Installation Guide

Informix Dynamic Server.2000
Informix Internet Foundation.2000

on UNIX and Linux

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In This Guide

This guide explains how to install your database server on the UNIX and Linux operating systems.

All references in this manual to Dynamic Server refer to Informix Dynamic Server 2000 and all references to Internet Foundation refer to the database server for Informix Internet Foundation 2000.

The Informix installation programs install the files for the database servers and all associated utilities. For descriptions of Informix utilities and related manuals, see *Getting Started with Informix Dynamic Server 2000*.

Informix recommends that you review the discussion of configuration and initialization tasks in the *Administrator's Guide for Informix Dynamic Server 2000* before you install your database server.

For information on how to create and use a demonstration database, see the *DB-Access User's Manual*.

Important: If you are upgrading or are migrating from a different database server to Dynamic Server, see the "Informix Migration Guide" before you perform the installation steps in this guide.

Types of Users

This guide is written for database administrators who install Informix products. This guide assumes that you are familiar with the operating procedures of your computer and with your operating system. For information about your operating system, see the UNIX or Linux documentation for your computer.

Linux

Software Dependencies

The following table lists which installation tool to use for your Informix version and where to find more information in this guide.

Informix Server	Version	Installation Tool	Page
Dynamic Server	9.2	**cpio**	page 10
Internet Foundation	9.2	RPM	page 22
Dynamic Server	9.21	RPM	page 22
Internet Foundation	9.21	RPM	page 22

Important: Make sure that the Red Hat Package Manager (RPM) is installed on your computer, if applicable.

To obtain a copy of RPM, see the RPM Website at http://www.rpm.org.

To install the RPM package, see "Install the RPM Package" on page 22.

Icon Conventions

Throughout the documentation, you will find text that is identified by several different types of icons. This section describes these icons.
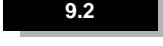
Comment Icons

Comment icons identify three types of information, as the following table describes. This information always appears in italics.

Icon	Label	Description
	Warning:	Identifies paragraphs that contain vital instructions, cautions, or critical information
	Important:	Identifies paragraphs that contain significant information about the feature or operation that is being described
	Tip:	Identifies paragraphs that offer additional details or shortcuts for the functionality that is being described

Feature, Product, and Platform Icons

Feature, product, and platform icons identify paragraphs that contain feature-specific, product-specific, or platform-specific information.

Icon	Description
GLS	Identifies information that relates to the Informix Global Language Support (GLS) feature
Linux	Identifies information that is specific to Linux platforms
UNIX	Identifies information that is specific to UNIX platforms
9.2	Identifies information that is specific to Version 9.2 of Dynamic Server or Internet Foundation
9.21	Identifies information that is specific to Version 9.21 of Dynamic Server or Internet Foundation

These icons can apply to an entire section or to one or more paragraphs within a section. If an icon appears next to a section heading, the information that applies to the indicated feature, product, or platform ends at the next heading at the same or higher level. A ♦ symbol indicates the end of feature-, product-, or platform-specific information that appears within one or more paragraphs within a section.

UNIX

Check Online Files

Informix product files supplement the information in this and other manuals and include online informational files that answer specific technical questions. Online informational files include documentation notes, release notes, and machine notes. These files are installed in the **$INFORMIXDIR/release/en_us/0333** directory.

For updated versions of installation guides, documentation notes, and release notes, see the Installation Resource Web page at http://www.informix.com/informix/resource.

9.2

Online File	Purpose
INSTLUXDOC_9.2	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 this guide.
	The documentation notes for this product are provided in ASCII.
SERVERS_9.2	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.
	The release notes for this product are provided in ASCII.
IDS_9.2	Machine notes files describe any special actions that are required to configure and use Informix products on your computer and describe tuning platform and machine-specific parameters. Machine notes are named for the product described. For example, the file listed contains the machine notes for the database server.
	The machine notes for this product are provided in ASCII.

♦

9.21

Online File	Purpose
INSTLUXDOC.html	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 this guide.
	The documentation notes for this product are provided in HTML.
RELUX.html and **RELUXADD.html**	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.
	The release notes for this product are provided in HTML.
IDS_9.21	Machine notes files describe any special actions that are required to configure and use Informix products on your computer and describe tuning platform and machine-specific parameters. Machine notes are named for the product described. For example, the file listed contains the machine notes for the database server.
	The machine notes for this product are provided in ASCII.
DOCSUNIXTOC.html	This file contains the table of contents for the documentation notes and release notes.

♦

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.

Prepare to Install the Database Server

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.

If you encounter difficulties when you install these products, see "Solve Installation Problems" on page 30. If you continue to encounter problems, contact Informix Technical Support. In North America, call toll-free (800) 274-8184 or send a facsimile to (913) 599-8590. Outside North America, contact your distributor or the nearest Informix subsidiary.

Before you install Informix products, you must set environment variables and load the files that Informix or an Electronic Software Download (ESD) vendor supplies onto your computer.

Important: Check "Software Dependencies" on page 2 for information on which installation tool to use for your Informix version and where to find more information in this guide.

Apply Operating-System Patches

Install any patches that upgrade your operating system to run Dynamic Server. Read the **IDS_9.2** file in the **$INFORMIXDIR/release/en_us/0333** directory for advice on patch information.

Linux

For more information on patches for your Linux computer, see the Informix Linux Web page at http://www.informix.com/linux. The Linux Web page contains links to current information about Informix products for Linux. ♦

Order of Installation

Important: If you are installing client products, Version 2.2 or earlier, see the installation order chart in the "Informix Client Products Installation Guide."

The database server must be installed before other products can be installed. Install products in the following order:

1. Install Dynamic Server.

2. Install Client SDK.

    For information about how to install Informix client products, see the *Informix Client Products Installation Guide for UNIX, Linux, and Windows.*

3. Install Informix tools.

    Many Informix tools bundle Informix Connect. Do not install an older Informix Connect from a tool application over a newer Informix Connect. For more information, see your tools documentation.

4. Install DataBlade modules.

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

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.

Compatibility Information

Earlier versions of Informix client products are compatible with Dynamic Server.

Install Versions 9.2 or 9.21 over Versions 7.x or 9.1x

If you want to upgrade from Version 7.x or Version 9.1x of the database server to Version 9.2x, you can use your system-specific installation script to perform this upgrade.

UNIX

When you install a new version of the database server, the new version overrides the older version. ♦

If you use a platform that requires you to use a package manager, such as Siemens, you must first uninstall the older version of the database server before you install a new version. For more information, see your operating system manual.

To install the database server over existing Version 9.2 products, see "Preinstallation Procedures to Install Over an Existing Installation" on page 15.

Load and Install the Database Server

UNIX

If you are installing Informix products on a UNIX system, follow the procedures in "Install on UNIX and Non-RPM Installed Linux" on page 10. Some UNIX platforms, such as Siemens, require you to use the **pkgadd** utility to install products. If you use such a platform, use the procedures in "Load and Install with the pkgadd Utility" on page 20. ♦

Linux

If you are installing Informix products on a Linux system, check "Software Dependencies" on page 2 for information on which installation tool to use for your Informix version and where to find more information in this guide. ♦

Certain computers require special installation procedures. If you have such a computer, follow the instructions in the installation letter that Informix includes with the product materials package before you continue with the installation instructions in this guide. Also, see the appropriate machine notes file for additional instructions that pertain to your computer.

Install on UNIX and Non-RPM Installed Linux

To install the database server, you must complete preinstallation procedures, load product files, and run the installation scripts.

Important: *For 7.3x and earlier versions of the database server, you performed all preinstallation and installation steps as user **root**. For Dynamic Server and Internet Foundation, Version 9.2x, you must perform some steps as user **informix** and some steps as user **root**.*

Preinstallation Procedures for First-Time Installers

The first time that you install an Informix product, you must:

- create a new **informix** user, group, and product directory.
- set the environment.

If you do not have user **root** privileges, ask your system administrator to create group and user **informix**.

To create group informix

1. Log in as user **root**.
2. Create a new entry for group **informix** in the group file. On most UNIX-based and Linux-based systems, the group file is located in **/etc/group**.

    On HP systems, use the **sam** tool to create groups.

    On Solaris systems, use the **admintool** to create groups.

    Some systems use the **groupadd** utility to create groups. For more information, see your operating-system manual.
3. Provide an unused group number equal to or greater than 100.

To create user informix

1. Log in as user **root**.
2. Create a new entry called **informix** in the **/etc/passwd** file.

   On HP systems, use the **sam** tool to create users.

   On Solaris systems, use the **admintool** to create users.

   Some systems use the **useradd** utility to create user entries. For more information, see your operating-system manual.
3. Provide a user ID number equal to or greater than 100 for that user.
4. Assign the user to group **informix**.
5. Create a password for user **informix**.

*Important: If you use a network, propagate the new user name to all the systems on the network that must recognize user **informix**. 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 or Linux **root** account, so that anyone logged in as **informix** has complete access to 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. 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. User accounts in group **informix** have all the privileges of user **informix** and can be used to disrupt the database server, either intentionally or unintentionally.

*Important: When administrative role separation is enforced, any person logged in as user **informix** is a database administrator.*

To create the Informix product directory ($INFORMIXDIR)

1. Log in as user **informix**.

2. Create an **$INFORMIXDIR** directory for your Informix products.

   Your **$INFORMIXDIR** directory can be any directory that is local and is not mounted from another system on the network.

Linux

The standard Linux location for Informix products is **/opt/informix**. To use the standard location, create an **/opt/informix** directory. ♦

Important: To preserve product files of earlier versions, create separate directories for each version of your Informix products.

To set the environment

1. Perform these steps only if you are installing Dynamic Server for the first time.

2. Prepare the environment for the installation procedure by setting the terminal erase key to the backspace key with the following command:

   ```
   stty erase CTRL-h
   ```

Tip: CTRL-h *looks like* ^H *on the screen.*

3.   Set the following two environment variables before you install an Informix product:

■   **INFORMIXDIR**, which specifies the directory where the product files are installed

Set the **INFORMIXDIR** environment variable to the directory that you created for your Informix products. For more information, see "To create the Informix product directory ($INFOR-MIXDIR)" on page 12.

If you install multiple versions of an Informix product, set the **INFORMIXDIR** environment variable to the appropriate directory name for the version that you want to access.

■   **PATH**, which tells the shell the directories to search for executable files

Set the **PATH** environment variable to include **$INFORMIXDIR/bin** as follows:

Bourne shell:

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

C shell:

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

The following environment variable settings are optional:

■   **CLIENT_LOCALE**, which specifies a nondefault locale

Set this environment variable *only* if you do not want to use the default GLS locale, U.S. English. For more information, see the *Informix Guide to GLS Functionality*.

■   **DBLANG**, which specifies the subdirectory of **$INFORMIXDIR**

Set this environment variable *only* if you do not want to use the default subdirectory, **$INFORMIXDIR/msg/lg_tr/code_set**. For more information, see the *Informix Guide to GLS Functionality* and the *Informix Guide to SQL: Reference.*

■   **INFORMIXSERVER**, which specifies the default database server to which an explicit or implicit connection is made by an SQL API client or DB-Access. For more information, see the *Informix Guide to SQL: Reference.*

■   **INFORMIXTERM**, which specifies whether DB-Access should use the information in the **termcap** file or the **terminfo** directory

■ The shared-library path environment variable, which specifies the library search path

The name of the shared-library path environment variable depends on the platform.

Platform	Environment Variable
AIX	LIBPATH
HP-UX	SHLIB_PATH
Solaris and most other platforms	LD_LIBRARY_PATH

Set this environment variable to include **$INFORMIXDIR/lib** and any of the **$INFORMIXDIR/lib** subdirectories that apply to programs that you will use.

On Solaris, set this environment variable as follows:

Bourne shell:

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

C shell:

```
setenv LD_LIBRARY_PATH${INFORMIXDIR}/lib: \
    ${LD_LIBRARY_PATH}
```

■ **TERM**, which enables DB-Access to recognize and communicate with the terminal that you are using

■ **TERMCAP** (or **TERMINFO**)

To verify that **TERM** and **TERMCAP** (or **TERMINFO**) are set correctly, invoke a text editor such as **vi**. An unformatted display indicates that these environment variables are not set correctly for your terminal.

UNIX

For a list of computers that provide full support for the UNIX System V **terminfo** library, see the online machine notes file for your product. ♦

Important: You must set **INFORMIXDIR** and put **$INFORMIXDIR/bin** in the **PATH** for each user and shell under which you install or use Informix products.

Use the following table to find descriptions of environment variables.

Documents and Files	Description
Informix Guide to SQL: Reference	Describes the Informix environment variables
machine notes	Lists computers that provide full support for the UNIX System V **terminfo** library
$INFORMIXDIR/etc/tctermcap	Describes how to modify or create a **tctermcap** file
Archive and Backup Guide for Informix Dynamic Server 2000	Provides more information about the **tctermcap** file and the ON-Archive menu interface
Informix Guide to GLS Functionality	Describes the **DBLANG** and **CLIENT_LOCALE** environment variables

Preinstallation Procedures to Install Over an Existing Installation

If you are installing Dynamic Server over an existing installation, you must change directory and file ownership before you load and install the products.

Important: *Informix recommends that you first uninstall the existing database server before you install the new database server.*

To change directory and file ownership

This section explains how to ensure that user **informix** owns the appropriate directories, can overwrite older files, and can create new files in all installation directories. If user **informix** does not own the appropriate directories, the installation script might fail when you perform the upgrade.

If you do not have **root** privileges, ask your system administrator to perform the following steps:

1. Log in as user **root**.
2. Set the **INFORMIXDIR** environment variable to the directory where you will install Informix products (**$INFORMIXDIR**).

3. Enter the following commands to change the ownership of the **INFORMIXDIR** directory to user **informix**:

```
# chown -R informix $INFORMIXDIR
```

4. Complete this step *only* if you are installing on one of the computers listed in the following table.

   Enter the appropriate platform-specific command to fix ownership errors in lower-level files and directories, as the following table shows.

Platform	Command

AIX	`# find $INFORMIXDIR -name extend -prune -o \`
	`\(-perm 444 -o -perm 555 \) -exec chmod u+w`
	`{} \;`

HP-UX	`# find $INFORMIXDIR -name lib -prune -o -user` `root -exec chown informix {} \;`

Non-Solaris UNIX (**tar** loadline)	`# find $INFORMIXDIR -name lib -prune -o -user`
	`root -exec chown informix {} \;`
	`# find $INFORMIXDIR -name extend -prune -o \`
	`\(-perm 444 -o -perm 555 \) -exec chmod u+w`
	`{} \;`

Skip this step if:

- your platform is not listed in the table.
- your installation uses the **cpio** loadline.

  Most implementations of the **cpio** format allow you to overwrite files owned by user **root** as long as you have write permission in the directory that contains the files that you want to overwrite.

- you are installing on Linux.

Load Product Files

Important: *Sometimes machine notes contain information on 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 product. For more information, see "Check Online Files" on page 5.*

If your platform does not require you to use the **pkgadd** utility, follow the procedures in this section. If your platform requires the **pkgadd** utility, see "Load and Install with the pkgadd Utility" on page 20.

Important: *Check "Software Dependencies" on page 2 for information on which installation tool to use for your Informix version and where to find more information in this guide.*

For information on how to load ESD-vendor product files, see individual vendor documentation. Note the serial number and activation key for your product. The Informix product-installation program requires that you supply these values when you install that product.

If you receive your product materials directly from Informix, these materials include a serial-number keycard, which shows the serial number and activation key, and electronic media, such as a CD-ROM. Both the serial-number keycard and the electronic media are necessary for installation. If you do not have the serial-number keycard or the proper media, contact your supplier or Informix sales representative.

To load the database server

1. Log in as user **informix**.

2. Enter the following command to set your file-creation mask to zero before you load product files from the media:

   ```
   umask 0
   ```

3. Set the **INFORMIXDIR** environment variable to the directory where you will install Informix products (**$INFORMIXDIR**).

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

   UNIX

   If you are installing from a CD-ROM, use the UNIX **mount** command to mount the CD-ROM. ♦

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

6. Enter the appropriate loadline for your platform at the command line.

UNIX

UNIX loadlines are printed on or included with your shipping media.

If your shipping media does not include a loadline, try one of the following loadlines:

■   `tar xvf` *filename*
■   `cpio -icdvumB` *filename*

where *filename* is the complete pathname to the product file.

Some platforms (such as AIX) might require you to use the *device name* instead of *filename*, where *device name* is the mount point for the product CD-ROM. ♦

Linux

If you are loading Dynamic Server, Version 9.2, on Linux, use the following loadline:

`cpio -ivdumB -I /dev/`*device name*

where *device name* is the name of the CD-ROM. ♦

Important: *The exact form of the **tar** or **cpio** loadline depends on a number of factors, which include your platform, the type of media, and whether multiple products are bundled on the media. In some cases you need to specify a device name rather than a filename in your **tar** or **cpio** loadline. If you were not provided with a loadline and you cannot load your product with the preceding loadlines, contact Informix Technical Support.*

Install with the Installation Script

Important: *A database server must be installed in the same directory as any local client products that use it. Check that the **INFORMIXDIR** environment variable is set to this directory before you install any client products.*

If you use the **pkgadd** utility, do not perform the steps in this section.

To run the installation script

1. Check that you are logged in as user **informix**.
2. Change directories to **$INFORMIXDIR**.
3. Enter the following installation command to install the database server without role separation:

    `/installserver`

On some platforms, you might need to use:

```
/installids
```

4. Optionally, enable the role separation enhanced-security feature. See "Enable Role Separation" on page 24.

   After you enter the installation command or finish role-separation configuration, the script displays information about the product as well as the script requirements.

5. Press RETURN to continue the installation procedure.

   The following prompt appears:

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

6. Enter the 11-character serial number.

   If you received your product materials directly from Informix, this number appears on your serial-number keycard. If you received your product materials from an ESD vendor, the vendor provides you with the serial number.

   The serial number consists of three uppercase letters, followed by a pound sign (#), followed by one uppercase letter and six digits.

   After you press RETURN, the script prompts you to enter your activation key.

7. Enter the six-letter activation key.

   If you received your product materials directly from Informix, this value appears on your serial-number keycard. If you received your product materials from an ESD vendor, the vendor provides you with the value of the activation key.

   After you press RETURN, the script displays a message about the license agreement with Informix. If your software is licensed for use by an unlimited number of simultaneous users, the script displays a message to that effect.

8. Press RETURN to continue the installation procedure. 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 aaodir
   Installing directory bin
   ```

   After the directories are installed, you receive a message that indicates that the user **informix** portion of the installation is complete.

9. Log in as user **root**.

   If you do not have **root** privileges, ask your system administrator to perform steps 10 through 12.

10. Set your **INFORMIXDIR** environment variable to the directory where you will install Informix products.

11. Change to the directory that **INFORMIXDIR** specifies.

12. Run the **RUN_AS_ROOT.server** script:

    ```
    ./RUN_AS_ROOT.server
    ```

    When the **RUN_AS_ROOT.server** script finishes, the following message appears:

    ```
    Installation of product complete
    ```

Important: *If any error messages appear before the* Installation of product complete *message appears, see* *. Do not use the* **oninit** *command. If you use* **oninit,** *you might cause further installation problems.*

The installation script changes the owner of the **INFORMIXDIR** directory to user **informix** as well as any subdirectories and files under the **INFORMIXDIR** directory that the user **informix** must access or control.

Load and Install with the pkgadd Utility

Some platforms, such as Siemens, require you to use the **pkgadd** utility. Check your computer documentation to see if your platform requires **pkgadd**.

If you have such a platform, use the procedures in this section to load and install the product. Make sure that your ⁄**tmp** directory has enough room to accommodate the products.

To load and install the database server

1. Log in as user **root**.

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

3.   Enter one of the following commands:

-    To load from a tape device enter:

  ```
  pkgadd -d tape_device
  ```

  where `tape_device` is the name of your tape device.

-    To load from a CD-ROM, enter the following two command lines:

  ```
  mount -F hs -o dos device_file mount_directory
  pkgadd -d mount_directory/prodimag
  ```

  where `device_file` is the name of the CD-ROM and `mount_directory` is the location where you mount the CD-ROM.

4.   Enter the 11-character serial number.

   If you received your product materials directly from Informix, this number appears on your serial-number keycard. If you received your product materials from an ESD vendor, the vendor provides you with the serial number.

   The serial number consists of three uppercase letters, followed by a pound sign (#), followed by one uppercase letter and six digits.

   After you press RETURN, the script prompts you to enter your activation key.

5.   Enter the six-letter activation key. If you received your product materials directly from Informix, this value appears on your serial-number keycard. If you received your product materials from an ESD vendor, the vendor provides you with the value of the activation key.

6.   On some platforms (such as Siemens), the script prompts you for an absolute pathname to the directory where you want to install the products.

7.   The script prompts you to choose the role separation option. For more information, see "Enable Role Separation" on page 24.

Install on Linux Using RPM

If you are installing Informix products on a Linux system, check "Software Dependencies" on page 2 for information on which installation tool to use for your Informix version.

Install the RPM Package

If you use RPM, you must first uninstall the older version of the database server before you install a new version. See "To uninstall a package" on page 23.

For information on obtaining the RPM package, see "Software Dependencies" on page 2.

To install a package file using rpm

1. Verify that you are logged in as user **root**.

2. Use the **mount** command to mount the drive that contains the Informix package files.

3. Change directories to the location of the Informix package files.

4. Optionally, enable the role separation enhanced-security feature. See "Enable Role Separation" on page 24.

5. Load the contents of the Informix package file, as the following example shows.

   ```
   INFORMIXDIR=/opt/informix/LE
   export INFORMIXDIR
   rpm -iv --relocate /opt/informix=$INFORMIXDIR *.rpm
   ```

   This example loads all Informix packages located in the current directory to the directory specified by **$INFORMIXDIR (/opt/informix/LE)**.

6. Enter the 11-character serial number.

   If you received your product materials directly from Informix, this number appears on your serial-number keycard. If you received your product materials from an ESD vendor, the vendor provides you with the serial number.

   The serial number consists of three uppercase letters, followed by a pound sign (#), followed by one uppercase letter and six digits.

   After you press RETURN, the script prompts you to enter your activation key.

7. Enter the six-letter activation key. If you received your product materials directly from Informix, this value appears on your serial-number keycard. If you received your product materials from an ESD vendor, the vendor provides you with the value of the activation key.

After you enter the installation command or finish role-separation configuration, the script displays information about the product as well as the script requirements.

To uninstall a package

1. Verify that you are logged in as user **root**.

2. Use **rpm -qi** to determine the name, version, and release of the package.

3. Use **rpm -e** to remove the product files and directories, as well as the corresponding entry in the RPM database.

   Do not use the longer name of the package file.

   You can use the commands in the following example to query the RPM database for Dynamic Server and uninstall the database server product:

   ```
   $ rpm -qi ids
   Version    : 9.20.UC5
   Release    : 1
   .
   .
   .
   $ rpm -ev ids-9.20.UC5-1
   ```

Enable Role Separation

Role separation is an enhanced security feature that provides checks and balances to administrative responsibilities. Role separation requires members of different operating-system user groups to run the database server while they perform unique administrative tasks.

Important: *You must decide at the time that you install the database server whether you want to activate role separation.*

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

Important: *You cannot disable role separation after you have enabled it. The only way to turn off role separation is to uninstall the database server and then reinstall it without role separation activated.*

For detailed information on role separation, see the *Trusted Facility Manual.*

Set Up the Accounts for Separate Administrative Roles

To enable role separation, you must set up separate administrative accounts before you run the installation script. In addition to the database server administrator, role separation requires the following accounts:

- The audit analysis officer (AAO) account
- The database system security officer (DBSSO) account

Important: *Members of the group **informix** are characterized as the DBA and as such are not configurable at installation time.*

Account Names

To enable role separation, use account names other than the names **informix** or **root** for the AAO and DBSSO accounts. 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.

Group Names

Group assignments are central to role-separation implementation. AAOs and DBSSOs gain administrative privileges based on their group assignments. The AAO group maintains and analyzes audits, while the DBSSO group oversees the security concerns of the database server. Assign unique names to the AAO and DBSSO groups. For example, you could specify the groups **ix_aao** and **ix_dbsso** or the groups **auditors** and **admin**. Database server administrators gain their administrative privilege based on their membership in the group **informix**.

Set Up the Accounts for Standard Users

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

Set the Role-Separation Environment Variable

After you set up the role-separation accounts, set the role-separation environment variable, **INF_ROLE_SEP**, to a positive integer to implement role separation. Separate groups are responsible for specific administrative tasks. After you set this environment variable, you are ready to install the database server with role separation.

Start the Role-Separation Installation Script

$\Rightarrow$

Important: *If you are installing the product with a Package Manager utility, such as **pkgadd** or **RPM**, you do not need to perform these steps. The steps happen automatically.*

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

The role-separation script makes the newly created AAO and DBSSO users and groups the owners of the **aaodir** and **dbssodir** subdirectories in the **INFORMIXDIR** directory. The database server uses the **INFORMIXDIR** directory to determine who has AAO and DBSSO privileges. By default, if you do not enable role separation, user **informix** and group **informix** own all **INFORMIXDIR** subdirectories.

To run the installation script

1. Change directories to **$INFORMIXDIR**.

2. Enter the following installation command:

   ```
   ./installserver
   ```

   On some platforms, you might need to use:

   ```
   ./installids
   ```

   The script displays information about role separation.

3. Press RETURN to continue role-separation configuration.

4. At the prompt, enter the group name for the DBSSO account.

   The group name that you enter becomes the group that owns the **$INFORMIXDIR/dbssodir** directory. This group name must be identical to the group name that you assigned to the DBSSO group.

5. At the prompt, enter the group name for the AAO account.

   This step specifies the group of users who are allowed to access the database. The group name that you enter becomes the group that owns the **$INFORMIXDIR/aaodir** directory. This group name must be identical to the group name that you assigned to the AAO group.

6. At the prompt, enter the name of the group that should be granted access to the database.

    Users who are members of this group can access the database server.

    To grant access to all user groups, enter an asterisk (*). If you do not specify a group, the script uses the default (*).

    After you press RETURN, the information that you entered appears.

7. If the values displayed are not correct, press Q and restart the installation script.

    If all the values are correct, press RETURN.

The configuration of role separation is complete.

To finish the database server installation, if you are installing:

- Dynamic Server or Internet Foundation on UNIX, return to step 5 on page 19.

Linux

- Dynamic Server on Linux, return to step 5 on page 19.
- Internet Foundation on Linux, return to step 5 on page 22. ♦

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 the database server without affecting the performance of the database server or the work of other users.

A private installation of the database 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 the database server, **oninit**, runs with the privileges of user **informix**. A private installation allows a developer to run the database server without the privileges of user **informix** or user **root**.

In a private installation of the database server, you (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. A chunk is the largest unit of physical disk dedicated to database server data storage.

  For more information on chunks, see the *Administrator's Guide for Informix Dynamic Server 2000*.

- It does not have the privileges of user **root** or user **informix**.

- It does not support DBA tools, such as **dbschema**, **dbimport**, and **dbexport**.

- Other users cannot connect to a private installation of the database server.

Create a Private Installation

A private installation does not affect a conventional installation of the database server. However, you must have already installed the database 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 the database server to a directory of your choice. The installation script creates the necessary files and directory structure that you need to run the database server in private database server mode. When you create a private installation, you do not need to be user **root**.

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 files. The directory can have any name and location that you choose.

3. Check that you have read and write permissions for the target directory.

4. Check that the shared-library path environment variable includes **$INFORMIXDIR/lib**. The name of this environment variable is platform-dependent. See the table on page 14.

5.	Change directories to **$INFORMIXDIR**.

6.	Enter the following command:

```
./installserver [-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 *Administrator's Guide for Informix Dynamic Server 2000*.

Overcome Default Limits

When you run a conventional installation of the database server, **oninit** runs as user **root** and group **informix**. This arrangement permits the database server to overcome some default limits such as file descriptor limits and memory limits. If you run a private database 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.

Test the Installation

Check to see that the installation is correct by running the following commands:

```
$ cd /tmp
$ dbaccessdemo
& dbaccess stores
```

If the installation is correct, the **dbaccessdemo** script will run and the **stores_demo** database appears.

Solve Installation Problems

This section describes the most common installation problems and the corresponding solutions for users who receive their product materials directly from Informix. If any of the outlined problems persist, contact Informix Technical Support. In North America, call toll-free (800) 274-8184 or send a facsimile to (913) 599-8590. Outside North America, contact your distributor or the nearest Informix subsidiary.

If you receive your Informix product materials from an ESD vendor, consult the vendor documentation for information on how to solve any problems you might encounter.

Media-Loading Failures

The problems documented in this section might appear when you load files to your computer.

- **Problem.** You cannot find the loadline on the product materials package and the examples in "Load Product Files" on page 17 do not apply to your platform or do not work.

  Solution. Contact Informix Technical Support to obtain the correct loadline for your platform.

- **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. Verify that you entered the **cpio**, **tar**, or other load command correctly (see "Load Product Files" on page 17), then try the command again. If the load command fails again, contact Informix Technical Support 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 your computer. After you enter the **cpio** command, a message similar to one of the following examples appears:

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

Solution. Load the next disk, enter the device name exactly as you entered it for the **cpio** command, and press RETURN. Continue the process for each disk supplied for that Informix product.

RPM Failures

The problems in this section can occur while you use the **rpm** utility to load or unload an Informix package.

■ *Problem.* The command displays one of the following messages:

```
ERROR: You must be root to install product.
ERROR: You must be root to uninstall product.
```

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

■ *Problem.* The command displays the following message:

```
ERROR: Failed to locate directory with write
permissions.
```

Solution. Check that you are logged in as user **root**. Use the **chmod** command to grant write permission on the current directory and then run the **rpm** command again.

■ *Problem.* The command displays one of the following messages:

```
ERROR: User informix must exist to install product.
ERROR: Group informix must exist to install product.
```

Solution. Follow the instructions in "Preinstallation Procedures for First-Time Installers" on page 10 to create the necessary user or group.

■ *Problem.* The command displays the following message:

```
package product is already installed
ERROR: product.rpm cannot be installed
```

Solution. If you want to reinstall the product, uninstall the previous package, as described in "To uninstall a package" on page 23.

■ **Problem.** The **rpm -e** command displays the following message:

```
package product is not installed
```

Solution. Verify the spelling of the package name. Use the **rpm -i** option to print the name, version, and release. Rerun the **rpm -e** command with the correct specification for the package. For information about specifying a package name, see "Install the RPM Package" on page 22.

■ **Problem.** The command displays the following message:

```
rpm: arguments to --relocate must begin with a /
```

Solution. If you relocate the package installation directory by selecting a target directory other than the default, you must specify an absolute pathname for the target directory. For example:

```
rpm -iv --relocate /opt/informix=$INFORMIXDIR *.rpm
```

Product-Installation Failures

The problems in this section might appear when you run the installation script.

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

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

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

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

```
INFORMIXDIR is not set.
```

Solution. Set the **INFORMIXDIR** environment variable to the directory where the product will be installed. The installation script does not set the **INFORMIXDIR** environment variable for you.

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

```
INFORMIXDIR and working directory do not match.
INFORMIXDIR = pathname_x
Current working directory = pathname_y
```

Solution. Make sure that you are in **$INFORMIXDIR**, the directory into which you want to install the products when you invoke the installation script.

■ *Problem.* After you enter the six-letter activation key, the script displays a message similar to one of the following examples:

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

Solution. This problem occurs if you load the product files as user **root** or you upgrade an existing installation and do not perform the steps in "To change directory and file ownership" on page 15.

❏ To install Informix products for the first time, remove the **INFORMIXDIR** directory and all its files. Then follow the procedures in "Preinstallation Procedures for First-Time Installers" on page 10 and perform all subsequent steps.

❏ To upgrade an existing installation, follow the procedures in "To change directory and file ownership" on page 15 and perform all subsequent steps.

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

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

Solution. Make sure you enter the correct serial-number value.

■ *Problem.* After you enter the six-letter activation key or serial number, one of the following messages appears as different directories are installed:

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

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

Solution. Make sure that you enter the correct serial-number and activation-key values.

If the error appears again, rerun the **stty** command (see "To set the environment" on page 12), rerun the installation script (see "Install with the Installation Script" on page 18), and repeat all subsequent steps.

UNIX

If the installation fails again, reload the product files (see "Load Product Files" on page 17) and repeat all subsequent steps. ♦

Linux

If this problem occurs again, repeat the steps in "To install a package file using rpm" on page 22 and all subsequent steps. ♦

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

```
Unknown message number 32766.
```

Solution. Set the **INFORMIXDIR** environment variable before you run the installation script. Rerun the installation script (see "Install with the Installation Script" on page 18) and repeat all subsequent steps.

■ *Problem.* When you run the **./installserver** or the **./installids** script, the following message appears:

```
chown filename: Not owner.
```

Solution. To install the product over an existing installation, follow the procedures in "Preinstallation Procedures to Install Over an Existing Installation" on page 15 and perform all subsequent steps.

To install Informix products for the first time, remove **$INFORMIXDIR** and all its files. Then follow the procedures in "Preinstallation Procedures for First-Time Installers" on page 10 and perform all subsequent steps.

Access Problems After Installation

The problems in this section relate to access difficulties.

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

```
program:  Command not found.
```

Solution. Verify that the environment variables are set properly (see "To set the environment" on page 12).

If the environment variables are set correctly, check if another file with the same name exists in your search path that would be accessed before the Informix executable file. Move, rename, or delete that file, or reorder the member paths in the search path value so that the path in which the Informix executable resides precedes the path in which the conflicting executable resides.

- **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. Verify that the **INFORMIXDIR** environment variable is set correctly. If you changed the default settings for the **DBLANG** and **CLIENT_LOCALE** environment variables, change them back to the default, and try to invoke the Informix product again (see "To set the environment" on page 12).

- **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. Place **$INFORMIXDIR/bin** first in the **PATH** environment variable, rerun the installation script (see "Install with the Installation Script" on page 18), and repeat all subsequent steps.

- **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. Before you use the database server, bring it to online mode. See the chapter on managing database server nodes in the *Administrator's Guide*).

Difficulties While Using Informix Products

The problems in this section relate to product usage.

■ *Problem.* The list of databases is incomplete.

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

■ *Problem.* After you access an Informix application, the screen display is unformatted.

Solution. Verify that the **TERM**, **TERMCAP** (or **TERMINFO**), and **INFORMIXTERM** environment variables are set correctly (see "To set the environment" on page 12).

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

Solution. Check that your environment variables and your **sqlhosts**, **/etc/hosts**, and **/etc/services** files do not contain typographical errors, misspellings, or inconsistencies.

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

Check that the database server is configured correctly. See the chapter on client/server connectivity in the *Administrator's Guide*).

■ *Problem.* Unusual problems occur (for example, networking problems on Hewlett-Packard computers or unexplainable failures on Sun computers).

Solution. Your system might need a patch. Read the machine notes file for advice on patch information. For more information, see "Check Online Files" on page 5.

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