UNIX Products

Installation Guide

Note:
Before using this information and the product it supports, read the information in the appendix entitled "Notices."

UNIX Products Installation Guide

What This Guide Contains

This guide contains instructions for installing Informix products on computers running the UNIX operating system. Keep it with your Informix software documentation for easy reference.

This guide contains the following sections:

- "Preparing to Install Informix Products" on page 2 contains background information, a list of the Informix products in the Version 7.21 release, and references to additional resources.

- "Setting the UNIX Environment" on page 10 contains instructions about the UNIX directories and environment variables that you must set before you can use Informix products.

- "Installing Most Informix Products" on page 13 contains detailed instructions that show you how to install your Informix software on computers that run UNIX operating systems.

- "Installing C-ISAM" on page 17 explains the special procedures that are required for installing C-ISAM on your system.

GLS

- "Global Language Support" on page 23 gives a list of different GLS files that are shipped with Informix products, which allow you to work in a particular language environment. ♦

- "Role Separation" on page 24 explains the procedures that are required to enable administrative role separation.

- "Solving Installation Problems" on page 29 contains a list of common installation problems and corrective actions.

Preparing to Install Informix Products

You install Informix products by setting certain UNIX environment variables, loading the files supplied by Informix onto your computer, and running an installation script. The information in this guide describes the basic installation procedures in a UNIX environment for the following Informix products:

- SQL Application Programming Interfaces (APIs)
  - ❑ INFORMIX-ESQL/C, Version 7.21
  - ❑ INFORMIX-ESQL/COBOL, Version 7.21
  - ❑ INFORMIX-Connect, Version 7.21
  - ❑ INFORMIX-CLI, Version 2.0
- Database Servers
  - ❑ INFORMIX-OnLine Dynamic Server, Version 7.21
  - ❑ INFORMIX-OnLine Dynamic Server Runtime Facility, Version 7.21
  - ❑ INFORMIX-SE, Version 7.21
  - ❑ INFORMIX-SE Runtime Facility, Version 7.21
- Additional Products
  - ❑ C-ISAM, Version 7.21
  - ❑ C-ISAM Runtime Facility, Version 7.21
  - ❑ Informix Messages and Corrections, Version 7.21
  - ❑ INFORMIX-OnLine/Optical, Version 7.21
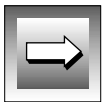
Important: INFORMIX-CLI, Version 2.0, supports Version 7.2x products. INFORMIX-CLI is designated Version 2.0 because it is based on the Microsoft ODBC 2.0 specification.

You may install Informix products only as licensed by Informix. You must not transfer software from one computer to another or to another portion of your network without reregistration and the written consent of Informix.

The procedures for installing most products are virtually the same. You can find the necessary installation procedures in "Installing Most Informix Products" on page 13. The instructions assume that you are familiar with the operating procedures of your computer and with the UNIX operating system.

If you are installing C-ISAM, refer to "Installing C-ISAM" on page 17. If you are installing OnLine, refer to the *INFORMIX-OnLine Dynamic Server Administrator's Guide* for information on the additional installation and configuration tasks required. If you are enabling administrative role separation, see "Role Separation" on page 24 as well as the *INFORMIX-OnLine Dynamic Server Trusted Facility Manual.*

If you encounter difficulties installing these products, refer to "Solving Installation Problems" on page 29. If you still encounter problems, contact the Informix Technical Support Department. In North America, call toll-free (800) 274-8184 or send a FAX to (913) 599-8590. Outside North America, contact your distributor or the nearest Informix subsidiary.

The step-by-step instructions in this guide allow you to install each Informix product. In addition, when you load your Informix product files, several informational files are included to answer specific technical questions. Three categories of on-line informational files exist:

- ■ Machine notes
- ■ Release notes
- ■ Documentation notes

The number at the end of each filename indicates the product version number for that file (for example, **ONLINE_7.21** or **ESQLCDOC_7.21**). These files are installed in the **$INFORMIXDIR/release/en_us/0333** directory. (For an explanation of the **INFORMIXDIR** environment variable, see "Setting Informix Environment Variables" on page 12.)

Informational files for Version 7.21 products and INFORMIX-CLI, which supports Version 7.2x products, are described in the following sections:

Machine notes

Machine notes describe any special actions required to configure and use Informix Version 7.21 products on your computer. The machine notes for Version 7.21 Informix products are located in the following files:

CLI_2.0	INFORMIX-CLI
ESQLC_7.21	INFORMIX-ESQL/C
ESQLCOB_7.21	INFORMIX-ESQL/COBOL
ISAM_7.21	C-ISAM
ONLINE_7.21	INFORMIX-OnLine Dynamic Server
OPTICAL_7.21	INFORMIX-OnLine/Optical
SE_7.21	INFORMIX-SE

Sometimes machine notes contain information for installing Informix products on a particular computer. Make sure you read the appropriate Informix machine notes after you load, and before you run, the appropriate installation script for your Informix product.

Release notes

Release notes describe compatibility issues and feature differences from earlier versions of Informix products and describe how these differences can affect existing applications. They also describe known bugs and their workarounds.

$INFORMIXDIR/release/en_us/0333 directory contains the **SERVERS_7.21** file with Version 7.21 on-line release notes for the Informix database server products, including application-programming interfaces such as INFORMIX-ESQL/C. Release notes from past versions are also included in the **$INFORMIXDIR/release/en_us/0333** directory for your reference.

Documentation notes

Documentation notes describe additional features and topics that are not covered in Version 7.21 product manuals or that have been modified since the manuals were published. The documentation notes, if any, for Version 7.21 product manuals, and for the INFORMIX-CLI, Version 2.0 product manual, are located in the following files:

|	
ARCHIVEDOC_7.21	*INFORMIX-OnLine Dynamic Server Archive and Backup Guide*
ARCHQSDOC_7.21	*ON-Archive Quick Start Guide*
CLIDOC_2.0	*INFORMIX-CLI Programmer's Manual*
COCKPITDOC_7.21	*DB/Cockpit User Manual*
DBACCDOC_7.21	*DB-Access User Manual*
ERRDOC_7.21	*Informix Error Messages*
ESQLDOC_7.21	*INFORMIX-ESQL/C Programmer's Manual*
ESQLCOBDOC_7.21	*INFORMIX-ESQL/COBOL Programmer's Manual*
STARTDOC_7.21	*Getting Started with Informix Database Server Products*
GLSDOC_7.21	*Guide to GLS Functionality*
HPLDOC_7.21	*Guide to the High-Performance Loader*
INSTALLDOC_7.21	*UNIX Products Installation Guide*
ISAMDOC_7.21	*C-ISAM Programmer's Manual*
MIGRATEDOC_7.21	*Informix Migration Guide*
ONBARDOC_7.21	*INFORMIX-OnLine Dynamic Server Backup and Restore Guide*
ONLINEDOC_7.21	*INFORMIX-OnLine Dynamic Server Administrator's Guide*
PERFDOC_7.21	*INFORMIX-OnLine Dynamic Server Performance Guide*
SEDOC_7.21	*INFORMIX-SE Administrator's Guide*
ONSNMPDOC_7.21	*INFORMIX-OnLine Dynamic Server SNMP Subagent Guide*
OPTICALDOC_7.21	*INFORMIX-OnLine/Optical User Manual*
SQLRDOC_7.21	*Informix Guide to SQL: Reference*
SQLSDOC_7.21	*Informix Guide to SQL: Syntax*
SQLTDOC_7.21	*Informix Guide to SQL: Tutorial*
TFMANDOC_7.21	*INFORMIX-OnLine Dynamic Server Trusted Facility Manual*
XADOC_7.21	*INFORMIX-TP/XA User Manual*
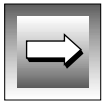
Important: *The release notes and documentation notes files contain important information for application development. Therefore you need to make this information available to both developers and users. Informix recommends that you print copies of these files and attach a copy to each set of documentation. The machine notes files contain information primarily of interest to system and database administrators.*

Additional Installation Instructions

Some Informix products require additional installation and configuration tasks not covered in this guide. Although this guide names the installation scripts and discusses the environment features common to most of the Version 7.21 products listed in "Preparing to Install Informix Products" on page 2, make sure you read about the following special cases:

- If you are upgrading to OnLine, Version 7.21, from an earlier version of OnLine, be sure to read the *Informix Migration Guide*.

- If you want to enable the security feature of administrative-role separation, see "Role Separation" on page 24.

- The installation of INFORMIX-CLI creates the **odbcinst.ini** and **odbc.ini** initialization files. The **odbcinst.ini** file is an initialization file that lists the components that are currently installed on your computer. The **odbc.ini** file is a template for an initialization file that must be in each user's home directory. The user must configure the **odbc.ini** file. The user edits it to add definitions of the data sources that the user needs to access. For information on configuring the **odbc.ini** file, see Chapter 2 of the *INFORMIX-CLI Programmer's Manual.*
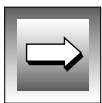
Important: *You must set up the **sqlhosts** file when you install any Informix, Version 7.21 product. The **sqlhosts** file describes the connectivity characteristics used by your Informix products. For further information on setting up the **sqlhosts** file, refer to the "INFORMIX-OnLine Dynamic Server Administrator's Guide" or the "INFORMIX-SE Administrator's Guide."*

Certain computers require special installation procedures. If you have such a computer, Informix includes a separate installation letter with these materials. If you find such a letter, follow those instructions before you continue with the installation instructions in this guide. Also, refer to the appropriate machine notes file for additional instructions pertaining to your computer.

C-ISAM does not require the creation of a user and group **informix**. If you are installing this product, follow the instructions outlined in "Installing C-ISAM" on page 17.

Order of Installation

If you install more than one Informix product, you must install them in a specific order, which is illustrated in Figure 1 and described in the following steps:

1. Application development tools

    Install application development tools, such as INFORMIX-NewEra and INFORMIX-4GL, in order from oldest to newest versions.

2. SQL application-programming interfaces (APIs)

    Install SQL APIs in order from oldest to newest versions.

3. Database servers

    Install database servers in order from oldest to newest versions.

4. Additional products

    Install remaining interface and documentation products in order from oldest to newest versions.

Figure 1
Installation Order for Informix Version 7.21 Products
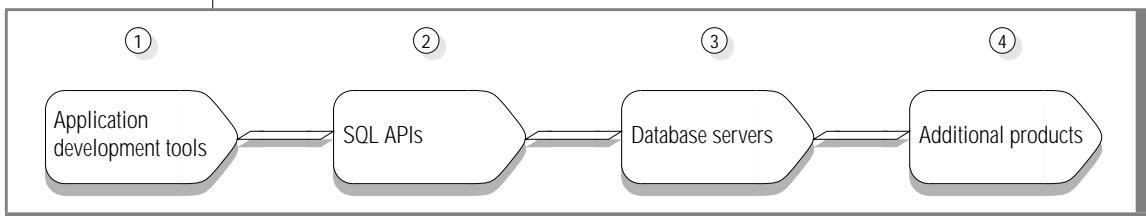
If you install more than one Informix product, complete all installation procedures for one product before you start the next. Do not load the files from another Informix product onto your computer until you complete the current installation.

If you install INFORMIX-CLI and the ODBC driver set (as part of an installation of ODBC-enabled tools from Informix), install the ODBC driver set before INFORMIX-CLI.

Supported Version 7.2x Configurations

Figure 2 displays the supported Informix client-server product configurations that use either a Version 7.2x client or database server product.

Figure 2
Supported Configurations for Informix Version 7.2x Client and Database Server Products

Database Server and Connectivity Products		7.2x ESQL/C, ESQL/COBOL	7.1x INFORMIX-CLI 2.0	ESQL/C	ESQL/COBOL	ESQL/C, NT	6.0x ESQL/C	ESQL/COBOL	INFORMIX-4GL, INFORMIX-SQL	5.0x ESQL/C, ESQL/COBOL	ESQL/C for Windows 5.01, INFORMIX-NET for Windows 5.01	4.x INFORMIX-4GL, INFORMIX-SQL	INFORMIX-4GL for Windows 4.1, INFORMIX-NET PC for DOS 4.11	INFORMIX-4GL for Windows 4.12 or 4.20, INFORMIX-NET for Windows 5.01	2.1 ViewPoint Pro for Windows, ViewPoint Pro for Motif	2.0 INFORMIX-New Era for Windows	1.0 INFORMIX-NewEra for Windows	1.x INFORMIX-NewEra for Motif
7.2x	OnLine	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y
	SE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y
7.1	Enterprise Gateway *for EDA/SQL*	Y†	U	Y	Y	N	N	N	Y	Y	Y	N	N	N	Y	Y#	Y#	Y#
	Enterprise Gateway *with DRDA*	Y†	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y#	Y#	Y#
	Enterprise Gateway Manager	Y†	U	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y#	Y#	Y#
	OnLine	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	SE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
6.x	Gateway *with DRDA*	Y	U	Y†	Y†	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y#	Y#	Y#
	OnLine	N	Y†	Y†	Y†	N"Y" rep												
	SE	N	Y†	Y†	Y†	N												
5.0x	OnLine*	Y	Y†	Y†	Y†	Y												
	SE*	Y	Y†	Y†	Y†	Y												

"Y" represents supported. "N" represents unsupported. "U" means the compatibility is not tested at the time of the current release. "#" represents distributed mode only. "†" indicates that not all of the features of the product with the higher version number are supported. "*" means that you must configure the Version 5.x OnLine database server and the Version 5.x SE database server for client/server operation; the database servers must reside on remote UNIX computers.

Setting the UNIX Environment

If you are installing only C-ISAM, go directly to "Installing C-ISAM" on page 17. If you are installing any Informix product, you must establish the user and group **informix**, but you must perform the steps described in the next section first.

Preparing to Set the UNIX Environment

You need to take the following steps before you prepare your UNIX environment for installation:

1. Log in as **root**.

2. Be sure that you set the terminal erase key to CTRL-h by entering the following command:

   ```
   stty erase ^h
   ```

   You enter ^h by pressing the CTRL and h keys simultaneously.

Instructions for setting the UNIX environment are divided into two parts: "Setting Informix Environment Variables" and "Setting Informix Environment Variables" on page 12. If this is the first Informix product installed on this system, follow all the steps in both parts. If any Informix product (other than C-ISAM) is currently installed, you can bypass "Establishing the Informix User, Group, and Directory" and go directly to "Setting Informix Environment Variables" on page 12.

Establishing the Informix User, Group, and Directory

The first time an Informix product is installed, you need to create a new user, group, and directory.

1. Use any operating-system tool or utility that can create a new entry for group **informix** in the group file (**/etc/group** on most UNIX-based systems). You must provide an unused group number equal to or greater than 100. If necessary, see your system administrator or operating-system manual for assistance.

2. Add a new user called **informix** using any operating-system tool or utility that will create a new entry in the **/etc/passwd** file. Provide a user ID number equal to or greater than 100 for that user and assign the user to the group **informix**. You also need to create a password for user **informix**.
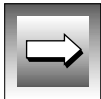
Important: *When you use a network, make sure that you propagate the new user name to all the systems on the network. For example, on some systems you (or the network administrator) must run the **ypmake** utility.*

The user **informix** is the database equivalent of the UNIX **root** account, so anyone logged in as **informix** can completely access any Informix products and databases. Make sure that you keep the password for user **informix** confidential.

Informix products use group **informix** internally to control database access. You must make user **informix** the *only* member of group **informix**. If you make an actual user of an Informix product a member of group **informix**, you can cause unintended and uncontrolled database access.
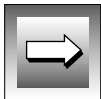
Important: *When administrative role separation is enforced, any member of the group **informix** is an OnLine administrator (OA). For more information concerning role separation, see the "INFORMIX-OnLine Dynamic Server Trusted Facility Manual."*

3. Create a new directory for your Informix product by entering the following command:

```
mkdir /usr/informix
```

Tip: *Although this document uses **/usr/informix** as the directory path and name, you can install the software in any directory that is local and not mounted from another system on the network. If you decide to use a different directory, substitute that directory path and name throughout this guide wherever you see **/usr/informix**.*

Setting Informix Environment Variables

Before you can install any Informix product, UNIX must know where to look for product files. Although you can set several environment variables for Informix products, the **INFORMIXDIR** and **PATH** environment variables are essential for installation.

1. Set the **INFORMIXDIR** and **PATH** environment variables at the command line of the appropriate UNIX shell as shown in the following example:

    Bourne shell:
    ```
    INFORMIXDIR=/usr/informix
    export INFORMIXDIR
    PATH=$INFORMIXDIR/bin:$PATH
    export PATH
    ```
    C shell:
    ```
    setenv INFORMIXDIR /usr/informix
    setenv PATH ${INFORMIXDIR}/bin:${PATH}
    ```

2. Change directories by entering the following command:
    ```
    cd $INFORMIXDIR
    ```
    If this command fails, try step 1 again. (For more information about setting Informix environment variables, see Chapter 4 in the *Informix Guide to SQL: Reference*.)

Important: A database server must be installed in the same directory as any SQL API or application development tools that use it. To ensure this location, verify that $INFORMIXDIR is set to the common directory before you install these types of products.

*If you need to modify the **termcap** files, make the modifications in another directory and reference that directory.*

Installing Most Informix Products

This section contains instructions for loading and installing most Informix products. If you want to install C-ISAM, see "Installing C-ISAM" on page 17.

If you are installing OnLine, review the discussion of the additional installation and configuration tasks in the *INFORMIX-OnLine Dynamic Server Administrator's Guide* before you proceed with the steps in this section.

Loading Product Source Files

Your Informix product materials include a serial-number keycard and electronic media that contain all product files. Both are necessary for installation. The media might be in any standard form (4-mm DAT, $1/4$-inch streaming cartridge tape, $5 \, 1/4$-inch disk, $3 \, 1/2$-inch disk, and so on), but the media should match the media device of your computer (tape drive, floppy disk drive, and so on). If you do not have the serial-number keycard or the proper media, contact your supplier or Informix sales representative.

1. Load the media supplied with your software into the appropriate tape drive, floppy disk drive, or other device in your computer.

2. If you are not currently in the **$INFORMIXDIR** directory, enter the following command:

   ```
   cd $INFORMIXDIR
   ```

3. Now transfer the software from the media to the current directory by entering the appropriate `cpio`, `tar`, or other loading command listed on the serial-number keycard. In most cases, it lists a version of the `tar` or `cpio` command similar to one of the following forms:
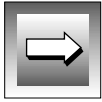
   ```
   cpio -ivdBum < devicename
   ```

   or

   ```
   tar xvf[b] 20 devicename
   ```

   The *devicename* refers to the full pathname to that device. Devices are commonly in **/dev**, so the name is normally **/dev/devicename**.

If floppy disks are supplied, you might need to repeat the system command for each disk, or else you might be prompted to insert each new disk and press RETURN.

Important: *At this point, Informix recommends that you read the appropriate machine notes for the product that you are installing.*

If you are installing OnLine and enabling role separation, refer to "Role Separation" on page 24. Otherwise, continue with the next section, "Installing Products." For the description of role separation, see the *INFORMIX-OnLine Dynamic Server Trusted Facility Manual*.

Installing Products

1. You can install most Informix products by executing one of the commands listed in Figure 3. Find your product in the table, type the command listed for your product, and press RETURN.

Figure 3
Installation Commands for Informix Products

Product	Installation Command
INFORMIX-CLI	./installcli
INFORMIX-ESQL/C*	./installesql
INFORMIX-ESQL/COBOL*	./installesqlcob
INFORMIX-Connect	./installconn
INFORMIX-OnLine Dynamic Server and INFORMIX-OnLine Dynamic Server Runtime Facility**	./installonline
INFORMIX-OnLine/Optical***	./opticallink
INFORMIX-SE and INFORMIX-SE Runtime Facility	./installse
Informix Messages and Corrections	./installpsmsg

*The ESQL scripts, **./installesql** and **./installesqlcob**, automatically install INFORMIX-TP/XA with ESQL/C and ESQL/COBOL, respectively.

Type the OnLine installation script, **./installonline, at this point only if you are installing OnLine without enabling role separation.

***The INFORMIX-OnLine/Optical script, **./opticallink**, relinks rather than installs this product. Refer to Chapter 2 of the *INFORMIX-OnLine/Optical User Manual* for a description of this process.

2. At this point, you either typed the installation command from Figure 3, or you finished configuring role separation for the installation of OnLine, as described in "Role Separation" on page 24. In either case, the following message appears on the screen:

```
Installation Script

This installation procedure must be run by root
(super-user). It will change the owner, group, and
mode of all files of this package in this directory.
There must be a user "informix" and a group "informix"
known to the system.

Press RETURN to continue,
or the interrupt key (usually CTRL-C or DEL) to abort.
```

Press RETURN to continue the installation procedure.

3. The following prompt appears:

```
Enter your serial number (for example, INF#X999999) >
```

Enter the 11-character serial number, located on your serial-number keycard, and press RETURN. The serial number contains three uppercase letters, followed by a pound sign (#), followed by one uppercase letter and six digits.

If you need to erase and change any part of the serial number, you can only do so if you set your erase key to ^h as instructed in step 2 in "Setting the UNIX Environment" on page 10.

4. The following prompt appears:

```
Enter your serial number KEY
(uppercase letters only) >
```

Enter the six-letter software serial-number key, which is also located on the serial-number keycard, and press RETURN.

You then see a message similar to the following example:

```
WARNING!
        This software, and its authorized use and
number of users, are subject to the applicable license
agreement with Informix Software, Inc. If the number
of users exceeds the licensed number, the excess users
may be prevented from using the software. UNAUTHORIZED
USE OR COPYING MAY SUBJECT YOU AND YOUR COMPANY TO
SEVERE CIVIL AND CRIMINAL LIABILITIES.
```

If your software is licensed for use by an unlimited number of simultaneous users, you see a message to that effect.

Press RETURN to continue the installation procedure.

5.   At this point, the installation procedure begins. You see a series of messages appear on the screen as each directory is installed. The messages look similar to the following example:

```
Installing directory .
Installing directory bin
Installing directory lib
          .
          .
          .
```

The following message tells you that your product is fully installed. In this example, ⟨product⟩ is the Informix product that you are installing.

```
Installation  of <product> complete
```

After the preceding message appears, you see the shell prompt. This prompt indicates that you have finished the installation procedure for the product in question. If you have finished all product installations, you can log out as **root**.

If no error messages appear during the installation procedure, the installation is successful. If any error messages appear before the `Installation complete` message, see "Solving Installation Problems" on page 29.

Before using the installed Informix product, users must set the **PATH** and **INFORMIXDIR** environment variables. For convenience, users should add the following environment variable commands to their **.profile** (Bourne shell) or **.login** (C shell) file.

Bourne shell:
```
INFORMIXDIR=/usr/informix
export INFORMIXDIR
PATH=$INFORMIXDIR/bin:$PATH
export PATH
```
C shell:
```
setenv INFORMIXDIR /usr/informix
setenv PATH ${INFORMIXDIR}/bin:${PATH}
```

Installing C-ISAM

The following instructions explain how to install C-ISAM on your computer system:

1. Log in as **root**.

2. Make sure that you set the terminal erase key to CTRL-h by entering the following command:

    ```
    stty erase ^h
    ```

    You enter `^h` by pressing the `CTRL` and `h` keys simultaneously.

3. Choose the directory where you want the sample programs to reside. If this is not your current directory, enter the following command:

    ```
    cd directoryname
    ```

    Substitute the full pathname of the directory that you want to use in place of *directoryname*.

Tip: *The directory that you select to hold sample programs should not be /**tmp** or /**usr/tmp**. Also be sure that the directory is local to your computer and not mounted from another system on the network.*

4. Your Informix product materials include a serial-number keycard and electronic media that contain all product files. Both are necessary for installation. The media might be in any standard form (4-mm DAT, $^1/_4$-inch streaming cartridge tape, 5 $^1/_4$-inch disk, 3 $^1/_2$-inch disk, and so on), but the media should match the media device of your computer (tape drive, floppy disk drive, and so on). If you do not have the serial-number keycard or the proper media, contact your supplier or Informix sales representative.

5. Load the media supplied with your software into the appropriate tape drive, floppy disk drive, or other device in your computer.

6. Transfer the software from the media to the current directory by entering the appropriate `cpio`, `tar`, or other loading command listed on the serial-number keycard. In most cases, it lists a version of the `cpio` or `tar` command similar to one of the following forms:

    ```
    cpio -ivdBum < devicename
    ```

    or

    ```
    tar xvf[b 20] devicename
    ```

    The *devicename* refers to the full pathname to that device. Devices are commonly in **/dev**, so the name is normally **/dev/*devicename***.

    If floppy disks are supplied, you might need to repeat the system command for each disk, or you might be prompted to insert each new disk and press RETURN.

Important: *At this point, Informix recommends that you read the appropriate machine notes for C-ISAM.*

7. Install C-ISAM by entering the following command:

    ```
    ./installisam
    ```

8. The following message appears on the screen:

    ```
    Installation Script

    This installation procedure must be run by root
    (super-user). It will change the mode of all files of
    this package in this directory.

    Press RETURN to continue,
    or the interrupt key (usually CTRL-C or DEL) to abort.
    ```

    Press RETURN to continue the installation procedure.

9. The following prompt appears:

    ```
    Enter your serial number (for example, INF#X999999) >
    ```

    Enter the 11-character serial number, located on your serial-number keycard, and press RETURN. The serial number contains three uppercase letters, followed by a pound sign (#), followed by one uppercase letter and six digits.

    If you need to erase and change any part of the serial number, you can only do so if you set your erase key to ^h as instructed in step 2.

10. The following prompt appears:

    ```
    Enter your serial number KEY
    (uppercase letters only) >
    ```

    Enter the six-letter software serial number key, which is also located on the serial-number keycard, and press RETURN.

    You then see a message and prompt similar to the following example:

    ```
    WARNING!
            This software, and its authorized use and
    number of users, are subject to the applicable license
    agreement with Informix Software, Inc. If the number
    of users exceeds the licensed number, the excess users
    may be prevented from using the software. UNAUTHORIZED
    USE OR COPYING MAY SUBJECT YOU AND YOUR COMPANY TO
    SEVERE CIVIL AND CRIMINAL LIABILITIES.
    ```

    If your software is licensed for use by an unlimited number of simultaneous users, you see a message to that effect.

    Press RETURN to continue the installation procedure.

11. After some processing, the following message appears:

    ```
    The following files will be moved to the
    appropriate directories.

        Binary files:        bcheck, dblog
        Library files:       *libisam*.a, llib-lisam
        Header files:        isam.h, decimal.h
        Localization files: ./gls/*

    The default target directories for these files are

        Binary files:       /usr/bin
        Library files:      /usr/lib
        Header files:       /usr/include
        Localization files: /usr/gls

    You may specify a target location for these files
    other than "/usr" at this time if you so desire.
    Do  you wish to change the target location for the
    directories?

    Enter Y to change target directory or RETURN
    to continue.
    ```

    C-ISAM files are installed in the **bin**, **lib**, **include**, and **gls** subdirectories. As described by the message on the screen, these files are installed in the appropriate directories within **/usr** by default. (The usual default directory is **/usr**, but the listed default directory for some computers might be different.)

> **Important:** *Certain computers use special versions of the **libisam.a** library file, based on model size. These files have slightly different names to identify whether they have been compiled as small (**Slibisam.a**), medium (**Mlibisam.a**), or large (**Llibisam.a**) model sizes. If your computer uses such files, they will be installed in the appropriate library directory. Refer to the C-ISAM machine notes file for further computer-specific information.*

After listing the C-ISAM files and the default target directories, the screen display asks you to indicate whether you want to install C-ISAM in the default location. To install these files within **/usr** (or whatever is listed as the default directory), press RETURN. In this case, the following message appears:

```
The default target directory of /usr will be used.
```

However, if you wish to install these files under a different target directory than **/usr**, type the letter `Y` or `y` before pressing RETURN. In this case, the following prompt appears:

```
Enter new target directory.
```

Enter the full pathname for the new target directory and press RETURN. The following prompt appears:

```
You have selected pathname.
If this is correct enter Y.
```

This prompt indicates that the C-ISAM files will be installed in the following directories: **pathname/lib**, **pathname/include**, **pathname/bin**, and **pathname/gls** (instead of **/usr/lib**, **/usr/include**, **/usr/bin**, and **/usr/gls**). If the listed pathname is correct, type `Y` or `y` and press RETURN. If it is not correct, simply press RETURN, and you are again prompted for the target directory.

If the target directory you name does not exist, the following message appears:

```
The directory pathname does not exist.
```

In this case, you are prompted again for the target directory.

12. Once you specify the target directory, the installation proceeds. You see messages on the screen as each set of files is installed in the appropriate directory. If you use the default directories, the following messages appear:

```
The default directory of /usr will be used
Moving Binaries to /usr/bin
Moving Libraries to /usr/lib
Moving Headers to /usr/include
Moving Localization files to /usr/gls
```

If you have changed the default directory, **/usr** is replaced with a target directory.

If a file with the same name as one of the C-ISAM files already exists in the target location (for example, if you are installing C-ISAM in **/usr** and a **decimal.h** or **isam.h** file already exists in **/usr/include**), the following message appears:

```
File filename already exists.
Installation cannot continue.
```

At this point, the installation script aborts, and you return to the shell prompt. You must move, rename, or delete the existing file, or you can choose a different target directory to complete the installation. You must then rerun the installation script (repeat procedures from step 7 on page 18), and it might be necessary to repeat the complete procedure (from step 6 on page 18).

When all installation procedures are finished for C-ISAM, the following message appears:

```
C-ISAM Installation Complete
```

After this message appears, you see the shell prompt. The shell prompt indicates that the installation script completed successfully. You have finished installing C-ISAM and can log out as **root**.

Before using the installed C-ISAM product, users must set the **INFORMIXDIR** environment variable to the directory in which the C-ISAM product files are installed. For convenience, users should add the environment variable to their **.profile** (Bourne shell) or **.login** (C shell) file.

Bourne shell: `INFORMIXDIR=`*`directoryname`*
`          export INFORMIXDIR` *`directoryname`*

In this command*, directoryname* is the name of the directory where the C-ISAM product files are installed. It is **/usr** by default or else whatever destination you typed in step 11 of the installation process.

C shell: `setenv INFORMIXDIR` *`directoryname`*

In this command, *directoryname* is the name of the directory where the C-ISAM product files are installed. It is /**usr** by default or else whatever destination you typed in step 11 of the installation process.

In addition to the program files installed in the **lib**, **bin**, and **include** directories, C-ISAM includes several sample programs that you can use with the examples in the *C-ISAM Programmer's Manual.* The sample program files, installation script files, technical and machine notes files, and special utility files all remain in the directory where you first copied them onto your computer from the media in step 3 on page 17.

Global Language Support

GLS

With Global Language Support (GLS), Informix Version 7.2x database server products permit the use of different locales. A GLS locale is an environment that has defined conventions for a particular language, culture, or code set, including U.S. ASCII English.

GLS locale and code-set conversion files are installed automatically when you install your Version 7.2x Informix product. Specifically, the installation process will install the following GLS files into **$INFORMIXDIR/gls** directory on your hard disk:

- Locale files for each supported GLS locale
- Code-set conversion files for each supported code-set conversion
- Code-set files for each supported code set
- The Informix **registry** file

To save space on the hard disk of your computer after installation, you might want to delete the locale and code-set conversion files that you do not intend to use. However, the names of the locale files and code-set conversion files are in a condensed form that adheres to MS-DOS 8.3 filename conventions. To obtain a descriptive list of locale and code-set conversion files, run the shell script **glfiles** that is installed with your product. For more information about GLS files for your Informix product and the **glfiles** script and its output, see Appendix A in the *Guide to GLS Functionality*. ◆

Role Separation

Role separation is an enhanced-security feature that is designed to provide checks and balances to administrative responsibilities. Role separation requires members of different UNIX operating-system user groups to perform unique administrative tasks in running OnLine. You must decide when you install OnLine whether you want to activate the role-separation feature.

To successfully enable role separation, you must take the following actions:

- Set up accounts for separate administrative roles.
- Set the role-separation environment variable.
- Execute the installation script.

Installation of OnLine with role separation consists of two main tasks: configuration of role separation and installation of OnLine.

This section shows you how to start the installation script and how to configure the role-separation portion of the installation script. At the end of this section, you are referred back to step 2 on page 15 in "Installing Products" to finish the rest of the installation procedure.

Setting Up the Accounts for Separate Administrative Roles

When you enable role separation, you must set up separate administrative role accounts before you run the installation script. In addition to the OnLine administrator (OA), administrative role separation requires the following accounts:

- The Audit Analysis Officer (AAO) account
- The Database System Security Officer (DBSSO) account

The roles of the AAO and DBSSO accounts are described in the *INFORMIX-OnLine Dynamic Server Trusted Facility Manual*.

Important: *Members of the group **informix** are characterized as the OA and as such are not configurable at installation time. For more information about the user and group **informix**, see "Establishing the Informix User, Group, and Directory" on page 11.*
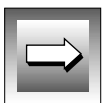
Account Names

To enable role separation, use a different account name than **informix** or **root** for the AAO and DBSSO accounts. All other account names are acceptable. You can have as many DBSSO and AAO accounts as your system needs, but only one user and one group are required for the **DBSSO** and **AAO** directories.

For auditing purposes, Informix recommends that you establish one account for each individual acting as a DBSSO or AAO. For example, **DBSSO1** and **DBSSO2** might be the account names for the DBSSO role and **dickAAO** and **janeAAO** might be the account names for the AAO role. In addition, all standard users should have separate account names.

See your operating-system documentation for specific instructions on creating an account.

Group Names

Central to the implementation of role separation is the assignment of groups. AAOs and DBSSOs gain their administrative privileges based on their group assignments. The AAO group has the administrative privilege of maintaining and analyzing auditing, and the DBSSO group has the administrative privilege of overseeing the security concerns of OnLine. You can assign any unique name to the AAO and DBSSO groups. For example, you could specify the groups **ix_aao** and **ix_dbsso** or the groups **auditors** and **admin**. OnLine administrators gain their administrative privilege based on their membership in the group **informix**.

See your operating-system documentation for specific instructions about adding a group to a system.

Environment Variables

The AAO, DBSSO, and OnLine administrators should have their environment variables set as described in "Setting Informix Environment Variables" on page 12.

Setting Up the Accounts for Standard Users

Standard users must belong to a designated user group to access OnLine. You can restrict standard user access to the database by creating a special group. Then by specifying that group during the role-separation portion of OnLine installation, only members of that special group are able to access the database server. By default, all user groups are able to access OnLine.

In addition, standard users should have their environment variables set as described in "Setting Informix Environment Variables" on page 12.

Setting the Role-Separation Environment Variable

After you set up the role-separation accounts, you must enable the role-separation environment variable. For the appropriate UNIX shell, enter one of the following commands, and then press RETURN:

Bourne shell: `INF_ROLE_SEP=<X>`
`          export INF_ROLE_SEP`
C shell: `setenv INF_ROLE_SEP <X>`

The value of *<X>* is any positive integer (for example, 1). The value of *<X>* is not important, only that it be set. When you enter the command to execute the OnLine installation script (**installonline**), the role-separation installation instructions appear. See the following section, "Role-Separation Installation Script."

Role-Separation Installation Script

You are now ready to install OnLine with role separation. This section describes how to start the installation script and configure the role-separation portion of the installation script.

If you have set the **INF_ROLE_SEP** environment variable, the role-separation script assigns the newly created AAO and DBSSO users and groups to own the **dbssodir** and **aaodir** subdirectories in the **$INFORMIXDIR** directory (see "Setting Up the Accounts for Separate Administrative Roles" on page 24). The database server uses the **$INFORMIXDIR** directory to determine who has DBSSO and AAO privileges. By default the user **informix** and the group **informix** own all **$INFORMIXDIR** subdirectories.

1. Type the following OnLine installation command:

    ```
    ./installonline
    ```

2. The following messages appear on the screen:

    ```
    INF_ROLE_SEP Environment variable was detected
    Which means you have opted to install this product with ROLE SEPARATION.
    Press RETURN to Continue or (q/Q) to Quit:
    ```

3. Press RETURN to continue configuring role separation.

    ```
    ********************************************************
    *                                                      *
    *   DBSSO INPUT SCREEN                                  *
    *                                                      *
    ********************************************************
    Please enter the LOGIN name identifying the DBSSO
    ```

    The LOGIN name that you enter becomes the owner of the **dbssodir** directory. Enter one of the account names for the DBSSO and press RETURN (see "Account Names" on page 25).

4. The following prompt appears:

    ```
    Please enter the GROUP name identifying the DBSSO>
    ```

    The GROUP name that you enter becomes the group that owns the **dbssodir** directory. Enter the group name for the DBSSO and press RETURN. The group name must be identical to the group name that you assigned to the DBSSO group (see "Group Names" on page 25).

5. The next step is to configure the AAO. The following prompt appears:

    ```
    Please enter the LOGIN name identifying the AAO>
    ```

    The LOGIN name that you enter becomes the owner of the **aaodir** directory. Enter one of the account names for the AAO and press RETURN (see "Account Names" on page 25).

6. The following prompt appears:

   ```
   Please enter the GROUP name identifying the AAO>
   ```

   This step is to specify which group of users is allowed access to the database. The GROUP name that you enter becomes the group that owns the **aaodir** directory. Enter the group name for the AAO and press RETURN. The group name must be identical to the group name that you assigned to the AAO group (see "Group Names" on page 25).

7. The following prompt appears:

   ```
   Please enter the GROUP name identifying Users:
   ```

   Users who are members of the GROUP that you enter are granted access to the database server. Enter the name of the group that should be granted access to the database and press RETURN. For example, to restrict database access to the user group **ix_users**, enter the following command:

   ```
   ix_users
   ```

   If all user groups are to be granted access to the database (the default), enter an asterisk (*). If you do not specify a group, the default (*) is used.

8. The information that you entered is displayed as follows:

   ```
   The DBSSO login is <dbsso_name>
   The DBSSO group is <dbsso_group>
   The AAO login is <aao_name>
   The AAO group is <aao_group>
   The USER group is<user_group>
   Please inspect your choices and Press RETURN to Continue
   or (q/Q) to Quit:
   ```

9. If the values described in step 8 are not correct, press q or Q and restart the installation script (see "Installing Most Informix Products" on page 13).

   If all of the values are correct, press RETURN.

The configuration of role separation is done. To proceed with the rest of the installation procedure for OnLine, go to step 2 on page 15.

Solving Installation Problems

This section describes the more common installation problems and how to solve them. In case any of the outlined problems persist, contact the Informix Technical Support Department. In North America, call toll-free (800) 274-8184 or send a FAX to (913) 599-8590. Outside North America, contact your distributor or the nearest Informix subsidiary.

Media-Loading Failures

The problems in this category refer to difficulties in loading the product files onto your computer from the media supplied by Informix:

- ■ **Problem.** You attempt to load the files, but the `cpio`, `tar`, or other loading command fails with an error message similar to one of the following examples:

    ```
    invalid blocksize
    cannot open devicename
    unknown option
    tape read error
    ```

    Solution. The load command is most likely to fail because the wrong command arguments were entered or because the media is damaged. Check the serial number keycard and verify that you are entering the `cpio`, `tar`, or other loading command exactly as written. Try the command again. If it continues to fail, contact the Informix Technical Support Department or the vendor from whom you purchased the product. It might be necessary to ship new media.

■ ***Problem.*** You are copying files using `cpio` from multiple disks onto a (most frequently Xenix-based) computer. After you enter the `cpio` command, you get a message similar to one of the following examples:

```
error 9:  cannot read input ... type
device/filename to continue.
error 2:  cannot read input ... type
device/filename to continue.
```

Solution. Although these messages appear to refer to an error, they might only be messages prompting you to insert the next disk and to type the device name to continue. The message `cannot read input` in this context simply means that there is no more data to read on that disk. Load the next disk, enter the device name exactly as you did for the `cpio` command, and press RETURN. Continue the process for each disk supplied for that Informix product.

Product-Installation Failures

The problems in this category refer to difficulties that you might encounter while you are running the installation script.

■ ***Problem.*** When you attempt installation, you see the following message:

```
Please rerun this installation procedure as
super-user
```

Solution. Check that you are logged in as **root**.

■ ***Problem.*** When you attempt installation, you see the following message:

```
INFORMIXDIR is not set.
```

Solution. There is no default **INFORMIXDIR** for installation. You must set the variable to the directory where the product is to be installed.

- **Problem.** When you attempt installation, you see the following message:

```
INFORMIXDIR and working directory do not match.
INFORMIXDIR is set to pathname
Current working directory is pathname
```

  Solution. The user must be in the directory that corresponds to **INFORMIXDIR** to run the installation procedure. One way to ensure this correspondence is to first change directories to where the product is to be installed, and then set **INFORMIXDIR** by typing the following command:

```
setenv INFORMIXDIR 'pwd'
```

- **Problem.** After you enter the six-letter software serial-number key, messages such as the following examples appear:

```
chmod:  can't change filename
etc/brand:  cannot open filename
filename:  not owner
```

  Solution. This problem usually occurs because you are not logged in as **root**. Log out, and log back in as **root**. You must rerun the installation script (Figure 3 on page 14 or step 7 on page 18) and repeat all subsequent steps. This problem can also occur when you attempt installation on a cross-mounted file system. If so, log in as root on the computer where the cross-mounted file system resides.

- **Problem.** After you enter the six-letter software serial number key, the following message appears as different directories are installed:

```
"WARNING: This is an invalid serial number.
Exiting install script."
```

  Solution. This message is caused by entering an incorrect serial number. Make sure you enter the correct serial number.

■ **Problem.** After you enter the six-letter software serial number key, the following message appears as different directories are installed:

```
etc/brand: invalid serial number and/or key.
 ** Verify serial number and key values. **
 ** Restart installation procedure.      **
 ** Please type carefully.               **
```

Solution. This message indicates that the product cannot be installed because the serial numbers are not valid. In this case, it is likely that you did not enter either the 11-character serial number or the 6-letter serial number key correctly.

If you did enter the serial numbers correctly, the error can occur because the `stty erase ^h` command was not run properly, causing certain keystrokes to be misinterpreted. (For example, a pound sign might be read as a backspace.) If you suspect this problem, rerun the **stty** command before you continue. (See "Setting the UNIX Environment" on page 10.)

You must rerun the installation script (Figure 3 on page 14 or step 7 on page 18), and repeat all subsequent steps. The installation might still fail. If so, reload the product files from the media (step 2 on page 13 or step 4 on page 17) and repeat all subsequent steps.

■ **Problem.** After you enter the six-letter software serial number key, the following message appears as different directories are installed:

```
Unknown message number 32766.
```

Solution. This problem occurs when **INFORMIXDIR** is not set before you run the installation script. You must set **INFORMIXDIR**, rerun the installation script (Figure 3 on page 14 or step 7 on page 18), and repeat all subsequent steps.

Inability to Access Product After Installation

The problems in this category refer to difficulties in accessing Informix products:

- **Problem.** You try to run an Informix product program from the command line (or through an alternative method), but you get back only a system prompt or the following (or a similar) message:

  program: Command not found.

  Solution. Such a response indicates that the executable file could not be found. This problem normally involves environment variables. Most likely, either **INFORMIXDIR** is not set or **PATH** is set incorrectly. "Setting Informix Environment Variables" on page 12 discusses how to set these environment variables. Check the user's environment to verify that the environment variables are set properly. If you are running the Bourne shell, remember to export **INFORMIXDIR** and **PATH** after setting them.

  If the **INFORMIXDIR** and **PATH** environment variables are set correctly, check whether another file with the same name in the user's path would be accessed before the Informix executable file. If such a file exists, you must move, rename, or delete it; alternatively, you can reorder the user's path to find the Informix executable file before the other file.

  This error can also occur if a user's **TERM**, **TERMCAP** (or **TERMINFO**), or **INFORMIXTERM** environment variable is set incorrectly. The listed **TERM** terminal type must be a valid entry in the **termcap** file (or the **terminfo** directory) that the user accesses. If you use **TERMINFO**, you must also set **INFORMIXTERM** to **terminfo**. (For more information, see Chapter 4 in the *Informix Guide to SQL: Reference.*)

  Check the user's environment to verify that **TERM**, **TERMCAP** (or **TERMINFO**), and **INFORMIXTERM** are set correctly. Reset them if necessary. You can check for environment difficulties by calling a system editor, for example **vi**. A distorted display indicates that these environment variables are not set correctly for your terminal.

■ **Problem.** You try to call an Informix product from the command line (or through an alternative method), but you get the following (or a similar) message:

```
Unknown message number 32766.
```

Solution. This problem generally occurs when **INFORMIXDIR** does not point to the correct directory or the directory is misspelled. Check what **INFORMIXDIR** is set to, and reset it to the correct directory. (This problem also can occur when you use environment variables **DBLANG** or **CLIENT_LOCALE**, if either is not set correctly. As with **INFORMIXDIR**, check your **DBLANG** or **CLIENT_LOCALE** environment variable, and reset it if necessary.)

■ **Problem.** You try to call an Informix product from the command line (or through an alternative method), but you get the following (or a similar) message:

```
Invalid serial number.  Please consult your
installation instructions.
```

Solution. This message generally indicates that the product is not installed. Either the installation script was not run, or it failed. You must rerun the installation script (Figure 3 on page 14 or step 7 on page 18) and repeat all subsequent steps.

Another possibility is that the installed product files were copied into another directory that is in the path before **$INFORMIXDIR/bin**. Try placing **$INFORMIXDIR/bin** first in the path to determine if this is the problem.

■ **Problem.** You try to call an Informix product from the command line (or through an alternative method), but you get the following (or a similar) message:

```
cannot attach to shared memory
```

Solution. This problem occurs when you are using OnLine, and OnLine is in off-line mode or, possibly, quiescent mode. You must bring OnLine to on-line mode before you can use the database server. (Refer to "Installing and Configuring OnLine" in the *INFORMIX-OnLine Dynamic Server Administrator's Guide.*)

Difficulties While Using Informix Products

The problems in this category refer to difficulties that you might encounter while using Informix products. These problems are not directly related to installation, but they do involve environment variables:

- *Problem.* While using an Informix product, you attempt to access an existing database but discover one of the following problems: the database is not listed (for example, by the SELECT DATABASE option of DB-Access), you are denied access to the database even though you were granted privileges on the database, or the database listed under that name is not the correct one.

  Solution. Such problems typically come from one of two sources. If you are using INFORMIX-SE and the database in question does not reside in the current directory, it is accessible only if it exists in the database search path. You set the path through the environment variable **DBPATH**. Check the user's **DBPATH** to verify that the correct path is listed and that the path order will find the desired database before any other database with the same name.

  Another source for such problems on SE occurs when the UNIX file permissions on the database directory or a higher-level directory prevent access. Informix creates database directories with read, write, and execute permission for the owner and the group **informix**, but no access permission for others. If you change these permissions or have more restrictive permissions on any higher-level directory, you might not be able to access the database. (The *tablename*.**dat** and *tablename*.**idx** files for each table are created with read and write permissions for the owner and the group but no access permission for others. Changing these permissions can adversely affect access to or security of the tables.) In addition, you must have an **sqlhosts** entry for SE. Otherwise, you cannot establish a connection to the SE database server.

- **Problem.** You cannot connect from an older tool (earlier than Version 7.x) to a local database server because the **SQLEXEC** environment variable has not been set to the Version 7.x relay module.

  Solution. Set the **SQLEXEC** environment variable to the Version 7.x relay module as follows:

  Bourne shell: `SQLEXEC=$INFORMIXDIR/lib/sqlrm`
  `          export SQLEXEC`
  C shell: `setenv SQLEXEC $INFORMIXDIR/lib/sqlrm`

  In addition, if the **SQLRMDIR** and **SQLRM** environment variables are set, they must be unset.

- **Problem.** You attempt to list all databases, but the list of databases is incomplete.

  Solution. Make sure the **DBPATH** environment variable contains the names of all other database servers not referenced by the **INFORMIXSERVER** environment variable.

- **Problem.** You access an Informix application, but the screen display is distorted.

  Solution. The following three environment variables control terminal handling: **TERM**, **TERMCAP** (or **TERMINFO**), and **INFORMIXTERM**. If these variables are set incorrectly, terminal difficulties can result. (Refer to the on-line machine notes file for your product for a list of computers that provide full support for the UNIX System V **terminfo** library.)

  INFORMIXTERM determines whether Informix products access a **termcap** file or **terminfo** directory for screen handling. By default, Informix products look for a **termcap** file. If you wish to access a file in the **terminfo** directory, you must set **INFORMIXTERM** to **terminfo**. (For more information, see Chapter 4 in the *Informix Guide to SQL: Reference*.)

  TERM specifies the name of the terminal you are using, and **TERMCAP** specifies where to look for the **termcap** file. The **TERM** entry must correspond to an entry in the **termcap** file (or **terminfo** directory), and **TERMCAP** must provide the correct path to the **termcap** file. (If you are using **terminfo**, you set the environment variable **TERMINFO** instead of **TERMCAP**. It is generally unnecessary to set **TERMINFO** because most systems use a default path.)

If you want to modify or create a **tctermcap** file, you can find instructions in the default file **$INFORMIXDIR/etc/tctermcap**. For additional information regarding **tctermcap** and the ON-Archive menu interface, see the *INFORMIX-OnLine Dynamic Server Archive and Backup Guide.*

When **TERM**, **TERMCAP** (or **TERMINFO**), or **INFORMIXTERM** is set to a nonexistent name or location, you might receive an error message identifying it as unknown. However, you do not receive an error for specifying an existing but incorrect **TERM** name. You can call an editing program (for example, **vi**) to check if these environment variables are set correctly. A distorted display indicates that these environment variables are not set correctly for your terminal, and you need to reset one or more of them.

■   *Problem.* You successfully install your Informix products and you successfully invoke OnLine, but you cannot connect to OnLine.

Solution. Check for typographical errors and misspellings in your **sqlhosts**, **/etc/hosts**, and **/etc/services** files. Errors and misspellings might also occur in your environment variables, especially **INFORMIXSERVER** and **SQLEXEC**. Also, you might think you set an environment variable to one value, but that variable is actually set to another value.

If you use a network information system, make sure that the changes you make to the **services** file are properly accessed or available to your computer.

Watch for consistency, especially in naming things such as file contents, values, and parameters.

You might also have configured OnLine incorrectly. See the *INFORMIX-OnLine Dynamic Server Administrator's Guide* for configuration information.

■   ***Problem.*** If unusual problems occur (for example, networking problems on Hewlett-Packard computers or unexplainable crashes on Sun computers), your operating system might need a patch.

   Solution. Read the **ONLINE_7.21** file in the default directory **$INFORMIXDIR/release/en_US/0333/ONLINE_7.21** for advice on patch information.

■   ***Problem.*** You receive the following error message:

   ```
   1228 Message number not found in message file
   ```

   Solution. Reinstall products in the correct order. See "Order of Installation" on page 7.

Notices

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Index