



# SAS<sup>®</sup> 9.4 PC Files Server: Installation and Configuration Guide, Second Edition

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**SAS® 9.4 PC Files Server: Installation and Configuration Guide, Second Edition**

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# What's New in PC Files Server Installation and Configuration

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## Overview

This document explains how to install and configure SAS PC Files Server.

Release 9.4M6A, dated November 2019, is the current active release for SAS 9.4.

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**Note:** The PC Files Server is not shipped with SAS Viya. You can download the PC Files Server from the SAS Download site. For download instructions, see [“Which SAS PC Files Server Do You Install?”](#) on page 3.

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## Windows System Service

In SAS PC Files Server in June 2019, the PC Files Server is no longer started as a Windows System Service by default. The related installer prompt defaults to NO, but can be manually set to YES. Alternatively, the PC Files Server can be started manually or set to automatic start-up in the Windows System Service Console after installation.

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## Log File

In SAS 9.4M5 a new section was added entitled “Setting the Location of the Log File” to the “SAS PC Files Server Administration” chapter.



# Quick Start for Installation

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## Overview

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**Note:** The PC Files Server is not shipped with SAS Viya. You can install SAS PC File Server by accessing the order you were sent from Licensing Operations. If you do not have that order then please see the SAS site representative for your company or organization to access the order email.

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**Note:** If you have Base SAS9 installed on your PC and you need to install SAS PC File Server, you need to use the same order depot that was used to install Base SAS. You can also use a new or update order depot to install SAS PC File Server, if the new or update order is associated with the same site number as the Base SAS product that is already installed. As long as, SAS Access Interface to PC Files is licensed, then you can install SAS PC File Server.

.....

SAS PC Files Server is available for installation in SAS 9.4 on Microsoft Windows. It communicates with the SAS LIBNAME engine, PCFILES, running on Windows, Linux, or UNIX. For an overview, see “[SAS PC Files Server](#)” on page 32.

SAS PC Files Server requires a license for SAS 9.4 versions of SAS/ACCESS Interface to PC Files and Base SAS software.

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## See Also

[SAS/ACCESS Interface to PC Files: Reference](#)

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## Preinstallation Steps

**Note:** Before you can install SAS PC Files Server, you need to determine your versions of Microsoft Office and SAS in order to know which SAS PC Files Server to download. You also need to know whether an instance of SAS PC Files Server is already installed on the same Windows machine.

---

## Which Version of Microsoft Office Do You Have?

Microsoft Office is a suite of products that includes Microsoft Access and Microsoft Excel. When the term *Microsoft Office* is used in this document, it refers to both products.

Open one of the products (such as Microsoft Excel) and do the following:

- click the **File** tab and then **Help** or **Account** (depending on your version of Office) in the list on the side of the application.
- The version of Excel is shown in **About Microsoft Excel**. Notice whether it is a 32-bit or 64-bit version of Excel.

If you click the **About Excel** icon and its **System Info** button, you can also see which version of Microsoft Windows you have.

---

## Which Version of SAS Do You Have?

If you have SAS 9.4 installed on a Microsoft Windows system, do the following.

- In your operating environment, open SAS:
  - On Microsoft Windows, select **Start** ⇒ **All Programs** ⇒ **SAS**.
  - On Linux or UNIX, open SAS interactively in your site-specific way.



- After SAS is open, select **Help** ⇒ **About**.
  - In the **Software Information** field of the dialog box, note which version of SAS you have. For example, SAS(R) Proprietary 9.4 (TS1M2) indicates that this is the first release of SAS 9.4, software maintenance two. You will need this (TS1M2) information later in the SAS PC Files Server installation.
  - This document covers only SAS 9.4 installations. For SAS 9.3 installations, see the SAS Notes listed in [SAS Note 47237](#).

## Which SAS PC Files Server Do You Install?

The installation process configures SAS PC Files Server to match the bit architecture of Microsoft Office or of the Microsoft Access Database Engine (ACE) ODBC driver, if the ACE ODBC driver is installed. If you have the 32-bit version of Microsoft Office, then the 32-bit version of SAS PC Files Server is configured. The two are “bit-compatible,” in that they are both 32-bit. The Microsoft ACE ODBC driver must be bit-compatible with SAS PC Files Server (32 or 64).

**SAS 9.4M8** The Microsoft ACE driver is a prerequisite for SAS PC Files Server and needs to be installed by the user.

For more information, see the [Chapter 3, “SAS PC Files Server Administration,”](#) on page 31.

*Table 1.1 Determining Which SAS PC Files Server to Install*

SAS Details	Versions of Microsoft Office	Action
64-bit Office and SAS on 64-bit Windows	2010, 2013	Stop. Both Microsoft Office and SAS on Windows are 64-bit. You do not need to install SAS PC Files Server to use with <a href="#">PCFILES LIBNAME engine</a> . Instead, you can use the ACCESS or EXCEL LIBNAME engine. <sup>1</sup>
32-bit Office and SAS on 32-bit Windows	2003, 2007, 2010, 2013	Stop. Both Microsoft Office and SAS on Windows are 32-bit. You do not need to install SAS PC Files Server to use with the <a href="#">PCFILES LIBNAME engine</a> . Instead, you can use the ACCESS or EXCEL LIBNAME engine. <sup>1</sup>
32-bit Office and 64-bit SAS on 64-bit Windows	2003, 2007, 2010, 2013	install the 32-bit SAS PC Files Server
32-bit Office and SAS on a UNIX or Linux machine	2003, 2007, 2010, 2013	install the 32-bit SAS PC Files Server

SAS Details	Versions of Microsoft Office	Action
64-bit Office and SAS on a UNIX or Linux machine	2010, 2013	install the 64-bit SAS PC Files Server

<sup>1</sup>The SAS LIBNAME engines for Microsoft Access and Microsoft Excel are described in “LIBNAME Statement Syntax for the ACCESS and EXCEL Engines Statement” in *SAS/ACCESS Interface to PC Files: Reference*.

## Preparing for the Installation

### Caveats about the Different Versions of SAS PC Files Server

Before you begin the installation, it is important that you review the following caveats and verify that you do not have another version of SAS PC Files Server on the same Microsoft Windows machine.

- Before you install SAS PC Files Server, you must know which version of SAS 9.4 you have: TS1M0, TS1M1, TS1M2, TS1M6, or TS1M7.
- The SAS 9.4 versions of SAS PC Files Server are not backward compatible with earlier releases of SAS 9.3 or SAS 9.2.
- You cannot install a SAS 9.4 version of SAS PC Files Server on the same Microsoft Windows machine that has a SAS 9.2 or SAS 9.3 version.
- SAS 9.4 is not supported on certain earlier Windows releases, such as Microsoft Windows XP, Microsoft Windows 2003, or Microsoft Windows Vista. Therefore, a SAS 9.4 version of SAS PC Files Server cannot be installed on these systems.

If you have questions, please contact SAS Technical Support at <http://support.sas.com/> and click **Technical Support**.

### Check First for an Existing SAS PC Files Server

- 1 From the Microsoft Windows **Start** menu, select the **Control Panel**.
- 2 If you are using a Windows 7 or Windows 2008 machine, change the **View by** option in the upper right to **Large icons** or **Small icons** so that you can access all of the tools.

- 3 Click **Administrative Tools**.
- 4 Double-click **Services**. The Services dialog box appears.
- 5 In the Services window, scroll down to **SAS PC Files Server** (in alphabetic order under “S”).
- 6 If you do not see **SAS PC Files Server**, close the Services window, and access the order you were sent from Licensing Operations to install SAS PC File Server. If you see **SAS PC Files Server**, you must remove this current instance of SAS PC Files Server before you install a new SAS 9.4 version. For more information, see [“Uninstalling an Existing SAS PC Files Server” on page 14](#).

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## Installing SAS PC Files Server

**Note:** You can install SAS PC Files Server as part of a larger SAS order, such as when you install Base SAS and SAS/ACCESS Interface to PC Files. The steps are described and shown below.

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## Using the Software Order Email (SOE)

When you receive your licensed SAS software, you receive a Software Order Email (SOE) that describes how to install your order and links to tools that you use to do so.

For a video overview about the SAS 9.4 installation and configuration process, go to <http://support.sas.com/documentation/installcenter/gettingstarted/94/index.html>.

- 1 Download the SAS Download Manager:

The SAS Download Manager is the application that you use to download your software. Follow the link in your Software Order Email to install and download your SAS Download Manager.

The SAS Download Manager prompts you through a series of windows and dialog boxes that ask you to launch the Manager, to insert the order number listed in your SOE, and to log on to the SAS Installer. You then review the software for your order and the SAS Download Manager downloads your software to the SAS Software Depot, which is a repository for your SAS software media. If you do not have a SAS Software Depot, it creates one for you.

After the SAS Download Manager downloads the SAS software, return to the Software Order Email for additional instructions.

- 2 In the Software Order Email, follow the steps to begin your SAS installation. The instructions vary depending on your operating environment. Because you are installing SAS PC Files Server on Microsoft Windows, you execute this file: `setup.exe`. Instructions for doing so are described in [“Using the SAS Deployment Wizard” on page 6](#).

If SAS 9.4 is a new release, it must be installed in an empty directory that is separate from any previous SAS installation. The administrator installing SAS chooses a path for the SASHOME directory that meets the internal standards for your system.

By default, the SAS Deployment Wizard installs SAS 9.4 to the following SASHOME directory location: `C:\Program Files\SASHome`.

To launch the SAS Deployment Wizard, go to the root of the order depot folder (i.e. `C:\SAS Software Depot`) that was created in step#1 above, then right click on `setup.exe` and select "runas administrator" to launch the SAS Deployment Wizard and begin the installation process.

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## Using the SAS Deployment Wizard

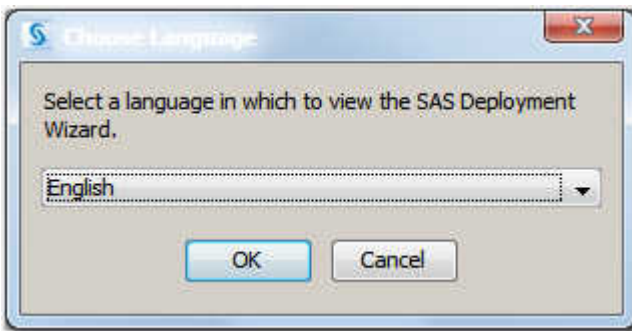
The SAS Deployment Wizard is an application that guides you through the installation of your SAS software. For example, the following installation is for Base SAS 9.4, SAS/ACCESS 9.4 to PC Files, and the SAS 9.4 PC Files on a 64-bit Microsoft Windows. This particular user plans to access Microsoft Excel and Microsoft Access files from a Linux machine and therefore downloads the 64-version of SAS PC Files Server.

To install and configure your SAS 9.4 software interactively, follow these steps:

- 1 Log on to the machine with a user ID using the SAS Installer account that you created when you installed and ran the SAS Download Manager. Or use an account where you are a member of the Windows Administrators group.
- 2 Temporarily disable all anti-virus, anti-malware, anti-spyware, and firewall software. These types of programs can interfere with the deployment process and block files as they are being copied and extracted.
- 3 Start Windows Explorer and navigate to the highest-level directory in your SAS Software Depot. Right-click `setup.exe` and select **Run as Administrator**.

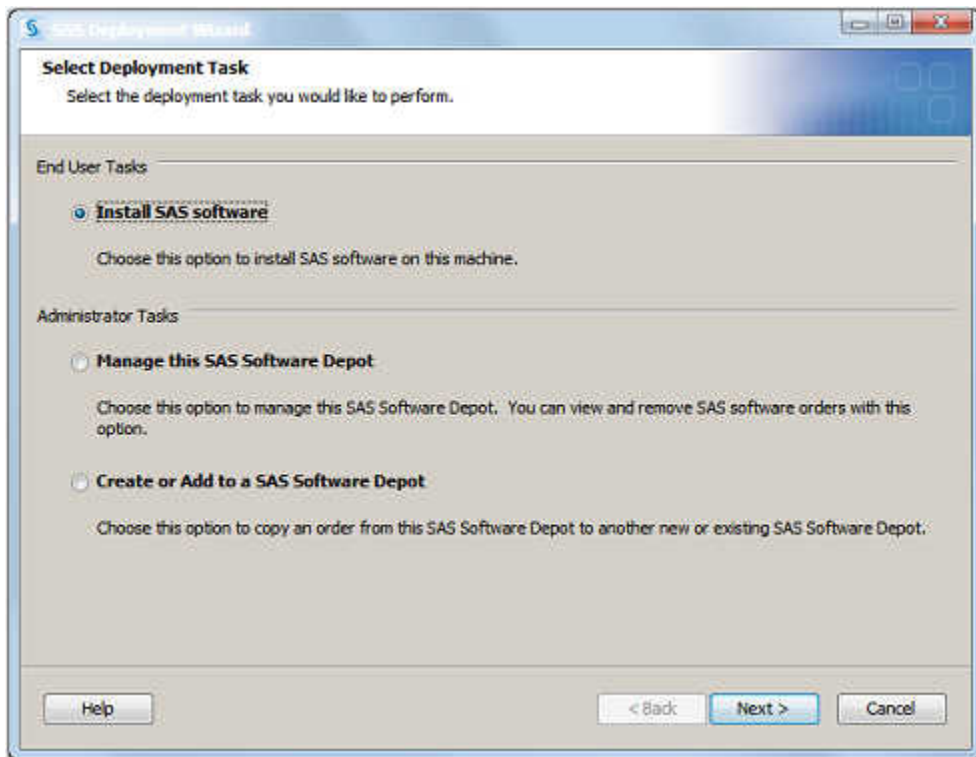


- 4 Choose Language . From the drop-down list, select the language that you want the SAS Deployment Wizard to use when it displays text, and click **OK**.

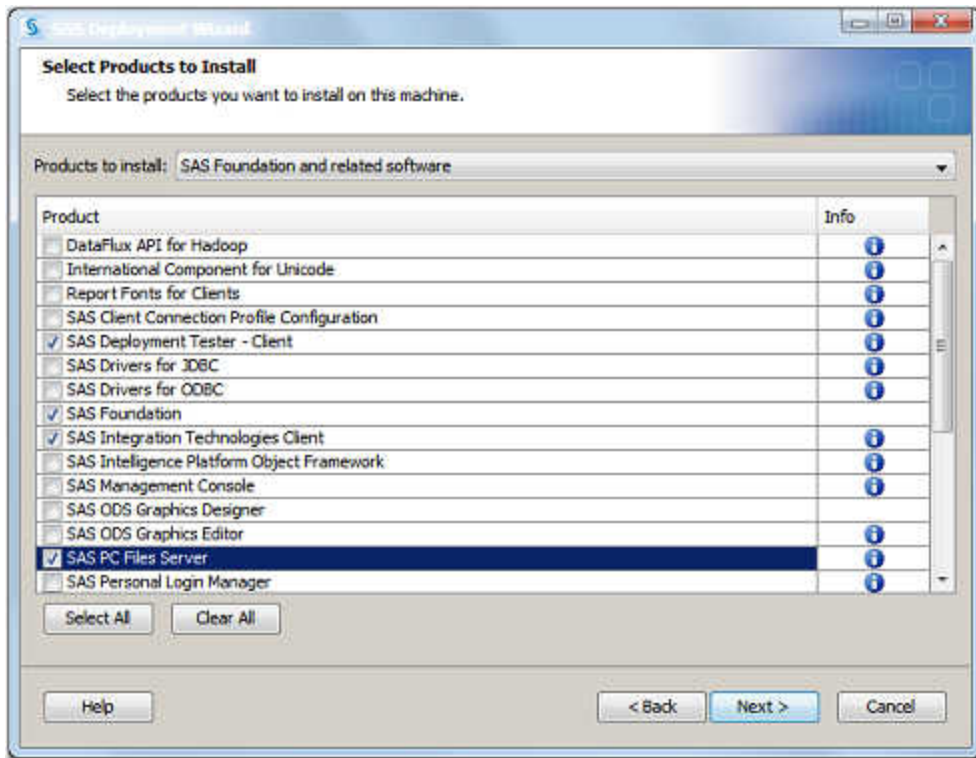




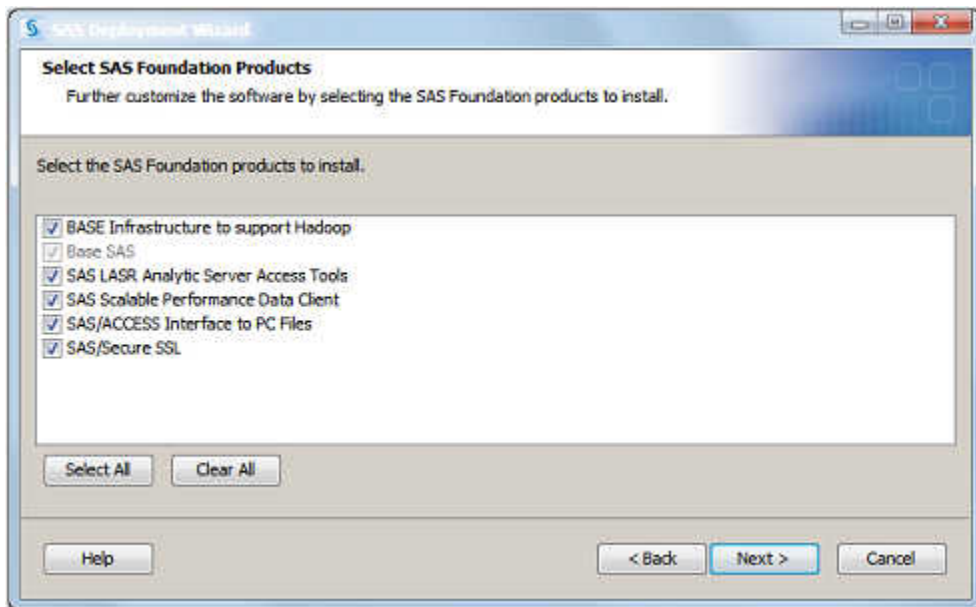
- 5 Select Deployment Task. Select **Install SAS Software** and click **Next**.



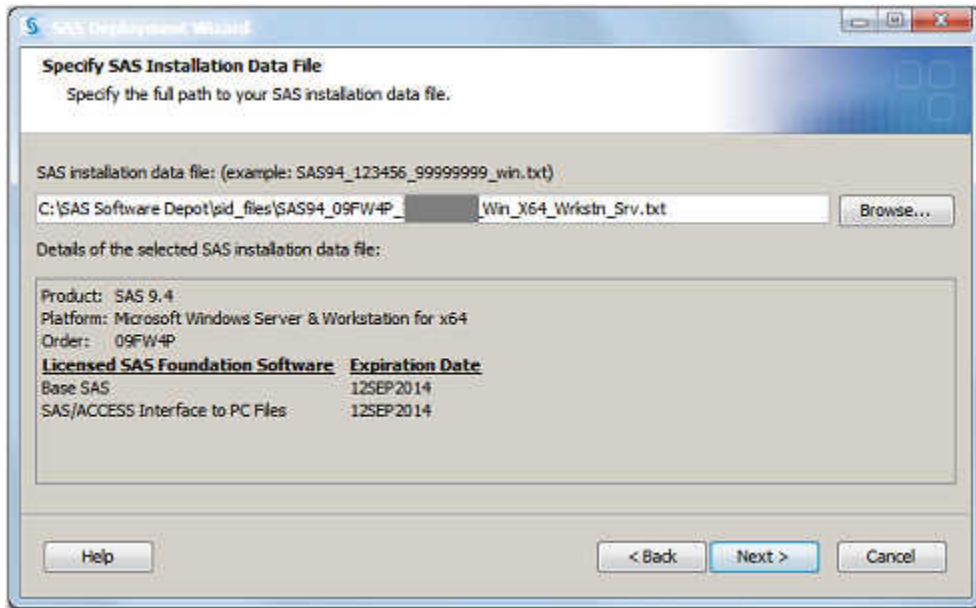
- 6 Select Products to Install. This page shows a list of SAS products and components. Be sure to select the box for SAS PC Files Server. You can use the scroll bar on the right to see all the products. Click **Next**.



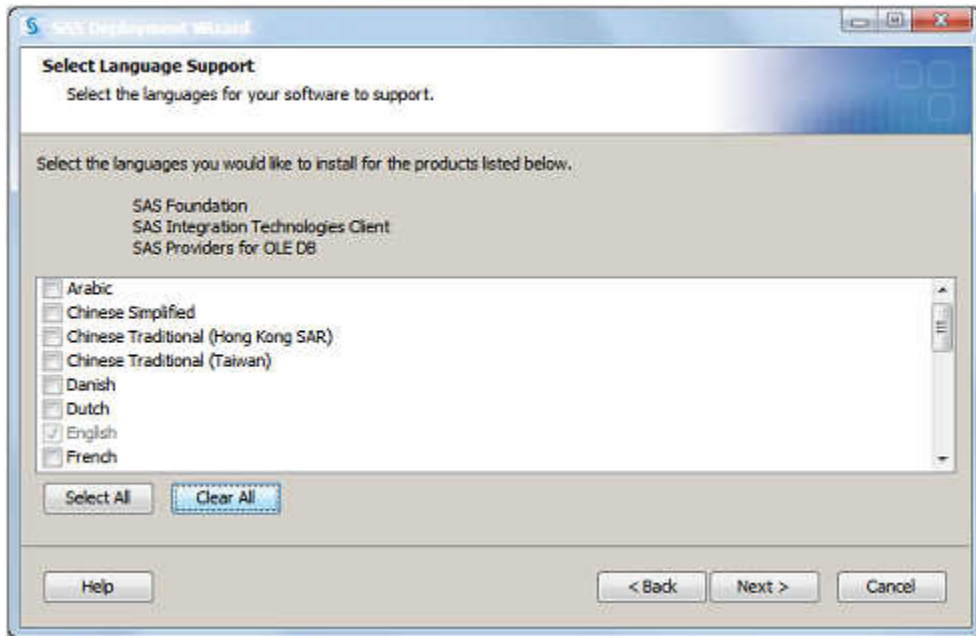
- 7 Select SAS Foundation Products. Notice that Base SAS is already selected. Click **Next**.



- 8 Specify SAS Installation Data File. From your software order, the SAS installation data file is displayed by default. Click **Next**.

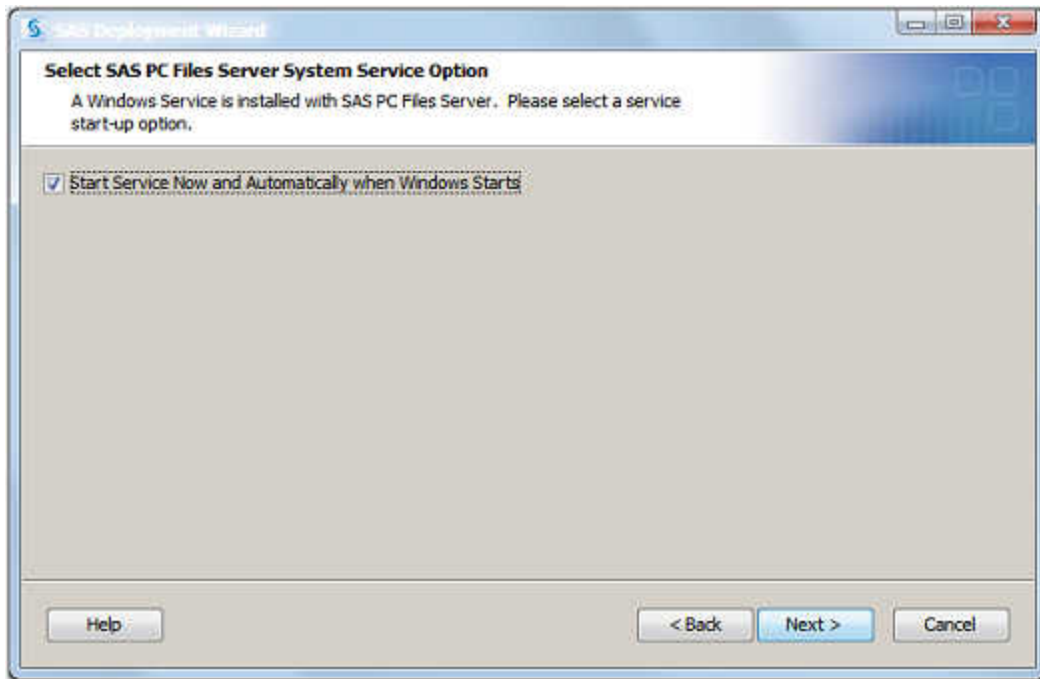


- 9 Select Language Support. Click **Clear All**. (English remains selected as the default language in this example.) Add any additional languages that you want SAS to support and click **Next**.

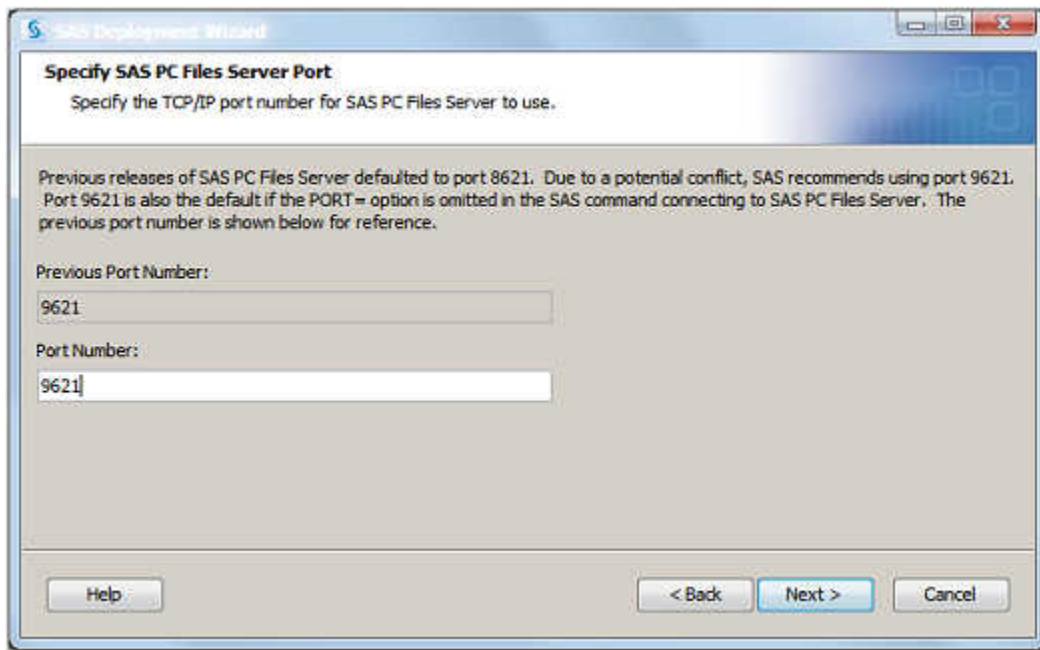


- 10 Select SAS PC Files Server System Service Option. Select the box if you want SAS PC Files Server to start automatically when Windows starts. The default is to not start the System Service.

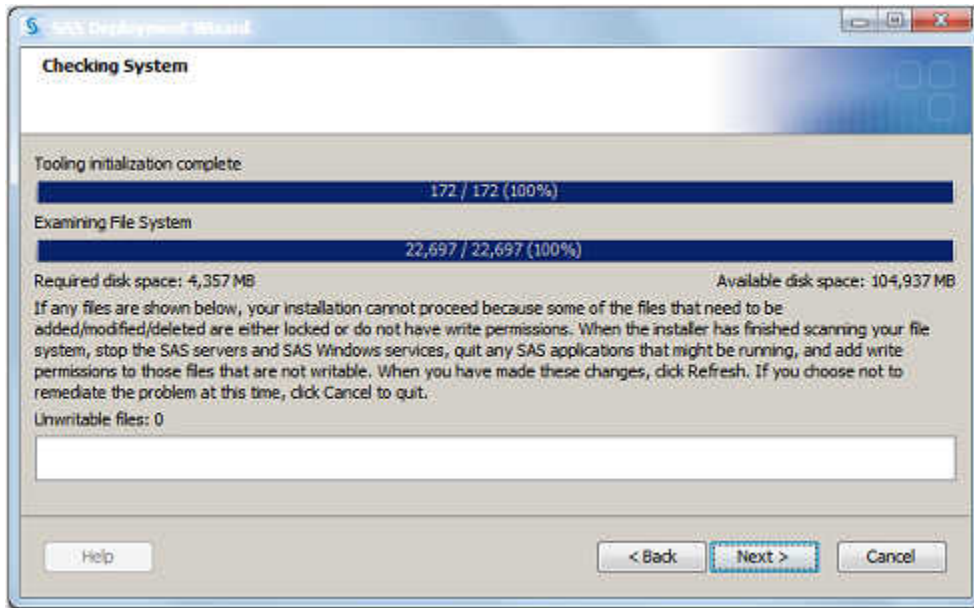




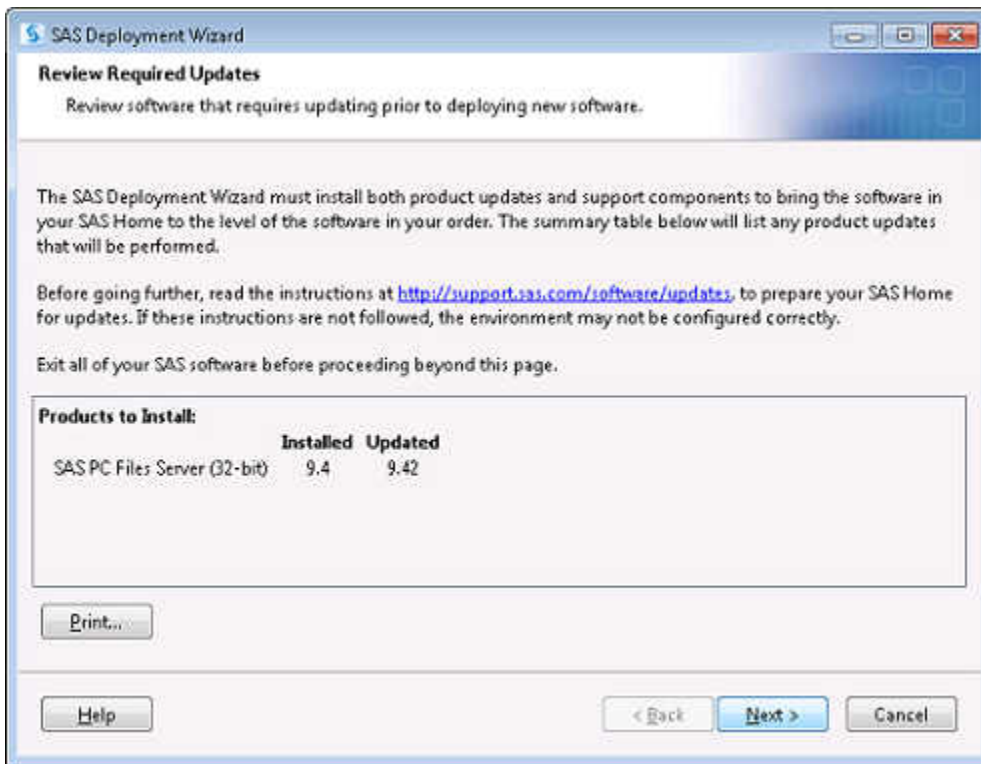
11 Specify SAS PC Files Server Port. The default port value is displayed. Do not change this value unless your administrator has told you otherwise. Click **Next**.



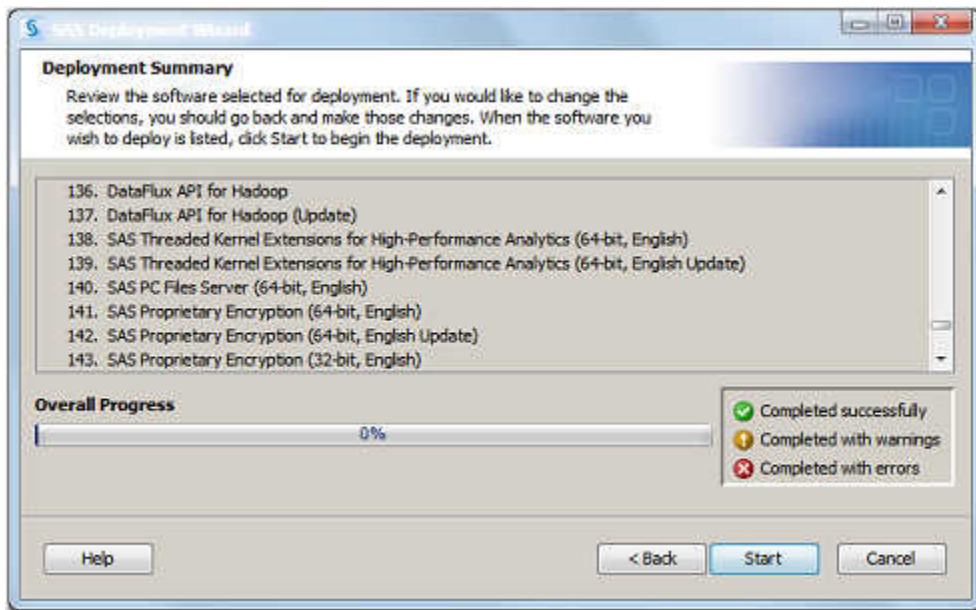
12 Checking System. Wait while the SAS Deployment Wizard checks your system. When it is finished, click **Next**.



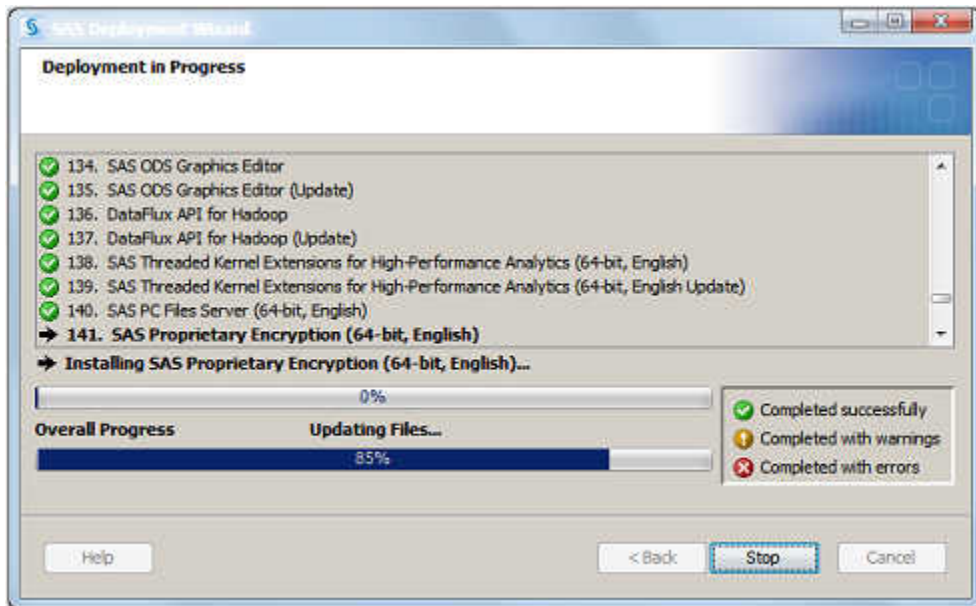
- 13 The Review Required Updates window appears. If you already have a SAS 9.4 version of SAS PC Files Server on your Windows machine, you are informed that your software will be updated. If you have already stopped the existing SAS PC Files Server, then you can continue your installation of SAS PC Files Server. (To stop the server, see step 1 of “Uninstall an Existing SAS 9.4 PC Files Server” on page 15.)



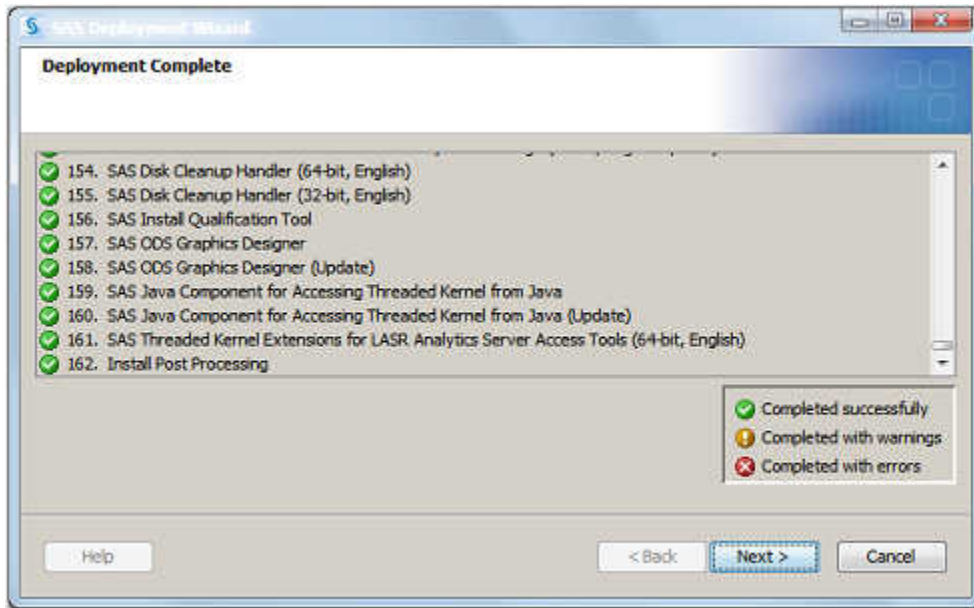
- 14 View the Deployment Summary page. It lists the SAS products and components to be installed. Click **Start** to begin the software update.



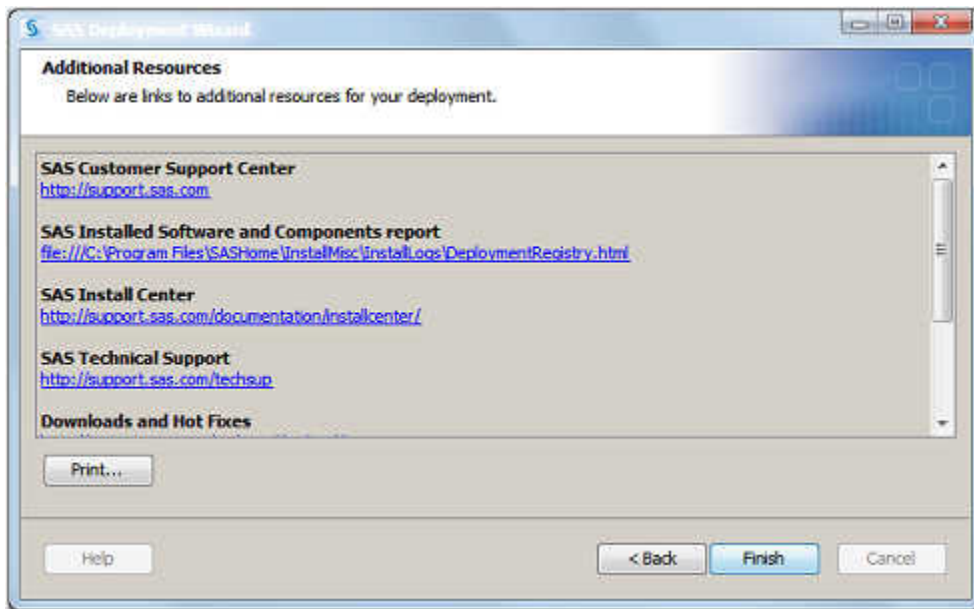
15 View the Deployment in Progress. It checks off each product or component as it is installed.



16 View the Deployment Complete page. It lists all the products and components that are installed. Click **Next**.



17 View the Additional Resources page. It lists SAS websites for additional information and support. Click **Finish** to complete the software installation and to close the SAS Deployment Wizard.



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## Uninstalling an Existing SAS PC Files Server

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**CAUTION**

**Be aware that each time you stop and restart the server, all users' sessions are closed.** Closing these sessions could result in a loss of data.

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## Update an Existing SAS 9.4 PC Files Server

If you have a SAS 9.4 version of SAS PC Files Server installed on your Microsoft Windows machine, you can update the server rather than uninstall it, see [“SAS PC Files Server Upgrades”](#) for more information.

---

## Uninstall an Existing SAS 9.4 PC Files Server

You must stop the current SAS 9.4 PC Files Server before you uninstall it, as follows:

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### CAUTION

Stopping and restarting the server could result in a loss of data. All users' sessions must be closed before you stop the server.

---

- 1 To stop the current SAS PC Files Server:
  - From the Microsoft Windows **Start** menu, select **Control Panel** ⇒ **Administrative Tools** ⇒ **Services** ⇒ **SAS PC Files Server** in the Services dialog box.
  - Right-click **SAS PC Files Server** and click **Stop**. Minimize the Services dialog box.

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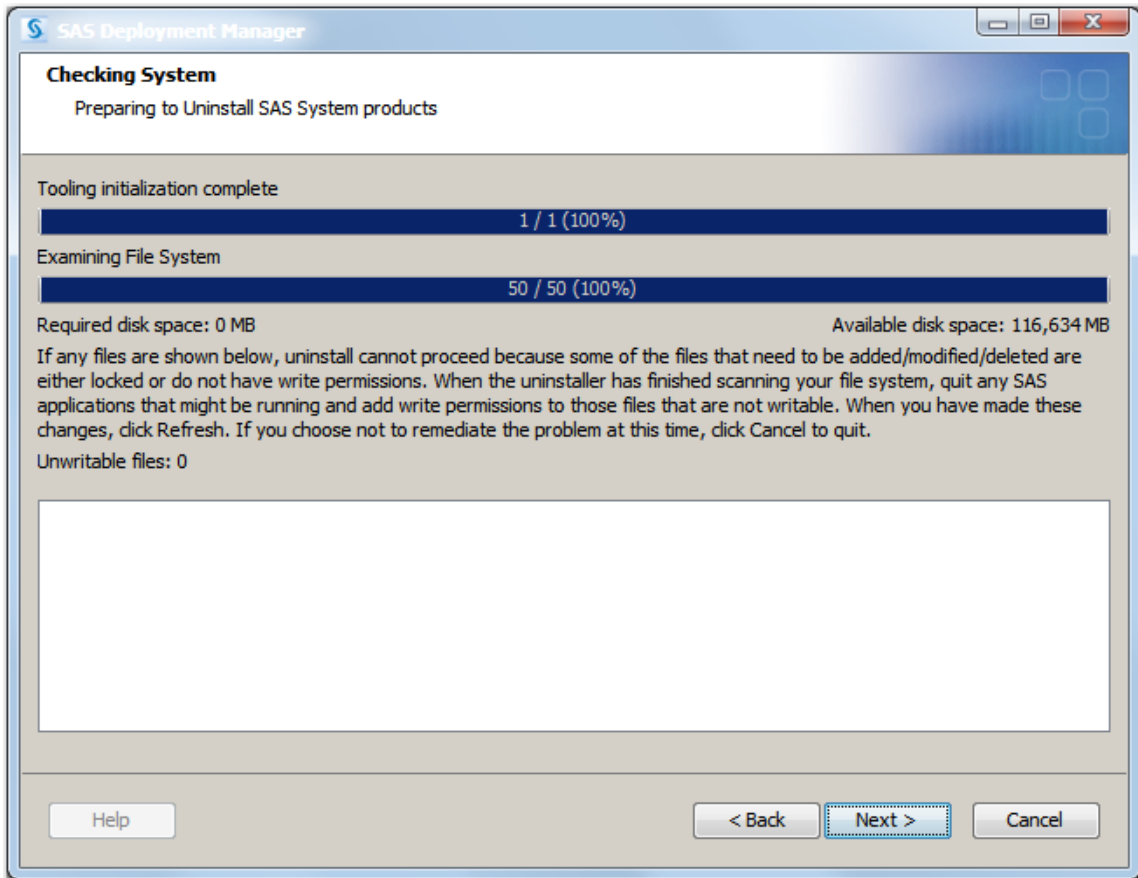
**Note:** It is recommended that you stop all SAS BI Servers (such as the object spawner, SAS Stored Process Server, and so on) if they are running on the same machine.

---
- 2 To uninstall the SAS 9.4 PC Files Server:

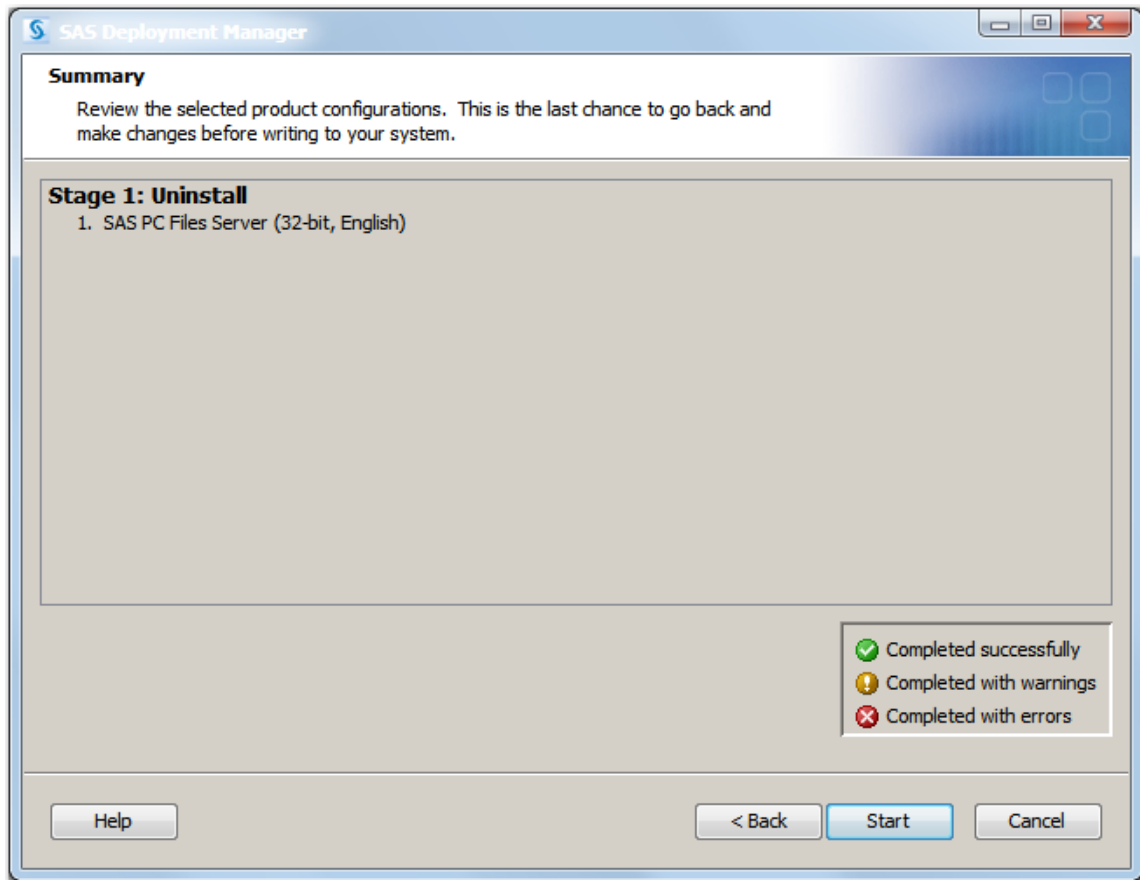
From the Microsoft Windows **Start** menu, select the **Control Panel**.
- 3 In the upper right corner, select either **View by: Large icons** or **View by: Small icons** to see all of the categories.
- 4 Double-click **Programs and Features** and then **SAS 9.4**.
- 5 In the Choose Language dialog box, select **English** or another language and click **OK**.
- 6 In the Select SAS Products to Uninstall page, click **Clear All** .

Scroll down to make sure that all of the product boxes are deselected. Otherwise, certain SAS products could be uninstalled along with SAS PC Files Server.
- 7 Select the box next to **SAS PC Files Server** only and click **Next**.

- 8 The SAS Deployment Manager appears. In the Checking System page, note the list of SAS products to be uninstalled. Click **Next**.



- 9 The Summary page displays the SAS 9.4 PC Files Server to be uninstalled. Click **Start** to uninstall the server.



10 The Deployment Complete: Uninstall page appears. Click **Next** .

11 The SAS Resources page appears. Click **Next** and then **Finish**.

## Uninstall an Existing SAS 9.3 PC Files Server

You must stop the current SAS 9.3 PC Files Server before you uninstall it, as follows:

- 1 To stop the current SAS PC Files Server:
  - From the Microsoft Windows **Start** menu, select **Control Panel** ⇒ **Administrative Tools** ⇒ **Services** ⇒ **SAS PC Files Server** in the Services dialog box.
  - Right-click **SAS PC Files Server** and click **Stop**. Minimize the Services dialog box.

**Note:** It is recommended that you stop all SAS BI Servers (such as the object spawner, SAS Stored Process Server, and so on) if they are running on the same machine.

- 2 To uninstall the SAS 9.3 PC Files Server:
 

From the Microsoft Windows **Start** menu, select **Settings** ⇒ **Control Panel**.

- 3 In the upper right corner, select either **View by: Large icons** or **View by: Small icons** to see all of the categories.
- 4 Double-click **Programs and Features**. Select **SAS 9.3**.
- 5 Select **English** or another language and click **OK**.
- 6 In the Select SAS Products to Uninstall page, click **Clear All** .
- 7 *Make sure that all of the product check boxes are deselected.* Otherwise, certain SAS products could be uninstalled along with SAS PC Files Server.
- 8 Select the box next to **SAS PC Files Server** only and click **Next**.
- 9 The Tooling Initialization Complete page is displayed. The top bar should indicate 1/1, which means that all pages of processing are complete. If it does not finish, contact SAS Technical Support and click **Cancel**.
- 10 In the Tooling Initialization Complete page, select **Next**.
- 11 A **stage 1 uninstall** button appears.
- 12 Click **Start**. SAS PC Files Server is uninstalled.
- 13 Click **This Program Uninstalled Correctly**.
- 14 Reboot your machine.
- 15 After the machine has rebooted, you are done. You can now install the latest version of SAS PC Files Server.



# Examples Using SAS PC Files Server

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## Importing and Exporting Microsoft Office Files When SAS 9.4 and SAS PC Files Server Are on the Same Machine

**Note:** The following examples show how to use SAS PC Files Server to read and write Microsoft Excel and Microsoft Access files. You can omit the SERVER= statement if you have 32-bit Microsoft Office and are using SAS PC Files Server on the same Windows 64-bit machine that is also running SAS 9.4.

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## Import a Microsoft Excel File into SAS

In the following examples, the Microsoft Excel workbook, Demo, is used. It contains several worksheets, including one named Invoice:

Figure 2.1 Invoice.xlsx File

	A	B	C	D	E	F	G	H	I
1	Invoice ID	Billed To	Amount Billed in Loc	Country	Amount Billed in U	Billed By	Billed On	Paid On	
2	11270	39045213	8,738,600,640.00	Brazil	3,675,848,666.21	239185	10/5/04	10/18/04	
3	11271	18543489	11,063,836.00	USA	11,063,836.00	457232	10/5/04		
4	11273	19783482	252,148.50	USA	252,148.50	239185	10/6/04	11/11/04	
5	11276	14324742	1,934,460.00	USA	1,934,460.00	135673	10/6/04	10/20/04	
6	11278	14898029	1,400,825.00	USA	1,400,825.00	239185	10/6/04	10/19/04	
7	11280	39045213	8,738,600,640.00	Brazil	3,675,848,666.21	423286	10/7/04	10/20/04	
8	11282	19783482	252,148.50	USA	252,148.50	457232	10/7/04	10/25/04	
9	11285	38763919	2,234,301.30	Argentina	772,847.05	239185	10/10/04	11/30/04	
10	11286	43459747	14,836,604.08	Australia	11,366,352.06	423286	10/10/04		
11	11287	15432147	252,148.50	USA	252,148.50	457232	10/11/04	11/4/04	
12	12051	39045213	8,738,600,640.00	Brazil	3,675,848,666.21	457232	11/2/04		
13	12102	18543489	11,063,836.00	USA	11,063,836.00	239185	11/17/04		
14	12263	19783482	252,148.50	USA	252,148.50	423286	12/5/04		
15	12468	14898029	1,400,825.00	USA	1,400,825.00	135673	12/24/04	1/2/05	
16	12471	39045213	8,738,600,640.00	Brazil	3,675,848,666.21	457232	12/27/04		
17	12476	38763919	2,234,301.30	Argentina	772,847.05	135673	12/24/04		
18	12478	15432147	252,148.50	USA	252,148.50	423286	12/24/04	1/2/05	
19									
20									

Using SAS PC Files Server for Excel data (EXCELCS) and the IMPORT procedure, you read the Invoice worksheet into SAS and create a SAS data set named WORK.SASINVOICES.

```
PROC IMPORT DATAFILE="mydrive:\proc_demo\demo.xlsx"
  DBMS=EXCELCS
  OUT=WORK.SASINVOICES REPLACE;
  SHEET='Invoice';
RUN;
```

```
PROC PRINT DATA=WORK.SASINVOICES;
RUN;
```

**Example Code 2.1** Log for Importing the XLSX File

```

33  /* To import a Microsoft Excel file into SAS */
34
35  PROC IMPORT DATAFILE="mydrive:\proc_demo\demo.xlsx"
36  DBMS=EXCELCS
37  OUT=WORK.SASINVOICES REPLACE;
38  SHEET='Invoice';
39  RUN;

NOTE: WORK.SASINVOICES data set was successfully created.
NOTE: The data set WORK.SASINVOICES has 17 observations and 8 variables.
NOTE: PROCEDURE IMPORT used (Total process time):
      real time          1.96 seconds
      cpu time           0.12 seconds

40
41  PROC PRINT DATA=WORK.SASINVOICES;
42  RUN;

NOTE: There were 17 observations read from the data set WORK.SASINVOICES.
NOTE: PROCEDURE PRINT used (Total process time):
      real time          0.02 seconds
      cpu time           0.03 seconds

```

**Figure 2.2** WORK.SASINVOICES Data Set

Obs	Invoice_ID	Billed_To	Amount_Billed_in_Local_Currency	Country	Amount_Billed_in_US_Dollars	Billed_By	Billed_On	Paid_On
1	11270	39045213	8738600640.0	Brazil	3675848666.21	239185	05OCT2004	18OCT2004
2	11273	19783482	252148.5	USA	252148.50	239185	06OCT2004	11NOV2004
3	11276	14324742	1934460.0	USA	1934460.00	135673	06OCT2004	20OCT2004
4	11278	14898029	1400825.0	USA	1400825.00	239185	06OCT2004	19OCT2004
5	11280	39045213	8738600640.0	Brazil	3675848666.21	423286	07OCT2004	20OCT2004
6	11282	19783482	252148.5	USA	252148.50	457232	07OCT2004	25OCT2004
7	11285	38763919	2234301.3	Argentina	772847.05	239185	10OCT2004	30NOV2004
8	11287	15432147	252148.5	USA	252148.50	457232	11OCT2004	04NOV2004
9	12468	14898029	1400825.0	USA	1400825.00	135673	24DEC2004	02JAN2005
10	12478	15432147	252148.5	USA	252148.50	423286	24DEC2004	02JAN2005

## Export a SAS Data Set to a Microsoft Excel File

In this example, you use the EXPORT procedure to write SAS data from WORK.SASINVOICES and you create a new XLSB file workbook named Demo2. An XLSB (binary format) file can be read from and written to faster than other Excel file formats. That makes them especially useful for very large worksheets. The new Demo2 workbook contains one worksheet named YourInvoices.

```

PROC EXPORT DATA=WORK.SASINVOICES
  OUTFILE='mydrive:\PROC_demo\demo2.xlsb'
  DBMS=EXCELCS REPLACE;
  SHEET='YourInvoices';

```

```
RUN;
```

Figure 2.3 New XLSB Workbook, YourInvoices

Invoice_ID	Billed_To Amount	Billed_in Local_Currency	Country	Amount_Billed_in_US_Dollars	Billed_By	Billed_On	Paid_On
11270	39045213	8738600640	Brazil	3675848666	239185	10/5/04	10/18/04
11271	18543489	11063836	USA	11063836	457232	10/5/04	
11273	19783482	252148.5	USA	252148.5	239185	10/6/04	11/11/04
11276	14324742	1934460	USA	1934460	135673	10/6/04	10/20/04
11278	14898029	1400825	USA	1400825	239185	10/6/04	10/19/04
11280	39045213	8738600640	Brazil	3675848666	423286	10/7/04	10/20/04
11282	19783482	252148.5	USA	252148.5	457232	10/7/04	10/25/04
11285	38763919	2234301.3	Argentina	772847.054	239185	10/10/04	11/30/04
11286	43459747	14836604.08	Australia	11366352.06	423286	10/10/04	
11287	15432147	252148.5	USA	252148.5	457232	10/11/04	11/4/04
12051	39045213	8738600640	Brazil	3675848666	457232	11/2/04	
12102	18543489	11063836	USA	11063836	239185	11/17/04	
12263	19783482	252148.5	USA	252148.5	423286	12/5/04	
12468	14898029	1400825	USA	1400825	135673	12/24/04	1/2/05
12471	39045213	8738600640	Brazil	3675848666	457232	12/27/04	
12476	38763919	2234301.3	Argentina	772847.054	135673	12/24/04	
12478	15432147	252148.5	USA	252148.5	423286	12/24/04	1/2/05

EXCELCS can also create and update Excel 2007, Excel 2010, and later files.

When you create a new Microsoft Excel file, use an .xlsb extension. If you name the new file with an .xlsx extension, no error occurs. However, the file is still in the .xlsb format because of how the Microsoft ACE driver works. You would not be able to open the file using the Excel application until you rename with an .xlsb extension.

## Use a SAS LIBNAME Statement for a Microsoft Excel File

You can specify a LIBNAME statement with a DATA step to assign a libref to the Microsoft Excel workbook, Demo. You specify the PCFILES engine in order to connect to the workbook. You can then specify a worksheet (Orders) from that workbook as the source for the temporary SAS data set, TEMP1.

The file extension varies depending on the type of Excel file (XLS, XLSX, or XLSB). You must specify the file extension. Otherwise, you receive an error that your Excel file cannot be found.

```
LIBNAME TEST PCFILES PATH='mydrive:\proc_demo\demo.xlsx';
```

```
DATA TEMP1;
    SET TEST.ORDERS;
```

```
RUN;

LIBNAME TEST CLEAR;
```

Figure 2.4 First Eight Rows of the WORK.TEMP1 Data Set

Obs	Order_ID	Stock_ID	Length	Fabric_Charges	Shipped_To	Ordered_Date	Shipped_Date	Taken_By	Processed_By	Special_Instructions
1	11289	8870	800	.	18878078	03OCT2004	.	212916	.	
2	11270	1279	1750	2256870.0	39045213	03OCT2004	19OCT2004	321783	237642	Customer agrees to accept any liabilities that may arise from the use of this product. If the customer is sued, the customer agrees not to countersue us.
3	11271	8934	110	11063836.0	18543489	03OCT2004	13OCT2004	458910	458921	
4	11272	3478	1000	.	29834248	03OCT2004	.	234987	.	
5	11273	2567	450	262148.5	19783482	04OCT2004	14NOV2004	119012	216382	
6	11274	4789	1000	.	15432147	04OCT2004	.	212910	.	
7	11275	3478	1000	.	29834248	04OCT2004	.	234987	.	
8	11276	1279	1500	1834460.0	14324742	04OCT2004	21OCT2004	321783	120591	Customer agrees to accept any liabilities that may arise from the use of this product. If the customer is sued, the customer agrees not to countersue us.

## Import a Microsoft Access Table into SAS

For the following examples, you use data from the Microsoft Access table, Customers, which is one of the tables in the AnnualFiles.accdb database. You could use either an .mdb database table or an .accdb database table in these examples.

Figure 2.5 Microsoft Access Table, Customers

ID	Customer	State	Zip Code	Country	Phone	Name	Contact	Address	City	First Order
1	14324742	CA	95123	USA	408/629-0589	SANTA CLARA VA	A. BAUM	5089 CALERO AVE	SAN JOSE	2/5/83
2	14569877	NC	27514	USA	915/489-6792	PRECISION PRODI	CHARLES BARO	198 FAYETTEVILLE	MEMPHIS	8/15/01
3	14898029	MD	20850	USA	301/760-2541	UNIVERSITY BIOM	S. TURNER	1598 PICCARD DRI	ROCKVILLE	11/12/94
4	15432147	MI	49001	USA	616/582-3906	GREAT LAKES LAB	D.W. KADARAL	103 HARRIET STREE	KALAMAZOO	4/28/04
5	18543489	TX	78701	USA	512/478-0788	LONE STAR STATE	A. SILVERIA	5609 RIO GRANDE	AUSTIN	9/10/97
6	19783482	VA	22090	USA	703/714-2900	TWENTY-FIRST CE	M.R. HEFFERN	4613 MICHAEL FAR	RESTON	7/18/86
7	19876078	CA	93274	USA	209/686-3953	SAN JOAQUIN SCI	J.A. WHITTEN	1095 HIGHWAY 99	TULARE	5/11/97
8	26422096		75014	France	4268-54-72	SOCIETE DE RECHI	Y. CHAVANON	40 RUE PERIGNON	LA ROCHELLE	6/14/01
9	26984578		5110	Austria	43-57-04	INSTITUT FUER TE	GUNTER SPIELM	MECHITARISTENG/	VIENNA	5/25/05
10	27654351		5010	Belgium	02/215-37-32	INSTITUT DE RECH	I. CLEMENS	103 RUE D'EGMON	BRUSSELS	10/14/04
11	28710427	HV	3607	Netherlands	(021)570517	ANTONIE VAN LEI	M.C. BORGSTEE	BIRMOERSTRAAT	THE HAGUE	10/10/03
12	29834248			Britain	(0552)715311	BRITISH MEDICAL	A.D.M. BRYCES	44 PRINCESS GATE	LONDON, SW7 1PL	1/29/04
13	31548901	BC		Canada	406/422-3413	NATIONAL COUN	W.E. MACDON	5063 RICHMOND N	VANCOUVER, V5T	3/19/02
14	38763919		1405	Argentina	244-6324	INSTITUTO DE BIC	JORGE RUNNA	SALGUERO 2345	BUENOS AIRES	12/10/02
15	39045213	SP	1051	Brazil	012/302-1021	LABORATORIO DE	ELISABETE REG	RUA DONA ANTON	SAO PAULO	8/18/82
16	43290587			Japan	(02)933-3212	HASSEI SAIBO GA	Y. FUKUDA	3-2-7 ETCHUJIMA	TOKYO 101	2/8/92
17	43459747		3181	Australia	03/734-5111	RESEARCH OUTFT	R.G. HUGHES	191 LOWER PLENT	PRAHRAN, VICTOR	7/28/90
18	46543295			Japan	(03)022-2332	WESTERN TECHN		4-3-8 ETCHUJIMA	TOKYO 102	4/19/02
19	46783280		2374	Singapore	3762855	NGEE TECHNOLO	LING TAO SOO	356 CLEMENTI RO	SINGAPORE	9/27/97
20	48345514			United Arab En	213445	GULF SCIENTIFIC	J.Q. RIFAI	POB 8032	RAS AL KHAIMAH	9/10/04

In this example, you import data from the Customers table into SAS to create the SAS data set WORK.SASCUSTOMERS.

```
PROC IMPORT DBMS=ACCESSCS DATATABLE='Customers'
OUT=WORK.SASCUSTOMERS REPLACE;
DATABASE='mydrive:\yourAccessdirectory\AnnualFiles.accdb';
RUN;

PROC PRINT DATA=WORK.SASCUSTOMERS (OBS=8);
RUN;
```

Figure 2.6 First Eight Rows of the WORK.SASCUSTOMERS Data Set

Obs	Customer_ID	State	Zip_Code	Country	Phone	Name	Contact	Address	City	First_Orderd_Date
1	14324742	CA	95123	USA	408/629-0589	SANTA CLARA VALLEY TECHNOLOGY SPECIALISTS	A. BAUM	5089 CALERO AVENUE	SAN JOSE	05FEB1983
2	14569877	NC	27514	USA	915/489-6792	PRECISION PRODUCTS	CHARLES BARON	198 FAYETTEVILLE ROAD	MEMPHIS	15AUG2001
3	14898029	MD	20850	USA	301/760-2541	UNIVERSITY BIOMEDICAL MATERIALS	S. TURNER	1598 PICCARD DRIVE	ROCKVILLE	12NOV1994
4	15432147	MI	49001	USA	616/582-3906	GREAT LAKES LABORATORY EQUIPMENT MANUFACTURERS	D.W. KADARAUCH	103 HARRIET STREET	KALAMAZOO	28APR2004
5	18543489	TX	78701	USA	512/478-0788	LONE STAR STATE RESEARCH SUPPLIERS	A. SILVERIA	5609 RIO GRANDE	AUSTIN	10SEP1997
6	19783482	VA	22090	USA	703/714-2900	TWENTY-FIRST CENTURY MATERIALS	M.R. HEFFERNAN	4613 MICHAEL FARADAY DRIVE	RESTON	16JUL1998
7	19876078	CA	93274	USA	209/686-3953	SAN JOAQUIN SCIENTIFIC AND INDUSTRIAL SUPPLY, INC.	J.A. WHITTEN	1095 HIGHWAY 99 SOUTH	TULARE	11MAY1997
8	26422096		75014	France	4268-54-72	SOCIETE DE RECHERCHES POUR LA CHIRURGIE ORTHOPEDIQUE	Y. CHAVANON	40 RUE PERIGNON	LA ROCHELLE	14JUN2001

## Export a SAS Data Set to a Microsoft Access Table

In this example, you export data from the SAS data set WORK.SASCUSTOMERS to create a table in the AnnualFiles database. You could use either an .mdb database table or an .accdb database table in these examples.

The data set option DROP= is used to remove the column STATE from the SAS data set, and therefore it does not appear in the new Microsoft Access table, Customers\_by\_Zip.

```
PROC EXPORT DATA=WORK.SASCUSTOMERS (DROP=STATE)
  OUTTABLE='Customers_by_Zip'
  DBMS=ACCESSCS REPLACE;
  DATABASE='mydrive:\yourAccessdirectory\AnnualFiles.accdb';
RUN;
```

Figure 2.7 New Microsoft Access Table, Customers\_by\_Zip.accdb

ID	Customer	Zip Code	Country	Phone	Name	Contact	Address	City	First Order
1	14324742	95123	USA	408/629-0589	SANTA CLARA VA	A. BAUM	5089 CALERO AVE	SAN JOSE	2/5/83
2	14569877	27514	USA	919/489-6792	PRECISION PROD	CHARLES BARO	198 FAYETTEVILLE	MEMPHIS	8/15/01
3	14898029	20850	USA	301/760-2541	UNIVERSITY BIOM	S. TURNER	1598 PICCARD DRI	ROCKVILLE	11/12/94
4	15432147	49001	USA	616/582-3906	GREAT LAKES LAB	D.W. KADARAL	103 HARRIET STREE	KALAMAZOO	4/28/04
5	18543489	78701	USA	512/478-0788	LONE STAR STATE	A. SILVERIA	5609 RIO GRANDE	AUSTIN	9/10/97
6	19783482	22090	USA	703/714-2900	TWENTY-FIRST CE	M.R. HEFFERNA	4613 MICHAEL FAR	RESTON	7/18/86
7	19876078	93274	USA	209/686-3953	SAN JOAQUIN SC	J.A. WHITTEN	1095 HIGHWAY 99	TULARE	5/11/97
8	26422096	75014	France	4268-54-72	SOCIETE DE RECH	Y. CHAVANON	40 RUE PERIGNON	LA ROCHELLE	6/14/01
9	26984578	5110	Austria	43-57-04	INSTITUT FUER T	GUNTER SPIELM	MECHITARISTENG	VIENNA	5/25/05
10	27654351	5010	Belgium	02/215-37-32	INSTITUT DE RECH	I. CLEMENS	103 RUE D'EGMON	BRUSSELS	10/14/04
11	28710427	3607	Netherlands	(021)570517	ANTONIE VAN LE	M.C. BORGSTEE	BIRMOERSTRAAT 3	THE HAGUE	10/10/03
12	29834248		Britain	(0552)715311	BRITISH MEDICAL	A.D.M. BRYCES	44 PRINCESS GATE	LONDON, SW7 1PL	1/29/04
13	31548901		Canada	406/422-3413	NATIONAL COUN	W.E. MACDON.	5063 RICHMOND N	VANCOUVER, V5T	3/19/02
14	38763919	1405	Argentina	244-6324	INSTITUTO DE BIC	JORGE RUNNAZ	SALGUERO 2345	BUENOS AIRES	12/10/02
15	39045213	1051	Brazil	012/302-1021	LABORATORIO DE	ELISABETE REGI	RUA DONA ANTON	SAO PAULO	8/18/82
16	43290587		Japan	(02)933-3212	HASSEI SAIBO GA	Y. FUKUDA	3-2-7 ETCHUJMA,	TOKYO 101	2/8/92
17	43459747	3181	Australia	03/734-5111	RESEARCH OUTFI	R.G. HUGHES	191 LOWER PLENT	PRAHRAN, VICTOR	7/28/90
18	46543295		Japan	(03)022-2332	WESTERN TECHN		4-3-8 ETCHUJMA,	TOKYO 102	4/19/02
19	46783280	2374	Singapore	3762855	NGEE TECHNOLOI	LING TAO SOO	356 CLEMENTI ROA	SINGAPORE	9/27/97
20	48345514		United Arab Em	213445	GULF SCIENTIFIC	J.Q. RIFAIL	POB 8032	RAS AL KHAIMAH	9/10/04
* (New)									

For more information about using the IMPORT and EXPORT procedures with Microsoft Access and Excel files, see [“Export a SAS Data Set to a Microsoft Access Table”](#) on page 25.

## Use the SAS LIBNAME Statement for a Microsoft Access Database

In this example, you assign the libref TEST to the AnnualFiles database. You then create a temporary SAS data set, TEMP1, from the Customers table in the database. Notice that this LIBNAME statement specifies the PCFILES engine. After running this simple test, you remove the TEST libref's association with the database.

```
LIBNAME TEST PCFILES path='mydrive:\yourAccessdirectory\AnnualFiles.accdb';

DATA TEMP1;
    SET TEST.CUSTOMERS;
RUN;

LIBNAME TEST CLEAR;
```

**Example Code 2.2** Log to Show SAS LIBNAME Statement for the PCFILES Engine

```
42 LIBNAME TEST PCFILES path='C:\Users\sassej\documents\AnnualFiles.accdb';
NOTE: Libref TEST was successfully assigned as follows:
      Engine:          PCFILES
      Physical Name:  C:\Users\sassej\documents\AnnualFiles.accdb
43 DATA TEMP1;
44     SET TEST.CUSTOMERS;
45 RUN;

NOTE: There were 20 observations read from the data set TEST.CUSTOMERS.
NOTE: The data set WORK.TEMP1 has 20 observations and 11 variables.
NOTE: DATA statement used (Total process time):
      real time          0.01 seconds
      cpu time           0.01 seconds
```

## Importing and Exporting Microsoft Office Files When SAS and SAS PC Files Server Are on Different Machines

### CAUTION

If SAS PC Files Server and SAS are not running on the same Microsoft Windows machine, you must specify additional LIBNAME statement options or additional connection statements for the IMPORT and EXPORT procedures in order to access Microsoft Office files. The same applies if you are running SAS



9.4 on UNIX or Linux and want to access Microsoft Office files located on Windows. The additional options or statements provide information so that the data access can be completed. or if you are running SAS 9.4 on a different Microsoft Windows machine than the one on which SAS PC Files Server is running.

---

---

## Import a Microsoft Excel File into SAS

In this example, the Microsoft Excel workbook, Demo, has several worksheets, including one named Invoice. Using SAS PC Files Server for Excel data (EXCELCS) and the IMPORT procedure, you read the Invoice worksheet into SAS and create a SAS data set named WORK.SASINVOICES. The default value for PORT= is 9621.

The SERVER= statement identifies the PC that is running SAS PC Files Server, and in this example, the Microsoft Excel data resides on a different Windows machine.

```
PROC IMPORT DATAFILE='mydrive:\proc_demo\demo.xlsx'  
  DBMS=EXCELCS  
  OUT=WORK.SASINVOICES REPLACE;  
  PORT=9621;  
  SERVER='PCFilesServer';  
  SHEET='Invoice';  
RUN;  
  
PROC PRINT DATA=WORK.SASCUSTOMERS (OBS=8);  
RUN;
```

For the output from this example, see [Figure 2.2 on page 21](#).

---

## Export a SAS Data Set to a Microsoft Excel File

In this example, you use the EXPORT procedure to write SAS data from WORK.SASINVOICES and you create a new XLSB file (workbook) named Demo2. An XLSB (binary format) file can be read from and written to faster than other Excel file formats. That makes them especially useful for very large worksheets. The new Demo2 workbook contains one worksheet named YourInvoices:

```
PROC EXPORT DATA=WORK.SASINVOICES  
  OUTFILE='mydrive:\PROC_demo\demo2.xlsb'  
  DBMS=EXCELCS REPLACE;  
  SHEET='YourInvoices';  
  PORT=9621 ;  
  SERVER='PCFilesServer';  
  
RUN;
```

For the output from this example, see [Figure 2.3 on page 22](#).

EXCELCS can also create and update Excel 2007, Excel 2010, and later files.

When you create a new Microsoft Excel file, use an .xlsb extension. If you name the new file with an .xlsx extension, no error occurs. However, the file is still in the .xlsb format because of how the Microsoft ACE driver works. You would not be able to open it using the Excel application until you rename the file with an .xlsb extension.

For more information about using the IMPORT and EXPORT procedures with Microsoft Access and Excel files, see [“Export a SAS Data Set to a Microsoft Access Table” on page 25](#).

---

## Use the SAS LIBNAME Statement for a Microsoft Excel File

You can specify a LIBNAME statement with a DATA step to assign a libref to the Microsoft Excel workbook, Demo. You can then specify a worksheet (Orders) from that workbook as the source for the temporary SAS data set, TEMP1. Notice that this LIBNAME statement specifies the PCFILES engine. You identify the Windows machine on which SAS PC Files Server is running and specify the default port number.

When using the following example, note that the file extension varies depending on the type of Excel file (XLS, XLSX, or XLSB). You must specify the file extension. Otherwise, you receive an error that your Excel file cannot be found.

```
LIBNAME TEST PCFILES PATH='mydrive:\PROC_demo\demo2.xlsx'
          SERVER='yourExcelserver' PORT=9621;

DATA TEMP1;
    SET TEST.ORDERS;
RUN;

LIBNAME TEST CLEAR;
```

For more examples and information, see [“Assigning a Libref to a Microsoft Excel Workbook” in SAS/ACCESS Interface to PC Files: Reference](#).

---

## Import a Microsoft Access Table into SAS

In this example, you import data from the Microsoft Access table, Customers, to create the SAS data set WORK.SASCUSTOMERS. Customers is the name of one of the tables in the AnnualFiles.accdb database. You could use either an .mdb database or an .accdb database in these examples. You identify the Windows machine on which SAS PC Files Server is running and specify the default port number.

To improve performance for reading data, set the read buffer to 25 or higher using the DBDSOPTS= statement.

```
PROC IMPORT DATATABLE='Customers'
          DBMS=ACCESSCS
          OUT=SASCUSTOMERS REPLACE;
```

```
DATABASE='mydrive:\yourAccessdirectory\AnnualFiles.accdb';  
SERVER="yourPCFServer.com";  
PORT=9621;  
DBDSOPTS='READBUFF=30';  
RUN;
```

---

## Export to a SAS Data Set to a Microsoft Access Table

In this example, you export data from the SAS data set WORK.SASCUSTOMERS to create a new table, Customers\_2, which is located on same Windows machine as SAS PC Files Server.

```
PROC EXPORT DATA=WORK.SASCUSTOMERS  
  OUTTABLE='Customers_2'  
  DBMS=ACCESSCS REPLACE ;  
  DATABASE='mydrive:\yourAccessdirectory\AnnualFiles.accdb';  
  SERVER='myPCFServer.com';  
  PORT=9621;  
  DBDSOPTS='INSERTBUFF=15';  
RUN;
```

Note that the SAS PC Files Server does not support the INSERTBUFF= data set option with a value higher than 1 for writing data to Microsoft Excel. It ignores this option when writing data to Excel.

---

## Use the SAS LIBNAME Statement for a Microsoft Access Database on a Secured Server

In this example, you assign the libref TEST to the AnnualFiles.accdb database. You then create a temporary SAS data set, TEMP1, from the Customers table in the database. Notice that this LIBNAME statement specifies the PCFILES engine.

Because SAS PC Files Server is secured, you must specify a domain name and User ID, as well as the server's password.

```
LIBNAME TEST PCFILES PATH='mydrive:\yourAccessdirectory\AnnualFiles.accdb'  
  PORT=9621 SERVER='D1234' SERVERUSER='mydomain\suzanj' SERVERPASS='AbCd_987';  
  
DATA TEMP1;  
  SET TEST.CUSTOMERS;  
RUN;  
  
LIBNAME TEST CLEAR;
```

For more examples and information, see [“Assigning a Libref to a Microsoft Access Database” in SAS/ACCESS Interface to PC Files: Reference](#).



# SAS PC Files Server Administration

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# Overview

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## SAS PC Files Server

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**Note:** The PC File Server runs only on Microsoft Windows.

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SAS PC Files Server is an application that receives client requests to access data files that are specific to Microsoft Office, such as Microsoft Excel and Microsoft Access. It runs on both 32- and 64-bit Windows as either a 32-bit application or a 64-bit application.

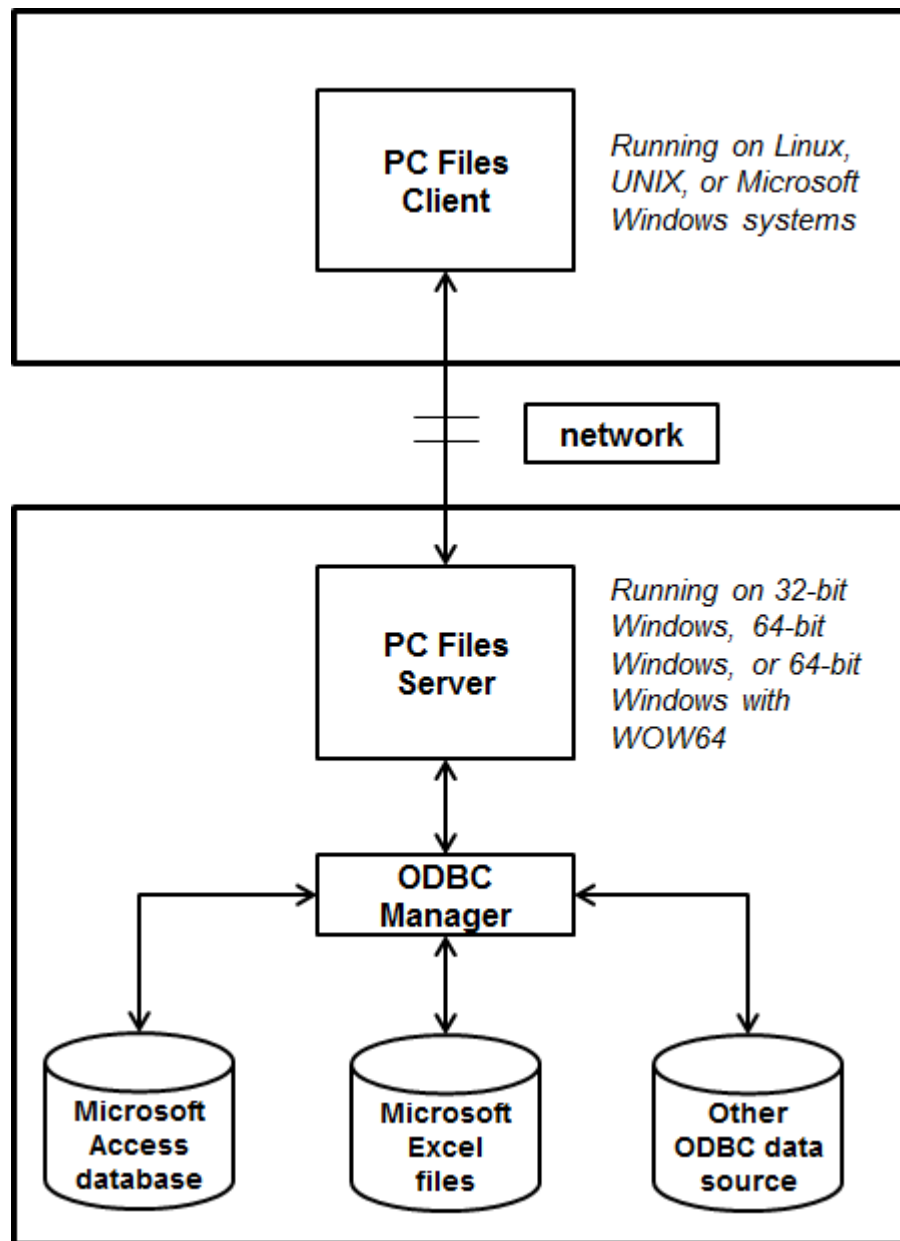
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**Note:** The PC Files Server is not shipped with SAS Viya. You can download the PC Files Server from the SAS Downloads site. For download instructions, see [“Which SAS PC Files Server Do You Install?”](#) on page 3.

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To access data from Microsoft Office products, SAS/ACCESS Interface to PC Files must be installed on the client that is running SAS. The server must be installed and running on the Microsoft Windows machine where the Microsoft Office products’ data resides.

Figure 3.1 SAS PC Files Server Interaction



WOW64 (Windows 32-bit on Windows 64-bit) is a subsystem of the Microsoft Windows operating environment that is capable of running 32-bit applications on 64-bit Windows. WOW64 is included in all 64-bit versions of Windows.

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# SAS PC Files Server Configuration

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## Overview

The behavior of SAS PC Files Server is determined during installation and configuration. The installation process configures SAS PC Files Server to match the bit architecture of Microsoft Office. The following are included in the configuration:

- operation as either a 32-bit application or a 64-bit application
- the port number that is used for TCP/IP server connections
- the number of concurrent connections that SAS PC Files Server supports
- whether the data is encrypted between SAS/ACCESS Interface to PC Files and SAS PC Files Server.

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## SAS PC Files Server Versions (32-Bit versus 64-Bit)

The version of SAS PC Files Server is automatically determined by any existing Microsoft Access Database Engine (ACE). The ACE driver is an ODBC driver that accesses the supported PC file types for use in SAS. Starting with Microsoft Office 2010, the ACE driver is supplied in either a 32-bit or 64-bit version. If Microsoft Office is installed on the same machine as SAS PC Files Server, you can check your version of Office to determine your ACE driver version.

**SAS 9.4M8**The Microsoft ACE driver is a prerequisite for SAS PC Files Server and needs to be installed by the user.

To check whether your version of Microsoft Office is 32-bit or 64-bit, open one of the products (such as Microsoft Excel) and do the following:

- For Office 2010, click the **File** tab and then **Help**.  
For Office 2013, click the **File** tab and then **Account**.
- The version of Excel is shown in **About Microsoft Excel**. Notice whether it is a 32-bit or 64-bit version of Excel.

If you click the **About Excel** icon and its **System Info** button, you can also see which version of Microsoft Windows you have.

(For releases before Microsoft Office 2010, the ACE driver is 32-bit.)

The installation process configures SAS PC Files Server to match the bit architecture of Microsoft Office or of the ACE driver if the ACE driver is installed. If you have the 32-bit version of Microsoft Office, then the 32-bit version of SAS PC Files Server is configured. The two are “bit-compatible” in that they are both 32-bit.



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**Note:** SAS PC Files Server must be bit-compatible with the Microsoft ACE driver (32- or 64-bit).

---

If you install SAS PC Files Server on a machine that does not already have Microsoft Office or the ACE driver, then the 64-bit version of the ACE driver is installed, followed by the 64-bit version of SAS PC Files Server. The ACE driver defaults to 64-bit.

Only one version of the ACE driver can be installed on a given system. You cannot install both the 32- and the 64-bit ACE drivers. The same constraint applies to the SAS PC Files Server. For more information, see “Resolving Bitness Errors.”

If you need to force the installation of a particular SAS PC Files Server (32- or 64-bit), you must first manually install the appropriate ACE driver. For an example, see “Using the Wizards and the PC File Server” in *SAS/ACCESS Interface to PC Files: Reference*.

### Resolving Bitness Errors

CLI and ODBC errors can occur when you use SAS PC Files Server to import from and export to Microsoft Excel files. When you are importing or exporting Excel files using SAS PC Files Server, you might receive the following error:

```
ERROR: CLI error trying to establish connection: [Microsoft] [ODBC Driver Manager]
      Data source name not found and no default driver specified.
      ERROR: Error in the LIBNAME statement. Connection Failed. See log for details.
```

Either of the following can cause this problem:

- The wrong SAS PC Files Server has been installed. The most common cause is that the 64-bit version of SAS PC Files Server is installed on a machine that is running the 32-bit version of Microsoft Office.
- No Microsoft ACE driver is installed on the system.

To circumvent the problem, first check the bit architecture of SAS PC Files Server and Microsoft Office. If they do not match, uninstall your PC Files Server and re-install a version that has the same bit architecture.

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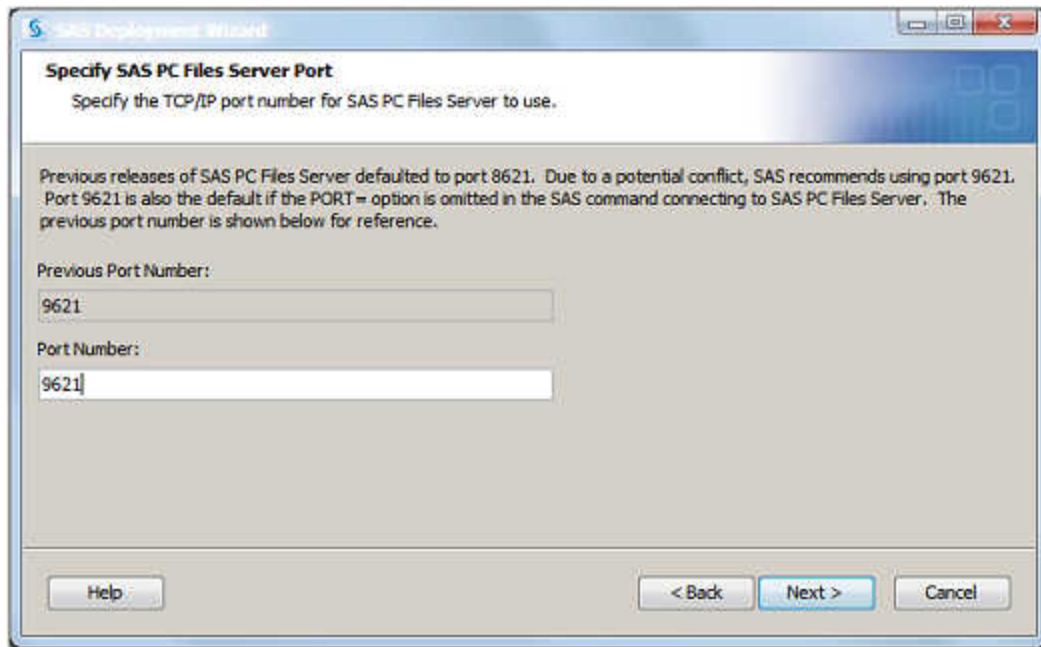
## Port Number Selection Dialog Box

The default port number that is used for TCP/IP server connections is 9621. The SAS LIBNAME statement, PROC IMPORT, and PROC EXPORT use this value by default to connect to PC files. If you change the port number on SAS PC Files Server, users accessing that server must add the `PORT=number` option to their LIBNAME statements.

The SAS PC Files Server port number must be unique on a given Windows machine. You cannot run multiple servers of any kind that use the same port number on a single machine. However, you can use the same server port number on different machines.

The **Port Number** or **Service Name** is saved in the Microsoft Windows registry, and it is used each time that the SAS PC Files Server is run.

Figure 3.2 Port Number Selection Dialog Box – Displayed during Installation




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## Maximum Connections

**Max Connections** specifies the number of concurrent connections that SAS PC Files Server can support. The default value is 10. Configure the number of connections based on the load that you expect from your SAS clients.

Each command that uses SAS PC Files Server uses one connection. There can be multiple users from different SAS sessions accessing the server concurrently. Consider all the connections when setting the **Max Connections** value. To reset this value, use the SAS PC Files Server desktop application window. For more information, see [“Desktop Application \(Server Mode\)” on page 40](#).

The number of **Max Connections** is saved in the Microsoft Windows registry, and it is used each time SAS PC Files Server is run.

---

## Data Encryption

Select **Data Encryption** to encrypt data that is transferred between SAS/ACCESS Interface to PC Files on the client and SAS PC Files Server. This option is set on the SAS PC Files Server desktop application window. For more information, see [“Desktop Application \(Server Mode\)” on page 40](#).

The state of the **Data Encryption** is saved in the Microsoft Windows registry, and it is used each time SAS PC Files Server is run.

---

## Setting the Location of the Log File

Starting in SAS 9.4M5, the location of SAS PC Files Server can be more easily controlled by the user or administrator. Previously, the logfile was written to either the current working directory or, if not available, to the root of the C: drive, which was not always desirable.

Now the location (directory, folder) can be controlled via the SAS\_PCFSERVER\_LOGFILE Windows environment variable, which can be set to the desired directory path. When running SAS PC Files Server as a desktop application, this environment variable should be set for the process that starts SAS PC Files Server:

```
set SAS_PCFSERVER_LOGFILE=C:\myfolder
```

When running SAS PC Files Server as a Windows System Service, this environment variable must be set as a SYSTEM-wide variable:

- 1 Right-click **My Computer** ⇒ **Properties** ⇒ **Advanced system settings** ⇒ **Environment Variables**.
- 2 In the **System variables** section, click **New** and add SAS\_PCFSERVER\_LOGFILE and the folder path.
- 3 Click **OK**.

If SAS\_PCFSERVER\_LOGFILE is not defined, the SAS PC Files Server log file is placed into the first folder with write-permissions from the following list:

- 1 the current working directory
- 2 the root of C: drive
- 3 the root of the user's home drive that is determined by %HOMEDRIVE%
- 4 the root of the system drive that is determined by %SystemDrive%
- 5 the user's home directory that is determined by %USERPROFILE%
- 6 the user's temporary directory that is determined by %TEMP% or %TMP%

---

## SAS PC Files Server Upgrades

When you upgrade SAS PC Files Server, such as for a maintenance release or new release, you must stop all SAS services and applications before you upgrade.

To stop the service from the Windows **Start** menu, select **Control Panel** ⇒ **Administrative Tools** ⇒ **Services**. Right-click **SAS PC Files Server** and click **Stop**. (Or you could right-click the **Properties** item to access that window and stop the server.)

Install the latest SAS 9.4 maintenance release and SAS PC Files Server, and then resume the Microsoft Windows Service or run the server as a desktop application.

# SAS PC Files Server Operating Modes

## Microsoft Windows Service

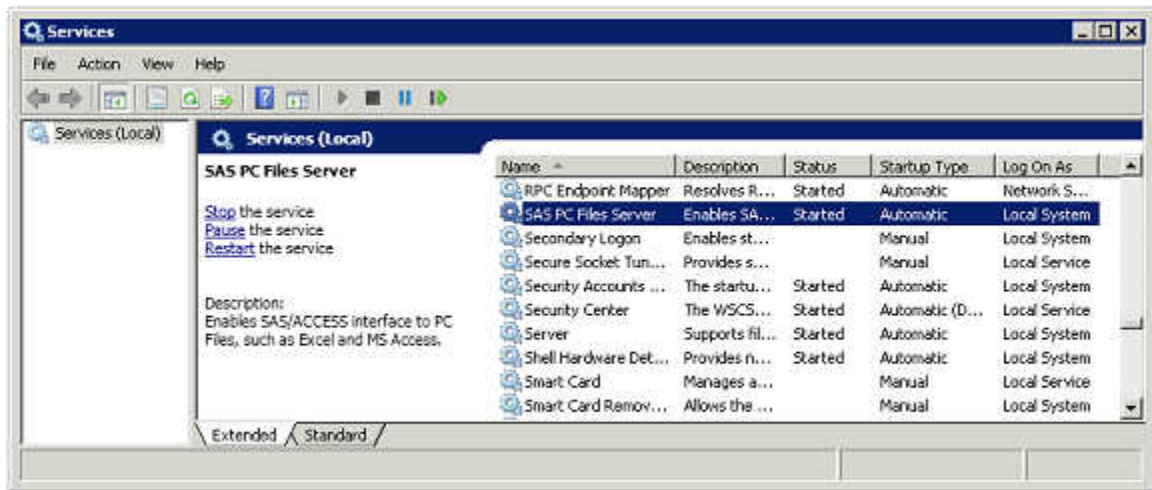
### Overview

SAS PC Files Server can run in two modes: Service Mode as a Microsoft Windows Service or Server Mode as a desktop application (available prior to SAS/ACCESS 9.2). Only one instance of SAS PC Files Server can be running on a single machine at any given time.

SAS PC Files Server can be manually set to run as a Microsoft Windows Service.

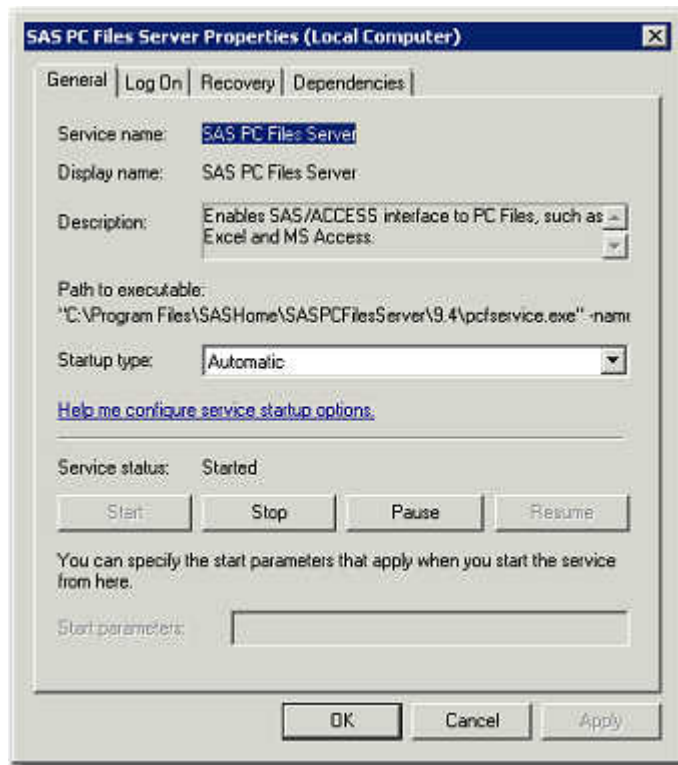
From the Windows **Start** menu, select **Control Panel** ⇨ **Administrative Tools** ⇨ **Services**.

Figure 3.3 Microsoft Services Window



Locate **SAS PC Files Server** and right-click the server. Select **Properties**.

Figure 3.4 SAS PC Files Server Properties Window



## Service Options

Most of the property values in the SAS PC Files Server window are generated during the server's installation and configuration, though you can modify the description. The path and filename cannot be changed.

The **Start-up type** displays the start-up type of the Windows service.

- **Automatic** Specifies that SAS PC Files Server starts automatically when the system starts. This value can be set from the Windows Services Start-Up Selection dialog box.
- **Manual** Specifies that a user or a dependent service can start SAS PC Files Server.
- **Disabled** Prevents the system, a user, or any dependent device from starting SAS PC Files Server.

**Service status** shows you whether the Windows service has been started, stopped, or paused. It also enables you to resume the service after it has been stopped or paused.

---

## Desktop Application (Server Mode)

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### Overview

SAS PC Files Server can run in two modes: Server Mode as a desktop application (available prior to SAS/ACCESS 9.2) or Service Mode as a Microsoft Windows Service. Only one instance of SAS PC Files Server can be running on a single machine at any given time.

The desktop application (server mode) enables you to set certain options and to reset certain default values, including security options. It also enables you to specify whether SAS PC Files Server starts automatically when you invoke SAS. Changing the settings affects how SAS PC Files Server runs in Windows service mode.

*Therefore, you must stop the current SAS PC Files Server running as a Windows Service before you can reset any options.*

From the Windows **Start** menu, select **Control Panel** ⇨ **Administrative Tools** ⇨ **Services**. Right-click **SAS PC Files Server** and click **Stop**.

---

#### **CAUTION**

**Closing these sessions could result in a loss of data.** The reason is that each time you stop or restart SAS PC Files Server, all users' sessions are closed.

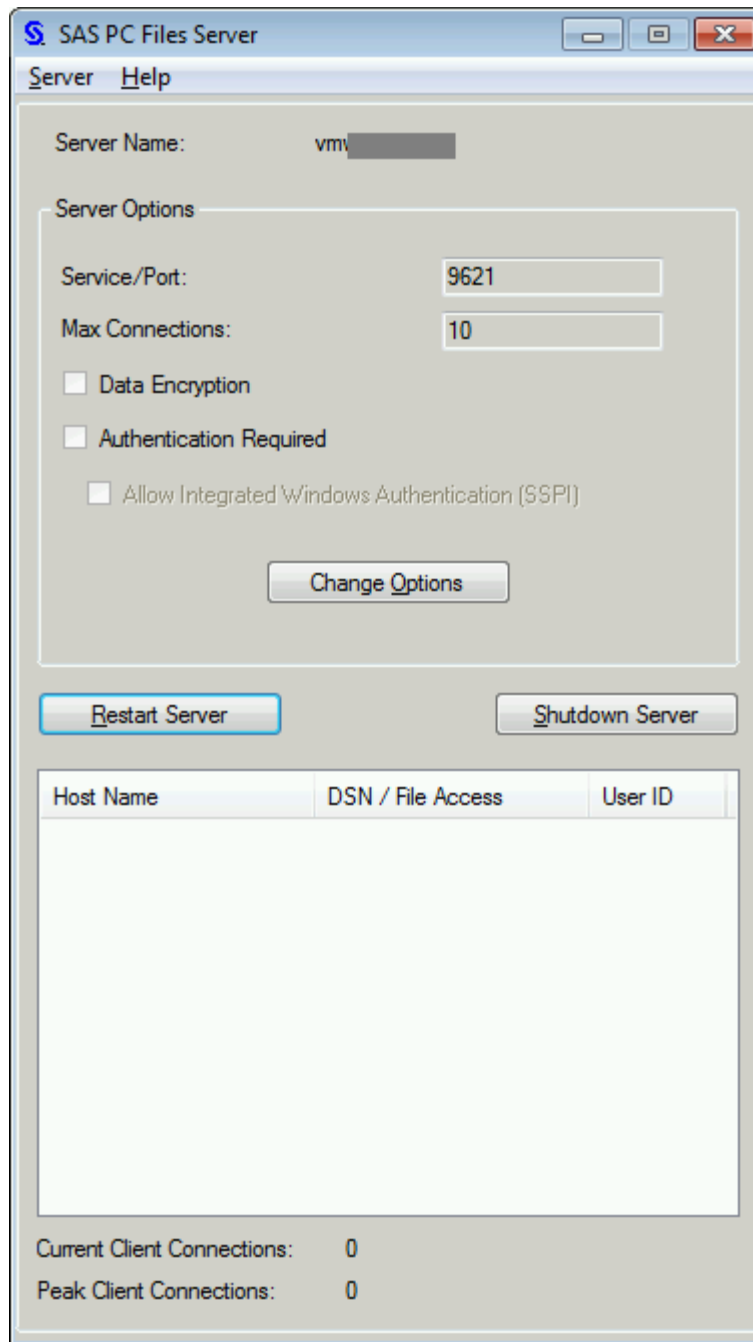
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### Desktop Application Window

To start SAS PC Files Server as a desktop application (in server mode), do the following: From the Windows **Start** menu, select **All Programs** ⇨ **SAS** ⇨ **SAS PC Files Server**. The SAS PC Files Server desktop application window appears.

Figure 3.5 SAS PC Files Server – Desktop Application Window



## Details from the Desktop Application Window

- **Server Name:** Names the Windows machine where SAS PC Files Server is running.

- **Service/ Port:** A communications end point at which a server listens for a request for service from the client application. The default port is 9621. SAS PC Files Server must use the same port number that SAS/ACCESS Interface to PC Files uses. You can change the port number to meet your specific needs.
- **Max Connections:** The maximum number of concurrent connections that this server supports.
- **Data Encryption:** Encrypts data during transfer.
- **Authentication Required:** Requires users to provide credentials before connecting to SAS PC Files Server. These credentials can be in the form of a user ID and password or integrated windows authentication (SSPI).
- **Allow Integrated Windows Authentication (SSPI) :** Windows 64-bit users can process credentials between Windows PCs without having to explicitly give a user ID and password.

.....  
**Note:** This option is available only when **Authentication Required** is selected.  
.....

- **Change Options:** Displays a dialog box that enables you to change the default port number and maximum number of connections. You can choose to set **Data Encryption** and **Authentication Required**. A note states that SAS PC Files Server must be restarted in order for the changes to take effect.
- **Restart Server:** Restarts the server including all setting changes.
- **Shutdown Server:** Stops the server and closes the application window.
- **Host Name:** Lists host names of active server connections.
- **DSN / File Access:** Displays file access requests of active server connections.
- **User ID:** Displays the user ID of active server connections.
- **Current Client Connections:** Displays the total number of active connections.

.....  
**Note:** When a single user opens multiple connections, this displays the most current information.  
.....

- **Peak Client Connections:** The greatest number of active connections during the current server session.

---

## SAS PC Files Server Authentication

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### Overview of Authentication (Security Enforcement)

Authentication enables SAS PC Files Server system administrators to secure the server and enforce security. You can configure SAS PC Files Server so that a user ID and a password are required to connect to a server and access files. You can



also configure SAS PC Files Server on specific hosts to require a user ID and password.

All the commands that allow server access support user authentication. The credentials that are supplied to SAS PC Files Server are verified against the Microsoft Windows login database. These are the same credentials that are required to interactively log on to a PC.

---

**Note:** If the client PC is on a domain, the credentials are compared to the domain data, instead of to the local data.

---

SERVERUSER=, SERVERPASS=, and SSPI= options are available in the SAS LIBNAME statement and in the IMPORT and EXPORT procedures. Use these options to supply credentials to SAS PC Files Server. For more information, see “LIBNAME Statement Syntax for the ACCESS and EXCEL Engines Statement” in [SAS/ACCESS Interface to PC Files: Reference](#).

---

## Access to SAS PC Files Server

When you run SAS, the version of Microsoft Windows must be bit-compatible (32 or 64) as both the ACE driver and SAS PC Files Server, as described “[SAS PC Files Server Versions \(32-Bit versus 64-Bit\)](#)” on page 34. That is, you must run SAS on a 32-bit Windows machine that has a 32-bit ACE driver to run with a 32-bit SAS PC Files Server.

If there is a conflict, SAS cannot directly access PC files using the SAS/ACCESS engines for Microsoft Excel or Microsoft Access. Instead, SAS must use SAS PC Files Server to bridge the gap in the number of bits (from 32-bit to 64-bit) using the PCFILES LIBNAME engine.

Access to the server is granted only if the credentials that are supplied are valid on the target PC. When connecting from a UNIX workstation to the PC, the UNIX credentials (User ID and password) can be different from the credentials that are used to access the PC files.

---

## Access to Individual Files

After SAS PC Files Server is secured, server administrators can enable native Microsoft Windows security at the file level. When a server connection is established, access to individual files is secured using the credentials specified by the user. File access is administered as if the client is logged on to that PC.

---

## System Administrator Tasks

To enforce a security policy, the system administrator should ensure that the following configurations and settings are implemented:

- Local security policy is configured. For more information, see “[Local Security Policy Configuration](#)” on page 45.
- Server authentication is configured using the SAS PC Files Server desktop application. From the Windows **Start** menu, select **All Programs** ⇒ **SAS** ⇒ **SAS PC Files Server**. Select **Authentication Required**. Doing so requires users to provide credentials before connecting to SAS PC Files Server. These can be as a user ID and password or as Integrated Windows Authentication (SSPI).
- Set the PC-to-PC Connections option to **Allow Integrated Windows Authentication (SSPI)**. This option is for clients on PCs running Windows connecting to SAS PC Files Server. Credentials are exchanged between the server and the client. The client PC does not have to explicitly set credentials.  
This option is available only when **Authentication Required** is selected.
- Access to the server requires a user ID and password using the `SERVERUSER=` and `SERVERPASS=` options. For the Windows environment, you can also use the `SSPI=` option.

---

## Security Model for Microsoft Windows

The enhanced Microsoft Windows Security Model began with Microsoft Windows Vista and applies to Windows 7 and later. This security model is designed to make it more difficult for viruses and malware to install themselves on the PC. When you are logged in as “Administrator” or as part of the “Administrators Group,” certain privileges are temporarily not available to the operating environment. The privileges are returned when needed and are confirmed by a dialog box that asks users for permission to continue. This guarantees that the user is aware of potential security risks.

When starting SAS PC Files Server on Windows 7 or later, you must manually enable permissions. The confirmation is not required when running the server as a Microsoft Windows Service or if the Windows security features have been disabled for Windows 7 and later.

---

## SAS PC Files Server Autostart

The Autostart feature provides a convenient way to use SAS PC Files Server for the current SAS session without having to actually run it on a local machine. SAS PC Files Server Autostart includes the following features:

- Starts SAS PC Files Server in the background as needed and stops the server when finished.
- Does not require the server setup or options.
- Communicates with the SAS client using a named pipe.
- Does not transfer data over the network. This eliminates the need for data encryption.

- Runs independent of network settings and any other instances of SAS PC Files Server.
- Always runs with the credentials of the SAS client. This eliminates the need for authentication.
- Autostart instances of SAS PC Files Server are independent and use their own communication mechanisms. This eliminates the possibility that an auto-started server might interfere with other servers.

Here are the requirements for using the SAS PC Files Server Autostart feature:

- Run SAS on a machine running Microsoft Windows.
- Install SAS PC Files Server on the *same* machine.
- Use an engine that is related to SAS PC Files Server (such as PCFILES) to access either local files or files that are accessible with the `\host-name\ folder\ filename` specification.
- Omit the `SERVER=` and `PORT=` options.
- Avoid using the `SERVERUSER=`, `SERVERPASS=`, or `SSPI=` options.

In the following code that uses the SAS `LIBNAME` statement and `IMPORT` procedure, Autostart is triggered by the “missing” `SERVER=` and `PORT=` statements.

```
LIBNAME DB PCFILES PATH='C:\AnnualFiles.accdb';
PROC IMPORT DBMS=ACCESSCS OUT=DB.SASCUSTOMERS
  DATATABLE='Customers' REPLACE;
RUN;
```

---

# Local Security Policy Configuration

---

## Overview

For server user authentication to work, SAS PC Files Server must be able to create user-specific subprocesses with the credentials that are specified. Windows allows this only if certain Windows Security settings are set on the PC that is running the server.

When running the server exclusively as a Windows service, use the default account of `SYSTEM`. Changes might not be needed if all of the required privileges are set in the `SYSTEM` account.

---

## Configure User Accounts

The user account that is running the server must be in the Administrators group. To access the Administrators Group:

- 1 From the Windows **Start** menu, select **Control Panel** ⇒ **User Accounts** ⇒ **Manage User Accounts**.
- 2 Select the user account running the server.  
If you are on a domain, it appears as the domain name in the **Domain** column. Select the **domain-level** user account.
- 3 Select **Properties** ⇒ **Group Membership** ⇒ **Other**.
- 4 From the pull-down list, select **Administrators**.
- 5 Click **OK** to close the **Group Membership** tab.
- 6 If prompted to log off, click **Cancel**.
- 7 Enable the following User Rights for the Administrators Group:
  - a Act as part of the operating system.
  - b Adjust memory quotas for a process.
  - c Replace a process level token.

To verify or update these: from the Windows **Start** menu, select **Control Panel** ⇒ **Administrative Tools** ⇒ **Local Security Policy**.
- 8 In the **Security Settings** pane, open **Local Policies** ⇒ **User Rights Assignment**.
- 9 In the **Policy** column, open the user right to be changed (as listed in step 7) and add **Administrators** to each one.  
Ensure there is an "s" at the end of **Administrators**. Administrator (singular) is a specific user account.
- 10 Repeat the sequence for each of the user rights listed in step 7. Verify that the **Administrators** group has been added to each of the three user rights, as indicated previously.
- 11 Add the **Authenticated Users** group to the **Log on as batch job** user right.  
.....  
**Note:** Make sure that each user ID has this **Log on as batch job** privilege on the Windows server where SAS PC Files Server is located. Otherwise, users might receive an error that the server is unable to authenticate their credentials, even though their user IDs and passwords are correctly specified for that Windows server.  
.....
- 12 Log off and log back on in order for the changes to take effect.

---

## Constraints

- You cannot mix 32-bit and 64-bit ACE drivers on the same machine. A 64-bit ACE driver is available starting with Microsoft Office 2010.

- You cannot mix 32- and 64-bit SAS PC Files Servers on the same machine.
- The ACE driver must be bit-compatible with SAS PC Files Server. That is, they must both be 32-bits or both 64-bits. The installer enforces this at installation, but the two could get out of sync if the ACE driver were ever replaced.
- If SAS on Windows has the same number of bits as the installed ACE driver, then PC files can be accessed directly using the SAS/ACCESS engines for Microsoft Excel and Microsoft Access. Therefore, no SAS PC Files Server would be required.
- If SAS on Windows does not have the same number of bits as the installed ACE driver, SAS PC Files Server must be used to bridge the gap in bits. The Autostart feature simplifies this when running SAS on Windows.
- The server can run in server mode (desktop application) or in service mode. However, only one instance of the server can be running on a single PC at any given time.
- Service names and port numbers must be unique on a given PC.
- To modify the settings to follow the constraints:
  - 1 Stop the server.
  - 2 Make necessary changes.
  - 3 Restart the server.
- Each time you stop or restart the server, all users' sessions are closed. Closing these sessions might result in loss of data.
- Although you can change server configuration only in server mode (desktop application), the updated values also apply when running in service mode.

