Installation Instructions for SAS® 9.1.3 Foundation for z/OS®

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QuickStart

SAS 9.1.3 Foundation is an entirely new system and should not be installed on top of any other versions of SAS 9.

You may install SAS 9.1.3 Foundation and SAS Service Packs using:

- The SAS Installation Wizard for z/OS
- The traditional batch install

Both the SAS Installation Wizard and traditional text interfaces drive the single batch install via parameters supplied by answering prompts or text edit, respectively. Post-install configuration remains as it was in prior versions.

SAS Installation Wizard

The SAS Installation Wizard for z/OS is new with SAS 9.1. To use this Windows-based method, see "Chapter 2 — Installing SAS 9.1.3 Foundation Using the SAS Installation Wizard for z/OS" on page 3. To install SAS Service Packs, see "Chapter 5 — Installing a SAS Service Pack Using the z/OS Service Pack Installer" on page 47.

After completing your installation using the Installation Wizard, you should go to "Chapter 7 — Common Tasks" on page 83 of this document and follow the directions to verify your system installation.

Traditional Batch Install

The following is the series of steps you need to follow in order to install SAS 9.1.3 Foundation or any of its products using the traditional batch install method (for complete details, see "Chapter 3 — Installing SAS 9.1.3 Foundation (Traditional Batch Method)" on page 33.

1. Get the MVS JCL and control files from the media.
2. Provide your site options by editing the SASEDITP control file unloaded from the media into your control data set.
3. Choose the type of installation:
   - ❑ Install a new SAS 9.1.3 Foundation (Action A)
   - ❑ Install new products to an existing SAS 9.1.3 Foundation (Action B or C and D)
   - ❑ Supplemental or keyword install (should only be done under the direction of technical support).

   a. Create the installation job(s).
   b. Run the installation job(s).
   c. Run verification jobs to ensure SAS 9.1.3 Foundation has been installed or updated correctly (see "Chapter 7 — Common Tasks" on page 83 for more information).
   d. Once the verification jobs have completed successfully, your SAS system is operational. However, you may further configure and optimize your SAS system by using the section "Chapter 1 — Setting Up SAS 9.1.3 Foundation" in the Configuration Guide. Furthermore, if you have installed new products to your SAS system, there may be specific post-installation steps to configure those products. See the appendixes of the Configuration Guide for product-specific information.

Note: *To install a SAS Service Pack using the traditional batch install, see "Chapter 6 — Installing a SAS Service Pack* (Traditional Batch Method)*" on page 73.*

Warning: *The entry points for SAS have changed since SAS 9.0 to allow for Threaded Kernel Technology. The default entry point has changed from SASHOST to SAS. The non-LPA bundle has changed from SASXA1 to SASB and the LPA bundled entry point has changed from SASXAL to SASLPA.*

A change has also been made in the PROC and CLIST—a DD statement named TKMVSENV is now required.

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Chapter 1 — Performing Pre-Installation Tasks

Note: *z/OS is the successor to the OS/390 operating system. SAS 9.1.3 Foundation for z/OS runs on both z/OS and OS/390, and throughout this document any reference to z/OS should be interpreted to refer equally to OS/390, unless otherwise stated. Likewise, any reference to z/OS also applies to z/OS.e unless otherwise stated.*

This document describes the installation instructions for SAS 9.1.3 Foundation, which is made up of server-side Base SAS and a variety of server-side SAS products (the exact products vary by customer). Information about the installation of mid-tier and client-side products is available from your SAS Software Navigator.

This section provides an overview of the complete installation process. Review the task descriptions in this section before starting your installation.

Note: *If your site has tape data set protection, ensure that you have read access to data sets whose names begin with the characters "***SAS.***"*

Checking System Requirements

The system requirements information is shipped as part of your installation package. Refer to the System Requirements document for the software and hardware requirements for the Base SAS system and any other products you intend to install.

Checking Available Disk Space

The System Requirements document shipped as part of your installation package provides the disk space requirements. The “Space Requirements” section also details the additional space needed for the installation process itself. Before you proceed, ensure that you have adequate space available on one disk volume.

If you are installing add-on products (the Base SAS product is not on your tape), verify that your existing SAS system libraries contain enough additional space to accommodate each product on your installation tape.

Choosing Installation Actions

Choose one, and only one, primary action to process a SAS system installation tape:

- INSTALL-NEW (Action A): Installs a new SAS 9.1.3 Foundation. Select Action A when you receive a tape with a new release of SAS, including the Base SAS product. This installation procedure allocates new SAS system libraries on disk for unloading the libraries on your tape.
- INSTALL-DIRECT (Action B): Installs additional products directly to existing SAS system libraries. Select Action B when you receive a tape with additional SAS products for the current release of SAS, and you want to install the files directly into your current SAS system libraries. If you select this option, be aware that current load modules may be overwritten. You will also need to ensure that existing load libraries have adequate space and that they are not in use.

  Warning: *Action B can write directly to any SAS library specified in the installation High Level Qualifier parameter. Action B is* ***NOT*** *recommended for installation of updates to production libraries. Action B is provided to perform a direct update to stand-alone testing copies of your production SAS system. Use Action C to install updates in other circumstances.*
- INSTALL-TO-STAGE (Action C): Installs additional products to new SAS system staging libraries. Select Action C when you receive a tape with additional SAS products and you want to unload the new products to separate staging libraries without affecting your current SAS system libraries. You can choose other actions to perform further operations on your installed SAS system.

After completing a primary action, you may find it necessary to perform one or more of the following secondary actions. However, you may only perform one secondary action at a time.

- STAGE-TO-FINAL (Action D): Copies staged SAS product libraries into your production SAS system libraries
- STANDALONE-RENEW (Action R): Optional step for creating Renewal Utility

Chapter 2 — Installing SAS 9.1.3 Foundation Using the SAS Installation Wizard for z/OS

Important:

The SAS Installation Wizard for z/OS is a new product with a limited feature set. If information supplied to the Wizard is correct, the installer has appropriate permissions and user IDs, and adequate storage is available, etc., the Wizard will use this installation data to remotely launch a successful tailored z/OS batch installation. The installer will not need to use z/OS editors, etc., for the installation to proceed to conclusion.

However, the Wizard cannot report the successful conclusion of the installation. Also, if there are problems during the procedure, the Wizard is only capable of analyzing and presenting a limited number of issues for remedy DURING the Wizard session. Ultimately a problematic installation will require experienced z/OS personnel to perform an appropriately configured traditional batch installation.

Extensions to the Wizard, such as analysis of z/OS execution logs for completion, or errors, and presenting possible remedial action, remain as considerations for future releases.

Note: *Please note that some of the following dialog boxes require text to be entered into text boxes. This text can be supplied in either lower or upper case, since all text is converted to upper case within the installation program. However, specifying the text in upper case is recommended; therefore it is advisable to set CAPS ON while completing the text boxes on each dialog box.*

After entering the required information into the Wizard, the parameters are FTP'd to the mainframe and a job is launched to begin the batch installation. A list of the generated jobs that will be run for any particular install can be found in the JOBINDXz member of the CNTL data set where z is the type of action being performed. The job names and the total number of these jobs will be determined by the type of install. If you are installing SAS 9.1.3 for the first time, the increased number of jobs could cause additional tape mounts.

For example, if an Action A is being performed, the member JOBINDXA will contain the job names that will be run for that particular install. If an Action C is being performed to add a product to an existing install or install a Service Pack, then the member JOBINDXC will contain the job names.

After completing the SAS Installation Wizard for z/OS, you should go to "Chapter 7 — Common Tasks" on page 83 of this document to verify your system installation.

Note: *If you are viewing these instructions online, the "Common Tasks" section may be found in the* Installation Instructions for SAS 9.1.3 Foundation for z/OS *document* on the **Documentation for Installing and Configuring SAS** CD or Install Center. On the first page, select **SAS Planning Installation Edition Kit**, then select **Installation Instructions—SAS 9.1.3 Foundation for z/OS** in the "Installation" section under "Installation Instructions—SAS 9.1.3 Foundation."

Preliminary Screens

Note: *This section does not provide all of the steps needed to run the SAS Software Navigator. Abbreviated instructions are provided to get you to the point where you can install z/OS using the SAS Installation Wizard for z/OS if you start with the* ***SAS Installation Components for z/OS*** *CD (the recommended method) or the* ***SAS Software Navigator*** *CD. For additional information on using the SAS Software Navigator, see the* SAS Software Navigator User's Guide.

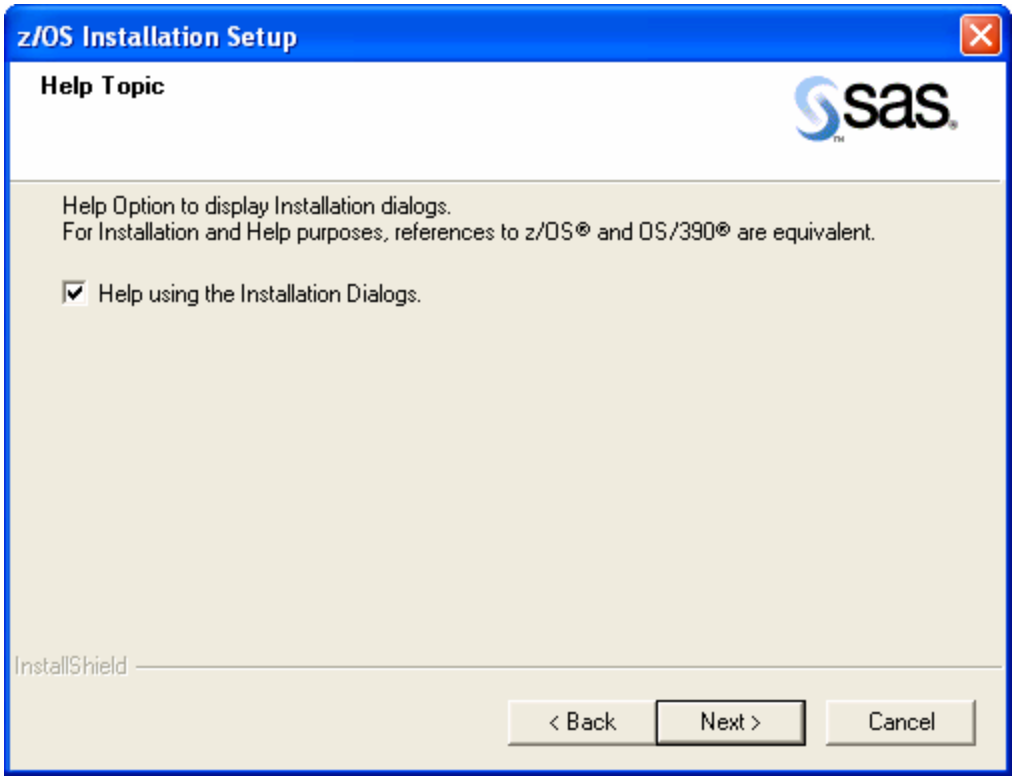
Before you begin your z/OS installation, make sure that you have stored your SAS Installation Data (SID) on the system where you will be running the SAS Installation Wizard for z/OS by following the instructions included in your Software Order E-mail (SOE). You may then begin your z/OS installation in one of two ways:

- Using the **SAS Installation Components for z/OS** CD (the recommended method). To use this method, follow these steps:
  - ❑ Insert the **SAS Installation Components for z/OS** CD into your CD-ROM drive. If AUTORUN is enabled, your installation will start with the next step. If AUTORUN is not enabled, navigate to the listing of the files on the CD using Windows Explorer and then double-click **setup.exe** to start the installation.
  - ❑ On the **Choose Language** dialog box which appears, select your language, and then click **OK**.
  - ❑ On the dialog box which appears, click **SAS Installation Wizard for z/OS**.
  - ❑ Read the information provided, and then click **Install**.
  - ❑ After the opening screen, follow the directions described later in the "Online Help" section.
- Using the **SAS Software Navigator** CD or a network copy of it (if you created a SAS Software Depot).

  To use this method, follow these steps:
  - ❑ Start the SAS Software Navigator.
  - ❑ Choose **Install and Configure SAS Software** when prompted to choose a task.
  - ❑ When prompted to select the type of deployment you want to perform, select **Software Index**, then click **Next**.
  - ❑ Enter the location of your SID, and then click **Next**.
  - ❑ After verifying the contents of your SAS Installation Data, click **Next**.
  - ❑ In the **Software Index** dialog box, click the plus sign (+) to the left of CD Index to expand the element. Scroll down to **SAS Installation Components for z/OS**, and expand that tree by clicking the plus sign (**+**).
  - ❑ Click **SAS Installation Wizard for z/OS**. Read the information provided, and then click Install.

    Note: *If you are running from the* ***SAS Software Navigator*** *CD, you will be prompted to remove the* ***SAS Software Navigator*** *CD and insert the* ***SAS Installation Components for z/OS*** *CD.*
  - ❑ After the opening screen, follow the directions described in the "Online Help" section which follows.

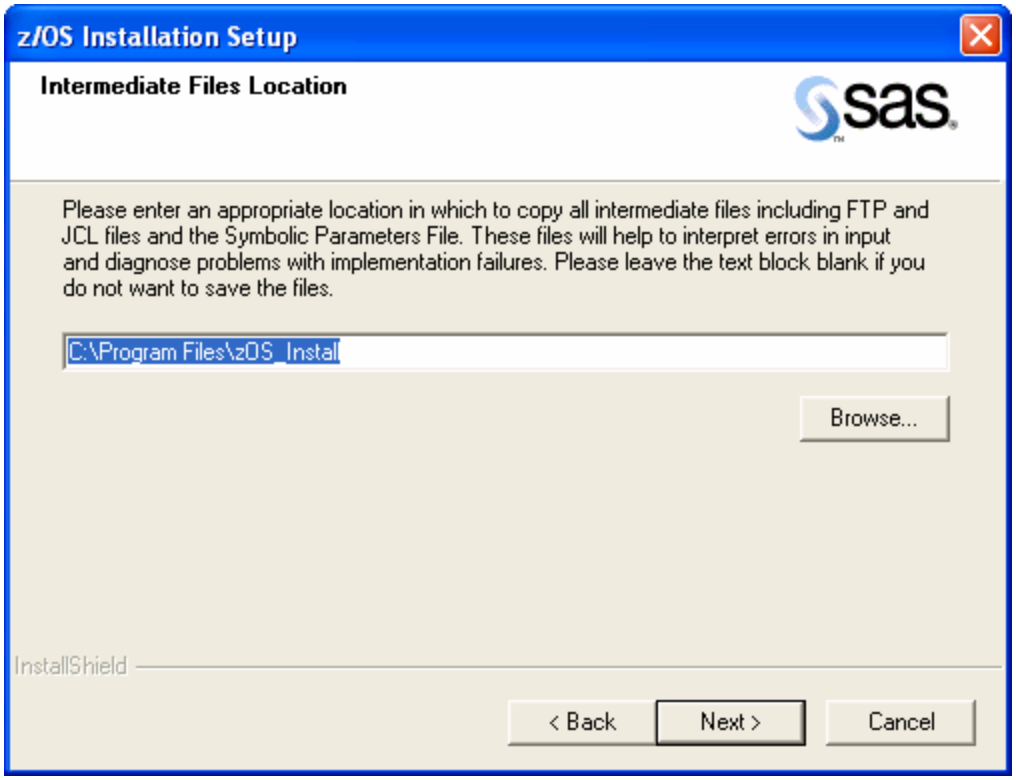
Online Help



The **Help Topic** dialog box enables you to gain a more comprehensive understanding of the installation process. Selecting **Help using the Installation Dialogs** (the default) opens a PDF version of this document, *Installing SAS 9.1.3 Foundation Using the SAS Installation Wizard for z/OS*, in Adobe Reader, describing in detail the dialog boxes encountered during the SAS Installation.

If you are familiar with the installation process using the SAS Installation Wizard for z/OS and want to proceed directly with the installation, remove the checkmark in the checkbox, and click **Next**.

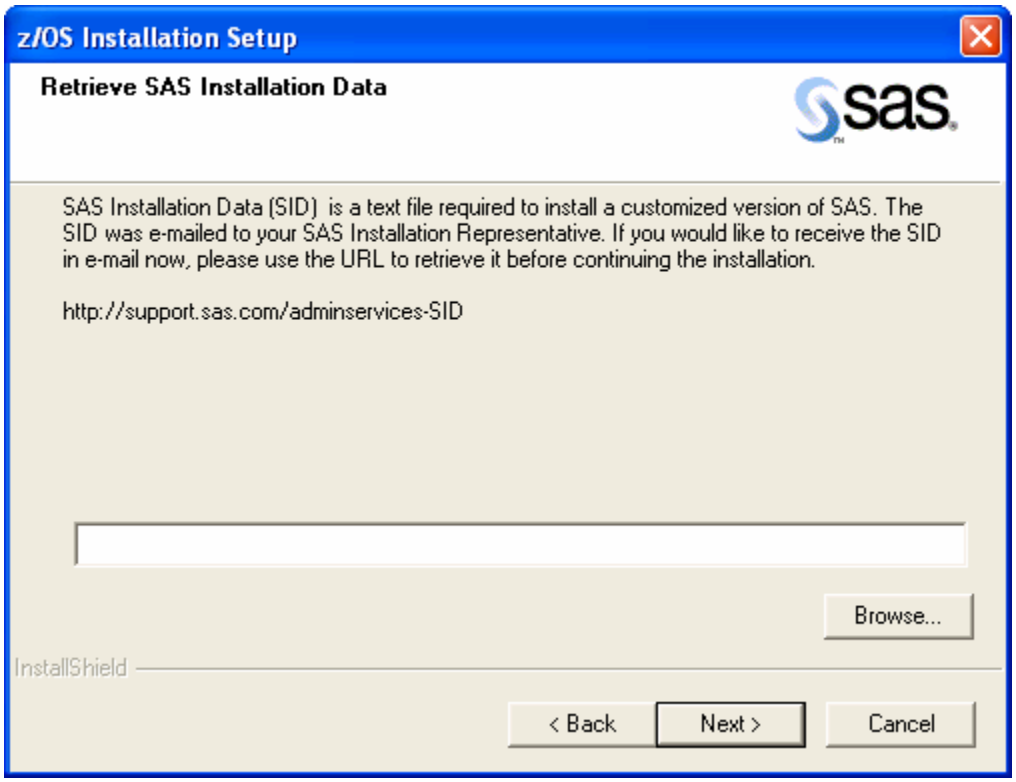
Intermediate Files Location



The **Intermediate Files Location** dialog box enables users to save intermediate files to an appropriate location on the local (Windows) computer. These files are intended to assist in resolution of any errors or problems that may have occurred during the SAS Installation Wizard for z/OS process. Please leave the text box blank if you do not wish to save any intermediate files to your computer. The following files are saved:

- `sasv91a.jes` contains the log file returned from the mainframe after the allocation job has run.
- `alloc.jcl` houses the JCL implemented for the allocation job.
- `iebupdte.jcl` shows the JCL for the IEBUPDTE job. This file also resides on the mainframe in the PDS entitled "`szPrefix + szDatVal + .CNTL(JCLUPDT)`".
- `ftp_alloc.bat` and `ftp_alloc.dat` contain the information to launch the FTP process for the allocation job.
- `ftp_mvs.bat` and `ftp_mvs.dat` contain the appropriate FTP commands to send the SID files, the symbolics file, and the IEBUPDTE JCL file to the mainframe.
- `ftp_iebupdte.bat` and `ftp_iebupdte.dat` files house the information to launch the FTP process for the IEBUPDTE job.
- `symbolics.txt` file contains the symbolic parameters.
- The SID file information is divided into the `sid_setinit.txt` and the `sid_rawsid.txt` files to enable correct implementation of the batch process to install the SAS products onto the target mainframe. The `sid_rawsid.txt` file is converted to EBCDIC prior to a binary FTP to the mainframe to allow for correct resolution of any variant characters.
- `zos_install.log` is a log file that retains time-stamped data that can be utilized to interpret issues that may occur during the SAS Installation Wizard for z/OS process.

SAS Installation Data

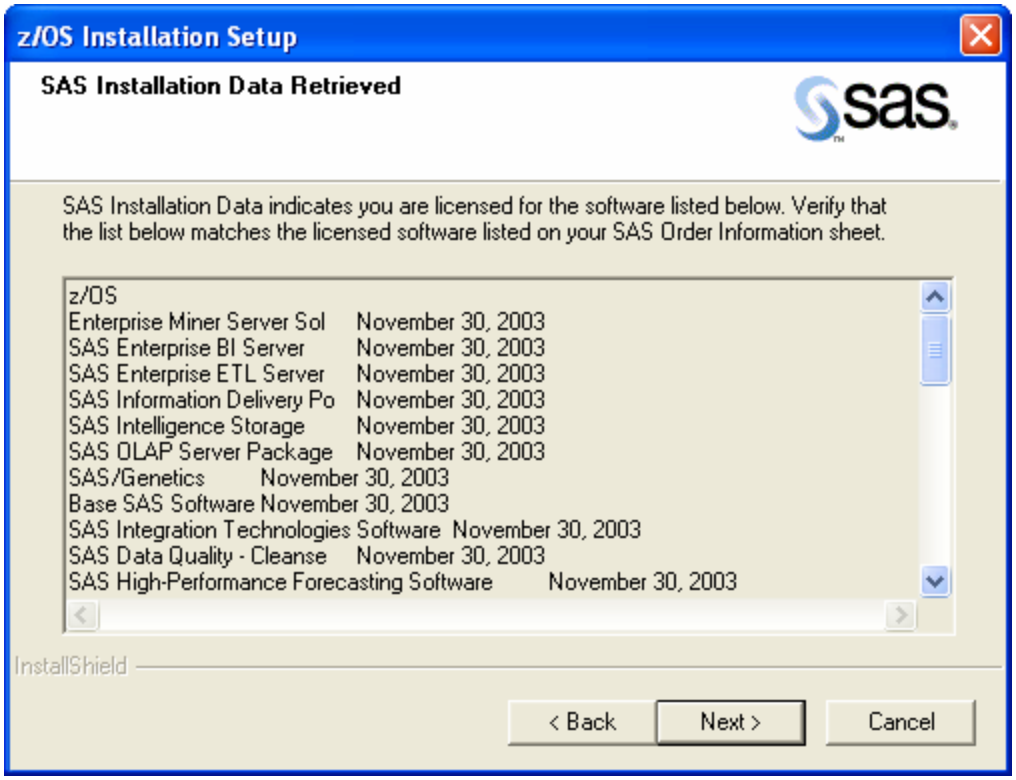


If you used the SAS Software Navigator to retrieve your SID, the SID's location will already appear in this dialog box. If the SAS Software Navigator was not used to retrieve your SID, and the file was saved on a PC, you can retrieve the file location by selecting the **Browse** button and drilling down to its location. The SID file will be checked by functions within the logic of the SAS Installation Wizard for z/OS to ensure correct style and appropriate content. You will be notified of any irregularities within the SID file that are deemed unacceptable for a successful integration into the Batch Install Process on the mainframe.

Note: *If you are using the **SAS Software Navigator** CD or a network copy of it (if you created a SAS Software Depot), then the location of the SID will appear automatically.*

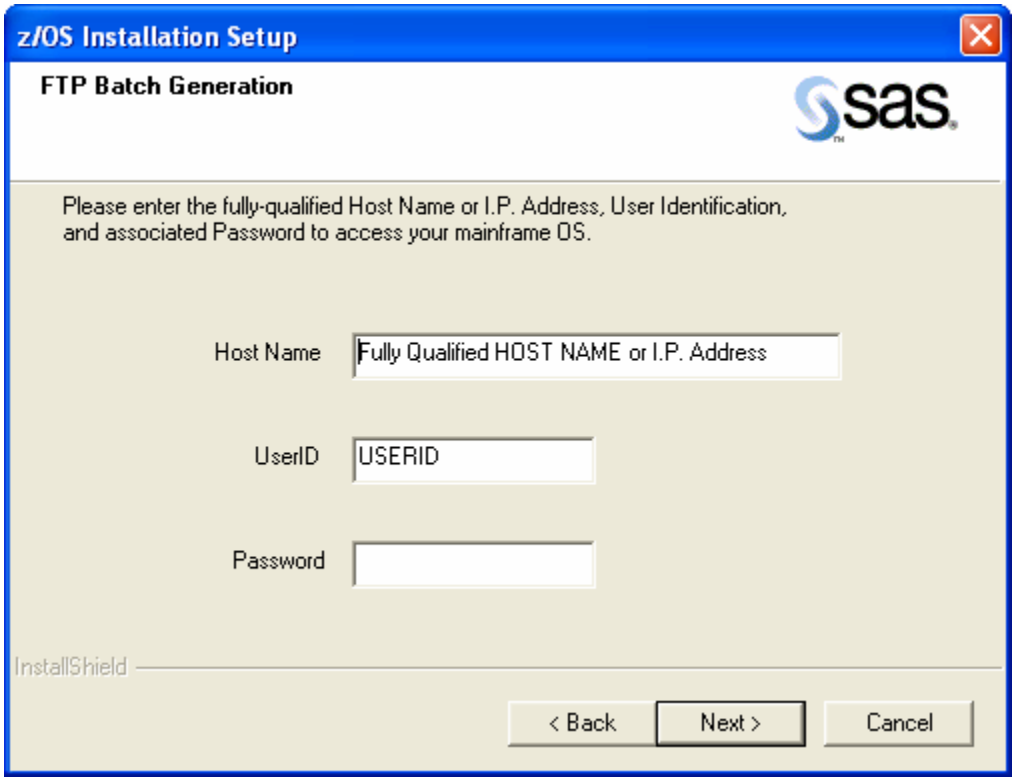
After the correct location of the SID file appears in the previous dialog box, click **Next** to continue.

SAS Installation Data Retrieved



After you have successfully retrieved your SID, the **SAS Installation Data Retrieved** dialog box appears detailing the retrieved SID file products that will be installed on the mainframe. These products match those listed on your SAS Order Information Letter.

FTP Batch Generation



During the installation process, access to your mainframe is required to FTP several files and launch two install process batch jobs. The **FTP Batch Generation** dialog box prompts you for your fully-qualified Host Name or IP Address, User ID, and Password to gain access to the z/OS operating system.

After entering the information, click **Next**. If the connection is successful, you will see a dialog box similar to the following. Click **OK** to continue.

Editing the SASEDITP Member

The symbolic parameters that reside in the SASEDITP member require customized edits whether you are performing a new installation of the SAS system or installing new products to an existing SAS system. To populate these parameters, several dialog boxes will prompt you for textual information, the details of which follow.

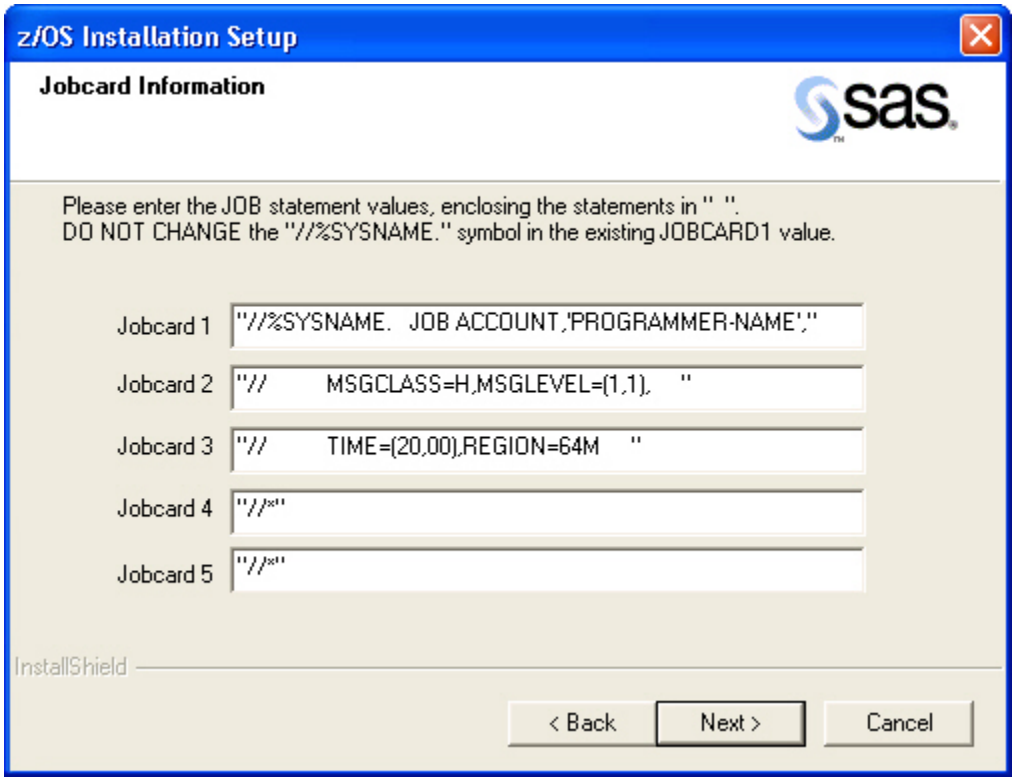
Note: *Please note that some of the following dialog boxes require text to be entered into text boxes. This text can be supplied in either lower or upper case, since all text is converted to upper case within the installation program. However, specifying the text in upper case is recommended; therefore it is advisable to set CAPS ON while completing the text boxes on each dialog box.*

Ensure that the JOB statement values are enclosed in quotes (“ ”). Do not increase the number of characters (50) contained between the quotes in JOBCARD 1.

Checks and validations are enacted to ensure verification of certain text boxes for most symbolic parameters. You will be prompted by Message Boxes at discrete times to offer advice and any errors in input will be underlined.

Jobcard Information

The job header information is contained in the following **Jobcard Information** dialog, using **JOBCARD 1** through **JOBCARD 5** to create JOB statements for the generated jobs.



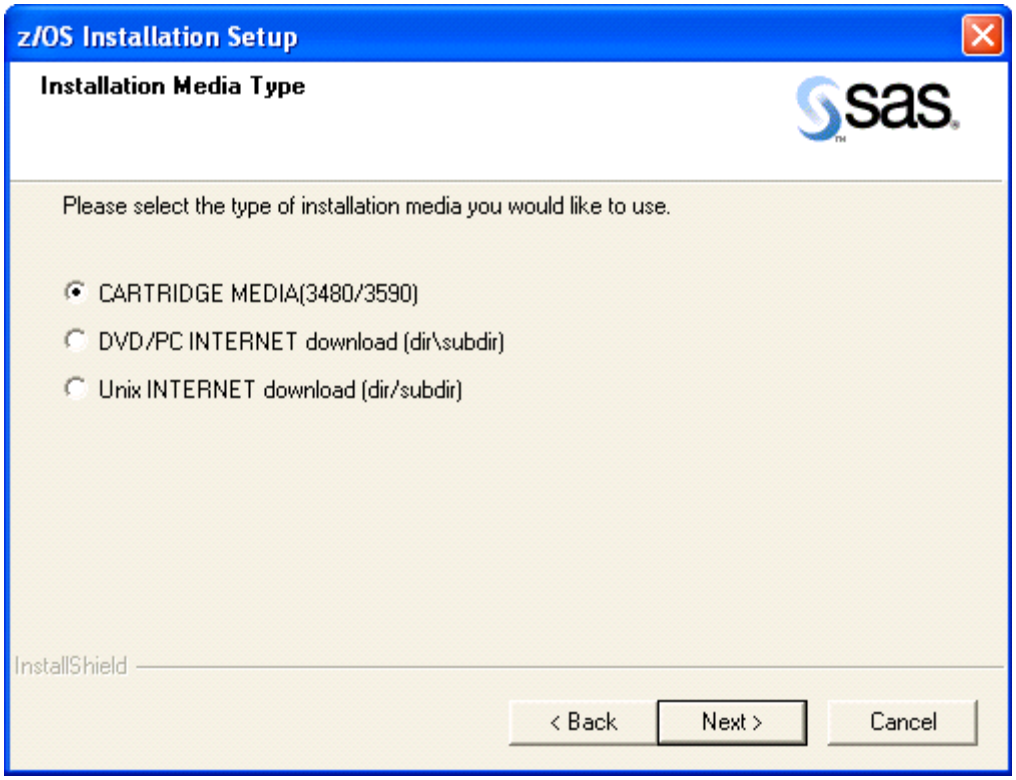
The default **JOBCARD 1** value contains a JOBNAME value of SYSNAME, which resolves so that the JOBNAME is the same as that of the member name that contains the JCL for the job. **Do NOT change the `//%SYSNAME.` symbol in the defaulted JOBCARD 1 value.** Update all the **JOBCARD x** parameters with the appropriate values (`/*JOBPARM`, `/*ROUTE`, `//*MAIN`, or `//*FORMAT` statements) for your installation.

Installation Media Type

A brief description of the installation media choices follows:

- **Cartridge Media (3480/3590)**—a physical tape cartridge (the default).
- **DVD/PC Internet download (dir\subdir)**—a self-extracting file delivered electronically via the Internet (PC file structure). You must choose this installation media type for use with a Service Pack which has been electronically downloaded.
- **UNIX Internet download (dir/subdir)**—a self-extracting file delivered electronically via the Internet (NFS file structure).

  Note: This format is not yet available.

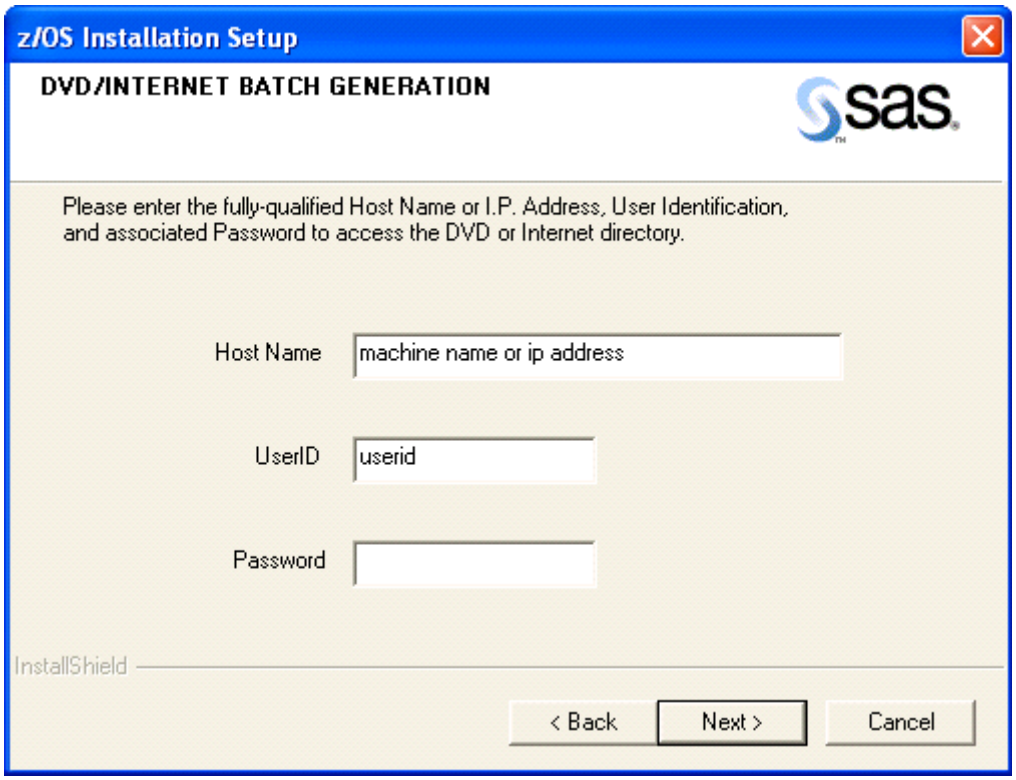


Choose the correct installation media type from the choices provided, and then click **Next**.

Note: *If you chose **Cartridge Media (3480/3590)**—the default—you will be taken to the "Installation Actions" dialog box on page 14.*

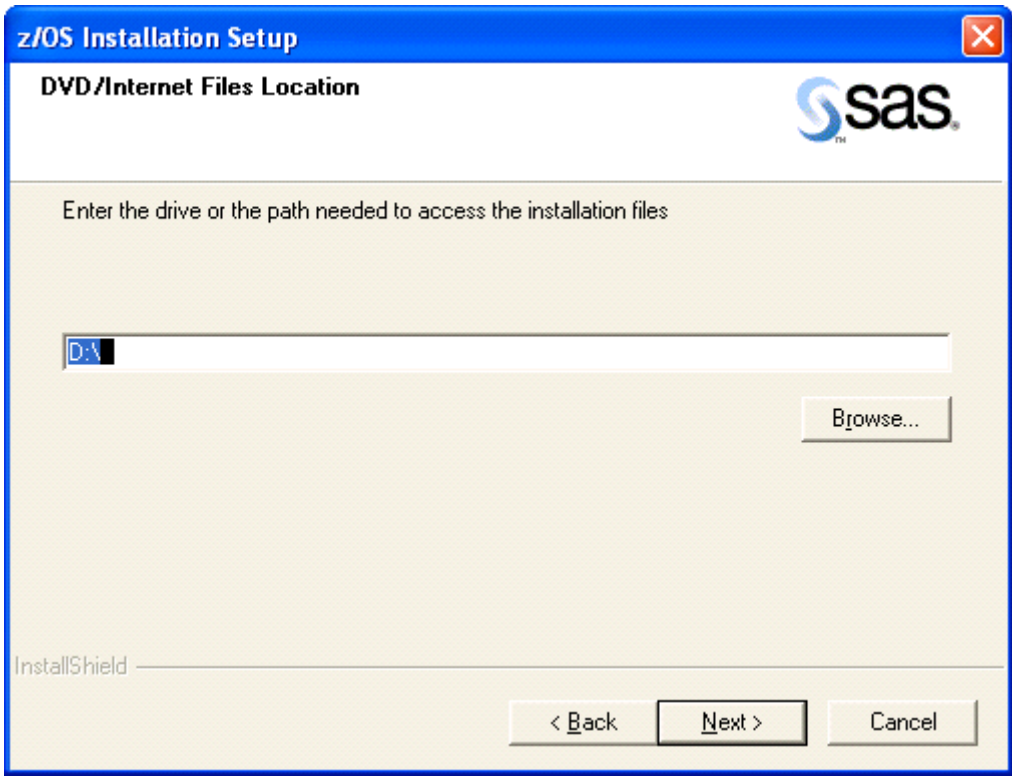
DVD/Internet Batch Generation

Enter the fully-qualified Host Name, User ID, and Password needed to access the DVD directory or the PC where the self-extracting executable was expanded. Then click **Next**.

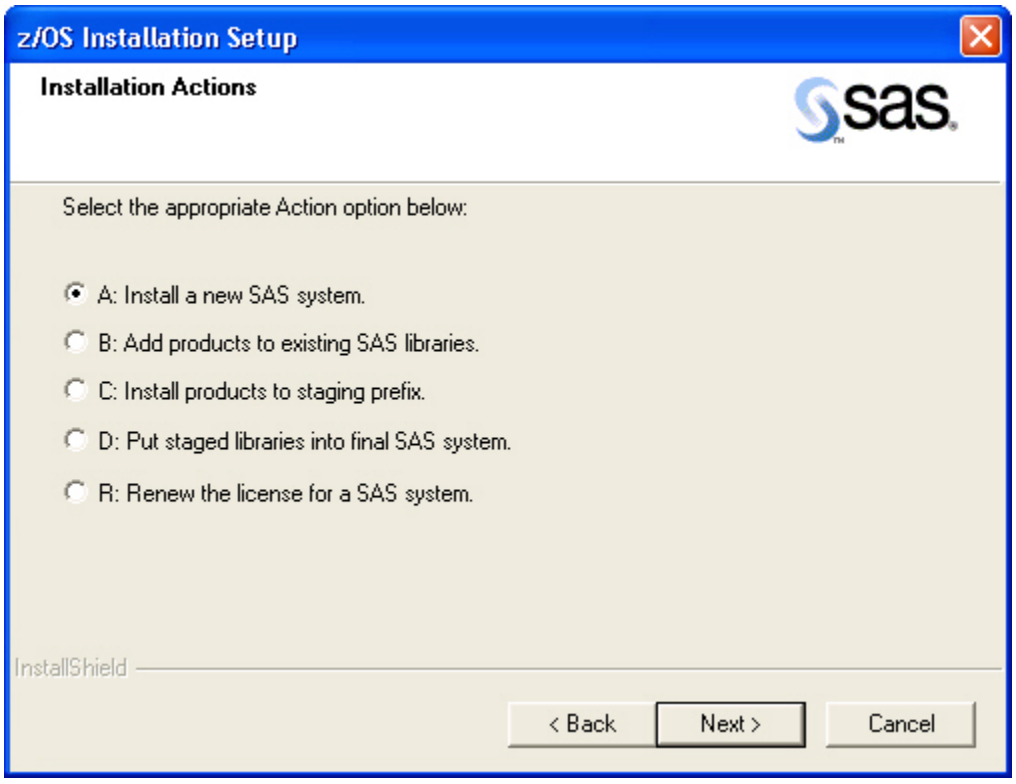


DVD/Internet Files Location

Enter the drive and path needed to access the installation files. This is the same drive and path where the files were put by the self-extracting executable. Then click **Next**.



Installation Actions



The option buttons on the **Installation Actions** dialog box represent SAS installation action options:

A: Install a new SAS system. This is the default selection. Select this option button, then click **Next** to open the **Action A: New Installation** dialog box. Select **Action A** when you receive a tape with a new release of SAS, including the Base SAS product. This installation procedure allocates new SAS libraries on disk for unloading the libraries on your media.

B: Add products to existing SAS libraries. Select this option button, then click **Next** to open the **Action B: Additional Products for Direct Installation** dialog box. Select **Action B** when you receive a tape with additional SAS products for the current release of SAS and you want to install the files directly into your current SAS libraries. If you select this option, be aware that current load modules may be overwritten. You will also have to ensure that existing load libraries have adequate space and are NOT in use.

Warning: *Action B can write directly to any SAS library specified in the installation High Level Qualifier parameter. Action B is **NOT** recommended for installation of updates to production libraries. Action B is provided to perform a direct update to stand-alone testing copies of your production SAS system. Use Action C to install updates in other circumstances.*

C: Install products to staging prefix. Select this option button, then click **Next** to open the **Action C: Additional Products to Staging Libraries** dialog box. Select **Action C** when you receive a tape with additional SAS products and you want to unload the new products to separate staging libraries without impacting your current SAS libraries. You can choose other actions to perform further operations on your installed SAS system.

After completing one of the Actions A through C, you may wish to invoke one or more of the actions D or R.

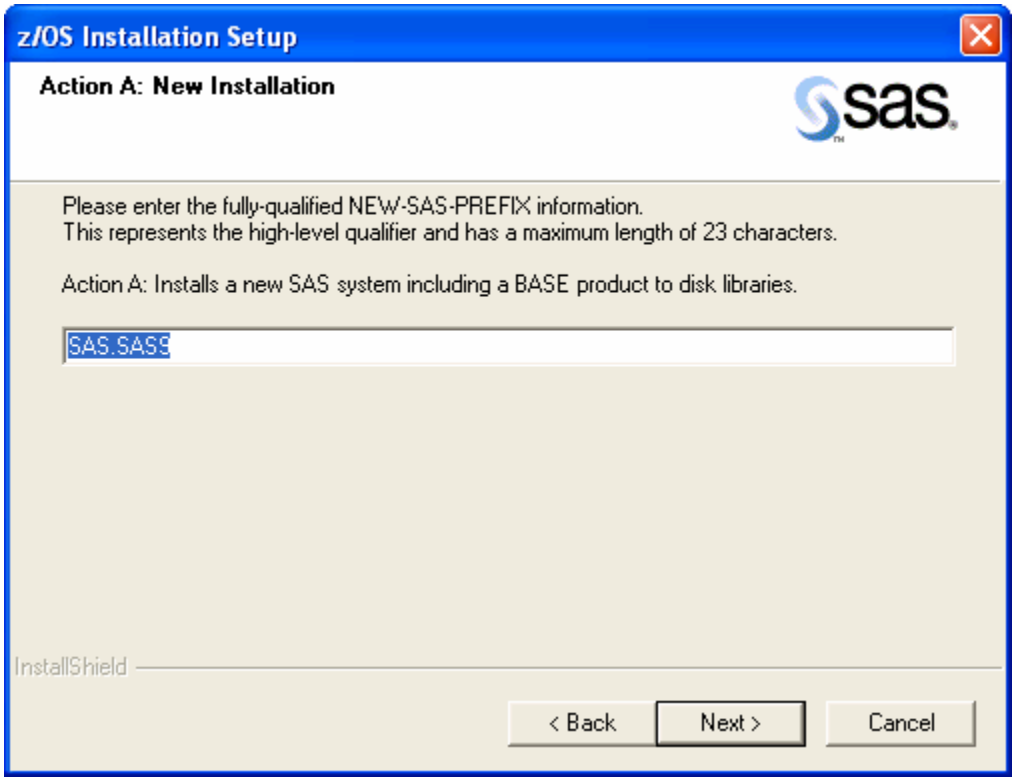
D: Put staged libraries into final SAS system. Copies staged SAS product libraries into your production SAS libraries. Select this option button, then click **Next** to open the **Action D: Copy Staged Libraries** dialog box. If **Action D** is being performed to move Service Pack staged libraries with .SL into production, the .SL libraries can be deleted after successful completion of **Action D** and any post-installation tasks using the operating system utilities.

R: Renew the license for a SAS system. This is an optional step for creating the Renewal Utility. Select this option button, then click **Next** to open the **Action R: Create Renewal Utility** dialog box.

The following dialog boxes are spawned from the Installation Actions dialog, each detailing their own specific requirements.

Action A: New Installation

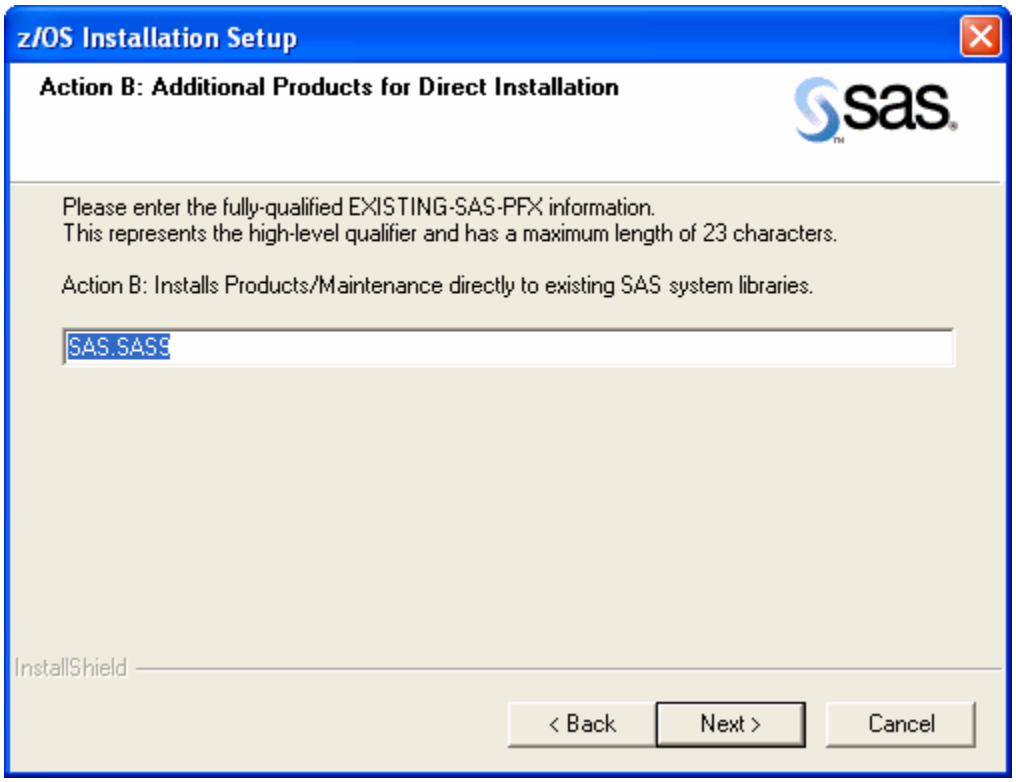
Selecting the default option button (**A: Install a new SAS system**) in the Installation Actions dialog box opens the Action A: New Installation dialog box. This dialog box requests a value for NEW-SAS-PREFIX in order to specify the high-level prefix that you want to use for the SAS product libraries.



Clicking **Next** will open the **SMS Parameters** dialog box as shown on page 20.

Action B: Additional Products for Direct Installation

Selecting the **B: Add products to existing SAS libraries** option button opens a dialog box which specifies the high-level prefix of the current SAS libraries at your site into which you wish to unload the media libraries.

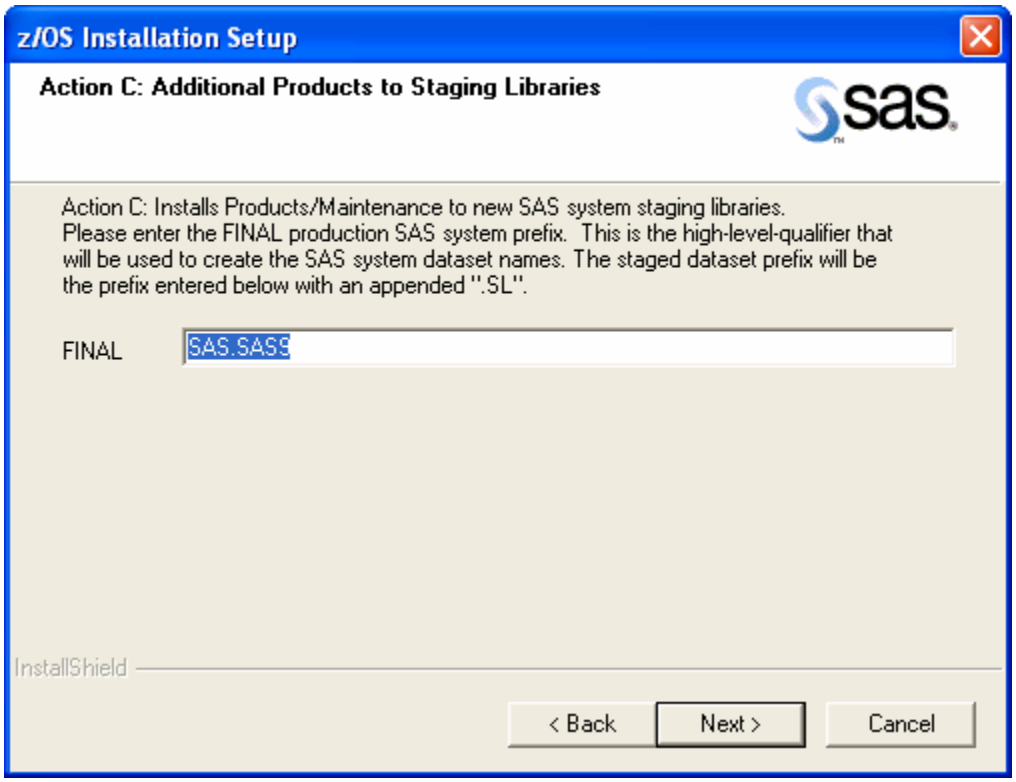


Clicking **Next** will open the **SMS Parameters** dialog box as shown on page 20.

Action C: Additional Products to Staging Libraries

Selecting the **C: Install products to staging prefix** option button opens a dialog box to capture the value of `FINAL-SASLIB-PFX`. The staged dataset prefix will be the prefix entered for FINAL with an appended "`.SL`".

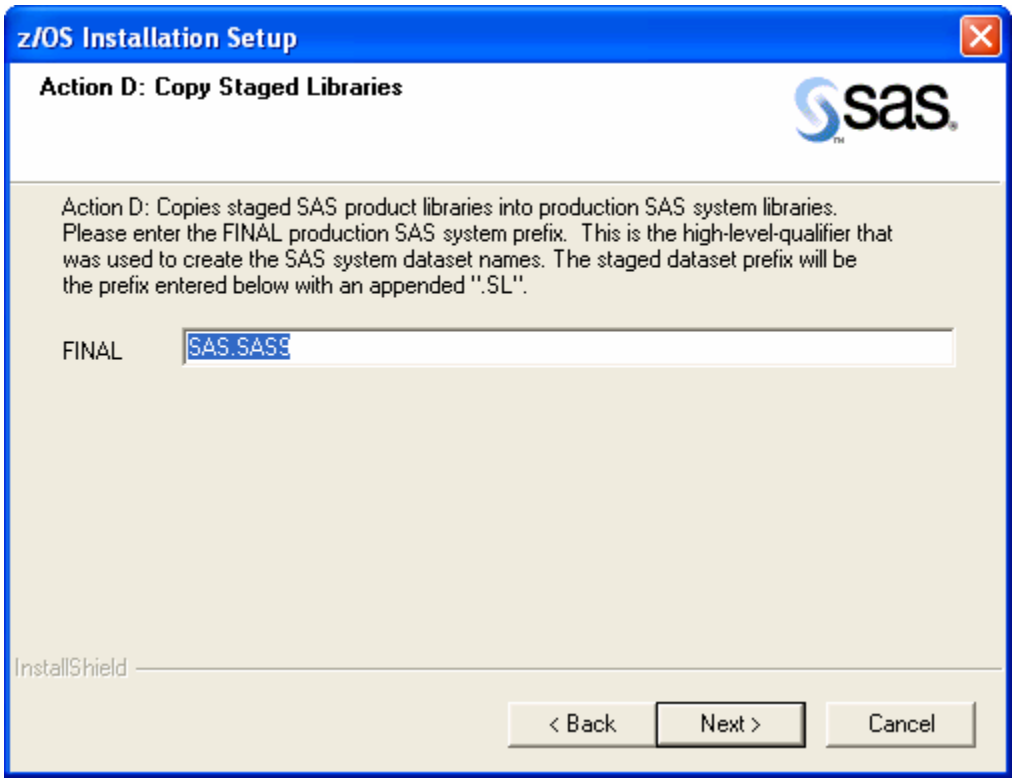
`FINAL-SASLIB-PFX` is set to specify the high-level prefix of the current set of complete SAS libraries. These libraries cannot be staging libraries from a previous install.



Clicking **Next** will open the **SMS Parameters** dialog box as shown on page 20.

Action D: Copy Staged Libraries

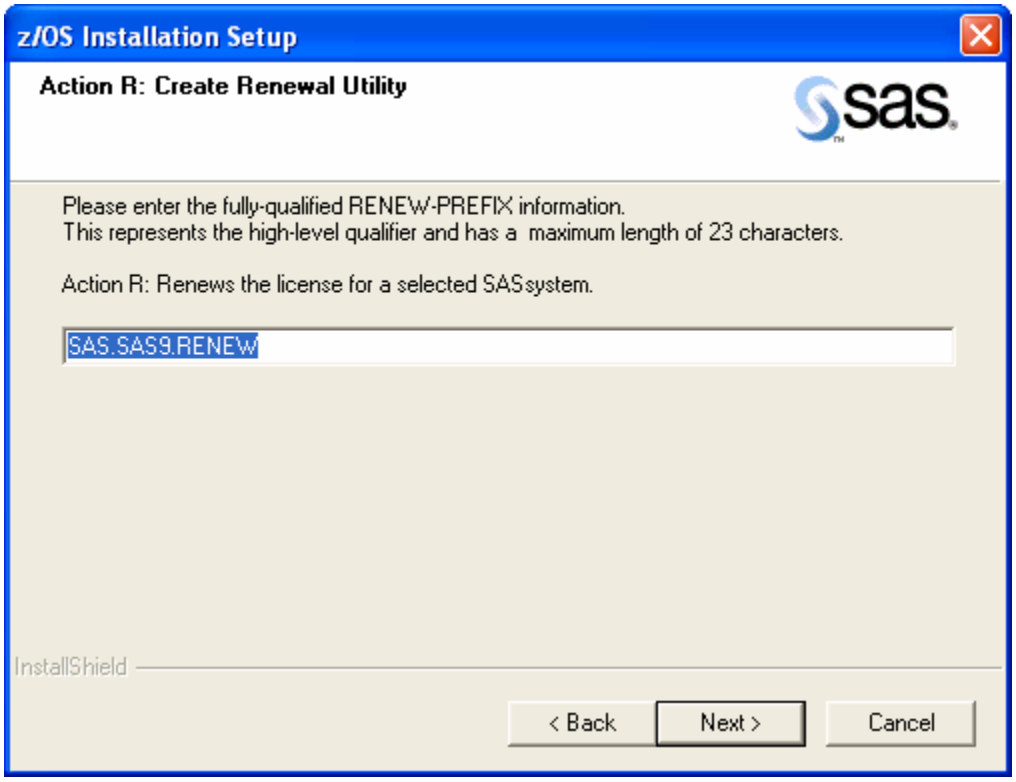
Selecting the **D: Put staged libraries into final SAS system** option button sets up a dialog box requesting values that enable the process to copy staged SAS product libraries into production SAS libraries. Action D requires a value for `FINAL-SAS-PREFIX`. The staged dataset prefix will be the prefix entered for FINAL with an appended "`.SL`".



Clicking **Next** will open the **SMS Parameters** dialog box as shown on page 20.

Action R: Create Renewal Utility

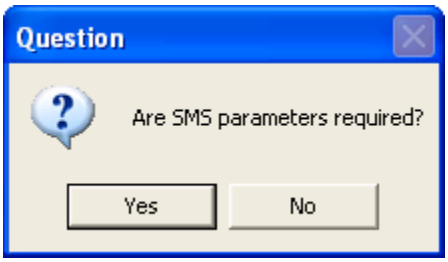
Selecting the **R: Renew the license for a SAS system** option button launches a dialog box that requests the `RENEW-PREFIX` information in order to create the renewal utility.



Clicking **Next** will open the SMS Parameters dialog box as shown on page 20.

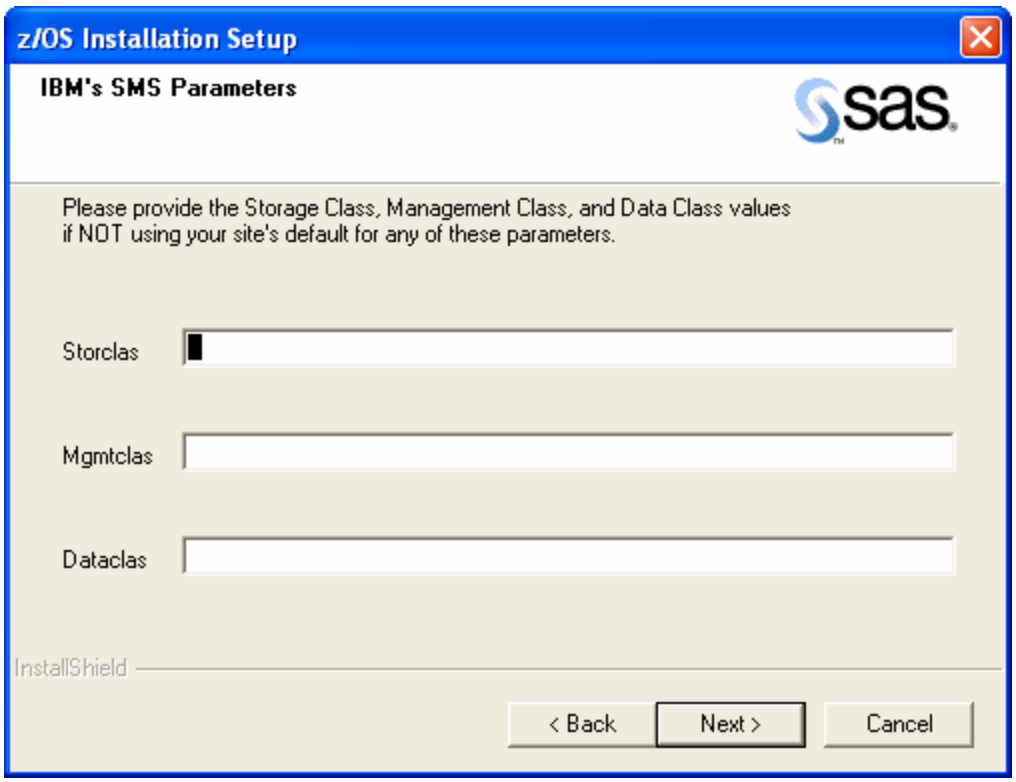
Site-specific Parameter Values Dialogs

IBM's SMS Parameters



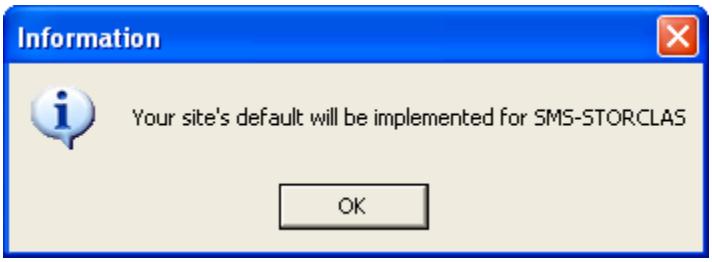
Clicking **Yes** opens the dialog below. Clicking **No** opens the **TAPEUNIT, EXPDATE, and VOLSER Parameters** dialog box on page 21.

This dialog box queries whether you intend to use IBM's SMS to help manage your installation data set allocations. Your site default SMS values will be implemented unless you enter alternative parameter values through the **IBM's SMS Parameters** dialog box.

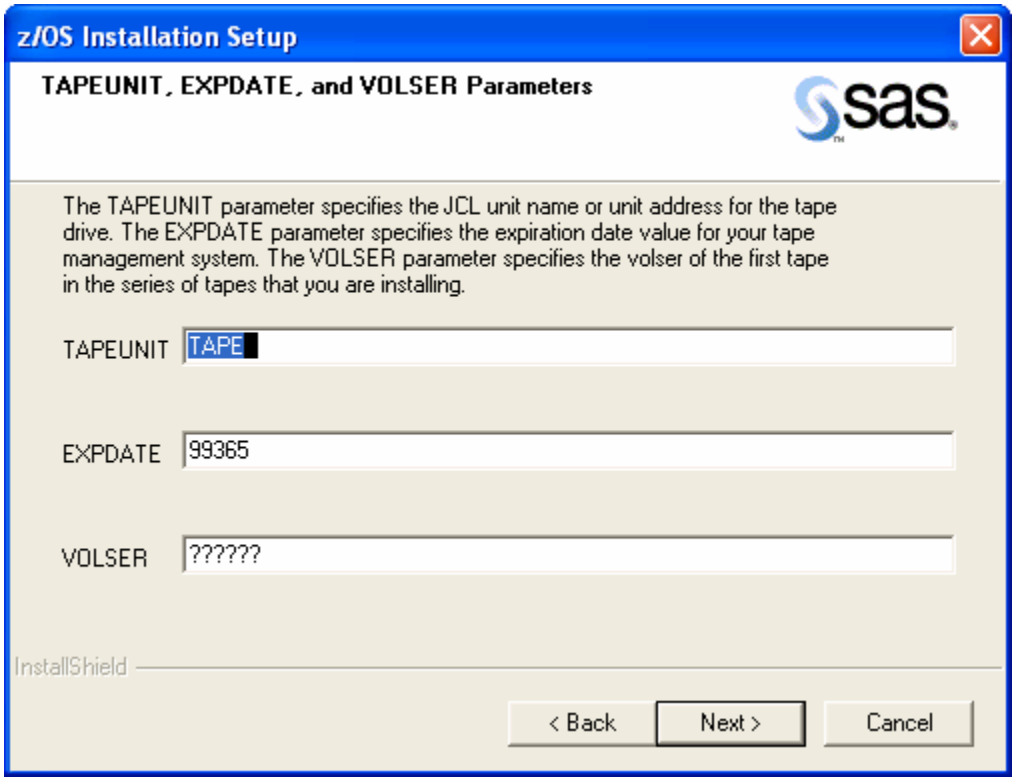


You are asked to provide alternatives to any default values for the three SMS parameters: **Storclas**, **Mgmtclas**, and **Dataclas**. If no entry is made you will be notified which parameters are to be defaulted.

For example, leaving an empty string in the **Storclas** text box launches the following dialog box:



TAPEUNIT, EXPDATE, and VOLSER Parameters

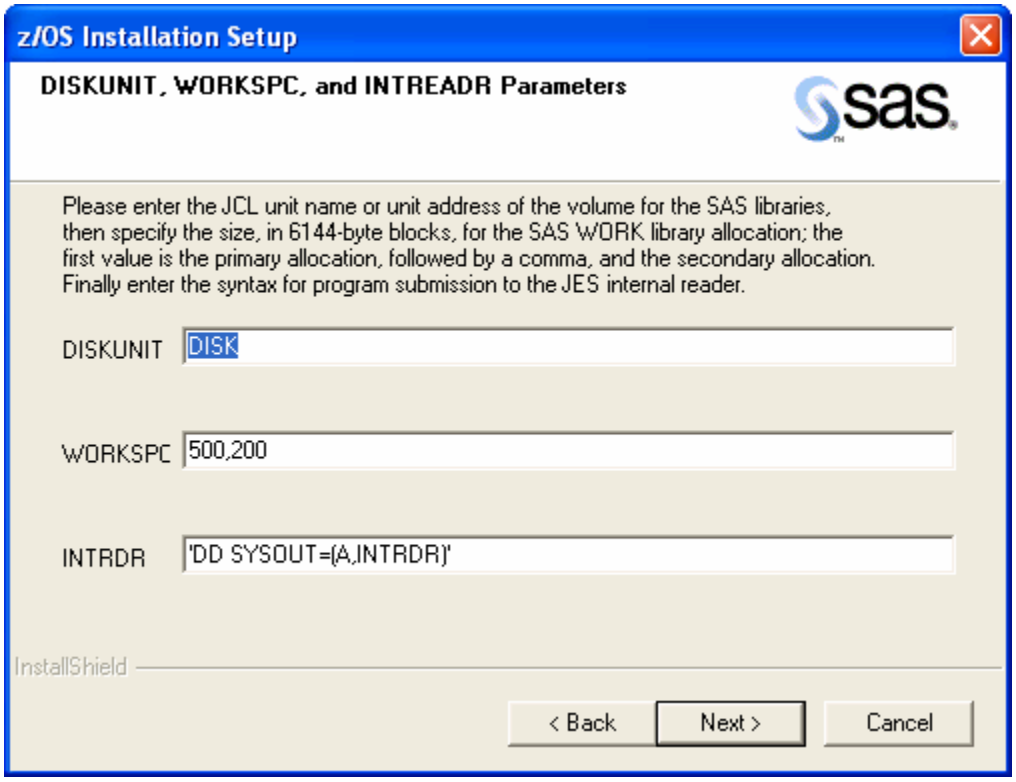


TAPEUNIT specifies the JCL unit name or unit address for the tape drive on which the installation tape is mounted.

EXPDATE specifies the expiration date value used in accessing the installation tape. Some tape management systems require you to set this parameter to `98000` to indicate that you are using an external unmanaged tape.

The **VOLSER** field represents the VOLSER of the first tape in the series of tapes that you are installing.

DISKUNIT, WORKSPC, and INTREADR Parameters



DISKUNIT specifies the JCL unit name or unit address for the volume for the SAS installation libraries.

WORKSPC specifies the size, in 6144-byte blocks, for the SAS WORK library allocation for CLISTs, catalogued procedures, and in-stream procedures used throughout installation. The first value is the primary allocation, followed by a comma, and the second value is the secondary allocation.

INTRDR specifies the syntax for program submission to the JES internal reader. It can also optionally disable the use of the internal reader if it is not available or allowed at your site.

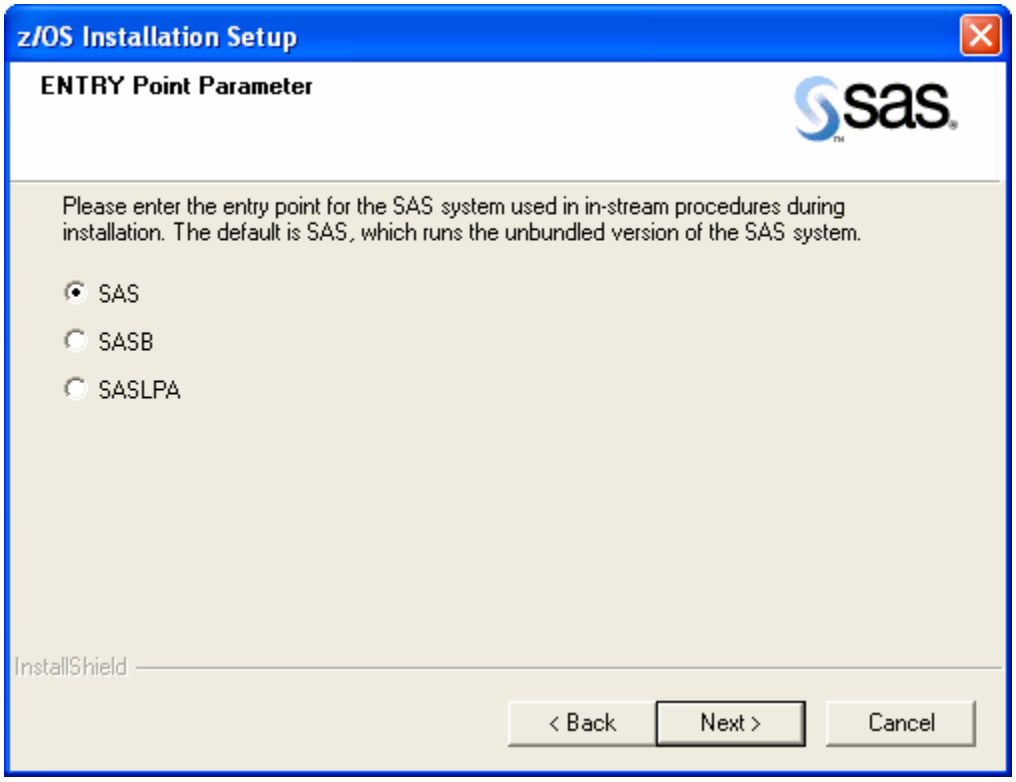
To REVISE the syntax to invoke your internal reader, modify the data between the quotes as shown in the following example:

```
INTREADR='DD ALTERNATE,SYNTAX'
```

Do not remove the surrounding quotes. If your syntax contains single quotes, change the surrounding quotes to double quotes as shown in the following example:

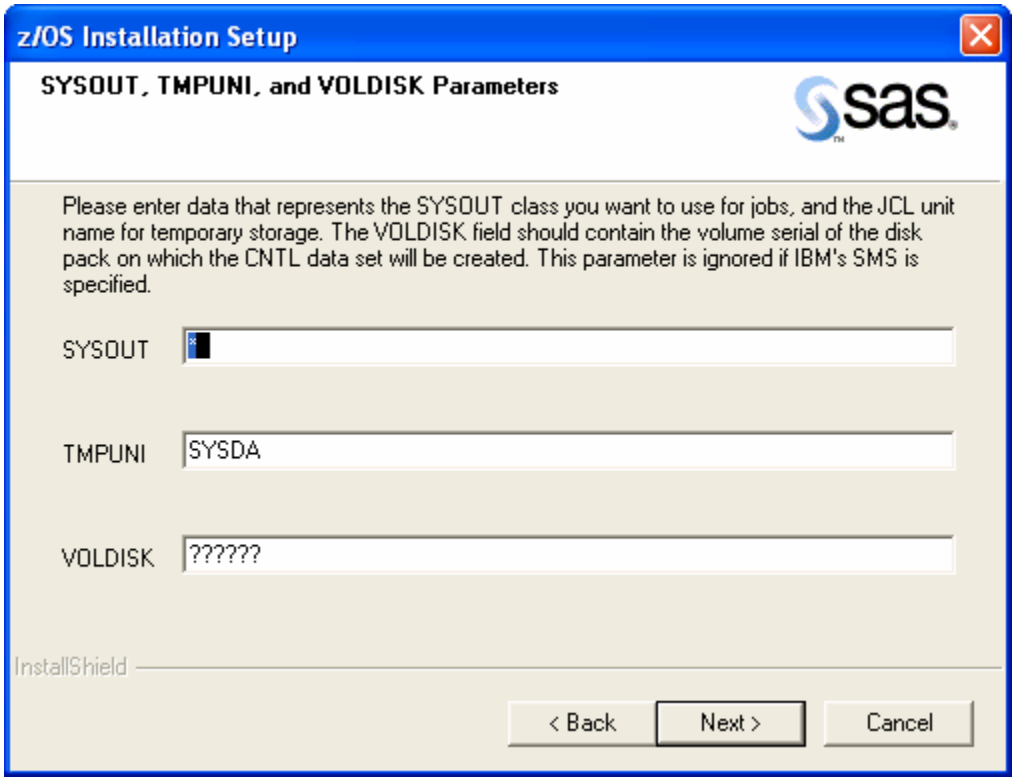
```
INTREADR="DD 'ALTERNATE',SYNTAX"
```

ENTRY Point Parameter



The **ENTRY Point Parameter** dialog box allows you to specify the entry point for the SAS system that is used in in-stream procedures during installation, in the catalogued procedures, and in the CLISTs. The default is SAS, which runs the unbundled version of SAS software. There are three mutually exclusive options for this parameter.

SYSOUT, TMPUNI, and VOLDISK Parameters

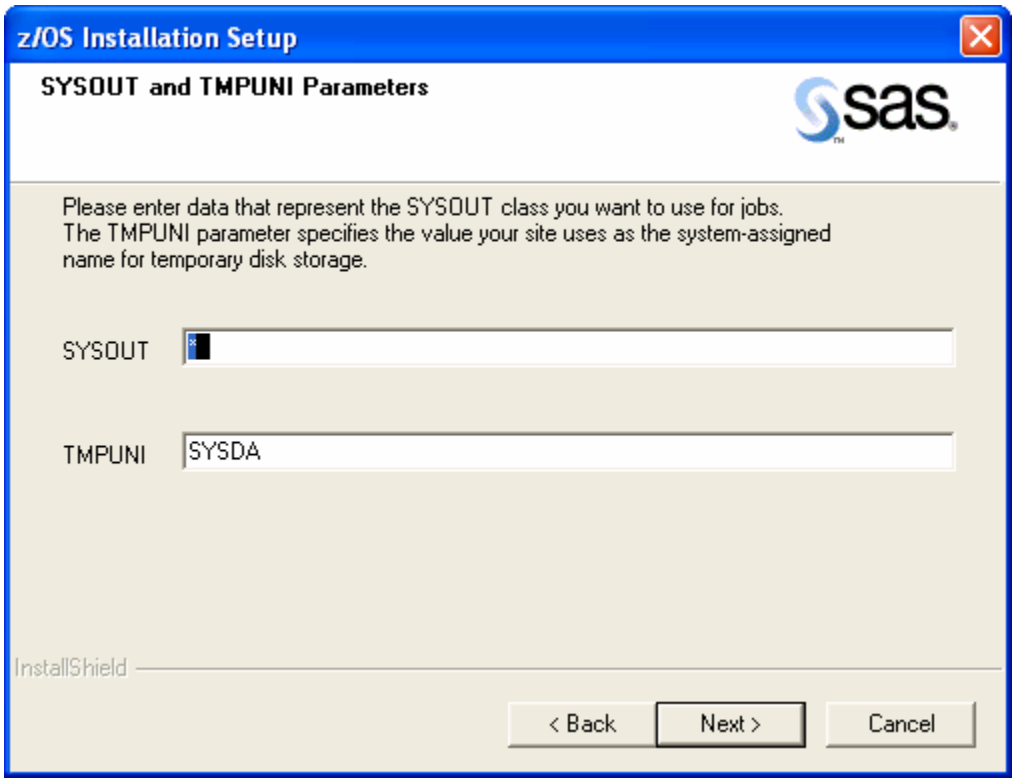


SYSOUT specifies the SYSOUT class you want to use for jobs.

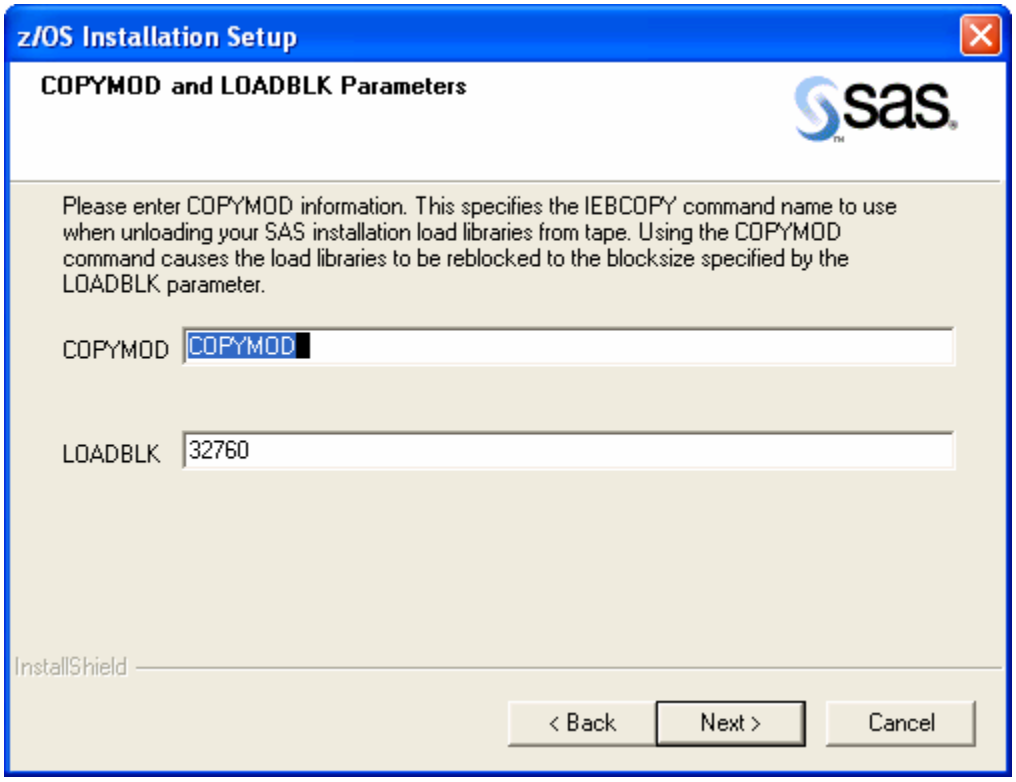
TMPUNI specifies the value your site uses as the system-assigned name for temporary disk storage.

VOLDISK specifies the volume serial of the disk pack for installing SAS product libraries. This parameter is ignored if you specify the use of SMS.

If you invoke SMS, the **SYSOUT, TMPUNI, and VOLDISK Parameters** dialog box does not appear; the **SYSOUT and TMPUNI Parameters** dialog box is launched in its place, requesting the **SYSOUT** and **TMPUNI** parameters:

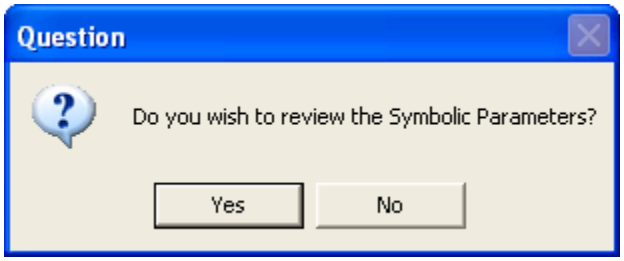


COPYMOD and LOADBLK Parameters



COPYMOD specifies the IEBCOPY command name to use when unloading your SAS installation load libraries from tape. Using the COPYMOD command causes the load libraries to be reblocked to the blocksize specified by the **LOADBLK** parameter. The default is COPYMOD. If you use COPY, your load library blocksize will be 6144.

Reviewing the Generated Symbolic Parameters File

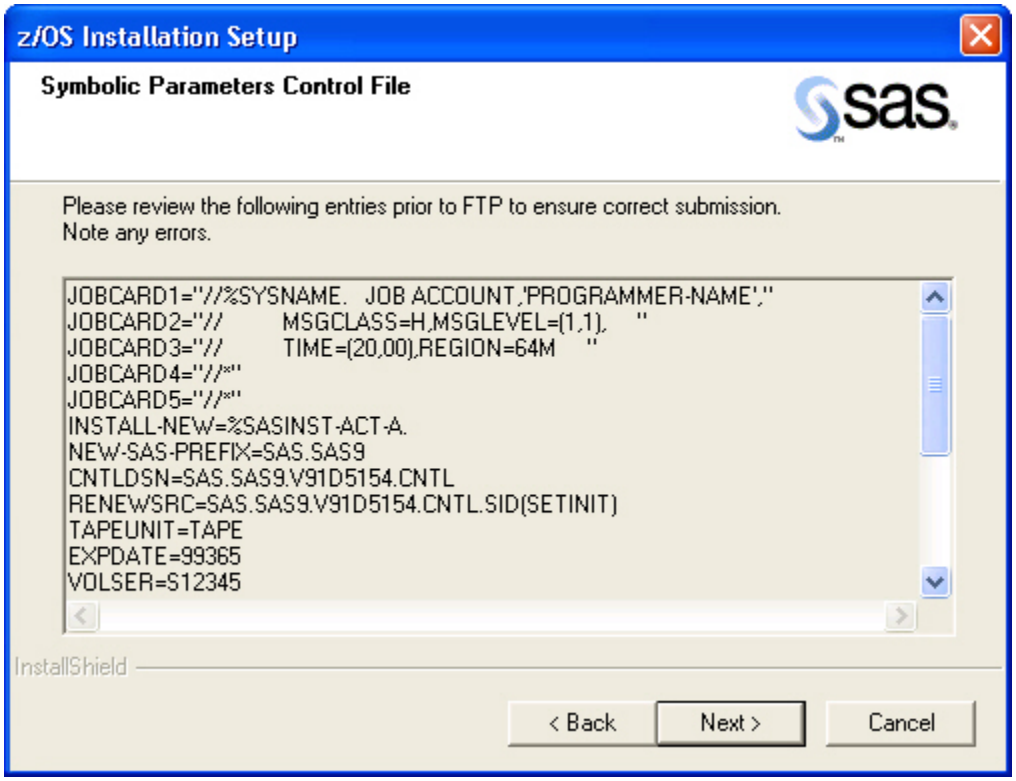


The dialog box above gives the user the option to review the Symbolic Parameters Control File containing all the parameters needed for the Installation Wizard to initiate the user-specified install action. Since the collection of symbolic parameters is complete at this stage, you should review these entries prior to the FTP process that initiates the install action on the mainframe.

Clicking **Yes** opens the Symbolic Parameters Control File dialog box for review. Changes can then be implemented to those symbolic parameters that are incorrect, followed by a further review.

Clicking **No** launches the IEFBR14 allocation job and the mainframe batch install sequence as indicated below under a positive (YES) response to the **Are the Symbolic Parameters Correct?** dialog box.

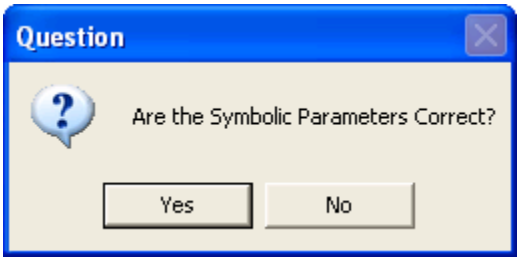
Symbolic Parameters Control File



The **Symbolic Parameters Control File** dialog box displays the Symbolic Parameters File generated by the Installation Wizard from user entries to previous edit box prompts. Review these entries to ensure there are no errors.

Clicking **Back** takes you backwards through the symbolic parameters collection dialog boxes from the dialog box **COPYMOD and LOADBLK Parameters**.

Clicking **Next** will open the following **Question** (**Are the Symbolic Parameters Correct?**) dialog box.



Any errors or deficiencies can be amended by clicking **No** on the dialog box. This will take you through the symbolic parameters collection dialog boxes from the **Jobcard Information** dialog box forward. All previous entries are retained and displayed in the appropriate edit boxes.

Clicking **Yes** invokes the following sequence of events:

1. The installation process launches the IEFBR14 allocation job and waits two minutes for the job to complete. The allocation job is a very small and fast-running batch job. Under normal load conditions, it should complete very quickly. After submission, the Installation Wizard continues to monitor the allocation job status attempting to verify successful completion. If after two minutes the allocation job has not reported back to the wizard successfully, the **Question** dialog box described below in the "Timeout Loop" section will be displayed.

   Note: *If the Wizard cannot successfully read the JES log file from the allocation job the Severe error dialog box (as shown in the section entitled "Allocation Job Failure" below) is displayed and the defined install process is not initiated. Please review the job output on the mainframe to determine the cause of the allocation job failure, and resubmit the job by restarting the Wizard. Some possible reasons for the allocation job failure are listed in the section entitled "Failure Conditions and Recovery Modes" below.*

2. If the job completes successfully, the symbolic parameters file, the SID data, and the IEBUPDTE JCL are FTP'd to the mainframe.
3. The IEBUPDTE job is executed. This job will interface with the Batch Installation mechanism on the mainframe and subsequently invoke the action selected in the dialog box entitled **Installation Actions** (see page 14). If there are errors in the installation process, please see the section entitled "Troubleshooting Error Conditions" on page 29 for assistance in determining the nature of the problems and steps to resolve these problems.

Running IEBUPDTE

The **IEBUPDTE** job is launched from the installation process front end, but the Installation Wizard does not continue to monitor the remainder of the installation process. The **allocation** job launched earlier by the installation process is verified, but only reported if there is a failure. However, the JCL file for the former job can be located in the `szPrefix + szDatVal + .CNTL(JCLUPDT)` data set on the mainframe where `szDatVal = ".V91D" + szYearEnd +`

`szThreeJD`. The variables `szYearEnd` and `szThreeJD` represent the final digit of the current year, and the three-digit Julian Date for that particular day of that year, respectively.

After the Installation Wizard for z/OS has completed processing, the following dialog box will appear. Click **Finish** to exit the Installation Wizard.

You should now go to the "Chapter 7 — Common Tasks" section on page 83 of this document to verify your system installation.

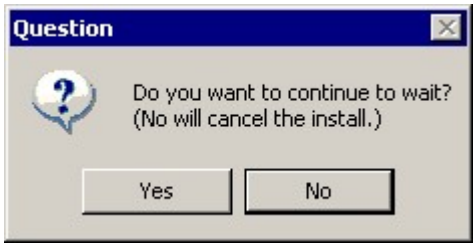
Note: *If you are viewing these instructions online, the "Common Tasks" section may be found in the* Installation Instructions for SAS 9.1.3 Foundation for z/OS *document* on the **Documentation for Installing and Configuring SAS** CD or Install Center. On the first page, select **SAS Planning Installation Edition Kit**, then select **Installation Instructions—SAS 9.1.3 Foundation for z/OS** in the "Installation" section under "Installation Instructions—SAS 9.1.3 Foundation."

Troubleshooting Error Conditions

This section describes various error conditions which may occur when running the Installation Wizard and suggested steps to take to resolve these problems.

Timeout Loop

In the event the allocation job does not report back within the two minute timeframe, the following dialog box will appear to inquire if you want to continue waiting for the job to complete.



Selecting **Yes** will restart the clock, waiting for an additional two minutes. This process will continue with each successive **Yes** selection.

Note: *A typical FTP environment will allow the FTP connection to remain open for approximately two minutes before closing the connection due to inactivity. If you see the Question dialog box while waiting for the allocation job to complete, it may be due to a dropped FTP connection. If this occurs, inspect the allocation job on the mainframe to determine its status. If the job is still waiting to run, or has not completed for any reason, the install will need to be restarted using the Installation Wizard. If your site has a longer FTP connection period enabled, then select* ***YES*** *in the Question dialog box to continue waiting on job completion.*

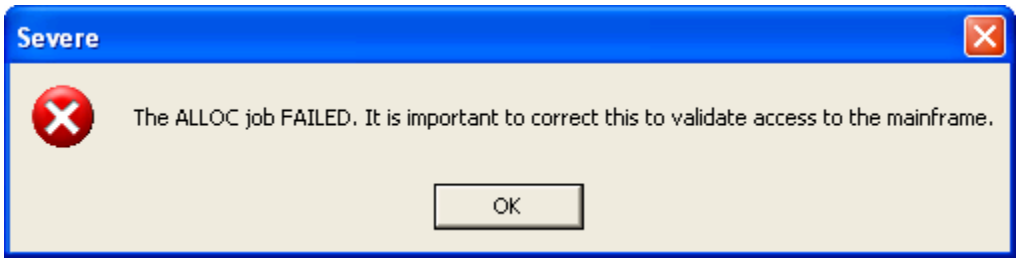
Selecting **No** will terminate the Installation Wizard. If the allocation job has not completed successfully in a timeframe that you feel is reasonable, select **No** to terminate the Installation Wizard.

Note: *The allocation job that has been submitted to the mainframe is NOT acted upon when* ***No*** *is chosen. The job will remain in its current state in the z/OS job queue, and if you select* ***No****, you should proceed to investigate the cause of the failure/delay by looking at the job status/results on the mainframe. Some possible reasons for the allocation job failure are listed in the section entitled "Failure Conditions and Recovery Modes" below.*

Allocation Job Failure

IEFBR14 Allocation job failed

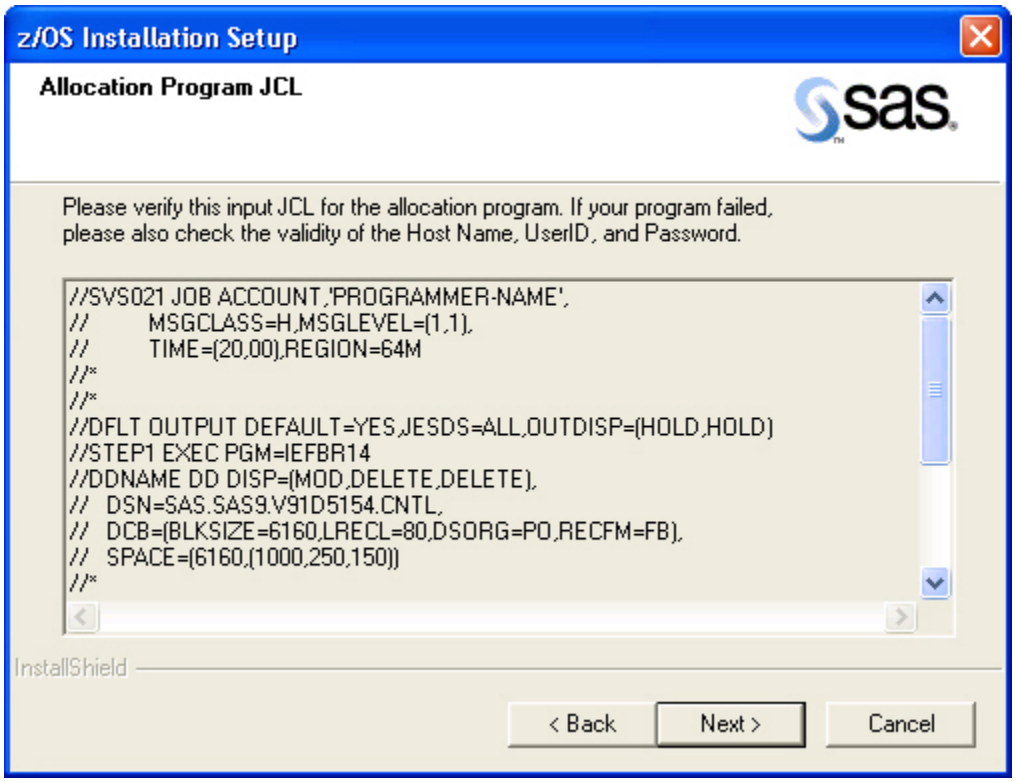
If the allocation job log cannot be read, the following dialog box is displayed:



Note: *If the Installation Wizard cannot successfully read the JES log file from the allocation job the* ***Allocation job fails*** *error dialog box (above) is displayed and the above defined install process is not initiated. Please review the job output on the mainframe to determine the cause of the allocation job failure, and resubmit the job by restarting the*

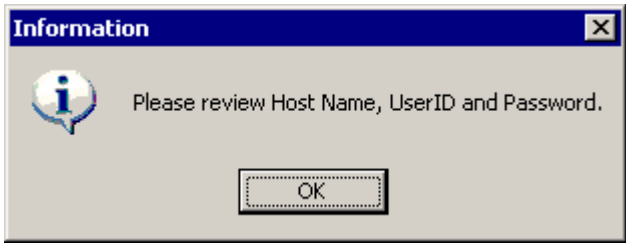
Wizard. Some possible reasons for the allocation job failure are listed in the "Failure Conditions and Recovery Modes" section below.

After clicking **OK**, a dialog box appears that displays the JCL implemented to execute the allocation job.



Please review the JCL and note any problems.

Clicking **Next** or **Back** will display the Information dialog box below.



Clicking **OK** will take you back to the **FTP Batch Generation** dialog box on page 9. Be sure to check the entries made for accessing your mainframe.

Failure Conditions and Recovery Modes

If the Installation Wizard cannot successfully read the JES log file from the allocation job, the defined install process is not initiated. Please review the job output on the mainframe to determine the cause of the allocation job failure, and resubmit the job by restarting the Installation Wizard. Some possible reasons for the failure are listed below.

Timing causes of the error message include:

- Lack of free z/OS initiators
- The z/OS system is busy
- JOB statements specify a JES job class designed to run at low priority or set aside for delayed execution
- Installing on a z/OS test system with limited capabilities

Permissions causes of the error message include running under or specifying user IDs which do not have the appropriate permissions for:

- Network access
- Execution on the z/OS system itself
- Use of the name in the control data set allocation
- Use of the storage device or SMS classes specified in the control data set allocation

Other causes of the error message include:

- Syntax errors in the JOB statements
- Invalid values supplied to the SAS Installation Wizard for z/OS
- Network problems between the PC and the z/OS host

The problems described above, and those of a more unusual nature, may require help from your z/OS system personnel or SAS Technical Support in order to work out a correct solution.

Chapter 3 — Installing SAS 9.1.3 Foundation (Traditional Batch Method)

Unloading the Installation Jobs — Run IEBUPDTE

STEP 1: Allocate and unload the CNTL data set. The CNTL data set contains the installation JCL jobs and control files. This data set is hereafter referred to as the CNTL data set. Use the example IEBUPDTE job below to allocate and unload the CNTL data set.

Note: *A new CNTL data set must be allocated. Do not use the same CNTL data set used for previous installations of SAS products.*

The example IEBUPDTE job follows:

```
//IEBUPDTE  JOB (account information),'programmer',
//          TIME=(m,s),MSGCLASS=h
//*
//ALLOC     EXEC PGM=IEFBR14
//OUTCNTL   DD DSN=your.cntl.data set,DISP=(NEW,CATLG,DELETE),
//          UNIT=disk,VOL=SER=dddddd,
//          DCB=(BLKSIZE=6160,LRECL=80,DSORG=PO,RECFM=FB),
//          SPACE=(6160,(1000,250,150))
//*
//UPDTE     EXEC PGM=IEBUPDTE,PARM='NEW'
//SYSIN     DD DSN=SAS.SASROOT,DISP=OLD,VOL=SER=vvvvvv,
//          LABEL=(1,SL),UNIT=uuuu
//SYSPRINT  DD   SYSOUT=*
//SYSUT2    DD DSN=your.cntl.data set,DISP=OLD
//*
```

a. Modify the first lines of the IEBUPDTE job to contain JOB statement information for your site.
b. Change `your.cntl.data` set to specify the data set name for your CNTL data set. (This text appears twice in the example. Be sure to replace it in both places.)
c. Replace disk with the unit type you are using for the CNTL data set.
d. Replace `dddddd` with the volume serial of the disk pack on which the CNTL data set will be created, if you must specify volume serial at your site.
e. Replace `vvvvvv` with the volser of the first tape in the series of tapes that you are installing.
f. Replace `uuuu` with the unit type for a tape drive at your site.
g. If your site has tape data set protection, ensure that you have read access to `SAS.*`.

STEP 2: Execute the IEBUPDTE job.

STEP 3: Check the PRODSEL member of the CNTL data set to verify the list of products.

STEP 4: Move the SID to the CNTL data set.

The contents of the SID, which was attached to your Software Order E-mail, should be moved into a member in the CNTL data set. This member should be created as `$SID`. We suggest that the SID be FTP'd into this member. If FTP access is unavailable from where the SID is saved to the mainframe, use whatever method is available to copy the contents of the SID into the `$SID` member of the control PDS.

Note: *Write down the location where the SID was saved as indicated in Step 3 of the Software Order E-mail.*

STEP 5: Modify and Execute the EXPSID job.

The CNTL data set contains a member, `EXPSID`, which will populate some CNTL data set members for installation, including the `RENEWPRM` member which will contain your SETINIT.

Perform the following steps:

a. Verify the JOBCARD information in the `EXPSID` member.
b. Modify the information contained in the "< >" to correspond with the CNTL data set.

Once these parameters are modified, run the EXPSID job. The RENEWPRM member of the CNTL data set will be updated with your valid SETINIT.

Enabling Minimal Cartridge Mounts From Multiple 3480 Cartridges

If tape drive resources are limited, follow the steps below so that only two tape drives will be required simultaneously during the installation process.

Before running SASINEW or SASIHOLD, replace `&cntldsn($$SDXMAC)` with `&cntldsn($$AFFMAC)`. This change may be undone by replacing `&cntldsn($$SDXMAC)` with `&cntldsn($MSDXMAC)`, which is a copy of the shipped `$$SDXMAC`, and rerunning SASINEW or SASIHOLD.

Note: *When this procedure is followed, the operating system can choose any available drive for any mount request, and no more than two drives will be in use at any one time. However, mount requests cannot be restricted to specific cartridge drives for the duration of the installation process. This is a function of the operating system.*

If the first cartridge has not been physically removed by the operator, and another mount is already available, the system will call for the second cartridge in the available mount. However, the install is not holding the first mount; it is available as soon as the operator removes the dismounted cartridge.

Interruptions by Other Processes

By disallowing the RETAIN or “keep-for-my-use-only” option in the tape unload JCL, the single-mount-enabled install can be interrupted by other processes which can take over the cartridge mount. This will be determined by site-specific z/OS priority settings and is not a function of the install.

Editing the SASEDITP Member

Whether you are performing a new install of SAS 9.1.3 Foundation or installing new products to SAS, you have to make edits to the SASEDITP member of the CNTL data set. This member contains parameters for which you must specify installation-specific values. A backup copy of this member exists in the CNTL data set as `@SASEDTP`.

Two types of parameters appear in this installation process: selectable and KEYWORD=VALUE. Selectable parameters help reduce the amount of data you need to type and are activated by removing comment characters. When making a selection, be sure to blank out the comment symbol, *NO*, associated with the parameter. Likewise, if there is an alternate selection that you do not want, be sure that the parameter is commented out. With KEYWORD=VALUE parameters, you specify your site value after KEYWORD=. Do not leave any spaces between the equal sign and your value.

Note: *All parameter values you enter should be in UPPER CASE. Set CAPS ON in your edit session before entering your values.*

You will find the job header information in the SASEDITP member in the following format:

```
*================================================================
===
*=<< JOBCARDS TO BE INSERTED INTO JCL FOR EACH INSTALL TASK JOB
>>=====
*    > DO NOT CHANGE  "JOBCARD1=//%SYSNAME."  IN JOBCARD1 LINE <
*================================================================
===
JOBCARD1="//%SYSNAME. JOB ACCOUNT-CODE,'PROGRAMMER-NAME',   "
JOBCARD2="//         MSGCLASS=H,MSGLEVEL=(1,1),             "
JOBCARD3="//         TIME=(20,00),REGION=64M                "
JOBCARD4="//* JOBCARD VALUES ARE EXAMPLES ONLY. THEY MAY NOT"
JOBCARD5="//* WORK FOR YOU. SUPPLY SETTINGS FOR YOUR SITE.  "
*================================================================
```

To provide the job header information, use **JOBCARD1=** through **JOBCARD5=** to create JOB statements for the generated job(s). The default **JOBCARD1** value contains a JOBNAME value of SYSNAME, which resolves so that the JOBNAME is the same as that of the member name that contains the JCL for the job. Do not change the //%SYSNAME. symbol in the existing **JOBCARD1** value. Update the remainder of the **JOBCARDx** parameters with the appropriate values (/*JOBPARM, /*ROUTE, //*MAIN, or //*FORMAT statements) for your installation.

Be sure to leave the JOB statement values enclosed in quotes ("). Do not increase the number of characters (50) contained between the quotes in **JOBCARD1**.

Note*: All unused JOB statements should be entered as comments. For example,*

JOBCARD5="//*".

- ❑ Choose your install action:

  Select a single SAS install action and supply the corresponding library prefix values. The maximum prefix length is 23 characters.

  Select the action you want by blanking out the *NO* that precedes the action name. Verify that you have only one action value active. If more than one action is selected, a return code of 12 is set, and error messages specifying the duplicate selections are posted to SYSPRINT and SYSTERM.

  Specify library prefixes as follows:

  - If you are using **Action A: INSTALL-NEW**

Use **NEW-SAS-PREFIX=** to specify the high-level prefix that you want to use for the SAS product libraries (for example, SAS.SAS9).

- If you are using **Action B: INSTALL-DIRECT**

  Use **EXISTING-SAS-PFX=** to specify the high-level prefix of the current SAS system libraries at your site into which you want to unload the tape libraries (for example, SAS.SAS9).

  If you cannot use exclusive access to the existing SAS Libraries (DISP=OLD), blank out the *NO* before BUDSP=SHR.

  Warning: *Action B can write directly to any SAS library specified in the installation High Level Qualifier parameter. Action B is* ***NOT*** *recommended for installation of updates to production libraries. Action B is provided to perform a direct update to stand-alone testing copies of your production SAS system. Use Action C to install updates in other circumstances.*

- If you are using **Action C: INSTALL-TO-STAGE**

  Use **FINAL-SASLIB-PFX=** to specify the high-level prefix of the current set of complete SAS system libraries. These libraries cannot be staging libraries from a previous install. The CLIST and cataloged procedure unloaded from the tape with the **INSTALL-TO-STAGE** action concatenate the staging libraries in front of the production libraries for executing SAS 9.1.3 Foundation.

  To concatenate your production Config files into the generated staging PROC and CLIST, blank out the *NO* on these lines and provide fully qualified data set names.

  - **PROD-BATCH-CFG=** specifies the name of a production batch SAS Config file.
  - **PROD-TSO-CONFIG=** specifies the name of a production TSO SAS Config file.

- If you are using **Action D: STAGE-TO-FINAL**

  Use **FINAL-SAS-PREFIX=** to specify the high-level prefix of the current set of complete SAS system libraries. The default is SAS.SAS9, but may have been changed during the initial **Action A: INSTALL-NEW** install.

- If you are using **Action R: STANDALONE-RENEW**

  Use **RENEW-PREFIX=** to specify the high level prefix of the complete SAS system libraries for which you want to generate a SETINIT job stream.

  Use **RNW-BASE-PFX=** to specify the high level prefix of the staging SAS system libraries for which you want to generate a SETINIT job stream.

- Provide site-specific parameter values for the following:

  - C**NTLDSN=** specifies the CNTL data set you created by running the IEBUPDTE job.

  - **TAPEUNIT=** specifies the JCL unit name or unit address for the tape drive on which the installation tape is mounted.

  - **EXPDATE=** specifies the expiration date value used in accessing the installation tape. Some tape management systems require you to set this parameter to 98000 to indicate that you are using an external unmanaged tape.

  - **DISKUNIT=** specifies the JCL unit name or unit address for the volume for the SAS installation libraries.

  - **WORKSPC=** specifies the size, in 6144-byte blocks, for the SAS WORK library allocation for CLISTs, cataloged procedures, and in-stream procedures used throughout installation. The first value is the primary allocation, followed by a comma, and the second value is the secondary allocation.

  - **INTREADR=** specifies the syntax for program submission to the JES internal reader. Optionally disables use of the internal reader if not available or allowed at your site.

    - To REVISE the syntax to invoke your internal reader, modify the data between the quotes as shown in the following example:

      ```
      INTREADR='DD ALTERNATE,SYNTAX'
      ```

      Do not remove the surrounding quotes. If your syntax contains single quotes, change the surrounding quotes to double quotes as shown in the following example:

      ```
      INTREADR="DD 'ALTERNATE',SYNTAX"
      ```

    - To DISABLE use of the internal reader, blank out the `*NO*` before the INTREADR. To complete the install you must individually submit each generated job in sequence following the successful completion of the prior step.

  - **ENTRY=** specifies the entry point for SAS 9.1.3 Foundation that is used in in-stream procedures during installation, in the cataloged procedures, and the CLISTs. The default is SAS, which runs the unbundled version of SAS 9.1.3 Foundation. The *Configuration Guide for SAS 9.1.3 Foundation for z/OS* contains information on the different bundling configurations you can choose in customizing SAS 9.1.3 Foundation for your site.

  - **SYSOUT=** specifies the SYSOUT class you want to use for jobs.

  - **TMPUNI=** specifies the value your site uses as the system-assigned name for temporary disk storage.

  - **VOLDISK=** specifies the volume serial of the disk pack for installing SAS product libraries. This parameter is ignored if you specify the use of SMS.

- **SMS-ALLOC=** specifies whether you intend to use IBM's SMS to help manage your installation data set allocations. By default, this parameter is commented out. If you want to use SMS, blank out the `*NO*` to invoke your site's installed SMS allocation features. VOLDISK will be ignored. Your site default SMS values will be used unless you delete the `*NO*` on each appropriate SMS parameter and supply the parameter combinations required by your installation. Consult your SMS documentation and system support personnel for further information and appropriate values.

  - `SMS-STORCLAS  SMS "STORCLAS=" value`
  - `SMS-MGMTCLAS  SMS "MGMTCLAS=" value`
  - `SMS-DATACLAS  SMS "DATACLAS=" value`

- **COPYMOD=** specifies the IEBCOPY command name to use when unloading your SAS 9.1.3 Foundation installation load libraries from tape. Using the COPYMOD command causes the load libraries to be reblocked to the blocksize specified by the **LOADBLK=** parameter. The default is COPYMOD. If you use COPY, your load library blocksize will be 6144.
- **LOADBLK=** when you use COPYMOD, specifies the blocksize you want to use for your SAS 9.1.3 Foundation load library. The default is 32760. If you are performing an **INSTALL-DIRECT**, use this parameter when your target library blocksize is not 6144.

Specifying Installation Parameters

STEP 1: Choose SAS system products to install.

By default, all products on your tape are installed. If you want to install all products from your media, skip to STEP 3. Installing all products is recommended.

If you want to install by individual product, edit the PRODSEL member of the CNTL data set and follow the instructions for selecting and deselecting products in the comments of the PRODSEL member.

STEP 2: Verify SETINIT status.

In many cases, the installation media you receive includes pre-applied licensing, or SETINIT, information. Each SAS system product must be licensed for you to run it.

If the Cover Letter in your installation package indicates that your media contains an expired SETINIT, then your package should also include customized SETINIT data for you to enter at installation. If your SETINIT has expired since the media was generated, contact SAS for the current SETINIT data. Enter this data into the RENEWPRM member of the CNTL data set exactly as it appears on paper. Check the RENEWPRM member of the CNTL data set to determine if your SETINIT has expired.

STEP 3: Jobcards not picked up by SASEDITP need to be edited before an Action may be performed.

Be certain that the JOB statement contains your site-specific information.

Note: *The JOB statement for each job that needs to be submitted should be verified prior to performing an Action.*

Action A: Install a New SAS 9.1.3 Foundation

Edit the SASINEW member of the CNTL data set and modify the following parameters:

- **CNTLDSN=** specifies the name of the installation CNTL data set you allocated using the IEBUPDTE job.
- **PRODSEL=** specifies the name of the CNTL data set member that contains the product selection parameter values you want to use to control SAS installation tasks. The default is `PRODSEL`, and selects all products.
- **SASEDTP=** specifies the name of the CNTL data set member that contains the SASEDITP user site parameter values you have entered to control SAS installation tasks. The default is `SASEDITP`.

Submit the SASINEW member. This job requires exclusive access to the CNTL data set. Be sure to terminate your edit session or otherwise free the CNTL data set after submitting the SASINEW job. This job creates member JOBINDXA in the CNTL data set that contains a list of the installation jobs.

Submit the first job in the list and it in turn will submit the succeeding jobs. Upon successful completion of the last job in the list, you are ready to verify the installation, using the instructions in “Verifying the System Installation” on page 83.

Base SAS System Customization

Although no further implementation is required for you to run the Base SAS product at your site, you should review the topics in the Configuration Guide. The information contained in “Setting up SAS 9.1.3 Foundation” of that document can help you customize SAS 9.1.3 Foundation effectively for your users. This section tells you how to select a bundled configuration and install the bundles in your Link Pack Area. It also describes how you can customize your SAS invocation procedures and your default options settings. Other topics that address use of the SAS SVC and SMF Exit may be relevant for your site as well.

If you have a prior release of SAS installed, you may want to make the same customizations in your newly installed release as you did in the prior release.

Action B: Install New Products Directly to Existing SAS Libraries

Edit the SASEDITP member, uncomment Action B, and provide the proper value for EXISTING-SAS-PFX.

Edit the SASIHOLD member of the CNTL data set and modify the following parameters:

- **CNTLDSN=** specifies the name of the installation CNTL data set you allocated using the IEBUPDTE job.
- **SASEDTP=** specifies the name of the CNTL data set member that contains the SASEDITP user site parameter values you have entered to control SAS installation tasks. The default is SASEDITP.

Submit the SASIHOLD member. This job requires exclusive access to the CNTL data set. Be sure to terminate your edit session or otherwise free the CNTL data set after submitting the SASIHOLD job. This job creates member JOBINDXB in the CNTL data set that contains a list of the installation jobs.

Submit the first job in the list and it in turn will submit the succeeding jobs.

You are ready to verify the installation, using the instructions in “Verifying the System Installation” on page 83.

SAS Product Customization

Although no further implementation is required for you to run the base SAS product at your site, you should review the product-specific appendixes in the Configuration Guide. The information contained in those appendixes will help you customize the specific SAS products you have licensed.

Action C: Install New Products to Staging SAS Libraries

Edit the SASEDITP member, uncomment Action C, and provide the proper value for FINAL-SASLIB-PFX.

Edit the SASIHOLD member of the CNTL data set and modify the following parameters:

- **CNTLDSN=** specifies the name of the installation CNTL data set you allocated using the IEBUPDTE job.
- **SASEDTP=** specifies the name of the CNTL data set member that contains the SASEDITP user site parameter values you have entered to control SAS installation tasks. The default is SASEDITP.

Submit the SASIHOLD member. This job requires exclusive access to the CNTL data set. Be sure to terminate your edit session or otherwise free the CNTL data set after submitting the SASIHOLD job. This job creates member JOBINDXC in the CNTL data set that contains a list of the installation jobs.

Submit the first job in the list and it in turn will submit the succeeding jobs.

You are ready to verify the installation, using the instructions in “Verifying the System Installation” on page 83.

Completing the Installation for Action C

If any of the newly installed products require configuration, then you will need to configure those products ***before*** testing them. Please refer to the *Configuration Guide for SAS 9.1.3 Foundation for z/OS* to determine whether any of your new products need to be configured and complete those steps before testing.

If your site has customized the default CLIST or PROC, you need to apply your site customizations to the installed staging CLIST and PROC under one of the following conditions:

- you need to test the staged system with the site customizations in place
- you intend to run the staged system in a production mode.

In these examples, `xx` and `yy` are the Required Media and Data Set Codes from the "Languages, Encodings, and Installation Codes" table on page 85.

If your site customizations are small, you may simply want to add them to the install-created staging CLIST and PROC. During the installation, a job copies the staging CLIST `CLSTxx` and the staging PROC `PROCxx`, where `xx` is the two-digit encoding value of the installed system, to the CNTL data set. Rename these and copy them to the appropriate PROC and CLIST libraries for your site.

If you made many site customizations, you may want to add the staging libraries to the appropriate DDNAME concatenations in your customized CLIST and PROC. Add the concatenations as follows:

Note: *The staging libraries do not contain everything required to run SAS 9.1.3 Foundation. The concatenations shown below are required to correctly run SAS.*

Note: *`&staged-libr-pfx` is set by rule to `&final-saslib-pfx.SL`.*

- Cataloged procedure modifications

  To concatenate the load library data sets, locate the JCL statements in the PROC that look like the following:

  ```
  //STEPLIB DD DISP=SHR,DSN=&LOAD
  //         DD DISP=SHR,DSN=&final-saslib-pfx.LIBRARY
  ```

  Change this DD statement as follows, providing the prefix values specified in SASEDITP:

  ```
  //STEPLIB DD DISP=SHR,DSN=&LOAD
  //         DD DISP=SHR,DSN=&staged-libr-pfx.LIBRARY
  //         DD DISP=SHR,DSN=&final-saslib-pfx.LIBRARY
  ```

  To concatenate the SASMSG library data sets, locate the JCL statement in the PROC that looks like the following:

  ```
  //SASMSG DD DSN=&final-saslib-pfx.xxyy.SASMSG,DISP=SHR
  ```

  Change this DD statement as follows, providing the prefix values specified in SASEDITP:

  ```
  //SASMSG DD DSN=&staged-libr-pfx.xxyy.SASMSG,DISP=SHR
  //        DD DSN=&final-saslib-pfx.xxyy.SASMSG,DISP=SHR
  ```

  To concatenate the AUTOLIB library data sets, locate the JCL statement in the PROC that looks like the following:

  ```
  //SASAUTOS DD DSN=&final-saslib-pfx.yy.AUTOLIB,DISP=SHR
  ```

  Change this DD statement as follows, providing the prefix values specified in SASEDITP:

  ```
  //SASAUTOS DD DISP=(SHR,PASS),DSN=&SASAUTO
  //          DD DISP=SHR,DSN=&staged-libr pfx.yy.AUTOLIB
  //          DD DISP=SHR,DSN=&final-saslib-pfx.yy.AUTOLIB
  ```

  You must run with the SASHELP library that was updated with your installation tape. The SASIxxxx jobs merge the contents of `&staged-libr-pfx.xxyy.SASHELP` with your `&final-saslib-pfx.SASHELP`. The resulting, merged SAS data library is the `&staged-libr-pfx.xxyy.SASHELP` data set.

Locate the JCL statement in the PROC that looks like the following:

```
//SASHELP DD DSN=&final-saslib-pfx.xxyy.SASHELP,DISP=SHR
```

Change this DD statement as follows, providing the prefix values specified in SASEDITP:

```
//SASHELP DD DSN=&staged-libr-pfx.xxyy.SASHELP,DISP=SHR
```

- **CLIST modifications**

  To concatenate the load library data sets, locate the line in the CLIST that reads:

  ```
  SASLOAD('''&final-saslib-pfx.LIBRARY''')
  ```

  Change this statement as follows, providing the prefix values specified in SASEDITP:

  ```
  SASLOAD('''&staged-libr-pfx.LIBRARY'' +
  ''&final-saslib-pfx.LIBRARY''')
  ```

  To concatenate the SASMSG library data sets, locate the following line in the CLIST:

  ```
  SASMSG('''&final-saslib-pfx.xxyy.SASMSG''')
  ```

  Change this statement as follows, providing the prefix values specified in SASEDITP:

  ```
  SASMSG('"&staged-libr-pfx.xxyy.SASMSG" +
  "&final-saslib-pfx.xxyy.SASMSG"')
  ```

  To allocate the appropriate SASHELP library data sets, locate the following line in the CLIST:

  ```
  SASHELP('''&final-saslib-pfx.yy.SASHELP''')
  ```

  Change this statement as follows, providing the prefix values specified in SASEDITP:

  ```
  SASHELP('''&staged-libr-pfx.xxyy.SASHELP''')
  ```

  To concatenate the AUTOLIB library data sets, locate the following line in the CLIST:

  ```
  MAUTS('''&final-saslib-pfx.yy.AUTOLIB''')
  ```

  Change this statement as follows, providing the prefix values specified in SASEDITP:

  ```
  MAUTS('''&staged-libr-pfx.yy.AUTOLIB''' +
  '''&final-saslib-pfx.yy.AUTOLIB''')
  ```

After modifying the CLIST and PROC, you are ready to perform site-specific testing.

After completing your site-specific testing, you will want to copy the contents of the staging libraries to your production SAS system libraries. This is done using Action D, which is documented below. At many sites, it takes days, weeks, or even months, to perform site-specific testing, so refer to this document for details on performing Action D when appropriate for your site.

Action D: Copy New Products from Staging SAS Libraries to Existing SAS Libraries

Edit the SASEDITP member and comment out Action C. Uncomment Action D and provide the proper value for FINAL-SAS-PREFIX.

Edit the SASIHOLD member of the CNTL data set and modify the following parameters:

- **CNTLDSN=** specifies the name of the installation CNTL data set you allocated using the IEBUPDTE job.
- **SASEDTP=** specifies the name of the CNTL data set member that contains the SASEDITP user site parameter values you have entered to control SAS installation tasks. The default is `SASEDITP`.

Submit the SASIHOLD member. This job requires exclusive access to the CNTL data set. Be sure to terminate your edit session or otherwise free the CNTL data set after submitting the SASIHOLD job. This job creates member JOBINDXD in the CNTL data set that contains a list of the installation jobs.

Submit the first job in the list and it in turn will submit the succeeding jobs.

Upon successful completion of the last job in the list, your existing SAS libraries are updated with new products.

You are ready to verify the installation, using the instructions in “Verifying the System Installation” on page 83.

Action R: Apply Renewal SETINIT Information to an Existing SAS System

See the optional section in “Appendix BB — Licensing the SAS 9.1.3 Foundation” in the *Configuration Guide for SAS 9.1.3 Foundation for z/OS* for instructions on completing Action R.

Chapter 4 — Upgrading SAS 9.1 or SAS 9.1.2 to SAS 9.1.3 Foundation for z/OS

This chapter explains how to create a SAS 9.1.3 Foundation for z/OS installation that can be swapped into a functioning SAS 9.1 or SAS 9.1.2 Foundation architecture. Be certain to follow these steps in order.

1. Install SAS 9.1.3 Foundation for z/OS using the "Action A" instructions for installing a completely new SAS Foundation for z/OS. The SAS Installation Wizard for z/OS may be used for this task. The high level prefix used for this installation is not critical.
2. Perform all of the post installation customization tasks for the new SAS 9.1.3 Foundation for z/OS. These customizations should mirror the customizations done in the SAS 9.1 or SAS 9.1.2 Foundation for z/OS. These customizations are found in the *Configuration Guide for SAS 9.1.3 Foundation for z/OS* and include the Appendices where applicable.
3. In the control data set used for installing the new SAS 9.1.3 Foundation for z/OS (hereafter referred to as the "CNTLDSN"), open an editor on the member UGTARGET. Edit the following line:

   ```
   UGPFX=SAS.V91.PROD.PFX      <<==SUPPLY YOUR PRODUCTION SAS PREFIX
   ```

   Substitute the high level prefix of your production or existing SAS 9.1 or SAS 9.1.2 Foundation for z/OS system for `SAS.V91.PROD.PFX`, and save the member.
4. Open the editor on `CNTLDSN(MAKEUPG)`.
   Locate the following JCL near the beginning of the job:

   ```
   //INSTEDT1 PROC CNTLDSN='your.cntl.data.set',
   //         SASPROC='SAS',                  <=== << SUPPLY >>
   //         SASEDTP='SASEDITP',             <=== << VERIFY >>
   //         SYSOUT='*',                     <=== << VERIFY >>
   //         DISKUNI='DISK'                  <=== << VERIFY >>
   ```

   a. In the line with `SASPROC='SAS'`, substitute the procedure name of a working SAS 9.1, SAS 9.1.2, or SAS 9.1.3 PROC.
   b. Do not change the SASEDITP parm unless directed to do so by SAS Technical Support.
   c. Verify the SYSOUT= and DISKUNI= parms DD statements, which should have been set correctly from the main install.
   d. Save the edit.
5. Submit CNTLDSN(MAKEUPG) for execution. This will create four utilities to be used in the following steps. The utility names will contain the ACTUAL TS level identifiers of your production (old) and newly installed systems, obtained by analyzing the executables library of the production and new systems. These two TS level identifiers will also be used in the new dataset names created by running the utilities.

   In steps 6–14 below, "`TSpMp`" (your production or old system) and "`TSnMn`" (your newly installed system) may have actual values of `TS1M0` and `TS1M3` as one of a number of possible TS Level combinations. Substitute your actual TS level values for `TSpMp` and `TsnMn` in steps 6–14 below.
6. Bring up running systems in parallel. Perform general testing of the new system as deemed necessary.

Note: *In the following steps, your production and newly installed SAS system data set names will be renamed in order to facilitate the changeover between your existing production*

SAS environment and the newly installed SAS system. This will be accomplished by the running of the RNMTSpMp and RNMTSnMn utilities, which will rename the existing SAS data sets to new names in the format:

- *SAS.V91.PROD.PFX.* becomes SAS.V91.PROD.PFX.TSpMp.XXX*
- *SAS.V91.PFX.* becomes SAS.V91.PFX.TSnMn.XXX*

Alias names will be created for the originally installed data set names, and they will now point to the recently renamed data set names.

Warning: *Please note that alias names are alternative names for data sets that are defined in the catalog. RACF does not allow alias names because it uses the RACF database, not the catalog, for its processing. If you have existing RACF profiles for your SAS installation, you may need to adjust these based on the renamed data set names.*

Warning: *If your installation currently uses or has future plans to run a SAS/CONNECT or object spawner, please note that the SAS executable library and the SAS/C transient library must be put under RACF program control. Since RACF does not support alias names, you must use the renamed fully-qualified data set names in the program control table.*

Warning: *Once the following RNMTSpMp utility is executed, the SAS/CONNECT and object spawners will not function until the SAS.V91.PROD.PFX.TSpMp.DLR (the renamed SAS/C transient library) and SAS.V91.PROD.PFX.TSpMp.DLD (the renamed SAS executable library) have been added to the program control table.*

7. During system down time, submit the utility CNTLDSN(RNMTSpMp). This utility will rename the production system datasets and create aliases from the existing names to the new names. If running this utility outside system down time is required, a locally appropriate procedure must be followed to insure that data sets are not in use or enqueued, which will cause the process to fail.
8. Add the SAS.V91.PROD.PFX.TSpMp.DLR and SAS.V91.PROD.PFX.TSpMp.DLD libraries to the program control table, if your existing production SAS installation uses the SAS/CONNECT or object spawners.
9. Submit the utility CNTLDSN(RNTSnMn). This utility will rename the new system datasets and create aliases from the existing names to the new names.
10. Add the SAS.V91.PFX.TSNMN.DLR and SAS.V91.PFX.TSnMn.DLD libraries to the program control table, if your new SAS installation uses the SAS/CONNECT or object spawners.
11. At this point you are ready to perform a swap.
    Note: *The TSxxx portion of these names is taken from the TS level obtained from the installed systems and will vary depending on the vintage of the installed systems.*
12. During system downtime, or during a testing period where access to and enqueues upon the SAS systems can be controlled, submit the utility CNTLDSN(USETSnMn) which will cause the production-named aliases to point to the new SAS system of that TS level. Note that once the USETSnMn utility has been submitted, the 9.1.3 SAS system is now the production environment.
13. Perform tests as needed or scheduled to verify the new production system is functioning properly.
14. Emergency restoration to the prior system can be achieved by submitting the utility CNTLDSN(USETSpMp).

Chapter 5 — Installing a SAS Service Pack Using the z/OS Service Pack Installer

Important:

If information supplied to the Wizard is correct, the installer has appropriate permissions and user IDs, and adequate storage is available, etc., the Wizard will use this installation data to remotely launch a successful tailored z/OS batch Service Pack installation. The installer will not need to use z/OS editors, etc., for the installation to proceed to conclusion.

However, the Wizard cannot report the successful conclusion of the installation. Also, if there are problems during the procedure, the Wizard is only capable of analyzing and presenting a limited number of issues for remedy DURING the Wizard session. Ultimately a problematic installation will require experienced z/OS personnel to perform an appropriately configured traditional batch installation.

Extensions to the Wizard, such as analysis of z/OS execution logs for completion, or errors, and presenting possible remedial action, remain as considerations for future releases.

Note: *Please note that some of the following dialog boxes require text to be entered into text boxes. This text can be supplied in either lower or upper case, since all text is converted to upper case within the installation program.*

After entering the required information into the Wizard, the parameters are FTP'd to the mainframe and a job is launched to begin the batch installation. A list of the generated jobs that will be run for any particular install can be found in the JOBINDXz member of the CNTL data set where z is the type of action being performed. The job names and the total number of these jobs will be determined by the type of install.

For example, if an Action B is being performed, the member JOBINDXB will contain the job names that will be run for that particular install. If an Action C is being performed to add a product to an existing install or install a Service Pack, then the member JOBINDXC will contain the job names.

You should now go to the "Common Tasks" section on page 83 of this document to verify your system installation.

Note: *If you are viewing these instructions online, the "Common Tasks" section may be found in the* Installation Instructions for SAS 9.1.3 Foundation for z/OS *document* on the **Documentation for Installing and Configuring SAS** CD or Install Center. On the first page, select **SAS Planning Installation Edition Kit**, then select **Installation Instructions—SAS 9.1.3 Foundation for z/OS** in the "Installation" section under "Installation Instructions—SAS 9.1.3 Foundation."

Preliminary Screens

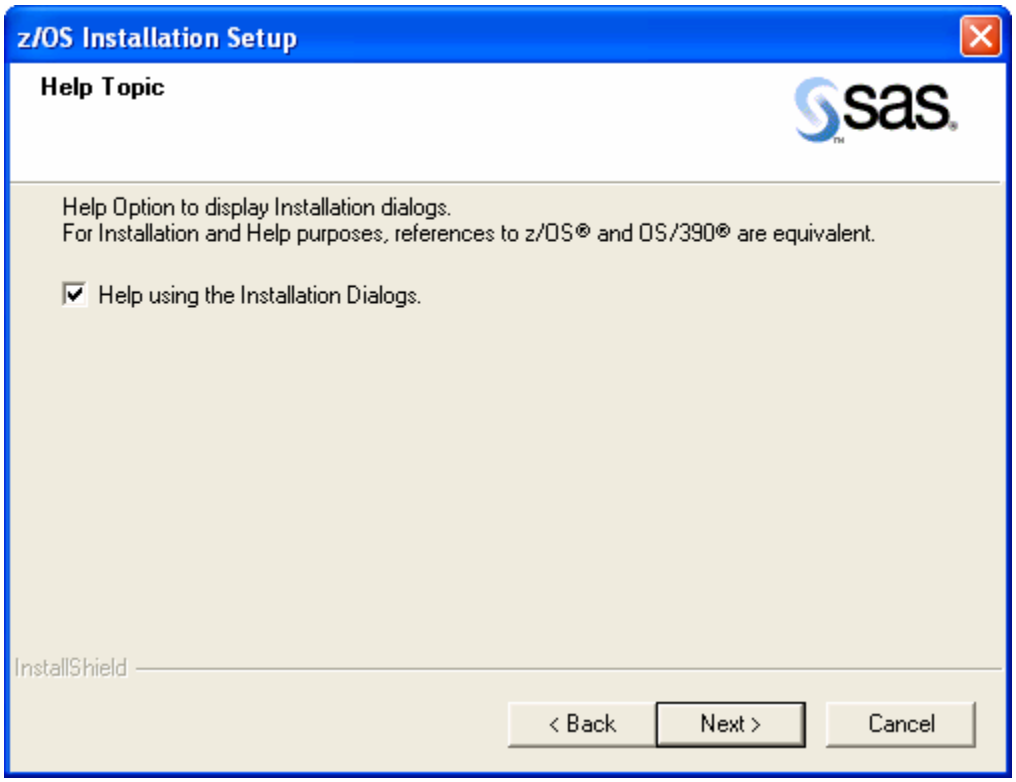
You may begin your z/OS SAS Service Pack installation in one of three ways:

- Using the **SAS 9.1.3 Service Pack for SAS Foundation** CD (the recommended method). To use this method, follow these steps:
  - ❑ Insert the **SAS 9.1.3 Service Pack for SAS Foundation** CD into your CD-ROM drive. If AUTORUN is enabled, your installation will start with the next step. If AUTORUN is not enabled, navigate to the listing of the files on the CD using Windows Explorer and then double-click **setup.exe** to start the installation.
  - ❑ After the opening screen, follow the directions described in the "Online Help" section below.

  Note: *These instructions are also on the* ***SAS 9.1.3 Service Pack for SAS Foundation*** *CD which is included in your Service Pack folder (on the Help Topic screen, select Help Using the Installation Dialogs to view a PDF version of the Service Pack installation instructions on your computer screen).*
- Using a traditional batch installation. For more information, see "Chapter 6 — Installing a SAS Service Pack (Traditional Batch Method)" on page 73.
- Using the Service Pack downloader obtained via the Internet from `http://support.sas.com`.

Note: If you are viewing these instructions online, this chapter may be found in the Installation Instructions for SAS 9.1.3 Foundation for z/OS document which is available at the following location: http://support.sas.com/documentation/installcenter/913/kit/index.html.

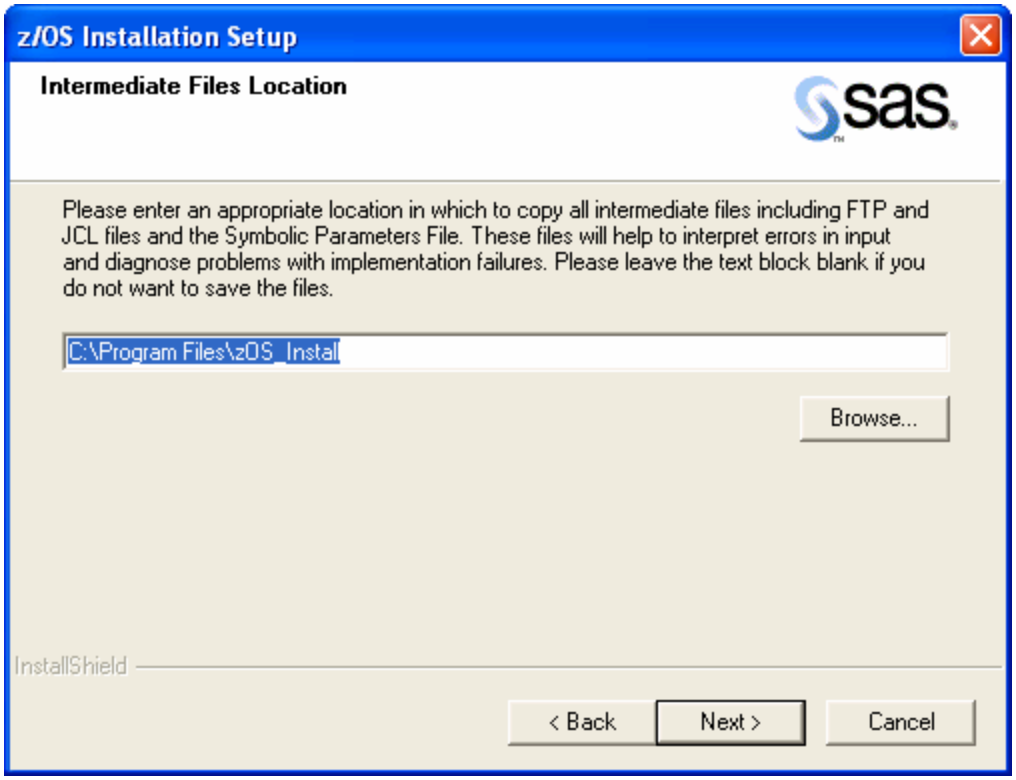
Online Help



The **Help Topic** dialog box enables you to gain a more comprehensive understanding of the installation process. Selecting **Help using the Installation Dialogs** (the default) opens a PDF version of this document, *Installing a SAS Service Pack Using the z/OS Service Pack Installer* in Adobe Reader, describing in detail the dialog boxes encountered during the SAS Service Pack Installation.

If you are familiar with the installation process using the z/OS Service Pack Installer and want to proceed directly with the installation, remove the checkmark in the checkbox, and click **Next**.

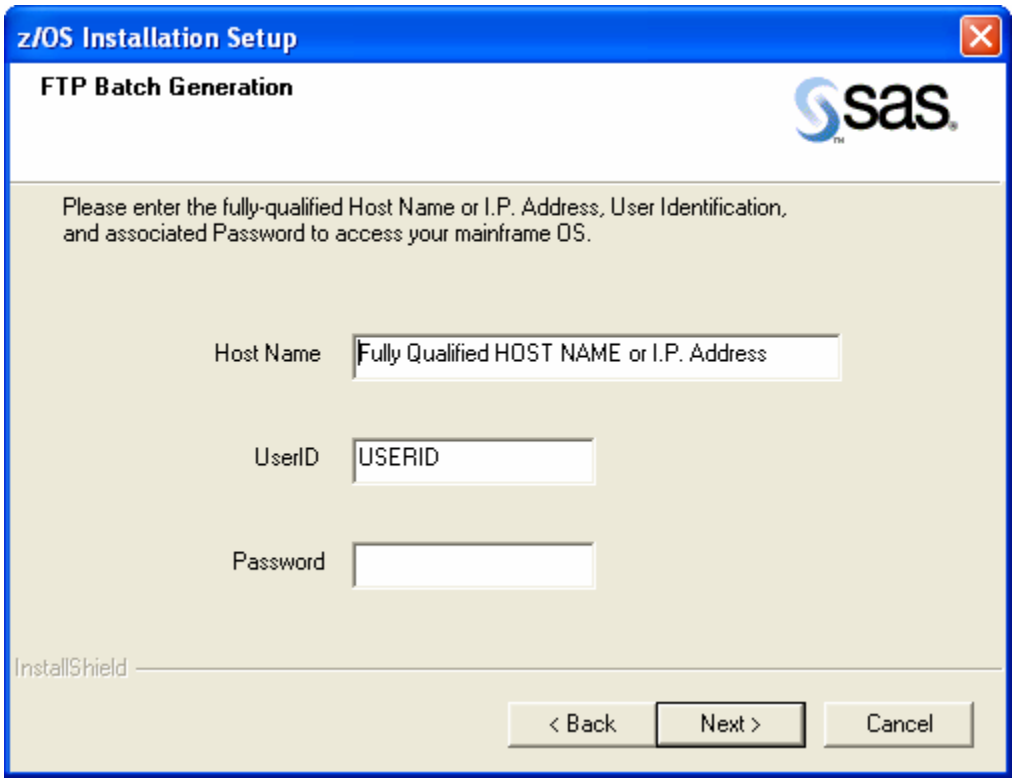
Intermediate Files Location



The **Intermediate Files Location** dialog box enables users to save intermediate files to an appropriate location on the target computer. These files are intended to assist in resolution of any errors or problems that may have occurred during the SAS Installation Wizard for z/OS process. Please leave the text box blank if you do not wish to save any intermediate files to your computer. The following files are saved:

- `sasv91a.jes` contains the log file returned from the mainframe after the allocation job has run.
- `alloc.jcl` houses the JCL implemented for the allocation job.
- `iebupdte.jcl` shows the JCL for the IEBUPDTE job. This file also resides on the mainframe in the PDS entitled "szPrefix + szDatVal + .CNTL(JCLUPDT)".
- `ftp_alloc.bat` and `ftp_alloc.dat` contain the information to launch the FTP process for the allocation job.
- `ftp_mvs.bat` and `ftp_mvs.dat` contain the appropriate FTP commands to send the SID files, the symbolics file, and the IEBUPDTE JCL file to the mainframe.
- `ftp_iebupdte.bat` and `ftp_iebupdte.dat` files house the information to launch the FTP process for the IEBUPDTE job.
- `symbolics.txt` file contains the symbolic parameters.
- `zos_install.log` is a log file that retains time-stamped data that can be utilized to interpret issues that may occur during the SAS Installation Wizard for z/OS process.

FTP Batch Generation



During the installation process, access to your mainframe is required to FTP several files and launch two install process batch jobs. The **FTP Batch Generation** dialog box prompts you for your fully-qualified Host Name or IP Address, UserID, and Password to gain access to the z/OS operating system.

After entering the information, click **Next**. If the connection is successful, you will see a dialog box similar to the following. Click **OK** to continue.

Editing the SASEDITP Member

The symbolic parameters that reside in the SASEDITP member require customized edits whether you are performing a new installation of the SAS system, installing new products to an existing SAS system, or installing a SAS Service Pack. To populate these parameters, several dialog boxes will prompt you for textual information, the details of which follow.

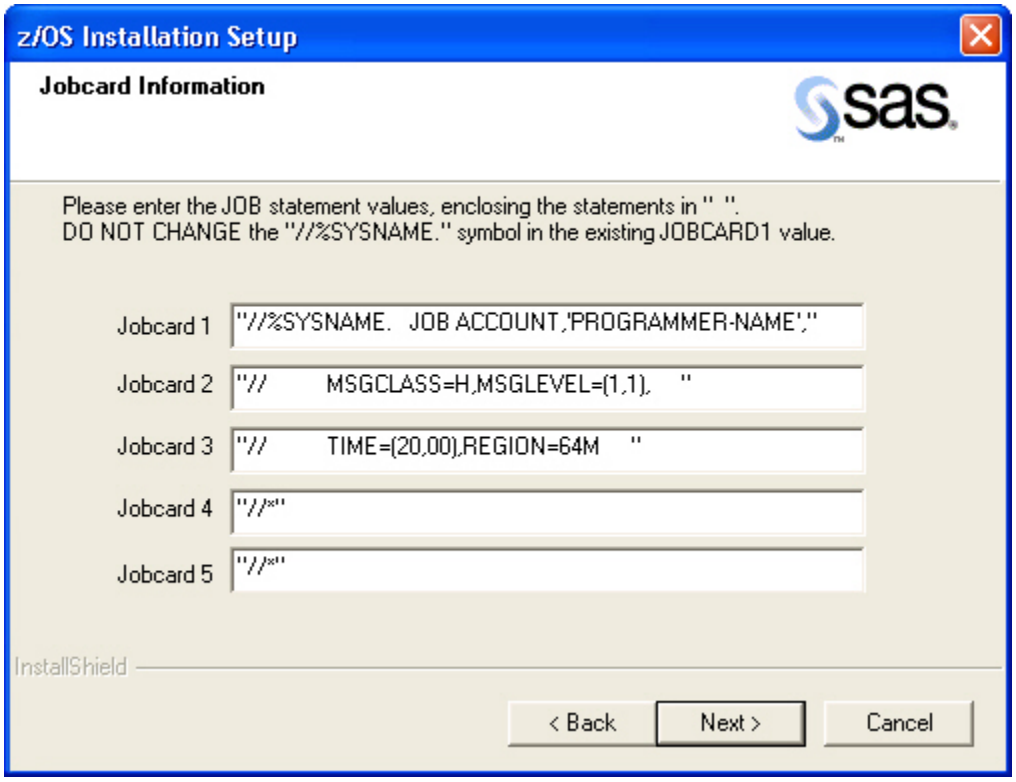
Note: *All parameter values you enter should be in upper case; it is advisable to set CAPS ON while completing the text boxes on each dialog box, although this is not a requirement as mentioned earlier in this document.*

Ensure that the JOB statement values are enclosed in quotes (“ ”). Do not increase the number of characters (50) contained between the quotes in JOBCARD1.

Checks and validations are enacted to ensure verification of certain text boxes for most symbolic parameters. You will be prompted by Message Boxes at discrete times to offer advice and any errors in input will be underlined.

JOBCARD Information

The job header information is contained in the following **Jobcard Information** dialog, using **Jobcard 1** through **Jobcard 5** to create JOB statements for the generated jobs.



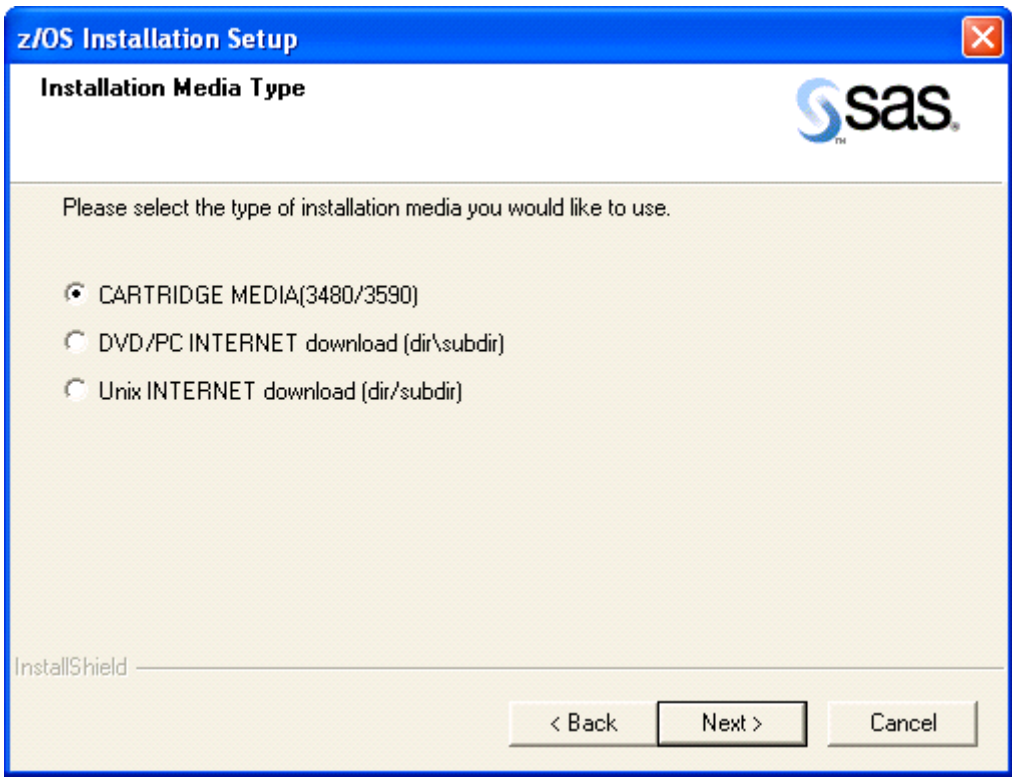
The default **Jobcard 1** value contains a JOBNAME value of SYSNAME, which resolves so that the JOBNAME is the same as that of the member name that contains the JCL for the job. **Do NOT change the `//%SYSNAME.` symbol in the defaulted Jobcard 1 value.** Update all the **Jobcard x** parameters with the appropriate values (`/*JOBPARM`, `/*ROUTE`, `//*MAIN`, or `//*FORMAT` statements) for your installation.

***Note**: Do not remove the comments on any unused JOB statements. For example, if Jobcard 5 is not needed, leave the default value as `"//*"`.*

Installation Media Type

A brief description of the installation media choices follows:

- **Cartridge Media (3480/3590)**—a physical tape cartridge (the default).
- **DVD/PC Internet download (dir\subdir)**—a self-extracting file delivered electronically via the Internet (PC file structure). You must choose this installation media type for use with a Service Pack which has been electronically downloaded.
- **UNIX Internet download (dir/subdir)**—a self-extracting file delivered electronically via the Internet (NFS file structure).
  Note: This format is not yet available.

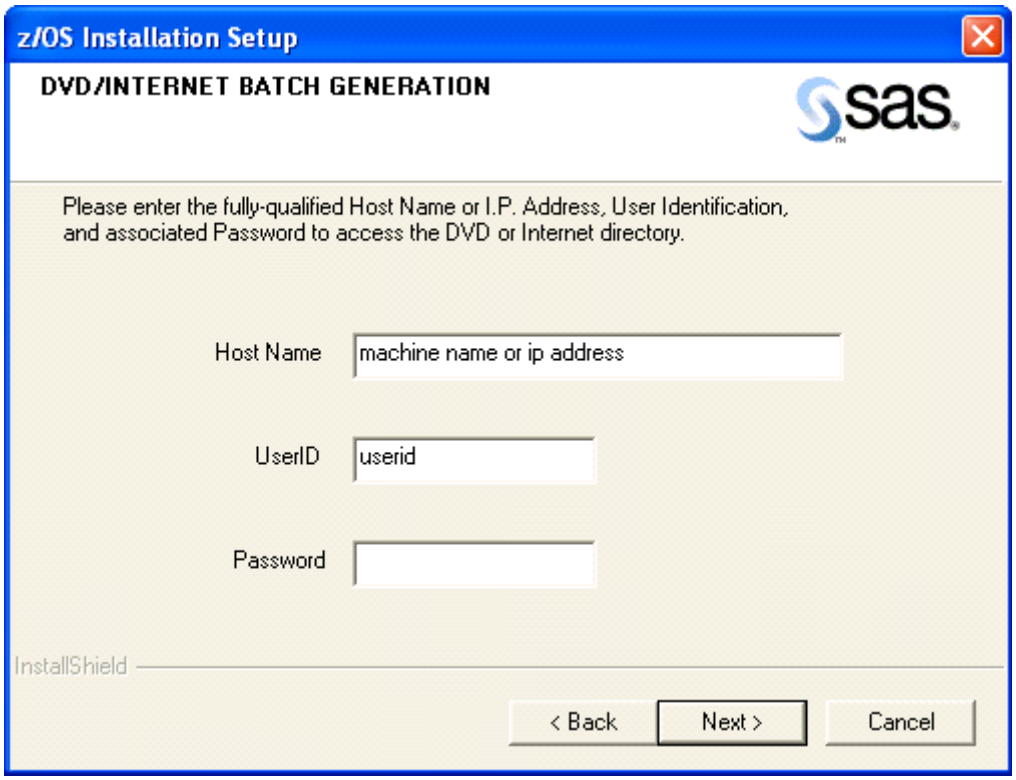


Choose the correct installation media type from the choices provided, and then click **Next**.

***Note:** If you chose **Cartridge Media (3480/3590)**—the default—you will be taken to the "Installation Actions" dialog box on page 56.*

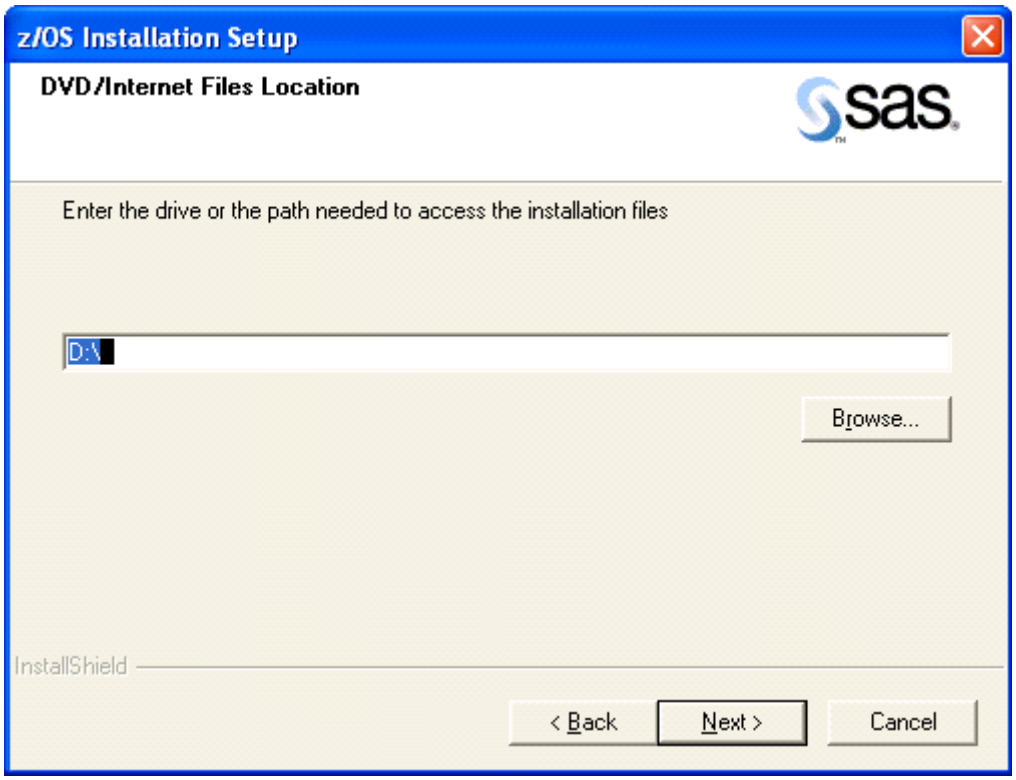
DVD/Internet Batch Generation

Enter the fully-qualified Host Name, User ID, and Password needed to access the DVD directory or the PC where the self-extracting executable was expanded. Then click **Next**.

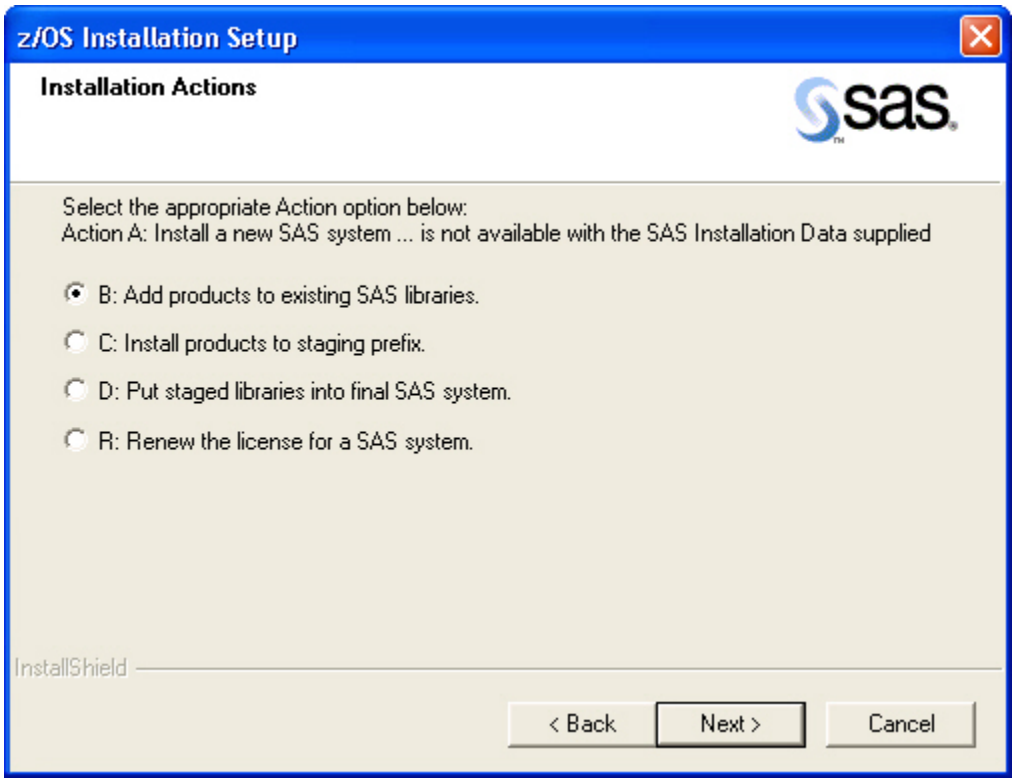


DVD/Internet Files Location

Enter the drive and path needed to access the installation files. This is the same drive and path where the files were put by the self-extracting executable. Then click **Next**.



Installation Actions



The option buttons on the **Installation Actions** dialog box represent SAS installation action options:

B: Add products to existing SAS libraries. Select Action B when you want to install the Service Pack files directly into your current SAS libraries. If you select this option, be aware that current load modules may be overwritten. You will also have to ensure that existing load libraries have adequate space and are NOT in use. Select this option button, then click **Next** to open the "Action B: Additional Products for Direct Installation" dialog box.

Warning: *Action B can write directly to any SAS library specified in the installation High Level Qualifier parameter. Action B is **NOT** recommended for installation of updates to production libraries. Action B is provided to perform a direct update to stand-alone testing copies of your production SAS system. Use Action C to install updates in other circumstances.*

C: Install products to staging prefix. Select Action C when you want to unload the Service Pack to separate staging libraries without impacting your current SAS libraries. You can choose other actions to perform further operations on your installed SAS system. Select this option button, then click **Next** to open the "Action C: Additional Products to Staging Libraries" dialog box.

Note: *After completing Action C, you may wish to invoke Action D at a later time.*

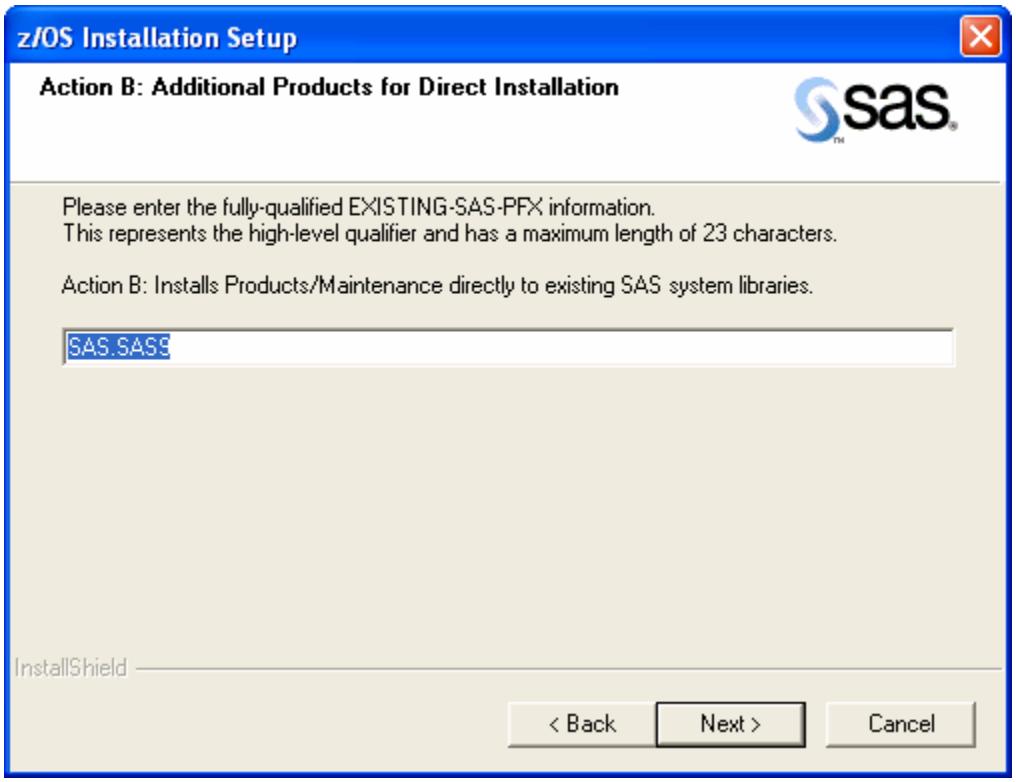
D: Put staged libraries into final SAS system. Copies staged SAS product libraries into your production SAS libraries. Select this option button, then click **Next** to open the "Action D: Copy Staged Libraries" dialog box.

R: Renew the license for a SAS system. This is an optional step for creating the Renewal Utility. Select this option button, then click **Next** to open the " Action R: Create Renewal Utility" dialog box.

The following four dialog boxes are spawned from the **Installation Actions** dialog, each detailing their own specific requirements.

Action B: Additional Products for Direct Installation

Selecting the **B: Add products to existing SAS libraries option** button opens a dialog box which specifies the high-level prefix of the current SAS libraries at your site into which you wish to unload the Service Pack.

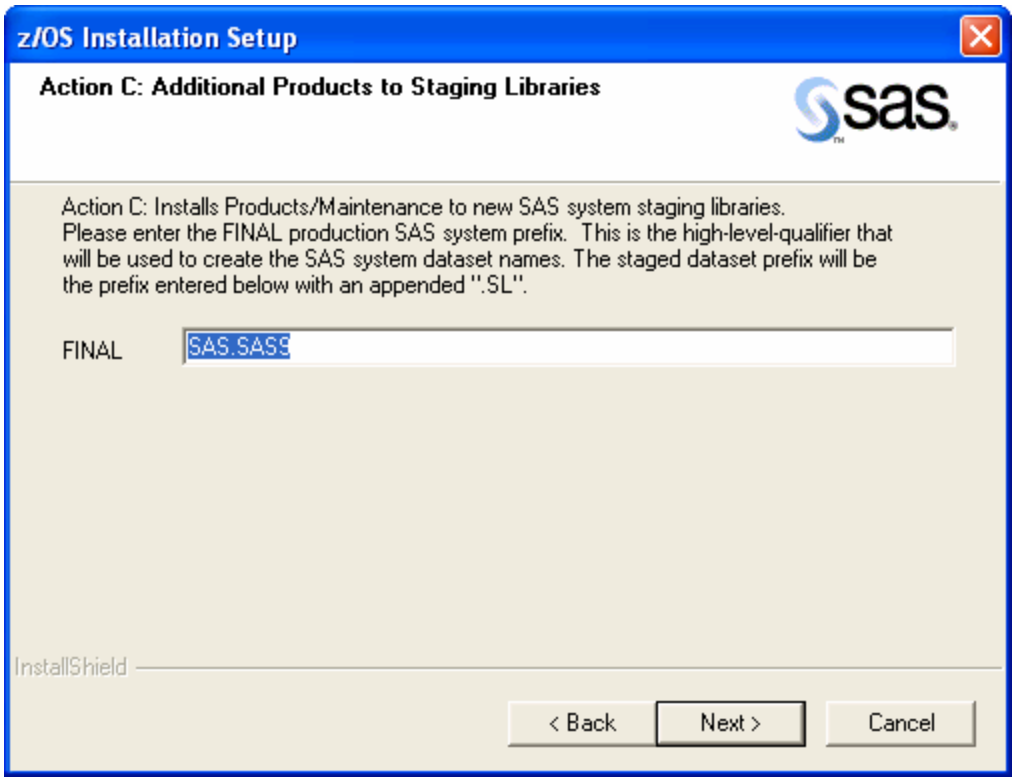


Action C: Additional Products to Staging Libraries

Note: *Action C is also used to install a Service Pack.*

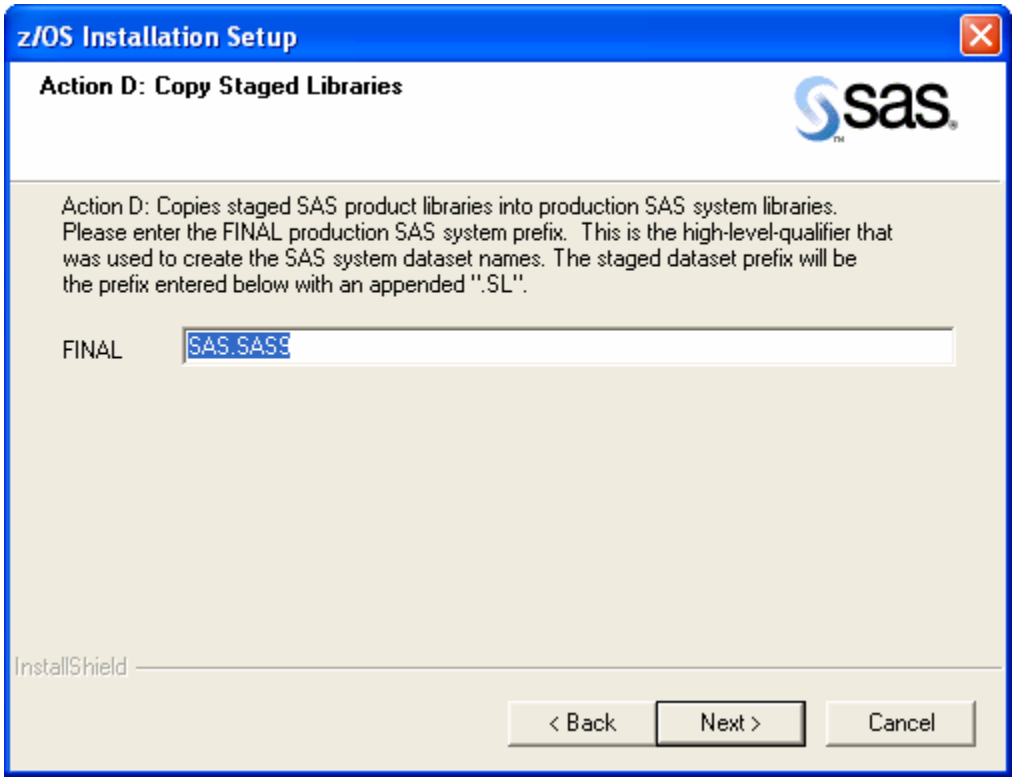
Selecting the **C: Install Products to Staging prefix** option button spawns a dialog box to capture the value of `FINAL-SASLIB-PFX`. The staged dataset prefix will be the prefix entered for **FINAL** with an appended ".SL".

`FINAL-SASLIB-PFX` is set to specify the high-level prefix of the current set of complete SAS libraries. These libraries ***cannot*** be staging libraries from a previous install.



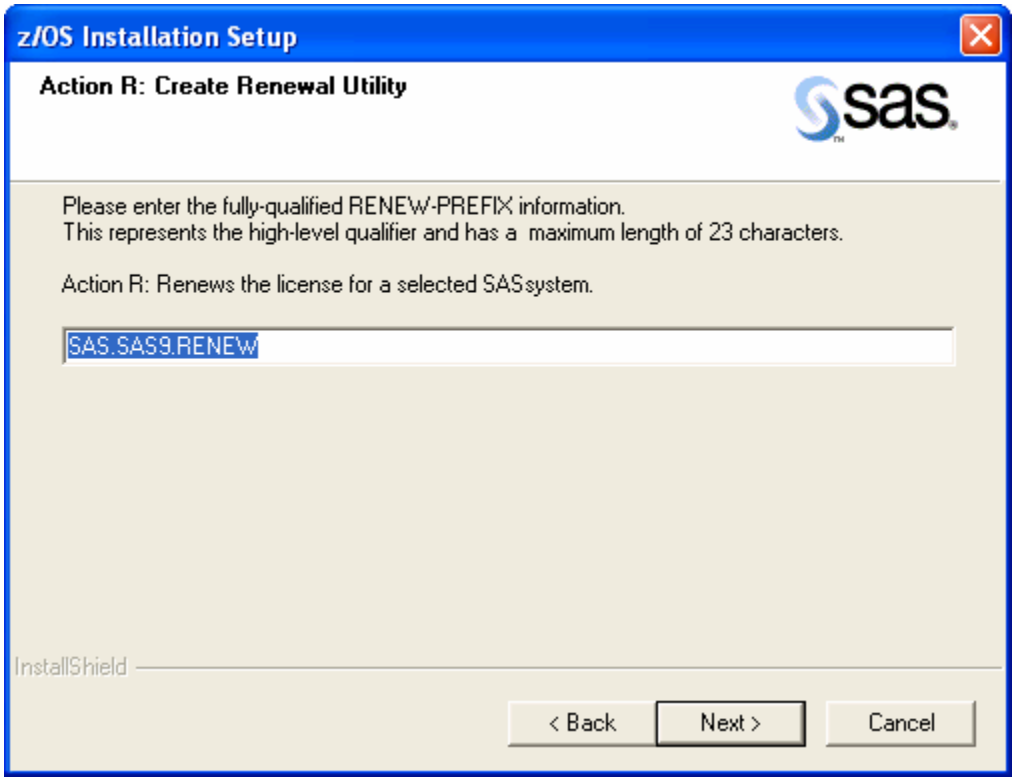
Action D: Copy Staged Libraries

Selecting the **D: Put staged libraries into final SAS system** option button sets up a dialog box requesting values that enable the process to copy staged SAS product libraries into production SAS libraries. Action D requires a value for `FINAL-SAS-PREFIX`. The staged dataset prefix will be the prefix entered for FINAL with an appended "`.SL`".



Action R: Create Renewal Utility

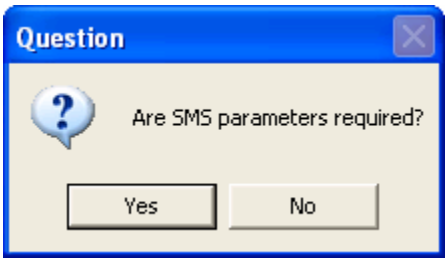
Selecting the **R: Renew the license for a SAS system** option button launches a dialog box that requests the `RENEW-PREFIX` information in order to create the renewal utility.



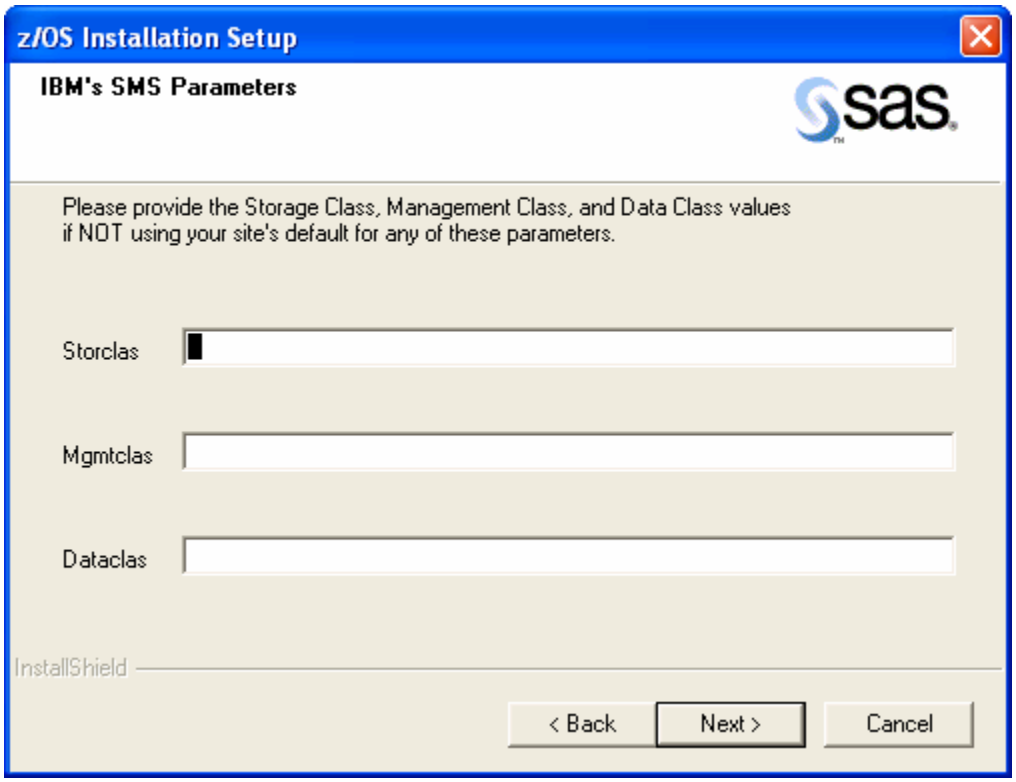
Clicking **Next** will open the **SMS Parameters** dialog box on page 61.

Site-specific Parameter Values Dialogs

IBM's SMS Parameters

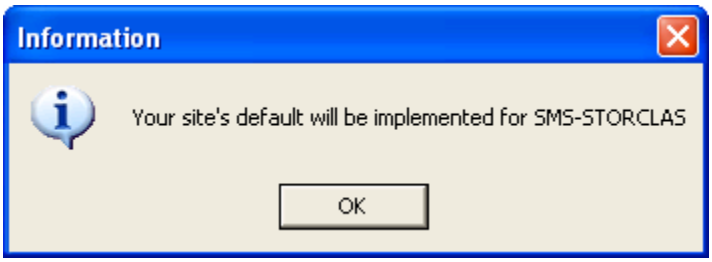


This dialog box queries whether you intend to use IBM's SMS to help manage your installation data set allocations. Your site default SMS values will be implemented unless you enter alternative parameter values through the **IBM's SMS Parameters** dialog box.

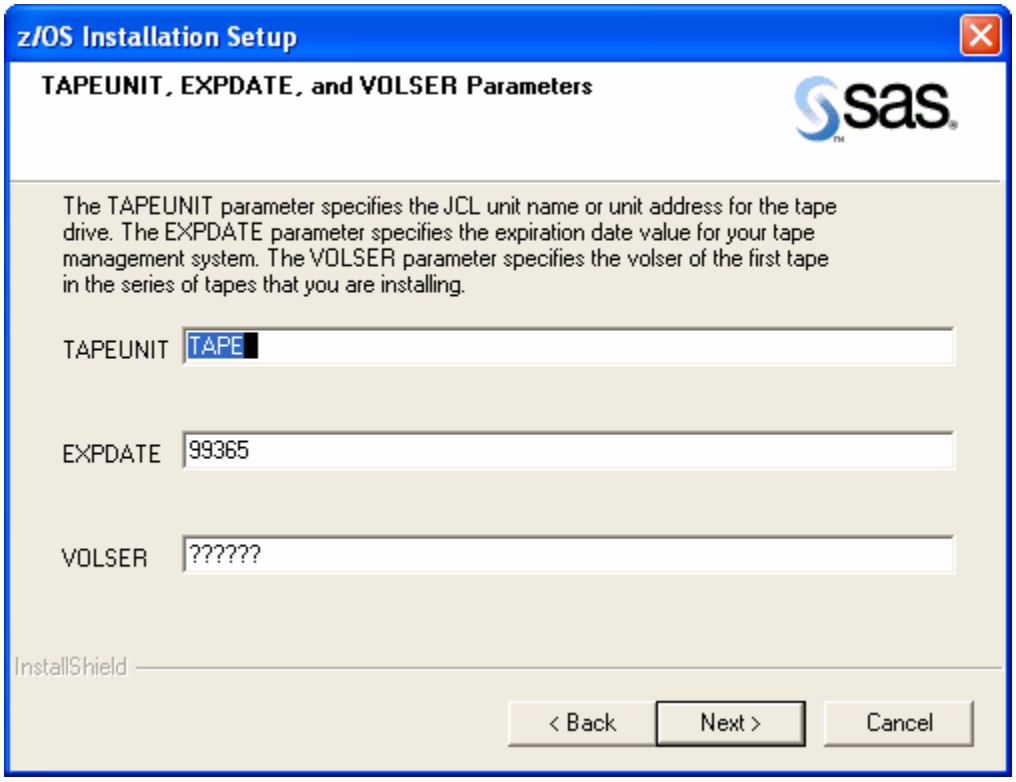


You are asked to provide alternatives to any default values for the three SMS parameters: **Storclas**, **Mgmtclas**, and **Dataclas**. If no entry is made you will be notified which parameters are to be defaulted.

For example, leaving an empty string in the **Storclas** text box launches the following dialog box:



TAPEUNIT, EXPDATE, and VOLSER Parameters

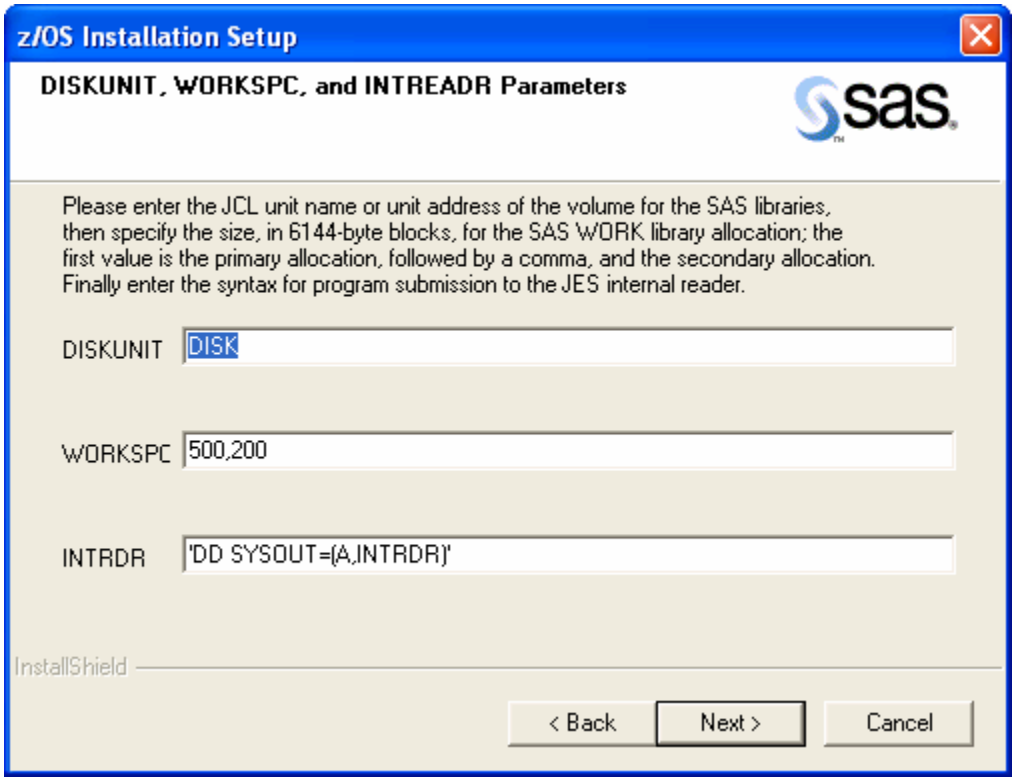


TAPEUNIT specifies the JCL unit name or unit address for the tape drive on which the installation tape is mounted.

EXPDATE specifies the expiration date value used in accessing the installation tape. Some tape management systems require you to set this parameter to `98000` to indicate that you are using an external unmanaged tape.

The **VOLSER** field represents the VOLSER of the first tape in the series of tapes that you are installing.

DISKUNIT, WORKSPC, and INTREADR Parameters



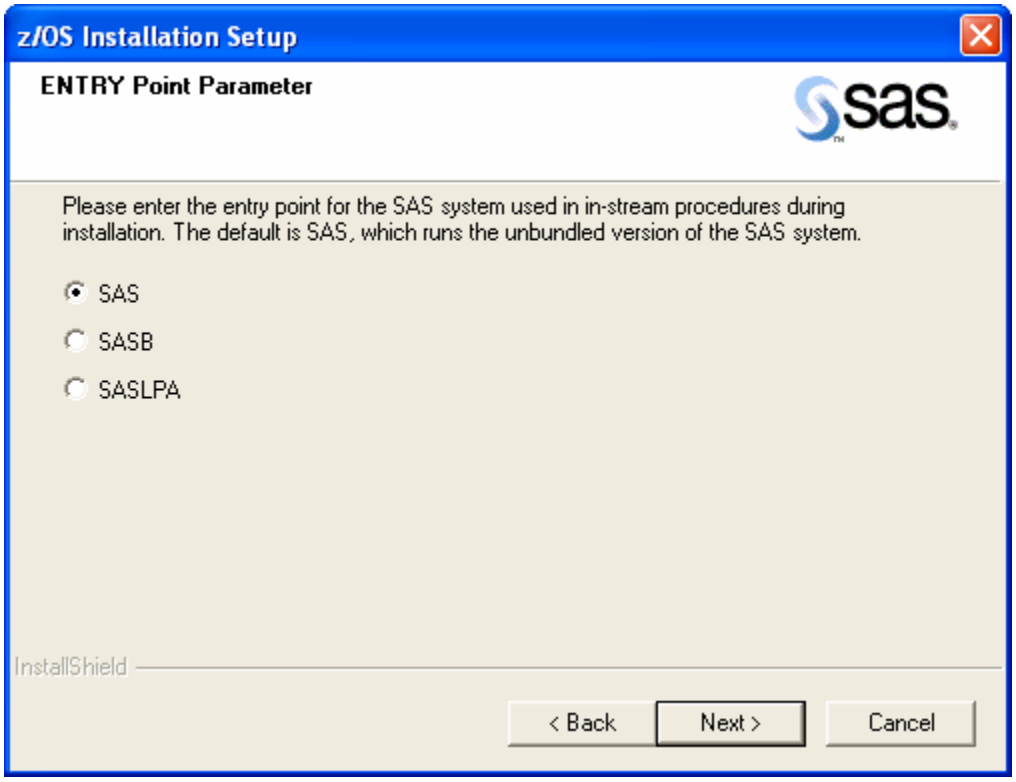
DISKUNIT specifies the JCL unit name or unit address for the volume for the SAS installation libraries.

WORKSPC specifies the size, in 6144-byte blocks, for the SAS WORK library allocation for CLISTs, catalogued procedures, and in-stream procedures used throughout installation. The first value is the primary allocation, followed by a comma, and the second value is the secondary allocation.

INTRDR specifies the syntax for program submission to the JES internal reader. It can also optionally disable the use of the internal reader if it is not available or allowed at your site.

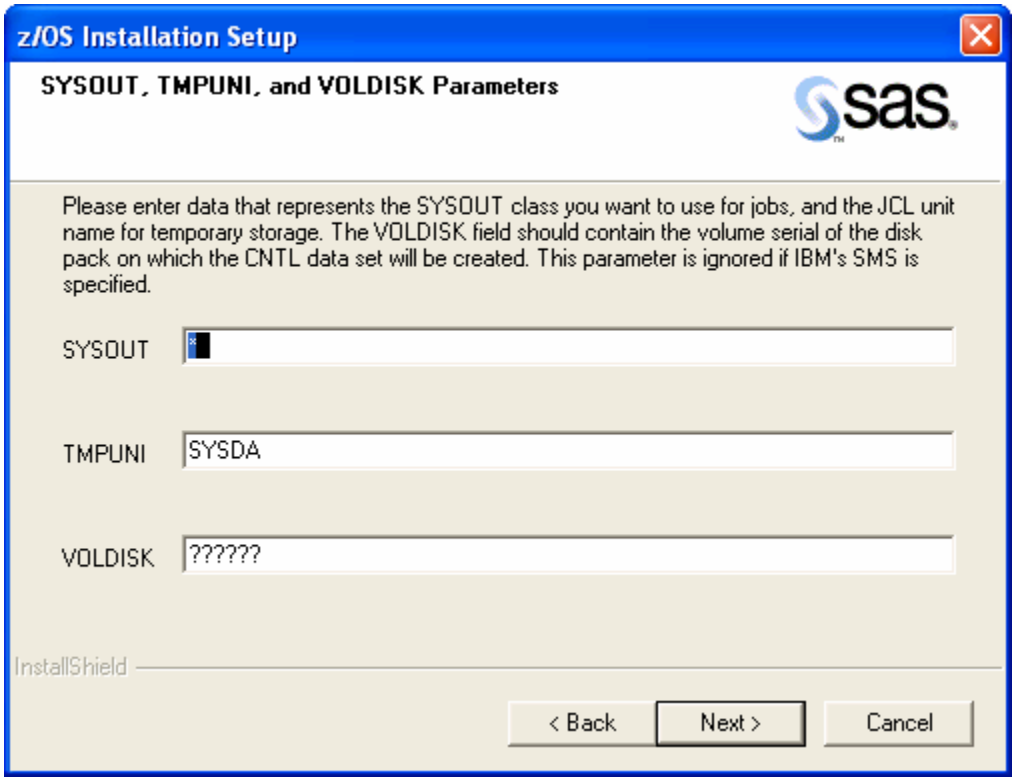
- **To REVISE the syntax** to invoke your internal reader, modify the data between the quotes as shown in the following example:
  `INTREADR='DD ALTERNATE,SYNTAX'`
- Do not remove the surrounding quotes. If your syntax contains single quotes, change the surrounding quotes to double quotes as shown in the following example:
  `INTREADR="DD 'ALTERNATE',SYNTAX"`

ENTRY Point Parameter



The **ENTRY Point Parameter** dialog box allows you to specify the entry point for the SAS system that is used in in-stream procedures during installation, in the catalogued procedures, and in the CLISTs. The default is SAS, which runs the unbundled version of SAS software. There are three mutually exclusive options for this parameter.

SYSOUT, TMPUNI, and VOLDISK Parameters

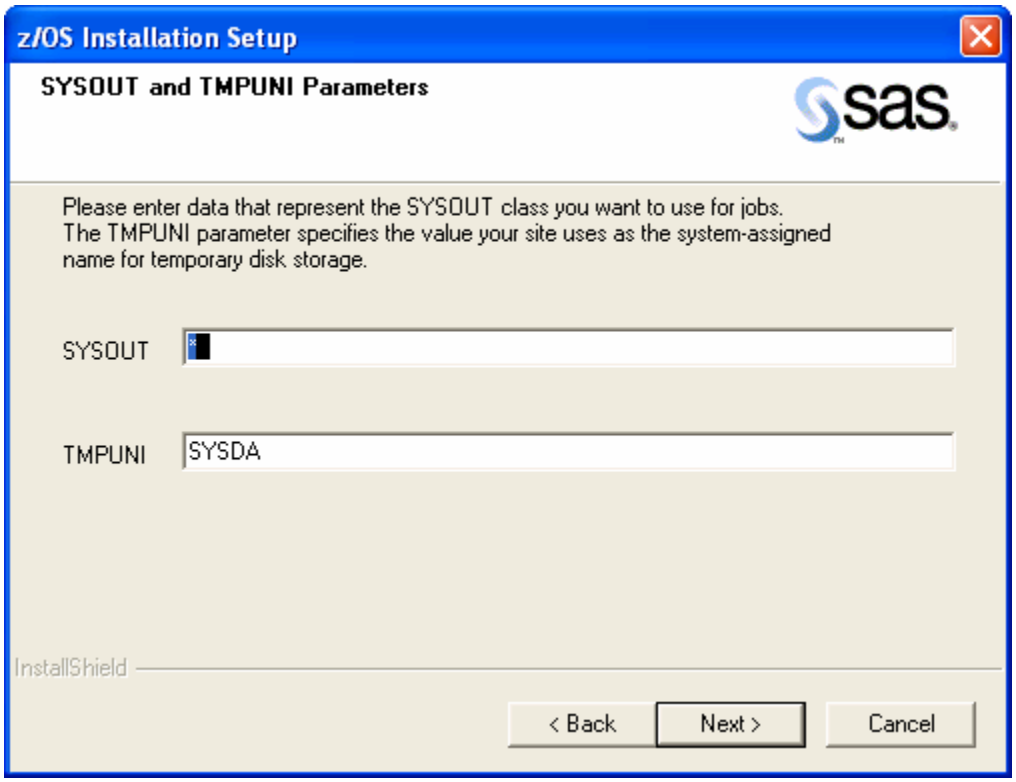


SYSOUT specifies the SYSOUT class you want to use for jobs.

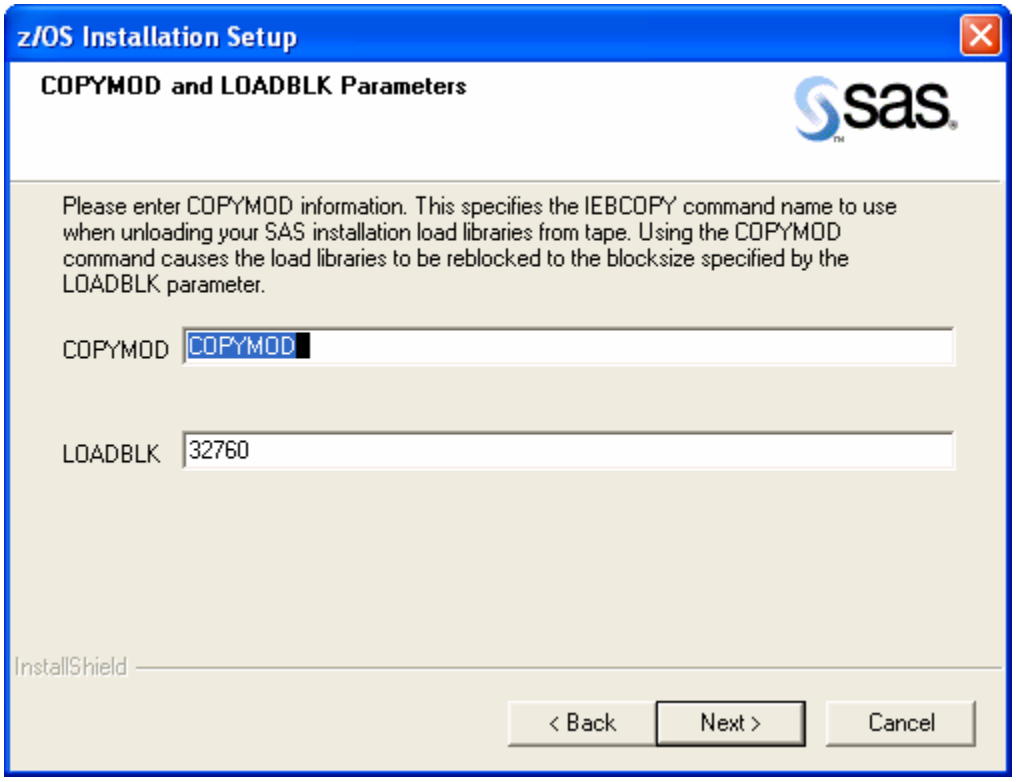
TMPUNI specifies the value your site uses as the system-assigned name for temporary disk storage.

VOLDISK specifies the volume serial of the disk pack for installing SAS product libraries. This parameter is ignored if you specify the use of SMS.

If you invoke SMS, the **SYSOUT, TMPUNI, and VOLDISK Parameters** dialog box does not appear; the **SYSOUT and TMPUNI Parameters** dialog box is launched in its place, requesting the **SYSOUT** and **TMPUNI** parameters:

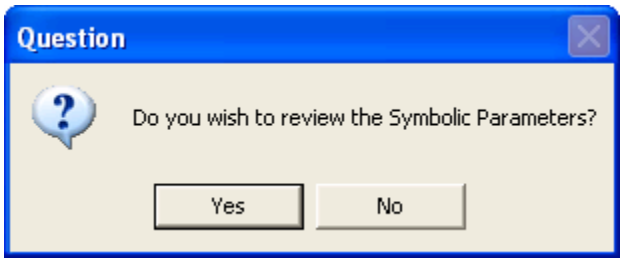


COPYMOD and LOADBLK Parameters



COPYMOD specifies the IEBCOPY command name to use when unloading your SAS installation load libraries from tape. Using the COPYMOD command causes the load libraries to be reblocked to the blocksize specified by the **LOADBLK** parameter. The default is COPYMOD. If you use COPY, your load library blocksize will be 6144.

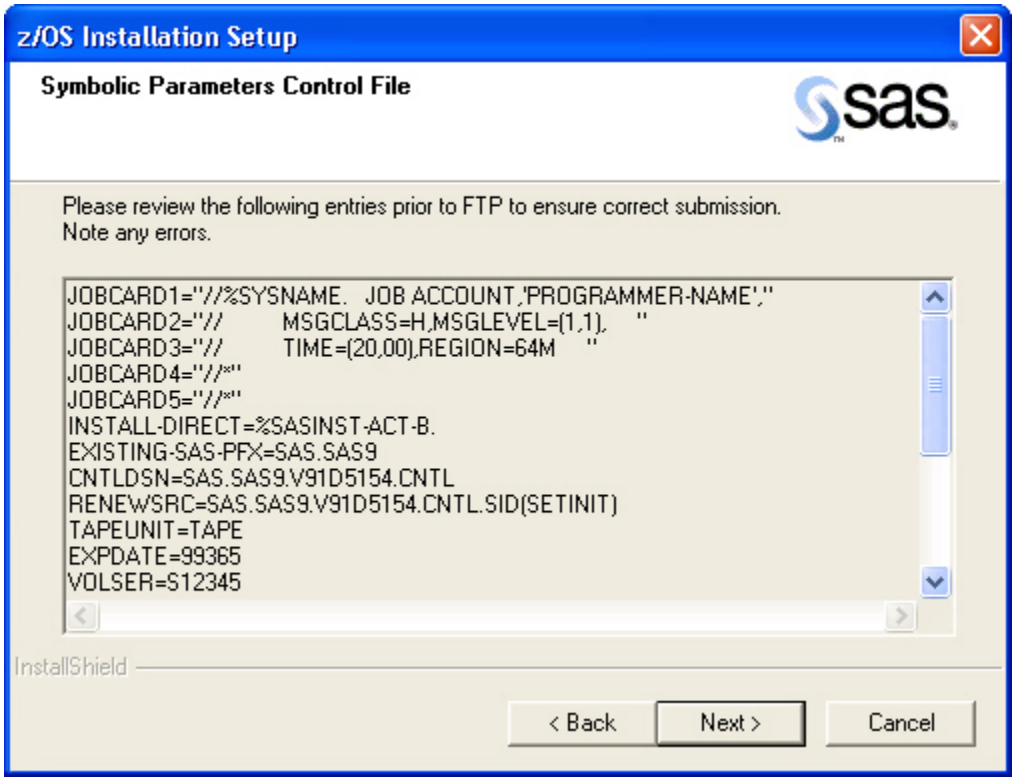
Reviewing the Generated Symbolic Parameters File



The dialog box above offers the user the option to review the Symbolic Parameters File. Since the collection of the symbolic parameters is complete at this stage, we advise reviewing those entries prior to the FTP process that puts the ASCII file onto the mainframe. Changes can then be implemented to those symbolic parameters that are incorrect, followed by a further review. Clicking **No** launches the IEFBR14 allocation job, and if the launch succeeds, the symbolic parameters file, and the IEBUPDTE JCL are FTP'd to the mainframe and the IEBUPDTE job is executed. This job intersects with the Batch Installation mechanism on the mainframe and subsequently invokes the action selected in the **Installation Actions** dialog box.

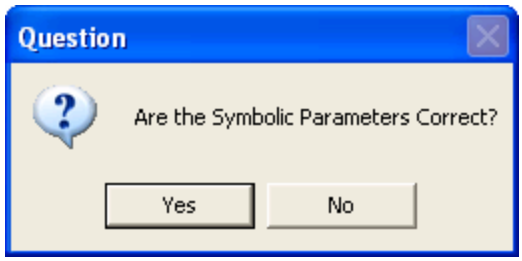
Clicking **Yes** opens the **Symbolic Parameters Control File** dialog box.

Symbolic Parameters Control File



The **Symbolic Parameters Control File** dialog box displays the Symbolic Parameters Control File generated from the previous edit box entries for each of the prompted parameters. Review these entries to ensure there are no errors. Clicking **Back** takes you backwards through the

symbolic parameters collection dialog boxes from the dialog box **COPYMOD and LOADBLK Parameters**. Clicking **Next** will open the following **Question** dialog box.



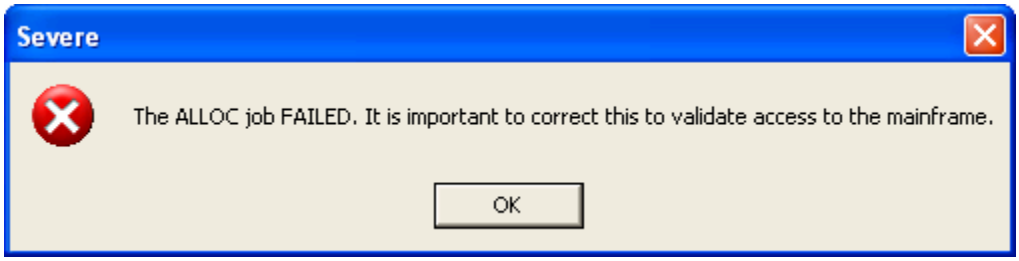
Any errors or deficiencies can be amended by clicking **No** on the dialog box. This will take you through the symbolic parameters collection dialog boxes from the **Jobcard Information** dialog box forward. All previous entries are retained and displayed in the appropriate edit boxes.

Clicking **Yes** invokes the following sequence of events: the installation process launches the IEFBR14 allocation job, and if successful the symbolic parameters file, and the IEBUPDTE JCL are FTP'd to the mainframe and the IEBUPDTE job is executed. This job will interface with the Batch Installation mechanism on the mainframe and subsequently invoke the action selected in the dialog box entitled Installation Actions.

Note: *If the Wizard does not get a good return code within two minutes, the Wizard assumes the allocation job failed and the Severe error dialog box (below) is displayed. The allocation job may have completed successfully; however, if it did not complete within the two minute period that the Wizard expected, or if the job class associated with the allocation job does not have a JES log defined to it, then the process has stopped. The symbolic parameters file and the IEBUPDTE JCL are not FTP'd to the mainframe. The allocation job should be resubmitted using the Wizard.*

IEFBR14 Allocation job fails

If the allocation job fails, the following dialog box is displayed:



Note: *This error message appears when the control data set allocation job does not complete successfully quickly enough, or simply fails, causing the SAS Installation Wizard for z/OS to time out. Normally the allocation job should run in a second or two once JES places it in execution.*

Timing causes of the error message include:

- Lack of free z/OS initiators
- The z/OS system is busy
- JOB statements specify a JES job class designed to run at low priority or set aside for delayed execution
- Installing on a z/OS test system with limited capabilities

Permissions causes of the error message include running under or specifying user IDs which do not have the appropriate permissions for:

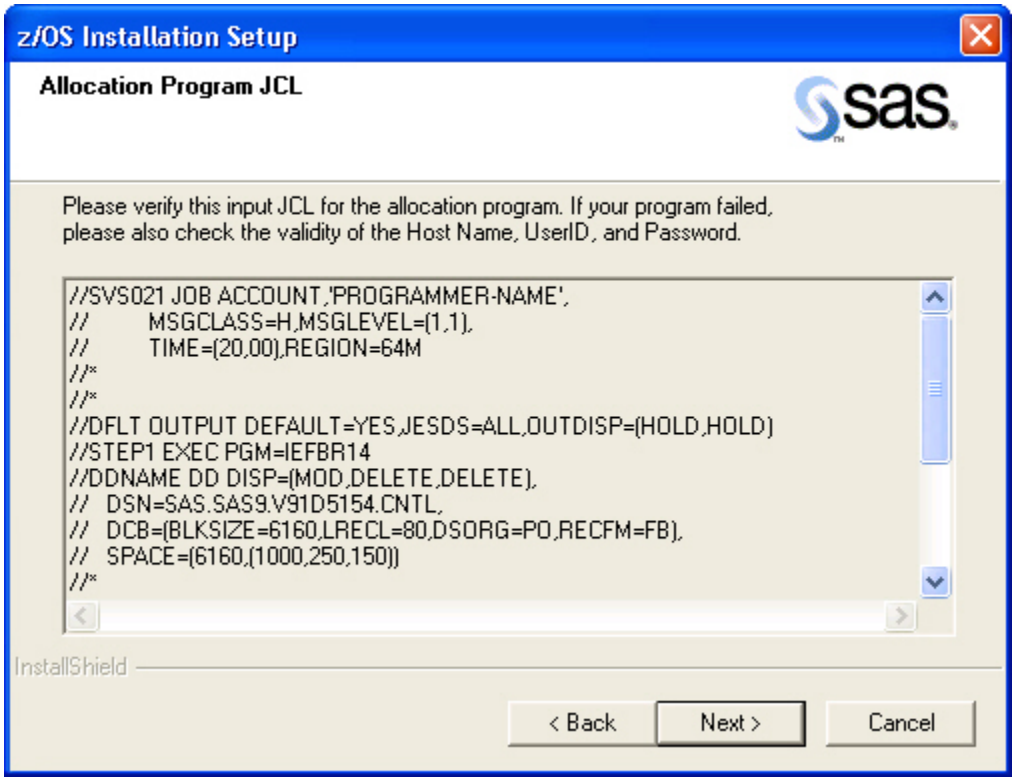
- Network access
- Execution on the z/OS system itself
- Use of the name in the control data set allocation
- Use of the storage device or SMS classes specified in the control data set allocation

Other causes of the error message include:

- Syntax errors in the JOB statements
- Invalid values supplied to the SAS Installation Wizard for z/OS
- Network problems between the PC and the z/OS host

The problems described above, and those of a more unusual nature, may require help from your z/OS system personnel or SAS Technical Support in order to work out a correct solution.

After clicking **OK**, a dialog box appears that displays the JCL implemented to execute the allocation job.

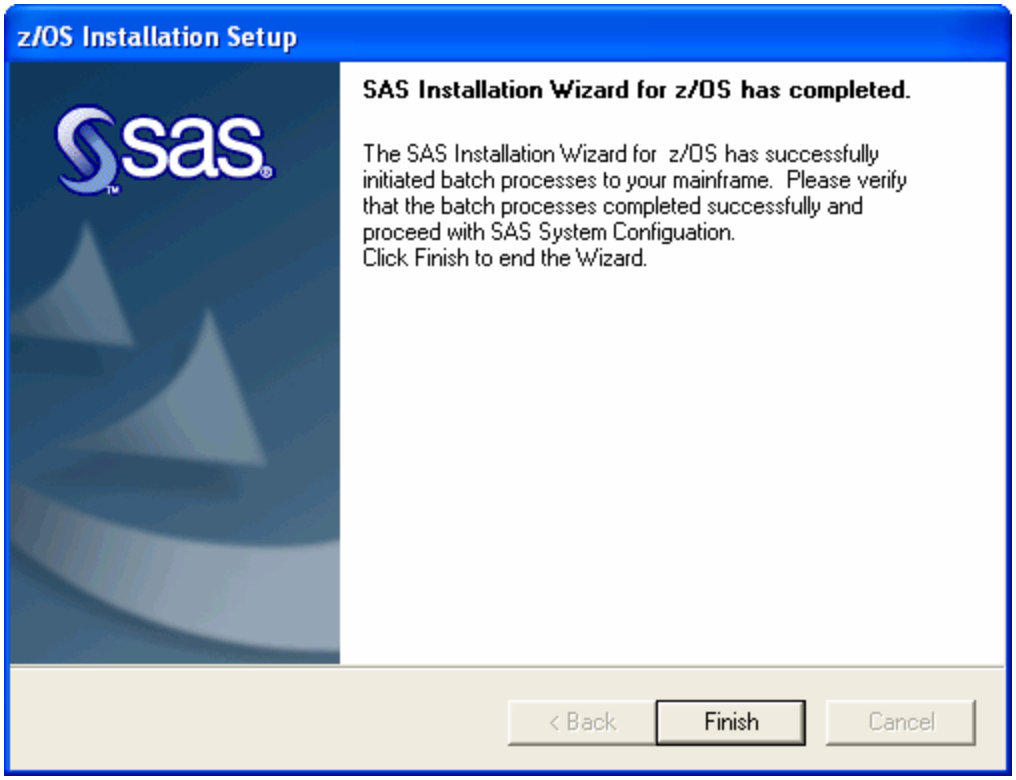


Please review the JCL and note any problems. Also be sure to check the entries made in the **FTP Batch Generation** dialog box for accessing your mainframe.

Running IEBUPDTE

The IEBUPDTE job is launched from the installation process front end, but currently no checks are in place to ensure successful completion of this job. The ***allocation*** job launched earlier by the installation process is verified, but only reported if there is a failure. However, the JCL file for the former job can be located in the "`szPrefix + szDatVal + .CNTL(JCLUPDT)`" data set on the mainframe where `szDatVal = ".V91D" + szYearEnd + szThreeJD`. The variables `szYearEnd` and `szThreeJD` represent the final digit of the current year, and the three-digit Julian Date for that particular day of that year, respectively.

After the Installation Wizard for z/OS has completed processing, the following dialog box will appear. Click **Finish** to exit the Installation Wizard.



Update HFS Content

The Service Pack contains updates to HFS. If you previously loaded HFS, you will need to run the USSUNTAR job. Refer to Step 4 of "Installing UNIX File System Components" in the *Configuration Guide for SAS 9.1.3 Foundation for z/OS*. In the USSUNTAR job, verify the `INSTALL_DIR` value and submit the job.

Post-Installation Steps

If you are upgrading your SAS System installation from an earlier level to the newer Service Pack level and you have set SAS System options by assembling the **DEFAULT OPTIONS TABLE** using the BAOPTS1 member of your original CNTL data set, you must reassemble this table as follows:

1. Edit the BAOPTS1 member in your original CNTL data set.
2. Change the SYSLMOD DD statement in all three LINK EDIT steps to point to the new `HLQ.library` (the new version.)
3. Rerun BAOPTS1.

If you are running the SAS System out of the LPA with PGM=SASXAL, it is necessary to refresh the LPA after completing the installation of the Service Pack.

You should now go to the "Common Tasks" section on page 83 of this document to verify your system installation.

Note: *If you are viewing these instructions online, the "Common Tasks" section may be found in the* Installation Instructions for SAS 9.1.3 Foundation for z/OS *document* on the **Documentation for Installing and Configuring SAS** CD or Install Center. On the first page, select **SAS Planning Installation Edition Kit**, then select **Installation Instructions—SAS 9.1.3 Foundation for z/OS** in the "Installation" section under "Installation Instructions—SAS 9.1.3 Foundation."

Chapter 6 — Installing a SAS Service Pack (Traditional Batch Method)

Unloading the Installation Jobs — Run IEBUPDTE

STEP 1: Allocate and unload the CNTL data set. The CNTL data set contains the installation JCL Jobs and control files. This data set is hereafter referred to as the CNTL data set. Use the example IEBUPDTE job below to allocate and unload the CNTL data set.

Note: *A new CNTL data set must be allocated. Do not use the same CNTL data set used for previous installations of SAS products.*

The example IEBUPDTE job follows:

```
//IEBUPDTE  JOB (account information),'programmer',
//       TIME=(m,s),MSGCLASS=h
//*
//ALLOC  EXEC PGM=IEFBR14
//OUTCNTL   DD DSN=your.cntl.data set,DISP=(NEW,CATLG,DELETE),
//       UNIT=disk,VOL=SER=dddddd,
//       DCB=(BLKSIZE=6160,LRECL=80,DSORG=PO,RECFM=FB),
//       SPACE=(6160,(1000,250,150))
//*
//UPDTE  EXEC PGM=IEBUPDTE,PARM='NEW'
//SYSIN  DD DSN=SAS.SASROOT,DISP=OLD,VOL=SER=vvvvvv,
//       LABEL=(1,SL),UNIT=uuuu
//SYSPRINT  DD   SYSOUT=*
//SYSUT2       DD DSN=your.cntl.data set,DISP=OLD
//*
```

a. Modify the first lines of the IEBUPDTE job to contain JOB statement information for your site.

b. Change `your.cntl.data` set to specify the data set name for your CNTL data set. (This text appears twice in the example. Be sure to replace it in both places.)

c. Replace disk with the unit type you are using for the CNTL data set.

d. Replace `dddddd` with the volume serial of the disk pack on which the CNTL data set will be created, if you must specify volume serial at your site.

e. Replace `vvvvvv` with the VOLSER of the first tape in the series of tapes that you are installing.

f. Replace `uuuu` with the unit type for a tape drive at your site.

g. If your site has tape data set protection, ensure that you have read access to `SAS.*`.

STEP 2: Execute the IEBUPDTE job.

Enabling Minimal Cartridge Mounts From a Multi 3480 Cart Media

If tape drive resources are limited, follow the steps below so that only two tape drives will be required simultaneously during the installation process.

Before running SASIHOLD, replace `&cntldsn($$SDXMAC)` with `&cntldsn($$AFFMAC)`. This change may be undone by replacing `&cntldsn($$SDXMAC)` with `&cntldsn($MSDXMAC)`, which is a copy of the shipped `$$SDXMAC`, and rerunning SASIHOLD.

Note: *When this procedure is followed, the operating system can choose any available drive for any mount request, and no more than two drives will be in use at any one time. However, mount requests cannot be restricted to specific cartridge drives for the duration of the installation process. This is a function of the operating system.*

If the first cartridge has not been physically removed by the operator, and another mount is already available, the system will call for the second cartridge in the available mount. However, the install is not holding the first mount; it is available as soon as the operator removes the dismounted cartridge.

Interruptions by Other Processes

By disallowing the RETAIN or "keep-for-my-use-only" option in the tape unload JCL, the single-mount-enabled install can be interrupted by other processes which can take over the cart mount. This will be determined by site-specific z/OS priority settings and is not a function of the install.

Editing the SASEDITP Member

To install a Service Pack, you edit the SASEDITP member of the CNTL data set. This member contains parameters for which you must specify installation-specific values. A backup copy of this member exists in the CNTL data set as @SASEDTP.

Two types of parameters appear in this installation process: selectable and KEYWORD=VALUE. Selectable parameters help reduce the amount of data you need to type and are activated by removing comment characters. When making a selection, be sure to blank out the comment symbol, *NO*, associated with the parameter. Likewise, if there is an alternate selection that you do not want, be sure that the parameter is commented out. With KEYWORD=VALUE parameters, you specify your site value after KEYWORD=. Do not leave any spaces between the equal sign and your value.

Note: *All parameter values you enter should be in upper case. Set CAPS ON in your edit session before entering your values.*

You will find the job header information in the SASEDITP member in the following format:

```
*====================================================================
*=<< JOBCARDS TO BE INSERTED INTO JCL FOR EACH INSTALL TASK JOB >>=====
*    > DO NOT CHANGE  "JOBCARD1=//%SYSNAME."  IN JOBCARD1 LINE <
*====================================================================
JOBCARD1="//%SYSNAME. JOB ACCOUNT-CODE,'PROGRAMMER-NAME',   "
JOBCARD2="//         MSGCLASS=H,MSGLEVEL=(1,1),             "
JOBCARD3="//         TIME=(20,00),REGION=64M                "
JOBCARD4="//* JOBCARD VALUES ARE EXAMPLES ONLY. THEY MAY NOT"
JOBCARD5="//* WORK FOR YOU. SUPPLY SETTINGS FOR YOUR SITE.  "
*====================================================================
```

To provide the job header information, use **JOBCARD1=** through **JOBCARD5=** to create JOB statements for the generated job(s). The default JOBCARD1 value contains a JOBNAME value of SYSNAME, which resolves so that the JOBNAME is the same as that of the member name that contains the JCL for the job. **Do not change the //%SYSNAME. symbol in the existing JOBCARD1 value.** Update the remainder of the **JOBCARDx** parameters with the appropriate values (**/*JOBPARM**, **/*ROUTE**, **//*MAIN**, or **//*FORMAT** statements) for your installation.

Be sure to leave the JOB statement values enclosed in quotes ("). Do not increase the number of characters (50) contained between the quotes in JOBCARD1.

***Note**: All unused JOB statements should be entered as comments. For example,*

```
JOBCARD5="//*".
```

- ❑ Choose your install action:

  Select a single SAS install action and supply the corresponding library prefix values. The maximum prefix length is 23 characters.

  Select the action you want by blanking out the *NO* that precedes the action name. Verify that you have only one action value active. If more than one action is selected, a return code of 12 is set, and error messages specifying the duplicate selections are posted to SYSPRINT and SYSTERM.

  Specify library prefixes as follows:

  - If you are using **Action B: INSTALL-DIRECT**

    Use **EXISTING-SAS-PFX=** to specify the high-level prefix of the current SAS system libraries at your site into which you want to unload the tape libraries (for example, SAS.SAS9).

    If you cannot use exclusive access to the existing SAS Libraries (DISP=OLD), blank out the *NO* before BUDSP=SHR.

    Warning: *Action B can write directly to any SAS library specified in the installation High Level Qualifier parameter. Action B is **NOT** recommended for installation of updates to production libraries. Action B is provided to perform a direct update to stand-alone testing copies of your production SAS system. Use Action C to install updates in other circumstances.*

- If you are using **Action C: INSTALL-TO-STAGE**

  Use **FINAL-SASLIB-PFX=** to specify the high-level prefix of the current set of complete SAS system libraries. These libraries cannot be staging libraries from a previous install. The CLIST and cataloged procedure unloaded from the tape with the INSTALL-TO-STAGE action concatenate the staging libraries in front of the production libraries for executing SAS 9.1.3 Foundation.

  To concatenate your production Config files into the generated staging PROC and CLIST, blank out the *NO* on these lines and provide fully qualified data set names.

  - PROD-BATCH-CFG= specifies the name of a production batch SAS Config file.
  - PROD-TSO-CONFIG= specifies the name of a production TSO SAS Config file.

- If you are using **Action D: STAGE-TO-FINAL**

  Use **FINAL-SAS-PREFIX=** to specify the high-level prefix of the current set of complete SAS system libraries. The default is SAS.SAS9, but may have been changed during the initial ACTION-A INSTALL-NEW install.

- If you are using **Action R: STANDALONE-RENEW**

  Use **RENEW-PREFIX=** to specify the high level prefix of the complete SAS system libraries for which you want to generate a SETINIT job stream.

  Use **RNW-BASE-PFX=** to specify the high level prefix of the staging SAS system libraries for which you want to generate a SETINIT job stream.

❑ Provide site-specific parameter values for the following:

- **CNTLDSN=** specifies the CNTL data set you created by running the IEBUPDTE job.

- **TAPEUNIT=** specifies the JCL unit name or unit address for the tape drive on which the installation tape is mounted.

- **EXPDATE=** specifies the expiration date value used in accessing the installation tape. Some tape management systems require you to set this parameter to 98000 to indicate that you are using an external unmanaged tape.

- **DISKUNIT=** specifies the JCL unit name or unit address for the volume for the SAS installation libraries.

- **WORKSPC=** specifies the size, in 6144-byte blocks, for the SAS WORK library allocation for CLISTs, cataloged procedures, and in-stream procedures used throughout installation. The first value is the primary allocation, followed by a comma, and the second value is the secondary allocation.

- **INTREADR=** specifies the syntax for program submission to the JES internal reader. Optionally disables use of the internal reader if not available or allowed at your site.

  - To REVISE the syntax to invoke your internal reader, modify the data between the quotes as shown in the following example:
    `INTREADR='DD ALTERNATE,SYNTAX'`
    Do not remove the surrounding quotes. If your syntax contains single quotes, change the surrounding quotes to double quotes as shown in the following example:
    `INTREADR="DD 'ALTERNATE',SYNTAX"`

  - To DISABLE use of the internal reader, blank out the `*NO*` before the INTREADR. To complete the install you must individually submit each generated job in sequence following the successful completion of the prior step.

- **ENTRY=** specifies the entry point for SAS 9.1.3 Foundation that is used in in-stream procedures during installation, in the cataloged procedures, and the CLISTs. The default is SAS, which runs the unbundled version of SAS 9.1.3 Foundation. The *Configuration Guide for SAS 9.1.3 Foundation for z/OS* contains information on the different bundling configurations you can choose in customizing SAS 9.1.3 Foundation for your site.

- **SYSOUT=** specifies the SYSOUT class you want to use for jobs.

- **TMPUNI=** specifies the value your site uses as the system-assigned name for temporary disk storage.

- **VOLDISK=** specifies the volume serial of the disk pack for installing SAS product libraries. This parameter is ignored if you specify the use of SMS.

- **SMS-ALLOC=** specifies whether you intend to use IBM's SMS to help manage your installation data set allocations. By default, this parameter is commented out. If you want to use SMS, blank out the `*NO*` to invoke your site's installed SMS allocation features. VOLDISK will be ignored. Your site default SMS values will be used unless you delete the `*NO*` on each appropriate SMS parameter and supply the parameter combinations required by your installation. Consult your SMS documentation and system support personnel for further information and appropriate values.

  - `SMS-STORCLAS  SMS "STORCLAS=" value`

  - `SMS-MGMTCLAS  SMS "MGMTCLAS=" value`

  - `SMS-DATACLAS  SMS "DATACLAS=" value`

- **COPYMOD=** specifies the IEBCOPY command name to use when unloading your SAS 9.1.3 Foundation installation load libraries from tape. Using the COPYMOD command causes the load libraries to be reblocked to the blocksize specified by the **LOADBLK=** parameter. The default is COPYMOD. If you use COPY, your load library blocksize will be `6144`.

- **LOADBLK=** when you use COPYMOD, specifies the blocksize you want to use for your SAS 9.1.3 Foundation load library. The default is `32760`. If you are performing an INSTALL-DIRECT, use this parameter when your target library blocksize is not 6144.

Specifying Installation Parameters

STEP 1: Jobcards not picked up by SASEDITP need to be edited before an Action may be performed.

Be certain that the JOB statement contains your site-specific information.

Note: *The JOB statement for each job that needs to be submitted should be verified prior to performing an Action.*

Action B: Install a Service Pack Directly to Existing SAS Libraries

Warning: *Action B can write directly to any SAS library specified in the installation High Level Qualifier parameter. Action B is **NOT** recommended for installation of updates to production libraries. Action B is provided to perform a direct update to stand-alone testing copies of your production SAS system. Use Action C to install updates in other circumstances.*

Edit the SASEDITP member, uncomment Action B, and provide the proper value for EXISTING-SAS-PFX.

Edit the SASIHOLD member of the CNTL data set and modify the following parameters:

- **CNTLDSN=** specifies the name of the installation CNTL data set you allocated using the IEBUPDTE job.
- **SASEDTP=** specifies the name of the CNTL data set member that contains the SASEDITP user site parameter values you have entered to control SAS installation tasks. The default is SASEDITP.

Submit the SASIHOLD member. This job requires exclusive access to the CNTL data set. Be sure to terminate your edit session or otherwise free the CNTL data set after submitting the SASIHOLD job. This job creates member JOBINDXB in the CNTL data set that contains a list of the installation jobs.

Submit the first job in the list and it in turn will submit the succeeding jobs.

You are ready to verify the installation, using the instructions in “Verifying the System Installation” on page 83.

Update HFS Content

The Service Pack contains updates to HFS. If you previously loaded HFS, you will need to run the USSUNTAR job. Refer to Step 4 of “Installing UNIX File System Components” in the *Configuration Guide for SAS 9.1.3 Foundation for z/OS*. In the USSUNTAR job, verify the INSTALL_DIR value and submit the job.

SAS Product Customization

Although no further implementation is required for you to run the base SAS product at your site, you should review the product-specific appendixes in the Configuration Guide. The information contained in those appendixes will help you customize the specific SAS products you have licensed.

Action C: Install a Service Pack to Staging SAS Libraries

Edit the SASEDITP member, uncomment Action C, and provide the proper value for FINAL-SASLIB-PFX.

Edit the SASIHOLD member of the CNTL data set and modify the following parameters:

- **CNTLDSN=** specifies the name of the installation CNTL data set you allocated using the IEBUPDTE job.
- **SASEDTP=** specifies the name of the CNTL data set member that contains the SASEDITP user site parameter values you have entered to control SAS installation tasks. The default is SASEDITP.

Submit the SASIHOLD member. This job requires exclusive access to the CNTL data set. Be sure to terminate your edit session or otherwise free the CNTL data set after submitting the SASIHOLD job. This job creates member JOBINDXC in the CNTL data set that contains a list of the installation jobs.

Submit the first job in the list and it in turn will submit the succeeding jobs.

You are ready to verify the installation, using the instructions in “Verifying the System Installation” on page 83.

Completing the Installation for Action C

If your site has customized the default CLIST or PROC, you need to apply your site customizations to the installed staging CLIST and PROC under one of the following conditions:

- You need to test the staged system with the site customizations in place.
- You intend to run the staged system in a production mode.

In these examples, `xx` and `yy` are the Required Media and Data Set Codes from the Languages, Encodings, and Installation Codes table on page 85.

If your site customizations are small, you may simply want to add them to the install-created staging CLIST and PROC. During the installation, a job copies the staging CLIST CLSTxx and the staging PROC PROCxx, where `xx` is the two-digit encoding value of the installed system, to the CNTL data set. Rename these and copy them to the appropriate PROC and CLIST libraries for your site.

If you made many site customizations, you may want to add the staging libraries to the appropriate DDname concatenations in your customized CLIST and PROC. Add the concatenations as follows:

Note: *The staging libraries do not contain everything required to run SAS 9.1.3 Foundation. The concatenations shown below are required to correctly run SAS.*

Note: `&staged-libr-pfx` *is set by rule to* `&final-saslib-pfx.SL`.

- Cataloged procedure modifications

  To concatenate the load library data sets, locate the JCL statements in the PROC that look like the following:

```
//STEPLIB DD DISP=SHR,DSN=&LOAD
//        DD DISP=SHR,DSN=&final-saslib-pfx.LIBRARY
```

Change this DD statement as follows, providing the prefix values specified in SASEDITP:

```
//STEPLIB DD DISP=SHR,DSN=&LOAD
//         DD DISP=SHR,DSN=&staged-libr-pfx.LIBRARY
//         DD DISP=SHR,DSN=&final-saslib-pfx.LIBRARY
```

To concatenate the SASMSG library data sets, locate the JCL statement in the PROC that looks like the following:

```
//SASMSG DD DSN=&final-saslib-pfx.xxyy.SASMSG,DISP=SHR
```

Change this DD statement as follows, providing the prefix values specified in SASEDITP:

```
//SASMSG DD DSN=&staged-libr-pfx.xxyy.SASMSG,DISP=SHR
//        DD DSN=&final-saslib-pfx.xxyy.SASMSG,DISP=SHR
```

To concatenate the AUTOLIB library data sets, locate the JCL statement in the PROC that looks like the following:

```
//SASAUTOS DD DSN=&final-saslib-pfx.yy.AUTOLIB,DISP=SHR
```

Change this DD statement as follows, providing the prefix values specified in SASEDITP:

```
//SASAUTOS DD DISP=(SHR,PASS),DSN=&SASAUTO
//          DD DISP=SHR,DSN=&staged-libr-pfx.yy.AUTOLIB
//          DD DISP=SHR,DSN=&final-saslib-pfx.yy.AUTOLIB
```

You must run with the SASHELP library that was updated with your installation tape. The SASIxxxx jobs merge the contents of `&staged-libr-pfx.xxyy.SASHELP` with your `&final-saslib-pfx.SASHELP`. The resulting, merged SAS data library is the `&staged-libr-pfx.xxyy.SASHELP` data set.

Locate the JCL statement in the PROC that looks like the following:

```
//SASHELP DD DSN=&final-saslib-pfx.xxyy.SASHELP,DISP=SHR
```

Change this DD statement as follows, providing the prefix values specified in SASEDITP:

```
//SASHELP DD DSN=&staged-libr-pfx.xxyy.SASHELP,DISP=SHR
```

- **CLIST modifications**

To concatenate the load library data sets, locate the line in the CLIST that reads:

```
SASLOAD('''&final-saslib-pfx.LIBRARY''')
```

Change this statement as follows, providing the prefix values specified in SASEDITP:

```
SASLOAD('''&staged-libr-pfx.LIBRARY'' +
''&final-saslib-pfx.LIBRARY''')
```

To concatenate the SASMSG library data sets, locate the following line in the CLIST:

```
SASMSG('''&final-saslib-pfx.xxyy.SASMSG''')
```

Change this statement as follows, providing the prefix values specified in SASEDITP:

```
SASMSG('''&staged-libr-pfx.xxyy.SASMSG'' +
''&final-saslib-pfx.xxyy.SASMSG''')
```

To allocate the appropriate SASHELP library data sets, locate the following line in the CLIST:

```
SASHELP('''&final-saslib-pfx.yy.SASHELP''')
```

Change this statement as follows, providing the prefix values specified in SASEDITP:

```
SASHELP('''&staged-libr-pfx.xxyy.SASHELP''')
```

To concatenate the AUTOLIB library data sets, locate the following line in the CLIST:

```
MAUTS('''&final-saslib-pfx.yy.AUTOLIB''')
```

Change this statement as follows, providing the prefix values specified in SASEDITP:

```
MAUTS('''&staged-libr-pfx.yy.AUTOLIB''' +
'''&final-saslib-pfx.yy.AUTOLIB''')
```

After modifying the CLIST and PROC, you are ready to perform site-specific testing.

After completing your site-specific testing, you will want to copy the contents of the staging libraries to your production SAS system libraries. This is done using Action D, which is documented below. At many sites, it takes days, weeks, or even months, to perform site-specific testing, so refer to this document for details on performing Action D when appropriate for your site.

Update HFS Content

The Service Pack contains updates to HFS. If you previously loaded HFS, you will need to run the USSUNTAR job. Refer to Step 4 of "Installing UNIX File System Components" in the *Configuration Guide for SAS 9.1.3 Foundation for z/OS*. In the USSUNTAR job, verify the INSTALL_DIR value and submit the job.

Action D: Copy a Service Pack from Staging SAS Libraries to Existing SAS Libraries

Edit the SASEDITP member and comment out Action C. Uncomment Action D and provide the proper value for FINAL-SAS-PREFIX.

Edit the SASIHOLD member of the CNTL data set and modify the following parameters:

- **CNTLDSN=** specifies the name of the installation CNTL data set you allocated using the IEBUPDTE job.
- **SASEDTP=** specifies the name of the CNTL data set member that contains the SASEDITP user site parameter values you have entered to control SAS installation tasks. The default is SASEDITP.

Submit the SASIHOLD member. This job requires exclusive access to the CNTL data set. Be sure to terminate your edit session or otherwise free the CNTL data set after submitting the SASIHOLD job. This job creates member JOBINDXD in the CNTL data set that contains a list of the installation jobs.

Submit the first job in the list and it in turn will submit the succeeding jobs.

Upon successful completion of the last job in the list, your existing SAS libraries are updated with new products.

You are ready to verify the installation, using the instructions in "Verifying the System Installation" on page 83.

Action R: Apply Renewal SETINIT Information to an Existing SAS System

See the Optional section in "Appendix BB — Licensing the SAS 9.1.3 Foundation" in the Configuration Guide for instructions on completing Action R.

Chapter 7 — Common Tasks

Verifying the System Installation

Check the job log to verify successful completion of the installation job(s).

Note: *A complete list of the generated installation jobs that were run can be found in the JOBINDXz member of the CNTL data set where z is the type of action performed.*

You should not receive any error messages, and the job should finish with condition codes of zero. Several steps of the jobs may produce the following messages (which are purely informational and can be ignored):

- +NO CONFIG File Available
- NOTE: Apparent keyword reference could not be resolved

Submit the VALID verification job

The job VALID in the CNTL data set performs validation of your SAS 9.1.3 Foundation installation. Check the SAS logs to verify execution. You should not receive any error messages, and the job should finish with a completion code of zero. The VALID job runs all available tests for products you have installed.

Not all products have test code. It is possible with some installed product combinations for the job to have null content and run without submitting any SAS test code.

Submit product verification jobs

Separate validation jobs are included for many of the SAS products, including Base SAS Software. Each provides a specific validation test for just the specified SAS product. For some products, post-installation implementation must be completed in order to run the products at your site. These products may generate errors in their VALID job step before customization is completed. Therefore, customizations for any of the products listed in the *Configuration Guide for SAS 9.1.3 Foundation for z/OS* is required before these steps are run.

The CNTL data set contains jobs used to validate individual products. You can run the following jobs without performing any special implementation for the products. Submit the relevant jobs for the products on your installation tape. You can submit them all at the same time; you do not have to run them one at a time. Check the SAS log to verify execution of each job.

The following jobs are contained in the CNTL data set and validate the products indicated:

- **BAVALID** verifies Base SAS product installation.
  If you perform any of the customizations described in "Chapter 1 - Setting up SAS 9.1.3 Foundation" in the *Configuration Guide for SAS 9.1.3 Foundation for z/OS*, you may want to rerun **BAVALID** (after modifying it to execute your customized procedure) as a regression test.
- **ETVALID** verifies SAS/ETS product installation.
- **GRVALID** verifies SAS/GRAPH product installation.
- **GRJVALID** verifies the SAS/GRAPH JAVAIMG product installation.
  Important: Set the REGION size for this job to `250M`.

  Note: *The verification test GRJVALID requires that a JDK is installed and that JREOPTIONS are properly set. Before running GRJVALID, review the "Software Requirements" section in* System Requirements for SAS 9.1.3 Foundation for z/OS *for information on the JDK. In addition, be sure to review the section "Configuring SAS Software for Use with the Java Platform" in the* Configuration Guide for SAS 9.1.3 Foundation for z/OS *for information on configuring the JREOPTIONS.*

- **HPVALID** verifies SAS/HPF product installation.
- **MLVALID** verifies SAS/IML product installation.
- **ORVALID** verifies SAS/OR product installation.
- **QCVALID** verifies SAS/QC product installation.
- **STVALID** verifies SAS/STAT product installation.

Note: *If you receive errors while executing any of the validation jobs and cannot determine their cause, contact the Technical Support Division at (919) 677-8008 between 9:00 a.m. and 8:00 p.m. Eastern Time, SAS business days. Ask the Technical Support receptionist for a z/OS consultant. Please have your site number ready when you call. Validation jobs that invoke experimental status procedures may issue warning messages to alert you to the experimental status of those components.*

Determine the Two-Character Media and Data Set Code

Different international locations use variations of the z/OS EBCDIC character set known as encodings to support the language and character set in use, and use various locale-dependent conventions for notation of dates, currency, etc. SAS is distributed in encoding support groupings that usually support a single encoding and a group of related locales. SAS system files containing material translated into local languages are distributed matching these specific encoding support groupings. SAS system installation media VOLSERs, and certain installed SAS system filenames contain a two-character code that identifies the encoding(s) and locale(s) supported.

Select the Media and Data Set Code (xxyy value) from the row in the table that matches your language and encoding.

Languages, Encodings, and Installation Codes

IMPORTANT: The following table is a common reference of possible values for the "xxyy" values used in the names of certain installed data sets, and referenced in these instructions, PROCS and CLISTS. It DOES NOT IMPLY that any of the listed languages or encodings is present in the media accompanying this kit. It DOES NOT IMPLY that any of the listed languages or encodings is currently available or planned. The contents of the accompanying media will be described in the accompanying SAS Order Information Letter. Other planned and available encodings and translations may be determined by contacting your SAS Sales representative.

		Required Media & Data Set Codes					
Language	Language Code	Lang (xx) value	Encode (yy) value	Main Encoding	Country	POSIX Value (Locale_Region)	Default Locale Value in the Configuration File
English	EN_US	EN	W0	OP_ED 1047	United States	English_United States	English_United States**
French	FR_BE	FR	WB	OP_ED 1148	Belgium	French_Belgium	French_France
	FR_CA	FR	W0	OP_ED 1047	Canada	French_Canada	
	FR_FR	FR	WA	OP_ED 1147	France	French_France	
	FR_LU	FR	WA	OP_ED 1147	Luxembourg	French_Luxembourg	
	FR_CH	FR	WB	OP_ED 1148	Switzerland	French_Switzerland	
German	DE_AT	DE	W3	OP_ED 1141	Austria	German_Austria	German_Germany
	DE_DE	DE	W3	OP_ED 1141	Germany	German_Germany	
	DE_LI	DE	W3	OP_ED 1141	Liechtenstein	German_Liechtenstein	
	DE_LU	DE	W3	OP_ED 1141	Luxembourg	German_Luxembourg	
	DE_CH	DE	WB	OP_ED 1148	Switzerland	German_Switzerland	
Hungarian	HU_HU	HU	C0	OP_ED 870	Hungary	Hungarian_Hungary	Hungarian_Hungary
Spanish	ES_AR	ES	W0	OP_ED 1047	Argentina	Spanish_Argentina	Spanish_Spain
	ES_BO	ES	W0	OP_ED 1047	Bolivia	Spanish_Bolivia	
	ES_CL	ES	W0	OP_ED 1047	Chile	Spanish_Chile	
	ES_CO	ES	W0	OP_ED 1047	Colombia	Spanish_Colombia	
	ES_CR	ES	W0	OP_ED 1047	Costa Rica	Spanish_CostaRica	

		Required Media & Data Set Codes					
Language	Language Code	Lang (xx) value	Encode (yy) value	Main Encoding	Country	POSIX Value (Locale_Region)	Default Locale Value in the Configuration File
Spanish (continued)	ES_DO	ES	W0	OP_ED 1047	Dominican Republic	Spanish_DominicanRepublic	Spanish_Spain
	ES_EC	ES	W0	OP_ED 1047	Ecuador	Spanish_Ecuador	
	ES_SV	ES	W0	OP_ED 1047	El Salvador	Spanish_ElSalvador	
	ES_GT	ES	W0	OP_ED 1047	Guatemala	Spanish_Guatemala	
	ES_HN	ES	W0	OP_ED 1047	Honduras	Spanish_Honduras	
	ES_MX	ES	W0	OP_ED 1047	Mexico	Spanish_Mexico	
	ES_NI	ES	W0	OP_ED 1047	Nicaragua	Spanish_Nicaragua	
	ES_PA	ES	W0	OP_ED 1047	Panama	Spanish_Panama	
	ES_PY	ES	W0	OP_ED 1047	Paraguay	Spanish_Paraguay	
	ES_PE	ES	W0	OP_ED 1047	Peru	Spanish_Peru	
	ES_PR	ES	W0	OP_ED 1047	Puerto Rico	Spanish_PuertoRico	
	ES_ES	ES	W8	OP_ED 1145	Spain	Spanish_Spain	
	ES_US	ES	W0	OP_ED 1047	United States	Spanish_UnitedStates	
	ES_UY	ES	W0	OP_ED 1047	Uruguay	Spanish_Uruguay	
	ES_VE	ES	W0	OP_ED 1047	Venezuela	Spanish_Venezuela	
Sweden	SV_SE	SV	W6	OP_ED 1143	Sweden	Swedish_Sweden	Swedish_Sweden

** English is expected to run in all encodings. Other valid locales are supported for this encoding/language, but you must edit the configuration file in order to use those locales.

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