UNIX Products

Installation Guide

C-ISAM
IBM Informix ESQL/C
IBM Informix ESQL/COBOL
IBM Informix ESQL Embedded Languages Runtime Facility
IBM Informix NET
IBM Informix OnLine
IBM Informix SE
IBM Informix STAR
IBM Informix TP/XA

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

Table of Contents

In This Guide

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

This guide contains four sections:

- "Preparing to Install IBM Informix Products" contains a list of IBM Informix products, background information, and references to additional resources.
- "Setting the UNIX Environment" contains instructions about what UNIX directories and environment variables you must set before you can use IBM Informix products.
- "Installing Most IBM Informix Products" contains detailed instructions that show you how to install your IBM Informix software on machines that run UNIX operating systems.
- "Installing C-ISAM" explains the special procedures that are required for installing C-ISAM on your system.

Important: *Before you attempt installation, please read this guide thoroughly.*

Preparing to Install IBM Informix Products

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

- Application development tools
  - ❑ IBM Informix ESQL/C Version 5.x
  - ❑ IBM Informix ESQL/COBOL Version 5.x
  - ❑ IBM Informix ESQL Embedded Languages Runtime Facility Version 5.x
- Database servers
  - ❑ IBM Informix OnLine Version 5.x
  - ❑ IBM Informix SE Version 5.x
  - ❑ IBM Informix SE Runtime Facility Version 5.x
- Additional products
  - ❑ C-ISAM Version 5.x
  - ❑ IBM Informix NET Version 5.x
  - ❑ IBM Informix STAR Version 5.x
  - ❑ IBM Informix TP/XA Version 5.x

You may only install IBM Informix products on a computer or network that is licensed by IBM. You must not transfer software from one computer to another, or to any portion of your network that is not licensed by IBM, without re-registration and the written consent of IBM.

The procedures for installing most IBM Informix products are virtually the same. If you are installing C-ISAM, refer to the section in this guide that describes the installation of this product. If you are installing IBM Informix NET, IBM Informix STAR, IBM Informix TP/XA, or IBM Informix OnLine, refer to your product manual for information on the additional installation and configuration tasks required. If you are installing any other IBM Informix products, refer to the standard instructions in this guide. The instructions assume that you are familiar with your computer operating procedures and the UNIX operating system.

If you encounter any difficulties installing these products, contact Technical Support.

The step-by-step instructions in this guide allow you to install each IBM Informix product. In addition, when you load your IBM Informix product files, a number of informational files are included to answer specific technical questions. There are three categories of online informational files:

- Machine notes
- Release notes
- Documentation notes

These files are installed in the **$INFORMIXDIR/release** directory. (For an explanation of the INFORMIXDIR environment variable, see "Setting Environment Variables" on page 9.)

Machine Notes

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

ESQLC_5	IBM Informix ESQL/C
ESQLCOB_5	IBM Informix ESQL/COBOL
ISAM_5	C-ISAM
ONLINE_5	IBM Informix OnLine
SE_5	IBM Informix SE
STAR_5	IBM Informix STAR
XA_5	IBM Informix TP/XA

Sometimes machine notes contain information you need to install IBM Informix products on a particular machine. Make sure you read the appropriate IBM Informix machine notes *before* you install your IBM Informix product.

Release Notes

Release notes describe compatibility issues and feature differences from earlier versions of IBM Informix products and tell how these differences can affect existing applications. The **ENGREL_5** file contains the Version 5.x online release notes for the IBM Informix database server products.

Documentation Notes

Documentation notes describe additional features and topics not covered in the product manuals or modified since the manuals were published. The documentation notes, if any, are in the following files.

DBACCESDOC_5	*IBM Informix DB-Access User's Guide*
ERRDOC_5	*IBM Informix Error Messages*
ESQLCDOC_5	*IBM Informix ESQL/C Programmer's Manual*
ESQLCOBDOC_5	*IBM Informix ESQL/COBOL Programmer's Manual*
INSTALLDOC_5	*UNIX Products Installation Guide*
ISAMDOC_5	*C-ISAM Programmer's Manual*
NETSTARDOC_5	*IBM Informix NET and IBM Informix STAR Installation and Configuration Guide*
ONLINEDOC_5	*IBM Informix OnLine Administrator's Guide*
SEDOC_5	*IBM Informix SE Administrator's Guide*
SQLRDOC_5	*IBM Informix Guide to SQL: Reference*
SQLTDOC_5	*IBM Informix Guide to SQL: Tutorial*
XADOC_5	*IBM Informix TP/XA User Manual*

Tip: *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. We recommend 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 IBM Informix products require additional installation and configuration tasks not covered in this guide. While this guide names the installation scripts and discusses the environment features common to most of the 5.x products listed in "Preparing to Install IBM Informix Products" on page 2, you should be aware of the following special cases:

■ If you are installing IBM Informix OnLine, you must designate a portion of disk storage (either a raw physical device or a UNIX file) for your IBM Informix OnLine database server. Instructions for creating the disk storage area are in *IBM Informix OnLine Administrator's Guide.* In addition, the recommended shared-memory parameters for your machine are listed in the IBM Informix OnLine machine notes file. Refer to this file whenever you need that information.

■ If you are installing IBM Informix TP/XA with IBM Informix OnLine, you must first install and configure the Transaction Manager software you will be using. Refer to *IBM Informix TP/XA User Manual* for complete instructions.

Certain machines require special installation procedures. If you have such a machine, IBM 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 machine.
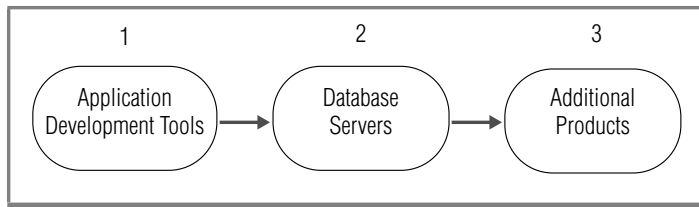
C-ISAM does not require the creation of a user and group **informix**, or the setting of the environment variable INFORMIXDIR. If you are installing this product, follow the instructions outlined in "Installing C-ISAM" on page 14.

Order of Installation

If you are installing more than one IBM Informix product, the order of installation can be important. The installation order is illustrated in Figure 1 and is described in the following steps:

1. Application development tools

   Install application development tools in order from oldest to newest versions.

2. Database servers

   Install database servers in order from oldest to newest versions.

3. Additional products

   If you are installing an IBM Informix client/server product, such as IBM Informix NET or IBM Informix STAR, you must install it *after* you install all application development tools and database servers. Install additional IBM Informix products in order from oldest to newest versions.

Figure 1
Diagram illustrating the installation order for IBM Informix Version 5.x products

If you are installing more than one IBM Informix product, complete all installation procedures for one product before you start the next. Do not load the files from another IBM Informix product onto your machine until you have completed the current installation.

Important: *If you are installing a new version of an IBM Informix product, you must follow the preceding installation order. For example, if you install IBM Informix ESQL/C, you must also reinstall your database server and additional products.*

Compatibility Guidelines

To use a Version 5.x application development tool, you must also use a Version 5.x database server. In addition, you must install both the application development tools and the database servers in the same directory. (If you are installing a Version 5.x database server with an earlier version of an application development tool, you must still install both in the same directory.)

If you are upgrading an existing IBM Informix database server, you might need to convert your old databases or applications. Refer to the **ENGREL_5** file for more information. If you are using the IBM Informix OnLine database server, also consult the *IBM Informix OnLine Administrator's Guide* before you attempt to upgrade an existing system.

Setting the UNIX Environment

You must set the UNIX environment properly before you can use any IBM Informix product other than C-ISAM. (If you are installing only C-ISAM, you can bypass this section and go directly to "Installing C-ISAM" on page 14.)

Instructions for setting the UNIX environment are divided into two parts. If this is the first IBM Informix product installed on this system, follow all the steps in both parts. If any IBM Informix products (other than C-ISAM) are currently installed, you can bypass "Establishing the Informix User, Group, and Directory" on page 8, and go on to "Setting Environment Variables" on page 9.

To set the UNIX environment

1. Log in as **root**.

Important: *Issuing the **su** command to become **root** is not the same as logging in as **root**.*

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

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

Establishing the informix User, Group, and Directory

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

To create a new user, group, and directory

1. Create a new group called **informix** in the group file (**/etc/group** on most UNIX-based systems).

    This group number should be unused and ≥100. If necessary, see your system administrator or operating system manual for assistance.

    Add a new user called **informix** to the **/etc/passwd** file and assign the user to the group **informix**. This user must have a user ID number ≥100. Be sure to include a password for user **informix**.

Tip: *When you are using a network, make sure that the new user name is propagated to all of the systems on the network. For example, if your system uses NIS, you (or the network administrator) might need to run the* **ypmake** *utility.*

    The user **informix** is the database equivalent of the UNIX **root** account, so anyone logged in as **informix** has complete access to any IBM Informix products and databases. Therefore, the password for user **informix** should be treated accordingly.

    Group **informix** is used internally by IBM Informix products to control database access. User **informix** should be the *only* member of group **informix**. No actual user of IBM Informix products should be a member of group **informix** because this could lead to unintended and uncontrolled database access.

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

    ```
    mkdir /usr/informix
    ```

Important: *Although IBM uses* **/usr/informix** *as the directory path and name, you can install the software in any directory. If you decide to use a different directory, substitute that directory path and name throughout this guide wherever you see* **/usr/informix***.*

Setting Environment Variables

Before you can use any IBM Informix product, UNIX must know where to look for product files. You can set several environment variables for IBM Informix products, but the INFORMIXDIR and PATH environment variables are essential.

To set the INFORMIXDIR and PATH environment variables

1. Set the INFORMIXDIR and PATH environment variables at the command line according to the shell you are using:

    Bourne shell:
    ```
    INFORMIXDIR=/usr/informix
    export INFORMIXDIR
    PATH=$PATH:$INFORMIXDIR/bin
    export PATH
    ```

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

Important: *All users should add these environment variable commands to their* ***.profile*** *(Bourne shell) or* ***.login*** *(C shell) files. Environment variables must be set for each user before that user can access IBM Informix products.*

2. Change directories by entering the following command:

    ```
    cd $INFORMIXDIR
    ```

    If this command fails, try step 1 again. (For more information about setting environment variables, see *IBM Informix Guide to SQL: Reference*.)

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

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

Installing Most IBM Informix Products

This section contains instructions for loading and installing most IBM Informix products. If you are installing C-ISAM, see "Installing C-ISAM" on page 14, which describes the installation procedure for that product.

If you are installing IBM Informix OnLine or IBM Informix TP/XA, review the discussion of the additional installation and configuration tasks in the product manual before you proceed with the steps in this section.

Important: *The following Version 5.2 products do not require a serial number, serial key, or serial number keycard for installation:*

- IBM Informix ESQL Embedded Languages Runtime Facility
- IBM Informix ESQL/C
- IBM Informix NET
- IBM Informix OnLine
- IBM Informix STAR

To install most IBM Informix products

1. Your IBM Informix product materials include a serial number keycard and electronic media that contain all product files, both necessary for installation.

   The media should match the media device of your machine. If you do not have the serial number keycard or the proper media, contact your supplier or sales representative.

2. Your serial number keycard provides the correct command for copying the files onto the hard disk of your machine.

   In most cases, it lists a version of the `tar` or `cpio` command similar to one of the following forms:

   ```
   tar xv[fb] devicename [20]
   ```
   or
   ```
   cpio -icvdBum < devicename
   ```

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

3. Load the media supplied with your software into the appropriate drive or other device in your machine.

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

```
cd $INFORMIXDIR
```

Now transfer the software from the media to the current directory by entering the appropriate **tar**, **cpio**, or other loading command listed on the serial number keycard (as described in step 2).

5. You install IBM Informix products by executing one of the commands listed in the following table.

Find your product in the table, enter the command listed for your product, and press RETURN.

Product	Installation Command
IBM Informix ESQL/C	./installesql
IBM Informix ESQL/COBOL	./installesqlcob
IBM Informix ESQL Embedded Languages Runtime Facility	./installesqrt
IBM Informix SE	./installse
IBM Informix OnLine	./installonline
IBM Informix STAR	./installstar
IBM Informix NET	./installnet
IBM Informix TP/XA	./installxa

Tip: *If you have ordered the Version 5.0 or Version 5.01 IBM Informix OnLine Workstation Manual or IBM Informix Messages and Corrections product, see the UNIX Products Installation Guide that is packaged with that product.*

6. 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.

If you are installing Version 5.2 IBM Informix ESQL Embedded Languages Runtime Facility, IBM Informix ESQL/C, IBM Informix NET, IBM Informix OnLine, or IBM Informix STAR products, go to Step 9.

7. The following prompt appears:

```
Enter your serial number (e.g., INF#X999999) >
```

Enter the 11-character serial number, located on your serial number keycard, and press RETURN.

Tip: *The serial number is three letters, followed by a pound sign (#), followed by one letter and six digits.*

8. 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.

9. The license agreement appears.

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 installation.

10. At this point, the installation procedure begins.

A series of messages appear on the screen as each directory is installed. The messages look like 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 IBM Informix product you are installing.

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

After the message `Installation complete` 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, contact technical support.

Tip: *If you are installing IBM Informix OnLine, refer to IBM Informix OnLine Administrator's Guide to complete the installation and initialization.*

Installing C-ISAM

Unlike other IBM Informix products, C-ISAM does not require that you create a user and group **informix** or define the environment variable INFORMIXDIR (although you must follow these steps if you use C-ISAM with other IBM Informix products). C-ISAM program files are installed either in default directories or in directories that you specify during installation.

Migrating to C-ISAM, Version 5.x

If you are migrating from C-ISAM 5.0 to C-ISAM 5.x, you can bypass this section and go directly to the following section, "Installing C-ISAM, Version 5.x" on page 15. If you are migrating from an earlier version of C-ISAM to C-ISAM 5.x, before you install C-ISAM 5.x, you must follow the steps below to ensure that all transactions can be rolled forward and back correctly, if needed.

To migrate from an earlier version of C-ISAM

1. Before you install C-ISAM 5.x, make backups of existing data files, transaction log files, and audit trail files when no processes are using the files.

2. Null, remove, or otherwise purge the transaction log files and the audit trail files after the backups are complete.

3. Install C-ISAM 5.x, using the installation instructions supplied with the product.

Performing these steps ensures that C-ISAM 5.x creates its own transaction log files and is able to use them to roll transactions back and forward.

Installing C-ISAM, Version 5.x

Follow the steps below to install C-ISAM, Version 5.x.

To install C-ISAM, Version 5.x

1. Log in as **root**.

Important: *Issuing the **su** command to become **root** is not the same as logging in as* ***root***.

2. Make sure that the terminal erase key is set 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
   ```

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

Important: *The directory that you select to hold the sample programs should not be* **/tmp** *or* **/usr/tmp***.*

4. Your product materials include a serial number keycard and electronic media that contain all product files.

   Both are necessary for installation. The media should match the drive or other device of your machine. If you do not have the serial number keycard or the proper media, contact your supplier or sales representative.

5. Your serial number keycard provides the correct command for copying the files onto the hard disk of your machine.

   In most cases, it lists a version of the **tar** or **cpio** command similar to one of the following forms:

   ```
   tar xv[fb] devicename [20]
   ```

   or

   ```
   cpio -icvdBum < devicename
   ```

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

6. Load the media supplied with your software into the appropriate drive or other device in your machine.

7. Transfer the software from the media to the current directory by entering the appropriate **tar**, **cpio**, or other loading command listed on the serial number keycard (as described in step 5).

Important: *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.

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

```
./installisam
```

9. 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.

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

Press RETURN to continue the installation procedure.

10. The following prompt appears:

```
Enter your serial number (e.g., INF#X999999) >
```

Enter the 11-character serial number, located on your serial number keycard, and press RETURN.

Important: *The serial number is three letters, followed by a pound sign (#), followed by one letter and six digits.*

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.

After successful entry of your serial number key, the license agreement appears.

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.

11. After some processing, the following message appears:

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

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

The default target directories for these files are

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

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**, and **include** subdirectories. As described in 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 machines might be different.)

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), simply 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 in 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**, and *pathname*/**bin** (instead of **/usr/lib**, **/usr/include**, and **/usr/bin**). 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 again prompted 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 are displayed:

```
Moving Binaries to /usr/bin
Moving Libraries to /usr/lib
Moving Headers to /usr/include
```

Tip: If you have changed the default directory, /usr/bin 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 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 are returned to the shell prompt. You must move, rename, or delete the existing file or choose a different target directory to complete the installation. You must then rerun the installation script (repeat procedures from step 8 on page 16), and it might be necessary to repeat the complete procedure (from step 5 on page 16).

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 was successfully completed. At this point, you have finished installing C-ISAM and can log out as **root**.

In addition to the program files installed in the **lib**, **bin**, and **include** directories, C-ISAM includes several sample programs (**ex1.c** through **ex7.c**) that you can use with the examples in the C-ISAM manual. The sample program files, installation script files, technical and machine-specific notes files, and special utility files all remain in the directory where you first copied them onto your machine from the media.

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