:\startup* is available to all EG users. The *-autoexec* reference in the SASV9.CFG file could look like this:

```
-AUTOEXEC "D:\STARTUP\STARTUP.SAS"
```

The *startup.sas* program could have the following code:

```
LIBNAME MYLIB "D:\&SYSUSERID";
```

You will then need to create a folder on the D: drive for each EG user and assign appropriate access rights.

To activate this redirection, each EG user needs to open their EG Client, and go to the menu option Tools->Options->Administration->Output Library (EG3) or Tools->Options->Tasks->Output Library (EG4). Instruct each EG user to add the newly created MYLIB libname to their library listing and ensure that MYLIB be moved to the top of the list of libraries. Note that the library name needs to be uppercase.

3.3. For SASV8 and any compatible version of EG

3.3.1 Redirecting WORK with SAS installed on the Server

You can edit the SASV8.CFG file to redirect WORK for EG users. You need to decide between creating a unique WORK area for each EG user (see 3.3.1.1) or directing all EG users WORK files to a common shared folder (see 3.3.1.2).

3.3.1.1. You want to redirect all EG users' work files to a single shared folder called SASWORK on the D: drive. To do that, edit the WORK entry in the SASV8.CFG file as follows:

```
/* Setup the default SAS System user work folder      */
-WORK "D:\SASWORK"
```

3.3.1.2. You want to redirect all EG users' work files to personal folders called D:\<individual_folder_name>\SASWORK on the D: drive. To do that, first create a unique environment variable on each user's PC or login. Under Windows XP, right-click on My Computer, select Properties and then the Advanced tab. Then click on the Environment Variables button and the New button to add a new environment variable. If a Windows userid is *johndoe*, the environment variable could be called *WORKVAR* with a value of *d:johndoe*. The entry in the SASV8.CFG file would be:

```
/* Setup the default SAS System user work folder      */
-WORK "!WORKVAR\SASWORK"
```

This would resolve to *d:johndoe\saswork*. In SASV8, there can only be one Windows environment variable in the path and that variable needs to be the first element in the path.

3.3.2 Redirecting SASUSER with SAS installed on the Server

You can edit the SASV8.CFG file to redirect SASUSER for EG users. You should maintain a unique SASUSER folder for each user.

3.3.2.1. Let us say that you want to redirect all EG users' SASUSER files to personal folders called *d:\<individual_folder_name>\sasfiles* on the D: drive. First, create a unique environment variable on each user's PC or login. If the Windows userid is *johndoe*, the environment variable could be called *USERVAR* with a value of *d:johndoe*. The entry in the SASV8.CFG file would be:

```
/* Setup the default SAS System user work folder      */
-SASUSER "!USERVAR\SASFILES"
```

This would resolve to *d:johndoe\sasfiles*. In SASV8, there can only be one environment variable

in the path and it needs to be the first element in the path.

3.4. For EG2 and any compatible version of SAS

3.4.1. Redirecting WORK with SAS installed on the Server

-WORK reassignment is best handled as in the WORK examples described previously under section 3.1.1.

3.4.2. Redirecting SASUSER with SAS installed on the Server

3.4.2.1. You want to redirect each EG user's task and project output to personal folders on the D: drive. First, create a new library called EGTASK. EGTASK is a reserved library name in EG2 (Note that EGTASK is not a reserved library name for EG3/EG4). If an EGTASK library has been created, EGTASK will be the default library for task and project output. If an EGTASK library has not been created, SASUSER will be the default.

Use the EG Administrator's New Library Wizard to create the EGTASK library. In EG2, the New Library Wizard's Path field supports these wildcards:

<userid>	substitutes the Windows userid
<serveruser>	substitutes the server login userid
<serverpassword>	substitutes the server login password
<libraryuser>	substitutes the library login userid
<librarypassword>	substitutes the library login password

As an example, enter the following in the Path field:

D:\<USERID>\SASUSER

For a Windows userid of *janedoe*, a path field entry of *d:\<userid>\sasuser* would resolve to *d:\janedoelsasuser*.

To complete this task, create a folder for each user. In this example, you would create a *d:\janedoelsasuser* folder and assign appropriate access rights.

3.4.2.2. If you prefer that the default storage location for task and query results be temporary (that is, files are deleted when the EG client session is closed), the EGTASK library can be configured to point to the WORK library. Use the EG Administrator's New Library Wizard to create an EGTASK library and enter a Path field entry of:

(WORK)

Section IV. ADDITIONAL NOTES

Website for EG Documentation:

<http://support.sas.com/documentation/onlinedoc/guide/>

Section V. SUMMARY

This paper provided a discussion of how Foundation SAS uses the default output libraries of WORK and SASUSER. It described how EG/SAS installation uses these libraries differently than Foundation SAS and how to make changes to WORK and SASUSER library assignments for

EG/SAS installations using EG Repositories. It is hoped that you will have understood the potential need for and impact of redirecting these libraries and have learned techniques to make these changes to WORK and SASUSER library assignment for your EG/SAS users.