Installation Instructions for the SAS® System, Release 6.11, TS040 under UNIX® Environments

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Chapter 1, Introduction

This document provides installation instructions for Release 6.11 of the SAS System for UNIX environments. See the System Requirements sheet included in your SAS System installation package for specific hardware information and operating system requirements. The following systems are included in these instructions:

❏ Digital UNIX
❏ MIPS ABI v1.1 Compliant Systems, including:
    ❏ NEC EWS4800 and UP4800, Version 8.1
    ❏ Pyramid MIServer ES and Nile Server, Version 1.1.930063
    ❏ SGI Indigo, Challenge and Power Challenge, Version 5.2
    ❏ Sony News, Version 6.0.1.
❏ Intel ABI Compliant Systems, including:
    ❏ NCR System 3000 Family Machines
    ❏ Intel-based machines supporting Novell UnixWare, Release 2.0 and higher
    ❏ Intel-based machines supporting Solaris 2.4 and higher
    ❏ Sequent machines supporting DYNIX/ptx, Version 4.0.0
    ❏ Unisys machines supporting SVR4.OMP, Release 1.3.

Alert Notes may be provided with your product package. These notes contain any corrections or additions to this document. You should read the Alert Notes before installing the SAS System.

Related Publications

The following is a list of related publications that contain information you may find useful:

❏ *SAS Companion for UNIX Environments: Language, Version 6, First Edition*
❏ *SAS Companion for UNIX Environments: User Interfaces, Version 6, First Edition*
❏ *SAS Consultant's Guide : Supporting the SAS System, First Edition.*

SAS Institute provides many publications about SAS System products and how to use them on specific hosts. For a complete list of SAS System publications, you should refer to the current *Publications Catalog*. The catalog is produced twice a year. You can order a free copy of the catalog by writing to the following address:

> SAS Institute Inc.
> Book Sales Department
> SAS Campus Dr.
> Cary, NC 27513

The SAS Manager Application

The SAS Manager application is supplied with Base SAS software to help you install and maintain the SAS System in your environment. The SAS Manager primary menu contains the following options, which are briefly described:

❏ `Load Software From Media`
   installs everything included on the installation media. The configuration files are built and installation test streams are executed automatically. This option is recommended for any installation of the SAS System or SAS System maintenance.

❏ `Invoke Custom Installation and Utilities`
   contains menu items that enable you to customize your installation by selecting products, and manually configuring the SAS System. Selecting this menu item also allows you to invoke the installation test streams. Use this option only when you need to customize your installation.

   From this menu you have the following options:

   ❏ `Invoke Custom Installation Facility`
      enables you to select products to be installed and to manually configure the SAS System.

   ❏ `Invoke Product Specific Configuration`
      enables you to perform post-installation configuration for products that require additional setup. The instructions for each product requiring post-installation configuration are provided in a corresponding appendix in this document.

❑   Invoke SAS Installation Utilities

provides tools for configuring and verifying the SAS System. This facility enables you to perform the following tasks:

❑   create SAS configuration and autoexec files

❑   apply Technical Support fixes

❑   patch the SAS executable with the current installation directory (SASROOT)

❑   apply SAS SETINIT information

❑   run the SAS System installation test streams

❑   uncompress map data sets.

❑   Invoke SAS Maintenance Utilities

provides tools for promoting, staging, and deleting maintenance. Tools are also provided for managing catalogs.

❑   Exit SAS Installation Manager

exits the SAS Manager application.

Maintenance Overview

Maintenance for the SAS System is distributed periodically in the form of replacement modules and catalogs. If you are installing your SAS System for the first time and you choose the default installation, these maintenance files are automatically installed. For more detailed information and instructions on the application of maintenance, make sure to read the **Addendum to the Installation Instructions for the SAS System, Release 6.11 (TS051) for MIPS ABI and ABI+ for Intel Architecture**.

Chapter 2, Installing the SAS® System on Digital UNIX

This chapter provides instructions for installing the SAS System on Digital UNIX. Follow the steps outlined in this chapter, and then proceed to Chapter 5, "Making the SAS System Available to Users."

Extracting SAS Manager from the Tape or CD-ROM

You must extract the SAS Manager application from your distribution media before proceeding with the installation for both new systems and those requiring maintenance. This section explains how to extract the SAS Manager to begin the installation of the SAS System in the UNIX environment. You can install the SAS System in any location on the system with sufficient space. The installation requires that all SAS files exist in a directory called `sas611`, which is created for you and contains all files associated with the SAS System. SASROOT is the pathname for the location of the SAS files.

It is not necessary to have root privileges to install the SAS System. If the software is not installed as `root`, then the SAS system administrator should install the software using either the administrator's userid or a userid created for the SAS System, such as `SAS`. To complete future installs and maintenance on the SAS System, the system administrator requires read and write privileges on the SASROOT directory and its contents.

The following steps show you how to extract the SAS Manager application. Your local systems administrator should be able to provide you with assistance with your hardware configuration and site.

Notes: These instructions use `/usr/local/sas611` as the pathname for the SASROOT directory. This pathname is an example. Substitute your installation directory ending with `sas611` for this name in the instructions.

These instructions use `/dev/rmt01` as the name for a non-rewinding tape device. If you are installing from tape, verify the name of your tape device with your system administrator and substitute the correct name everywhere `/dev/rmt01` appears in the instructions.

These instructions assume a CD-ROM is mounted at `/cdrom`. If you are installing from CD-ROM and it is mounted in another location, substitute the correct location everywhere `/cdrom` appears in the instructions.

Complete the following steps:
1.   Insert the media into the appropriate drive. Make sure the tape is rewound.
           Instructions for rewinding tape media are provided under "For Local Tape Media," in
           this section.
           For Local Tape Media:

   Note: Tape media include 8 mm and 4 mm/DDS (DAT). Make sure that your
            device is a non-rewinding tape device.

            If you are using a local tape drive (a drive attached to the computer
            on which you are installing), issue the following command:

```
mt -f /dev/rmt0l rewind
```

   For CD-ROM:

   Note: This release of the SAS System supports ISO-9660
            CD-ROM and Rockridge extensions where available.

   To mount the CD-ROM, use the following command:

```
mount -rt cdfs -o noversion /dev/rz33c /cdrom
```

   Notes:

   ❏   Refer to your system documentation for the correct `device`
            name.

   ❏   Mounting and unmounting a CD-ROM device requires root
            privileges. The remainder of the install process does not.
            After mounting the CD, you can return to the standard
            privilege set.

       For Remote Tape Media:

            If you are using a remote tape drive (a drive connected to a machine
            on your network other than the machine on which you are
            installing), issue the following command where `hostname` is the
            name of the host with the tape drive, and `username` is the name
            that you need to remote-login to the host specified by `hostname`.
            You can omit `-l username` if it is the same as your current user
            name.

```
rsh hostname -1 username mt -f /dev/rmt0l rewind
```

Note: To utilize the tape drive on a remote machine, the current user on the current machine must have remote access to the userid on the remote machine. This is typically accomplished by using a `.rhosts` file in the remote user's home directory. Please see your systems administrator or system documentation for further details.

2. Change to the directory where you want the SAS System installed by issuing a command similar to the following:

```
cd /usr/local
```

3. Enter one of the following commands to extract the installation programs. When you issue the `tar` command, the SAS System creates or appends to a `./sas611` subdirectory.

For Local Tape and CD-ROM Media:

Issue the appropriate command from the table below:

MediaType	Command
Tape	`tar xf /dev/rmt01`
CD-ROM	`tar xf /cdrom/SAS_INST`

For Remote Tape Media:

Issue the following command where `hostname` is the name of the host with the tape drive, and `username` is the name that you need to remote-login to the host specified by `hostname`. You can omit `-l username` if it is the same as your current user name.

```
rsh hostname -l username -n dd if=/dev/rmt01 bs=20b \
| tar xf -
```

For more information regarding the use of the `tar` command, refer to your vendor documentation.

For Remote CD-ROM:

Issue the following command where `hostname` is the name of the host to which the CD-ROM is attached, and `username` is the name that you need to remote-login to the host specified by hostname. You can omit `-l username` if it is the same as your current user name.

```
rsh hostname -l username -n dd if=/cdrom/sas_inst \
bs=20b | tar xf -
```

Note: Depending on the remote host, `sas_inst` may need to be uppercased in the previous command.

For more information regarding the use of the `tar` command, refer to your vendor documentation.

Performing a Default Installation of the SAS System or Additional Products

A *default installation* installs everything on the installation media (tape or CD-ROM) to the current directory. If you want to select which products are installed, or have greater control over the options used, use the custom installation instructions in Appendix H, "Performing a Custom Installation of the
SAS System."

The instructions in this section are valid for new systems, product installations, and maintenance. To install the SAS System, complete the following steps:

1. Change directories to the SASROOT subdirectory by issuing a command similar to the following:

   ```
   cd /usr/local/sas611
   ```

2. Invoke the SAS Manager by typing `./sasmanager` at the prompt.

   Note: If you use `Control C (^C)` to exit the installation script, SAS Manager does not retain the information you supplied about media type and location.

3. From the SAS Manager Primary Menu, select Option 1, `Load Software From Media`.

4. You are prompted to indicate your installation media. Select `1` for tape or `2` for CD-ROM.

5. You are prompted for the location of the tape drive or CD-ROM.

   If you are installing from a local tape drive or CD-ROM, enter `local`.

   If your tape drive or CD-ROM is on a remote machine, type `remote`. You are then prompted for the hostname and a valid logname on the remote system. Type the requested information and press Return.

6. If you are installing from tape, you are prompted for a non-rewinding device name.

   If you are installing from CD-ROM, you are prompted for the pathname of the cdrom.

   Both prompts contain a default value. If the default is not correct, provide the correct pathname.

7.   You are prompted for the correct pathname for your SETINIT program. The default
        path should be correct for most installations.
        Should you need to provide an alternate pathname for the SETINIT program, be sure
        not to use `setinit.sas`. If the install detects the existence of a
        `setinit.sas` file, it will rename it and your SETINIT may not be applied
        correctly.

For Non-U.S. Customers Only
Installations outside of the United States must manually update the SETINIT
information with the paper SETINIT included with your installation materials before
continuing with the installation.

8.   You are given the chance to view the contents of the installation media. Type `Y` at
        the prompt to view the contents, or `N` to continue without viewing the contents.
9.   You are asked if you want to continue the installation. Press Return to continue, or
        type `N` at the prompt to stop the installation.

If you continue with the installation, the installation process then completes the following
tasks:
❏   installs the SAS System on the selected file system with adequate space
❏   creates the SAS configuration files `config.sas611` and `autoexec.sas`.
❏   calculates disk space for maintenance promotion if your media contain maintenance.
❏   promotes any maintenance files to the production level. The following messages are
        displayed:
   ❏   `Removing symbolic links in Maintenance Level`
   ❏   `Moving files from Maintenance Level to Production`
            `Level`
   Note: This message is displayed only if you are a *new* customer. Otherwise,
            maintenance is left at stage.
   ❏   `Removing maintenance config files, sas.maint, and`
            `maint directory`
❏   applies new SETINIT information.
❏   applies Technical Support fixes supplied with the Usage Notes.

❑   patches the SASROOT directory to the SAS executable.
This is accomplished using a tool called `patchname` that "patches" the SAS
binary with the installed directory. This allows the SAS application files to be
located by the software at initialization time.

> *Note:*   If you move the SAS System to another directory, you must run the
> `patchname` utility from the SAS Installation Utilities menu.

❑   executes the installation test streams. You will receive messages upon completion of
the test as to the validity of the installation.

The installation is now complete except for product-specific configuration. If your
installation includes products that need post-installation configuration, the Product
Configuration menu appears. Be sure to complete any necessary post-installation
configuration that is described in the corresponding product appendix in this document.

Chapter 3, Installing the SAS® System on MIPS ABI v1.1 Compliant Systems

This chapter provides instructions for installing the SAS System on MIPS ABI v1.1 compliant systems. Follow the steps outlined in this chapter, and then proceed to Chapter 5, "Making the SAS System Available to Users."

Extracting SAS Manager from the Tape or CD-ROM

You must extract the SAS Manager application from your distribution media before proceeding with the installation for both new systems and those requiring maintenance. This section explains how to extract the SAS Manager to begin the installation of the SAS System in the UNIX environment. You can install the SAS System in any location on the system with sufficient space. The installation requires that all SAS files exist in a directory called sas611, which is created for you and contains all files associated with the SAS System. SASROOT is the pathname for the location of the SAS files.

It is not necessary to have root privileges to install the SAS System. If the software is not installed as root, then the SAS system administrator should install the software using either the administrator's userid or a userid created for the SAS System, such as SAS. To complete future installs and maintenance on the SAS System, the system administrator requires read and write privileges on the SASROOT directory and its contents.

The following steps show you how to extract the SAS Manager application. Your local systems administrator should be able to provide you with assistance with your hardware configuration and site.

Notes: These instructions use /usr/local/sas611 as the pathname for the SASROOT directory. This pathname is an example. Substitute your installation directory ending with sas611 for this name in the instructions.

These instructions use /dev/abi/qic.nr as the name for a non-rewinding tape device. If you are installing from tape, verify the name of your tape device with your system administrator and substitute the correct name everywhere /dev/abi/qic.nr appears in the instructions.

These instructions assume a CD-ROM is mounted at /cdrom. If you are installing from CD-ROM and it is mounted in another location, substitute the correct location everywhere /cdrom appears in the instructions.

Complete the following steps:

1.   Insert the media into the appropriate drive. Make sure the tape is rewound.
        Instructions for rewinding tape media are provided under "For Local Tape Media," in
        this section.

        For Local Tape Media:

        Note: Tape media include 8 mm and 4 mm/DDS (DAT). Make sure that your
                  device is a non-rewinding tape device.

        If you are using a local tape drive (a drive attached to the computer
        on which you are installing), issue the following command:

        ```
        mt -f /dev/abi/qic.nr rewind
        ```

        For CD-ROM:

        Note: This release of the SAS System supports ISO-9660
                  CD-ROM and Rockridge extensions where available.

        To mount the CD-ROM, use the following command:

        ```
        mount -r /dev/scsi/sc0d6l1 /cdrom
        ```

        ❏   Refer to your system documentation for the correct `device`
                name.

        ❏   Mounting and unmounting a CD-ROM device requires root
                privileges. The remainder of the install process does not.
                After mounting the CD, you can return to the standard
                privilege set.

        For Remote Tape Media:

        If you are using a remote tape drive (a drive connected to a machine
        on your network other than the machine on which you are
        installing), issue the following command where `hostname` is the
        name of the host with the tape drive, and `username` is the name
        that you need to remote-login to the host specified by `hostname`.
        You can omit `-l username` if it is the same as your current user
        name.

        ```
        rsh hostname -l username mt -f /dev/abi/qic.nr rewind
        ```

Note: To utilize the tape drive on a remote machine, the current user on the current machine must have remote access to the userid on the remote machine. This is typically accomplished by using a `.rhosts` file in the remote user's home directory. Please see your systems administrator or system documentation for further details.

2. Change to the directory where you want the SAS System installed by issuing a command similar to the following:

```
cd /usr/local
```

3. Enter one of the following commands to extract the installation programs. When you issue the `tar` command, the SAS System creates or appends to a `./sas611` subdirectory.

For Local Tape and CD-ROM Media:

Issue the appropriate command from the table below:

Media Type	Command
Tape	`tar xf /dev/abi/qic.nr`
CD-ROM	`tar xf /cdrom/sas_inst`

For Remote Tape Media:

Issue the following command where `hostname` is the name of the host with the tape drive, and `username` is the name that you need to remote-login to the host specified by `hostname`. You can omit `-l username` if it is the same as your current user name.

```
rsh hostname -l username -n dd if=/dev/abi/qic.nr \
bs=20b | dd ibs=20b obs=20b | tar xf -
```

For more information regarding the use of the `tar` command, refer to your vendor documentation.

For Remote CD-ROM:

Issue the following command where `hostname` is the name of the host to which the CD-ROM is attached, and `username` is the name that you need to remote-login to the host specified by `hostname`. You can omit `-l username` if it is the same as your current user name..

```
rsh hostname -l username -n dd if=/cdrom/sas_inst \
bs=20b |  dd ibs=20b obs=20b | tar xf -
```
Note: Depending on the remote host, `sas_inst` may need to be uppercased in the previous command.

For more information regarding the use of the `tar` command, refer to your vendor documentation.

Performing a Default Installation of the SAS System or Additional Products

A *default installation* installs everything on the installation media (tape or CD-ROM) to the current directory. If you want to select which products are installed, or have greater control over the options used, use the custom installation instructions in Appendix H, "Performing a Custom Installation of the SAS System."

The instructions in this section are valid for new systems, product installations, and maintenance. To install the SAS System, complete the following steps:

1. Change directories to the SASROOT subdirectory by issuing a command similar to the following:

   ```
   cd /usr/local/sas611
   ```

2. Invoke the SAS Manager by typing `./sasmanager` at the prompt.
   Note: If you use `Control C` (`^C`) to exit the installation script, SAS Manager does not retain the information you supplied about media type and location.

3. From the SAS Manager Primary Menu, select Option 1, `Load Software From Media`.

4. You are prompted to indicate your installation media. Select `1` for tape or `2` for CD-ROM.

5. You are prompted for the location of the tape drive or CD-ROM.
   If you are installing from a local tape drive or CD-ROM, type `local`.
   If your tape drive or CD-ROM is on a remote machine, type `remote`. You are then prompted for the hostname and a valid logname on the remote system. Type the requested information and press Return.

6. If you are installing from tape, you are prompted for a non-rewinding device name.
   If you are installing from CD-ROM, you are prompted for the pathname of the cdrom.
   Both prompts contain a default value. If the default is not correct, provide the correct pathname of the device.

7. You are prompted for the correct pathname for your SETINIT program. The default path should be correct for most installations.
   Should you need to provide an alternate pathname for the SETINIT program, be sure **not** to use `setinit.sas`. If the install detects the existence of a `setinit.sas` file, it will rename it and your SETINIT may not be applied correctly.

For Non-U.S. Customers Only

Installations outside of the United States must manually update the SETINIT information with the paper SETINIT included with your installation materials before continuing with the installation.

8.   You are given the chance to view the contents of the installation media. Type `Y` at the prompt to view the contents, or `N` to continue without viewing the contents.

9.   You are asked if you want to continue the installation. Press Return to continue, or type `N` at the prompt to stop the installation.

If you continue with the installation, the installation process then completes the following tasks:

❑   installs the SAS System on the selected file system with adequate space

❑   creates the SAS configuration files `config.sas611` and `autoexec.sas`.

❑   calculates disk space for maintenance promotion if your media contain maintenance.

❑   promotes any maintenance files to the production level. The following messages are displayed:

   ❑   `Removing symbolic links in Maintenance Level`
   ❑   `Moving files from Maintenance Level to Production Level`

   Note: This message is displayed only if you are a *new* customer. Otherwise, maintenance is left at stage.

   ❑   `Removing maintenance config files, sas.maint, and maint directory`

❑   applies new SETINIT information.

❑   applies Technical Support fixes supplied with the Usage Notes.

❑   patches the SASROOT directory to the SAS executable.

   This is accomplished using a tool called `patchname` that "patches" the SAS binary with the installed directory. This allows the SAS application files to be located by the software at initialization time.

   Note: If you move the SAS System to another directory, you must run the `patchname` utility from the SAS Installation Utilities menu.

❑   executes the installation test streams. You will receive messages upon completion of the test as to the validity of the installation.

The installation is now complete except for product-specific configuration. If your installation includes products that need post-installation configuration, the Product Configuration menu appears. Be sure to complete any necessary post-installation configuration that is described in the corresponding product appendix in this document.

Chapter 4, Installing the SAS® System on Intel ABI Compliant Systems

This chapter provides instructions for installing the SAS System on Intel ABI compliant systems. Follow the steps outlined in this chapter, and then proceed to Chapter 5, "Making the SAS System Available to Users."

For Solaris 2.4 Customers Only
Prior to using the OSF/Motif interface on a Solaris 2.4 operating system, a symbolic link must be created in `/usr/lib` named `libX11.so.5.0` pointing to `/usr/openwin/lib/libX11.so.4`. Submit the following command to create the link:
```
%su
#cd /usr/lib
#ln -s /usr/openwin/lib/libX11.so.4 libX11.so.5.0
```

Extracting SAS Manager from the Tape or CD-ROM

You must extract the SAS Manager application from your distribution media before proceeding with the installation for both new systems and those requiring maintenance. This section explains how to extract the SAS Manager to begin the installation of the SAS System in the UNIX environment. You can install the SAS System in any location on the system with sufficient space. The installation requires that all SAS files exist in a directory called `sas611`, which is created for you and contains all files associated with the SAS System. SASROOT is the pathname for the location of the SAS files.

It is not necessary to have root privileges to install the SAS System. If the software is not installed as `root`, then the SAS system administrator should install the software using either the administrator's userid or a userid created for the SAS System, such as `SAS`.   To complete future installs and maintenance on the SAS System, the system administrator requires read and write privileges on the SASROOT directory and its contents.

The following steps show you how to extract the SAS Manager application. Your local systems administrator should be able to provide you with assistance with your hardware configuration and site.

Note: These instructions use `/usr/local/sas611` as the pathname for the SASROOT directory. This pathname is an example. Substitute your installation directory ending with `sas611` for this name in the instructions.

These instructions use `/dev/rmt/ctape1` as the name for a non-rewinding tape device. If you are installing from tape, verify the name of your tape device with your system administrator and substitute the correct name everywhere `/dev/rmt/ctape1` appears in the instructions.

These instructions assume a CD-ROM is mounted at `/cdrom`. If you are installing from CD-ROM and it is mounted in another location, substitute the correct location everywhere `/cdrom` appears in the instructions.

Complete the following steps:

1.   Insert the media into the appropriate drive. Make sure the tape is rewound. Instructions for rewinding tape media are provided under "For Local Tape Media," in this section.

For Local Tape Media:

Note: Tape media include 8 mm and 4 mm/DDS (DAT). Make sure that your device is a non-rewinding tape device.

If you are using a local tape drive (a drive attached to the computer on which you are installing), issue the following command:

```
mt -f /dev/rmt/ctape1 rewind
```

For CD-ROM:

Note: This release of the SAS System supports ISO-9660
           CD-ROM and Rockridge extensions where available.

To mount the CD-ROM, use one of the following commands:

Platform Type	Mount Command
Intel ABI	`mount -F cdfs -r /dev/cd0 /cdrom`
Intel ABI on NCR	`mount -F cdfs -ol,ro /dev/cd0 /cdrom`

Notes:

❑   These device names may not be as listed above for all sites.
     Verify the name of your tape device with your system
     administrator.

❑   Refer to your system documentation for the correct `device`
     name.

❑   Mounting and unmounting a CD-ROM device requires root
     privileges. The remainder of the install process does not.
     After mounting the CD, you can return to the standard
     privilege set.

For Remote Tape Media:

If you are using a remote tape drive (a drive connected to a machine on your network other than the machine on which you are installing), issue one of the following commands where `hostname` is the name of the host with the tape drive, and `username` is the name that you need to remote-login to the host specified by `hostname`, and `rewind_command` is the same as previously defined for a local tape drive. You can omit `-l username` if it is the same as your current user name.

Platform Type	Command
Intel ABI on Novell, Solaris, and Unisys	`rsh hostname -l username \` `rewind_command /dev/rmt/ctape1 rewind`
Intel ABI on NCR	`remsh hostname -l username \` `rewind_command /dev/rmt/ctape1 rewind`
Intel ABI on Sequent	`resh hostname -l username \` `rewind_command /dev/rmt/ctape1 rewind`

Note: To utilize the tape drive on a remote machine, the current user on the current machine must have remote access to the userid on the remote machine. This is typically accomplished by using a `.rhosts` file in the remote user's home directory. Please see your systems administrator or system documentation for further details.

2. Change to the directory where you want the SAS System installed by issuing a command similar to the following:

```
cd /usr/local
```

3. Enter one of the following commands to extract the installation programs. When you issue the `tar` command, the SAS System creates or appends to a `./sas611` subdirectory.

For Local Tape and CD-ROM Media:

Issue the appropriate command from the table below:

Platform Type	Media Type	Command
Intel ABI on Novell, Solaris, Unisys, and NCR	Tape	`tar xf dev/rmt/ctape1`
Intel ABI on Sequent	Tape	`tar xof /dev/rmt/ctape1`
Intel ABI on Novell, Solaris, Unisys, and NCR	CD-ROM	`tar xf /cdrom/sas_inst`
Intel ABI on Sequent	CD-ROM	`tar xof /cdrom/sas_inst`

For Remote Tape Media:

Issue one of the following commands where `hostname` is the name of the host with the tape drive; `username` is the name that you need to remote-login to the host specified by `hostname`. You can omit `-l username` if it is the same as your current user name.

Platform Type	Command
Intel ABI on Novell, Solaris, and Unisys	`rsh hostname -l username -n dd\` `if=/dev/rmt/ctape1 bs=20b	tar xf -`
Intel ABI on NCR	`remsh hostname -l username -n dd\` `if=/dev/rmt/ctape1 bs=20b	tar xf -`
Intel ABI on Sequent	`resh hostname -l username -n dd\` `if=/dev/rmt/ctape1 bs=20b	tar xof -`

For more information regarding the use of the `tar` command, refer to your vendor documentation.

For Remote CD-ROM:

Issue one of the following commands where `hostname` is the name of the host with the tape drive; `username` is the name that you need to remote-login to the host specified by `hostname`. You can omit `-l username` if it is the same as your current user name.

Platform Type	Command
Intel ABI on Novell, Solaris, and Unisys	`rsh hostname -l username -n \` `dd if=/cdrom/sas_inst bs=20b	tar xf` `-`
Intel ABI on NCR	`remsh hostname -l username -n \` `dd if=/cdrom/sas_inst bs=20b	tar xf` `-`
Intel ABI on Sequent	`resh hostname -l username -n \` `dd if=/cdrom/sas_inst bs=20b	tar xof` `-`

Note: Depending on the remote host, `sas_inst` may need to be uppercased in the previous command.

For more information regarding the use of the `tar` command, refer to your vendor documentation.

Performing a Default Installation of the SAS System or Additional Products

A *default installation* installs everything on the installation media (tape or CD-ROM) to the current directory. If you want to select which products are installed, or have greater control over the options used, use the custom installation instructions in Appendix H, "Performing a Custom Installation of the
SAS System."
The instructions in this section are valid for new systems, product installations, and maintenance. To install the SAS System, complete the following steps:
1.   Change directories to the SASROOT subdirectory by issuing a command similar to the following:

      `cd /usr/local/sas611`
2.   Invoke the SAS Manager by typing `./sasmanager` at the prompt.
      Note: If you use `Control C` (`^C`) to exit the installation script, SAS Manager does not retain the information you supplied about media type and location.
3.   From the SAS Manager Primary Menu, select Option 1, `Load Software From Media`.
4.   You are prompted to indicate your installation media. Select `1` for tape or `2` for CD-ROM.
5.   You are prompted for the location of the tape drive or CD-ROM.
      If you are installing from a local tape drive or CD-ROM, enter `local`.
      If your tape drive or CD-ROM is on a remote machine, type `remote`. You are then prompted for the hostname and a valid logname on the remote system. Type the requested information and press Return.
7.   You are prompted for the correct pathname for your SETINIT program. The default path should be correct for most installations.

Should you need to provide an alternate pathname for the SETINIT program, be sure **not** to use `setinit.sas`. If the install detects the existence of a `setinit.sas` file, it will rename it and your SETINIT may not be applied correctly.

For Non-U.S. Customers Only
Installations outside of the United States must manually update the SETINIT information with the paper SETINIT included with your installation materials before continuing with the installation.

8.   You are given the chance to view the contents of the installation media. Type `Y` at the prompt to view the contents, or `N` to continue without viewing the contents.

9.   You are asked if you want to continue the installation. Press Return to continue, or type `N` at the prompt to stop the installation.

If you continue with the installation, the installation process then completes the following tasks:

❏   installs the SAS System on the selected file system with adequate space

❏   creates the SAS configuration files `config.sas611` and `autoexec.sas`.

❏   calculates disk space for maintenance promotion if your media contain maintenance.

❏   promotes any maintenance files to the production level. The following messages are displayed:

    ❏   `Removing symbolic links in Maintenance Level`
    ❏   `Moving files from Maintenance Level to Production Level`

    Note: This message is displayed only if you are a *new* customer. Otherwise, maintenance is left at stage.

    ❏   `Removing maintenance config files, sas.maint, and maint directory`

❏   applies new SETINIT information.

❏   applies Technical Support fixes supplied with the Usage Notes.

❏   patches the SASROOT directory to the SAS executable.
This is accomplished using a tool called `patchname` that "patches" the SAS binary with the installed directory. This allows the SAS application files to be located by the software at initialization time.

    Note: If you move the SAS System to another directory, you must run the `patchname` utility from the SAS Installation Utilities menu.

❏   executes the installation test streams. You will receive messages upon completion of the test as to the validity of the installation.

The installation is now complete except for product-specific configuration. If your installation includes products that need post-installation configuration, the Product Configuration menu appears. Be sure to complete any necessary post-installation configuration that is described in the corresponding product appendix in this document.

Chapter 5, Making the SAS® System Available to Users

Once you have installed the SAS System, you need to make it available to your users. You can use either of the following two methods to accomplish this task:

❏ Edit each user's shell startup scripts so that the SASROOT directory is included in the search path.

Note: Commands used to set your path environment variable may vary from these examples.

For Bourne Shell users, change the following line in `.profile`:

```
PATH=/bin:/usr/bin:/usr/local/bin:.
```

to read:

```
PATH=/bin/usr/bin:/usr/local/bin:/usr/local/sas611:.
```

❏ Make a link to the SAS command (`sas`) to a directory that is already in the search path by issuing a command similar to the following:

```
ln -s /usr/local/sas611/sas /usr/bin/sas
```

If you have staged maintenance, you should make a link to access the staged maintenance (`sas.maint`) by issung a command similar to the following:

```
ln -s /usr/local/sas611/sas.maint /usr/bin/sas.maint
```

Configuring the SAS System

Now that you have installed the SAS System, you should perform the configuration tasks described in this section. These include:

❏   the Support Application
❏   the man pages
❏   the maps data sets.

In addition, you can modify your default configuration file.

The Support Application is a menu-driven interface for the SAS Notes and sample libraries. Refer to *SAS Consultant's Guide: Supporting the SAS System, First Edition* for more information on the support application.

To invoke the application, run the script file `support` found in the `/usr/local/sas611/sas_notes` subdirectory, or include the program `usage.sas` into the program editor of display manager and submit the statements. The program `usage.sas` is found in the `/usr/local/sas611/sas_notes` subdirectory.

Release 6.11 includes *manual pages* (referred to as "man" pages) that should be installed. Refer to your system documentation for information on how to install new man pages. The man pages are in the directory `/usr/local/sas611/utilities/man`.

The maps provided on the distribution tape have been compressed to reduce the amount of disk space required to install them. All compressed map data sets have a `.Z` extension. If you want to use the maps, you must first decompress them. This can be accomplished through the SAS Manager in the SAS Installation Utilities menu.

You may want to modify the default `config.sas611` file found in `/usr/local/sas611`. However, you can run the SAS System using the default configuration file. Refer to *SAS Companion for UNIX Environments: Language* for information on how to customize the `config.sas611` file for your site's needs.

Invoking SAS Software

To invoke the SAS System, change directories to your home directory, or to the directory from which you want to invoke the SAS System by entering the following command:

        `/usr/local/sas611/sas`

If your system administrator has made the SAS System available, you can just type `sas`.

Running the SAS System with the X Window System

Release 6.11 of the SAS System includes a user interface based on the X Window system. On most systems, the SAS System functions correctly and completely without altering the files that manage the interface. However, if you want to customize the interface, these files allow you to do that.

The directory `/usr/local/sas611/X11/bitmaps` contains the files for the various bitmaps used with the SAS System. Most sites will probably not need these. Bitmaps are used as icons in various SAS System products and are compiled into the SAS System when it is built.

Some sites, however, may prefer to load the files for these bitmaps at run-time instead of using the built-in bitmaps. This can be done by setting the `SAS.loadSASIcons` X resource to `True`.

The OSF/Motif interface to Release 6.11 of the SAS System makes an attempt to recognize what type of X server the interface is displayed on so that the proper key definitions can be established. Many X servers can be recognized by the vendor string supplied with the server. You can examine this string with the `xdpyinfo` client.

Many of the files in `/usr/local/sas611/X11/resource_files` contain the definitions used for the various X servers. You do not need to do anything with these files. However, should you want to customize the keys for an X server, you may find these files useful as a starting point.

The file `/usr/local/sas611/X11/resource_files/Resource_Defaults` documents the default values given to the SAS application resources that do not vary for different servers. Again, this file does not need to be installed, but is provided as a reference for those wanting to do their own customization of these interfaces.

For more information on the OSF/Motif interface, refer to Chapter 3, "Using the OSF/Motif Interface to the SAS System," in *SAS Companion for UNIX Environments: User Interfaces*.

The XKeysymDB file

Some sites will need to update the `XKeysymDB` file when they install Release 6.11 of the SAS System. This section explains what this file is, who needs to update it, and how to update it.

The `XKeysymDB` file is a database of X keysym names, and is used by the OSF/Motif Interface to the SAS System, and many other X clients. Your site will already have a version of this file. However, it may not contain all of the vendor-defined keysym names that are used with the OSF/Motif Interface to the SAS System. The SAS version of the `XKeysymDB` file includes the keysyms defined by the various X server vendors, as well as the virtual keysyms used by OSF/Motif.

Sites running the Solaris operating system can find this file in
`$OPENWINHOME/lib/XKeysymDB`.   If OpenWindows has been installed in the default
location, this path is `/usr/openwin/lib/XKeysymDB`.   Sites not running Solaris can
find this file in `/usr/lib/X11/XKeysymDB`.

Updating the XKeysymDB file

You need to install the Release 6.11 version of this file if you see warnings containing the
phrase `unknown keysym` when you execute this release of the SAS System.
Users can define the `XKEYSYMDB` environment variable to point to this version of the file.
X clients, including the SAS System, can then use the new version of this file instead of the
system version.

Using the XKeysymDB File

You can use the SAS System Release 6.11 version of the `XKeysymDB` file in either of the
following ways:

❏　　to replace the existing `XKeysymDB` file. (You must have root permission to
perform this task.) The following explains the commands necessary to perform this
task. When you enter the commands, replace the symbols `$SASROOT` and
`$LIBDIR` with the directory names used on your system.
The `$SASROOT` symbol indicates the directory where Release 6.11 of the SAS
System is installed.
The `$LIBDIR` symbol indicates the directory containing the `XKeysymDB` file.
For most systems, it is `/usr/lib/X11`.
Once you have determined the values for these symbols, enter the following
commands:

```
cd $LIBDIR
mv XKeysymDB XKeysymDB.old
cp $SASROOT/X11/resource_files/XKeysymDB .
```

If the new `XKeysymDB` file was installed correctly, you should no longer see any
messages about `unknown keysyms` when you run Release 6.11 of the SAS
System.

❏　　to define the `XKEYSYMDB` environment variable to point to this version of the file.
X clients, including the SAS System, can then use this one instead of the system
version.

For example, if you have the SAS System, Release 6.11 installed in
`/usr/local/sas611,` and you are using the C-Shell, you can define the
environment variable with the following command:

```
setenv XKEYSYMDB
/usr/local/sas611/X11/resource_files/XKeysymDB
```
If you are using the Bourne or Korn shells, you can issue the following command:

```
XKEYSYMDB=/usr/local/sas611/X11/resource_files/XKeysymDB
export XKEYSYMDB
```

Running the SAS System on Asynchronous Devices

Changes have been made to the files associated with running on ASCII terminals to
accomodate the new products in Release 6.11 of the SAS System. There are also many
changes in the terminfo addendum source files and terminfo tools in this release. These new
files should be used by those sites running Release 6.11 of the SAS System. These changes
support new products available with Release 6.11 and add support for new terminals. The
modifications to the addendum source files and tools include the addition of declarations of
control keys for the keys window, and a new required capability called 'deviceid' which is
used to identify the main terminal name in compiled addendum files using an alias (4105
instead of tek4105 - uses deviceid=tek4105). These updates are required to support new
products or devices in Release 6.11. For more information on the changes to the terminfo
addendum source files , refer to Chapter 3, "Using the OSF/Motif Interface to the SAS
System," in *SAS Companion for UNIX Environments: User Interfaces*.

Notes :

❑ IBM 3151 terminals:
   When using an IBM 3151 terminal, make sure `Control C ( ^C )` is
   not used in a `stty` setting. The IBM 3151 emits a `^C` as the last byte of
   each function key sequence. The operating system will use the `^C` if it is
   used in a `stty` setting. For instance, if `intr` is set as `^C`, SAS will
   be interrupted when you press a function key.

❑ Wyse 50 terminals:
   When using a Wyse 50 terminal, do not use `Control A (^A )` in a
   `stty` setting because it is used by the terminal as the first byte of all
   function key sequence emitted. Using `^A` in a `stty` setting may cause
   the function keys to be ignored.

❏   Frame and SAS/INSIGHT software:
     Neither of these are supported running on an ASCII terminal. These are
     only supported on UNIX devices supporting full windowing systems
     (X Windows, and so on.).

❏   Gwindow support:
     Gwindow support is offered on the following devices: Tek4105, Tek4205,
     VT286, VT330, and VT340.

Chapter 6, The Directory Structure of the SAS® System

The following subdirectories are created when the SAS System is installed:

Note: The `$SASROOT` symbol indicates the directory where Release 6.11 of the SAS System is installed.

`SASROOT/sasexe`
  contains the executable SAS software files for all of your products.

`SASROOT/sashelp`
  contains the SAS help files and catalogs.

`SASROOT/sasmsg`
  contains the SAS message files.

`SASROOT/saspgm`
  contains miscellaneous files for several products.

`SASROOT/sasautos`
  contains the SAS macro files.

`SASROOT/X11`
  contains bitmaps, X resource files, and SAS native help files.

`SASROOT/terminfo`
  contains terminfo files for running the SAS System on ASCII-based terminals.

`SASROOT/maps`
  contains the map data sets if you have SAS/GRAPH software.

`SASROOT/misc`
  contains miscellaneous files such as product-specific online documentation, scripts for use with SAS/CONNECT and SAS/GRAPH drivers.

`SASROOT/samples`
  contains the Sample Library programs.

`SASROOT/sastest`
  contains the installation test stream programs.

SASROOT/utilities
> contains three subdirectories. `bin` contains useful tools such as the `patchname` command, `cleanwork`, `untic`, `unticadd`, and so on; `man` contains the SAS man pages that you can make available on your system; and `src` contains source code examples for SAS/SHARE authentication routines.

SASROOT/sas_notes
> contains the Technical Support application as well as usage note information.

SASROOT/maint
> creates a complete directory tree identical to SASROOT, which includes all of the maintenance that has been staged. If you received a maintenance tape, this directory is created when you load the maintenance.

Appendix A, Post-Installation Setup for SAS/ACCESS® Software

For each SAS/ACCESS interface that you want to use at your site, you must execute an installation process specific to your Data Base Management System (DBMS). The installation process creates an image by performing a link using object files and libraries provided by the SAS/ACCESS interface and by your DBMS. Before executing the installation procedure, read this appendix so you can provide the correct information during the installation.

Note: Refer to the System Requirements document provided in your installation package to determine if the combination of your operating system and the version of your DBMS is supported by the SAS/ACCESS interface you are installing.

When to Install a SAS/ACCESS Product

If you are installing your SAS/ACCESS interface for the first time, you must always execute the SAS/ACCESS installation. If you have previously installed your SAS/ACCESS interface, there are two situations under which you may need to reinstall the software.

❏ If you have installed a new version of your DBMS, you may need to execute the SAS/ACCESS installation again to ensure that the interface uses the new version of your DBMS libraries. However, if you have upgraded to a new release of your DBMS and are not experiencing problems with your SAS/ACCESS interface, you do not need to reinstall the software.

❏ If you are installing a maintenance version of the SAS System for UNIX environments, you may have to reinstall your SAS/ACCESS interface to ensure that you receive any maintenance bug fixes. Refer to the Alert Notes in your SAS System installation package, and read any that are for your particular SAS/ACCESS interface. If you must reinstall, there will be an Alert Note describing this.

Overview of Installing a SAS/ACCESS Product

Installing SAS/ACCESS software is a menu-driven process. To invoke the SAS/ACCESS installation main menu, complete the following steps:

1. Select `Invoke Custom Installation and Utilities` from the SAS installation main menu.
2. Select `Invoke Product Specific Configuration` from the SAS System Custom Installation and Utilities menu.
3. Select `SAS/ACCESS Installation` from the Product Specific Configuration menu.

You may also see the following two menus during your SAS/ACCESS installation:

❑ The Select Destination Media menu appears if you have not already encountered this menu elsewhere in the SAS System installation process. For more information about this menu, refer to "Performing a Custom Installation of the SAS System" in Chapter 2, "The SAS Manager Application."

❑ The Select Production/Staged Maintenance Level menu lets you install SAS/ACCESS interfaces at either the 6.11 production level, or the 6.11 staged maintenance level. This menu appears only when it is appropriate.   This menu does not appear for promoted maintenance. For more information about staged and promoted maintenance, refer to "Maintenance Overview," in Chapter 2, "The SAS Manager Application."

Every menu allows you to go back to the previous menu and to get help from the online Help system. The selections you make, and the information displayed are logged to the general SAS installation log file.

The installation program determines the operating system at your site. If it is unable to determine it, you are prompted to select the operating system for your site.

The SAS/ACCESS Interface Selection menu is the main installation menu. It displays the names of available SAS/ACCESS interfaces, from which you select the one that you want to install. Before beginning the installation process, you should know the following information about the DBMS you selected:

❏ the version of the DBMS installed on your system, which is required due to incompatibilities between DBMS versions. If you choose a version of the DBMS other than the one you have installed, the installation will fail or the SAS/ACCESS interface will give unpredictable results.

❏ the DBMS root directory, which is required so that the installation procedure can find the DBMS libraries that are required for linking the SAS/ACCESS product.

After you select the interface you want to install, the next menu lists the various DBMS versions supported on your operating system. You must select the appropriate one for your site. You are then prompted for the DBMS root directory. A default value obtained from a DBMS-specific environment variable is provided.

After you provide the requested information, the SAS/ACCESS interface is linked with the on-site DBMS libraries. If the link is successful, the new image is tested. For the test to run successfully, the environment variables required by the DBMS must be set to the proper values.

Installing the SAS/ACCESS Interface to INGRES

To successfully install the SAS/ACCESS Interface to INGRES, you must have access to INGRES either through a server or client installation.

The SAS/ACCESS Interface to INGRES is supported on the Digital UNIX operating system. Refer to the System Requirements document provided in your installation package to find the exact release supported by SAS/ACCESS.

Complete the following steps to install the SAS/ACCESS Interface to INGRES:

1.   Select `SAS/ACCESS interface to INGRES` from the SAS/ACCESS interface menu.

2.   Enter the INGRES root directory.
     A default value is displayed. This value is the value of the environment variable `II_SYSTEM`. If `II_SYSTEM` is not assigned a value, no default is displayed, and you are required to type in the path to the INGRES root directory. The installation application sets `II_SYSTEM` to the path that you specify.

3.   Review your selections and enter `Y` (Yes) or `N` (No).
     All the INGRES related selections that you have made are displayed, allowing you to review your selections before linking.

     ❏   Enter `N` at the continue prompt if you specified the wrong INGRES root directory. You are returned to the SAS/ACCESS interface selection menu so that you can make your selections again.

     ❏   Enter `Y` at the continue prompt if you are satisfied with all your selections. This starts the linking process. The message `Please wait` is displayed. On Solaris systems, `ranlib executing` appears prior to the linking.

     If the link is not successful, you are notified about the failure. The most common cause for link failure is missing object files or libraries. In this case, the name of the module that could not be found is displayed. If it is a missing INGRES library, make sure that you specified the correct INGRES root directory value.

4.   After successful linking, the image is tested by invoking the SAS System. If the test
         is successful, you are notified that the SAS/ACCESS Interface to INGRES has
         installed successfully. You can either go back to the previous menu or select another
         SAS/ACCESS interface to install.
         If the testing is not successful, you can be notified of any of the following problems:

❏   the SAS System fails at invocation
         This can be caused by a problem with your SAS System installation.
❏   unable to invoke INGRES
         The INGRES products required for your configuration may not be installed
         correctly, or the environment for INGRES is not set correctly.
❏   some other problem that is specific to your site.
         If you are having problems, look at the SAS log file of the test program for
         more information. The path and name of the log file are displayed.

Installing the SAS/ACCESS Interface to ORACLE

The SAS/ACCESS Interface to ORACLE is supported on the MIPS ABI and Digital UNIX
operating systems. Refer to the System Requirements document provided in your installation
package to find the exact releases supported by SAS/ACCESS software under the different
systems.

Note: To run the SAS/ACCESS Interface to ORACLE at your site, you must define the
          environment variable SASORA to be V6 for an ORACLE Version 6 server
          database, or V7 for an ORACLE Version 7 server database. If you do not set this
          variable correctly, errors are returned from the SAS System. For example, the
          following C shell command must be executed when you want to use the
          SAS/ACCESS Interface to ORACLE to access an ORACLE7 server:

```
setenv SASORA V7
```

Complete the following steps to install the SAS/ACCESS Interface to ORACLE:
1. Select `SAS/ACCESS interface to ORACLE` from the SAS/ACCESS interface menu.
2. Select a version of ORACLE.
    The SAS/ACCESS Interface to ORACLE is capable of supporting ORACLE Version 7 servers. Due to incompatibilities between releases, you are asked to be specific about which release you are running. Refer to the Systems Requirement document in your installation package to find out which releases of ORACLE are supported.
3. Enter the ORACLE root directory.
    After you select a release of ORACLE, you are prompted for the ORACLE root directory. A default value is displayed. This value is the value of the environment variable `ORACLE_HOME`. If `ORACLE_HOME` is not assigned a value, a default is not provided and you are required to type in the path to the ORACLE root directory.
4. Review your selections and enter `Y` (Yes) or `N` (No).
    All of the ORACLE related selections that you have made are displayed, allowing you to review your selections before continuing with the linking.
    ❑ Enter `N` at the continue prompt if you selected a wrong release or specified the wrong ORACLE root directory. You are returned to the SAS/ACCESS interface selection menu so that you can make your selections again.
    ❑ Enter `Y` at the continue prompt if you are satisfied with all your selections. This starts the linking process. The message `Please wait` is displayed. On Solaris systems, `ranlib executing` appears prior to linking.
    If the link is not successful, you are notified about the failure. The most common cause for link failure is missing object files or libraries. In this case, the name of the module that could not be found is displayed. If it is a missing ORACLE library, make sure that you specified the correct ORACLE root directory value.
5. After successful linking, the image is tested by invoking the SAS System. If the test is successful, you are notified that the SAS/ACCESS Interface to ORACLE has installed successfully. You can either go back to the previous menu or select another SAS/ACCESS interface to install.

If the testing is not successful, you can be notified of any of the following problems:
❑   the SAS System fails at invocation
        This can be caused by a problem with your SAS System installation.
❑   unable to invoke ORACLE
        The ORACLE products required for your configuration may not be installed
        correctly, or the environment for ORACLE is not set correctly.
❑   some other problem that is specific to your site.
If you are having problems, look at the SAS log file of the test program for more
information. The path and name of the log file are displayed.

Output of a Sample SAS/ACCESS Interface Installation

The following is the output from a sample installation of the SAS/ACCESS Interface to
ORACLE7 Server Release 7.2.2.3, executed on a SGI system. Start the SAS installation
process by typing sasmanager in the SASROOT directory.

```
$ sasmanager

        SAS System Installation Manager

Menu conventions: * means default; ( ) around an item means
it's not selectable.

Prompting conventions: [ ] indicates the default.

You can quit this script at any time by typing ^C (Control-C).

For more information, see the SAS System Installation Manual.

Wed Feb 08 11:59:22 EST 1995
```

```
SAS System Installation Manager:

* 1. Load Software From Media...
  2. Invoke Custom Installation and Utilities...
  3. Exit SAS Installation Manager
(Enter h for help)
Action ? [1] 2 <RETURN>


SAS System Custom Installation and Utilities:
* 1. Invoke Custom Installation Facility...
  2. Invoke Product Specific Configuration...
  3. Invoke SAS Installation Utilities...
  4. Invoke SAS Maintenance Utilities...
  5. Go Back
(Enter h for help)
Action ? [1] 2 <RETURN>


Product Specific Configuration:

* 1. SAS/ACCESS Installation
  2. Go Back
(Enter h for help)
Action ? [1] <RETURN>
```

SAS/ACCESS Installation

```
The installation will ask several questions and then link the
SAS/ACCESS interface with the DBMS libraries installed at your
site.

If you have never installed your SAS/ACCESS interface before,
you must perform this installation before you can use
SAS/ACCESS.

If you have previously installed your SAS/ACCESS interface and
have recently upgraded to a new release of your DBMS, you do
not have to reinstall the SAS/ACCESS interface unless you are
experiencing problems with your SAS/ACCESS application.

If you are installing a maintenance release of the SAS System,
it may not be necessary to reinstall your SAS/ACCESS interface.
Refer to Appendix B, SAS/ACCESS Interface Installation in the
'Installation Instructions, SAS System, 6.09 Release, under
UNIX' for more information.

Select the SAS/ACCESS interface you want to install:

* 1. SAS/ACCESS Interface to ORACLE
  2. SAS/ACCESS Interface to INGRES
  3. SAS/ACCESS Interface to SYBASE
  4. SAS/ACCESS Interface to INFORMIX
  5. SAS/ACCESS Interface to DB2
  6. Go back to previous menu
(Enter h for help)
Action ? [1] 1 <RETURN>


Installing SAS/ACCESS Interface to ORACLE at Production level
```

```
Select the version of ORACLE you are using:

* 1. ORACLE Version 7: Release 7.2.2.3 or later
  2. Go back to previous Menu
     (Enter h for help)
     Which option? [1] 1 <RETURN>
     What is the DBMS root directory?
     [/usr/local/dbi/oracle/v7/7.016.6.1] <RETURN>


SAS/ACCESS Interface to ORACLE for IABI


The values you selected:
 ORACLE Version 7              : Release 7.2.2.3 or later
 ORACLE root Directory        : /usr/local/dbi/oracle/v7/7.2.2.3
Continue? [Y/N]? [Y] <RETURN>
Linking......Please wait !

The on-site link for SAS/ACCESS Interface to ORACLE was
successful.


Beginning to test SAS/ACCESS Interface to ORACLE...
Executed '/usr3/sasarw/sas611/sastest/testorl'.
SAS/ACCESS Interface to ORACLE tested successfully.
```

Appendix B, Post-Installation Setup for SAS/CONNECT® Software

This appendix describes the use of the sample script files shipped with SAS/CONNECT software, lists supported software for access methods available for UNIX environments, and outlines configuration procedures for those access methods that require additional configuration.

TELNET and TCP/IP are the access methods supported for UNIX environments and their derivatives. Refer to *SAS/CONNECT Software: Usage and Reference, Version 6, Second Edition* for complete details on the access methods supported by other systems.

Storing and Locating SAS/CONNECT Script Files

Several sample script files are shipped with SAS/CONNECT software. SAS/CONNECT software uses these script files to establish a connection to a remote SAS session. A new configuration option, `SASSCRIPT,` points to the location of the SAS/CONNECT script files. The `SASSCRIPT` option is used by SAS/ASSIST software and can be used by user-written SCL applications.

For UNIX environments, the script files are installed into the `!SASROOT/MISC/CONNECT` directory by default. The following line has been included in the `CONFIG.SAS` file in order to define the default script file location:

```
-SASSCRIPT !sasroot/misc/connect
```

If you want to move the script files to another directory, you must edit the `CONFIG.SAS` file and update the `SASSCRIPT` option with the new directory location.

System Configuration for the TELNET and TCP Access Methods

Note: You must perform the tasks described in this section before you can use TELNET or TCP.

Using the TELNET or TCP access method, a UNIX user can connect to any supported platform that meets the following criteria:

❏   is on the TCP/IP network

❏   is running a release of the SAS System with the corresponding access method support

❏   has SAS/CONNECT software licensed.

With the TCP access method, one of the supported TCP/IP products must be installed on any node, local or remote, that you want to use with SAS/CONNECT software.

For the TELNET access method, a supported TCP/IP package must be installed on the local node. The remote node does not have to run a supported TCP/IP product, but must run some TCP/IP product to make the node accessible using TELNET. Both the TCP/IP and TELNET access methods require line-mode TELNET on the remote host in order for a connection to be established through SAS/CONNECT software.

The TELNET and TCP/IP access methods supplied with SAS/CONNECT software run with the TCP/IP services that are native to the UNIX operating system. There are no additional requirements.

Appendix C, Installing the Linkable Graphics Driver

The linkable graphics device driver makes calls to user-supplied "CalComp compatible" plotting subroutines. These subroutines are normally provided by the plotter vendor when the plotter is purchased. Other compatible subroutine libraries may be available from third party vendors. The subroutine library should contain routines named `PLOT`, `PLOTS`, `SYMBOL`, and `NEWPEN` (or `TONE`). If your site has a device that uses these vendor-supplied subroutines, and you want to support it with SAS/GRAPH software, you need additional documentation. This documentation is available from the Technical Support Division at SAS Institute.

Appendix D, Post-Installation Setup for SAS/SHARE® Software

The information in this appendix is also included on the installation tape as
`SASROOT/misc/share/README`.

Set SAS System Option to Specify the TCP/IP Access Method

The SAS system option `COMAMID=` specifies which access method SAS/SHARE software
should use for communication. Specify `COMAMID=TCP` to use the TCP/IP access method,
which is the only access method available for use with this release of SAS/SHARE software
for UNIX environments. This option is specified typically in the SAS System configuration
file, by the SAS/SHARE software consultant.

Configuration for the TCP/IP Communications Method

Each SAS server that runs on a network node must be defined as a service in the file
`/etc/services` on that node. Each entry in this file associates a service name with the
port number and protocol used by that service. An entry for a SAS server has the following
form
```
<server name>     <port number>/tcp       # <comments>
```
The server name must be 1-8 characters in length. The first character must be a letter or
underscore; the remaining seven characters can include letters, digits, underscores, the dollar
($) sign, or the at (@) sign.

An entry for a server whose name is MKTSERV might look like the following:
```
mktserv      5000/tcp     # SAS server for Marketing and Sales
```
The server name is specified with the `SERVER=` option in the LIBNAME statement and the
OPERATE procedure in user and server administrator programs.

Appendix E, Using Syncsort with the SAS® System for UNIX® Environments

Syncsort is a sort routine that may be purchased from Syncsort, Inc. You can use Syncsort as an alternate sorting algorithm to the one provided by the SAS System. To use Syncsort with the SAS System, complete the following steps:

1.   Install the Syncsort library on your system by following the instructions provided by Syncsort, Inc.
2.   Make the Syncsort library available to the SAS System by following the instructions in the following section, "Making Syncsort Available."
3.   Submit an options statement in a SAS session to specify the Syncsort routine by following the instructions in the section "Using Syncsort in a SAS Session."

Making Syncsort Available

You must place the Syncsort library in one of the directories searched by default, such as `/usr/lib`, **or** set the environment variable `LD_LIBRARY_PATH` to the directory containing the Syncsort library. Set this environment variable before invoking the SAS System, as shown in the following example:

```
setenv LD_LIBRARY_PATH /usr/local/syncsort/lib
```

Note: The above example uses C-Shell syntax, therefore the syntax will vary for Bourne Shell and K-Shell users.

Using Syncsort in a SAS Session

Once Syncsort is available, use the `SORTPGM=HOST` or `SORTPGM=BEST` options statements to tell the SAS System when to use the Syncsort routine.

Note: The options statements throughout this section specify the syntax to submit to the SAS System. You can also specify these options as command line options and options in the `config.sas` file. Refer to *SAS Companion for UNIX Environments: Language* for more information on setting options.

Submit one of the following options statements in a SAS session:

❑   `OPTIONS SORTPGM=HOST;`
         tells the SAS System to always use Syncsort.

❑   `OPTIONS SORTPGM=BEST;`
         tells the SAS System to choose the best sorting method in a given situation,
         the SAS System sort or Syncsort.

There are two options that define how the SAS System chooses the "best" sort
algorithm. The following examples use the syntax of an options statement that needs
to be submitted to the SAS System:

❑   `-sortcut <n>` , where `n` specifies a number of observations.

         `OPTIONS SORTPGM=BEST SORTCUT=500;`
         `-sortcut` tells the SAS System to choose Syncsort if the number of
         observations is greater than the number you specify, and to use the SAS
         System sort if the number of observations is equal to or less than the
         number specified.

❑   `-sortcutp <size>[kKmM]`, where `<size>` specifies a file size in
         either kilobytes or megabytes.

         `OPTIONS SORTPGM=BEST SORTCUTP=40M;`
         `-sortcutp` tells the SAS System to choose Syncsort if the size of the
         data being sorted exceeds the size you specify, and to use the SAS System
         sort if the size of the data is equal to or smaller than the size you specify.

If these options are not defined or these options are set to zero, the SAS System
chooses the SAS System sort routine. If you specify both options and either
condition is met, the SAS System chooses the Syncsort routine.

Syncsort creates all temporary files in the `SASWORK` directory. You can change this
directory by using the option `sortdev <dir>`, where `<dir>` is the directory in which
you want the temporary files to be created. For example, submit the following statement if
you want the temporary files to be created in `/tmp`:

         `OPTIONS SORTPGM=BEST SORTCUT=500 sortdev="/tmp";`

The Syncsort option `sortanom t` prints timing and resource information after each phase
of a sort. The following is an example of this option:

         `OPTIONS SORTPGM=HOST SORTANOM=t;`

Appendix F, Post-Installation Setup for SAS/TUTOR® Software

SAS/TUTOR software can be invoked directly using the `SASTUTOR` script in the `!SASROOT` directory. However, this script needs to be modified so that the `!SASROOT` directory is correctly identified for your site.

To modify the script, locate the line that begins with `SASROOT=`. Change the value so that it specifies the name of the SASROOT directory for your site.

Invoke SAS/TUTOR software to be sure it is properly configured by typing `sastutor` at a command prompt.

Appendix G, Using SETINIT to Extend SAS® Software Products

When you receive the SAS System, the licensing information is pre-initialized for Base SAS software and any additional software you purchased. When you contract to renew the license on the SAS System or to add new products, the paper SETINIT provides you with the licensing information.

Note: You should not change the licensing information unless you are logged in under the userid of the owner of the SAS System. You designated who owns these files when you installed the SAS System.

Creating the SETINIT.SAS File

1.   Create or modify the `setinit.sas` file.

   Note: The `setinit.sas` file that was used to apply your initial SETINIT is located in the SASROOT directory. You can use this file as a template.

   The following is an example of the `setinit.sas` file:

```
PROC SETINIT RELEASE='6.11';
SITEINFO NAME='YOUR COMPANY NAME'
SITE=123456789
OSNAME='PLATFORM NAME'
RECREATE
BIRTHDAY='DDMMMYY'd
EXPIRE='DDMMMYY'D
PASSWORD=123456789;
CPU MODEL='  ' MODNUM='  ' SERIAL='  ';
EXPIRE 'BASE' INSIGHT'
'DDMMMYY'D;
SAVE;
RUN;
```

3.   After you have created the `setinit.sas` file, invoke the SAS System by issuing the following command:

```
sas -setinit setinit.sas
```

4.   Check the `setinit.log` file for the following lines:

❑   NOTE: Siteinfo data have been updated.

indicates that the SETINIT applied correctly.

❑   NOTE: No update of the secondary setinit since either
           the password was omitted or zero, or the SEC statement
           was omitted.

indicates that the secondary SETINIT information was not updated.
This is normal.

For More Information

If you need more information about applying your SETINIT, refer to *SAS Companion for UNIX Environments: Language, Version 6, First Edition.*
If you have questions about your SETINIT data, please call our Customer Services Department at (919) 677-8003 between 9:00 a.m. and 8:00 p.m. Eastern Standard Time.
If you encounter problems applying your SETINIT, please call our Technical support Division at (919) 677-8008 between 9:00 a.m. and 8:00 p.m. Eastern Standard Time. Ask the Technical Receptionist for a UNIX consultant. Please have your site number ready when you call.

Appendix H, Performing a Custom Installation of the SAS® System

A *custom installation* allows you to choose which products are installed, and which options are used to install them. The instructions in this section are valid for new systems, product installations, and maintenance.

To install the SAS System, complete the following steps:

1. Change directories to the SASROOT subdirectory by issuing a command similar to the following:

   ```
   cd /usr/local/sas611
   ```

2. Invoke the SAS Manager by typing `./sasmanager` at the prompt.
3. From the SAS Manager Installation menu, select Option 2 `Invoke Custom Installation and Utilities`.
   The SAS System Custom Installation and Utilities menu appears.
4. Select Option 1 `Invoke Custom Installation Facility`.
   The SAS System Custom Installation Facility menu appears.
5. Select Option 1 `Select Source Media`.
   Be prepared to answer the following questions:
   - ❏ Is the source for this installation tape or CD-ROM?
   - ❏ Is the tape/CD-ROM local or remote? (For example, is the device attached to the local computer or another computer on the network).
     If your media are remote, you are also asked for the hostname and the username on the remote system.
   - ❏ What is the pathname of the device? (For a tape, the path might be `/dev/xxx`. For a CD-ROM, the pathname might be the mounted directory, such as `/cdrom`).

6. Select Option 2 `Select Destination Media`.
    You have the choice of installing the SAS System to any of the following:
    ❑   `Disk Image`
        Choose this option when your destination is a disk.
    ❑   `Distribution Disk Image`
        Choose this option when you want to build an image of the SAS System for
        distribution, where each product is stored in an archive format.
    ❑   `Tape` (includes QIC, 8 mm, and 4 mm)
        Choose this option when your destination is a tape.
        Be prepared to answer the following questions:
        ❑   Is the source for this installation tape or CD-ROM?
        ❑   Is the tape/CD-ROM local or remote? (Is the device attached to
            the local computer or another computer on the network?)
            If your device is remote, you are asked for the hostname and the
            username on the remote system.
        ❑   What is the pathname of the device? (For a tape the path might be
            `/dev/xxx`. The tape **must** be a no-rewind device. For a CD-
            ROM the pathname might be the mounted directory, such as
            `/cdrom`).
    Note: You may want to install the SAS System to more than one destination on
             your system. Normally, you complete an entire installation, including
             product-specific customizations, before installation to a different
             destination. SAS Manager remembers the destination between invocations.
             Therefore, when running SAS Manager to load to a destination that is
             different than the previous one, you must choose `Select
             Destination Media` from the SAS Custom Installation Facility to
             specify the new destination.
7. Select Option 3 `Show Current Installation Settings` to show the
    current SASROOT directory as well as the source and destination settings. This
    includes remote information if either the source or destination is remote. This step is
    optional.
8. Select Option 4 `View media contents` to display the contents of the source
    media. This step is optional.

9.   Select Option 5 `Install All Products from Source to Destination` to install all of the products and files, or Option 6 `Perform Custom Installation` to install only those files you select to install.
For new installations, you are asked to supply the correct pathname for your SETINIT program. The default path should be correct for most installations.
If you select Option 5, the message `Installing SAS Products` is displayed. Selecting this option is not the same as performing a default installation because the SAS Utilities are not automatically run for you.
Alternatively, you can select Option 6 `Custom installation` to select the products you want to install. For information about each option on the Custom Installation menu, see "The Custom Installation Menu" later in this chapter.

10.   After the products are installed, select the `Go Back` option until you return to the SAS System Custom Installation and Utilities menu.

11.   From the SAS System Custom Installation and Utilities menu, select Option 2 `Invoke Product Specific Configuration` to display a list of products that need additional setup. Choose each product by its corresponding number and follow the directions. See the appropriate appendix for additional information on product-specific configurations.
Note: If none of the products you installed require additional setup, select `Go Back` from the Product Specific Configuration menu to return to the Custom Installation and Utilities menu.

12.   From the SAS System Custom Installation and Utilities menu, select Option 3 `Invoke SAS Installation Utilities`. After running this option, you must perform the tasks represented by Options 1 and 3 on this menu to complete the installation.
❑   Option 1 creates a `config.sas611` and `autoexec.sas` file.
❑   Option 2 applies any special Technical Support fixes that are supplied with the SAS Notes. Select this option to unload special, high priority fixes that are currently not available via the normal maintenance channel. Utilize this option when you are directed to do so by SAS Institute Technical Support.
❑   Option 3 runs `patchname`, a utility that patches the SAS executable with the current installation.

❑   Option 4 applies the SAS SETINIT information. Before you can apply the SETINIT information, you must merge the delta catalogs at the staged maintenance level by completing the following steps:

      1.   Select Option 7 to return to the main menu.

      2.   Select Option 4 `Invoke SAS Maintenance Utilities`.

      3.   Select `Merge Delta Catalogs at Staged Maintenance Level` from the Maintenance Utilities menu.

      4.   Select `Create SAS Config file for Staged Maintenance Level` to create a configuration file at the stage level.

      5.   Select `Go Back` to return to the SAS System Custom Installation and Utilities menu. You can now select Option 3 to invoke the SAS Installation Utilities and then Option 4 to apply the SAS SETINIT information.

For more information about SETINIT, see Appendix F, "Using SETINIT to Extend SAS Software Products," or refer to *SAS Companion for UNIX Environments: Language, Version 6, First Edition.*

❑   Option 5 runs the System Integrity test to verify that the SAS System installed correctly. This step is optional, but recommended. You will receive messages upon completion of the test as to the validity of the installation.

❑   Option 6 uncompresses the maps data sets. This step is optional.

❑   Option 7 returns you to the main menu.

13.   If your tape contains maintenance, select Option 4 `Invoke SAS Maintenance Utilities` from the SAS System Custom Installation and Utilities menu. The Maintenance Utilities menu appears. Perform the following steps from this menu to complete your installation:

      1.   Select `Merge Delta Catalogs at Staged Maintenance Level` to merge the delta catalogs found at the staged maintenance level, into the full catalogs at the production level, placing the result at the stage level.

      2.   Select `Create SAS Config file for Staged Maintenance Level` to create a configuration file at the stage level.

3.   Select `Check Catalogs in Production Level for User`
         `Modified Entries` to see if you have modified any of the catalogs at
         the current production level. This utility only checks catalogs that currently
         have staged maintenance.

The following options are also available on the Maintenance Utilities menu. Select
the options that are appropriate for your site.

❏   `Invoke SAS Installation Tests on Staged Maintenance`
        `Level`
        runs the installation test streams at the stage level.
❏   `Promote Staged Maintenance to Production Level`
        promotes the maintenance at the stage level to the current production level.
❏   `Delete Staged Maintenance`
        deletes the staged maintenance level, the `sas*.maint` file, the
        `config.sas611*.maint` files and the `maint/*` directory.
❏   `Go Back`
        takes you back to the SAS System Custom Installation and Utilities menu.

You have completed the installation of the SAS System.

The Custom Installation Menu

This section explains each of the options on the Custom Installation menu. This menu
appears when you select Option 6 as described in Step 9 in the previous section, "Performing
a Custom Installation of the SAS System."

The Custom Installation menu contains the following options:

❏   `Choose Licensing Files`
❏   `Choose SAS Notes`
❏   `Choose International Support`
❏   `Choose Products`
❏   `Choose Samples`
❏   `Choose Maps`
❏   `Clear All Selections`
❏   `Preview Selections`
❏   `Install Current Selections`
❏   `Go Back`

Each of these options is described in the following sections.

Choose Licensing Files

Select Option 1 `Licensing Files` to install the SAS System licensing files. These files are required to run the SAS System.
If you are installing the SAS System for the first time, or installing a new product, you must install the licensing files. Failure to do so may result in errors when running the installation test streams, and errors when attempting to execute the SAS System.

Note: If you are installing maintenance or usage notes, or if you are re-installing a product, you may not need to re-install the licensing files.

Choose SAS Notes

Select Option 2 `Choose SAS Notes` to install the SAS Notes. SAS Notes are supplied by Technical Support and come with an application that allows you to view them. SAS Notes provide the following information:
❑   a list of known problems
❑   explanations of work-arounds for known problems
❑   general information for running SAS software
❑   help for troubleshooting error messages.

Choose International Support

Select Option 3 `Choose International Support` to display the available languages that you can choose to install. International support is available only for sites receiving a language other than English on their media.

Choose Products

Select Option 4 `Choose Products` to select the products you want to install. The following menu is displayed:

```
Custom Selection of Products:
* 1. Select All Products
  2. Select Individual Products
  3. Clear Current Product Selections
  4. Go Back
   (Enter h for help)
  Action ? [1]
```

The following is a brief explanation of each option on the menu:

`Select All Products`
>   selects all of the products on the installation media for installation.

`Select Individual Products`
>   prompts you for the number of products you want to install. Leave a blank between
>   each number. You can also specify ranges of numbers such as `1-19`, indicating
>   you want to install products 1 through 19.

`Clear Current Product Selections`
>   clears all of your selections, enabling you to select different products.

`Go Back`
>   returns you to the Custom Selection Install menu.

Choose Samples

Select Option 5 `Choose Samples` to choose the samples that you want to install by
product. The following menu is displayed:

```
Custom Selection of Samples:
* 1. Select All Samples
  2. Select Individual Samples
  3. Clear Current Sample Selections
  4. Go Back
   (Enter h for help)
  Action ? [1]
```

The following is a brief explanation of each option on the menu:

`Select All Samples`
>   selects all of the samples on the installation media for installation.

`Select Individual Samples`
>   prompts you for the number of samples you want to install. Leave a blank between
>   each number. You can also specify ranges of numbers such as `1-19`, indicating
>   you want to install samples 1 through 19.

`Clear Current Sample Selections`
>   clears all of your selections, enabling you to select different samples.

`Go Back`
>   returns you to the Custom Selection Install menu.

Choose Maps

Select Option 6 `Choose Maps` to choose which map data sets to install. The following
menu is displayed when you select this option:

```
        Custom Selection of Maps:
      * 1. Select All Maps
        2. Select Individual Maps
        3. Clear Current Map Selections
        4. Go Back
         (Enter h for help)
        Action ? [1]
```

The following is a brief explanation of each option on the menu:

`Select All Maps`

> selects all of the maps on the installation media for installation.

`Select Individual Maps`

> prompts you for the number of maps you want to install. Leave a blank between
> each number. You can also specify ranges of numbers such as `1-19`, indicating
> you want to install maps 1 through 19.

`Clear Current Map Selections`

> clears all of your selections, enabling you to select different maps.

`Go Back`

> returns you to the Custom Selection Install menu.

Clear All Selections

Select Option 7 `Clear All Selections` to clear all current product, sample, maps,
and SAS Notes selections. This option also removes the selection of licensing files.

Preview Selections

Select Option 8 `Preview Selections` to display a list of the files you have selected for
installation.

Install Current Selections

Select Option 9 `Install Current Selections` when you are satisfied with your
selections and are ready to install the SAS System.
For new installations, you are asked to supply the correct pathname for your SETINIT
program. The default path should be correct for most installations.

Go Back

Select Option 10 `Go Back` to return to the SAS Custom Installation Facility.

Government Notice

If you are a government site, a file containing information specific to your site is extracted during the product installation phase of the installation procedure. The file can be located in:

```
/usr/local/sas611/misc/notice
```

Note: It is important that you read this file, and that you make other users at your site aware of this information. To have the government notice automatically display in the SAS log, issue the following UNIX command:

```
cat /usr/local/sas611/misc/notice >> /usr/local/sas611/misc/news
```

This command appends the government notice file onto the existing news file. The default configuration file uses the `-news` option to specify that this file is displayed in the log after each invocation of the SAS System.