
Lotus

Lotus 1-2-3 *for* UNIX System V

Installation and Administration Guide

Contents

Installation and Administration Guide

Preface

The *1-2-3 for System V Installation and Administration Guide* explains how to install Lotus *1-2-3 for System V* on a UNIX/XENIX system and how to make it available to users. This guide contains the following chapters:

- Chapter 1 "Introduction"

  Provides information on the different versions of *1-2-3 for System V* and tips on using this manual.

- Chapter 2 "Preparing for Installation"

  Explains hardware, software, and operating system requirements for installing *1-2-3 for System V.*

- Chapter 3 "Installing 1-2-3: Step-By-Step"

  Details the 1-2-3 installation procedure and explains options that you need to consider as you install the product.

- Chapter 4 "Configuring 1-2-3"

  Explains how to use the Lotus **`setup123`** utility to select printers, graphics drivers, and default program options for users on a system.

- Chapter 5 "Printing in 1-2-3"

  Explains how to customize the way 1-2-3 prints files nad how to use the Lotus **`prsetup123`** utility to create and install printer-interface files.

- Chapter 6 "Installing DataLens Drivers"

  Explains how to install drivers that let you access external database files from within 1-2-3.

- Appendix A "Troubleshooting"

  Provides additional hints on configuring your UNIX/XENIX system for optimal performance.

NOTE The instructions provided in this manual will help you complete tasks necessary for the installation or administration of 1-2-3. If you are new to system administration, however, you may want to keep your UNIX/XENIX documentation nearby for reference.

1-2-3 and UNIX/XENIX Operating Systems

Lotus *1-2-3 for System V* is designed to operate on Intel 80386 PCs running versions of the UNIX/XENIX System V operating systems. Specifically, Lotus certifies that *1-2-3 for System V* will run on the following UNIX/XENIX operating systems:

- Santa Cruz Operations System V/386 3.2.0
- Santa Cruz Operations XENIX System V 2.3

These versions of the UNIX/XENIX System V operating systems differ in some of their administrative, display, and networking options, but share a common architecture so that the same executable program runs on each version of the operating system. Your copy of *1-2-3 for System V* contains one set of executable programs and drivers that works on all of these System V implementations.

The *1-2-3 for System V Installation and Administration Guide* focuses primarily on procedures and configurations shared by these versions of UNIX/XENIX System V. Where different utilities or services on one operating system version prevent the general procedure from working properly, the variant procedure is differentiated with one of the following notes:

SCO UNIX Note	variant procedure for SCO System V/386 3.2.0
SCO XENIX Note	variant procedure for SCO XENIX System V 2.3

The following documents may be useful depending upon the type of UNIX/XENIX System V operating system you are using. Note that you usually do not need to refer to this supporting documentation. Most system administrators can install and set up *1-2-3 for System V* by following the directions in this manual.

- *SCO System V/386 System Administrator's Reference*
  Provides instructions on using SCO UNIX to install and administer software and hardware systems and networks.
- *SCO System V/386 User's Reference*
  Contains information on using UNIX commands, miscellaneous features, and file formats.
- *SCO System V/386 Tutorial*
  Contains information on logging on and off, using the *vi* and *ed* editors, and using common UNIX commands.
- *SCO System V/386 Operating System User's Guide*
  Contains an overview of tasks that users routinely perform and provides information on mounting DOS file systems.
- *SCO System V/386 Operating System System Administrator's Guide*
  Contains networking commands and sections on printing, configuration files, and performance tools.
- *SCO XENIX System V Operating System User's Reference*
  Contains information on using XENIX commands, miscellaneous features, and file formats.
- *SCO XENIX System V Operating System User's Guide*
  Contains an overview of tasks that users routinely perform.
- *SCO XENIX System V Operating System Installation and Maintenance*
  Contains information on how to install and maintain system software.
- *SCO XENIX Tutorial*
  Contains information on logging on and off, using the system editors, and using common XENIX commands.

Chapter 1
Introduction

This guide explains how to install and configure Lotus *1-2-3 for System V* and how to make it accessible to other users on a system. It covers the following:

- **Installation:** transferring the Lotus system files from diskettes into a base directory on your hard disk
- **Configuration:** specifying how and with what devices *1-2-3 for System V* operates

To install the *1-2-3 for System V* software from your diskettes to your hard disk, you run the **`custom`** installation utility. The **`custom`** utility extracts the 1-2-3 installation files that contain the installation procedure (or "script") from the diskette. The installation script makes installing 1-2-3 easy to follow. The installation procedure is almost identical for single-user or multiuser systems. If you have installed other applications software on your system, the procedure outlined in these pages will be familiar. If this is your first experience installing software on a System V system, you may want to have your System V documentation available for further explanations of installation utilities and options.

This guide assumes that you are familiar with your system, a text editor, and with the operating characteristics of your UNIX/XENIX System V system.

For a more detailed overview of *1-2-3 for System V* and for instructions on using 1-2-3 in the System V environment, see *Introducing 1-2-3 for System V* included in the 1-2-3 user documentation set (Volume 1).

Versions of 1-2-3 for System V

1-2-3 for System V runs on the following UNIX/XENIX operating systems:

- Santa Cruz Operations (SCO) UNIX System V/386, version 3.2.0
- Santa Cruz Operations (SCO) XENIX System V, version 2.3

For each UNIX/XENIX system, there are three Editions of *1-2-3 for System V.* Read the descriptions below and make sure that you have the correct Edition for your needs. Lotus distributes *1-2-3 for System V* in three Editions differentiated by licensing and documentation:

- **Single-user Edition**: This version provides the software on 5.25" or 3.5" diskettes for a single-user system. It includes one license and one complete set of documentation, which includes one user set and one system administration set. Use this Edition on an individual system at sites where only one user needs to use 1-2-3 at one time.
- **Multi-user Edition**: This version provides the software on 5.25" or 3.5" diskettes for a multiuser system. It includes a license for ten users and one complete set of documentation, which includes one user set and one system administration set. Use this Edition on a system at sites where up to ten users need to use 1-2-3 at the same time.
- **Documentation Edition**: This version provides one set of user documentation. This version is not installable and does not include the distribution media or the *Installation and Administration Guide* that you are now reading.

Troubleshooting Tips

Although the installation procedure is designed to be easy to follow, problems can sometimes arise. In these cases, the system displays a message on the screen describing the problem. If you have a problem understanding the message or you are in doubt about how to handle the problem, read the accompanying documentation, access the online manual pages (UNIX), or use the Help command (XENIX) for more information. Also, check your operating system manuals for information.

If you run into difficulties that are not covered in Chapter 3 "Installing 1-2-3" or in Chapter 4 "Configuring 1-2-3," then determine whether the problem is with the 1-2-3 software or with the operation of your UNIX/XENIX system. Also, read Appendix A "Troubleshooting" for more information. Contact the appropriate sales representative or service provider.

Chapter 2
Preparing for Installation

If you want to use *1-2-3 for System V*, you can install either the Multi-user Edition or the Single-user Edition. Use the Multi-user Edition if you want multiple 1-2-3 users at your site. Only the Multi-user Edition allows multiple users on a system to access the same 1-2-3 system files at the same time. Use the Single-user Edition when only one user needs to use 1-2-3 at one time.

Before installing the software, complete these tasks:

- Check the installation package for the required media and documentation. (See the following checklist.)
- Make sure your system meets the system requirements before you install the 1-2-3 software. (See the following sections "Hardware Requirements" and "Software Requirements" for more information.)

Checking the Installation Package

If you are reading this manual, you have opened your installation package. Your package contains these items:

- 1-2-3 *Installation and Administration Guide* (this manual)
- Release media (six 5.25" or five 3.5" diskettes)
- Release Notes
- One set of user documentation (Volume 1 and Volume 2)

If you have these items, you can install this software on an appropriate system. If you are missing any part of the installation package, contact your sales representative.

Hardware Requirements

To make sure 1-2-3 can operate on your system after installation, your system must meet some basic system requirements explained below.

- **Architecture:** Your system must have an Intel 80386 processor. *1-2-3 for System V* will not operate on Intel 80286 or 80486 systems. You can also add an optional 80387 floating-point coprocessor to your system. The coprocessor enhances the overall performance of 1-2-3.
- **Memory**: The user system running 1-2-3 must have at least 4 megabytes of internal memory. Note that performance improves considerably if your system has 8 to 10 megabytes of memory. See the table in the "Disk Space Requirements" section for optimizing system performance.
- **Removable media:** Your system must have either a 5.25" or 3.5" high-density disk drive.

Software Requirements and Options

1-2-3 for System V is closely integrated with the services and utilities provided by UNIX/XENIX System V. To ensure that 1-2-3 can fully perform on your system, the following software must be installed prior to installing 1-2-3:

- **Operating systems:** SCO UNIX System V/386, version 3.2.0 or SCO XENIX System V, version 2.3.
- **Operating system patches:** Operating system "patches" are short programs or updated versions of files that correct a problem in the operating system. 1-2-3 does not run properly if the needed patches are not installed. Check the section "Requirements Verification" at the end of this chapter for the necessary patches.

Disk Space Requirements

You need to check the available disk space for 1-2-3 files before you begin to install 1-2-3. When you install 1-2-3, the installation procedure checks for free disk space on all partitions. If you do not have enough free disk space, the installation procedure is terminated. You must reserve the following amount of disk space for 1-2-3 files when you are installing or running:

- During installation, the Multi-user and the Single-user Editions (with Datalens files) each require 20,000 blocks (10MB) of disk space. Without Datalens files, each Edition requires 13,000 blocks (6.5MB) of disk space during installation.
- After installation, the Multi-user and the Single-user Editions with DataLens files each use 15,000 blocks (7.5MB). Without Datalens files, each Edition uses 10,000 blocks (5MB) of disk space after installation.

The 1-2-3 install script uses the **`/usr/lotus`** directory as the default destination for the 1-2-3 files. During the installation procedure, you can select another *destination* directory. If you do *not* have sufficient space in the destination directory, you need to delete some files before beginning the installation procedure described in Chapter 3.

If you are installing the Single-user or the Multi-user Edition, be aware that you need additional disk space for each user's worksheet files. For more information on estimating user disk space, see your operating system manual.

If you are unsure whether you have sufficient space for storing 1-2-3, see Appendix A "Troubleshooting" for more information. To optimize your system's performance, also see Appendix A "Troubleshooting" for more information.

Administrative Requirements

To install 1-2-3 correctly, you must consider the following requirements pertaining to user and directory privileges.

- **Root privileges:** You must log in as root or **su** to root to install 1-2-3.
- **Destination directory permissions:** By default, the install script copies 1-2-3 files to a new directory under **/usr/lotus.** You can specify an alternate directory for the 1-2-3 files. On UNIX systems, the install script can create multiple levels of directories if the specified directory does not exist.

  On XENIX systems, the install script can create one directory level during installation, for example, **/sales**. If you want to install 1-2-3 in a subdirectory, for example, **/usr/work/sales**, you must create the additional directories **(/usr/work)** and set write permissions to them before you begin the installation procedure on a XENIX system.

Installing Updates

If you have not installed a previous version of 1-2-3, go to the next section "Requirements Verification" and continue reading.

If you installed an earlier version of 1-2-3 on your system and specify that the new version of 1-2-3 be installed in the same directory, the installation procedure detects that an earlier version exists. You can overwrite the earlier version during the installation procedure with the exception of the language files and the two configuration files (**.l123set** and **.l123cnf**). You create the **.l123set** and .**l123cnf** files after installing 1-2-3 on your system. These files are not installed when you install 1-2-3.

The language files determine the language that 1-2-3 displays in menus, error messages, prompts, and Help screens. Since previously installed language files are not overwritten during installation, you can install the same version of *1-2-3 for System V* with a new language and also keep the original

language files. You can then switch to a different language by running the **setup123** utility. The language files are installed in the **<dest>/lotus/123.v10** directory.

NOTE Throughout the rest of this guide, the abbreviation **<dest>** refers to the destination directory that you specify during the installation procedure. The default destination directory is **/usr**.

Lotus recommends that you manually delete previous version of 1-2-3 prior to installing the new version. To do this, you must delete all the files installed in the **lotus** tree and several files in different directories. On a XENIX system, you need to delete files in two additional directories.

Before you delete the 1-2-3 files in the **lotus** tree, make sure that your data files are in a different directory. You may want to move your data files to a new directory under **/usr** called **/usr/data**. If you use the remove command and your data files are located in the **lotus** tree, you delete all the 1-2-3 files including your data files.

To manually delete the **123** file in the **/etc/perms** directory, all the files in the **/lotus** tree, the installation files in the **/usr/tmp** directory, and the **.l123cnf** and .**l123set** files, do the following:

1. Log in as root or **su** to root.
2. Type the following at the shell prompt to remove the **123** file:

   ```
   # rm /etc/perms/123
   ```

3. Type the following at the shell prompt to find and delete all copies of the file created by the **setup123** utility:

   ```
   # find / -type f -name .l123set -exec rm -f {} \;
   ```

   All the copies of the **.l123set** files are found and deleted.

4. Type the following at the shell prompt to move to the parent directory of the **lotus** tree:

   ```
   # cd /<dest>
   ```

   If you installed 1-2-3 in the default destination directory **<dest>**, change to the **/usr** directory. The destination directory may be different on your system depending on where you previously installed 1-2-3.

5. Type the following at the shell prompt to delete all the 1-2-3 files (recursively) in the **lotus** tree (including the language files):

   ```
   # rm -rf lotus
   ```

6. Type the following at the shell prompt to delete all the 1-2-3 installation files:

   ```
   # rm -rf /usr/tmp/lotus_install
   ```

7. [**XENIX**] Type the following at the shell prompt to remove the **help** files:

   ```
   # cd /usr/lib/help
   ```

   ```
   # rm lotus123 keyedit setup123 inst_d1
   ```

NOTE Be careful how and where you use the **-rf** option with the remove command. It deletes files and directories even if they are read-only.

Requirements Verification

This section describes procedures to verify the following requirements and options for 1-2-3:

- Available operating system utilities
- System and login names
- Operating system version
- SCO UNIX Operating System Patch

Checking for Operating System Utilities

Before you can install 1-2-3, you must install the complete Run Time System (RTS) on UNIX/XENIX systems as a minimum operating system. The XENIX system also requires the **TERMINFO** extended utility before you begin to install 1-2-3. For more information on installing **TERMINFO** on your XENIX system, see your XENIX documentation.

Verifying System and Login Names

During the 1-2-3 installation procedure, you are asked to confirm or enter the following information:

- the name for the system (both Editions, but only on a UNIX system)
- the user's name (both systems, but only for Single-user Edition)
- the company name (both Editions and on both systems)

System administrators enter the name of the company where they work, for example, the ABCDE Corporation, during the installation procedure. This name is user-defined. The login name and the company name are saved and are displayed on the startup screen each time you run 1-2-3.

You can also check for the system and user names before beginning to install 1-2-3. The install script automatically retrieves the system name. You confirm the default name for your system during the installation procedure. If you want to view the name for the system, type **uname** at the shell prompt.

If you are a system administrator installing the Single-user Edition of 1-2-3, you may want to check a user's login name before you begin the installation procedure. To view a list of the login names for users on your system, enter the following at the shell prompt:

```
# cat /etc/password
```

The contents of the password file including the login names for users are displayed. Note the login name for the user who will run 1-2-3. Refer to the "Installation Procedure" section in Chapter 3 for more information.

Verifying Your Operating System Version

The version of UNIX/XENIX System V that is running on your system is displayed on your screen when you log in to the system.

NOTE If you want to allow non-root users to do graphics or terminal switching on a system running SCO UNIX System V/386 version 3.2.0, you need to apply a patch to the operating system. Call Santa Cruz Operations (SCO) Customer Support for information on the SCO UNIX 900305 operating system patch.

Installing SCO Operating System Patch for UNIX 3.2.0

You need to install the SCO UNIX 900305 operating system patch before installing *1-2-3 for System V* when you are running Santa Cruz Operations UNIX System V/386 version 3.2.0 if you want to use the following on your system:

- Graphics
- Terminal switching

Apply this patch before you install either the Single-user or Multi-user Edition of *1-2-3 for System V* on a SCO UNIX system.

See the operating system manual for instructions on installing a patch or call SCO Customer Support for more information.

Chapter 3
Installing 1-2-3 Step-By-Step

To install 1-2-3, follow the step-by-step procedure outlined in this chapter. Make sure that you read Chapter 2 for pre-installation considerations.

NOTE You can halt the installation at any time by typing CTRL-C or whatever key combination you have defined to be your software interrupt (**SIGINT**). After pressing CTRL-C, the installation is aborted and you return to the **custom** utility (UNIX) or the shell prompt (XENIX). If you use this option, you must begin the installation procedure again.

Installation Design

The Lotus 1-2-3 installation procedure is mostly automatic. The install script describes the options that you can select. If you accept the default suggestions, *1-2-3 for System V* is installed as follows:

- 1-2-3 program directories are installed under the following directory:

  /usr/lotus UNIX/XENIX System V

  (You can specify an alternate directory during installation.)

- Manual pages are installed in the following default directories:

  /usr/lotus/man SCO UNIX System V

  /usr/lib/help SCO XENIX System V

- If you selected the alternate directory during the installation procedure, the manual pages are installed in the following directory (by default):

  `/usr/man` SCO UNIX System V

  On a UNIX system, enter **`man 123`** at the shell prompt to access the 1-2-3 manual pages. On a XENIX system, enter **`help lotus123`** to access the 1-2-3 manual pages. Read the SCO documentation for more information on the **`man`** command and setting the **`MANPATH`** variable for an alternate directory.

- Most files from a previous installation of 1-2-3 are overwritten. See Chapter 2 "Installing Updates" for more information about deleting files before reinstalling. (You can also quit the installation to archive old files or install the new version in another directory.)

- At the end of the installation procedure for the Multi-user Edition, you are prompted whether you want to run the **`setup123`** configuration utility with the system default (**`-s`**) option.

If you are familiar with installing software on your system, you can run the **`custom`** installation utility, insert 1-2-3 disks when prompted, and follow the instructions displayed on the screen.

If you are not familiar with installing application software, use the detailed procedures described in the section "Installation Procedure."

Installation Overview

Before you proceed with a first-time installation, it is useful to review the principal steps and options that make up the installation procedure. The procedure itself should require approximately 15-30 minutes.

Installation Procedure	*Explanation/Action*
1. Log in to your UNIX/ XENIX system	You must be root user. Check available disk space
2. Run the **custom** utility	Enter **custom** at the shell prompt
3. Specify installation options	Confirm Lotus *1-2-3 for System V* and specific edition
4. [Optional] Install DataLens support files	Confirm installation
5. Check software requirements	Available disk space, OS version, and installation time
6. Verify operating system	Confirm SCO UNIX or XENIX
7. Select a destination directory	Confirm default or specify a new destination directory
8. [Optional] Overwrite previous version of 1-2-3	Confirm overwriting or quit installation
9. Confirm all installation options	Confirm or quit installation to specify other options
10. Insert requested volumes	Extract first volume and copy additional volumes
11. Specify system name and company	Confirm information
12. [UNIX] Confirm location of **man** pages	Confirm default or specify new location
13. Copy **123** and **setup123** to alternate directory	Specify new location
14. Review search path	Display default search path
15. [Optional] Confirm running **setup123 -s**	Configure settings in **setup123** utility
16. Exit **custom** utility	Display messages, quit custom utility, and return to shell
17. Run **setup123** and **prsetup123**	Configure **setup123** and **prsetup123** before running or printing in 1-2-3
18. [Graphics/Print] Change mode and owner	Allow graphics and printing

Depending upon the software previously installed on your system and the Edition that you are currently installing, the install script provides additional steps asking you to confirm the status of an option *before* it proceeds. In most cases, you confirm the default suggested by the install script.

NOTE If you quit the installation procedure or do not successfully install *1-2-3 for System V*, note that the installed files are not deleted from your system. You must follow the instructions for reinstallation to successfully install this software.

Each step in the installation overview is explained in detail in the following section.

Installation Procedure

Step 1: Log in to Your System

Make sure that you met the preinstallation requirements specified in Chapter 2 before you install *1-2-3 for System V*, Single-user or Multi-user Edition on a SCO UNIX/ XENIX system. Before you install *1-2-3 for System V*, the system must meet the disk space requirements specified in Chapter 2. You can log in to this system or **su** to root to install this software.

NOTE You need to log in or **su** to root to ensure write-access to specific system directories used by the 1-2-3 installation program.

While installing *1-2-3 for System V*, the install script creates directories and sets permissions assuming that you have root privileges. If you are logged into your system under the root ID, you have sufficient privileges to install *1-2-3 for System V*.

Step 2: Run the custom Utility

Versions of UNIX/XENIX System V for 80386 PCs use menu-driven installation utilities to manage the process of updating and installing software. To install the 1-2-3 files from the distribution diskettes, you need to run the SCO **custom** installation utility and specify the information it needs. You are asked to insert volume 1 several times during this step.

For this step, the UNIX and XENIX **custom** utilities are different. The XENIX installation is not screen-driven. To install 1-2-3 on a UNIX system, use the following step marked **[UNIX] Step 2**. To install 1-2-3 on a XENIX system, use the step marked **[XENIX] Step 2**.

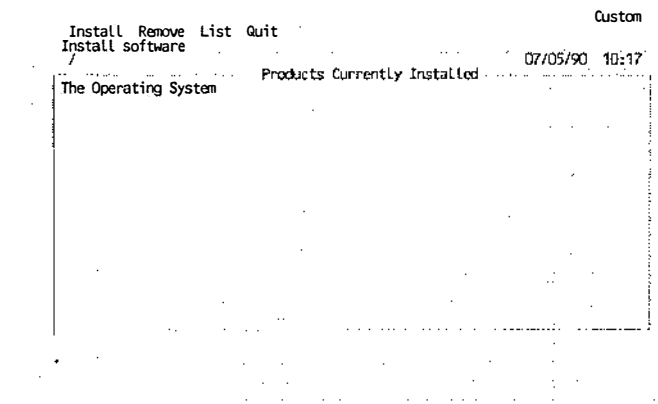
After this step, the installation procedure for UNIX and XENIX is identical until you quit. When you quit the installation procedure, you return to the **custom** main menu screen (UNIX) and to the **custom** utility (XENIX).

[UNIX] Step 2:

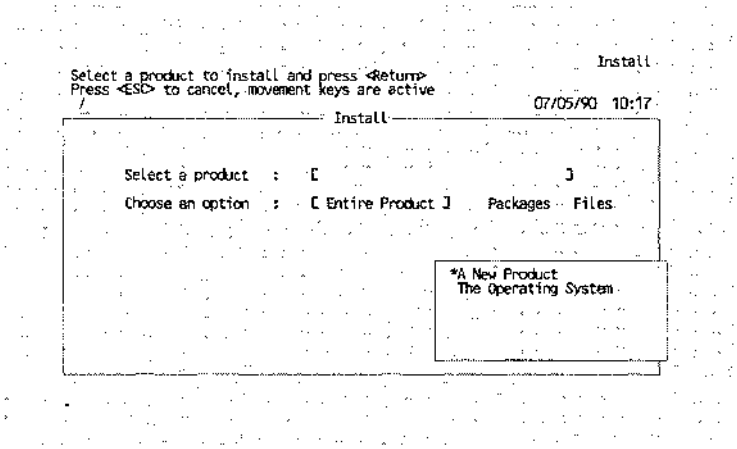
1. Type the following at the shell prompt to run the installation utility from the command line.

   ```
   # custom
   ```

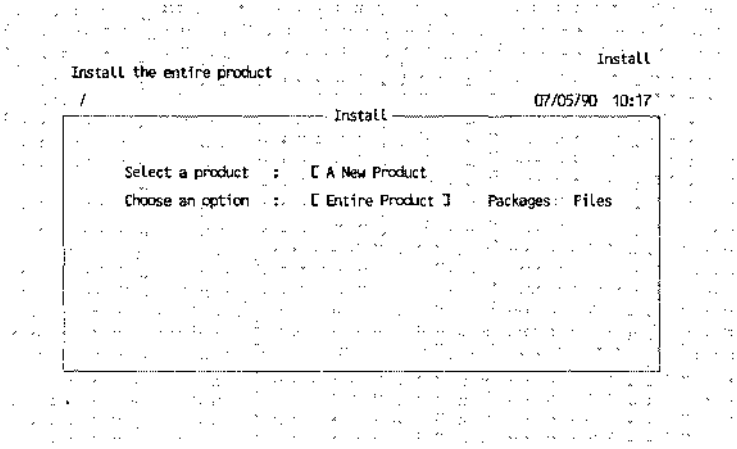
   The **custom** main menu displays your currently installed software and highlights the **Install** option. Use the arrow keys to highlight or select options in the **custom** menus.



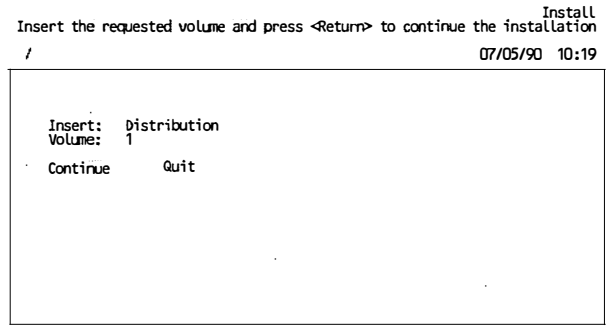
2. Press **RETURN** to select **Install**. The Install screen is displayed and **A New Product** option is highlighted.



3. Press **RETURN** to select **`A New Product.`** The **`Entire Product`** option is highlighted.



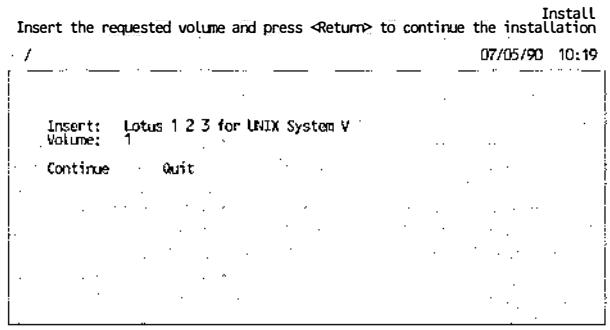
4. Press **RETURN** to select **`Entire Product.`** You are prompted to insert the first volume or diskette.



5. Insert the first distribution diskette labeled "volume 1" into the first disk drive and lock the drive door.
6. Press **RETURN** to select **Continue**. The following message appears at the top of the screen.

   Installing custom data files . . .

7. The next screen displays the name of the product that you are installing.



8. Press RETURN to select **Continue**. The following message is displayed:

```
Extracting files . . .
```

After the installation files are extracted and the install script is copied to your system disk, you can install 1-2-3 from your distribution diskettes. To continue with the installation procedure, go to step 3.

[XENIX] Step 2:

1. Type the following at the shell prompt to run the **custom** installation utility from the command line.

```
# custom
```

The **custom** main menu displays your currently installed software and the system options. The following list of options is displayed (or a similar list):

```
1. Operating System
2. Development System
3. Text Processing System
4. Add a Supported Product
Select a set to customize or enter q to quit:
```

2. Enter **4** to select **Add a Supported Product** and press RETURN to continue.

The folowing messages are displayed:

```
Installing custom data files . . .

Insert distribution volume 1 and press RETURN or
enter q to quit:
```

3. Insert the first distribution diskette labelled "volume 1" into your disk drive and lock the drive door. Press RETURN.

After the system reads the diskette, the following messages are displayed:

```
1. Install one or more packages
2. Remove one or more packages
3. List the available packages
4. List the files in a package
5. Install a single file
6. Select a new set to customize
7. Display current disk usage
8. Help
```

4. Type **1** to select **Install one or more packages** and press RETURN to continue.

   The contents of the diskette are listed as follows:

```
Name  Inst  Size    Lotus 1-2-3 for System V packages
ALL   No    218     Entire Lotus 1-2-3 for
                    System V installation files

Enter the package(s) to install or enter q to
return to the menu:
```

   Type **ALL** and press RETURN to continue. The following message is displayed:

```
Insert Lotus 1-2-3 for System V volume 1 and
press RETURN or enter q to return to the menu:
```

5. Press RETURN to continue.

   After the installation files are extracted and the install script is copied to your system disk, you can install 1-2-3 from your distribution diskettes. After you insert the first volume, continue the installation procedure with the next step.

```
Extracting files . . .
```

Step 3: Specify Installation Options

After this step, the installation procedure for UNIX and XENIX is identical until you quit. The 1-2-3 installation procedure displays an introductory message similar to the following:

```
The following product will be installed:

  Lotus 1-2-3 for System V
  . . . . . .
  Multi-user Edition Version 1.0

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  All Rights Reserved

Do you want to continue? [y/n]
```

Check the software version and edition before you continue with the installation procedure.

Type **n** and press RETURN to quit the installation procedure. Only the installation files have been extracted from the diskette at this point.

Type **y** and press RETURN to continue.

Additional text explains what the installation procedure does and prompts you to confirm that you want to continue with the installation procedure.

```
************************************************
   Lotus 1-2-3 for System V Installation

You are beginning the 1-2-3 for System V installa-
tion procedure.  You will be asked to specify a
directory (called a destination directory) where
the 1-2-3 files will be stored.

You will then be told how to modify your search
path so that you can invoke 1-2-3 without typing
the full path name of the directory.

In addition to storing the 1-2-3 files, the instal-
lation also creates the 'setup123' utility.
setup123 enables you to specify operational de-
faults for 1-2-3 users.
************************************************

Do you want to continue? [y/n]
```

Type **n** and press RETURN to quit the installation procedure.

Type **y** and press RETURN to continue.

Step 4: Install DataLens Support Files

The install script allows you to install the files that you need to build a version of 1-2-3 that works with one or more DataLens drivers. If you want to use this feature, install the DataLens Linking Kit files by typing **y** and pressing RETURN. If you do not install the DataLens files now and you want to use DataLens drivers at a later date, you must reinstall 1-2-3 to install the DataLens drivers.

```
Do you want to install the On-Site Linking Kit for
DataLens Drivers (an additional 7000 blocks of disk
space are required)? [y/n]

Enter y,n please:
```

NOTE If you run a major database application on your system, you can use the DataLens drivers distributed by database vendors to access external database files from within 1-2-3. After you obtain a DataLens driver from your database vendor, you need to run the linker to build a version of 1-2-3 that can access your external data files (see Chapter 6 for more information).

Step 5: Check the Software Requirements

The installation procedure displays a list of blocks used in each of your file systems. Make sure that you have enough free space in the directory where you want to install 1-2-3. The 1-2-3 software requires 20,000 blocks of disk space with DataLens and 13,000 blocks of disk space without the DataLens files during installation.

NOTE After installation, 1-2-3 allocates 15,000 blocks of disk space with the DataLens files installed and 10,000 blocks without DataLens installed.

The following message is displayed (the free disk space information is different for each system):

```
Here is the current free disk space for each disk
partition:
/ (/dev/root):        17258 blocks 3481 i-nodes
/u2 (dev/hd02):       22192 blocks 5411 i-nodes
13000 blocks of disk space are required to in-
stall this product.

The following are software requirements for 1-2-3
for System V version 1.0:

   To run 1-2-3 for System V version 1.0, you must
   be running System V/386 3.2.0 or XENIX System V
   2.3

Installation should take approximately: 15 minutes

Do you want to continue? [y/n]
```

Type **n** and press RETURN to quit the installation procedure.

Type **y** and press RETURN to continue.

Step 6: Verify Your Operating System

The following message indicates which operating system you are using on your system.

```
You are installing Lotus 1-2-3 for System V on
Santa Cruz Operations System V/386

Is this correct? [y/n]
```

Type **y** and press RETURN if the information is correct and you want to continue to the next step.

Type **n** and press RETURN; if this is incorrect. The following message is displayed.

```
Select the appropriate operating system.
```

If your operating system is incorrect, you must select the correct operating system from the list as the following message indicates:

```
Select your machine and operating system

(1) Santa Cruz Operations System V/386

(2) Santa Cruz Operations XENIX System V

Please enter 1,2 ->
```

Enter `1` or `2` and press RETURN to continue.

Step 7: Select a Destination Directory for Lotus 1-2-3

The installation script copies all 1-2-3 files from the distribution media to a new directory tree on the installation system. The directory under which 1-2-3 files and directories will be installed is called the **destination directory**. The destination directory contains the Lotus 1-2-3 system files.

The install script now prompts you to select a destination directory for 1-2-3 files. If you accept the directory suggested by the install script, 1-2-3 files are installed in the directory beneath the specified destination directory.

The installation screen displays this message:

```
For this system, the suggested destination
directory is:
             /usr

You may specify a different destination directory
or press RETURN to use the suggested directory.
(All files will be installed under this directory
and therefore, you must have write permission for
this directory):
```

To select the default directory, press RETURN or type in the alternate destination directory and press RETURN.

You can install 1-2-3 on any file system as long as the destination directory gives READ and EXECUTE permission to the users.

NOTE Throughout the rest of this guide, the abbreviation <dest> refers to the destination directory that you just specified. The file path <dest>/lotus, refers to the lotus subdirectories (or tree) under the destination directory and is also called the base directory.

Step 8: [Optional] Overwrite a Previous Version of 1-2-3

If you are installing 1-2-3 for the first time, you can skip this step. If you previously installed another version of 1-2-3 in the same or a different directory, please continue. If you cannot install 1-2-3 for any reason, read the reinstallation considerations in Chapter 2.

If there is another version of 1-2-3 already installed in the destination directory, the following message appears.

```
There is a pre-existing version of this software.
Some of these files will be overwritten.

Do you want to continue with installation? [y/n]
```

Type n and press RETURN to end the installation procedure.

Type y and press RETURN to continue..

One reason for installing a second version of 1-2-3 is to add a second language capability to the 1-2-3 software. If you are installing a version in another language, the install script preserves the language files of the earlier version and adds the new language files to the 1-2-3 system files. With the **setup123** utility, you can select the language that you want to use while running 1-2-3.

NOTE When you want to install different languages on a system, make sure that the software version numbers (for example, Version 1.0) for 1-2-3 are identical for any additional languages files.

Step 9: Confirm Destination Directory

The next message provides the opportunity to confirm your destination directory and to note the path for the installed copy of 1-2-3. The current release of *1-2-3 for System V* is installed in subdirectories under the **<dest>/lotus/123.v10** directory. Future releases of *1-2-3 for System V* can also be installed in the **<dest>/lotus** directory, for example, **<dest>/lotus/123.v20.**

If you installed the current version of 1-2-3 in the destination directory **/usr**, all the files for this version of 1-2-3 are installed in the directory **/usr/lotus/123.v10**. Lotus refers to the combination of the destination directory (**/usr**) and the subdirectory **lotus** as the **base directory** because the filepath **/usr/lotus** serves as the parent directory for multiple releases of 1-2-3.

The install script displays the destination directory that you selected in step 9, and prompts you to confirm continuing with installation.

```
Ready to install 1-2-3 for System V version 1.0 in
directory <dest>,

Base directory is <dest>/lotus

Is this correct? [y/n]
```

Type **n** and press RETURN to specify an alternate destination directory.

Type **y** and press RETURN to accept the current destination and base directories.

NOTE If the **custom** utility cannot find the disk drive (device) that you are using to install 1-2-3, you are prompted for the device name, for example, **/dev/rdsk/f0q15dt**. See Appendix A for more information on specifying device names.

Step 10: Insert Requested Volumes

To install the remaining diskettes (volumes), insert the appropriate volume into the specified disk drive when requested and lock the drive door. You are also prompted to remove the last diskette before you continue. The following messages are displayed:

```
Extracting software ... this should take approxi-
mately 12 minutes

-- Please insert the Lotus 1-2-3 for System V
volume 1 --
Press RETURN when ready:
```

Insert the specified volume and press RETURN. This message is repeated until the remaining volumes are copied to the system. The files on each diskette are listed on the screen as they are copied and unpacked in the directory you specified. The executable files are installed under the 1-2-3 base directory. After the last diskette is copied, the following message is displayed:

```
- - Please remove the last diskette - -
```

Step 11: Specify System and Company

The install script prompts you for the system name (both Editions, but only the UNIX system), your login name (both systems, but only the Single-user Edition), and the name of your organization (both systems and both Editions). In Chapter 2, you already checked for the system name and the login name. This information is saved and when you run 1-2-3, the login and company names are displayed in the 1-2-3 startup screen.

The following information is displayed only when you are installing 1-2-3 on a UNIX system.

```
Enter the system name of the authorized machine.
This is the only machine licensed to use this copy
of 1-2-3.  Make sure that your entry matches the
machine's system name exactly.

System name: (woody)
```

Press RETURN to accept the default system name. To select a different system name, type the alternate system name and press RETURN. The number of characters you can enter for system name is system-specific.

NOTE If you do not enter the correct system name, 1-2-3 does not execute.

The following information is displayed only when you are installing the Single-user Edition.

```
Enter the login name of the authorized user. This
will be the only user licensed to use this copy of
1-2-3. Make sure that this matches the user's login
name exactly.

Login name:
```

Type your login name, for example, **jsmith** and press RETURN. The number of characters you can enter for a user's login name is system-specific.

The following information is displayed for both Editions and systems:

```
Enter the name of your company:
```

Type the name of your company, for example, **ABCDE Corporation**. You can enter up to 50 characters on this line. You then verify if the information that you entered is correct.

```
The following information will be permanently re-
corded. Please check to make sure that it is cor-
rect.
  System name:  woody
  Login name:   jsmith
  Company:      ABCDE Corporation

Is this correct? [y/n]
```

The previous information may vary according to your system and edition.

Type **n** and press RETURN if the information is incorrect. You can then enter the correct information.

Type **y** if the information is correct and press RETURN.

Step 12: Specify Location of Man Pages on SCO UNIX only

You can specify the location of the manual pages on a SCO UNIX system only. When you need help with 1-2-3, access the specific manual pages that explain the 1-2-3 functions. If you selected an alternate location for the manual pages, specify the full path for the manual pages in your **.profile** or **.login** file, for example, **MANPATH=/usr/man**. If you installed 1-2-3 in a directory that is already in your **MANPATH** search path or use the default **man** pages directory, you do not need to modify the **MANPATH** variable.

```
Do you want to copy the manual pages to another
directory (e.g., /usr/man)? [y/n]
```

Type **n** and press RETURN to copy the files to the standard location. Continue to step 13.

Type **y** and press RETURN to copy the files to a new directory. The following message is displayed:

```
Type the name of the directory that contains the
manual pages: (/usr/man)
```

To select the default location (**/usr/man**), press RETURN.

To select an alternate directory, type the name of the alternate directory and press RETURN.

```
Do you want to delete the manual pages in the base
directory? [y/n]
```

Type **n** and press RETURN to keep two copies of the **man** pages on your system.

Type **y** and press RETURN to delete the **man** pages in the base directory (**<dest>/lotus**) and keep the **man** pages in the specified alternate directory.

Step 13: Copy 123 and setup123 to an Alternate Directory

You can specify an alternate location for **123** and **setup123** executable files. If you select an alternate location for these files, specify the full path in your **.profile** or **.login** file, for example, insert the following in your **.profile** file, **PATH=$PATH:/usr/local/bin**. If you installed **123** and **setup123** in a directory that is already in your **PATH**, you do not need to modify the **PATH** variable.

The screen clears and the following messages are displayed:

```
Creating setup123 executive . . .

Install: ****setup123 executive successfully
created ****

Do you want to copy '123' and 'setup123' commands
to another directory that is included in your
search path (e.g., /usr/bin)? [y/n]
```

Type **n** and press RETURN if you do not want to copy these files to another directory.

Type **y** and press RETURN if you want to copy the files to an alternate directory. The following message is displayed:

```
Type the name of the directory that contains the
'123' and 'setup123': (/usr/bin)
```

To select the default location (**/usr/bin**), press RETURN.

To select an alternate directory, type the name of the alternate directory and press RETURN.

Step 14: Review Search Path to 1-2-3

Before you can run 1-2-3, you must know the full directory path to the 1-2-3 files. You can then specify the full path each time you run 1-2-3 or you can include the path in the list of directories that the shell automatically searches when you execute a command. If you installed 1-2-3 in a directory that is already in your search path, you do not need to modify the search path. See the 'What's Next' section at the end of this chapter for more information.

The install script now suggests that you modify your search path so that you can invoke 1-2-3 without using the full path name. The screen clears and the following messages are displayed:

```
Install: **** Installation Completed ****

1-2-3 has been successfully installed on your sys-
tem.  After running 'setup123', you can execute 123
by typing the full path name:

 /usr/lotus/123.v10/sysV386/bin/123

or you can avoid typing the full path name by modi-
fying your search path to include the following
entry:

 /usr/lotus/123.v10/sysV386/bin

After you modify your search path, the next time
you log in to your system, you can run 1-2-3 by
typing: 123
```

At this point, if you are installing the Single-user Edition, proceed to step 16. If you are installing the Multi-user Edition, continue with the next step.

Step 15: Confirm Running setup123

The Multi-user Edition install script lets you run the **setup123** utility with the **-s** system option before the end of the installation procedure. Since you must run this utility before you can use the software, you should do so now. You can establish system defaults for devices and set global options appropriate for all users using the **-s** option with the **setup123** utility.

```
Do you want to run 'setup123 -s' now?
(Note: 'setup123 -s' must be run to set up system
     defaults prior to any users running 'setup123'
      for the first time.) [y/n]
```

Type **n** and press RETURN to quit the installation procedure and proceed to step 18.

If you choose not to run **setup123** at this time, the installation procedure reminds you that you must do so before you can run 1-2-3.

```
You can execute setup123 manually by typing:

<dest>/lotus/123.v10/sysV386/bin/setup123 -s

If your search path has been modified as described
above, you can run setup123 by typing:  setup123 -s
```

Type **y** and press RETURN to execute the **setup123 -s** utility. The following message is displayed:

```
Transferring to setup123 program . . .
```

You can now select the settings for your system using the **setup123** configuration utility. See Chapter 4 for more information about **setup123** and configuration options. After making your selections, you exit the **setup123** utility.

Step 16: Exit the Custom Utility

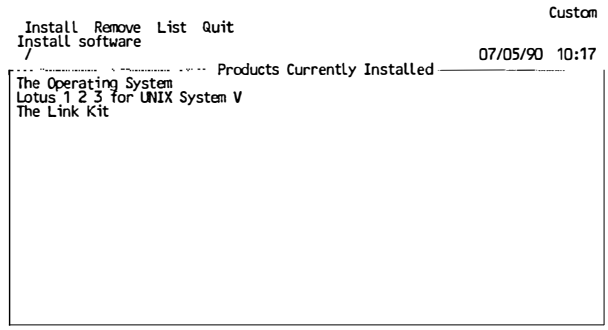
You have now completed the Single-user or the Multi-user Edition installation. The information on the screen for a UNIX and XENIX installation varies at this point; however, the steps are similar. The following message is displayed at the bottom of your screen:

```
Press any key to continue
```

Press any key on your keyboard. The following message appears on the screen:

```
Checking file permissions
```

You return to the **custom** main menu. The product name appears in the **Products Currently Installed** section.



[**XENIX**] You return to the **custom** main menu.

Press **Q** to select **Quit** and press RETURN. Select **Yes** and press RETURN. You return to the shell prompt. You have installed and configured 1-2-3 successfully.

Step 17: Run Setup123 and Prsetup123

The installation procedures for the Single-user and the Multi-user Editions of *1-2-3 for System V* are completed. If your system administrator did not run **setup123 -s** during the Multi-user Edition installation procedure, the system defaults for 1-2-3 are not configured. In that case, each user on the system must run **setup123** before starting 1-2-3.

If your system administrator did not run **setup123 -s** after the Single-user Edition installation procedure, the system defaults for 1-2-3 are also not configured. For a Single-user Edition, the licensed user can run **setup123**.

You must run **prsetup123** before you can print in 1-2-3.

Step 18: Change Mode and Owner

[Printing and Graphics] The SCO UNIX/XENIX operating systems do not allow non-root users to access the print directories or access the specific registers display graphics. You need to change the owner and mode for the **123_exe** executable file before users can enable printing or graphics while running 1-2-3. For example, if you do not change the owner and the mode for a VGA color system, all the screen information is displayed as if the system is in **TTY** mode and an error message is displayed in 1-2-3.

The change mode (**chmod**) command allows 1-2-3 to become a **setuid** program, which gives anyone running 1-2-3 root privileges temporarily. Immediately after starting, 1-2-3 gets the required access to the graphics registers and the print directories. Then, 1-2-3 resets the privileges to the logged-in user id. If you are in a secure environment, you may want to limit access to this system or install 1-2-3 on a system that does not allow access to secure materials. Do the following at the shell prompt to enable printing and graphics on your system:

```
# cd <dest>/lotus/123.v10/sysV386/bin
# chown root 123_exe
# chmod 4755 123_exe
```

What's Next?

After installing the 1-2-3 software, you need to define some configuration options for 1-2-3. Remember **setup123** must be run before you or any users at your site can begin to use 1-2-3.

- **general 1-2-3 defaults:** Run **setup123** with the **-s** option to define default options for all users on the system. If system defaults are set, users running either the Multi-user or Single-user Editions do not need to run **setup123** unless they want to configure a specific personal option. See Chapter 4 "Configuring 1-2-3" for more information.
- **printer defaults:** Run **prsetup123** to create printer interface files for all 1-2-3 users on the system. If defaults are set, users running either the Multi-user or Single-user Editions can print. See Chapter 5 "Printing in 1-2-3" for more information.
- **user defaults**: If 1-2-3 users want to define specific personal options, they can run **setup123** under their own user IDs or the system administrator can run **setup123 -u.** See Chapter 4 "Configuring 1-2-3" for more information.

For 1-2-3 Users

After completing the installation procedures for *1-2-3 for System V*, users may need to modify their search paths to include the Lotus destination directory. This enables them to start 1-2-3 by typing **123** at the shell prompt. To use the Lotus manual pages, users may need to set the **MANPATH** variable in their **.profile** or **.login** files.

Modifying the Search Path

During the installation procedure, you determine the path for the Lotus destination directory. If you copied 1-2-3 to a directory that is already listed in your path, you do not need to modify your search path. If you did not copy 1-2-3 to a directory in your search path, modify the search path of your **.login** or **.profile** file. You can then run the *1-2-3 for System V* software by typing **123** at the shell prompt. You do not need to type the full path to the Lotus executable files. Your search path must include the **<dest>/lotus** tree to invoke the software by typing **123.**

Follow these steps to modify your search path:

1. Display your **.login** or **.profile** files to find the statement that begins **set path=** or **PATH=** (Modify or insert this line to include the path to the directory that contains the 123 executable file.)
2. If the directory that contains the 123 executable file is not already part of the path statement, use your text editor to add the directory path. Add this sample path to the search paths either in the **.profile** or **.login** file:

   ```
   .login -
   .profile - PATH=$PATH:
   set path = ($path <dest>/lotus/123.v10/sysV386/bin)
   ```

   If you specified an alternate destination directory during the installation procedure, add the alternate path to the search path. After you modify your path statement, be sure to save the file.

3. To enable your system to use the new path statement, you must "reread" the file. If you modified either file, type the **source** command at the shell prompt, as shown below.

   Bourne shell (sh):

   ```
   # cd $HOME; . ./.profile
   ```

   C shell (csh):

   ```
   # cd $HOME; source .login;
   ```

NOTE After updating your search path and running **setup123**, you can run *1-2-3 for System V* by typing **123** at the shell prompt.

Chapter 4
Configuring 1-2-3

In this chapter, the following **setup123** topics are discussed:

- How to run **setup123**
- How to select options in **setup123**
- How to navigate screens in **setup123** and display Help
- How to set several of the basic 1-2-3 configuration options
- How to save your configuration preferences to a directory so they are available for your next 1-2-3 session

For both system administrators and users, Lotus provides the menu-driven configuration utility called **setup123**. The **.l123set** file is created after running **setup123**. A copy of the **.l123set** file must be available to users before they can start 1-2-3. This file is created by system administrators or users. The system administrator creates the system default file by running **setup123** with the **-s** option and the file is stored in the **<dest>/lotus/123.v10** directory.

The system administrator can run the system version of the **setup123** utility when installing the Multi-user Edition for the first time. The system administrator can also invoke it after the installation procedure for Single-user and Multi-user Editions by typing **setup123 -s** at the shell prompt. The file **.l123set** is created and saved in the **<dest>/lotus/123.v10** directory. If the system administrator invokes **setup123** without the **-s** option, the file **.l123set** is saved in the root (/) directory and only the root user can access this copy of the **.l123set** file.

When a user runs **setup123** for the first time, the file **.1123set** is automatically created in the user's home directory (even when the user does not select any options). This file contains information about the devices that the system administrator or the user selected to use with 1-2-3. The drivers for the keyboard, printers, monitors, country, language, graphics, file systems and modes, and character set are all configured.

Although running **setup123** as part of the installation procedure is not available in the Single-user Edition, you must run **setup123** before running the 1-2-3 software. Users can run the standard version by typing **setup123** at the shell prompt. You set the user defaults and drivers by selecting the devices for your system, the language you want to display on screens and for Help, and other operational specifications. This default file is stored in the user's home directory.

The **setup123** utility supports several command-line options corresponding to the specific configuration task that you need to perform. See the following table for the available options.

Command-line options	*Configuration task*
setup123	A user running the Single-user Edition must run **setup123** before running 1-2-3. Whenever users running either Edition want to modify the defaults for 1-2-3, they can run **setup123** to create defaults specific to their own needs. See also the **-u** option.
setup123 -b	Any user can run **setup123 -b** to specify an alternate base directory. This option is an advanced feature.
setup123 -k	Any user can run **setup123 -k** to specify an alternate keyboard map. This option is an advanced feature.
setup123 -p	Any user can run **setup123 -p** to configure the printer spooler for 1-2-3. This option is an advanced feature. For more information about print-interface files, see Chapter 5.

(continued)

Command-line options	*Configuration task*
setup123 -s	Only the system administrator or user logged in as root can run **setup123 -s** to define the default system options for all users.
setup123 -u username	Only the system administrator can use the **setup123 -u** option to create a **.l123set** configuration file for a specified user. After this file is created, it resides in the user's home directory.

Before you use **setup123** to set system or user defaults for your 1-2-3 sessions, consider the following points about **setup123** and the way it works with 1-2-3:

- The **setup123** utility is designed primarily for ease-of-use. For every menu in **setup123**, there are brief descriptions of your options and more detailed context-sensitive Help screens. To work your way through the **setup123** menus, read the brief descriptions about your options, press ? for more help (if you need it), and save your selections before you quit.
- The installation script builds a customized version of **setup123** that reflects your installation environment and the most recent enhancements distributed with *1-2-3 for System V*. The sequence of screens and the number of options available on each screen differ and augment the basic configuration options discussed in this chapter.
- The configuration options defined by users override the default options defined by the person installing 1-2-3. The copy of **.l123set** in your home directory overrides the system version.
- The **setup123** utility does not customize your keyboard layout for 1-2-3. In **setup123**, you select the keyboard type (e.g., **sco386-101**) that is most appropriate for your system. To customize the 1-2-3 function keys with specific keys or key combinations on your keyboard, use the Lotus **keyedit** utility described in the *1-2-3 Configuration Guide*.

- *1-2-3 for System V* also allows you to define a different set of 1-2-3 options while using 1-2-3. See "Worksheet Commands" in Chapter 2 of *User Reference* for a discussion of /Worksheet Global Default options.

Running setup123 -s

At the end of the installation procedure for the Multi-user Edition, you can run **setup123 -s** automatically. You can also invoke **setup123 -s** after you install the Single-user Edition of 1-2-3 successfully. The **-s** option allows you to set the system defaults for 1-2-3 (you must be root). Whether you are running **setup123 -s** as the final step in installation or at another time, you can execute it in one of the following ways:

- If you update your search path to include:

  <dest>/lotus/123.v10/sysV386/bin

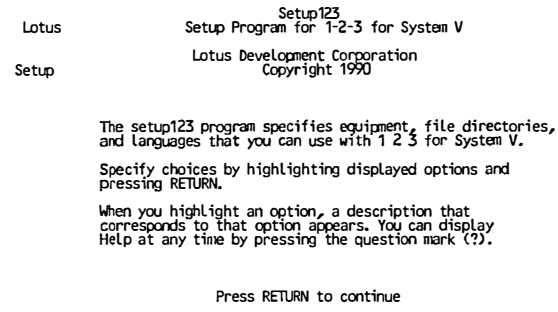
- You can type the following at a shell prompt:

  setup123 -s

- If you did not update your search path, you must type the full path to the command:

  <dest>/lotus/123.v10/sysV386/bin/setup123 -s

The first screen introduces the configuration program. The screen states the purpose of **setup123** and provides some guidance in using the utility.

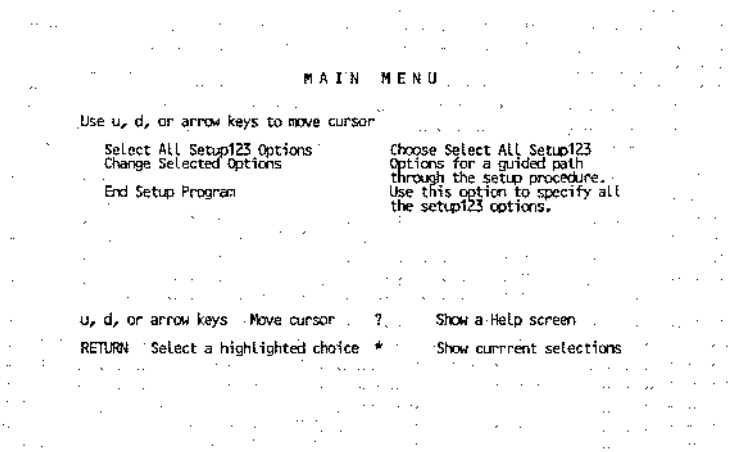


Press **RETURN** to see the Main Menu.

When **setup123 -s** is first run, it supplies defaults for every option. As you respond to each of the screens, however, you can override the preselected defaults. Although the versions of the **setup123** utility for the administrator and the user are similar and closely related, each version has unique capabilities. Users can override most defaults that the administrator has set, such as the keyboard type and the graphics display device.

Using the Main Menu

The Main Menu presents options for configuring all the **setup123** options, selected options for 1-2-3 or quitting the utility.



The **Select All Setup123 Options** option lets you define configurations for all the availabale options with **setup123**.

The **Change Selected Options** option lets you modify one or more **setup123** options individually.

The **End Setup Program** option exits the **setup123** utility.

Navigating setup123

All **setup123** screens share the following features:

- a **screen title** like “MAIN MENU” at the top of the screen
- **menu options** like “Change Selected Options” in the middle of the screen
- a **menu pointer** in reverse-video indicating your current selection

- a **quick help** box explaining the option currently highlighted by the menu pointer
- **navigation keys**

You move through **setup123** screens and select options using several pointer-movement keys. If your keyboard sends the appropriate control codes to **setup123**, you can use the arrow keys on your keyboard. Otherwise, use the terminal-independent characters listed below:

d (for down) or ↓	moves the pointer down one menu line. The text in the box to the right of the menu changes to explain the new option. Depending on the type of keyboard you are using, **setup123** recognizes your down arrow key.
u (for up) or ↑	moves the pointer up one line. The text in the box to the right of the menu changes to explain the new option. Depending on the type of keyboard you are using, **setup123** recognizes your up arrow key.
RETURN	confirms the current highlighted selection and moves to the next screen.
CTRL-C	(or the keystroke(s) that you have defined as **SIGINT**) returns you to the **setup123** Main Menu at any time. From the Main Menu, you can choose to quit **setup123** and return to the shell prompt.

Two other keys provide information about the current screen or the summary changes that you made in **setup123**.

*	displays a list of the current settings for **setup123**. Pressing RETURN returns you to the screen you were using. When you first run **setup123 -s**, you can use this feature to display the preselected defaults. You may find that most of them are acceptable.
?	gets you help on screen at any time. Press SPACE BAR to return to the previous screen.

After you run **setup123**, you can change the selected defaults by running the program again and modifying your selections. If you make a selection that you want to alter immediately, press SPACE BAR to return to the previous screen and specify a different selection. The first time you run **setup123**, your choices are saved automatically after the last menu if you

selected the option **Select All Setup123 Options** from the Main Menu. Otherwise, you need to select **Save Changes** to save the selections you made in this configuration utility.

Configuring Basic Options

1-2-3 for System V uses many standard systems and interfaces. Most of the default configuration settings for the system or for individual users will work without modification. The following table explains some of the basic configuration options. All 1-2-3 users must know about these configuration options. As you use **`setup123`** with different options, the sequence of **`setup123`** screens may vary.

Configuration topic	*Configuration options*
Character sets	1-2-3 stores all characters and numbers in your worksheets in the Lotus Multibyte Character Set (LMBCS). Character sets consist of tables that translate the LMBCS characters that 1-2-3 uses internally to the character set or code page most appropriate for your language or region. Character set translation tables are selected for your file system and display device.
Sorting sequence	1-2-3 provides different sets of collation or sorting tables, for example, numbers or characters, that allow you to specify the order in which the system sorts information with 1-2-3.
Country drivers	Each country or language group has a set of conventions for specifying time, date, and currency symbols. When 1-2-3 executes, it reads a country driver file and automatically modifies the way it displays dates, time, and currency to conform to the conventions defined for that country driver. By specifying an alternate country driver, 1-2-3 alters the time, date, and currency conventions active in your session.

(continued)

Configuration topic	*Configuration options*
File-name modes	*1-2-3 for System V* supports the use of spreadsheets that were developed for use on MS-DOS. Such spreadsheets may have DOS-style file names embedded in macros and off-sheet references. To use such files, you must select DOS-upper or DOS-lower file mode (which translates MS-DOS names into UNIX names). MS-DOS file mode is restrictive and not recommended in situations where MS-DOS compatibility is not required.
Graph drivers	1-2-3 uses graphics display drivers to manage the color, resolution, and positioning of the graphs it displays. If you want to display graphs in 1-2-3, you need to select a graphics display driver appropriate for your terminal or system.
Help language	The 1-2-3 executable program contains no text in itself but loads all text from resource files on disk. If you run 1-2-3 and your Help screens are in American English, 1-2-3 has loaded all of the American English text from a resource file in the directory called USA-English. By specifying alternate resource files, you can have your Help screens displayed in a different language.
Keyboard mapping	1-2-3 is a highly interactive application that makes extensive use of typewriter and function keys on your keyboard. Before you can use 1-2-3, you need to specify what type of keyboard you are using.
Menu language	By specifying alternate resource files, you can have your menus displayed in a different language.
Printers	You can select from a varied list of printers and printing styles.

As you use **`setup123`**, remember that you can receive additional help on any screen by pressing ? (question mark).

Saving the Configuration File

After you select the settings on the configuration screens in **setup123**, you save these selections in a file on disk. 1-2-3 can then read and set your 1-2-3 environment each time it executes. Your system-wide configuration selections are saved in the file:

<dest>/lotus/123.v10/.l123set

The values in this file are the default selections for the users who run the **setup123** utility.

The Exit screen asks you if you are finished configuring the defaults for 1-2-3 users. When you see this screen, you can type an asterisk (*) to view a list of the defaults that you selected. After you review the defaults, press RETURN to return to the Exit screen.

NOTE The first time that a user invokes **setup123**, the **.l123set** file is created and saved in the user's home directory. Even if you do not change the default values and decide to quit the utility immediately after invoking it, the utility still creates and saves the **.l123set** file in your home directory. It contains the values that the system administrator previously specified. If the system administrator has not selected any defaults, the first option on each screen is considered the default.

The **setup123** utility then asks you to confirm your selections. To change any of the defaults you specified, press RETURN while the **No** response is highlighted. You then return to the Main Menu where you can modify your selections.

If you are satisfied with the default selections, highlight the **Yes** response and then press RETURN. You save the selections that you just made and return to the shell prompt.

NOTE The user's version of the **.l123set** file is stored in the user's home directory and overrides the file created by the system administrator. If the system administrator changes the system defaults and the user wants to use the new system defaults, the user must delete the file in the user's home directory to obtain the new system defaults.

Chapter 5
Printing in 1-2-3

This chapter is intended for system administrators or users who want to understand how 1-2-3 prints using standard UNIX print services and how this process can be modified for custom print utilities and services. It also describes the **`prsetup123`** utility, which creates and installs printer-interface files.

NOTE Due to limitations in the SCO UNIX 3.2.0 operating system, printing graphics on parallel printers from within 1-2-3 is not supported. Printing text is supported on UNIX and XENIX systems.

Standard and Custom UNIX Print Services

You need to know the following terms before you read the information relevant to printing:

- **Lotus printer drivers**: Lotus provides a printer driver for each type of supported printer. For example, a printer driver for a PostScript printer encodes the current 1-2-3 data or graph information so a PostScript printer can print it correctly. Also, an HP LaserJet driver encodes for a specific configuration of the HP LaserJet.
- **temporary files**: 1-2-3 creates temporary files on disk (usually in **`/tmp`**) when it builds a print job on disk. Each temporary file created by 1-2-3 is assigned a unique process name (e.g., **`u13770`** or **`u13771`**).
- **1-2-3 print commands**: 1-2-3 uses commands in the /Print menu to prepare data for printing and to manage the process of building print jobs.

- **default print spoolers:** Each version of an operating system distributes a default print spooler so that users can send data to print devices. For UNIX/XENIX System V, the spooler is called **`lp`**.
- **custom print spoolers**: If your site has developed a print interface that does the same tasks as one of the default print interfaces, then you have a custom print spooler.
- **1-2-3 printer selections**: 1-2-3 selects printer types and print interfaces for your current print job based on the following:
  - default printer specified in /Worksheet Global Default Printer Name
  - default printer interface specified in /Worksheet Global Default Printer Interface

  If you select a different default printer and print spooler from those listed on the /Worksheet Global Default Printer menu, 1-2-3 uses these selections when building subsequent print jobs.

NOTE Print requests must include the **`{dest}`** and the **`{file}`** token. 1-2-3 uses the **`{dest}`** token to select the printer or class of printer, for example, **`postscript`** or **`hplj`**. The **`{file}`** token is used to insert the name of the temporary file on disk, for example, **`/tmp/uxxxxx`** where **`xxxxx`** indicates the unique process number.

```
lp -c -d{dest} {file}
```

Defining Print Settings

Before you can print data or graphs from *1-2-3 for System V*, 1-2-3 needs to have the following information defined:

- **System default print spooler:** If you start **`setup123`** with the **`-s`** option, you create a system-wide configuration file **`.l123set`** that defines system default display devices, keyboards, file modes, and (optionally) print spoolers for all users. The default spooler specified by Lotus is:

```
lp -c -d{dest} {file}
```

The default printer request specifies that all 1-2-3 users use the default print spooler **lp**. You can specify an alternate system-wide print spooler by starting **setup123** with the **-p** option (**setup123 -sp**). You must be logged in as root or **su** to root to use the **-s** option.

NOTE The spooler defines how 1-2-3 print requests are sent to the printer by the **lp** command. For example, a printer–interface file is assigned to a printer through the **lpadmin** utility as follows:

```
 /usr/lib/lpadmin -p<printer_name>
-i<interfaces> -v<device>
```

- **System default printer**: The **setup123 -s** configuration utility allows you to select from several printer types: Epson, Sun, Postscript, HP Laserjet, line printers, etc. The first printer that you select becomes the default printer type for all users on the system.
- **Print interfaces**: When any user executes 1-2-3, the program reads one of the following directories and builds a list of available printers:
  - [UNIX] **/usr/spool/lp/admins/lp/interfaces**
  - [XENIX] **/usr/spool/lp/interface**

  1-2-3 displays this list on the menus /Worksheet Global Default Printer Interface and /Print Printer Options Advanced Device Interface. The current entry is the print interface that 1-2-3 uses when building print jobs.

How does 1-2-3 Print?

Here is a step–by–step description of how 1-2-3 uses all this information to print your data and graphs:

1. A 1-2-3 user requests that a print job be opened with the command /Print Printer or /Print Encoded.
2. 1-2-3 opens a temporary file on disk in the **/tmp** directory and assigns it a unique file name, for example, **u13770**.

3. 1-2-3 then invokes the current printer driver to begin formatting the current data for use with the specific type of print device, for example, PostScript or HP LaserJet. Note that all printer types and their associated drivers must be defined in **setup123** and selected on either the /Worksheet Global Default Printer Name or /Print Printer Options Advanced Device Name menus. 1-2-3 uses the current printer driver to build a PostScript-ready, HP Laserjet-ready, or line-printer-ready file in the **/tmp** directory.
4. When the user enters the command /Print Printer Quit or ESC, 1-2-3 closes the temporary file on disk.
5. Then, 1-2-3 creates a new process and builds a shell command containing all the information needed to send the encoded print file in **/tmp** to the destination printer.

   The shell command contains the following sample components:

   ```
   lp -c -dapplaser /tmp/u13770
   ```

   where

   - **lp** indicates the spooler and is derived from the user's **.1123set** file
   - **applaser** indicates the interface or the **{dest}** token and is derived from the current selection in /Worksheet Global Default Printer Interface or /Print Printer Options Advanced Device Interface
   - **/tmp/u13770** indicates the **{file}** token and is derived from the name of the temporary file created by 1-2-3
6. 1-2-3 executes this shell command, which sends the print job to the specified device and monitors any error messages.

NOTE To print, you need to define at least one printer with **setup123** and create and install at least one printer-interface file.

Specifying Alternate Print Interfaces

The **setup123 -p** configuration utility lets you specify alternate spooler and spooler options for 1-2-3. Use the default print spooler as a guideline for the information that you need to include in a print spooler. The following shows an alternate print spooler:

```
my_spool -d{dest} {file}
```

Note that all new print requests must include the **{dest}** token and the **{file}** token. The **{dest}** token refers to the printer or printer class, for example, **applaser**, and the **{file}** token refers to the name of the temporary file on disk, for example, **/tmp/u13770**.

Since your alternate interface obtains printers or classes of printers, you can replace **lp** in the print request with the name of your spooler, for example, **my_spool**. 1-2-3 refers to your new spooler when printing 1-2-3 data and graphs; for example, **my_spool** indicates **lp -c -dapplaser**.

If a user runs **setup123 -p** and defines an alternate print spooler, this spooler overrides any system default. The alternate print spooler is saved to the user's **.l123set** configuration file and is available to the user during subsequent 1-2-3 sessions.

NOTE Users are responsible for setting the margins and print ranges when printing on a laser printer. A laser printer cannot print characters on the full page; therefore, users need to set the margins accordingly to get full use of the page- and print-specified ranges.

The prsetup123 Utility

This section describes **prsetup123**, the printer configuration utility, and guides you through the steps to use it. With **prsetup123**, the system administrator creates and installs printer-interface files that allow you to print from 1-2-3 on UNIX/XENIX systems. A system administrator must create model printer-interface files and install these files for each printer that is attached to your UNIX/XENIX system. To ensure that you can print on any of your printers while using *1-2-3 for System V*, create a printer-interface file for each of your printers. Run **prsetup123** to create and install these files.

NOTE Lotus recommends that you create a model printer-interface file using **prsetup123** even if you have already created and installed a printer-interface file for your printer. Your existing interface file may not be compatible with 1-2-3 while the model printer-interface file created with **prsetup123** is compatible.

You can use **prsetup123** before or after you install 1-2-3 or run **setup123**. It does not affect any of the installation or setup files.

What is prsetup123?

The **prsetup123** utility automates several tasks that the system administrator must do before users can successfully print in 1-2-3. These tasks include the creation and the installation of printer-interface files for all your printers.

After a printer is attached to a system, the system administrator must create a model printer-interface file for the attached printer and install it in the appropriate directory on the system. The **prsetup123** utility allows the system administrator to quickly create a model printer-interface file and install it.

Model Specifying Alternate Print Interfaces

Model printer-interface files are created by **prsetup123** and are identified by the **123** prefix before the printer-interface file name, for example, **123applapl**. The printer-interface file names can be up to 14 characters long, including the three character prefix. The model files are created and saved in the **/usr/spool/lp/model** directory on UNIX/XENIX systems. You can list the contents of the **model** subdirectory to determine which printer-interface files are created.

The **prsetup123** utility uses the l**padmin** command to install the printer-interface files on UNIX/XENIX systems. On a UNIX system, the printer-interface file is automatically installed in the **/usr/spool/lp/admins/lp/interfaces** directory. On a XENIX system, the printer-interface file is installed in the **/usr/spool/lp/interface** directory.

After your printers are installed and the printer-interface file is created and installed, you can access your printers by selecting /Print Printer Options Advanced Device Interface or /Worksheet Global Default Printer Interface. The available printers are listed (up to 16). The printer interface files with a **123** prefix are listed first, and then any additional printer interface files are listed. The printer that you specified with these 1-2-3 options receives the print job. The specified printer then prints the file according to its corresponding printer-interface file.

Starting prsetup123

Before you start to use **prsetup123**, do the following:

- Designate a printer name (user–specified).
- Determine which physical device or device name the printer is using (system–specific).
- Determine if your printer is a PostScript printer.
- Locate the destination directory and **lotus** tree.

The device names for RS–232, RS422, or RS423 serial interfaces are similar to the following:

- **/dev/tty1a, /dev/tty1b, /dev/tty00, /dev/tty01**
- **/dev/tty1e, /dev/tty1f, /dev/tty1g, /dev/tty1h**

The device names for RS–232, RS422, or RS423 serial interfaces that also use a modem are similar to the following:

- **/dev/tty1A, /dev/tty1B, /dev/tty1C, /dev/tty1D**
- **/dev/tty1E, /dev/tty1F, /dev/tty1G, /dev/tty1H**

Device names for standard control (no modem) are designated with lowercase letters. Device names with modem control are designated with uppercase letters.

The device names for parallel interfaces are similar to the folowing:

- **/dev/lp0, /dev/lp1, /dev/lp2**

To access Help, enter **?** and press RETURN.

1. Log in to the system as root. The shell prompt is displayed. The shell prompt varies depending on the shell that you use. For example, the shell prompt can be a percent symbol (%), a dollar sign ($), or a pound symbol (#). The pound symbol represents the shell prompt in the following procedure.

2. Type the following at the shell prompt and press RETURN.

   ```
   # prsetup123 <dest>/lotus [LANG]
   ```

   The language **[LANG]** qualifier is optional. If you need to specify the language, for example, **USA-English**, use this qualifier. If you installed 1-2-3 in the default destination directory, you can substitute **/usr** for **<dest>**.

   If your **PATH** variable is defined to include the path for **prsetup123**, the utility starts and displays an introductory message. If your **PATH** variable does not include the path for **prsetup123** or you selected an alternate destination directory during the installation procedure, start **prsetup123** by specifying the full path name. Check with your system administrator for the path name for **prsetup123** and how to define your **PATH** variable correctly. For example, you can enter the following:

   ```
   /usr/lotus/123.v10/sysV386/bin/prsetup123
   /usr/lotus
   ```

3. The **prsetup123** utility starts and displays the following messages:

   ```
   Welcome to Lotus Printer Interface file
   generation program.

   You will be asked to enter information about the
   printer you want to configure with Lotus 1-2-3.

   Name of UNIX device associated with printer:
   ```

   Type the name of the device for the printer, for example, **/dev/tty1a**, and press RETURN to continue.

4. The following message is displayed.

   `Name of printer:`

   Type a name for the specified printer and press RETURN to continue. For example, if the attached printer is an Apple LaserWriter Plus, users can send print jobs to it using the printer name **`123applapl`**. UNIX/XENIX file names are usually up to 14 characters long. You can specify up to 11 characters for a printer-interface file name since **`prsetup123`** adds a three–character prefix (**`123`**) to the printer-interface file name.

5. The following message is displayed.

   `Is this a serial device? (y)`

   Press RETURN to indicate a serial printer. Enter **`n`** for a parallel printer and press RETURN to continue.

   NOTE If you use a Centronix parallel interface to communicate with the printer, enter **`n`**. If you use an RS–232, RS–422, or RS–423 serial interface to communicate with the printer, enter **`y`**.

6. If you are using a serial printer, you are asked to specify flow control. The following message is displayed.

   `Does flow control follow XON/XOFF protocols? (y)`

   Press RETURN to indicate that the printer uses XON/XOFF flow control. Enter **`n`** to indicate that the printer uses the DTR/DTS flow control and press RETURN to continue. Check your printer manual for more information.

7. If you are using a serial printer, you are asked to specify baud rate. The following message is displayed.

   `Baud rate?`

   Enter the baud rate for your printer and press RETURN to continue. To display the available baud rates, enter **`?`** and press RETURN.

8. The following message is displayed.

   `Should this printer generate banner pages? (n)`

   Enter **`y`** if you want to print banner pages and press RETURN to continue. Press RETURN if you do not want banner pages to be printed. A **banner page** provides information about the user, the file, the print spooler, and other pertinent information.

9. The following information is displayed.

```
Select one of the following printer types:

1. LaserWriter or LaserWriter Plus
2. Epson
3. HP LaserJet
4. HP PaintJet
5. Generic

Printer type? (1-5)
```

   Enter a number to specify the selected printer, for example, **1**, and press RETURN to continue.

   A model printer-interface file is created in the following directory:

```
/usr/spool/lp/model
```

10. If a file with the same name already exists in this directory, the following message is displayed:

```
Warning: '/usr/spool/lp/model/123applapl' exists.
Do you want to overwrite the existing file? (n)
```

    Enter **y** and press RETURN to overwrite the file and go to step 12. Press RETURN if you do not want to overwrite the file.

11. If you do not want to overwrite the file, you can enter a new file and path name for the file. The following message is displayed:

```
Enter a new file and path name:
```

    Enter a new file name and path name, for example, **/usr/printers/applaserpl** and press RETURN.

12. The following message is displayed:

```
Created file /usr/spool/lp/model/123applapl

Do you want to install your new model interface
file? (y)
```

    The name for the created file is determined in step 4 (**123applapl**) or step 11 (**123applaserpl**). Press RETURN to install the file. The file is copied from **/usr/spool/lp/model** to the printer-interface directory on your system. Enter **n** if you do not want **prsetup123** to install the file and press RETURN.

NOTE If you did not install the printer-interface file during **prsetup123**, you must install the file manually before you can print in 1-2-3. See the *SCO UNIX System Administrator's Reference* or the *SCO XENIX Installation and Maintenance* manual for more information on installing printers and using the **lpadmin** command.

While **lpadmin** installs the file, messages may display on your screen. When the file is installed without errors, **prsetup123** displays the following message:

```
Installation successful.
```

13. Enter the following at the shell prompt and press RETURN.

```
# lpstat -t
```

This command provides a list of available printers including your printer-interface file, printer status, system default destination, device name, and date of last print job.

Troubleshooting prsetup123

You can use **prsetup123** as many times as necessary to change the selections you use with 1-2-3**.** Check the selections in your configuration chart in Chapter 1. When you change hardware, remember to make the appropriate changes to the chart. You may also need to run **prsetup123** again if you did not specify information correctly for your printers with the **prsetup123** utility.

For example, when banner pages contain cryptic information or are not printed, usually the correct type of printer, for example, PostScript, was not specified during **prsetup123**.

When login text and other unexpected text is mixed into 1-2-3 printouts, the **gettys** process is still trying to access the device. After the system administrator disables the device, users can send print jobs to the device. Check the SCO system documentation for more information on disabling and enabling the serial ports.

Summary

To print within 1-2-3, you must do the following:

1. Run **setup123** to select your printers, for example, **Apple LaserWriter Plus**, **Times/Helvetica**.
2. Run **setup123 -p** to select your print spooler and its options. The default System V spooler is **lp**. The default spooler options are: **lp -c -d{dest} {file}**
3. Run **prsetup123** to create and install your printer–interface file, for example, **123applaserpl**.
4. Run 1-2-3, then:
   - To select the printer that you configured in step 1, select /Worksheet Global Default Printer Name or /Print Printer Options Advanced Device Name.
   - To select the printer–interface file that you created and installed in step 3, select /Worksheet Global Default Printer Interface or /Print Printer Options Advanced Device Interface.
5. To print within 1-2-3, select Go from the Printer menu.
   - The data is formatted according to the printer that you selected in step 1 and the temporary file **{file}** is created.
   - Select Quit from the Printer menu; the temporary file is closed and sent to the UNIX spooler (**lp**). You determined the spooler and the options in step 2.

After the UNIX spooler receives the print request, you cannot control it from within 1-2-3. The UNIX spooler schedules the print requests that it receives from all users and queues them to the selected printer destinations.

Chapter 6
Installing DataLens Drivers

What is DataLens?

The Lotus DataLens architecture is an application programmer interface (API) that allows 1-2-3 to exchange information with external database files created by database managers such as *Sybase*, *Oracle*, *Ingres*, and *dBase III*. For each data source that you want to access in 1-2-3, you must have a DataLens driver developed for that data source. After you have installed a DataLens driver for one or more types of database management files and configured 1-2-3 to use the drivers, you can access external database files from within 1-2-3.

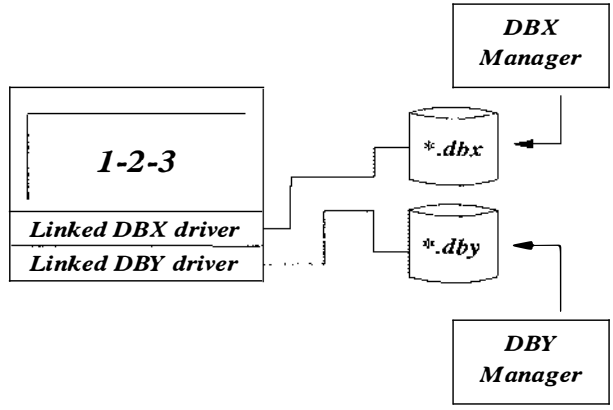


Figure 6-1. *The Lotus DataLens architecture*

This chapter describes how to install a hypothetical DataLens driver called DBX. The documentation that accompanies actual DataLens drivers may contain more specific instructions on how to install and configure the DataLens driver for your system.

DataLens Requirements

Before you can install a DataLens driver for use with *1-2-3 for System V*, you must have the following:

- **1-2-3 object files**: When you installed *1-2-3 for System V*, the installation procedure asked you whether you wanted to install the DataLens object files. If you responded **yes** to this prompt during installation, the installation script automatically transfers the files **123.o** and **dl_init.o** to your UNIX system. If you did not transfer the DataLens files to your system, you must run the installation script again and specify that the DataLens files be copied to your system. If you do not know whether or not the files were transferred, enter the following command:

  ```
  $ ls -l /usr/lotus/123.v10/sysV386/lib
  ```

  If you have installed 1-2-3 in the default destination directory **/usr/lotus**, the DataLens files should be stored in the directory **/usr/lotus/123.v10/sysV386/lib**.

- **DataLens driver:** *1-2-3 for System V* Version 1.0 does not include a DataLens driver in the distribution kit. To install a DataLens driver, you must obtain one from your database vendor or from another software distributor. The DataLens driver must be certified for *1-2-3 for System V* and should contain specific information about additional installation and operating requirements. You can install up to eight DataLens drivers with *1-2-3 for System V*.

- **System V linker kit:** To install a DataLens driver, you must relink the 1-2-3 executable that is distributed with *1-2-3 for System V*. The procedure for relinking 1-2-3 is similar to the procedure that you use when you relink the UNIX/XENIX kernel when you install a new operating system patch or system driver. To relink the UNIX/XENIX kernel or the 1-2-3 executable file **123**, you must install the UNIX/XENIX link kit that is distributed with your operating system. To verify that you have installed a linker, run the SCO **custom** utility, select **List**, and check the list of installed packages.
- **DataLens slot number:** If you have installed one or more DataLens drivers already, you have reserved one or more of the register slots that 1-2-3 uses to load DataLens drivers. You have eight available slots for DataLens drivers numbered 1-8. Before you install a new DataLens driver, review the number of slots registered in the **/usr/lotus/123.v10/sysV386/lotus.bcf** configuration file. When the **inst_dl** installation utility prompts you for the name of a free DataLens slot, specify the number of the next available slot. If you have not previously installed a DataLens driver, use slot 1.

Installing DataLens Drivers

The following sections in this chapter address installation in general, explain installation step-by-step, and suggest some troubleshooting tips.

Installation Overview

There are four basic steps to install a DataLens driver for *1-2-3 for System V*.

1. Verify the location of files needed for the installation.
2. Make a backup copy of your current 1-2-3 executable file.
3. Run the Lotus **inst_dl** installation utility and respond to the configuration questions it asks.
4. Note any problems that may occur during the link process.

Step-by-step Installation

The following example assumes that you have installed *1-2-3 for System V* in the default destination directory **/usr/lotus**. If you specified a different destination directory for your 1-2-3 files, you must substitute the actual destination directory for the path **/usr/lotus** in the following examples.

Follow these steps to perform a basic installation:

1. Log in to your system as root.

   To perform the installation, you must have write-access to the directories **/usr/lotus/123.v10/sysV386/lib** and **/usr/lotus/123.v10/sysV386/bin.**

2. Make a backup copy of your current 1-2-3 executable file.

   ```
   $ cd /usr/lotus/123.v10/sysV386/bin
   $ cp 123_exe 123_exe.bak
   ```

   This is a precaution. If anything unexpected happens during the installation of the DataLens driver, you can always restore the backup 1-2-3 executable file and run 1-2-3 as you did before.

3. Copy the DataLens driver file from the distribution disk to the directory **/usr/lotus/123.v10**. The hypothetical driver object file name is **dbx.o**.

   ```
   $ cd /usr/lotus/123.v10
   $ tar xvf /dev/rdsk/f0q15dt/dbx.0 .
   ```

   Note that the name of your disk drive and the name of the driver distribution file may differ from the example above. Follow the particular instructions distributed with the DataLens driver.

4. Make the **/usr/lotus/123.v10/sysV386/bin** directory current.

   ```
   $ cd /usr/lotus/123.v10/sysV386/bin
   ```

5. Run the Lotus **inst_dl** utility and specify the base directory path containing both the **sysV386/bin** and **sysV386/lib** subdirectories.

   ```
   $ inst_dl /usr/lotus
   ```

6. In response to the menu, type a and press RETURN to instruct **inst_dl** to add a new DataLens driver.

7. In response to **inst_dl** prompts, provide the following information about your DataLens driver. (This information is distributed with your DataLens driver.) The following example illustrates what the information should look like.

   Empty slot number: 1
   Driver name: dbx
   Driver description: The DBX database format
   (Optional) Driver configuration string:
   Object file location: /usr/lotus/123.v10/sysV386/lib
   Object file name: dbx.o

   The **inst_dl** utility uses this information to update the object file **dl_init.o** and the configuration file **lotus.bcf** before linking the object files **123.o**, **dbx.o**, and **dl_init.o** into a new 1-2-3 executable.

8. In response to the **inst_dl** menu, type **m** and press ENTER to instruct **inst_dl** to make (link) a new 1-2-3 executable file.

9. Record any errors that may occur during the link process.

10. (Optional) If the installation documentation for your DataLens driver recommends that you edit the **/usr/lotus/123.v10/sysV386/lotus.bcf** configuration file, you should edit the file *after* you have relinked 1-2-3. The **/usr/lotus/123.v10/lotus.bcf** file is a text file so you can edit it in any UNIX text editor.

    ```
    $ cd /usr/lotus/123.v10
    $ vi lotus.bcf
    ```

    Add information about the DataLens driver as supplied by the distributor of the driver. Be certain that you identify the same DataLens slot number as you specified during the **inst_dl** procedure.

11. Run 1-2-3 and exercise the /Data External Use command to verify that the driver is functioning properly. For more information on /Date External commands and using DataLens capabilities, see "Data Commands" in Chapter 2 of *User Reference*.

Troubleshooting

If you receive linker errors during the installation of your DataLens driver, verify that you have specified the correct location of the object files needed for installation. If the locations are correct and you still receive error messages from the linker, contact the distributor of your DataLens driver for support.

If you receive the 1-2-3 error message "driver not initialized", you need to check your `lotus.bcf` file to be sure that:

- Each record describing a DataLens driver ends with a semicolon (;).
- All literal strings specifying the location, name, or description of each driver are each enclosed in double quotation marks.
- Each literal string specifying the name of the DataLens driver contains no spaces.
- The spelling in each keyword parameter is correct.
- Each record has a DB (location) and DN (name) parameter.

Appendix A
Troubleshooting

This appendix is intended for system administrators or users who may need additional information on the following areas:

- Optimizing system performance
- Checking disk space
- Determining device for installation
- Installing 1-2-3 without the SCO **custom** utility
- Changing permissions on print directories

Optimizing System Performance

The following table describes several ways to optimize your system's performance. If you are getting memory errors, out of swap space errors, or building large spreadsheets, you may also want to check this table for more information.

Parameter	*Minimum*	*Recommended*
RAM	4 MB	6 to 10 MB
Disk Space	OS + 6.5 MB (+3.5 MB for DataLens)	60 to 300 MB
Swap Space	user x 3 MB or RAM + 1MB	12 to 32 MB
ULIMIT	8192	depends on application
MAXUMEM [UNIX]	2560 pages (10 MB)	2560 to 6144 pages (10 to 24 MB)

SCO provides a formula to detemine the minimum amount of swap space that you must configure for your system. Compare the following:

- Number of users multiplied by the size of the largest application (use 3 MB as a low estimate)
- Memory size and add 1 MB

Use the larger value as the minimum amount of swap space necessary for your system.

The ULIMIT parameter is the maximum file size for users. It is automatically set at the maximum on a SCO UNIX/XENIX system (ULIMIT = 1 gigabyte). The MAXUMEM parameter specifies the maximum size of the user's virtual address space in pages. The system maximum is 8192 pages. You can specify MAXUMEM only on a UNIX system.

Checking Disk Space

Before you can install 1-2-3 for System V on your UNIX/XENIX system, you need to check if your system contains enough free disk space. Use the following procedure to check:

1. Type the following at the shell prompt and press RETURN.

   ```
   # df
   ```

2. The specific file system, number of blocks, and number of i-nodes are displayed. Make sure that you have the required amount of free space in the disk partition where you intend to install 1-2-3. You need 20,000 blocks of free disk space for 1-2-3 installation. Refer to Chapter 2 "Disk Space Requirements" for more information.

Determining Installation Device

The drive that you use to install software is system-dependent. If you are using an alternate drive, then you may want to use the **-m** option with the **custom** command to specify a device. To specify the device, type the following:

```
custom -m /dev/rdsk/fdqsdt
```

where *d* indicates the device (**0** for the first drive or **1** for the second drive)

where *s* indicates the media (15 for 5.25" and 18 for 3.5" diskettes).

To specify the diskette size and the diskette drive, use the following information. For example, when you use 3.5" diskettes in the first disk drive, the device name is:

/dev/rdsk/f0q18dt.

Use the following information to determine your device:

- first drive (0) with 5.25" diskettes = **/dev/rdsk/f0q15dt**
- first drive (0) with 3.5" diskettes = **/dev/rdsk/f0q18dt**
- second drive (1) with 5.25" diskettes =**/dev/rdsk/f1q15dt**
- second drive (1) with 3.5" diskettes = **/dev/rdsk/f1q18dt**

Installing 1-2-3 Manually

Use the **tar** command to manually install *1-2-3 for System V* installation files on your system. After you extract the installation files to your system, you start the installation procedure. You can then follow the steps in the installation procedure as described in Chapter 3.

Follow these steps to install 1-2-3 manually:

1. Log in as root or **su** to root.
2. Insert the first diskette labelled Volume 1 into your disk drive and lock the drive door.
3. Type the following at the shell prompt to change to the root directory and press RETURN.

   ```
   # cd /
   ```

4. Type the following at the shell prompt to extract the 1-2-3 installation files and press RETURN.

   ```
   # tar xvf /dev/rdsk/f0q15dt ./usr/tmp
   ```

   The device, for example, **/dev/rdsk/f0q15dt**, may change depending on your system. See the section " Determining Installation Device" for more information.

5. Type the following at the shell prompt to change to the installation directory and press RETURN.

   ```
   # cd /usr/tmp/lotus_install/123
   ```

6. Type the following at the shell prompt to start the installation procedure and press RETURN.

   ```
   # ./Install
   ```

Changing Permissions on Print Directories

If you cannot locate or access printers while running 1-2-3, you may need to change the permissions for the print directories. The permissions for the print directories are determined by the operating system. Lotus does not automatically change permissions on any directories except the directories that Lotus creates.

Follow these steps to change permissions on the appropriate directories:

1. Log in to the system as root (or **su** to root).
2. Enter the following at the shell prompt:

   ```
   chmod o+x /usr/spool/lp/admin
   chmod o+x /usr/spool/lp/admin/lp
   chmod o+r /usr/spool/lp/admin/lp/printers
   ```

   You can now list the available printers.

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