INFORMIX®-Universal Server

Installation Guide

for UNIX®

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About This Manual

The *INFORMIX-Universal Server Installation Guide* contains instructions for how to install INFORMIX-Universal Server and included database server products on computers that run the UNIX operating system. Keep it with your Informix software documentation for easy reference.

The information in this guide describes the basic installation procedures in a UNIX environment for the following Informix products:

- INFORMIX-Universal Server, Version 9.12
- INFORMIX-Connect, Version 9.12

Organization of This Manual

This guide contains the following sections:

- "Preparing to Install Informix Products" on page 2 contains background information, references to additional resources, and a list of the order in which you should install Informix products.
- "Installing Universal Server" on page 4 contains detailed instructions that show you how to install your Informix software on computers that run UNIX operating systems.

GLS

- "Global Language Support" on page 14 lists the global language support (GLS) files that are shipped with Informix products, which allow you to work in a particular language environment. ◆
- "Role Separation" on page 15 explains the procedures that are required to enable administrative role separation.
- "Private Installation" on page 19 explains the procedures that are required to install a private server copy of Universal Server.
- "Solving Installation Problems" on page 21 contains a list of common installation problems and corrective actions.

Preparing to Install Informix Products

To install Informix products you set certain UNIX environment variables, load the files supplied by Informix onto your computer, and run an installation script.

You can 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 how to install Version 9.12 products have changed slightly. To provide more security, most of the installation program is run as user **informix** rather than user **root**. You can find the necessary installation procedures in "Installing Universal Server" on page 4. The instructions assume that you are familiar with the operating procedures of your computer and with the UNIX operating system.

If you encounter difficulties when you install these products, refer to "Solving Installation Problems" on page 21. If you continue to 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.

Order of Installation

If you install more than one Informix product on the same computer, you must install them in a specific order. The following steps describe, and Figure 1 illustrates, this order:

1. Clients

   Install INFORMIX-Developer SDK or INFORMIX-Connect. For information on how to install client products, refer to the *INFORMIX-Universal Server Client Products Installation Guide for UNIX*.

2. Database servers

   Install Universal Server.

3. DataBlade modules

Install DataBlade modules in order from the oldest to the newest versions. For information on how to install individual DataBlade modules, refer to the DataBlade module documentation.

Before you can use a DataBlade module that you have installed, you must register it with the **BladeManager**, a utility that is included with Universal Server. For information on how to register a DataBlade module, see the *BladeManager User's Guide*.

If you install more than one Informix product, complete all installation procedures for one product before you start to install the next product. Do not load the files from another Informix product onto your computer until you complete the current installation.
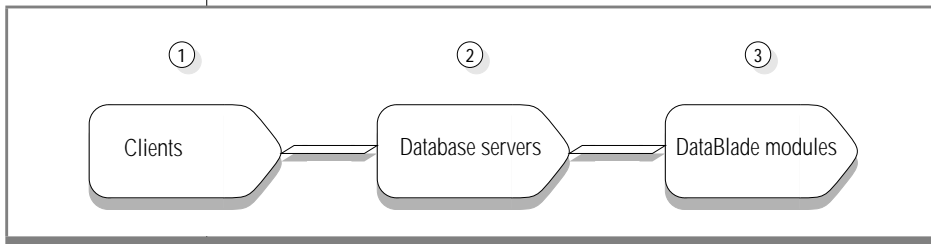
If you want to preserve product files of earlier versions, you must create separate directories for each version of your Informix products. If you install multiple versions of an Informix product, you must set the **INFORMIXDIR** environment variable to the appropriate directory name for the version that you want to access.

For information about the **INFORMIXDIR** environment variable, see "Setting the Environment" on page 6.

Important: If you install a new version of an Informix product, you must follow the same order of installation. For example, if you install a new version of a client product, you must then reinstall a comparable version of Universal Server and any additional products.

Compatibility Information

Earlier versions of Informix client products are compatible with Universal Server. However, the extended functionality that Universal Server provides is available only with the Informix client products included in the 9.12 release.

In this manual, all instances of Universal Server refer to INFORMIX-Universal Server.

Installing Universal Server

This section contains instructions for how to install Universal Server. Universal Server installation includes the following tasks:

- Establishing the Informix user, group, and directory
- Setting the environment
- Verifying directory ownership by the **informix** User
- Loading product source files
- Checking on-line files
- Running the installation script
- Preparing to use Universal Server

Before you proceed with the steps in this section, review the discussion of the additional installation and configuration tasks in the *INFORMIX-Universal Server Administrator's Guide*. If you upgrade to Universal Server, Version 9.12, from OnLine Dynamic Server, consult the *Informix Migration Guide* also.

Certain computers require special installation procedures. If you have such a computer, Informix includes a separate installation letter with the product materials package. 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 that pertain to your computer.

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 the Environment" on page 6.

Establishing the Informix User, Group, and Directory

The first time an Informix product is installed a new user, group, and directory must be created.

Creating the Informix User and Group

The following steps illustrate how to create entries for the user and group **informix**. If you do not have **root** user privileges, ask your system administrator to perform these steps.

1. Log in as **root**.

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

3. Add a new user called **informix** with any operating-system tool or utility that can 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**. Create a password for the 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 that anyone logged in as **informix** can completely access any Informix products and databases. Make sure that you keep the password for the user **informix** confidential.

Informix products use the group **informix** internally to control database access. You must make the user **informix** the *only* member of the group **informix**. If you make an actual user of an Informix product a member of the group **informix**, you can cause unintended and uncontrolled database access.

Important: *When administrative role separation is enforced, any person logged on as the user **informix** is a Universal Server administrator.*

Creating the Informix Directory

The following steps illustrate how to create the Informix directory:

1. Log in as **informix**.
2. Enter the following command to create a new directory for your Informix product:

   ```
   mkdir /local/informix
   ```

*Tip: Although this document uses /**local/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 /**local/informix**.*

Setting the Environment

To prepare the UNIX environment for the installation procedure, ensure that you set the terminal erase key to the backspace key. Enter the following command to set the terminal erase key:

```
stty erase ^h
```

To enter ^h, press the CTRL and H keys simultaneously.

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, only two are essential for installation: the **INFORMIXDIR** and **PATH** environment variables.

1. Check that you are logged in as **informix**.
2. Set the **INFORMIXDIR** and **PATH** environment variables at the command line of the appropriate UNIX shell.

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

3. Make the **$INFORMIXDIR** directory your current working directory.

```
cd $INFORMIXDIR
```

If this command fails, try step 2 again for your shell. (For more information about how to set Informix environment variables, see the *Informix Guide to SQL: Reference*.)

Important: *A database server must be installed in the same directory as any local 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** file, make the modifications in a copy of the file and reference the modified file with the **TERMCAP** environment variable.*

Verifying Directory Ownership by the Informix User

If you have installed or plan to install INFORMIX-Developer SDK, Version 9.12 or INFORMIX-Connect, Version 9.12, on this computer, proceed to "Loading Product Source Files."

If you plan to install Universal Server onto an existing OnLine Dynamic Server or Universal Server installation without first installing either INFORMIX-Developer SDK, Version 9.12, or INFORMIX-Connect, Version 9.12, you must ensure that the **informix** user owns the **aaodir**, **dbssodir**, and **hhelp/xprinter** directories.

1. Enter the following commands to check the ownership of these directories.

```
% ls -l $INFORMIXDIR | grep dir
% ls -l $INFORMIXDIR/hhelp | grep xp
```

2. Check the third field of each output line for the owner name.

   If **informix** is listed as the owner, continue the installation procedure with "Loading Product Source Files."

   If **informix** is not the owner of these directories, you must perform the following additional steps.

3. Log in as **root**.

   If you do not have **root** user privileges, ask your system administrator to perform these steps.

4.   Set the **INFORMIXDIR** environment variable to the directory where the Informix products are installed.

5.   Issue the following commands to change the ownership of these directories:

```
# chown -R informix $INFORMIXDIR/aaodir
# chown -R informix $INFORMIXDIR/dbssodir
# chown informix $INFORMIXDIR/hhelp/xprinter
```

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. If you do not have the serial-number keycard or the proper media, contact your supplier or Informix sales representative.

1.   Check that you are logged in as **informix**.

2.   Load the media supplied with your software into the appropriate drive of your computer.

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

```
cd $INFORMIXDIR
```

4.   Enter the appropriate `cpio`, `tar`, or other load command listed on the serial-number keycard to transfer the software from the media to the current directory. In most cases, the keycard 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. Because devices are commonly located in the **/dev** directory, the pathname is normally **/dev/*devicename***.

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

Checking On-Line Files

When you load your Informix product files, a number of informational files are included to answer specific technical questions. These files are installed in the **$INFORMIXDIR/release/en_us/0333** directory.

Three categories of on-line informational files exist:

- Documentation notes
- Release notes
- Machine notes

The number at the end of each filename indicates the product version number for that file (for example, **SERVERS_9.1** or **ADMINDOC_9.1**).

Important: *Sometimes machine notes contain information for how to install 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.*

When you use any Informix manual, also refer to the documentation notes, release notes, and machine notes files that are referenced in that manual. References to these files appear in the introduction of each manual.

On-Line File	Purpose
INSTSVRDOC_9.1	Documentation-notes files describe features that are not covered in product manuals or that have been modified since publication. The file listed contains the documentation notes for the *INFORMIX-Universal Server Installation Guide.*
SERVERS_9.1	Release-notes files describe compatibility issues, feature differences from earlier versions of Informix products, and how these differences might affect current products. Release notes also contain information about any known problems and their workarounds.
IUNIVERSAL_9.1	Machine-notes files describe any special actions that are required to configure and use Informix products on your computer. Machine notes are named for the product described. For example, the file listed contains the machine notes for INFORMIX-Universal Server.

> **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.*

If you want to install Universal Server and enable role separation, refer to "Role Separation" on page 15. Otherwise, continue with the next section, "To run the installation script." For a description of role separation, see the *INFORMIX-Universal Server Trusted Facility Manual*.

Running the Installation Script

Figure 2 shows the scripts that you can use to install Universal Server.

Figure 2
Installation Commands for Informix Products

Product	Installation Command
INFORMIX-Connect	`./installconn`
INFORMIX-Universal Server	`./installius`

To run the installation script

1. Enter one of the commands listed in Figure 2. Find your product in the table, type the command listed for your product, and press RETURN.

    Install the products in the order they are presented.

    If you have installed INFORMIX-Developer SDK, Version 9.12 on this computer, you do not need to execute the **./installconn** script at this time.

    If you want to install Universal Server without enabling the security feature of role separation, execute the **./installius** script. If you want to enable role separation, refer to "Role Separation" on page 15.

    After you enter the installation command from Figure 2 or finish role-separation configuration for the Universal Server installation, as described in "Role Separation" on page 15, the following message appears on the screen:

    ```
    Product Name
    Copyright Date
    Installation Script

    Installation Script Requirements:
     - A user "informix" and a group "informix"
       must be known to the system.
     - The product source files must have been loaded
       by user informix.
     - This installation script must be run by user
       informix.

    This script will change the owner, group, and mode of
    many files of this package in this directory.

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

2. Press RETURN to continue the installation procedure.

    The following prompt appears:

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

3. Enter the 11-character serial number, located on your serial-number keycard.

   The serial number is 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 CTRL-H as instructed in "Setting the Environment" on page 6.

   After you press RETURN, the following prompt appears:

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

4. Enter the six-letter, software serial-number key that is also located on the serial-number keycard.

   After you press RETURN, a message similar to the following example appears:

   ```
   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.

5. Press RETURN to continue the installation procedure.

   At this point, the installation procedure begins. 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
                .
                .
                .
   *******************************************
   To complete the installation  of product,
   run RUN_AS_ROOT.ext as root.
   *******************************************
   ```

   The preceding message indicates that you have finished the **informix** user portion of the installation procedure for the product in question and that an additional step must be performed as **root** to complete the product installation.

6. At the shell prompt, log in as **root** and run the **RUN_AS_ROOT.*ext***
    script.

    If you do not have **root** user privileges, ask your system adminis-
    trator to run this script and notify you when it completes.

    The **RUN_AS_ROOT.*ext*** script is stored in the **$INFORMIXDIR**
    directory. The *ext* extension indicates the product. To execute the
    RUN_AS_ROOT.*ext* script, include the full path. For example, to
    complete the Universal Server installation when the **$INFORMIXDIR**
    directory is **/local/informix**, enter the following command:

    ```
    /local/informix/RUN_AS_ROOT.ius
    ```

    When the **RUN_AS_ROOT.*ext*** script finishes, the following message
    appears.

    ```
    Installation of product complete
    ```

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 21.

Preparing to Use Universal Server

Universal Server requires additional installation and configuration tasks not
covered in this guide. For information on how to set the required
environment variables, how to set up the **sqlhosts** and the **onconfig.std** files,
and other configuration tasks, see the *INFORMIX-Universal Server Adminis-
trator's Guide*.

If you are upgrading to Universal Server, Version 9.12, from OnLine
Dynamic Server, consult the *Informix Migration Guide* also.

Before the installed Informix products are used, users must set the **INFORMIXDIR**, **PATH**, and load library path environment variables. Set these environment variables either at the command line, or in the **.profile**, the **.cshrc**, or the **.login** file as appropriate. This example uses the Solaris environment variable, **LD_LIBRARY_PATH**. Use the appropriate environment variable for your system.

Bourne shell:
```
INFORMIXDIR=/local/informix
export INFORMIXDIR

LD_LIBRARY_PATH=$INFORMIXDIR/lib:
$INFORMIXDIR/lib/esql
export LD_LIBRARY_PATH

PATH=$INFORMIXDIR/bin:$PATH
export PATH
```

C shell:
```
setenv INFORMIXDIR /local/informix

setenv LD_LIBRARY_PATH ${INFORMIXDIR}/lib:
${INFORMIXDIR}/lib/esql:$LD_LIBRARY_PATH

setenv PATH ${INFORMIXDIR}/bin:${PATH}
```

Global Language Support

GLS

Global Language Support (GLS) allows Informix products to use 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 Informix product. Specifically, the installation process installs the following GLS files into the **$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

For information about GLS files for your Informix product, the **glfiles** script and its output, and guidelines for how to remove unused files, see 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 run Universal Server while they perform unique administrative tasks. You must decide when you install Universal Server 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.

To install Universal Server with role separation, you must complete the following tasks:

- Configure role separation.
- Install Universal Server.

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 1 on page 11 in "To run the installation script" 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 Universal Server administrator, 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 the DBSSO accounts are described in the *INFORMIX-Universal Server Trusted Facility Manual*.

> **Important:** *Members of the group **informix** are characterized as the Universal Server administrator 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 5.*

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 AAO and DBSSO accounts as your system needs, but only one user and one group are required for the AAO and DBSSO directories.

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

See your operating-system documentation for specific instructions on how to create an account.

Group Names

Group assignments are central to role-separation implementation. AAOs and DBSSOs gain their administrative privileges based on their group assignments. The AAO group maintains and analyzes audits, while the DBSSO group oversees the security concerns of Universal Server. 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**. Universal Server administrators gain their administrative privilege based on their membership in the group **informix**.

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

Environment Variables

The AAO, DBSSO, and Universal Server administrators should have their environment variables set as described in "Setting the Environment" on page 6.

Setting Up the Accounts for Standard Users

Standard users must belong to a designated user group to access Universal Server. To restrict standard-user access to the database create a special group. If you specify that group during the role-separation portion of Universal Server installation, only members of that special group can access the database server. By default, all user groups can access Universal Server.

In addition, standard users should have their environment variables set as described in "Setting the Environment" on page 6.

Setting the Role-Separation Environment Variable

After you set up the role-separation accounts, you must enable the role-separation environment variable.

Enter one of the following commands for the appropriate UNIX shell 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.

After you have set this environment variable, you are ready to install the database server with role separation.

Starting the Role-Separation Installation Script

This section describes how to start the installation script and configure the role-separation portion of the installation script.

If you set the **INF_ROLE_SEP** environment variable, the role-separation script assigns the newly created AAO and DBSSO users and groups to own the **aaodir** and **dbssodir** subdirectories in the **$INFORMIXDIR** directory (see "Setting Up the Accounts for Separate Administrative Roles" on page 15). The database server uses the **$INFORMIXDIR** directory to determine who has AAO and DBSSO privileges. By default the user **informix** and the group **informix** own all **$INFORMIXDIR** subdirectories.

To run the installation script

1. Enter the following Universal Server installation command:

   ```
   ./installius
   ```

   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:
   ```

2. Press RETURN to continue role-separation configuration.

   The following prompt appears:

   ```
   *****************************************
         DBSSO INPUT SCREEN
   *****************************************
   Please enter the GROUP name identifying the DBSSO>
   ```

3. Enter the group name for the DBSSO.

   The group name that you enter becomes the group that owns the **dbssodir** directory. The group name must be identical to the group name that you assigned to the DBSSO group (see "Group Names" on page 16).

   After you press RETURN, the following prompt appears:

   ```
   *****************************************
         AAO INPUT SCREEN
   *****************************************
   Please enter the GROUP name identifying the AAO>
   ```

4. Enter the group name for the AAO.

   This step specifies which group of users is allowed access to the database. The group name that you enter becomes the group that owns the **aaodir** directory. The group name must be identical to the group name that you assigned to the AAO group (see "Group Names" on page 16).

   After you press RETURN, the following prompt appears:

   ```
   *****************************************
         User INPUT SCREEN
   *****************************************
   Please enter the GROUP name identifying Users:
   ```

5. Enter the name of the group that should be granted access to the database.

    Users who are members of the group that you enter are granted access to the database server. 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.

    After you press RETURN, the information that you entered is displayed as follows:

    ```
    The DBSSO group is <dbsso_group>
    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:
    ```

6. If the values described in step 5 are not correct, press Q and restart the installation script.

    If all of the values are correct, press RETURN.

The configuration of role separation is complete. To proceed with the rest of the installation procedure, refer to the explanatory text that follows Figure 2 on page 10 and follow all subsequent steps.

Private Installation

A private installation provides support for programmers who develop DataBlade modules and user-defined routines. It allows a developer to attach a debugger and test code extensions to Universal Server without affecting Universal Server performance or the work of other users.

A private installation of Universal Server allows a developer to create new functions, dynamically link them with the database server, execute them, and debug them without violating security. Normally, the utility that starts Universal Server, **oninit**, runs with the privileges of the user **informix**. A private installation allows a developer to run Universal Server without the privileges of the user **informix** or the user **root**.

In a private installation of Universal Server you (and not user **informix**) are the owner of critical resources and services such as the **sysmaster** database.

Restrictions in a Private Installation

A private installation has the following restrictions:

- You must be the owner or belong to the group that is the owner of any chunks you access.
- The private installation does not have the privileges of the user **root** or the user **informix**.
- Database administrator tools, such as **dbschema**, **dbimport**, and **dbexport**, are not supported.
- Other users cannot connect to a private installation of Universal Server.

Creating a Private Installation

A private installation does not affect a conventional installation of Universal Server. However, you must have already installed Universal Server on your system before you perform a private installation.

When you create a private installation, you copy or link files from your conventional installation of Universal Server to a directory of your choice. The **installius** script creates the necessary files and directory structure that you need to run Universal Server in private database server mode. When you create a private installation, you do not need **root** privileges.

*Tip: When you run a conventional installation of Universal Server, **oninit** runs as user **root** and group **informix**. This permits the database server to overcome some default limits such as file descriptor limits and memory limits. If you run a private server installation, **oninit** runs as the user who invokes it and cannot overcome these limits itself. You might need to request that your system administrator increase these limits on your behalf.*

For information on machine-specific parameters that might need to be tuned for Universal Server to work on your platform, see the file **$INFORMIXDIR/release/en_us/0333/IUNIVERSAL_9.1**.

To create a private installation

1.   Log in with the user ID that you intend to use for the private work.

2.   Create a *target_ directory* where you want to install the private installation:

```
mkdir target_directory
```

The directory can have any name that you choose.

3.   Check that you have read/write permissions for the **/INFORMIXTMP** directory.

4.   Check that the load library path environment variable includes **$INFORMIXDIR/lib**.

5.   Make **$INFORMIXDIR** your current working directory.

```
cd $INFORMIXDIR
```

6.   Enter the following command.

```
installius [{-c | -l}] target_directory
```

Choose **-c** to copy all files. Choose **-l** to link files wherever possible.

7.   After the installation is complete, configure the database server as you would a conventional installation. For more information, see the *INFORMIX-Universal Server Administrator's Guide*.

Solving Installation Problems

This section describes the more common installation problems and how to solve them. If 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 when you load 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 load 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 entered the `cpio`, `tar`, or other load commands 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. You might need to obtain new media.

■ **Problem.** You copy files with `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 instead be messages that prompt you to insert the next disk and to type the device name to continue. The message `cannot read input` in this context means that no more data is present 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 run the installation script:

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

```
Please rerun this installation procedure as
the informix user.
```

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

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

```
INFORMIXDIR is not set.
```

   Solution. No default **INFORMIXDIR** exists 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 = pathname
Current working directory = 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 change directories first to the location where the product is to be installed, and then type the following command to set **INFORMIXDIR**:

```
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 loaded the product source files as user **root**.

If you plan to install the product onto an existing installation, log out and log back in as **informix**. Reload the product source files (see "Loading Product Source Files" on page 8) and repeat all subsequent steps.

If this is the first Informix product to be installed, remove the **informix** directory and all of its files. Then begin with "Creating the Informix Directory" on page 6 and repeat all subsequent steps.

This problem can also occur when you attempt the installation on a cross-mounted file system. In such a case, log in as **informix** on the computer where the cross-mounted file system resides. Follow the suggested procedures of the two preceding paragraphs as appropriate.

■ ***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 occurs when you enter 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, you probably did not correctly enter either the 11-character serial number or the 6-letter serial-number key.

If you did enter the serial numbers correctly, the error can occur because the `stty erase ^h` command was not run properly, which causes 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 Environment" on page 6.)

You must rerun the installation script (Figure 2 on page 10), and repeat all subsequent steps. The installation might still fail. If the installation still fails, reload the product files from the media (step 2 on page 8) 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 (Figure 2 on page 10), and repeat all subsequent steps.

Access Problems After Installation

The problems in this category refer to access difficulties with Informix products:

■   ***Problem.*** You try to run an Informix product program from the command line (or through an alternative method), but you receive 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 the Environment" on page 6 discusses how to set these environment variables. Check the environment to verify that the environment variables are set properly. If you run the Bourne shell, remember to export **INFORMIXDIR** and **PATH** after you set them.

   If the **INFORMIXDIR** and **PATH** environment variables are set correctly, check whether another file with the same name exists in the path that 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 path to find the Informix executable file before the other file.

   This error can also occur if the **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 the *Informix Guide to SQL: Reference.*)

   Check the environment to verify that **TERM**, **TERMCAP** (or **TERMINFO**), and **INFORMIXTERM** are set correctly. Reset them if necessary. To check for environment difficulties invoke 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 invoke 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 when 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 the **DBLANG** or **CLIENT_LOCALE** environment variables, if either is not set correctly. As with **INFORMIXDIR**, check your **DBLANG** or **CLIENT_LOCALE** environment variable, and reset it if necessary. For information on **DBLANG** and **CLIENT_LOCALE** environment variable**s**, refer to the *Guide to GLS Functionality*.

- **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 or mistyped key.
  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 2 on page 10) and repeat all subsequent steps.

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

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

  ```
  cannot attach to shared memory
  ```

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

Difficulties While Using Informix Products

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

■   *Problem.* You cannot connect to a local database server from a tool that is earlier than Version 6.0 because the **SQLEXEC** environment variable is not set to the Version 9.12 relay module.

   Solution. Set the **SQLEXEC** environment variable to the full path of the Version 9.12 relay module:

   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 on how to set variables for screen handling, see the *Informix Guide to SQL: Reference*.)

TERM specifies the name of the terminal you use, 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 use **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 about **tctermcap** and the ON-Archive menu interface, see the *INFORMIX-Universal 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 that identifies it as unknown. However, you do not receive an error when you specify an existing but incorrect **TERM** name. You can invoke a text editor (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 Universal Server, but you cannot connect to Universal Server.

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, when 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 when you name file contents, values, and parameters.

Universal Server might also be configured incorrectly. See the *INFORMIX-Universal 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 **IUNIVERSAL_9.1** file in the default directory **$INFORMIXDIR/release/en_us/0333/IUNIVERSAL_9.1** 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 "Organization of This Manual" on page 1.

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