

# **Installation Instructions for SAS® 9.4 Installation Kit for Basic Cartridge Installations on z/OS**



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### **Installation Instructions for SAS® 9.4 Installation Kit for Basic Cartridge Installations on z/OS**

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This document provides all of the information related to unloading and installing a SAS 9.4 order from cartridges on z/OS systems for which you have purchased licenses. Please review this document in its entirety.

## Before You Begin—Prerequisites and Overview

***Important:** If you received this order to add maintenance or additional SAS Software products to your existing order, please note that this process creates a new SAS installation, requiring a different high-level-qualifier for your traditional data sets and a new SAS home directory. Using your existing high-level-qualifier will cause unpredictable results.*

You **MUST** complete each of the required items below **before** beginning your SAS installation. The following topics are discussed in this section:

- ☐ Verify System Requirements (pg. 1)
- ☐ Review Installation Alert Notes (pg. 1)
- ☐ Have Your Software Order E-mail (SOE) Available (pg. 2)
- ☐ Define Sufficient UNIX File System Space for the SASHOME Directory (pg. 2)
- ☐ Install a Supported Version of Java (pg. 2)
- ☐ Update the Logon Password (Optional Step) (pg. 2)
- ☐ Apply Maintenance (Informational) (pg. 2)
- ☐ Select Which SAS/GRAPH MAP Data Sets to Install (pg. 2)

### Verify System Requirements

Confirm that your system meets the minimum requirements by referring to the system requirements from the SAS 9.4 Install Center Documentation web site (<http://support.sas.com/documentation/installcenter/94/index.html>) and selecting **Documentation for SAS 9.4 Installation on z/OS**.

### Review Installation Alert Notes

On the <http://support.sas.com/notes/index.html> web page, click **Search Installation Notes**. Select the **Results Filter** tab, and then select **alert** as the Priority, **9.4** as the SAS Release and **z/OS** as the Operating System. Then press **Enter**.

Review the Installation Alert Notes that are listed to see if they apply to this installation order.

## ***Have Your Software Order E-mail (SOE) Available***

To install SAS 9.4 on z/OS, start with the Software Order E-mail (SOE) you received from SAS Institute. This e-mail contains details such as the order number, type of installation, and job templates for you to use to install your software.

## ***Define Sufficient UNIX File System Space for the SASHOME Directory***

The SAS home directory is an integral part of the SAS 9.4 installation. For a SAS foundation only installation, 3 GB should be allowed for the SASHome directory.

## ***Install a Supported Version of Java***

Certain functions of SAS require that you have a supported version of java installed. Refer to the system requirements for details about these functions. You can check SAS's third party support web page for information about the latest supported versions of Java at <http://support.sas.com/resources/thirdpartysupport/>.

## ***Update the Logon Password (Optional Step)***

If you wish to apply hot fixes without running the hot fix jobs manually, you must update the logon password. See "Updating the Logon Password" on page 10 for more information.

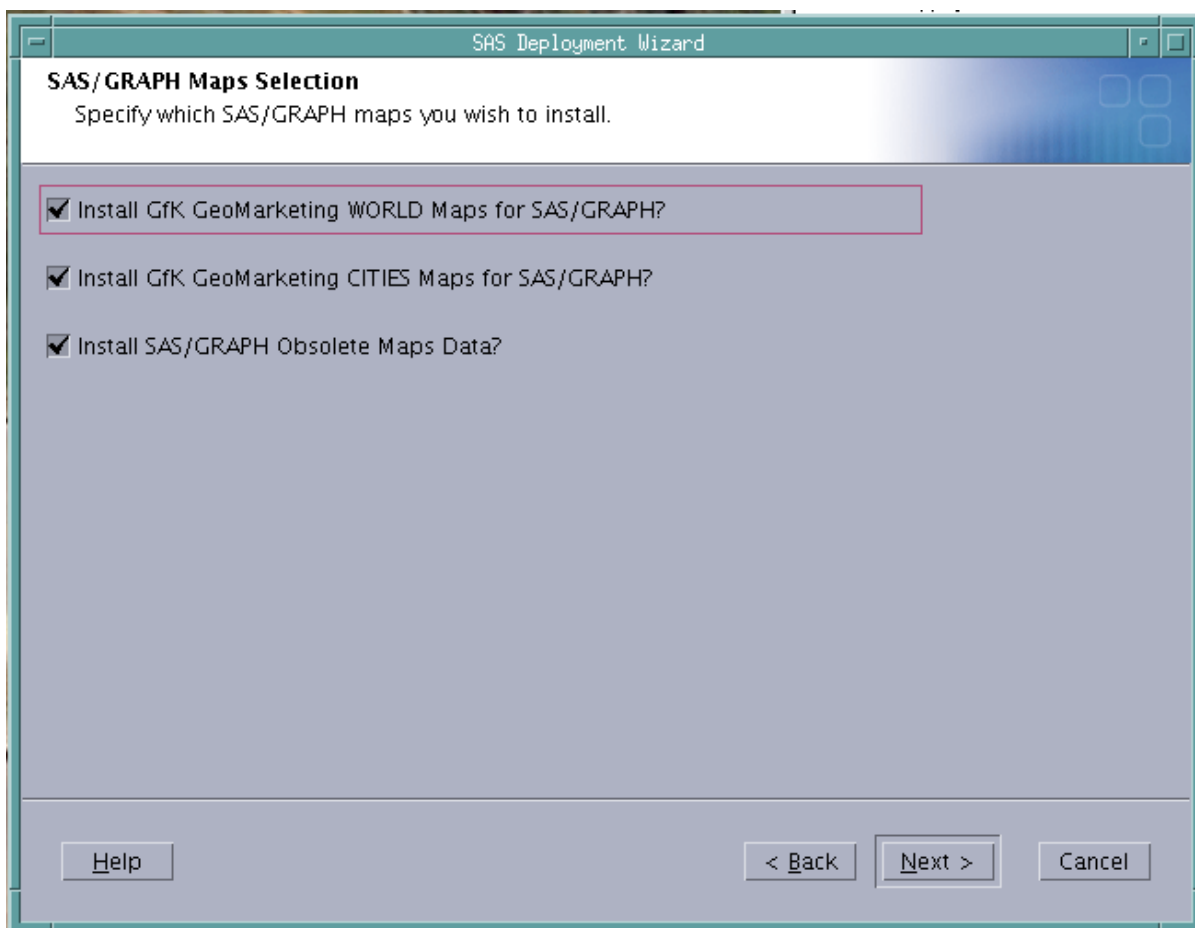
## ***Apply Maintenance (Informational)***

Note that this installation method always creates new data sets and a new SAS home directory. If you have SAS 9.4 TS1M0 currently installed and you are applying maintenance, you will create a completely new installation that includes maintenance.

## ***Select Which SAS/GRAPH Map Data Sets to Install (Optional Step)***

Starting in the third maintenance release of SAS 9.4, if your site is licensed for SAS/GRAPH, you have the option to select which SAS/GRAPH Map products to install. SAS has split out the Map data sets that were included in SAS/GRAPH in order to help users save space by choosing which Map data sets they want to install. These options allow you to select which of the SAS/GRAPH Maps products you wish to install. For information about Maps data set space, refer to the *System Requirements for SAS 9.4 Foundation for z/OS* at the SAS 9.4 Install Center Documentation web site: (<http://support.sas.com/documentation/installcenter/94/index.html>) and select **Documentation for SAS 9.4 Installation on z/OS**.

If your site is licensed for SAS/GRAPH, when you run the SAS Deployment Wizard, the **SAS/GRAPH Maps Selection** dialog box will appear:



The Map products can be selected in any combination.

- **GfK GeoMarketing WORLD Maps for SAS/GRAPH** contains the new Map data sets which replace SAS/GRAPH Obsolete Maps Data. In order to use PROC GMAP, you must install either GfK GeoMarketing WORLD Maps for SAS/GRAPH or SAS/GRAPH Obsolete Maps Data, or both
- **GfK GeoMarketing CITIES Maps for SAS/GRAPH** contains the Map data sets that are used by PROC GEOCODE. If these maps are not installed, then some of PROC GEOCODE will work (such as ZIP code support) but cities support will not work
- **SAS/GRAPH Obsolete Maps Data**

**Note:** If you install all 3 SAS/GRAPH Map data sets, additional space is used. For more information on the required space for SAS/GRAPH Map data sets, refer to the System Requirements for SAS 9.4 Foundation for z/OS at the SAS 9.4 Install Center Documentation web site: (<http://support.sas.com/documentation/installcenter/94/index.html>) and select **Documentation for SAS 9.4 Installation on z/OS**.

**Note:** To remove or re-install SAS/GRAPH Maps, see the SAS Note SN 55984 available at <http://support.sas.com/kb/55/984.html>.

## Unloading Your Customized z/OS 9.4 Tape

### Overview

Installing a basic order from tape is different from other types of orders in that it does not require you to create a SAS Software Depot. Your customized system image, based upon your order, has been built at SAS, and will be sent to you on a 3590 tape cartridge. Your setinit license has already been applied to this image.

You will use either DFDSS or FDRDSF to restore the traditional data sets to disk and the PAX command to restore the SAS Home directory to UNIX file system space. JCL has been provided to allow you to rename the image to your high-level qualifier (HLQ) and to tailor any site-specific information that you require.

Two files were attached to your Software Order E-mail:

JCL\_to\_unload\_Cart\_with\_DFDSS\_F1.txt and JCL\_to\_unload\_Cart\_with\_FDR\_F2.txt. These files contain JCL which has been **customized for your site** based upon your order. You will **only use one of these files** depending upon the backup/restore software product that is used at your site. These files (jobs) are also located in the TAPECTL data set created in Step 1 for backup purposes.

You will restore the data from tape and then modify references to high-level qualifiers or the path to the SASHOME directory consistent with your site's standards.

An overview of the process follows:

1. Restore the traditional SAS system data sets from tape to a high-level qualifier appropriate for your site.
2. Restore the SAS home directory in UNIX file system space.
3. Replace certain strings with your site-specific values.

### Detailed Installation Steps

#### *Important:*

- All installation jobs include case-sensitive strings—you **MUST** set CAPS OFF in the SPF editor while editing these jobs.
- After choosing the first job from your Software Order E-mail, all subsequent jobs and members will be found in the data set "<HLQ>.TAPECTL" where <HLQ> is the high-level qualifier you will use for the data sets in your SAS installation.
- Do not create a data set with your target high-level-qualifier that might conflict with the data set names that will be restored, or your job will have a return code of 8.

### Step 1: Restore the Traditional SAS System Data Sets from Tape to a Defined High-level Qualifier

You must choose which program to use to unload the SAS system image. Use either IBM Corporation's ADRDSSU or Innovative Data Processing's FDRDSF program, whichever your site uses, and execute the job for that utility. A sample of each job, customized for your installation, was attached to your Software Order E-mail. The comments at the beginning of the JCL statements provide additional information.



**Important:** Do NOT run both jobs.

### **DFDSS: RES1DSS Job**

**Note:** If you are using SMS, be sure to read the additional information in Steps 2b and 4 below.

1. Fill in the necessary JOBCARD information.
2. Change the first three SET statements:

a. SET           DISKUNIT='SYSALLDA'  
Disk unit for data sets

b. SET           DISKVOL='XXXXXX'  
Disk volser for data sets

**Note:** If you are using SMS, you must add a valid disk volume and follow the instructions in Step 4 below.

c. SET           TAPEUNIT='3590-1'  
3590B unit or esoteric

**Note:** The TAPEVOL and TAPEDS1 set statements have been customized for your order and should **not** be changed.

3. In the SYSIN to ADRDSSU (step DSSREST): Specify the high-level qualifier you want the data sets in your SAS installation to have, in place of '-HLQ-', in the RENAMEU keyword. Note that there is a limit of 23 characters for the HLQ, and it must be in uppercase. You can only use a two-level replacement value. If you need a three-level high-level qualifier, you will need to restore using a two-level value and then rename the restored data sets.
4. If you are using SMS, in the SYSIN DD statement, you must provide a valid STORCLAS value after the CATALOG statement. Follow these steps:
  - a. Enter a continuation character (a **dash**) on the CATALOG statement.
  - b. Enter the STORCLAS(*your site value*) statement on the next line.

You may also add a MGMTCLAS value if you wish to do so. Follow these steps:

- a. Enter a continuation character (a **dash**) on the STORCLAS statement.
- b. Enter the MGMTCLAS(*your site value*) statement on the next line.

**Note:** DATACLAS is **not** a valid option for a restore. For more information, refer to <http://publibz.boulder.ibm.com/epubs/pdf/dgt2u2a0.pdf>.

For example, here is a sample of the JCL both before and after the STORCLAS and MGMTCLAS values were added:

#### **BEFORE :**

```
//SYSIN      DD *
RESTORE DATASET (
                INCLUDE (**)
            )
RENAMEU (
            (**,
            -HLQ- . **)
        )
/* Supply */
```

```

                INDDNAME (TAPEDD1)      -
                OUTDDNAME (DISKDD1)     -
                CATALOG
/*
//

```

**AFTER :**

```

//SYSIN      DD *
RESTORE DATASET (
                INCLUDE (**)
            )
RENAMEU (
                ( ** ,
                -HLQ- . ** )
            )
                INDDNAME (TAPEDD1)
                OUTDDNAME (DISKDD1)
                CATALOG
                STORCLAS (your site value)
                MGMTCLAS (your site value)
/*
//

```

5. Submit the job.

**OR**

**FDRDSF: RES1FDR Job**

*Note: If you are using SMS, be sure to read the additional information in Steps 2b and 4 below.*

1. Fill in the necessary JOBCARD information.
2. Change the first three SET statements:

- a. SET           DISKUNIT='SYSALLDA'
 

Disk unit for data sets
- b. SET           DISKVOL='XXXXXXX'
 

Disk volser for data sets

*Note: If you are using SMS, you must add a valid disk volume and follow the instructions in Step 4 below.*

- c. SET           TAPEUNIT='3590-1'
 

3590B unit or esoteric

*Note: The TAPEVOL and TAPEDS2 set statements have been customized for your order and should **not** be changed.*

3. In the SYSIN to FDRDSF (step FDRREST):  
Specify the high-level qualifier you want the data sets in your SAS installation to have, in place of '-HLQ-' in the NEWINDEX keyword. Note that there is a limit of 23 characters for the HLQ, and it must be in uppercase.
4. If you are using SMS, in the SYSIN DD statement, you must provide a valid STORCLAS value after the NEWINDEX statement. Follow these steps:
  - a. Enter a continuation character (a **comma**) after your -HLQ- specification on the NEWINDEX statement.
  - b. Enter the STORCLAS=*your value* statement on the next line.

You may also add MGMTCLAS and DATACLAS values if you wish to do so. Follow these steps:

- a. Enter a continuation character (a **comma**) after the STORCLAS value.
- b. Enter the MGMTCLAS=*your value* and/or DATACLAS(*your value*) statements on the same line, with each value separated by a comma.

For example, here is a sample of the JCL both before and after the STORCLAS, MGMTCLAS, and DATACLAS values were added:

**BEFORE :**

```
//SYSIN      DD *
    RESTORE TYPE=DSF
    SELECT ALLDSN,
        NEWINDEX=-HLQ-
/*
//
```

**AFTER :**

```
//SYSIN      DD *
    RESTORE TYPE=DSF
    SELECT ALLDSN,
        NEWINDEX=-HLQ-,
        STORCLAS=your value,MGMTCLAS=your value,DATACLAS=your value
/*
//
```

5. Submit the job.

## Step 2: Restore the SAS Home Directory to UNIX File System Space

This step restores the SAS Home directory to UNIX file system space. You can either create the necessary UNIX file system space using the supplied sample job REC2CZFS, or your system staff may create a suitable UNIX file system space for you. You may use either hFS or zFS, but zFS will provide better performance. You will need about 3 GB of UNIX file system space for your SAS Home directory.

### Optional: RES2CZFS Job

**Note:** This job (JCL located in <HLQ>.TAPECTL) is provided as an example of how to create a UNIX file system space and mount it, if your site does not know how to create one and the SAS installer is allowed to do so.

This job allocates a UNIX file system data set and formats it in compatibility mode to hold the UNIX file system for the SAS image. In order to properly execute this job you must have sysadmin mount authority. You do *not* need to run this job if you already have UNIX file system space created for this installation. The comments at the beginning and end of the JCL statements may provide additional information.

1. Fill in the necessary JOBCARD information.
2. Change the four SET statements:
  - a. SET           ZFS=' -HLQ- .ZFS '  
Data set name of the zFS. Note that the value you specify for -HLQ- must be in uppercase.
  - b. SET           SU='BPXROOT '  
User ID with UID=0 authority
  - c. SET           SASADMIN='sasadm '  
User ID owning the file system
  - d. SET           MOUNTPT='/?????' '  
Location of SAS Home Directory. For example, /usr/lpp/SAS/SAS94.
3. In the SYSIN to IDCAMS (step ALLOCZFS):
  - Change the zFS data set name, -zFS-, in the NAME keyword.
  - Change the volume assignment, -VOLSER-, in the VOLUME keyword.
4. In the SYSTSIN to IKJEFT01 (step MOUNTZFS):
  - Change the zFS data set name, -zFS-, in the FILESYSTEM keyword.
  - Change the mount point, -mountpoint-, in the MOUNTPOINT keyword.
5. Submit the job.

### **RES3UNIX Job**

This job (JCL located in <HLQ>.TAPECTL) restores the SASHOME directory to a UNIX file system. This UNIX file system must exist prior to executing the RES3UNIX job. The RES2CZFS job must complete before this job can be executed unless the RES2CZFS job did not need to be run due to pre-existing UNIX file system space for the installation.

1. Fill in the necessary JOBCARD information.
2. Change the first three SET statements:
  - a. SET           TAPEUNIT='3590-1 '  
3590B unit or esoteric that is appropriate for your 3590 tape drives.
  - b. SET           PAXSCRIPT='/???/pax\_tape.sh '  
The pax\_tape.sh file will be created by this job in that directory. This directory must already exist.
  - c. SET           MOUNTPT='/?????' '  
Location of SASHOME directory. This should be the same value as MOUNTPT in the RES2CZFS job, if you used it.

**Note:** The TAPEVOL and TAPEDS3 set statements have been customized for your order and should *not* be changed.

3. Submit the job.

### Step 3: Replace Certain Strings with Site-Specific Values

You must edit the RPLVARC control file and then run the following two jobs:

#### **RPLVARC Control File**

This is a control file (member RPLVARC located in <HLQ>.TAPECTL) for customizing SAS at your site. This needs to be edited before the subsequent JCL jobs are run. Modify the following:

1. HLQ — your high-level qualifier which must be in upper case. Note that there is a limit of 23 characters.
2. SYSNAME — the machine name in upper case on which this installation resides (replacing ZOSHOST).
3. LSYSNAME — the machine name in lower case on which this installation resides (replacing zoshost).
4. SASPATH — your SASHOME directory path.
5. JAVAHOME — your JAVAHOME directory path; for example, **/usr/lpp/java/J7.0.**

***Note:** Steps 6–9 allow you to override the SAS-supplied JOBCARD parameters with those that are specific to your site.*

6. JOBCARD2 — MSGCLASS, MSGLEVEL, and CLASS
7. JOBCARD3 — TIME and REGION
8. JOBCARD4 — a comment by default. Add a comma after your last parameter on JOBCARD3 if you need to use this JOBCARD.
9. JOBCARD5 — a comment by default. Add a comma after your last parameter on JOBCARD4 if you need to use this JOBCARD.
10. USER — your installer user ID in upper case (replacing USERNM).
11. LUSER — your installer user ID in lower case (replacing usernm).

***Note:** Steps 12–16 are only needed if the order includes SAS/IntrNet. If your order does not contain SAS/IntrNet, put an asterisk (\*) before each of these lines to comment them out.*

12. CGIBINURL — the URL for CGI executables.
13. ADMINNAME — the name of the administrator.
14. ADMINMAIL — the e-mail address of the administrator.
15. APPSRVHOSTNAME — the DNS name or IP address of the application server host where SAS Foundation is located.
16. APPSRVPORT — the customary default port number is 5001, but you can use any valid available port on your system between 256 – 65535.
17. DSKVOL — specify DASD volume. This value is **required**.  
***Note:** If USESMS is true, then specify 'DSKVOL=\_blank/null\_'.*
18. USESMS — set to “True” if using SMS; otherwise set to “False”. This value is **required**.

19. SMSDTCLS — set to the value of your SMS data class. This value is **required** if USESMS=True. Otherwise, leave the value as '\_blank/null\_'.
20. SMSMGCLS — set to the value of your SMS management class. This value is **required** if USESMS=True. Otherwise, leave the value as '\_blank/null\_'.
21. SMSSTCLS — set to the value of your SMS storage class. This value is **required** if USESMS=True. Otherwise, leave the value as '\_blank/null\_'.
22. Save your changes.

### **RPLCPDS Job**

This job (member RPLCPDS located in <HLQ>.TAPECTL) modifies the z/OS traditional datasets with the values you specified in member RPLVARC.

1. Fill in the necessary JOBCARD information.
2. Change the following SET statement:

```
SET      JOBSPDS='-HLQ-.TAPECTL'
```

Customer install PDS. Note that '-HLQ-' must be in uppercase.

**Note:** Your HLQ is now the text **before** ".TAPECTL" and must be entered in upper case.

3. Submit the job.
4. Review the output to ensure that everything ran successfully.

### **RPLCUSS Job**

This job modifies the UNIX file system files in the SAS Home directory with the values you specified in member RPLVARC.

1. Fill in the necessary JOBCARD information.
2. Change the two SET statements:

```
a. SET      JOBSPDS='-HLQ-.TAPECTL'
```

Customer install PDS

**Note:** Your HLQ is now the text **before** ".TAPECTL" and must be entered in upper case.

```
b. SET      TMPPATH='/tmp'
```

Temporary location used to write the shell script that performs the string replacement.

**Note:** "tmp" is a UNIX directory and its name is case sensitive. This location **must** exist before the RPLCUSS job is run.

2. Submit the job.
3. Review the output to ensure that everything ran successfully.

## **Updating the Logon Password**

**Note:** You only need to update your logon password if you want to run hot fix installations without -nojobsubmit.

When you receive a new tape cartridge in your SAS 9.4 order, or the administrator of your system changes their logon password, you must run a rexx program to update the password that the previous SAS installation process stored. The user ID and password of the person who initially installed the system is located in the `install.properties` file. The password is encrypted and you will not be able to view it if you open the file. Do not attempt to edit this file on your own.

The CHGPW.REXX program is used to change the password. To run this program under omvs, use the “cd” command to navigate to `[SASHOME]/SASDeploymentManager/9.4`, type the command **chgpw.rexx**, and follow the prompts.

To run this program in USS space, type **chgpw.rexx** and follow the prompts. It can be found in USS under `[SASHOME]/SASDeploymentManager/9.4`. Upon invoking the program, you will see the java version found in the system displayed on the screen along with the following:

Enter password for YOURID: *<enter the current password for your user ID>*

The following prompt will appear:

Enter password again: *<enter the same password that you provided for the previous prompt>*

If the passwords to the prompts are not the same, the following text will be displayed:

Passwords don't match. Try again.

If the passwords match, the following prompt will appear:

Password successfully updated.

## Additional Configuration Steps

After all installation jobs have finished, submit the VALID job in the `'-HLQ-.INSTALL.CNTL'` data set and ensure that all steps complete with a return code of 0.

**Note:** *You may need to edit the job cards to comply with your site's JCL policies. Please check the comments in the VALID job—you may need to increase your Region Size.*

A separate job named INSTHELP is written to `<HLQ>.INSTALL.CNTL` and is an **optional** job to run. It represents the online help documentation and depending on your system and other jobs running, could take an hour or more to complete. If you choose to run this job, we recommend that it be run **after** the initial installation has completed.

Complete any required product-specific post-installation steps by referring to the z/OS configuration guide available from the SAS 9.4 Install Center Documentation web site (<http://support.sas.com/documentation/installcenter/94/index.html>) and selecting **Documentation for SAS 9.4 Installation on z/OS**.

## Tips and Additional Information

For the latest installation news, please visit these sites for tips and additional information that may not be in your documentation:

General support for SAS issues (including a link to SAS Technical Support)

<http://support.sas.com>

Technical Support SAS 9.4 Hot Fix downloads

<http://ftp.sas.com/techsup/download/hotfix/hotfix.html>

Locating the log files for SAS 9.4 installations

<http://support.sas.com/kb/43/606.html>

Documentation for a SAS 9.4 installation on z/OS

<http://support.sas.com/documentation/installcenter/94/mvs/index.html>

## Technical Support

- If you need assistance with the software, we ask that only the SAS Installation Representative or the SAS Support Consultant call our Technical Support Division.  
For U.S. and Canadian customers, support is provided from our corporate headquarters in Cary, North Carolina. You may call (919) 677-8008, Monday through Friday.  
Customers outside of the U.S. can obtain local-language technical support through the local office in their countries. Customers in these locations should contact their local office for specific support hours. See <http://support.sas.com/techsup/contact/index.html> for contact information for local offices.
- Before calling, you may want to explore the SAS Institute Technical Support web site at <http://support.sas.com/techsup/>. The Technical Support web site offers a Knowledge Base, FAQs, Technical Support Documents and more that may answer your questions. This web site also provides a mechanism for reporting problems.





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