

Installation Instructions for SAS® 9.4

Installation Kit:

Planned DVD Installations on z/OS



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Installation Instructions for SAS® 9.4 Installation Kit: Planned DVD Installations on z/OS

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Table of Contents

Overview	1
Prerequisites	1
Verify System Requirements	1
Software Order Email (SOE)	1
Current SAS Installation Data Files (SID Files)	1
Review and Understand Terminology	2
Target Location for Initial Creation of SAS Software Depot	2
Sufficient UNIX File System Space	3
User ID for the Installation That Meets Requirements	3
SAS Deployment Plan	3
Review Pre-installation Checklists	4
Install Required Third-Party Software	4
(Optional) X11 Server	4
(Optional) Install and Configure SAS Metadata Server on a Separate Host	5
(Optional) Review SAS/IntrNet Installation Options	5
(Optional) Select SAS/GRAPH Map Data Sets to Install	5
Installation Process	5
Overview	5
Step 1. Creating the SAS Software Depot	6
Make SAS Software Depot Accessible to z/OS	7
Step 2. Installing and Maintaining Your Software	7
Installation Action—Action A or Action B	7
Planning Metadata Migration from SAS 9.1.3, SAS 9.2 or SAS 9.3	8
Important Notes	8
Installation Steps	8
Updating an Existing Installation	17
Step 3. Validate Installation and Post-Configuration	17
Step 4. Managing Server Sessions	17
Step 5. Installing SAS 9.4 Middle-Tier and Client Software from the SAS Software Depot	18
Creating the SAS Software Depot for Your Middle-Tier and Client Machines	18
Installing Required Third-Party Software	18
Installing SAS Software from the SAS Software Depot	19
Step 6. Archiving Your SAS Software Depot	19
Tips and Additional Information	19
SAS Technical Support	20

Overview

This document provides all the information related to installing a SAS 9.4 DVD Software **planned** order on z/OS systems for which you have purchased licenses. Review this document in its entirety.

You **MUST** complete each of the **required** items below **before** beginning your SAS installation:

- ☐ Verify System Requirements (pg. 1)
- ☐ Software Order Email (SOE) (pg. 1)
- ☐ Review and Understand Terminology (pg. 2)
- ☐ Target Location for Initial Creation of SAS Software Depot (pg. 2)
- ☐ Sufficient UNIX File System Space (pg. 3)
- ☐ User ID for the Installation That Meets Requirements (pg. 3)
- ☐ SAS Deployment Plan (pg. 3)
- ☐ Review Pre-installation Checklists (pg. 4)
- ☐ Install Required Third-Party Software (pg. 4)
- ☐ (Optional) X11 Server (pg. 4)
- ☐ (Optional) Install and Configure SAS Metadata Server on a Separate Host (pg. 5)
- ☐ (Optional) Review SAS/IntrNet Installation Options (pg. 5)
- ☐ (Optional) Select SAS/GRAPH Map Data Sets to Install (pg. 5)

Prerequisites

Verify System Requirements

Confirm that your system meets the minimum requirements by referring to the [System Requirements for SAS 9.4 Foundation for z/OS](#).

Software Order Email (SOE)

To install SAS 9.4 on z/OS, start with the Software Order Email (SOE) that you received from SAS. This email message contains details such as the order number, a key, and the type of installation you have: Basic or Planned. Basic orders are generally straightforward single-machine deployments. Planned orders are more complex, multi-machine deployments.

Current SAS Installation Data Files (SID Files)

The SAS Software Depot includes one or more SAS installation data (SID) file or files. A SID file is valid for a limited time and consists of customized installation information and product authorization information. SAS Deployment Wizard uses the installation information in a SID file to install your licensed software and apply customized product authorization information to your system. With SID file naming conventions, a file named `sas94_XXXXXX_YYYYYYYY_YYY.txt` would mean that `XXXXXX` is your order number, `YYYYYYYY` is your setnumid (a unique identifier used by SAS Technical Support), and `YYY` is the operating system for which the order is licensed.

If you plan to deploy your SAS Metadata Server on z/OS, you will install a set of 64-bit libraries in addition to the standard 31-bit libraries, which will have a separate SAS site number and a separate SID file. The SID file for the 64-bit installation includes a reference to "SAS Metadata Server".

The SID files for your software order are stored in the `sid_files` directory at the root of your SAS Software Depot.

If your SAS software order is more than 90 days old, one or more of the SID files that shipped with the order might have expired. Check your SOE for the expiration date of the SID files in your order. If they have expired, contact your SAS site representative, who might have received a Renewal Software Order Email that contains more recent SID files. Once you have created your SAS Software Depot, store the updated SID files in the `sid_files` directory in your SAS Software Depot. If your site cannot locate an updated SID file, open a case with SAS Technical Support at <https://service.sas.com/csm>.

Review and Understand Terminology

- SAS Home Location

`SASHOME` is the UNIX directory location where the UNIX file system components of your SAS software are installed on your machine. `SASHOME` is specified when you install software through SAS Deployment Wizard for the first time, and that location becomes the default installation location for any other SAS software installed on the same machine. You will need about 3 GB of UNIX file system space for your `SASHOME` directory.

You might prefer to have `SASHOME` in a UNIX file system separate from the SAS Software Depot. This allows you to easily archive the SAS Software Depot and reuse that disk space. The directory path for your `SASHOME` location cannot be a directory within your SAS Software Depot.

Notes: *The length of the `SASHOME` path is limited to 54 characters.*

The `SASHOME` directory is an integral part of the SAS 9.4 installation. You must keep it mounted on your z/OS system to support some SAS functionality.

- SAS Deployment Wizard

SAS Deployment Wizard is the common interface used to install and deploy all SAS 9.4 software. Using SAS Deployment Wizard, you interact with the SAS Software Depot, the repository of files and data necessary to install your SAS 9.4 software. You will invoke SAS Deployment Wizard on each system that is part of your SAS software deployment.

- SAS Software Depot

The SAS Software Depot is a collection of SAS installation files that represents one or more orders. The SAS Software Depot is organized in a specific format that is meaningful to SAS Deployment Wizard, which is the tool that is used to install and initially configure SAS. The SAS Software Depot contains the SAS Deployment Wizard executable, one or more deployment plans, a SID file, order data, and product data. *Your SOE provides an estimate of the space required for the SAS Software Depot for your order.*

Target Location for Initial Creation of SAS Software Depot

You can load your SAS Software Depot from the DVD to either UNIX or Windows. The location you select must have enough free space to accommodate the entire SAS Software Depot, and you must be able to do one of the following:

- Mount your UNIX or Windows directory on your z/OS system using NFS mount
- Move your depot to z/OS using a third-party utility that can transfer a complete directory tree, or our provided SAS Software Depot Copy Utility, which uses FTP.

Sufficient UNIX File System Space

Your SAS installation requires the following space defined in UNIX file system directories:

- **SAS Software Depot**
The SAS Software Depot is a collection of SAS installation files that represents one or more orders. The SAS Software Depot is organized in a specific format that is meaningful to the SAS Deployment Wizard. The SAS Software Depot contains the SAS Deployment Wizard executable, one or more deployment plans, a SID file, order data, and product data. *Your SOE provides an estimate of the space required for the SAS Software Depot for your order.*
This directory must be available to z/OS. It can be one of the following:
 1. A UNIX File System directory on the z/OS machine.
 2. A UNIX File System or Windows remote directory that is accessible to the z/OS machine via an NFS mount.

You do not need the SAS Software Depot after you have completed installing and configuring your SAS software. You can archive your SAS Software Depot to tape using the process documented in [SAS Note 37119](#).

- **SASHOME directory**
The SASHOME directory is an integral part of the SAS 9.4 installation. You might want to have your SAS Software Depot and SASHOME directory in separate UNIX file system spaces so that you can easily recover the space from your SAS Software Depot after installation. For a SAS Foundation-only installation, reserve 3 GB for the SASHOME directory.
- **SAS configuration directory**
This directory is where your SAS server scripts, configuration files, and SAS Metadata Server repositories are stored. The amount of space required depends on your usage, but you should have at least 2 GB of space for this directory, 3 GB if you are migrating metadata from an earlier SAS release. The configuration directory cannot be a subdirectory of the SASHOME directory. However, the SASHOME directory and the SAS configuration directory can be in the same UNIX file system space.

User ID for the Installation That Meets Requirements

The user ID used for installing SAS 9.4 must meet specific requirements:

- Must have a home directory that is not root.
- Must have a default program shell defined.
- Must not be a superuser.
- Must not share a UID with other user IDs.

The user IDs that will be running SAS Deployment Wizard to install SAS 9.4 Foundation for z/OS require a larger region setting:

- If running under OMVS, a TSO region size and ASSIZEMAX setting of at least 1 GB.
- If running UNIX-style commands using rlogin, putty, or telnet, an ASSIZEMAX setting of at least 1 GB.

SAS Deployment Plan

To install and configure SAS servers that are part of a planned order, you must have a deployment plan. The deployment plan is an XML-based description of the topology for your SAS system. The plan file is used in the SAS software deployment process to instruct SAS Deployment Wizard which software components to install and configure on each machine.

SAS Deployment Wizard contains a set of standard deployment plans that may be used by many sites with no customization. These are documented at <http://support.sas.com/demosdownloads/setupcat.jsp?cat=Standard+Deployment+Plans>. If you are working with a SAS consultant in the deployment of your software, that consultant may create a customized deployment plan for your installation.

Review Pre-installation Checklists

The *SAS 9.4 Intelligence Platform: Installation and Configuration Guide* can be a very helpful companion to this installation document and should be reviewed before you continue with this installation. This installation guide:

- leads you step by step through the installation of the SAS Intelligence Platform.
- will help you with any pre-installation configuration steps needed to perform the installation.
- will help you create a reference to use throughout the installation. For example, it will help you gather information that you will use during the installation, such as user IDs for special SAS users, port numbers, and the installation locations of required third-party components.

If you are using one of the standard deployment plans, browse through our library of standard deployment plans available at <http://support.sas.com/demosdownloads/setupcat.jsp?cat=Standard+Deployment+Plans> and select the plan for your installation.

Install Required Third-Party Software

The checklist indicates any third-party software that must be installed before you install your SAS software, as well as which third-party software must be obtained from its vendor. An example is the X11 Server, described in the next section. Obtain that software and install it according to the vendor's instructions.

Some of your third-party software may be provided in your software order. That software is listed in your `ordersummary.html` file in your SAS Software Depot. Follow the path for each third-party product listed in the Third-Party section of the `ordersummary.html` file to locate the documentation for its installation.

You must have a supported level of IBM Java installed for a planned installation with SAS 9.4. An IBM Java Software Development Kit (JDK) is required. Obtain and install it before you perform the SAS installation.

With SAS 9.4M9 on z/OS, IBM Java 21.0.4 or later (64-bit) is required. The following SAS hot fixes must be downloaded along with your SAS 9.4M9 order, and they must be applied with the initial installation in order to support this change to the Java requirement:

- **P6Z001** for Threaded Kernel Java 9.4_M9
- **P7N001** for Base SAS JAR Files for z/OS 9.4
- **P7P001** for SAS Integration Technologies JAR Files for z/OS 9.4

The [SAS 9.4 Support for Java](#) page on the SAS Technical Support site describes the Java requirements for each maintenance release of SAS 9.4 Foundation.

(Optional) X11 Server

SAS Deployment Wizard has a graphical user interface which requires the use of an X11 server, if available. At many sites, this software is already available and running on a UNIX and/or Windows system. X11 software is available from commercial and shareware sites.

If you do not have access to an X11 server, you might be able to use SAS Deployment Wizard in console mode, allowing you to use a headless system to configure your server. If you use console mode, each deployment dialog is represented in text. Console mode is available in all orders for SAS 9.4. Refer to your Software Order Email to determine your version number. Console mode cannot be used on the SAS Middle Tier.

Note: *If you are configuring SAS Data Integration Studio or SAS IT Resource Management, you **must** use an X11 server.*

For more information about X11 server minimum version requirements, see the [SAS 9.4 Support for Other Third-Party Software Products](#) page.

(Optional) Install and Configure SAS Metadata Server on a Separate Host

You **must** install and configure SAS first on the machine where SAS Metadata Server will run. If your Metadata Server will be on a machine other than z/OS, deploy it before you attempt to deploy your servers on z/OS.

(Optional) Review SAS/IntrNet Installation Options

If your order includes SAS/IntrNet, review the section on SAS/IntrNet in the [Configuration Guide for SAS 9.4 Foundation for z/OS](#) so that you are prepared to specify the appropriate values for your web server directory paths and URL values.

(Optional) Select SAS/GRAPH Map Data Sets to Install

Starting with SAS 9.4M3, if your site is licensed for SAS/GRAPH, you can 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 enable you to select SAS/GRAPH Maps products to install. For information about space for the Maps data set, refer to the [System Requirements for SAS 9.4 Foundation for z/OS](#).

Installation Process

Overview

The installation process consists of the following steps:

Step 1. Creating the SAS Software Depot

Step 2. Installing and Maintaining Your Software

Step 3. Validate Installation and Post-Configuration

Step 4. Managing Server Sessions

Step 5. Installing SAS 9.4 Mid-tier and Client Software from the SAS Software Depot

Step 6. Archiving Your SAS Software Depot

Follow these steps in order to install your SAS software.

Step 1. Creating the SAS Software Depot

Follow these steps to create your SAS Software Depot:

1. Confirm that you have received the software that you expected.
 - In your installation kit, find the SAS Order Information document, which lists the software that you ordered. Verify the list of SAS products and servers.
 - The SAS Software Depot is a network-accessible repository of your SAS software. After you have installed SAS software, the SAS Order Information document is available from your SAS Software Depot at
`<SAS Software Depot Location>/install_doc/<order number>/soi.html`.
 - After you have created your SAS Software Depot, you can review an expanded list of the software that makes up your order. Consult the `ordersummary.html` file, located in your SAS Software Depot at
`<SAS Software Depot Location>/install_doc/<order number>/ordersummary.html`.
2. Insert your media into a DVD drive on either a Windows or UNIX system to create or add to your SAS Software Depot.
 - If you already have a SAS Software Depot from a 9.4 installation, you should use the same location for creating this SAS Software Depot. Only new products, releases, and maintenance will need to be added to the SAS Software Depot, saving disk space. If you are creating a new SAS Software Depot, choose a location that can be NFS-mounted on z/OS, or confirm that you have a third-party FTP utility that can move the entire directory tree to the z/OS file system. The directory name must not contain blanks.
 - For **Windows** users:
 - The media should autoplay. If it does not, double-click **setup.exe** at the root of your DVD to start the SAS Deployment Wizard.
 - Using the SAS Deployment Wizard, select **Create or Add to a SAS Software Depot**.
 - When you specify the directory path name for the SAS Software Depot, the name should not contain blanks.
 - For **UNIX** users:
 - UNIX users should mount their DVD with the appropriate mount command and execute `setup.sh` at the root of the DVD.
***Note:** If you launch SAS Deployment Wizard from an order that spans media, do not use a shell in the removable media's file system when you launch `setup.sh`. In addition, do not invoke SAS Deployment Wizard using the File Manager. Either of these methods for launching the SAS Deployment Wizard creates a Device busy condition, which prevents disk swapping later in the deployment process.*
 - Using SAS Deployment Wizard, select **Create or Add to a SAS Software Depot**.
 - When you specify the directory path name for the SAS Software Depot, the name should not contain blanks.

Make SAS Software Depot Accessible to z/OS

You must make the SAS Software Depot accessible to z/OS by using one of the following methods:

- NFS mount the directory on z/OS
- Use the SAS Software Depot Copy Utility, which is included in your SAS Software Depot. You can find [instructions](#) for using the SAS Software Depot Copy Utility in the [SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide](#).
- Transfer the SAS Software Depot to z/OS using a third-party utility such as Filezilla, WS-FTP, Blue Zone, etc., that can move a complete directory tree.
 1. FTP the entire directory tree, ensuring that all files are transferred in binary to a z/OS UNIX File System directory, and the case of all file names is preserved.
 2. Be sure to set the execute bits after moving from Windows. Execute the following command:
`chmod -R a+r+x <SAS Software Depot Location>`
- As an alternative, if the SAS Software Depot is stored on UNIX, follow these steps:
 1. Create a tar file of your existing SAS Software Depot on your UNIX machine. Execute the following command:
`tar -cvf <SAS Software Depot Location> <tar file name>`
 2. FTP the tar file created in the previous step to z/OS in binary format.
 3. Extract the SAS Software Depot on z/OS in the zFS directory where the SAS Software Depot will be created. Execute the following command from OMVS or rlogin:
`tar -xvf <tar file name>`

Note: The "v" option used in the tar commands is for "verbose. It is not required.

Step 2. Installing and Maintaining Your Software

The remainder of this document describes the installation and maintenance (where applicable) process in detail. At this point you should have reviewed and completed all of the pre-requisites for this installation previously documented along with the pre-installation steps in the [SAS 9.4 Intelligence Platform: Installation and Configuration Guide](#).

Installation Action—Action A or Action B

The installation process prompts you to select an installation action.

- **Action A** is for a new installation—if you do not currently have SAS 9.4 installed on your system at all or you want to create a new SAS 9.4 installation. When you perform a new installation (Action A), SAS Deployment Wizard also installs any hot fixes included in the order.
Note: Orders received on DVD do not initially include hot fixes.
- **Action B** installs maintenance or new products directly into your existing production SAS 9.4 libraries and directories. If you are deploying a planned order that includes SAS Metadata Server, you must run SAS Deployment Wizard from the depot twice, once using the `-z64` option, and then again without the `-z64` option. Then run SAS Deployment Manager from SASHOME to complete configuration.

Important: In order to avoid overwriting local site customizations to `<HLQ>.TKMVSENV` (`TKMVSENV`), a new member in the same dataset is created by the update process: `NEWVSENV`. You must manually merge the entries from `NEWVSENV`

into TKMVSENV so that any customizations are maintained, while incorporating changes that come with the SAS 9.4 updates. For example, if you are upgrading from SAS 9.4M8 or an earlier maintenance release, the paths to Java locations must be updated to the settings from NEWVSENV.

If you have not made customizations to TKMVSENV, you can overwrite the current TKMVSENV with NEWVSENV.

Planning Metadata Migration from SAS 9.1.3, SAS 9.2 or SAS 9.3

If you are migrating metadata from SAS 9.1.3, SAS 9.2, or SAS 9.3, you must prepare your software for migration. To prepare your SAS 9.1.3, SAS 9.2, or SAS 9.3 deployment for migration to SAS 9.4, follow the instructions in the [SAS 9.4 Intelligence Platform: Migration Guide](#).

Important Notes

- Do **not** log in to z/OS as a superuser (sometimes called “root” or “UID(0)”).
- The user ID that will be running the SAS Deployment Wizard to install SAS 9.4 Foundation for z/OS must have the same requirements as noted in “Ensure that the User ID for the Installation Meets Requirements” on page 3.
- If you are applying maintenance or adding software to an existing installation, you must stop all SAS servers and processes before updating your installation.
- If you select **Action B**, you **must** use the same high-level qualifier that you specified with the original installation.

Installation Steps

By default, SAS Deployment Wizard uses a text-based interface and creates the installation batch jobs for you, but does not execute them. Before you start SAS Deployment Wizard, you must decide whether to use a graphical user interface or a text-based interface, and whether SAS Deployment Wizard will run the installation batch jobs for you.

- **Using the graphical interface:** If you want to use a graphical user interface in SAS Deployment Wizard, you must use an X11 server. If you are configuring SAS IT Resource Management or SAS Data Integration Server, you must use an X11 server, otherwise an X11 server is optional. Note that the X11 server software would run on your Windows or UNIX machine to provide the windowing interface for SAS Deployment Wizard while it is running on z/OS. See the [SAS 9.4 Support for Other Third-Party Software Products](#) page for additional information about X11 servers.

If you are using an X11 server, set the DISPLAY environment variable to point to your X11 server. Issue the following case-sensitive command from the z/OS UNIX shell on your z/OS system before starting SAS Deployment Wizard:

```
export DISPLAY=<your X11 server name>:0.0  
/<SAS Software Depot>/setup.rexx -x11
```

Note: If you do not issue this command, setup.rexx prompts you for the server name. Make sure that the X11 server is started on your workstation before starting the installation.

- **Using the text-based interface:** If you do not use the x11 interface, the dialogs that would have been displayed are represented in text.

When you run SAS Deployment Wizard in the default text-based or console mode to perform a deployment without a graphical display, ensure that the DISPLAY environment

variable is unset, as opposed to being set to a blank value (that is, `DISPLAY=`).

Here is an example:

```
unset DISPLAY
/<SAS Software Depot>/setup.rexx
```

Note: During execution in text or console mode, if you are instructed to enter a sequence that includes angle brackets, such as “Enter <q> to quit,” you must include those symbols.

- **Batch jobs can be submitted manually or by SAS Deployment Wizard:**

By default, SAS Deployment Wizard creates the installation batch jobs for you but does not submit them. Also by default, SAS install jobs are chained. In order to force each job to be submitted manually, use the `-nojobchain` option. The `-nojobchain` option is ignored if `-jobsubmit` is specified.

If you use the `-jobsubmit` option, SAS Deployment Wizard will:

- Assign the same job name xxxxxxA to each job it automatically submits, where: xxxxxx is assigned the installer user ID “A” – suffix assigned to the installer user.
- Use the FTP JES interface to track the progress of each job and determine when they have completed.

If any of the following conditions are true, you will not be able to use the `-jobsubmit` option, and you must submit the installation batch jobs manually:

- Your site uses JES3 (not JES2)
- Your FTP server is configured for `JESINTERFACELEVEL=2`
- The SAS installer ID is not authorized to use FTP
- You need to make site-specific changes to the JCL or wish to review the JCL before submission
- The FTP JES interface’s requirement that the job name be the user ID performing the install suffixed with a single letter or digit is incompatible with your site’s job name requirements
- Starting in SAS 9.4M4 (TS1M4), if you use the `-jobsubmit` option, SAS Deployment Wizard will:
 - No longer prompt for the host name, user ID and password.
 - Allow you to use the `-jobsubmit` option with both JES2 and JES3
 - Use the JES SYSOUT API (SAPI) to track the progress of each job, and in particular determine when jobs have completed.

Here are some examples of submitting jobs:

To have the SAS Deployment Wizard submit and monitor the installation batch jobs:

```
/<SAS Software Depot>/setup.rexx [-x11] -jobsubmit
```

To submit the jobs manually after the SAS Deployment Wizard completes:

```
/<SAS Software Depot>/setup.rexx [-x11]
```

To submit the jobs manually and specify that they are not chained after the SAS Deployment Wizard completes :

```
/<SAS Software Depot>/setup.rexx [-x11] -nojobchain
```

1. In SAS 9.4, the Metadata Server runs only in 64-bit mode and requires a separate installation. **If you plan to run your Metadata Server on z/OS, you must invoke the SAS Deployment Wizard multiple times, and this should be your first invocation of the SAS Deployment Wizard.**

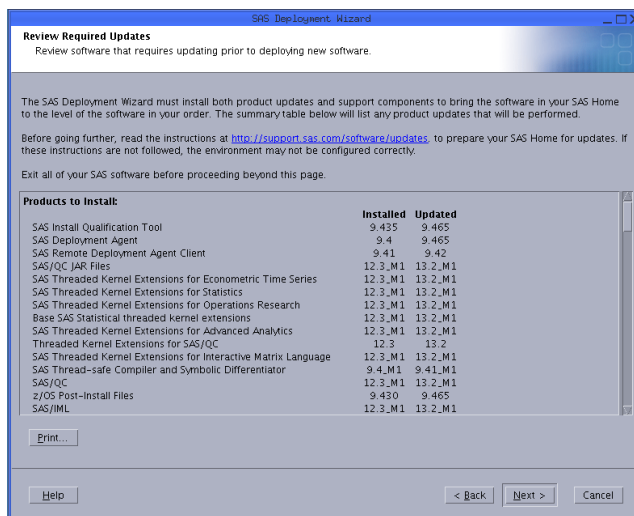
Note: Run `setup.rexx` from OMVS, rlogin, or putty. You cannot execute it from ISHELL. To execute the `setup.rexx` command, navigate to the SAS Software Depot directory in OMVS.

By default, SAS Deployment Wizard uses a text-based interface and creates the installation batch jobs for you but does not execute them.

Important: If SAS Metadata Server will run on another machine, the Metadata Server must be installed, configured, and already running on that other host. Skip to Step 3 to invoke SAS Deployment Wizard for the 31-bit installation.

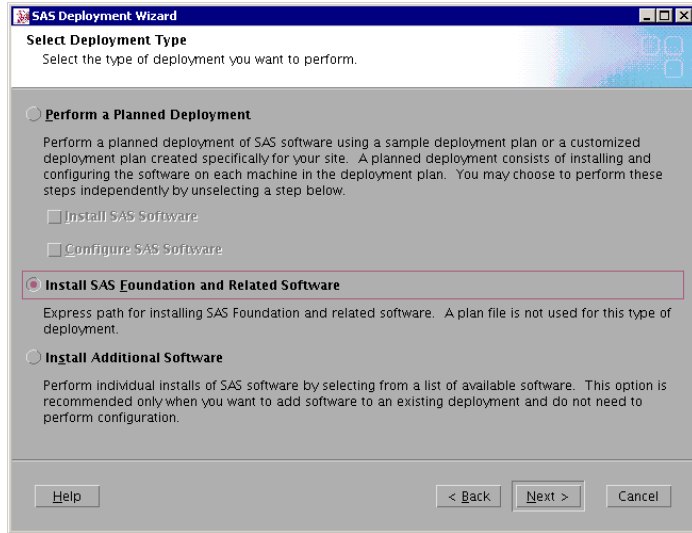
2. Invoke SAS Deployment Wizard with the required `-z64` option.
`/<SAS Software Depot>/setup.rexx -z64 [-jobsubmit] [-x11]`
3. Select **Install SAS Software** in the first dialog.

If you are applying maintenance to an existing installation, you will go into update mode and be prompted to **Review Required Updates** as shown:

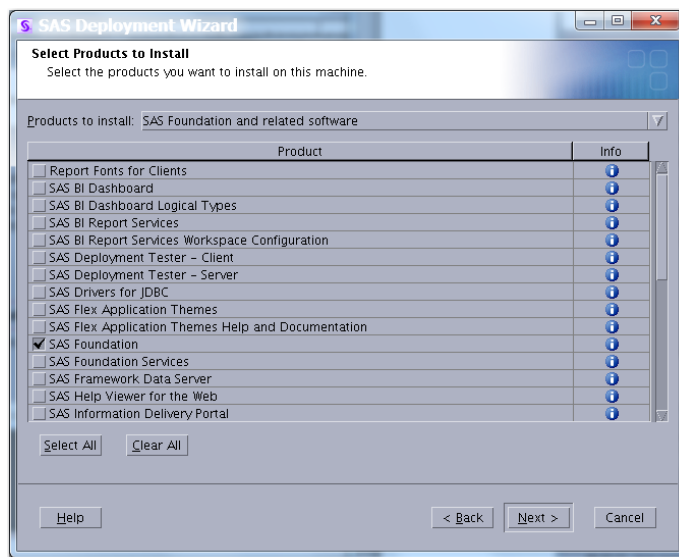


4. Proceed through the remaining dialogs to apply maintenance.

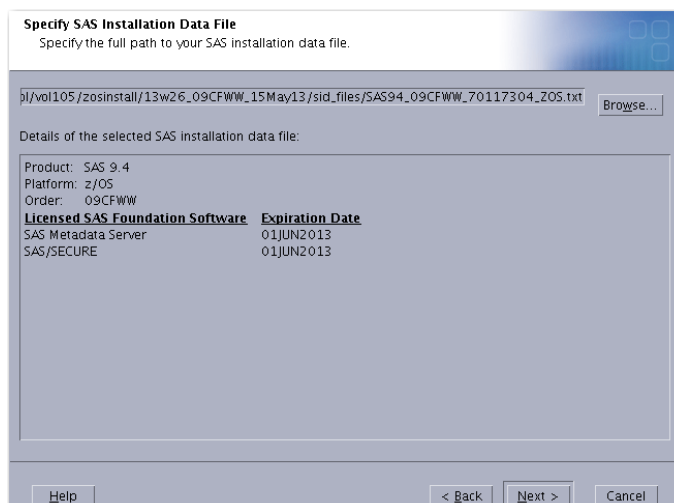
For a new installation, the next dialogs show some key values. You are prompted for the deployment type on the second dialog. For the 64-bit installation, select **Install SAS Foundation and Related Software** as shown below:



5. When prompted for your SASHOME directory, specify the same directory for both the 64-bit and 31-bit installations.
6. Select only **SAS Foundation** in the Select Products to Install dialog:



For a z64 installation, the only products that should appear are the SAS Metadata Server and possibly SAS/SECURE.



7. Use a separate high-level qualifier for this installation than you will use for your main SAS installation (it could be the main SAS high-level qualifier with an additional level, for example SAS.SAS94.Z64). Note that the load module libraries created for the 64-bit installation do NOT need to be program-controlled, unlike the libraries for the 31-bit installation.

Note: When editing the job cards to match your system standard, be sure to maintain a minimum region of 96M, or some installation jobs will fail.

8. If you executed the SAS Deployment Wizard without specifying `-jobsubmit`, after the SAS Deployment Wizard has completed successfully, run the series of jobs indicated in the JOBINDEX member of the <HLQz64>.INSTALL.CNTL data set. After you submit the first job, each job submits the subsequent job as its last step.
9. Invoke SAS Deployment Wizard for the 31-bit installation. This will be the second invocation if you installed your metadata server on z/OS following the instructions provided here.

On your z/OS system, from OMVS (**not** ISHELL), rlogin, or putty, enter the z/OS UNIX shell command `/<SAS Software Depot>/setup.rexx` at the root of your SAS Software Depot to start SAS Deployment Wizard. The most commonly used options for configuring servers are as follows:

- | | |
|----------------------|--|
| -record | records the values that you enter for the SAS Deployment Wizard prompts in the file specified by the <code>-responsefile</code> option. This is convenient when you have to enter many options such as port numbers and you may have to rerun the configuration later. Note that once you have saved a response file, you can use it in a subsequent invocation of the SAS Deployment Wizard by specifying <code>-responsefile</code> without the <code>-record</code> option. |
| -responsefile | if <code>-record</code> is also specified, a new file is created with the responses entered in that invocation of the SAS Deployment Wizard. If <code>-record</code> is not specified, an existing response file from a previous run will be used to fill in the responses from that previous run. Your installation user ID must have write access to the specified file. |
| -deploy | if you specify <code>-record</code> you must also specify <code>-deploy</code> to actually deploy the software. |

Here is an example:

```
setup.rexx -record -responsefile /u/userid/sdwresponse.properties
```

Notes:

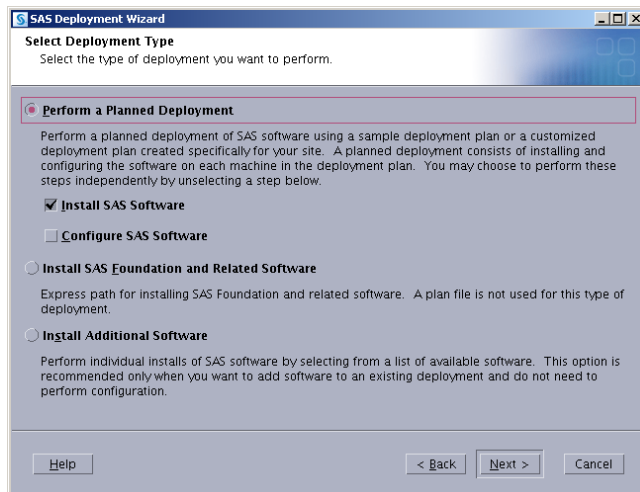
- By default, no deployment occurs when running in a record mode. In order to force a deployment while recording, use `-deploy`. For example:

```
setup.rexx -record -responsefile /u/userid/sdwresponse.properties -deploy
```
- If you specify a file location where a file already exists, the pre-existing file will be overwritten by the SAS Deployment Wizard.
- For a full listing and description of these command-line options for `setup.rexx`, see the [SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide](#).

10. Before you configure your servers, you must have the SASCP64 module installed where it can be accessed as a TSO or UNIX command. For TSO, the SASCP64 module must be in a TSO command library or in STEPLIB. If you use rlogin to access your z/OS system, the SASCP64 module must be in link list.

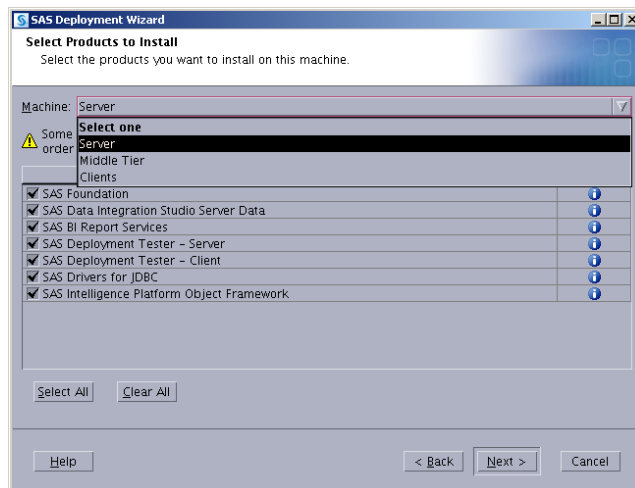
If you do not have the SAS SVC installed from a previous SAS 9 release, you must also install that into your system before running the configuration. You can do this by installing (but not configuring) 31-bit SAS and then obtain the SVC module from the load library, or you can download it from [SAS Note SN 43697](#).

11. (For new deployments only) If you are applying maintenance, proceed to Step 8. Use the SAS Deployment Wizard dialogs to install the 31-bit software. If you specify the `-jobsubmit` option, you can configure your servers in the same invocation of SAS Deployment Wizard. Otherwise, check only **Install SAS Software** as shown:



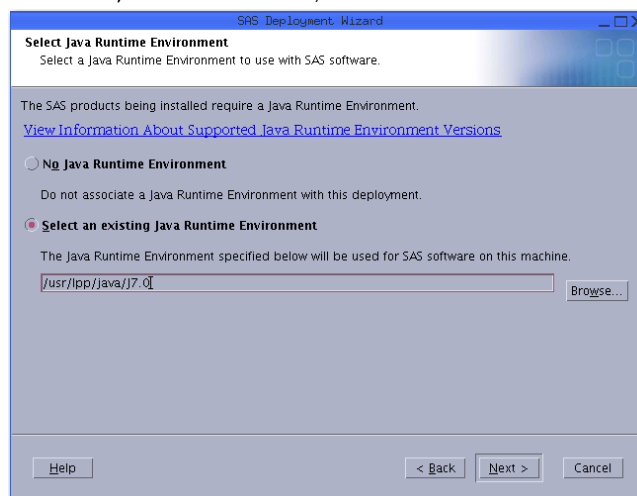
Use the **Help** button for more information about the options on each dialog.

One common point of confusion in SAS Deployment Wizard is selecting the **Machine** in a multi-machine plan. For z/OS, you will usually be selecting “Server,” “SAS Application Server,” or “SAS Metadata Server,” depending on the plan you are using and what you install and configure on this machine.

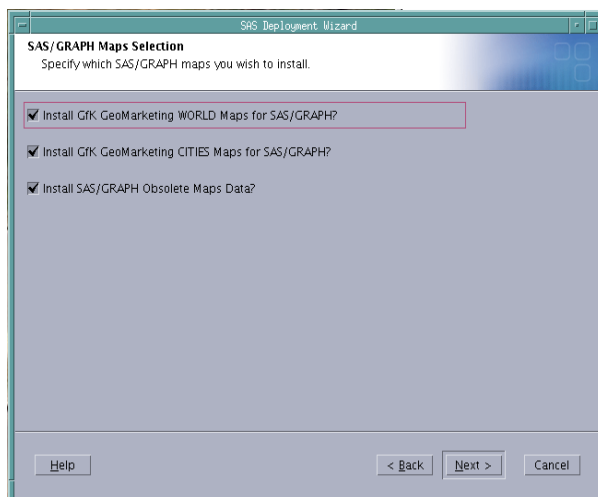


- Be sure to use the same JRE that you are using to run SAS Deployment Wizard for the **Select Java Runtime Environment** prompt (see the image below). If you are unsure of which JRE you are using, see the messages displayed when SAS Deployment Wizard starts up which indicate the JRE being used.
- Here is an example of the messages displayed by SAS Deployment Wizard (the highlighted text is what you would have specified in SAS Deployment Wizard):

```
java runs from /usr/lpp/java/J7.0/bin/java by default.
The java version found is:
java version "1.7.0"
Java(TM) SE Runtime Environment (build pmz3170sr4fp2-
20130426_01(SR4 FP2))
IBM J9 VM (build 2.6, JRE 1.7.0 z/OS s390-31 20130422_146026 (JIT
enabled, AOT enabled)
```



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



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 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](#).

Note: To remove or re-install SAS/GRAPH Maps, see [SAS Note 55984](#).

Proceed through the dialogs or prompts until SAS Deployment Wizard completes. Remember to specify a region of at least 96M when specifying your JOB JCL.

Note: If you did run with the `-jobsubmit` option, verify that all batch jobs submitted by the SAS Deployment Wizard ran successfully. The JOBINDEX member of `<HLQ>.INSTALL.CNTL` shows which jobs should have executed.

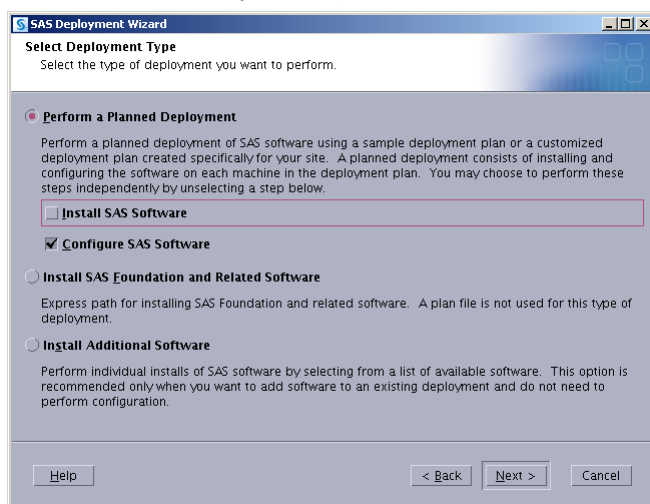
For more detailed information, see the [SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide](#).

12. If you executed SAS Deployment Wizard without specifying `-jobsubmit`, after SAS Deployment Wizard has completed with all green check marks or "S" indicating "Completed Successfully," run the series of jobs indicated in the JOBINDEX member of the `<HLQ>.INSTALL.CNTL` data set. After you submit the first job, each job will submit the subsequent job as its last step.
 - a. You may want to edit each of the JOBCARDS in the jobs listed in the JOBINDEX member of the `<HLQ>.INSTALL.CNTL` data set to provide any required site-specific accounting information, etc., if you want to do so. You may also want to edit the user-defined fields in the JCL statements (such as UNIT values, SMS classes, etc.), to conform to standards used at your site.

- b. If you want to submit each job individually, you will need to edit the last step that submits the next job through the internal reader. Delete the IEBGENER step at the end. Otherwise; submit **only** the first job.
- c. (Optional) A separate job named INSTHELP is written to <HLQ>.INSTALL.CNTL. 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.

Note: After submitting an install job, the <HLQ>.INSTALL.CNTL library cannot be open in edit mode. The job does not run without exclusive access (DISP=OLD) to the <HLQ>.INSTALL.CNTL library.

13. If you did not check the option to **Configure SAS Software** on the first 31-bit invocation, invoke SAS Deployment Wizard again (see step 3 for appropriate command-line options). This time, select only **Configure SAS Software**:



Proceed through the remainder of the configuration.

Note: You should have defined ports, user IDs, servers, and other parameters in your pre-installation checklist that you can now specify in these configuration dialogs.

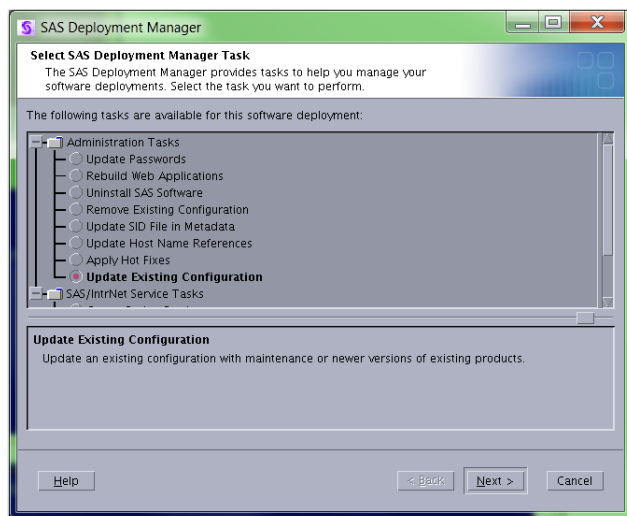
14. **Complete this step only if you are applying maintenance.** If you applied maintenance to an existing installation, you must invoke the SAS Deployment Manager to complete the update of your configuration. Make sure that all servers are stopped except the metadata server, including the web applications.

In OMVS, navigate using the “cd” command to

<SASHOME>/SASDeploymentManager/9.4 and invoke the following command:

```
./sasdm.rexx
```

Then select “**Update Existing Configuration**” as shown:



Proceed through the remaining dialogs to complete your configuration.

Updating an Existing Installation

If you are adding a new order to an existing installation, and the jobs listed in the JOBINDEX member were named MAINT01 through MAINTnn and MANTHELP (update to the Help system), then the SAS Deployment Wizard went into update mode and updated your installed SAS products to the most current level. If your order contained new SAS products, you will need to invoke the SAS Deployment Wizard **again** to install those products, following the same instructions above starting with Step 3 under “Installation Steps.”

Step 3. Validate Installation and Post-Configuration

1. After all installation jobs have finished, submit the VALID job in the <HLQ>.INSTALL.CNTL data set from the 31-bit installation and ensure that all steps complete with a return code of 0.
2. Consult the configuration instructions available for your operating system for product-specific post-installation steps. The configuration instructions are available from Install Center.

Note: Before copying an installation to another system, contact SAS Technical Support.

Step 4. Managing Server Sessions

After the SAS Deployment Wizard has finished configuration of your software, any servers you have configured (Metadata Server, Object Spawner, OLAP server, etc.) will be running as UNIX processes. To stop these processes cleanly, in OMVS navigate to your configuration directory, then the Lev1 subdirectory, and execute the following command:

```
./sas.servers stop
```

You can also issue this command:

```
./sas.servers status
```

to see the status of all servers (and which ones are running), or issue

```
./sas.servers start
```

to start all servers in the correct order.

If you want to run your servers as started tasks, for example, you would stop all the UNIX processes, and then use the JCL created for the started tasks in the data set `<high-level-qualifier>.Wn.SRVPROC`.

Step 5. Installing SAS 9.4 Middle-Tier and Client Software from the SAS Software Depot

Creating the SAS Software Depot for Your Middle-Tier and Client Machines

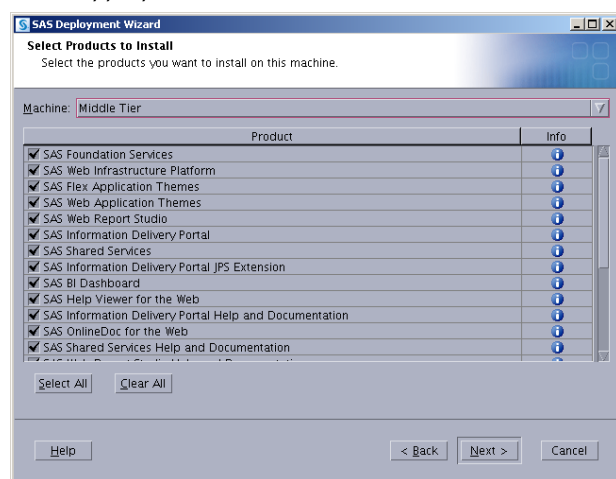
To install software on your mid-tier and client machines, the SAS Software Depot must be accessible to those machines. If your machines can share directories, a single copy of the SAS Software Depot can be shared between machines, even on machines with different operating systems.

Create your SAS Software Depot on your mid-tier and client machines by copying your SAS Software Depot from z/OS to the other machines using a third-party FTP utility that can transfer entire directory trees in binary mode and preserve the case of all file names. You may also create a copy of the SAS Software Depot by reading the DVDs and executing either `setup.sh` or `setup.exe` for UNIX or Windows, respectively.

Installing Required Third-Party Software

- Your checklist names any third-party software that must be installed before you install your SAS software. If you have no third-party software listed in the checklist or the `ordersummary.html`, skip to “[Installing SAS Software from the SAS Software Depot](#)” on page 19.
- The checklist indicates which third-party software must be obtained from its vendor. Obtain that software and install it according to the vendor’s instructions.
- Some of your third-party software might be provided in your software order. That software is listed in the `ordersummary.html` file in your SAS Software Depot. Follow the path for each third-party product listed in the Third-Party section of the `ordersummary.html` file to locate the documentation for its installation.

Note: Use the same plan that you used for the z/OS Server Tier. Select **Middle Tier** or **Clients** as appropriate.



Installing SAS Software from the SAS Software Depot

Windows users should double-click the setup.exe file at the top level of your SAS Software Depot. The most commonly used options are:

- record** records the values that you enter for the SAS Deployment Wizard prompts in the file specified by the **-responsefile** option. This is convenient when you have to enter many options such as port numbers and you may have to rerun the configuration later. Note that once you have saved a response file, you can use it in a subsequent invocation of the SAS Deployment Wizard by specifying **-responsefile** without the **-record** option.
- responsefile** if **-record** is also specified, a new file is created with the responses from that invocation of the SAS Deployment Wizard. If **-record** is not specified, an existing response file from a previous run will be used to fill in the responses from that previous run.
- deploy** if you specify **-record**, you must also specify **-deploy** in order to deploy the software.
- console** only used for UNIX hosts, not needed on Windows.

Example

```
setup.exe -record -responsefile "C:\Program Files\SAS\sdwresponse.properties"
```

Notes:

- By default, no deployment occurs when running in a record mode. In order to force a deployment while recording, use **-deploy**. For example (enter as one line):

```
setup.exe -record -responsefile "C:\Program Files\SAS\sdwresponse.properties" -deploy
```
- If you specify a file location where a file already exists, the pre-existing file is overwritten by SAS Deployment Wizard.
- For more information about the choices available in each dialog, click the **Help** button. A full listing and description of these command-line options for **setup.exe** is provided in the see the [SAS Deployment Wizard and SAS Deployment Manager 9.4: User's Guide](#).
- UNIX users should execute **setup.sh** from the root of your SAS Software Depot.

Step 6. Archiving Your SAS Software Depot

For future maintenance or installation of additional SAS software products, you will need your SAS Software Depot. It can be recreated, but you might find it easier to keep a backup of your SAS Software Depot so that only updates must be downloaded in the future. [SAS Note 37119](#) contains sample jobs to back up and restore your SAS Software Depot.

Tips and Additional Information

Visit these sites for tips and additional information that might not be in your official product documentation:

Technical Support SAS 9.4 Hot Fix downloads:

<https://tshf.sas.com/techsup/download/hotfix/hotfix.html>

Locating the log files for SAS 9.4 installations:

<https://support.sas.com/kb/49/756.html>

Configuration Guide for SAS 9.4 Foundation for z/OS:

<https://support.sas.com/documentation/installcenter/en/ikfdtnmvscg/66194/PDF/default/config.pdf>

Documentation for a SAS 9.4 installation on z/OS:

<https://support.sas.com/en/documentation/install-center/94/guide-for-z-os.html>

SAS Technical Support

Technical support is available to all customers who license SAS software. However, you are encouraged to engage your designated on-site SAS support personnel as your first support contact. If your on-site SAS support personnel cannot resolve your issue, they can [contact SAS Technical Support](#) to report your problem.

Before you contact SAS Technical Support, explore the SAS Support website at <https://support.sas.com/en/technical-support.html>. This site offers access to the SAS Knowledge Base, SAS communities, and other materials that might answer your questions.

When you contact SAS Technical Support, you are required to provide information, such as your SAS site number, company name, email address, and phone number, that identifies you as a licensed SAS software customer.

If you encounter problems with your installation, create a case at the Customer Service Portal: <https://service.sas.com/csm>.



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