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# Copy Files Task for SAS Enterprise Guide

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Global Services Factory

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## Table of Contents

1	About the Copy Files task for SAS Enterprise Guide .....	2
1.1	Release History .....	2
1.2	Background .....	2
1.3	Software Requirements .....	3
1.4	Installing the Copy Files task .....	3
2	Using the Task .....	5
2.1	Selecting the SAS server .....	5
2.2	Selecting the type of transfer: upload or download .....	5
2.3	Specifying the files to copy .....	5
2.4	Specifying the destination folder .....	6
2.5	Using SAS macro expressions within the source file and destination paths .....	6
2.6	Overwriting existing files in the destination folder .....	7
2.7	Fix line-ending characters for text files .....	7
2.8	Support for Task Templates .....	7
3	Results .....	7

# 1 About the Copy Files task for SAS Enterprise Guide

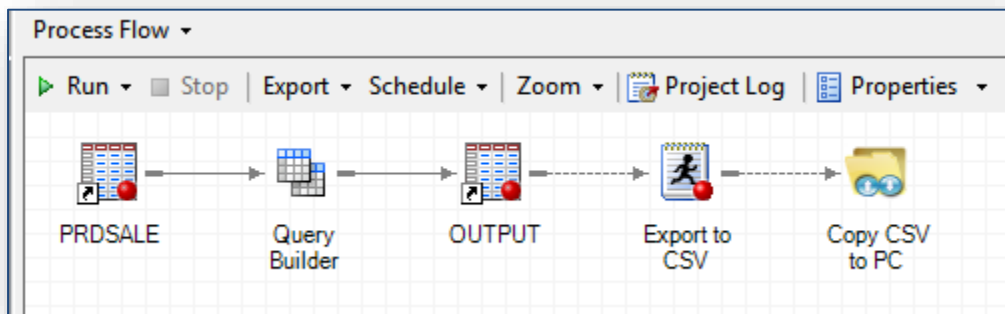
## 1.1 Release History

- Version 1.0 06DEC2012 – Original release for customer use
- Version 1.1 04APR2013 – Fixes for customer-reported problems:
  - "/" as part of a wildcard expression could be misinterpreted as a "Comment" delimiter in SAS. Now this character sequence is properly handled.
  - "Fix line-ending characters" processing could change the text file encoding, adding byte-order mark (BOM) characters or incorrectly transcoding certain characters. Now only line-ending sequences are changed.
  - Added **Save** button, which allows you to save your settings without running the task immediately.
- Version 1.2 15AUG2014 – Added build specifically for SAS Enterprise Guide 6.1 and updated documentation for SAS 9.4
- 04MAR2015 – Added build specifically for SAS Enterprise Guide 7.1

## 1.2 Background

In their normal course of work, SAS customers often need to copy files from their desktop or from shared disks to a remote SAS session, and/or copy files generated with the SAS session back to a folder on the desktop PC.

The "Copy Files to/from SAS Server" task allows you to capture these file transfer steps within your SAS Enterprise Guide project.



It is similar in concept to:

- [FTP \(file transfer protocol\)](#), which allows you to "put" and "get" files across a network using a specialized server and client application

- [SAS/CONNECT data transfer services](#) (including PROC UPLOAD and PROC DOWNLOAD), which SAS/CONNECT users employ to copy files from a SAS/CONNECT client to a SAS/CONNECT server, or vice versa.

Neither of these approaches can work natively within SAS Enterprise Guide. Reasons include:

- Because SAS Enterprise Guide connects to a remote SAS session using IOM (enabled by SAS Integration Technologies), the PROC UPLOAD/DOWNLOAD approach cannot work (since SAS/CONNECT enables communication between two SAS sessions, and SAS Integration Technologies enables communication between a desktop client and a SAS session).
- An FTP server requires a different level of administration, and runs outside of the SAS process. If you want to "script" an FTP operation within your SAS session, it also requires the ability to issue shell commands from your SAS program. This capability is usually disabled by default (NOXCMD) in shared SAS server environments.

### 1.3 Software Requirements

On the desktop:

- SAS Enterprise Guide 4.1, **or**
- SAS Enterprise Guide 4.3 or SAS Enterprise Guide 5.1 or SAS Enterprise Guide 6.1 or SAS Enterprise Guide 7.1

On the server:

- SAS 9.2 or SAS 9.3 or SAS 9.4
- Typical scenario: remote SAS host using SAS BI or SAS Integration Technologies configuration
- Server operating system: Windows or UNIX

### 1.4 Installing the Copy Files task

The Copy Files task is contained in a single DLL file. Each version of SAS Enterprise Guide requires a different DLL.

SAS.Tasks.CopyFiles.dll (v4.1)  
 SAS.Tasks.CopyFiles43.dll (v4.3)  
 SAS.Tasks.CopyFiles51.dll (v5.1)  
 SAS.Tasks.CopyFiles61.dll (v6.1)  
 SAS.Tasks.CopyFiles71.dll (v7.1)

SAS Enterprise Guide 4.3 through 7.1 can both connect to **SAS 9.2** or **SAS 9.3** or **SAS 9.4** servers, and this task will work with all of these versions of SAS. SAS Enterprise Guide 4.1 supports only SAS 9.1.3.

To install the task for use, copy the DLL file to one of these locations on the machine where SAS Enterprise Guide is installed.

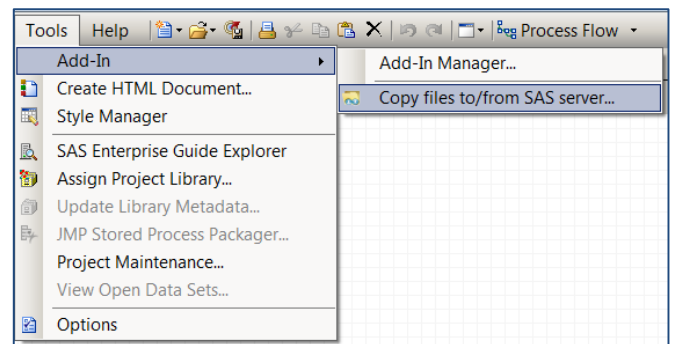
For use by just the current user, copy the file to this location:

4.3 version: %appdata%\SAS\EnterpriseGuide\4.3\Custom  
5.1 version: %appdata%\SAS\EnterpriseGuide\5.1\Custom  
6.1 version: %appdata%\SAS\EnterpriseGuide\6.1\Custom  
7.1 version: %appdata%\SAS\EnterpriseGuide\7.1\Custom

%appdata% is a Windows environment variable that maps to your user profile area. You might need to create the "Custom" folder in this location.

If the machine is used by multiple people (such as via Citrix or Terminal Services), you can install the task for use by all users with these steps:

1. Locate the SAS Enterprise Guide application folder (usually "C:\Program Files\SAS\EnterpriseGuide\4.3" or "C:\Program Files\SASHome\x86\SASEnterpriseGuide\4.3").
2. Create a folder named "Custom" within that location.
3. Copy the appropriate DLL (SAS.Tasks.CopyFiles43.dll or SAS.Tasks.CopyFiles51.dll or SAS.Tasks.CopyFiles61.dll or SAS.Tasks.CopyFiles71.dll) to the Custom folder.



(For 4.1, copy the SAS.Tasks.CopyFiles.dll file to: C:\Program Files\SAS\Shared Files\BIClientTasks\Custom.)

When you restart SAS Enterprise Guide, the task will be located in **Tools->Add-Ins->Copy files to/from SAS server**.

## 2 Using the Task

### 2.1 Selecting the SAS server

If you have more than one SAS server in your environment, then you must select which server to use as the source or destination of the files you want to copy. To use a server that is different than the default, select it from the **Select SAS server to use** dropdown list.

### 2.2 Selecting the type of transfer: upload or download

When you copy files from your local PC to a SAS server, the operation is called **Upload**. When you copy files from your SAS server to a folder on your local PC, the operation is called **Download**. Use the **Transfer files in which direction** selector to indicate whether you are *uploading* files or *downloading* files.

### 2.3 Specifying the files to copy

Enter the full path of the file(s) that you want to copy in the **Source files** field. In this field, you can use standard wildcard characters to match multiple files. An asterisk (\*) matches all characters, in any number, before the next non-wildcard character. A question mark (?) matches any single character that occupies that position in the file name.

Here are some examples of wildcards and the patterns that they match:

```
/u/dept/finance/*.xls
```

Matches all of the XLS files within the /u/dept/finance folder.

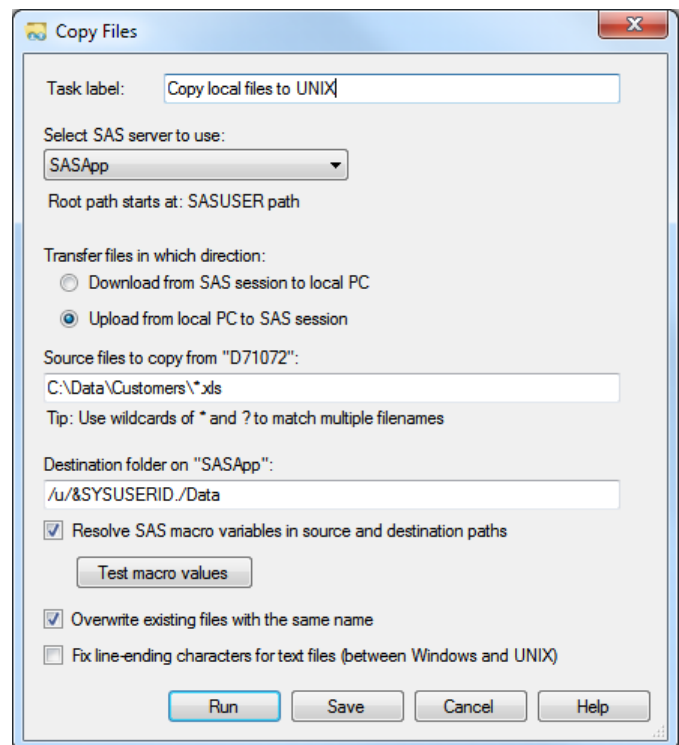
```
C:\Data\??Sep2012.csv
```

Matches all files whose names begin with two characters and end with "Sep2012.csv". Example matches include "01Sep2012.csv" and "15Sep2012.csv". The file name "199Sep2011.csv" would **not** match this pattern, because the prefix is 3 characters, not 2.

```
C:\Data\15???2012.*
```

Matches all files whose names begin with "15" followed by any three characters, followed by "2012", followed by any file extension. Example matches include "05Sep2012.csv" and "15Oct2012.xls".

**Note:** Wildcard characters are permitted only in the file name portion of the specification, and not within the folder path portion. For example, "c:\data\Sept\*\report.xls" is **not** a valid source file specification for this task.



## 2.4 Specifying the destination folder

The **Destination folder** field indicates where you want the files to be copied to on the target system (whether on your local PC or a SAS server). When specifying a destination folder, remember these rules:

- The folder must already exist on the target system. The **Copy Files** task will not create a new folder for you.
- You must have appropriate file permissions to write content to the folder.
- You must specify an absolute path for the target folder (even when performing an **Upload** operation while the SAS workspace is configured to have a starting root path of SASUSER or another non-system-root path).

## 2.5 Using SAS macro expressions within the source file and destination paths

You can make the **Copy Files** task behave in a more dynamic fashion by using SAS macro variables and expressions within the source file specification or the destination folder path.

If you want to use macro variables within the file or folder specifications, check the option to **Resolve SAS macro variables in source and destination paths**. When this option is checked, the **Copy Files** task will attempt evaluate the macro variables and macro functions within these fields *before* beginning the copy operation.

Here are some examples values that contain macro references, and how they might resolve:

```
/u/&SYSUSERID/Data
```

Resolves to a folder that contains the user ID of the SAS user within the SAS workspace server.

```
C:\Data%\sysfunc(substr(&SYSUSERID.,3))
```

Resolves to a folder that contains just a portion of the SAS user ID within the SAS workspace server.

```
/u/Data/&outputFile..xls
```

Resolves to an XLS file name where the root of the file name is stored in the &OUTPUTFILE macro variable. This assumes that a previous process (perhaps a SAS program) has set the macro variable to match an existing file name.

**Caution:** The macro variables must exist within your SAS session (either as SAS built-in macro variables or defined in an earlier process). If the macro variables are not specified correctly, or if you use incorrect syntax for a macro function, the **Copy Files** task can generate errors or unexpected results.

To verify that the macro expressions resolve with the intended values, click the **Test macro variables** button. When you click the button, a short SAS program will run to resolve the macro expressions, and the results will be displayed in a new window. Remember that when you test these values, the macro expressions will resolve to values that reflect the current state of the macro variables or results of any macro functions that you use. These values can be different when you actually run the task later.

## 2.6 Overwriting existing files in the destination folder

By default, the **Copy Files** task will not overwrite existing files in the destination folder. If a source file matches the name of an existing file, then the task skips over that file and adds a note to the task log.

If you want to overwrite any existing files in the destination folder, check the option to **Overwrite existing files with the same name**.

## 2.7 Fix line-ending characters for text files

UNIX and PC systems use different conventions for the line-ending characters in text files. UNIX systems use a carriage return (CR) character, while PC systems use a line-feed (LF) followed by a carriage-return (CR). The absence of the LF character can make UNIX-style text files difficult to read in standard text editing applications such as Notepad.

If you check the **Fix line-ending characters for text files** option, the task will automatically detect and rewrite any text files that are transferred, using the appropriate line-ending style. **Note:** the task detects text files by examining file content, and *not* by relying on common text file extensions such as TXT or CSV.

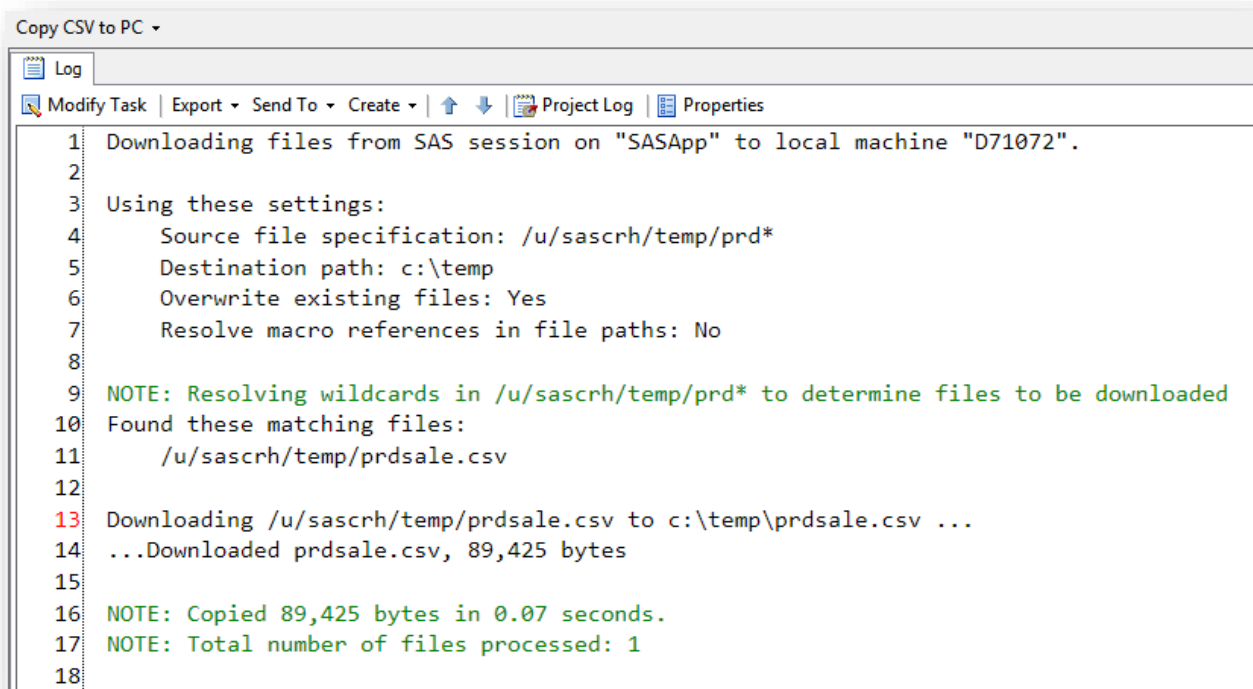
## 2.8 Support for Task Templates

The Copy Files task also supports a standard SAS Enterprise Guide feature: Task Templates. You can create an instance of the task that is useful in one process, then **save** those task settings to your personalized set of Task Templates that you can use in another process or even in another project. To save your settings as a template, right-click on the Copy Files task within your process flow and select Create Task Template. To use the new template, select it as a menu item from Tasks->Task Templates.

## 3 Results

The task generates a detailed log output. The log shows the selected settings, the files detected, and the summary of files copied with their file sizes. For example:





```
1 Downloading files from SAS session on "SASApp" to local machine "D71072".
2
3 Using these settings:
4     Source file specification: /u/sascrh/temp/prd*
5     Destination path: c:\temp
6     Overwrite existing files: Yes
7     Resolve macro references in file paths: No
8
9 NOTE: Resolving wildcards in /u/sascrh/temp/prd* to determine files to be downloaded
10 Found these matching files:
11     /u/sascrh/temp/prdsale.csv
12
13 Downloading /u/sascrh/temp/prdsale.csv to c:\temp\prdsale.csv ...
14 ...Downloaded prdsale.csv, 89,425 bytes
15
16 NOTE: Copied 89,425 bytes in 0.07 seconds.
17 NOTE: Total number of files processed: 1
18
```

**NOTE:** Even though this **looks like** a SAS program log, it's not generated from a SAS program. The Copy Files task uses a log format consistent with other log output the user might see in SAS Enterprise Guide. But the Copy Files task **does not** generate a reusable SAS program. This means that the Copy Files step cannot be built into a SAS stored process or standalone batch SAS program.