IBM Informix
Version 11.50

IBM Informix Dynamic Server Installation Guide for UNIX, Linux, and Mac OS X

GC27-3620-00

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Note
Before using this information and the product it supports, read the information in "Notices" on page B-1.

Contents

Introduction

This introduction provides an overview of IBM® Informix® products and of this publication as well as the conventions that it uses.

About this publication

This publication explains how to install IBM Informix Dynamic Server (IDS) Enterprise Edition and Workgroup Edition on UNIX®, Linux®, and Mac OS X operating systems.

The following IBM Informix products can be installed with IDS:

- IBM Informix BladeManager
- IBM Informix JDBC Driver (JDBC)
- IBM Informix Client Software Development Kit (Client SDK) *or* IBM Informix Connect (IConnect)

The bundled version of the Mac OS X installation program provides the option to install IDS with either Client SDK or Informix Connect only. However, IBM Informix JDBC Driver and BladeManager are available on the bundled version of the installation media for Mac OS X, and they can be installed separately.

When the installation media contains IDS bundled with client programs, the Windows® clients are on a different disk from the one with UNIX, Linux, and Mac OS X clients.

IBM Informix Server Administrator (ISA) is not included with the IDS installation media. OpenAdmin Tool for IDS is a PHP-based Web browser administration tool that can administer multiple database server instances using a single installation on a Web server.

ISA is available for download at http://www.ibm.com/software/data/informix/downloads.html. ISA is not available for instances on Mac OS X.

The OpenAdmin Tool is available for download at http://www.openadmintool.com.

For a description of clients and other products that function with IDS, see the *IBM Informix Dynamic Server Getting Started Guide*.

This publication is written for database administrators (DBAs) who install IBM Informix products. This publication assumes that you are familiar with the operating procedures of your computer and with your operating system.

What's new in IBM Informix Dynamic Server installation, Version 11.50

This publication includes information about new features and changes in existing functionality.

The following changes and enhancements are relevant to this publication. For a comprehensive list of new features for this release, see the *IBM Informix Dynamic Server Getting Started Guide*.

Table 1. What's new in Version 11.50.xC6

Overview	Reference
Deploying Instances with the Deployment Utility You can use the deployment utility (**ifxdeploy**) to rapidly deploy a configured IDS instance to multiple computers, avoiding the need to manually configure instances on each computer and wait for each instance to initialize. By setting configuration parameters, essential environment variables, and SQLHOST connectivity information in a deployment utility configuration file (**ifxdeploy.conf**) template, you can reuse the configuration file to deploy the instance multiple times. If you are deploying an instance with existing data, you can use the **-relocate** option to store the data in a different location from where it was originally stored. You can call the utility programmatically or from a script as part of an application installation that embeds IDS. The utility automatically extracts tar files that are compressed with Gzip.	See Chapter 8, "Deploying IDS with the deployment utility," on page 8-1.
Installing IDS by using an RPM package (Linux) You can install IBM Informix products by using RPM Package Manager (RPM) on some Linux operating systems (see the Machine Notes for the list of operating systems). RPM simplifies installation by installing the product from a single package, and tracks the packages that are installed on a system. By default, this method installs IDS in the `/opt/IBM/informix` directory.	See "Installing IDS with RPM Package Manager (Linux)" on page 2-14.

Table 2. What's new in Version 11.50.xC4

Overview	Reference
Automatic Check for Installation Path Security (UNIX, Linux, Mac OS X) The installation program now verifies that all the directories in the installation path are secure. For most environments, installation will proceed without any user interaction with the security check. However, if any directories are not secure, you will be presented with options to address the problem, including one option to automatically reset the directory owner, group, and permissions settings.	See "Secure a nonsecure IDS installation path" on page 2-15.

Table 3. What's new in Version 11.50.xC3

Overview	Reference
Unattended (Silent) Installation Option on Mac OS X You can install IDS, IBM Informix Client Software Development Kit (Client SDK), and Informix Connect on Mac OS X without any user interaction after you launch the "silent" installation application. Previously, silent installation was available only on other operating systems that support IDS.	See "Performing an unattended IDS installation (Mac OS X)" on page 3-4.

Table 4. What's new in Version 11.50.xC2

Overview	Reference
Enhanced IDS Installation Application on Mac OS X The IDS installation application can automatically tune the kernel settings to values that support a working instance of the database server on your computer. In addition, after setup of a demonstration database server is complete, a terminal icon appears inside the installation directory for easier navigation.	See "Installing IDS quickly with defaults (Mac OS X)" on page 3-1 or "Installing IDS with selected features (Mac OS X)" on page 3-2, depending on the installation setup you choose.

Table 5. What's new in Version 11.50.xC1

Overview	Reference
Enhanced Configuration Options during Installation You can use the new Instance Configuration Wizard to automatically create the database server configuration file (`onconfig`) when you install with GUI or console mode. To access the wizard, select to create a demonstration database server and then choose to customize the default configuration file. Provide the information for the instance that you are installing, such as the number of CPUs, memory, disk space, and estimates of online transactions and query clients. The wizard ensures that your settings are valid, and it calculates values for other server configuration parameters based on your settings. Your custom configuration information is stored in the `onconfig` file so that when you start the instance after the product is installed, the instance runs with your settings.	See "Instance Configuration Wizard" on page 1-13
DRDA® Protocol Configuration during Installation It's easier now than in past releases to set up an instance to use a variety of database clients. When you install IDS Version 11.50 the installer enables you to configure a database server alias and a port for clients that use the Distributed Relational Database Architecture™ (DRDA) protocol. DRDA is for open development of applications that allow access of distributed data. DRDA is interoperable with IBM Data Server clients. If you do not select the DRDA support option, you can still set up the instance to function with the DRDA protocol after installation.	Read the documentation that is applicable to your installation setup and operating system: • "Installing IDS quickly with defaults (UNIX and Linux)" on page 2-1 • "Installing IDS with selected features and client products (UNIX and Linux)" on page 2-2 • "Installing IDS quickly with defaults (Mac OS X)" on page 3-1 • "Installing IDS with selected features (Mac OS X)" on page 3-2
Installation on Mac OS X You can install IDS and other IBM Informix products on a computer running the Mac OS X operating system. The GUI installation program ensures that the prerequisite **informix** user and group accounts are established before copying product files to your computer.	See Chapter 3, "Installing IDS on Mac OS X," on page 3-1

IBM Informix Dynamic Server editions

IDS is available in different editions to fit different business needs.

For details on the differences between editions, see the following Web site: http://www.ibm.com/software/data/informix/ids/ids-ed-choice/

The license agreement has the specific restrictions for each edition. To view a license for a particular edition, search for "Informix Dynamic Server" on the following Web site: http://www.ibm.com/software/sla/sladb.nsf

Documentation conventions

Special conventions are used in the IBM Informix product documentation.

Technical changes

Technical changes to the text are indicated by special characters depending on the format of the documentation.

HTML documentation
New or changed information is surrounded by blue ⩾ and ⩽ characters.

PDF documentation
A plus sign (+) is shown to the left of the current changes. A vertical bar (|) is shown to the left of changes made in earlier shipments.

Feature, product, and platform markup

Feature, product, and platform markup identifies paragraphs that contain feature-specific, product-specific, or platform-specific information.

Some examples of this markup follow:

Dynamic Server only: Identifies information that is specific to IBM Informix Dynamic Server

Windows only: Identifies information that is specific to the Windows operating system

This markup can apply to one or more paragraphs within a section. When an entire section applies to a particular product or platform, this is noted as part of the heading text, for example:

Table Sorting (Windows)

Example code conventions

Examples of SQL code occur throughout this publication. Except as noted, the code is not specific to any single IBM Informix application development tool.

If only SQL statements are listed in the example, they are not delimited by semicolons. For instance, you might see the code in the following example:

```
CONNECT TO stores_demo
...

DELETE FROM customer
   WHERE customer_num = 121
...

COMMIT WORK
DISCONNECT CURRENT
```

To use this SQL code for a specific product, you must apply the syntax rules for that product. For example, if you are using an SQL API, you must use EXEC SQL at the start of each statement and a semicolon (or other appropriate delimiter) at the end of the statement. If you are using DB–Access, you must delimit multiple statements with semicolons.

Tip: Ellipsis points in a code example indicate that more code would be added in a full application, but it is not necessary to show it to describe the concept being discussed.

For detailed directions on using SQL statements for a particular application development tool or SQL API, see the documentation for your product.

Additional documentation

Documentation about IBM Informix products is available in various formats.

You can view, search, and print all of the product documentation from the information center on the Web at http://publib.boulder.ibm.com/infocenter/idshelp/v115/index.jsp.

For additional documentation about IBM Informix products, including release notes, machine notes, and documentation notes, go to the online product library page at http://www.ibm.com/software/data/informix/techdocs.html. Alternatively, you can access or install the product documentation from the Quick Start CD that is shipped with the product.

Compliance with Industry Standards

IBM Informix products are compliant with various standards.

IBM Informix SQL-based products are fully compliant with SQL-92 Entry Level (published as ANSI X3.135-1992), which is identical to ISO 9075:1992. In addition, many features of IBM Informix database servers comply with the SQL-92 Intermediate and Full Level and X/Open SQL Common Applications Environment (CAE) standards.

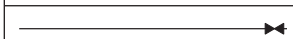
The IBM Informix Geodetic DataBlade® Module supports a subset of the data types from the *Spatial Data Transfer Standard (SDTS)—Federal Information Processing Standard 173*, as referenced by the document *Content Standard for Geospatial Metadata*, Federal Geographic Data Committee, June 8, 1994 (FGDC Metadata Standard).

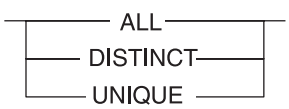
IBM Informix Dynamic Server (IDS) Enterprise Edition, Version 11.50 is certified under the Common Criteria. For more information, refer to *Common Criteria Certification: Requirements for IBM Informix Dynamic Server*, which is available at http://www.ibm.com/support/docview.wss?uid=swg27015363.

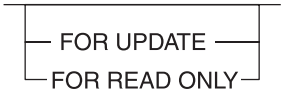
Syntax Diagrams

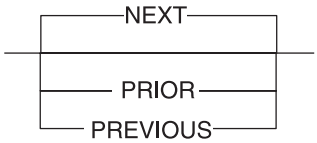
Syntax diagrams use special components to describe the syntax for statements and commands.

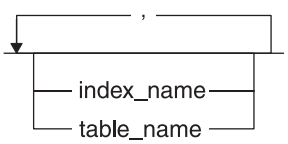
Table 6. Syntax Diagram Components

Component represented in PDF	Component represented in HTML	Meaning
	`>>----------`	Statement begins.
	`---------->`	Statement continues on next line.
	`>----------`	Statement continues from previous line.
	`----------><`	Statement ends.
	`--------SELECT----------`	Required item.
	`--+-----------------+---` `  '------LOCAL------'`	Optional item.

	`---+-----ALL-------+---`
	`   +--DISTINCT-----+`
	`   '---UNIQUE------'`
		Required item with choice. One and only one item must be present.

	`---+------------------+---`
	`    +--FOR UPDATE-----+`
	`    '--FOR READ ONLY--'`
		Optional items with choice are shown below the main line, one of which you might specify.

	`    .---NEXT---------.`
	`----+----------------+---`
	`    +---PRIOR--------+`
	`    '---PREVIOUS-----'`
		The values below the main line are optional, one of which you might specify. If you do not specify an item, the value above the line will be used as the default.

	`  .-------,-----------.`
	`  V                  |`
	`---+-----------------+---`
	`    +---index_name---+`
	`    '---table_name---'`
		Optional items. Several items are allowed; a comma must precede each repetition.

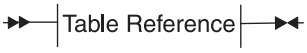
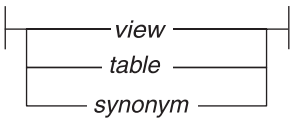
	`>>-| Table Reference |-><`	Reference to a syntax segment.

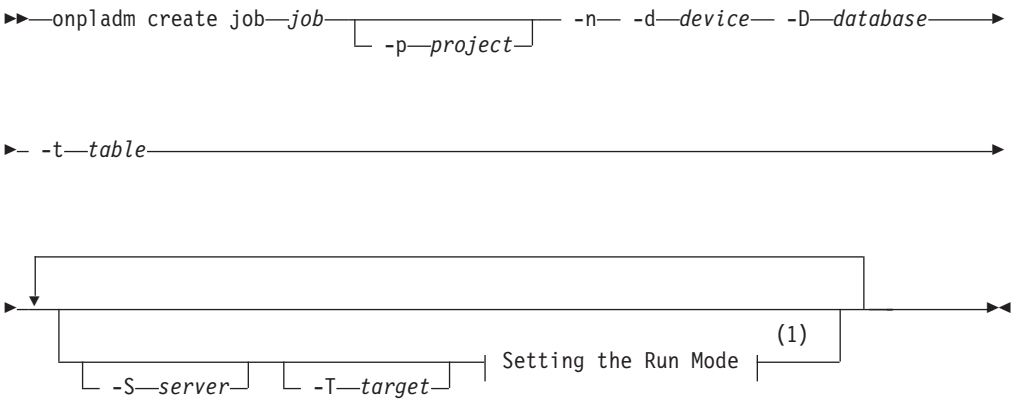
Table Reference
 
	`Table Reference`
	`|--+-----view--------+--|`
	`   +------table------+`
	`   '----synonym------'`
		Syntax segment.

How to read a command-line syntax diagram

Command-line syntax diagrams use similar elements to those of other syntax diagrams.

Some of the elements are listed in the table in Syntax Diagrams.

Creating a no-conversion job

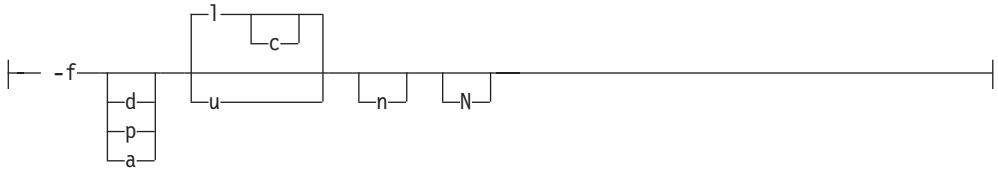


Notes:

1 See page Z-1

This diagram has a segment named “Setting the Run Mode,” which according to the diagram footnote is on page Z-1. If this was an actual cross-reference, you would find this segment in on the first page of Appendix Z. Instead, this segment is shown in the following segment diagram. Notice that the diagram uses segment start and end components.

Setting the run mode:



To see how to construct a command correctly, start at the top left of the main diagram. Follow the diagram to the right, including the elements that you want. The elements in this diagram are case sensitive because they illustrate utility syntax. Other types of syntax, such as SQL, are not case sensitive.

The Creating a No-Conversion Job diagram illustrates the following steps:

1. Type **onpladm create job** and then the name of the job.
2. Optionally, type **-p** and then the name of the project.
3. Type the following required elements:
   - **-n**
   - **-d** and the name of the device
   - **-D** and the name of the database
   - **-t** and the name of the table

4. Optionally, you can choose one or more of the following elements and repeat them an arbitrary number of times:
   - **-S** and the server name
   - **-T** and the target server name
   - The run mode. To set the run mode, follow the Setting the Run Mode segment diagram to type **-f**, optionally type **d**, **p**, or **a**, and then optionally type **l** or **u**.
5. Follow the diagram to the terminator.

Keywords and punctuation

Keywords are words reserved for statements and all commands except system-level commands.

When a keyword appears in a syntax diagram, it is shown in uppercase letters. When you use a keyword in a command, you can write it in uppercase or lowercase letters, but you must spell the keyword exactly as it appears in the syntax diagram.

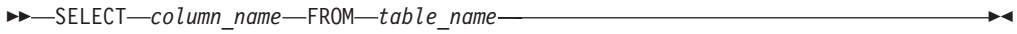
You must also use any punctuation in your statements and commands exactly as shown in the syntax diagrams.

Identifiers and names

Variables serve as placeholders for identifiers and names in the syntax diagrams and examples.

You can replace a variable with an arbitrary name, identifier, or literal, depending on the context. Variables are also used to represent complex syntax elements that are expanded in additional syntax diagrams. When a variable appears in a syntax diagram, an example, or text, it is shown in *lowercase italic*.

The following syntax diagram uses variables to illustrate the general form of a simple SELECT statement.



When you write a SELECT statement of this form, you replace the variables *column_name* and *table_name* with the name of a specific column and table.

How to Provide Documentation Feedback

You are encouraged to send your comments about IBM Informix user documentation.

Use one of the following methods:

- Send e-mail to docinf@us.ibm.com.
- Go to the information center at http://publib.boulder.ibm.com/infocenter/idshelp/v115/index.jsp and open the topic that you want to comment on. Click the feedback link at the bottom of the page, fill out the form, and submit your feedback.
- Add comments to topics directly in the IDS information center and read comments that were added by other users. Share information about the product documentation, participate in discussions with other users, rate topics, and

more! Find out more at http://publib.boulder.ibm.com/infocenter/idshelp/v115/topic/com.ibm.start.doc/contributing.htm.

Feedback from all methods is monitored by those who maintain the user documentation. The feedback methods are reserved for reporting errors and omissions in our documentation. For immediate help with a technical problem, contact IBM Technical Support. For instructions, see the IBM Informix Technical Support Web site at http://www.ibm.com/planetwide/.

We appreciate your suggestions.

Chapter 1. Preparing to install IDS and client products

You must prepare your system before you start the installation process and ensure that you have sufficient authority to perform the installation.

You should obtain root privileges before performing many of the installation-related tasks.

Preparation for installation encompasses some of the following tasks. Exactly which tasks you need to complete depends on your operating system, host computer environment, and your installation preferences.

Preparing the operating system for installation

Before you install IBM Informix Dynamic Server, you must apply all patches and install the shared library files that are described in the Machine Notes for your specific operating system.

To prepare the operating system on your system:

1. Read the Machine Notes, which are in the `ids_machine_notes_11.50.txt` file on the installation media. The Machine Notes also contain recommendations for tuning the operating system to support instances, as well as any specific limitations to your operating system. You can also access the Machine Notes from the following Web sites:
   - The IBM Informix Information Center at http://publib.boulder.ibm.com/infocenter/idshelp/v115/index.jsp
   - The IBM Informix Library at http://www.ibm.com/software/data/informix/pubs/library/
2. Apply the operating system patches as documented.
3. If you do not have all the required library files for your platform, install them on your system. IBM Informix documentation refers to the installation directory as `$INFORMIXDIR`. If `$INFORMIXDIR` is set in the environment, this will be the default install location.

After installation, the Machine Notes, as well as the IDS Documentation Notes and Release Notes, are in the `$INFORMIXDIR/release` subdirectory.

Mac OS X users: If you upgraded the operating system to Snow Leopard (Mac OS X 10.6) and an existing IDS installation does not initialize or start after the upgrade, user **informix** and group **informix** might require changes. See the Release Notes for your edition for more information.

Tip: Verify that your host computer has sufficient disk space for the installation, as documented in "Disk space requirements for IBM Informix" on page 1-2.

Upgrading existing IDS installations

If you have earlier versions of IBM Informix Dynamic Server installed, you must use an upgrade path that is appropriate for your environment.

See the *IBM Informix Migration Guide* for detailed prerequisites and instructions about how to upgrade.

- If you are upgrading from one version of IBM Informix Dynamic Server to another on the same UNIX or Linux system, you can keep the same **informix** group identifier and **informix** user account. If the group identifier exists locally but user **informix** does not, you must create this user definition manually before running the installation application.
- On Mac OS X, you do not need to create user or group **informix** manually for a regular upgrade or installation.
- If you plan to install where a previous version of IDS is already located, before you upgrade you must back up the database server that you are using, as well as its configuration files.

The upgrade paths are as follows:

- The recommended approach is to install IDS in a new directory.
- If necessary, you can upgrade existing IDS binaries by running the installation application in the `$INFORMIXDIR` path of the old version. When you upgrade the binaries in the `$INFORMIXDIR`path of the existing installation, the application automatically selects all features to include. This is done to ensure existing binaries are completely upgraded. To follow this upgrade path, do the following:
  1. Save copies of the `onconfig` file, **sqlhosts**, and root chunks of the existing installation.
  2. Install IDS, Version 11.50 in the `$INFORMIXDIR` path of the IDS version that you want to upgrade.
- You can upgrade an RPM package installation of IDS in the command-line environment. The old version is uninstalled and replaced with the new version of the product. All copies of IDS installed with RPM are subject to the same software license agreement terms that are accepted when you extract the RPM package file. To upgrade an RPM package installation, run the following command:

  ```
  rpm -U --prefix=installation_path new_package_file
  ```

  where *installation_path* stands for your path to the old-version RPM package and *new_package_file* stands for the new-version RPM package file name.

Determine system requirements

Before you install any products, make sure your system meets all the requirements.

Read the following topics and make sure that your system meets all requirements:

- "Disk space requirements for IBM Informix"
- "Extracting JRE from the installation media manually" on page 1-4
- "Choose an installation directory: $INFORMIXDIR" on page 1-8
- "Choose installation options" on page 1-6

Disk space requirements for IBM Informix

A typical installation of IBM Informix Dynamic Server requires approximately 750MB of disk space, with a minimum of 256 MB RAM on UNIX and Linux and 512 MB RAM on Mac OS X.

Some installation choices require additional disk space. The installation application informs you of the total disk space required by your setup before you copy the binary files to your host computer.

In addition to the IDS product space requirements listed above, ensure that you have 120 MB free space available in your temporary directory (`/tmp` by default) before installation on UNIX or Linux if you are using the Java™ Runtime Environment (JRE) that is bundled with the installation application. The JRE is extracted from the installation media if your system does not have it, and it is removed after installing products and features.

Computers with the Mac OS X operating system host the required JRE version. Therefore, an installation on this platform does not use the JRE bundled with the installation application.

JRE on the installation media

Remember to keep the IBM Informix installation media after you install a product because it contains the Java Runtime Environment (JRE) version for uninstallation and for modifying current installations.

Important: Keep the installation media that you are using so that you can extract the Java Runtime Environment (JRE) from the media if necessary. However, this does not apply to Mac OS X installations because the operating system has the required JRE.

Installation and uninstallation, including changing IBM Informix Dynamic Server features on a current instance, require certain types of Java Runtime Environment at version 1.4.2 or higher. The installation media has the required JRE version, and it will automatically be used for most operations in which you install or uninstall IBM Informix products and components.

When you launch the installation application with the media, it searches your system to determine if the required JRE version 1.4.2 or later is on your system.

- If you have the required JRE on your system already, the installation application uses that JRE instance.
- If the application does not detect the required JRE version on your system, it automatically extracts the correct JRE version from the `.jvm.bin` file and loads it to the temporary directory (`/tmp` by default). The installation application automatically removes the JRE files from the temporary directory. Note that JRE remains on the installation media. Any time that an IBM Informix application automatically copies JRE files to your system to install or reinstall products or features, the JRE files are automatically deleted from the temporary directory after the operation is complete.

Uninstalling IBM Informix products and removing features

Uninstalling one of the products or removing features requires you to have the JRE on your system before you launch the uninstall application. The task of obtaining the JRE is documented in "Extracting JRE from the installation media manually" on page 1-4. If you know that you have a valid version of the JRE on your system, you do not need to manually extract the JRE. In any case, your system needs to be set up so that the uninstallation is pointed to the JRE that works for removing any IBM Informix products or features.

Before you can use the **uninstallserver** command for removing IDS or its features, do one of the following tasks

- Modify the **PATH** environment variable. Set the **PATH** variable using either of the following commands:

  Bourne shell:

  ```
  PATH=your_JRE_path/bin:$PATH; export PATH
  ```

  C shell:

  ```
  setenv PATH your_JRE_path/bin:$PATH
  ```

- Use the `-javahome` parameter:

  ```
  ./uninstallserver -javahome your_JRE_path
  ```

If you choose to use **uninstall.jar** to remove IDS or specific features, your **PATH** environment variable must contain the location of the valid JRE.

You will also need a correct version of JRE 1.4.2 or later to uninstall Client SDK, Informix Connect, or IBM Informix JDBC Driver.

See "Removing IBM Informix products and features (UNIX and Linux)" on page 6-2 for more information about removing IDS or its features.

Extracting JRE from the installation media manually

Extract Java Runtime Environment (JRE) from the installation media to a working directory before performing uninstallation operations on the UNIX or Linux operating system if necessary.

See "JRE on the installation media" on page 1-3 and "Removing IBM Informix products and features (UNIX and Linux)" on page 6-2 to determine if you need to complete this task. Do not extract the JRE from the installation media if you are working on the Mac OS X operating system.

The JRE is included in the root directory of the installation media. The JRE filename is `.jvm.bin` and it is platform specific. The directory where you extract JRE must have at least 75 MB of free disk space.

To install JRE from the installation media:

1. Run the **.jvm.bin** command from the location where you want to extract the JRE and point to the location of the `.jvm.bin` file on the installation media: For example, if you want to install the JRE in `/home/pd/temp/` and the `.jvm.bin` file is in a CD-ROM directory named **Java**, you would run the following command:

   ```
   /home/pd/temp% /CDROM/Java/.jvm.bin
   ```

2. Set the switch to the directory where you are extracting the JRE by passing the `-javahome` argument when you launch the uninstallation application. For example, if you extracted the JRE to `/home/pd/temp/`, you would launch the uninstallation application as follows:

   ```
   /home/pd/temp -javahome
   ```

Loading product files (UNIX and Linux)

Before you install, you must load the product files.

The directory where the media files reside, referred to as `media_location` in this documentation, can be on a disk device, such as a DVD, or on a file server where the downloaded source file is decompressed.

To load the product files on UNIX or Linux operating systems:

1. Access the installer directly from a disk device.
2. To access the installer from a file server, enter the appropriate **tar** or other command. For example:

   ```
   tar xvf filename
   ```

   In this command, *filename* is the path name of the **tar** file that contains the product files.

Extracting product files (Mac OS X)

If you obtained Mac OS X installation media by downloading the files, extract the product from the compressed `.dmg` file before you run the installation application.

The installation application runs when you open the `iif` file. If you have received the media on a disk, then you do not need to extract product files to access the file.

To extract the product files on Mac OS X, open the self-extracting `.dmg` file to access the installation application file.

Creating the group informix and user informix

Typically the installation application creates these required objects, but in a few situations you need to create them before installing. The Mac OS X installation application automatically creates group and user informix in all circumstances, so this task does not apply to Mac computers.

You need to create the objects before you run the installation application in the following situations:

- You want to specify a particular identifier (ID) number.
- The group **informix** exists on the system; however, the user **informix** does not. In this case, you need to create the user only.

If you plan to install IBM Informix products using RPM Package Manager (RPM) and user **informix** and group **informix** do not exist on the target computer, you must create these objects on the operating system before performing the RPM-based installation.

To create the group **informix** and user **informix**:

1. Create the group **informix** by using the **groupadd** utility followed by the name of the group, in this format: `groupadd n informix`

   where *n* is an unused identifier (ID) greater than 100.

   (On AIX®, use the **mkgroup** command instead of **groupadd**.)
2. Create the user **informix** by using the **useradd** utility followed by the group (**informix**) and user name (**informix**) in this format: `useradd -u n -g informix informix`

   where *n* is an unused identifier (ID) greater than 100.

   Important: Only add users to the group **informix** if the users need administrative access to the database server.
3. Create a password for user **informix** by running the **passwd** utility.

Group informix

The group **informix** must exist on the system for the user accounts required to install and administer IBM Informix Dynamic Server.

The **informix** group definition establishes the set of user accounts to which you want to grant administrative access to the database server. User **informix** must be part of this group.

The Mac OS X installation application automatically creates user and group **informix** if they do not already exist on your computer.

If you are installing IDS for the first time on a UNIX or Linux system, you can create group **informix** manually before you run the installation application. Alternatively, when you run the installation application for IDS bundled with other IBM Informix products, the application can create it automatically.

User informix

User **informix** is a user account with main authority over an IBM Informix Dynamic Server instance.

User **informix** is required because it has the unique user identifier (UID) to manage and maintain IDS instances and databases on the system. The password for this user account must be protected. Only let trusted database and security administrators log in as user **informix**.

If you are installing IDS for the first time on your system, you can create user **informix** manually before you run the installation application. Alternatively, when you run the installation application for IDS bundled with other IBM Informix products on UNIX or Linux, the application can create the UID automatically in most situations. The situation when the installation application cannot create user **informix** is when group **informix** already exists on your system.

The IDS installation application for the Mac OS X operating system always creates group and user **informix** if they do not already exist on the host computer.

Choose installation options

You can choose from several installation options to install IBM Informix Dynamic Server, its features, and related products.

When you install IDS or related products, you can use various installation options to install the products to suit your installation environment and goals:

• "Response file (Mac OS X)" on page 1-15

Installation methods (UNIX and Linux)

On UNIX or Linux you can start with a launchpad or a command-line interface to install IBM Informix Dynamic Server bundled with related products or individual products.

The following installation methods are available:

Launchpad
You can access the launchpad, a graphical-user interface (GUI) tool, either directly from the installation disk or by running the **ids_install** command. From the launchpad, you can install IDS and one or more products that are bundled with it. If you prefer, you can run an installation command in silent mode. You can use a default configuration file for silent installation that is included with the installation media. The launchpad also provides quick links to the release notes, product installation documentation, and the IBM Informix Information Center.

Installation applications
The **installserver**, **installconnect**, and **installclientsdk** commands start installation applications that you can use to install and configure individual products. You can run these commands in silent mode. A default configuration file for silent installation is included with the installation media. If you prefer, you can record your installation configuration in a new response file. That response file can be used with the same installation application at a later time for silent installations.

The launchpad and the installation applications for UNIX and Linux start in console mode unless you specify that you want them to start in GUI mode.

Extraction of script-based Media (-legacy option)
This older installation method can be useful if you are installing IDS and its clients (including JDBC) to redistribute the product and do not want to add an additional Java Runtime Environment (JRE) version to the host computer.

Invoking a JAR file directly
If you have JRE 1.4.2 or higher on your host computer, you can install IDS and its client programs by invoking the JAR file directly in the command line. This method can be useful if you are developing applications that you will distribute with the JRE that you have. In some environments, installing by invoking the JAR file can be faster than other installation methods.

Installation with RPM package manager (Linux only)
You can use RPM commands to install and uninstall the IDS media version that is bundled with client programs on some Linux operating systems. See the Machine Notes for the specific Linux operating systems that are supported.

Installation methods (Mac OS X)

You can install IBM Informix Dynamic Server and either Client SDK or Informix Connect using a GUI or a command-line interface, depending on how you plan to deploy the product.

Graphical User Interface (GUI)
Open the `iif` package file after you extract the installation media to launch the GUI installation application.

Command-line method for unattended installation
If you have superuser privileges on the host computer, you can run a command to complete an unattended (silent) installation.

Typical and custom installation options

Typical setup uses existing defaults, while custom setup lets you exclude product features to minimize the installation footprint (disk size).

Using the installation application, you can choose a typical or custom setup for installing IBM Informix Dynamic Server and related products to your system.

Typical installation
A typical installation requires the most disk space and memory. It is the recommended installation for most database servers. The typical setup installs IDS (the base server) and all associated feature sets (components). Some IBM Informix products refer to this type of installation as a *complete installation*.

Custom installation
A custom installation gives you the flexibility to select what is installed on your system. A custom IDS installation lets you choose which features you want to install. Some features are mutually dependent, and must be installed with one another. The installation application enforces these dependencies. The deployment wizard relies on the custom setup to configure an installation that contains only what your application or deployment requires.

After installation, you can install additional features, reinstall features, or remove installed features without changing anything else in the base server. Which setup type you choose depends on your system architecture, your technical expertise, and the needs of your implementation.

Choose an installation directory: $INFORMIXDIR

The directory for the IBM Informix Dynamic Server installation, referred to as `$INFORMIXDIR`, can be created before or during installation.

You can accept the default `$INFORMIXDIR` path provided when you run the installation application.

Alternatively, you can choose a different path from the default. If you have a particular directory to which you want to install, prepare this directory following these guidelines:

- The directory must be local or an NFS-mounted file system using regular operating-system files.
- The directory should be empty before you install IDS there.
- To preserve product files of earlier versions, create separate directories for each version of your IBM Informix products.
- The `$INFORMIXDIR` path, including path separators, cannot contain spaces and should not exceed 200 characters.

The directory permissions leading to the installation path must be secure before IDS can be initialized. The installation application automatically checks the permissions of the target path, and alerts you if the path is not secure. For most users, selecting the default path displayed by the installation application ensures that the $INFORMIXDIR path is secure. See "Secure a nonsecure IDS installation path" on page 2-15 for more information.

Deployment wizard

The deployment wizard in the custom setup of the installation application allows you to include or exclude IBM Informix Dynamic Server features and functions.

Some customers use IDS to embed a database within their applications. Many customers work with only a part of the capabilities available to them in IDS. For example, one customer might never need to use the extra locales that are part of the Global Language Support (GLS) feature. A different customer might need to use GLS, but would use some but not all of the Performance Monitoring Utilities.

IDS consists of discrete, installable features. You can select to install only the database server features that your application and deployment require. Some features are mutually dependent, and must coexist in the instance. The wizard enforces these dependencies. The wizard automatically includes dependent features or informs you when a combination of selections is not supported. This flexibility benefits those who want to minimize the footprint on their systems, as well as those who want to embed IDS in another system or application.

To use the deployment wizard, you must select the custom setup in the installation application. You can easily modify your installation by adding or removing features after IDS is installed without having to install the base server again. Adding or removing features after you have installed IDS does not affect the integrity of your system. The installation application maintains a manifest file, which logs information about what features are currently installed.

All IDS features must run on the same version as the core database server.

Installable features of IDS

You can install the following types of features with the base server: IBM Informix Dynamic Server Extensions, Global Language Support, Backup and Restore, Demos, Data-Loading Utilities, and Administrative Utilities.

Base server

The *base server* refers to the core database server for basic DBA operations without optional extensions, libraries, or utilities. The minimum size of an IDS installation is approximately 100 MB.

The base server no longer contains the XML Publishing feature and must be included in your Deployment Wizard selections if you want to install it. XML Publishing is in the Database Server Extensions component.

Support for the DRDA protocol is included in the base server. To use the Distributed Relational Database Architecture (DRDA) support functionality with IBM Data Server .NET Provider or IBM Data Server JDBC Driver, you must obtain and install either Client SDK or IBM Data Server JDBC Driver.

BladeManager is part of the base server, as of version 11.10 of IDS. In addition, the IBM Global Security Kit (GSKit) is included as a component of the IDS installation on all supported operating systems, except for Mac OS X.

Features

The following list describes features in IDS, version Version 11.50. You can view the size of each component and feature on your system before you actually proceed with installation when you select the component or feature in GUI or console installation setups.

Database Server Extensions
Database administration tools and programming extensions

J/Foundation
For writing user-defined routines in the Java programming language

Built-in DataBlade Modules
For providing large-object location management, MQ transaction support, binary user-defined types, the hierarchical node data type, basic text search, and Web Feature Services for spatial data.

Conversion and Reversion Support
Framework required for migrating to and from other versions of the database server.

XML Publishing
Set of functions to publish SQL queries as XML.

Global Language Support
The feature files to support languages, cultural conventions, and code sets. These files are not required if your default locale uses American English, which is the default language in IDS when no GLS feature is installed.

West European and Americas
Danish, Dutch, English, Finnish, French, German, Icelandic, Italian, Norwegian, Portuguese, Spanish, and Swedish locales

East European and Cyrillic
Czech, Polish, Russian, and Slovak locales

Chinese
Traditional Chinese and simplified Chinese locales

Japanese
Japanese locales

Korean
Korean locales

Other Thai locales

Backup and Restore
Feature utilities for backing up and restoring database server data

ON-Bar utilities
The **onbar** is an editable shell script that starts the onbar-driver. Use the **onbar** script, as well as its related commands, to customize backup and restore operations and check the storage-manager version.

Informix Interface for Tivoli® Storage Manager
For implementing XBSA functions that use Tivoli Storage Manager with ON-Bar utilities.

IBM Informix Storage Manager
For managing external storage devices and media that contain backups.

The archecker utility
For verifying backups and restoring portions of a database, a table, a portion of a table, or a set of tables.

Demos
Demonstration databases and examples

Data-Loading utilities
For efficient loading and unloading of data in certain configurations

The onunload and onload utilities
For moving data quickly from one operating system or database server to another without changing the database schema. Use the **onunload** utility to unload data from the specified database or table onto a tape or a file on disk in disk-page-sized units. Use the **onload** utility to re-create the database or the table from the tape or file that was created by the**onload** utility.

The dbload utility
For loading data into databases or tables that IBM Informix products created. Use the **dbload** utility to transfer data from one or more text files into one or more existing tables.

High-Performance Loader (HPL)
For loading or unloading large quantities of data efficiently to or from a database. Use HPL to exchange data with tapes, data files, and programs, and convert data from these sources into a format compatible with IBM Informix databases. Also use HPL to manipulate and filter the data as you perform load and unload operations.

Enterprise Replication
For replicating data between IDS database servers.

Administrative utilities
Additional administrative utility feature sets

Performance monitoring utilities
This feature has two utilities. Use the **ON-Monitor** utility to monitor the disk spaces and data of the database server. Use the **onperf** utility as a graphical monitoring tool to track most of the metrics that the **onstat** utility provides but with more options for viewing and saving data.

Miscellaneous monitoring utilities
For displaying the logical log by using the **onlog**utility, managing the database server with SNMP by using the **onsnmp** utility, or remotely starting the IDS server using the OpenAdmin Tool.

Auditing utilities
For administering audit masks, trails, and other auditing information on the database server by using the **onaudit** and **onshowaudit** utilities.

Database import and export utilities
For unloading a database into text files, creating and populating a database from those text files, or unloading a database schema into a text file.

Demonstration database server

You can create a demonstration database server to learn more about IBM Informix Dynamic Server and start using it quickly. Also, select to create the demonstration database server if you want to use the Instance Configuration Wizard.

Options in the installation application

The installation application asks if you want to create a demonstration database server instance.

- **Yes**: Choosing this option lets you do one of the following:

  Provide your own configuration file to create a demonstration database server

  Accept the default configuration file that is in the installation media to create a demonstration database server

  Customize the default configuration file to suit your usage needs and environment by invoking the Instance Configuration Wizard (this alternative is available only in GUI and console installation modes; see "Instance Configuration Wizard" on page 1-13 for more information about this option)

  After installation, the database server is initialized automatically.
- **No**: If you choose this option, then you need to configure and initialize the database server manually after installation is complete.

The configuration file

The installed database server requires the presence of a configuration file (`onconfig` file) in order for you to begin using IDS. In addition, the **ONCONFIG** environment variable must be set. Creating the demonstration database server or customizing the default demonstration `onconfig` file and related settings when you run the installation application can expedite establishment of a working configuration file.

Setup of the IDS demonstration database server

The following information about the demonstration database server can help you decide whether to use the default configuration file:

- The demonstration database server should have on your system a server number between 0 and 255 that is not shared with another instance. If all the valid server numbers are used by other instances and you want to install the demonstration server, it is recommended that you make one of the server numbers available only for the IDS demonstration instance before launching the installation.
- The installation application automatically searches for and assigns a unique, unused server number for your demonstration database server. You can also specify a server number between 0 and 255. If you enter a server number that is used by another instance, the installation application does not accept it at first and does the following:

  1. The installation application searches for an unused server number between 0 and 255.

2. If the application finds a valid, unused server number, then it assigns the demonstration server to this number. The application displays a message on the screen informing you of the number that is used.
3. If your system does not have an unused server number, then the number that you entered will be used and a warning message appears.

Any messages generated by the installation's assignment of a server number for the demonstration server are also recorded in `$INFORMIXDIR/tmp/log.txt`.

- If you select the shipped `onconfig` file, the database name will be `demo_on` by default and the **ONCONFIG** environment variable is set to the sample `onconfig` file located at `$INFORMIXDIR/etc/onconfig.`*`demo_server_name`*.
- When the installation application initializes the demonstration database server, four databases are built automatically: **sysmaster**, **sysuser**, **sysutils**, and **sysadmin**.
- The message log regarding installation of the demonstration database server is located in `$INFORMIXDIR/tmp/log.txt`.
- The installation application creates additional configuration and log files to support the database server in `$INFORMIXDIR/demo/server`. For information about the configuration settings for the database server, see the `$INFORMIXDIR/demo/server/profile_settings` file.
- **INFORMIXSQLHOSTS** will default correctly to `$INFORMIXDIR/etc/sqlhosts`. If you change the name or location of this file, then you must set the **INFORMIXSQLHOSTS** variable to reflect the new name and path.

Instance Configuration Wizard

The Instance Configuration Wizard is an installation option that automatically creates a database server configuration file (`onconfig`) suitable for your system environment.

You can use the Instance Configuration Wizard in GUI and console installation modes after you have selected to create a demonstration database server. The wizard is a utility that ensures your settings are valid, and it calculates values for other server configuration parameters based on your settings. Your custom configuration information is stored in the configuration file so that when you start the instance after the product is installed, the instance runs with your settings.

The following configuration settings and system information determine how this utility sets up the database server:

- server name
- server number
- rootpath: the physical file in which databases are stored
- rootsize: the size of the root dbspace (in megabytes)
- number of central processing units (CPUs): a CPU is equivalent to a single execution unit
- memory: system RAM dedicated to the server instance being created (in megabytes)
- number of online transaction clients (applications used for modifying the state of databases)
- number of decision support clients (applications used for returning result sets; typically require more overhead than clients used for transaction processing)

The `-record` command-line option cannot be used to generate a response file for installations created with this automated configuration utility.

If the Instance Configuration Wizard encounters a problem while checking the entered settings, the configuration file is created with standard, workable configuration parameters and a message about this is displayed.

Role separation

Role separation provides checks and balances to improve the security of your event-auditing procedures.

Event auditing tracks selected activities that users perform. With role separation enabled, members of certain group identifiers (group IDs) on your system manage and examine these records to ensure additional security.

Two roles must be associated with group IDs to enable role separation:

Database System Security Officer (DBSSO)
Controls what the auditing subsystem monitors and which actions database users can perform

Auditing Analysis Officer (AAO)
Controls whether auditing occurs, maintains the audit log files, and analyzes the audit records of those database activities that the DBSSO mandates to be audited

Important: If you enable role separation, you cannot turn it off after IBM Informix Dynamic Server is installed. To remove role separation, you must uninstall the database server and reinstall it without role separation.

The installation application asks you whether to set up role separation or not. The group **informix** is the default group associated with the two roles. If you want to specify group IDs rather than accept the default ones, verify that the groups that you plan to specify in the role-separation panel exist on your system before you launch the installation application.

Outside of the installation application, establish an audit-only user account for each individual who acts as a DBSSO or AAO. For example, a person with DBSSO responsibilities could have the user **DBSSO1** account, and also have the user **garcia5** account for general database server access.

Response file (UNIX and Linux)

A response file facilitates installation of IBM Informix products in silent mode.

The response file contains installation settings for a product and its features.

For an unattended installation on a UNIX or Linux operating system, you will need to use one of the following response file types that suits your installation goals:

Default response files
Use one of the `.ini` files that are on the installation media to install with default values. Use the `server.ini` file to install only IBM Informix Dynamic Server and its features, or the `bundle.ini` file to install IDS and other IBM Informix products bundled with it.

Self-customized response files

Copy either the `server.ini` or `bundle.ini` file to your system, rename the file, and use it as a template for customizing your installation settings. Do not modify the original `server.ini` and `bundle.ini` files.

Important: If you edit values in `server.ini` or `bundle.ini` and then install by invoking one of these two file names, the installation still contains the default values shipped out with the media. The installation application does not recognize any changes made locally to `server.ini` or `bundle.ini` if you use either file name in the silent installation command.

Response files generated by a product installation application

If you want to use the same installation settings in more than one directory or computer, first install a product in GUI- or console-mode to capture the installation settings in a response file. Specify the `-record` option. (When used with the **ids_install** command, the`-record` option will record a typical or complete installation of all products. You cannot use the`-record` option for a custom setup with the **ids_install** command.) Do not name your response file `server.ini` or `bundle.ini`. Use your `.ini` file to perform a silent installation elsewhere.

Important: Using the`-record` option when you launch the installation application disables the Instance Configuration Wizard functionality of a typical installation in GUI or console mode.

For detailed information about silent installation, see "Performing an unattended IDS installation" on page 2-6 and "Installation commands: Silent mode" on page 2-7.

Response file (Mac OS X)

A response file facilitates installation of IBM Informix products in silent mode.

The response file contains installation settings for a product and its features.

For an unattended installation on Mac OS X, the response file is `bundle.ini`. You will need to copy the `bundle.ini` file from the installation media to your home directory, and then modify the installation settings for your needs. For information on how use the response file, see "Performing an unattended IDS installation (Mac OS X)" on page 3-4.

You can use the `bundle.ini` file on Mac OS X to install:

- IBM Informix Dynamic Server with either Client SDK or Informix Connect
- IBM Informix Dynamic Server alone
- Client SDK or Informix Connect alone

Manifest file and installed files list

Two dynamic system files record installation information.

Manifest file

`$INFORMIXDIR/etc/manifest.inf`

Installed files list

`$INFORMIXDIR/etc/IIFfiles.installed` on platforms using J/Foundation and `$INFORMIXDIR/etc/IDS2000files.installed` on platforms not using J/Foundation

Important: Do not modify the content of these files. These "log files" can help you quickly see what features are currently installed, as well as a history of such activity.

Chapter 2. Installing IDS and client products on UNIX and Linux

Console, GUI, and silent modes of installation are available for key IBM Informix products.

Ensure that you prepare your system before you install any programs, as described in Chapter 1, "Preparing to install IDS and client products," on page 1-1.

Installing IDS quickly with defaults (UNIX and Linux)

You can install IBM Informix Dynamic Server and all its features quickly by using the typical setup for installation.

Make sure that your system is ready for installation (see Chapter 1, "Preparing to install IDS and client products," on page 1-1). Also, obtain root privileges before running the installation application.

To install IDS on Linux or UNIX:

1. From a command prompt, run the installation command for the products that you want to install and specify the options for the commands as described in "Installation commands for IDS and related products" on page 2-4. The commands are in the directory where the media files reside, referred to as *media_location* in this documentation. The installation application runs in console mode by default, unless you specify GUI mode when you issue the command.

   media_location/**ids_install**
   Installs IDS with all features, and any bundled client products that you select.

   media_location/**SERVER/installserver**
   Installs IDS and all of its features without related client programs.
2. Follow the instructions in the installation application.
   a. Read and accept the license to proceed with the installation.
   b. Choose **Typical** setup to install the product with all features.
   c. You can install into the default directory or choose a different directory.
   d. Select the products that you want to install, if that is an option. If the installation application notifies you that the target path is not secure, see "Secure a nonsecure IDS installation path" on page 2-15 for information about how to proceed.
   e. Optional: Choose whether to enable role separation for auditing procedures.

      Important: If you enable role separation, you cannot turn it off after the product is installed. To remove role separation, you must uninstall the database server and reinstall it without role separation. To learn more about role separation, see "Role separation" on page 1-14.
   f. Optional: Select to create a demonstration database server instance. Choosing this option in GUI and console modes of installation is required if you want to use the Instance Configuration Wizard or if you want to set up

the instance for Distributed Relational Database Architecture (DRDA) Support while running the installation application.

Warning: If you choose to create a demonstration database server in the installation application, IDS will be initialized automatically after installation is complete. This deletes all existing IDS data on the host computer. While using the demonstration and configuration features in the installation application are potentially very useful, be sure to know your installation environment and proceed with caution.

- If you do not choose the demonstration option, you can configure and initialize the database server manually after installation is complete.
- If you choose to create the demonstration database server, you can provide your own configuration file, use the default configuration file as is, or customize the default configuration file to suit your usage needs and hardware. After installation, the database server instance is initialized automatically. For more information, see "Demonstration database server" on page 1-12 and "Instance Configuration Wizard" on page 1-13.
- To be able to install the database server with DRDA Support, use the default configuration file. DRDA is for open development of applications that allow access of distributed data and is interoperable with IBM Data Server clients.

  If you do not select the DRDA support option, you can still set up the instance to function with the DRDA protocol after installation.

g. Verify that the installation summary accurately reflects your installation options, and that the server has enough free space for the total installation. Go back to adjust the installation options as necessary.

3. Complete the installation and exit the installation application.

Important: See Chapter 4, "Configuring a database server," on page 4-1 to set up an instance of IDS if you did not choose to create a demonstration database server.

You can also remove features, reinstall features, or add features that you chose not to install earlier. You can modify the features by using the installation application without affecting the integrity of the base server.

Installing IDS with selected features and client products (UNIX and Linux)

Use the custom setup to install IBM Informix Dynamic Server with only the features that you need.

Make sure that your system is ready for installation (see Chapter 1, "Preparing to install IDS and client products," on page 1-1). Also, obtain root privileges before you begin the installation program.

To install IDS on Linux or UNIX:

1. From a command prompt, run the installation command for the products that you want to install and specify the options for the commands as described in "Installation commands for IDS and related products" on page 2-4. The installation application runs in console mode by default, unless you specify GUI mode when you issue the command.

   media_location/**ids_install**
   Installs IDS and any bundled client products that you select.

media_location/**SERVER/installserver**
Installs IDS and without related client programs.

2. Follow the instructions in the installation application.
   a. Read and accept the license to proceed with the installation.
   b. Choose **Custom** setup to install the product or products with selected features. For more information about the base server and the list of features, see "Installable features of IDS" on page 1-9.
   c. You can install into the default directory or choose a different directory.
   d. Select the products that you want to install, if that is an option. If the installation application notifies you that the target path is not secure, see "Secure a nonsecure IDS installation path" on page 2-15 for information about how to proceed.
   e. Optional: Choose to enable role separation for auditing procedures.

      Important: If you enable role separation, you cannot turn it off after the product is installed. To remove role separation, you must uninstall the database server and reinstall it without role separation. To learn more about role separation, see "Role separation" on page 1-14.
   f. Optional: Select whether to create a demonstration database server instance. Choosing this option in GUI and console modes of installation is required if you want to use the Instance Configuration Wizard or if you want to set up the instance for Distributed Relational Database Architecture (DRDA) Support while running the installation application.

      Warning: If you choose to create a demonstration database server in the installation application, IDS will be initialized automatically after installation is complete. This deletes all existing IDS data on the host computer. While using the demonstration and configuration features in the installation application are potentially very useful, be sure to know your installation environment and proceed with caution.
      - If you do not choose the demonstration option, you can configure and initialize the database server manually after installation is complete.
      - If you choose to create the demonstration database server, you can provide your own configuration file, use the default configuration file as is, or customize the default configuration file to suit your usage needs and hardware. After installation, the database server instance is initialized automatically. For more information, see "Demonstration database server" on page 1-12 and "Instance Configuration Wizard" on page 1-13.
      - To be able to install the database server with DRDA Support, use the default configuration file. DRDA is for open development of applications that allow access of distributed data and is interoperable with IBM Data Server clients.
   g. Verify that the installation summary accurately reflects your installation options, and that your system has enough free space for the total installation. Go back to adjust the installation options as necessary.
3. Complete the installation and exit the installation application.

Important: See Chapter 4, "Configuring a database server," on page 4-1 to set up an instance of IDS if you did not choose to create a demonstration database server.

You can also remove features, reinstall features, or add features that you chose not to install earlier. You can modify the features by using the installation application without affecting the integrity of the base server.

Installation commands for IDS and related products

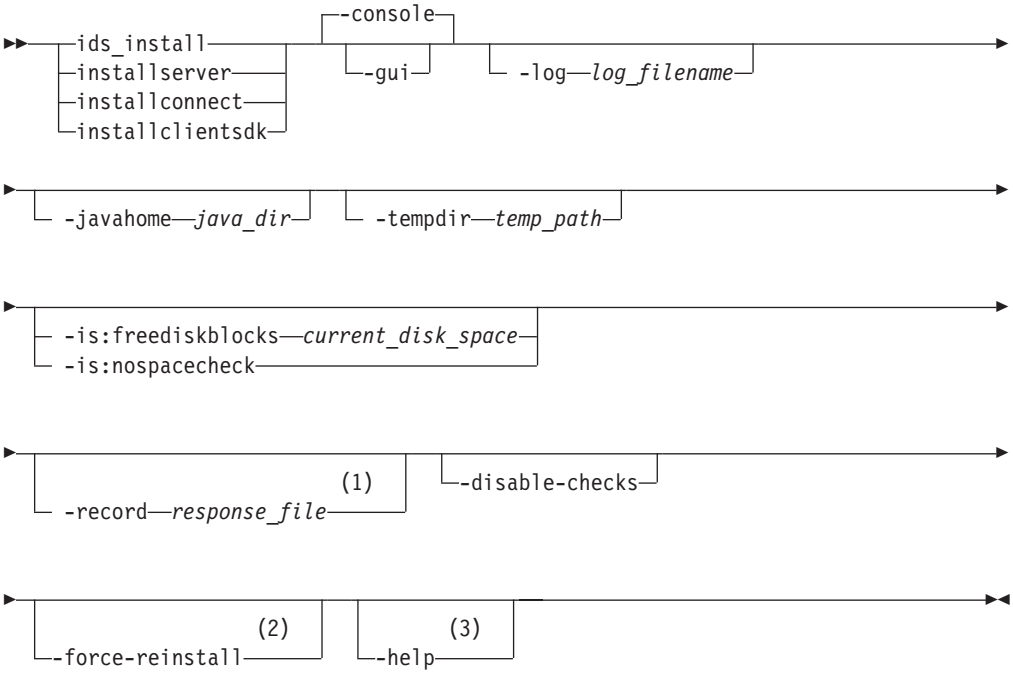
Syntax and usage for **ids_install**, **installserver**, **installconnect**, and **installclientsdk** commands.

Purpose

These commands install IBM Informix Dynamic Server with related products, or they install IDS and related products separately, in either console or GUI mode. If you want to supply installation options in a file instead of interactively providing them during the installation, see documentation about silent installation.

Run the following commands as root user.

Syntax



Notes:

1 The `-record` option does not function with the **ids_install** command. Also, the `-record` option disables the Instance Configuration Wizard functionality of typical GUI and console installations.

2 **Important**: Use with caution. Overwrites existing installed features or complete IDS without checking for version compatibility.

3 Do not use the `-help` option simultaneously with other options when you run the command. The `-help` option invalidates any other options put into the same command line.

Parameters

Table 2-1. Syntax elements

Element	Purpose	Restrictions
java_dir	Specifies the JRE on the host computer to use during installation.	The JRE must be version 1.4.2 or higher.
log_filename	Specifies a non-default log file name.	None
temp_path	Specifies the path to temporary directory. If you receive an error during file extraction, there is not enough space in the `/tmp` directory. To overcome this error, set the `-tempdir` option to a different temporary directory with sufficient space.	None
current_disk_space	Specifies the amount of free disk space that exists on the destination file system, in number of 512-byte blocks.	None
response_file	Specifies the name for the response file. The response file is a customized `.ini` file that you can use for silent installations elsewhere.	Required if you specify the `-record` option. This option does not function with the **ids_install** command.

The following table describes the installation application options.

Table 2-2. Installation options

Option	Meaning
ids_install	Install IDS and related products.
installserver	Install IDS only.
installconnect	Install or Informix Connect only.
installclientsdk	Install Client SDK only.
`-console`	Start the installation program in console mode. This is the default mode.
`-gui`	Start the installation program in GUI mode.
`-log` *log_filename*	Log installation program progress in the specified file.
`-javahome` *java_dir*	Use specified JRE. To force the installation program to use the bundled JRE and ignore any local JREs, use `-javahome none`.
`-tempdir` *temp_path*	Use specified temporary directory.
-is:freediskblocks *current_disk_space*	Use to specify the amount of current free disk space on the destination file system, in case the system fails to correctly report free disk space.
`-is:nospacecheck`	Use to prevent the installation program from checking if there is adequate space for product installation files. **Use with caution**: If there is not enough space to extract the temporary files, the installation program will fail.
`-record` *response_file*	Records the installation settings in a response file that can be used for silent installations of the same configuration of IDS (specifically, the base server and its features). This option does not function with the **ids_install** command.

Table 2-2. Installation options (continued)

Option	Meaning
`-disable-checks`	Disables the database server prerequisites check in the install application when needed. If you are using the **java** command for installing, the option is: `-W systemcheck.active=false` Refer to "Disable the database server prerequisites check" and the machine notes for your operating system for more information.
`-force-reinstall`	**Use with caution**: Overwrites existing installed features or the complete IDS installation without checking for version compatibility (for example, checking if the database server being installed is an older version than the one that is already installed in the install location). **Important:** Users are responsible for the changes at the target if this option is used.
`-help`	Display list of supported options and their functions.

The JRE is included on the installation media but it is not installed. During installation, the JRE is temporarily extracted to your system and then it is removed after the installation is complete.

Disable the database server prerequisites check

Operating system updates on the host computer that are not certified for IBM Informix Dynamic Server (specifically operating system versions that are above the recommended base version) can run the installation application in some situations by bypassing the database server prerequisites check.

The database server prerequisites on newer versions of an operating system can change after the release of the installation application. Sometimes this results in the application's inability to recognize the most recently changed prerequisites. A command-line option can disable the installation application's prerequisites check. IBM Informix has command-line options that disable the installation application's prerequisites check when it is necessary.

Important: When you use an option to disable this check, the computer still must have the database server prerequisites for installation to succeed. This option only removes the interference of the installation application's prerequisites check of an operating system version that you do not have. The verified versions of the prerequisites are listed in `Platform.prq`.

The option that you use is either **-disable-checks** or **-W systemcheck.active=false**, depending on your installation method. See "Installation commands for IDS and related products" on page 2-4 for information on how to use these options.

Performing an unattended IDS installation

To install a product on a UNIX or Linux system without interactively providing installation information, run the install application in silent mode.

The silent installation requires that you have a local copy of a response file (`.ini`) that contains the installation options with preset values. When the `bundle.ini` or `server.ini` file is used as the response file, the installation application proceeds by

using the default settings shipped in the installation media. The application does not recognize any changes made to these two .ini files.

1. From a command prompt, change directory to $INFORMIXDIR.
2. Start the product installation application in silent mode with the appropriate options set.
   - If you do not specify a response file with the -options flag, a default response file is used: bundle.ini for **ids_install** and server.ini for the **installserver** command.
   - You must accept the software license in the .ini file by setting -G licenseAccepted= option to **true** for the silent installation to occur. Otherwise, the application requires that you manually set the -acceptlicense=yes option. If you use the default bundle.ini and server.ini files, the -G licenseAccepted= option is set to **false**.
   - If you did not set the securedirectoryaction option in the .ini file, the script $INFORMIXDIR/tmp/secure.sh runs automatically after installation to secure all directories of the $INFORMIXDIR path.
   - If you set the securedirectoryaction option to **auto** in the .ini file, then you do not need to take any other action to secure all directories of the $INFORMIXDIR path.
   - If you set the securedirectoryaction option setting to **generate** or **custom** in the .ini file, then you must run the script $INFORMIXDIR/tmp/secure.sh after installation completes.

If IBM Informix Dynamic Server does not initialize after installation, check the stderr file or consider running the **onsecurity** utility to check if the entire installation path is secure or not. See the *IBM Informix Security Guide* for information on how to use the **onsecurity** utility.

Installation commands: Silent mode

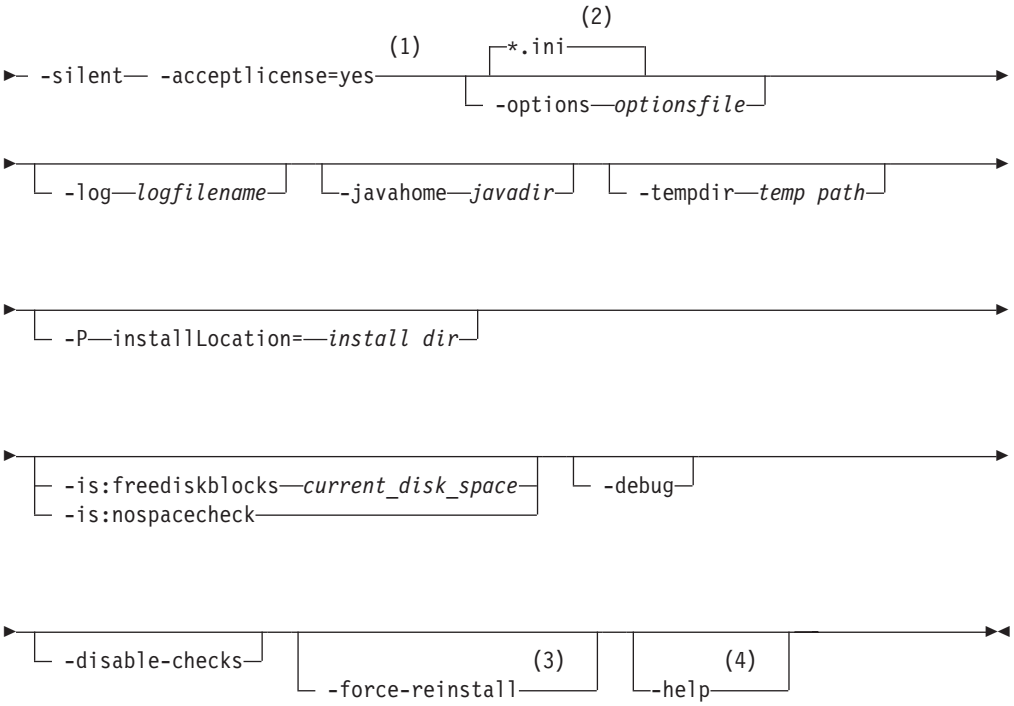
A silent installation requires no user interaction with the installation program after you run the command.

Purpose

These commands start silent installation of IBM Informix Dynamic Server with related products, or they install IDS and related products separately. The silent-installation commands function on UNIX and Linux operating systems.

Run the following commands as root user.

Syntax



Notes:

1 This option is required only if you did not set `-G licenseAccepted=true` in the `.ini` file used for installation. The default `bundle.ini` and `server.ini` files contain `-G licenseAccepted=false`.

2 The default `.ini` file for **ids_install** is `bundle.ini`. The default `.ini` file for **installserver** is `server.ini`.

3 **Important**: Use with caution. Overwrites existing installed features or the complete IDS installation without checking for version compatibility.

4 Do not use the `-help` option simultaneously with other options when you run the command. The `-help` option invalidates any other options put into the same command line.

Parameters

Table 2-3. Elements for silent installation options

Element	Purpose	Restrictions
optionsfile	Refers to the `.ini` file containing preset installation properties; substitute this with your real .ini file name.	Do not name the file `server.ini` or `bundle.ini`. Those are the names of the shipped `.ini` files.
javadir	Specifies the JRE on the host computer to use during installation	The JRE must be version 1.4.2 or higher.
logfilename	Specifies a non-default log file name	None

Table 2-3. Elements for silent installation options (continued)

Element	Purpose	Restrictions
temp path	Specifies path to temporary directory. If you receive an error during file extraction, there is not enough space in the `/tmp` directory. To overcome this error, set the `-tempdir` option to a different temporary directory with sufficient space.	None
current_disk_space	Specifies the amount of free disk space that exists on the destination file system, in number of 512-byte blocks.	None
install dir	Specifies the installation directory.	None

The following table describes the silent installation options.

Table 2-4. Silent installation options

Option	Meaning
ids_install	Install IDS and selected related products. This command is in *media_location*.
installserver	Install IDS only. This command is in *media_location*`/SERVER`.
installconnect	Install Informix Connect only. This command is in *media_location*`/ICONNECT`.
installclientsdk	Install Client SDK or only. This command is in *media_location*`/CSDK`.
`-silent`	Install in silent mode.
`-acceptlicense=yes`	Accept license agreement.
`-options` *optionsfile*	Use specified `.ini` file containing preset installation values. This option is not required if you want to use the default `.ini` file.
`-log` *logfilename*	Log installation program progress.
`-javahome` *javadir*	Use specified JRE.
-tempdir *temp path*	Use specified temporary directory.
`- P installLocation=` *install dir*	Use to set the installation directory from the command line.
`-is:freediskblocks` *current_disk_space*	Use to specify the amount of current free disk space on the destination file system, in case the system fails to correctly report free disk space.
`-is:nospacecheck`	Use to prevent the installation program from checking if there is adequate space for product installation files. **Use with caution**: If there is not enough space to extract the temporary files, the installation program will fail.
`-debug`	Use to store all internal messages to a log file for debugging installation problems.
`-disable-checks`	Disables the database server prerequisites check in the install application when needed. If you are using the **java** command for installing, the option is: `-W systemcheck.active=false` Refer to "Disable the database server prerequisites check" on page 2-6 and the machine notes for your operating system for more information.

Table 2-4. Silent installation options (continued)

Option	Meaning
`-force-reinstall`	**Use with caution**: Overwrites existing installed features or the complete IDS instance without checking for version compatibility (for example, checking if the server being installed is an older version than the one that is already installed in the install location). **Important:** Users are responsible for the changes at the target if this option is used.
`-help`	Use to display a list of supported options and their purpose.

Examples

The following command installs IDS with the defaults that are configured in the `server.ini` file that comes with the product. You must accept the license when you run the command if you use the default configuration file.

```
media_location/SERVER/installserver -silent -acceptlicense=yes
```

The following command installs IDS with the settings that were captured in the response file, `mycustomserver.ini`. That file was generated during a server installation that was initiated with the **./installserver -gui -record mycustomer.ini** command. Note that in that previous installation, the license was accepted in the installation wizard (because the `-acceptlicense=yes` option was not passed with the command). Therefore, you do not need to specify the `-acceptlicense=yes` option during the silent installation.

```
media_location/SERVER/installserver -silent -options mycustomserver.ini
```

Installing by extracting with a command-line script

To install a product on a UNIX or Linux system by extracting the media with a command-line script, use the `-legacy` option.

You must have user root privileges to complete this task.

The extraction with command-line installation alternative is provided for users who want to install the product to redistribute it. This method of installing IBM Informix Dynamic Server does not add a JRE or an uninstallation application to the host computer.

Restriction: Do not use the **oninit** command if problems occur during this installation. If you use **oninit**, you can potentially cause further installation problems.

For information about any errors that occur during the installation, check the installation log at `$INFORMIXDIR/tmp/log.txt`.

1. As the **root** user, run the installation command for the products you want to install. See "Installation commands: Extraction of script-based media" on page 2-11 for other options you can use with the following commands.

Command	Action
./installserver -legacy	Installs IDS
./installconnect -legacy	Installs Informix Connect
./installclientsdk -legacy	Installs Client SDK

The installation program is used for the extraction.

You can use the `-legacy` argument to run the installation program in default console mode, GUI, or silent installation mode. The following instructions are for the default console mode.

2. Enter 1 to progress through the installation screens and to indicate that you agree to the terms of the software license agreement.
3. Specify an installation directory or press **Enter** to accept the default directory.
4. To install the database server only, change directories to the directory where you want to install the product (`$INFORMIXDIR`) and run the script as the **root** user:

   ```
   cd $INFORMIXDIR
   ./installserver
   ```

   You can install Informix Connect or Client SDK in a similar manner. Change directories to where you want to install the product and as the **root** user run one the following commands:

   ```
   ./installconnect
   ./installclientsdk
   ```

After the installation is complete, the installation script changes the owner of `$INFORMIXDIR` to user **informix** as well as any subdirectories and files under `$INFORMIXDIR` that the user **informix** must access or control.

If you installed the database server portion of the product, you can verify whether IDS is installed in a secure path on your computer by running the **onsecurity** utility. The database server does not initialize when the directories along the `$INFORMIXDIR` path are not secure. If you can not run programs with the database server after installation, do the following:

1. To determine whether or not the installation path is secure or not, run the following command to see if it generates a recommendation about a security problem:

   ```
   $INFORMIXIDIR/bin/onsecurity -r $INFORMIXDIR > $INFORMIXDIR/tmp/secure.sh
   ```

   If no message is printed, then there is not a security problem.
2. Review the suggested fix in the message. You can apply the fix by running the generated script as follows:

   ```
   $INFORMIXDIR/tmp/secure.sh
   ```

See the *IBM Informix Security Guide* for more information about installation security and other options with the **onsecurity** utility.

Installation commands: Extraction of script-based media

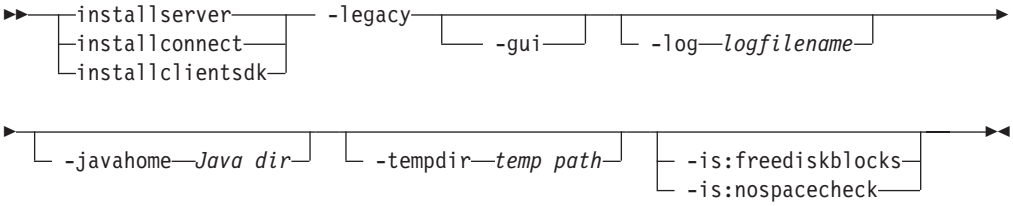
The `-legacy` option extracts script-based installable media and facilitates installation without adding a new JRE version to a host computer running a UNIX or Linux operating system.

Purpose

The extraction mode uses the installation program to extract the media and provide the software license agreement. After the extraction, when you are ready to install the product, you must run the command-line install script. This method of installing the product does not add a JRE or an uninstallation application to the computer.

You must run the commands as user **root**.

Syntax



The following table explains the syntax elements.

Table 2-5. Syntax elements

Element	Purpose	Restrictions
Java dir	Specifies the JRE on the host computer to use during installation instead of the JRE provided by the installation program	The JRE must be version 1.4.2 or higher.
logfilename	Specifies a non-default log file name	None
temp path	Specifies the path to temporary directory. If you receive an error during file extraction that there is not enough space in the `/tmp` directory, set the `-tempdir` option to a different temporary directory.	None

The following table describes the extraction options.

Table 2-6. Installation options

Option	Meaning
installserver	Install IDS only
installconnect	Install Informix Connect only
installclientsdk	Install Client SDK only
`-gui`	Start the extraction in GUI mode
`-log`	Log installation program progress
`-javahome`	Use specified JRE. To force the installation program to use the bundled JRE and ignore any local JREs, use the `-javahome none` argument.
`-tempdir`	Use specified temporary directory
`-is:freediskblocks`	Use to determine if there is adequate space for the product installation files prior to starting the installation.
`-is:nospacecheck`	Use to prevent the installation program from checking if there is adequate space for product installation files. Use with caution: If there is not enough space to extract the temporary files, the installation program will fail.
`-help`	Display list of supported options and their functions

Installing by invoking the JAR file directly

To invoke Java on the installation application, run the commands that correspond with the products you want to install.

You must have JRE 1.4.2 or a higher version on your computer.

Check the umask setting before invoking Java. If the value is not 022, then change it by running the command **umask 022** before you start the Java command line. This setting is required to ensure that security utilities of IBM Informix Dynamic Server installation function correctly.

This method can be useful if you have a particular version of Java that you want to use for installation. In some environments, installing by invoking the JAR file can be faster than other installation methods.

1. Invoke Java on the installation program, using the command that corresponds to the products you want to install; for example:

   ```
   java -cp IIF.jar run
   ```

   You must execute this command from the directory of the `IIF.jar` file. Refer to "Installation commands: Invoking the JAR file directly" for information about the supported options for this installation method.
2. Follow the procedure in "Installing IDS with selected features and client products (UNIX and Linux)" on page 2-2, but you do not need to run the command documented in the first step.

If you installed the database server portion of the product, you can verify whether IDS is installed in a secure path on your computer by running the **onsecurity** utility. The database server does not initialize when the directories along the `$INFORMIXDIR` path are not secure. See the *IBM Informix Security Guide* for information about installation security and the **onsecurity** utility.

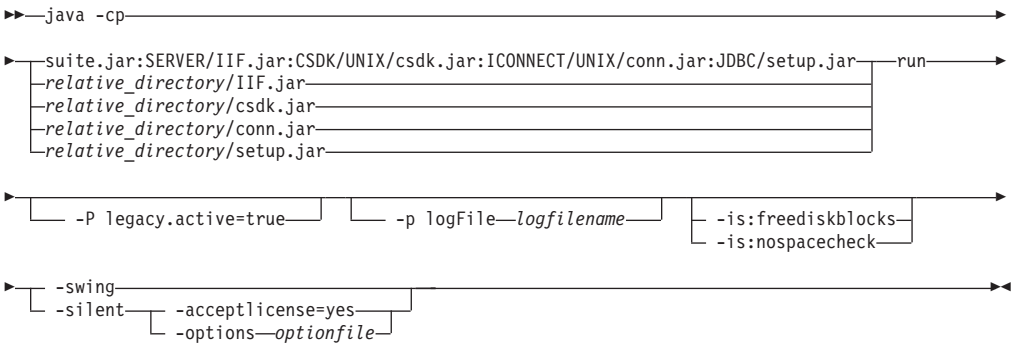
Installation commands: Invoking the JAR file directly

The commands for invoking Java on the installation application, including installation of the IBM Informix JDBC Driver, function on a UNIX or Linux system.

Purpose

Invoke Java on the installation program. To use this installation method, you must have a version of JRE 1.4.2 or higher.

Syntax



Parameters

Table 2-7. Syntax elements

Element	Purpose	Restrictions
relative_directory	Specifies the path to the specified `.jar` file. If you execute the command from the directory where the `.jar` file resides, do not specify a path.	None
logfilename	Specifies a non-default log file name	None
optionfile	Specifies file name of `.ini` file to preset installation properties	None

The following table describes the Java-invoked application options.

Table 2-8. Installation options

Option	Meaning
`suite.jar`	The installation application for all the components of IDS and related client products **Important:** You must have all of the following product `.jar` files to use this option.
`IIF.jar`	The installation application for the database server only
`csdk.jar`	The installation application for Client SDK
`conn.jar`	The installation application for Informix Connect
`setup.jar`	The installation application for IBM Informix JDBC Driver
`-P legacy.active=true`	Extracts files but does not install the product
`-p logfile`	Log installation program progress
`-is:freediskblocks`	Use to determine if there is adequate space for the product installation files prior to starting the installation.
`-is:nospacecheck`	Use to prevent the installation program from checking if there is adequate space for product installation files. **Important:** If there is not enough space to extract the temporary files, the installation program will fail.
`-swing`	Set the Java-invoked application to GUI mode
`-silent`	Set the Java-invoked application to silent mode
`-options`	Use with *optionfile*. Specifies file name of `.ini` file to preset installation properties

Installing IDS with RPM Package Manager (Linux)

You can install the IDS media that is bundled with client programs using an RPM Package Manager (RPM) on Linux operating systems that support IBM Informix products.

See the Machine Notes® for the specific Linux operating systems that are supported. Before installing IBM Informix Dynamic Server with RPM:

- Log in to your computer as root user.
- Check that RPM is installed on your computer.
- Ensure that user **informix** and group **informix** exist on your system.

You cannot record a response file while installing IBM Informix products with the RPM package.

To install IBM Informix products by using RPM:

1. Extract the RPM package file.
   a. Run the `.bin` executable file that contains the RPM package file. On the installation media, this is the file name ending with `rpm.bin`.

      The default installation setup mode is console. You can choose GUI installation mode by running the executable file with the `-i gui` flag.
   b. Accept the software license terms.

      Important: All copies of IDS installed with RPM are subject to the same software license agreement terms accepted when you extract the RPM package file.
   c. Indicate the location where to extract the RPM package file or accept the default `/opt/IBM/informix` path. If you specify a location, enter it as an absolute path.
2. If you want to install IDS without the bundled client programs, customize a response file before you run the installation command:
   a. Copy the `bundle.ini` file that is on the product media, customize it, and save it. Do not set the installation location in this response file.
   b. Set the **IFXRESFILE** variable as needed for your environment:

      In csh shell, run the following command:

      `setenv IFXRESFILE /`*`response_file_path`*`/`*`file_name`*`.ini`

      In bash shell, run the following command:

      `export IFXRESFILE=/`*`response_file_path`*`/`*`file_name`*`.ini`
3. Install the products with the appropriate command:
   - If you want to install in the `opt/IBM/informix` path:

     `rpm -i iif.`*`file_name`*`.rpm`
   - If you want to install in a different location:

     `rpm -i --prefix=`*`installation_path`*` iif.`*`file_name`*`.rpm`

Secure a nonsecure IDS installation path

The installation application helps ensure that the permissions of key files and directories are set appropriately.

If the installation application detects a security problem, the application alerts you and provides options to fix the problem.

If you receive the message that the installation path is not secure, either go back to change the path or complete one of the tasks documented in the topic links below.

Tip: You can minimize the threat of choosing a target installation path with a potential security vulnerability by selecting the default directory presented by the installation application or a default application directory on most host computers (for example, `/opt` on Linux or UNIX or the `Applications` folder on Mac OS X).

- "Automatically securing the installation path" on page 2-16
- "Securing the installation path after completing installation" on page 2-16
- "Configuring installation path permissions during installation" on page 2-17

The **onsecurity** utility is the component that the installation application uses to check that each directory in the target path has a secure owner, a secure group, and secure permissions settings. This utility is in the /SERVER/ directory on the installation media. After IBM Informix Dynamic Server installation, you can find the utility in $INFORMIXDIR/bin.

After you are finished with installing IDS, do not change the following settings:

- permissions on $INFORMIXDIR and its subdirectories
- the installation path leading to $INFORMIXDIR, as well as the permissions to all the directories in the path
- permissions on the onconfig file
- permissions on the sqlhosts file
- total character count of the onconfig file name

See the *IBM Informix Security Guide* for more information about the **onsecurity** utility and other IDS security features.

Automatically securing the installation path

The installation application can reset the owners, groups, and permissions of directories if the target path is not secure.

By selecting the recommended option presented in the installation application, you can help ensure that the directories in the installation path have secure owners, groups, and permissions settings for the database server without performing any post-installation tasks and without needing to assess configuration of directory privileges.

When the installation application alerts you that the target path is not secure, select **Let the installation program secure the path (recommended)**

After you select this option, an autogenerated script to fix nonsecure directories along the installation path is run without user input. The target path conforms to the security standards of the **onsecurity** utility. Proceed with installation when prompted.

Securing the installation path after completing installation

You can run a security script if the target installation path is not secure and you do not want to adjust directory permissions during installation.

Use this procedure if you have other products installed in directories of the target installation path and want to verify that the autogenerated script will not interfere with other programs before you run the script. You can also use this method for securing the target path if your host environment does not have program interdependencies between installation directories.

Important: The IBM Informix Dynamic Server installation will not initialize unless you run the secure.sh script and the installation path is secure.

1. When the installation application alerts you that the chosen path is not secure, select **Continue installation; manually run script to secure the path later.**
2. Complete the IDS installation.
3. Run the following command to generate the secure.sh script:
   $INFORMIXIDIR/bin/onsecurity -r $INFORMIXDIR

4. Run the `secure.sh` script to secure the installation path: **$INFORMIXDIR/tmp/secure.sh**

   Attention: On Mac OS X, you can run this script by doing the following:

   a. Open a terminal window.
   b. Use the **sudo -s** command to acquire user root privileges.
   c. Navigate to the directory with the command **cd $INFORMIXDIR/tmp**
   d. Run `secure.sh`

After you run `secure.sh`, the directories along the installation path have owner, group, and permissions settings that conform to the security standards of the **onsecurity** utility.

Configuring installation path permissions during installation

If the IBM Informix Dynamic Server installation application reports that the destination path is not secure, you can manually adjust the directories' permissions to ensure the **onsecurity** utility accepts the directories' existing permissions settings.

Know what constitutes a secure installation path in your environment, including the workings of user and group **informix**, before you do the following procedure. See the *IBM Informix Security Guide* for guidelines.

This procedure provides you with more granular control for dealing with the problem that arises when the **onsecurity** utility running in the IDS installation application detects that the target path is not secure.

1. When you are notified that the installation directory is not secure, read the message detailing information about nonsecure directories in the target path.
2. Select **View other options to make the installation directory secure**.
3. *If owner is not secure:* Select one of the following options if the security message about your target path indicates a potential problem with any directory owners:

   Change the owner (most secure)
   Changes the owner of a nonsecure directory to user **root** for all nodes above `$INFORMIXDIR`; changes owner of `$INFORMIXDIR` to user **informix**.

   Add the owner to the list of trusted owners
   Adds all existing directory owners who are not user **root** and not user **informix** to the `/etc/informix/trusted.uids` file. Selecting this option indicates that you trust these other owners sufficiently.

   Ignore the owner problem
   Allows IDS installation to proceed without resolving the potential security vulnerability.

   Attention: If you select to ignore the owner problem and do not successfully secure the target path after installation, IDS will not initialize.
4. *If group is not secure:* Select one of the following options if the security message about your target path indicates a potential problem with any groups:

   Change the group (most secure)
   Changes the group of a nonsecure directory to **root** for all nodes above `$INFORMIXDIR`; changes group for `$INFORMIXDIR` to group **informix**.

Remove the write permission for the group
Removes write permission for all groups except **root** and group **informix**.

Add the group to trusted groups
Adds all non-**root** and non-**informix** groups assigned to directories in the target path to the `/etc/informix/trusted.gids` file. Selecting this option indicates that you trust these other groups sufficiently.

Ignore the group permissions problem
Allows IDS installation to proceed without resolving the potential security vulnerability.

Attention: If you select to ignore the group permissions problem and do not successfully secure the target path after installation, IDS will not initialize.

5. *If public write permissions exist:* Select one of the following options if the public write permission is identified as a problem in the installation application's message about security:

Remove public write permissions
Removes public write access to directories in the installation path.

Add the directory to the list of trusted but nonsecure directories
Adds any directories with public write access to the `/etc/informix/trusted.insecure.directories` file.

Important: Use the `trusted.insecure.directories` file only if special circumstances in your environment require it. This workaround can expose your installation to potential security problems. Select this option at your own risk.

Ignore the public permissions problem
Allows IDS installation to proceed without resolving the potential security vulnerability.

Attention: If you select to ignore the public write access problem and do not successfully secure the target path after installation, IDS will not initialize.

IBM Informix Dynamic Server installation can proceed after you have decided how to deal with `$INFORMIXDIR` path permissions.

Automatically access the database server after installation

You can choose to automatically launch a terminal emulator for the database server instance.

Make sure that your **DISPLAY** environment variable is set.

The installer checks some known locations on your system for the terminal emulator that you selected. If the installer finds the terminal emulator, it launches a terminal window (a window with a command interpreter, or shell, running in it). The terminal window is pre-configured for you to view and work with the database server instance.

Testing the demonstration database server

To verify that the demonstration database server functions, you can run the **DB–Access** utility.

To test that the demonstration database server functions:

1. Initialize or start the demonstration database server using the instructions provided in "Initializing and starting a database server" on page 4-4.
2. Run the following commands from a command prompt:

   ```
   $ dbaccessdemo
   $ dbaccess stores_demo
   ```

   If the installation was successful, the **dbaccessdemo** script interacts with the database server to create and populate the demonstration database, called *stores_demo* in this example.

You can use the **DB-Access** utility to access databases with SQL.

If the demonstration database server is not functioning, check the log file at `$INFORMIXDIR/tmp/log.txt` for possible tips about what is causing the problem. You can also use this log file to verify the server number on which the demonstration database server is set to run.

Deploying IDS to multiple computers

Deploying IBM Informix Dynamic Server to multiple UNIX or Linux computers is a two-phase process. During an installation on one computer, you generate a response file. On other computers, you use the response file to install the same configuration in silent mode, which is also referred to as an unattended installation.

You must be logged in as **root** user to run installation applications. Make sure that your system is ready for installation, see Chapter 1, "Preparing to install IDS and client products," on page 1-1 for more information.

To deploy IDS on multiple computers:

1. On one computer, record the settings of an IDS installation that you will want to replicate by doing the following:
   - Start a product installation application in GUI or console mode and specify the `-record` option to generate a response file. Note that the `-record` option does not function with the **ids_install** command and disables the Instance Configuration Wizard functionality of GUI and console installation modes.
   - Do not name the response file `server.ini` or `bundle.ini`.
   - See "Installation commands for IDS and related products" on page 2-4 for more information about installation on the first computer.

   ```
   media_location/SERVER/installserver -gui -record myresponsefile.ini
   ```
2. On another computer, perform a silent installation by using the recorded response file to deploy the installation configuration you completed on the first computer.
   a. Start the same product installation application that you used to create the response file; however, start the application in silent mode, not GUI or console mode.
   b. Specify the response file (`.ini`) with the `-options` flag.

c. To ensure the installation does not fail because of lack of disk space, specify the amount of current free disk space on the destination file system with the `-is:freediskblocks` flag. For example:

```
media_location/SERVER/installserver -silent -options myresponsefile.ini
     -is:freediskblocks current_disk_space
```

See "Performing an unattended IDS installation" on page 2-6 for more information about the silent installation process.

Installing client products

You can install Client SDK or Informix Connect as part of the IBM Informix Dynamic Server installation application. For UNIX and Linux, you also have the option to use the client products' installation applications separately.

For detailed information about installing clients in different methods and on different platforms, see *IBM Informix Client Products Installation Guide*.

To install Client SDK or Informix Connect on Linux or UNIX, log in as root user and complete the following steps:

1. From a command prompt, run the installation command for the product that you want to install and specify the options for the commands as described in "Installation commands for IDS and related products" on page 2-4.
   - *media_location*/ICONNECT/installconnect
   - *media_location*/CSDK/installclientsdk

   The installation application runs in console mode by default, unless you specify GUI mode when you issue the command.
2. Follow the instructions in the installation application.
   - You must accept the license to install the program.
   - You can install into the default directory or choose a different directory.
   - Select the product that you want to install, if that is an option. Select either Client SDK or Informix Connect, not both.
   - If you want to install the product with all defaults, choose typical or complete setup (depending on the installation application you are using). Otherwise, choose the custom setup for more configuration options.
3. Review the summary information before proceeding with the installation and exiting the installation application.

Chapter 3. Installing IDS on Mac OS X

Major IBM Informix products for Mac OS X can be installed with a GUI program or by using an unattended installation command ("silent mode"). The Mac OS X installation application is not available in console mode.

Prepare your system before you install any programs, as described in Chapter 1, “Preparing to install IDS and client products,” on page 1-1. The GUI installation application will prompt you to enter valid system administrator credentials before installation setup can proceed. The command for unattended installation must be run by **root** user.

Install IBM Informix Dynamic Server by using one of the following methods.

You can also select to install either IBM Informix Client Software Development Kit (Client SDK) or Informix Connect while running the installation application.

Installing IDS quickly with defaults (Mac OS X)

You can install IBM Informix Dynamic Server and all its features quickly by using the typical setup for installation.

You must have system administrator privileges to complete the installation. Make sure that your system is ready for installation, as described in Chapter 1, “Preparing to install IDS and client products,” on page 1-1.

To install IDS with typical setup:

1. Open the `iif` package file.
2. Enter the system administrator password when you are prompted for it.
3. Enter a directory and password for the **informix** user account if you are prompted for these credentials, and store the password in a secure location. The installation graphical-user interface (GUI) does not prompt for the credentials if there is already an **informix** user account on the computer.
4. Follow the instructions in the GUI.
   a. Read and accept the license to proceed with the installation.
   b. You can install into the default directory or choose a different directory. If the installation application notifies you that the target path is not secure, see “Secure a nonsecure IDS installation path” on page 2-15 for information about how to proceed.
   c. Select the IBM Informix products to install. You can install either Client SDK or Informix Connect , not both, as client programs to run with IDS.
   d. Choose typical setup to install the product with all the features.
   e. Optional: Choose whether to enable role separation for auditing procedures.

      Important: If you enable role separation, you cannot turn it off after the product is installed. To remove role separation, you must uninstall the database server and reinstall it without role separation. To learn more about role separation, see “Role separation” on page 1-14.
   f. Optional: Select whether to create a demonstration database server instance. Choosing this option is required if you want to use the Instance

Configuration Wizard or if you want to set up the instance for DRDA Support while running the installation application.

- If you do not choose the demonstration option, you can configure and initialize the database server manually after installation is complete.
- If you choose to create the demonstration database server, you can provide your own configuration file, use the default configuration file as is, or customize the default configuration file to suit your usage needs and hardware. After installation, the database server instance is initialized automatically. For more information, see "Demonstration database server" on page 1-12 and "Instance Configuration Wizard" on page 1-13.
- To be able to install the database server with DRDA Support, use the default configuration file. Distributed Relational Database Architecture (DRDA) is for open development of applications that allow access of distributed data and is interoperable with IBM Data Server clients.

  If you do not select the DRDA support option, you can still set up the instance to function with the DRDA protocol after installation.

g. If the installation GUI prompts you about automatic tuning of the kernel settings, select **Yes** unless you are sure that you want to tune the kernel with command-line tools outside of the GUI. Refer to the IDS machine notes for Mac OS X for more information about kernel settings.

h. Required: Verify that the installation summary accurately reflects your installation options, and that the server has enough free space for the total installation. Go back to adjust the installation options as necessary.

5. Complete, and then exit, the installation application.

If you chose to create the demonstration database server, a terminal icon appears in the installation directory. Click this icon to open a terminal window that points to the demonstration database server.

Installing IDS with selected features (Mac OS X)

Choose custom setup of the IBM Informix Dynamic Server installation program to install the product with only the features that you need.

You must have system administrator privileges to run the installation application. Make sure that your system is ready for installation, as described in Chapter 1, "Preparing to install IDS and client products," on page 1-1.

To install IDS with custom setup:

1. Open the `iif` package file.
2. Enter the system administrator password when you are prompted for it.
3. Enter a directory and password for the **informix** user account if you are prompted for these credentials, and store the password in a secure location. The installation application does not prompt for the credentials if there is already an **informix** user account on the computer.
4. Follow the instructions in the installation graphical-user interface (GUI).
   a. Read and accept the license to proceed with the installation.
   b. You can install into the default directory or choose a different directory. If the installation application notifies you that the target path is not secure, see "Secure a nonsecure IDS installation path" on page 2-15 for information about how to proceed.

c. Select the IBM Informix products to install. You can install either Client SDK or Informix Connect, not both, as client programs to run with IDS.
d. Choose custom setup to install the product using the Deployment Wizard, which lets you reduce the footprint (disk space) of the installation. For more information about the base server and the list of features, see "Installable features of IDS" on page 1-9.
e. Optional: Choose whether to enable role separation for auditing procedures.

   Important: If you enable role separation, you cannot turn it off after the product is installed. To remove role separation, you must uninstall the database server and reinstall it without role separation. To learn more about role separation, see "Role separation" on page 1-14.
f. Optional: Select whether to create a demonstration database server instance. Choosing this option is required if you want to use the Instance Configuration Wizard or if you want to set up the instance for DRDA Support while running the installation GUI.
   - If you do not choose the demonstration option, you can configure and initialize the database server manually after installation is complete.
   - If you choose to create the demonstration database server, you can provide your own configuration file, use the default configuration file as is, or customize the default configuration file to suit your usage needs and hardware. After installation, the database server instance is initialized automatically. For more information, see "Demonstration database server" on page 1-12 and "Instance Configuration Wizard" on page 1-13.
   - To be able to install the database server with DRDA Support, use the default configuration file. Distributed Relational Database Architecture (DRDA) is for open development of applications that allow access of distributed data and is interoperable with IBM Data Server clients.

     If you do not select the DRDA support option, you can still set up the instance to function with the DRDA protocol after installation.
g. If the installation GUI prompts you about tuning the kernel settings, you can let the installation application automatically tune them by selecting **Yes**. Be aware that if you select **No**, you will need to tune the kernel settings manually using command-line tools. Refer to the IDS machine notes for Mac OS X for more information about kernel settings.
h. Required: Verify that the installation summary accurately reflects your installation options, and that the server has enough free space for the total installation. Go back to adjust the installation options as necessary.

5. Complete, and then exit, the installation application.

After the installation application loads the files on your system, you can test that the database server functions. You can also add features that you chose not to install earlier. You can modify the features by using the installation GUI without affecting the integrity of the base server.

If you chose to create the demonstration database server, a terminal icon appears in the installation directory. Click this icon to open a terminal window that points to the demonstration database server.

Performing an unattended IDS installation (Mac OS X)

To install an IBM Informix product without interactively providing installation information, run the installation application in silent mode.

You must have root privileges to complete the installation in silent mode.

1. Open the top-level directory of the installation media that you obtained:
   - Downloaded media: Double-click on the `.dmg` file.
   - Media on disk: Insert the disk into the computer drive.
2. Double-click the `templates` folder.
3. Copy the `bundle.ini` file in the `templates` folder to your home directory.
4. Open your local copy of the `bundle.ini` file in a text editor.
5. Modify the installation settings of the `bundle.ini` file to meet your needs.

   Important: You must accept the license agreement for the installation to complete successfully. To accept the agreement, change the setting of `-G licenseaccepted=` from `false` to `true`.
6. Open a terminal window if you do not have one open already.
7. Change directory in the terminal window as follows:

   ```
   cd /Volumes/iif.11.50.FC6.macosx64
   ```
8. As **root** user, run the following command:

   ```
   installer -pkg iif.11.50.FC6.macosx64.pkg -target /
   ```

Chapter 4. Configuring a database server

The installed database server must be configured for your system's environment.

If you created a demonstration database server or customized the default configuration file during installation, the instance is already configured. Otherwise, you must set configuration parameters after installation before you can use IBM Informix Dynamic Server.

You can configure a newly installed database server or change the configuration settings of an existing instance by completing the following tasks:

- "Setting environment variables"
- "Preparing connectivity files" on page 4-2
- "Setting configuration parameters" on page 4-3
- "Initializing and starting a database server" on page 4-4

See the *IBM Informix Dynamic Server Administrator's Guide* and *IBM Informix Dynamic Server Administrator's Reference* for detailed information about database server configuration for your system's environment.

Setting environment variables

Set the environment variables after IBM Informix Dynamic Server installation for any instance other than a demonstration database server created while running the installation application.

You must be logged in as **root** user or with sufficient group or user identifier privileges (usually group or user **informix**) to set environment variables.

To set the environment variables for an IDS instance:

1. Set the **INFORMIXDIR** variable to the directory where you installed the database server or other IBM Informix products.
2. Set the **PATH** environment variable to include `$INFORMIXDIR/bin` as follows:
   - C shell:

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

   - Bourne shell:

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

   You must set the **INFORMIXDIR** variable and add `$INFORMIXDIR/bin` to the **PATH** environment variable for each user.
3. Set **INFORMIXSERVER** to specify the default database server to which IBM Informix DB-Access or an SQL API client makes an explicit or implicit connection.
4. Set the **ONCONFIG** variable to the name of a valid `onconfig` file. See "Setting configuration parameters" on page 4-3 to create or modify your `onconfig` file.
5. If using a locale or language other than the default, set the following:
   a. Set **CLIENT_LOCALE** to specify a nondefault locale.
   b. Set **DBLANG** to specify the subdirectory of `$INFORMIXDIR` that contains the customized language-specific message files that IBM Informix products use.

c. Set **DB_LOCALE**.
d. Set **SERVER_LOCALE**.
e. Set **GL_USEGLU** if you use UTF-8 character encoding.

6. Set **INFORMIXSQLHOSTS** to specify the file that contains the `sqlhosts` information. (The default location of this file is `$INFORMIXDIR/etc/sqlhosts`.)
7. Set **INFORMIXTERM** to specify whether IBM Informix DB-Access uses the information in the `termcap` file or the `terminfo` directory. On character-based systems, the `termcap` file and `terminfo` directory determine terminal-dependent keyboard and screen capabilities, such as the operation of function keys, color and intensity attributes in screen displays, and the definition of window borders and graphic characters.
8. Set `$INFORMIXDIR/lib` and any of its subdirectories to specify the shared-library path. The shared-library path environment variable specifies the library search path and is platform dependent.

Platform	Environment Variable
AIX	**LIBPATH**
HP-UX	**SHLIB_PATH**
Mac OS X	**DYLD_LIBRARY_PATH**
Solaris and most other platforms	**LD_LIBRARY_PATH**

For example, on Linux, 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}
```

Preparing connectivity files

Prepare the files that the IBM Informix Dynamic Server instance uses to communicate with client applications and with other database servers.

The connectivity information allows a client application to connect to any IBM Informix database server on the network. The connectivity data for a particular database server includes the database server name, the type of connection that a client can use to connect to it, the host name of the computer or node on which the database server runs, and the service name by which it is known.

Connectivity configuration determines whether your instance has a database server alias and a port for clients that use the Distributed Relational Database Architecture (DRDA) protocol. DRDA is for open development of applications that allow access of distributed data. DRDA is interoperable with IBM Data Server clients. If you created a demonstration database server with the default configuration file while installing IDS, then your instance already supports DRDA connections. If not, then refer to the *IBM Informix Dynamic Server Administrator's Guide* for details on how to enable DRDA support on your instance.

You must prepare the connectivity information even if the client application and the database server are on the same computer or node. You do not need to specify all possible network connections in the `sqlhosts` file or registry before you start

the database server. But to make a new connection available after you have initialized the database server, you must take the database server offline and then bring it back to online mode once again.

1. Edit the `sqlhosts` file as necessary to contain the correct connectivity information with a text editor or equivalent tool.
   - The default location of this file is `$INFORMIXDIR/etc/sqlhosts`.
   - If you set up several database servers to use distributed queries, use either one `sqlhosts` file to which **INFORMIXSQLHOSTS** points or separate `sqlhosts` files in each database server directory.
2. Enter settings in the `/etc/hosts` and `/etc/services` files if your system uses Internet protocol network connections.

For more information about setting connectivity files, see the *IBM Informix Dynamic Server Administrator's Guide*.

Setting configuration parameters

The configuration file for IBM Informix Dynamic Server is named `onconfig`.

If you selected to create a demonstration database server or customized the default configuration file while running the installation application, manual setup of the configuration parameters is not required for a functioning IDS instance. However, all instances created without using the default configuration file in the installation application require further action to set values for at least some configuration parameters.

An IDS installation includes a default configuration file at `$INFORMIXDIR/etc/onconfig.std`. This file has initial values for many of the configuration parameters. You can use `onconfig.std` as a template configuration file that you can copy and customize to how you will use the product and to the host environment.

The command-line **genoncfg** utility provides an alternative way to set the configuration parameters of an IDS instance. With this feature, you set a short list of parameters in an input file, from which the utility then generates an IDS configuration file that is optimized for both your anticipated usage and your host environment. For this method, you do not need to copy and modify an `onconfig` file as described in the following procedure.

For information about why to modify the default configuration parameters, refer to *IBM Informix Dynamic Server Administrator's Guide* documentation about configuring the database server. The *IBM Informix Dynamic Server Administrator's Reference* provides detailed information about all the configuration parameters and the **genoncfg** utility.

Important: Do not modify or delete `onconfig.std`, which is a template and not a functional configuration.

To prepare an IDS configuration file:

1. Copy the `onconfig.std` template file.
2. Modify the *copy* of the template file. The default value for the DUMPDIR parameter is `$INFORMIXDIR/tmp`. If you change this value in your configuration file, make sure that you specify a valid directory on your computer.
3. Set the **ONCONFIG** environment variable to the name of your customized configuration file.

If you omit a parameter value in your copy of the configuration file, the database server either uses default values in `onconfig.std` or calculates values based on other parameter values.

Initializing and starting a database server

Before the database server can start up, it must be initialized.

Important: Only user **informix** or root user can initialize the database server.

The database server needs to be initialized at least once.

Important: If you reinitialize IBM Informix Dynamic Server and it contains databases, the existing data is deleted.

If you chose not to initialize the database server automatically during installation, you can initialize it manually after the product is installed.

To initialize a new database server manually:

Run one of the following commands, depending on your setup.

- The **oninit -i** command overwrites any existing IDS databases on your host computer. Use caution when you run this command if there are existing databases.
- The **oninit** command (without the `-i` option) does not overwrite an existing database.

See the *IBM Informix Dynamic Server Administrator's Reference* for more information about the **oninit** utility.

Chapter 5. Setting up multiple residency

You can set up multiple independent database server environments on the same computer.

Complete the following tasks to set up multiple residency:

Host multiple database servers

Multiple residency refers to multiple database servers and their associated shared memory and disk structures that coexist on a single computer.

Multiple independent database server environments on the same computer allow you to:

- Separate production and development environments to protect the production system from the unpredictable nature of the development environment.
- Isolate sensitive applications or databases that are critically important, either to increase security or to accommodate more frequent backups than most databases require.

  When you use multiple residency, each database server has its own configuration file. Thus, you can create a configuration file for each database server that meets its special requirements for backups, shared-memory use, and tuning priorities.
- Test distributed data transactions on a single computer. If you are developing an application for use on a network, you can use local loopback to perform your distributed data simulation and testing on a single computer. (See the information about using a local loopback connection in the *IBM Informix Dynamic Server Administrator's Guide*.) Later, when a network is ready, you can use the application without changes to application source code.

Plan for multiple residency

Running multiple database servers on the same computer is not as efficient as running one database server. You need to balance the advantages of separate database servers with the extra performance cost.

When you plan for multiple residency on a computer, consider the following factors:

- Memory

Each database server needs its own memory. Ensure that your computer can handle the memory usage that an additional database server requires.

- Storage space

  Each database server must have its unique storage space. You cannot use the same disk space for more than one instance of a database server. When you prepare an additional database server, you must repeat some of the planning that you did to install the first database server. For example, consider these questions:

  – Will you use buffered or unbuffered files? Will the unbuffered files share a disk partition with another application? (For more information about buffered and unbuffered files, see the topic on direct disk access in the *IBM Informix Dynamic Server Administrator's Guide*.)
  – Will you use mirroring? Where will the mirrors reside?
  – Where will the message log reside?
  – Can you dedicate a tape drive to this database server for its logical logs?
  – What kind of backups will you perform?

Creating multiple residency of a database server

Before you set up multiple residency, you must install one database server as described in Chapter 2, "Installing IDS and client products on UNIX and Linux," on page 2-1 or Chapter 3, "Installing IDS on Mac OS X," on page 3-1.

Important: You do not need to install more than one copy of the database server binary files. All instances of the same version of the database server on one computer can share the same binary files.

To create multiple residency of a database server:

1. Prepare a new configuration file and set the **ONCONFIG** environment variable to the new file name. See "Setting up an instance-specific onconfig file."
2. Optional: Set up connectivity for the new database server instance. See "TCP/IP connectivity" on page 5-4.
3. Initialize disk space for the new database server instance. See "Prevent data from being overwritten" on page 5-4.
4. Prepare the backup environment for multiple residency. See "Prepare the backup environment for multiple residency" on page 5-4.
5. Modify the operating system startup to start the new database server instances automatically. See "Modify operating system startup for multiple server instances" on page 5-5.
6. Check the **INFORMIXSERVER** environment variables for users. See "Reset the INFORMIXSERVER environment variable" on page 5-5.

Setting up an instance-specific onconfig file

Each instance of the database server must have its own `onconfig` configuration file.

To set up an instance-specific `onconfig` file:

1. Make a copy of an `onconfig` file that has the basic characteristics that you want for your new database server.

2. Give the new file a name that you can easily associate with its function. For example, you might select the file name `onconfig.acct` to indicate the configuration file for a production system that contains accounting information.
3. Set the **ONCONFIG** environment variable to the file name of the new `onconfig` file. Specify only the file name, not the complete path.
4. In the new configuration file, set the following configuration parameters:

   SERVERNUM
   Specifies an integer (between 0 and 255) that is associated with a database server configuration. Each instance of a database server on the same host computer must have a unique SERVERNUM value. For more information about the SERVERNUM, DBSERVERNAME and ROOTPATH AND ROOTOFFSET parameters, see the *IBM Informix Dynamic Server Administrator's Reference*.

   DBSERVERNAME
   Specifies the dbservername of a database server. It is suggested that you choose a name that provides information about the database server, such as **ondev37** or *hostname***dev37**.

   MSGPATH
   Specifies the path name of the message file for a database server. You should specify a unique path name for the message file because database server messages do not include the dbservername. If multiple database servers use the same MSGPATH parameter, you cannot identify the messages from separate database server instances. For example, if you name the database server **ondev37**, you might specify `/usr/informix/dev37.log` as the message log for this instance of the database server.

   ROOTPATH and ROOTOFFSET
   Used together, specify the location of the root dbspace for a database server. The root dbspace location must be unique for every database server configuration.

If you put several root dbspaces in the same partition, you can use the same value for the ROOTPATH parameter. However, in that case, you must set the ROOTOFFSET parameter so that the combined values of the ROOTSIZE and ROOTOFFSET parameters define a unique portion of the partition.

You do not need to change ROOTNAME. Even if both database servers have the name **rootdbs** for their root dbspace, the dbspaces are unique because ROOTPATH specifies a unique location.

For more information about the SERVERNUM, DBSERVERNAME, ROOTPATH, and ROOTOFFSET parameters, the configuration parameters documentation in the *IBM Informix Dynamic Server Administrator's Reference*.

You might also need to set the MIRRORPATH and MIRROROFFSET parameters. If the root dbspace is mirrored, the location of the root dbspace mirror must be unique. For information about the MIRRORPATH and MIRROROFFSET parameters, see the *IBM Informix Dynamic Server Administrator's Guide*.

TCP/IP connectivity

If you use the TCP/IP communication protocol, you might need to add an entry to the `services` file for the new database server instance. If you use the IPX/SPX communication protocol, you might need to modify the connection information for the NetWare server.

The `sqlhosts` file must have an entry for each database server. If IBM Informix products on other computers access this instance of the database server, the administrators on those computers must update their `sqlhosts` files.

If you plan to use TCP/IP network connections with an instance of a database server, the system network administrator must update the `hosts` and `services` files. If you use an IPX/SPX network, the NetWare administrator must update the NetWare file server information.

For information about these files, see the topics on client/server communications in the *IBM Informix Dynamic Server Administrator's Guide*.

Prevent data from being overwritten

Before you initialize disk space, check the setting of the **ONCONFIG** environment variable. If it is not set correctly, you might overwrite data from another database server. When you initialize disk space for a database server, the database server initializes the disk space that is specified in the current configuration file.

Important: As you create new blobspaces or dbspaces for a database server, assign each chunk to a unique location on the device. The database server does not allow you to assign more than one chunk to the same location within a single database server environment, but you must ensure that chunks that belong to different database servers do not overwrite each other.

Prepare the backup environment for multiple residency

Depending on your backup method, you must prepare the backup environment for multiple residency.

The ON-Bar utility backup

The **ON-Bar** utility allows you to back up data from various database server instances to a single storage device if the storage manager allows it. The storage manager keeps track of what data has been backed up. However, keep storage-space and logical-log backups on separate storage devices.

The ontape utility backup

When you use multiple residency, you must maintain separate storage space and logical log backups for each database server instance.

If you can dedicate a tape drive to each database server, use the continuous logging option to back up your logical log files. Otherwise, you must plan your storage space and logical log backup schedules carefully so that use of a device for one database server instance does not cause the other database server instance to wait. You must reset the ONCONFIG configuration parameter each time that you switch backup operations from one database server instance to the other.

Modify operating system startup for multiple server instances

You can ask your system administrator to modify the system startup script so that each of your database server instances starts whenever the computer is rebooted; for example, after a power failure. For more information about startup scripts, see the topics on preparing startup and shutdown scripts in the *IBM Informix Dynamic Server Administrator's Guide*.

To start a second instance of a database server, change the **ONCONFIG** and **INFORMIXSERVER** environment variables to point to the configuration file for the second database server and then run the **oninit** command. Do not change the **INFORMIXDIR** or **PATH** variables.

Similarly, you can ask the system administrator to modify the shutdown script so that all instances of a database server shut down normally.

Reset the INFORMIXSERVER environment variable

If a new instance of a database should be the default database server, you must reset the **INFORMIXSERVER** environment variable.

Chapter 6. Removing or modifying IDS and client products installations on UNIX and Linux

After you install IBM Informix Dynamic Server, you can add features to an existing configuration or reinstall features. Adding or reinstalling features does not harm the database server or other installed features.

Adding features to installed IDS (UNIX and Linux)

If you have a custom installation of IBM Informix Dynamic Server that does not include some features, and you want to add one or more of those features, you can do so without reinstalling the server.

You must have root privileges to add features to your IDS instance. Also, your system must have enough free disk space for the features you want to install.

Some features are mutually dependent, and must be installed with one another. The installation application enforces these dependencies.

To add features:

1. From a command prompt, run the following installation command:
   media_location/SERVER/installserver
2. Read and accept the license to proceed with the installation.
3. If your $INFORMIXDIR path does not appear by default, specify the correct path.
4. Choose custom setup type.
5. Select the features that you want to add.
6. Optional: Select whether to create a demonstration database server instance.

   Important: The settings for the demonstration database server name, server number, and ROOTPATH must be unique to the demonstration instance that you want to create and not shared with other instances on your system. Go back to adjust the installation options as necessary.
7. Complete the installation and exit the install application.

Reinstalling IDS features (UNIX and Linux)

If an IBM Informix Dynamic Server feature is installed but you want to install it again, you can do so without reinstalling the base server or other features that are already installed in the instance.

You must have root privileges to add features to your IDS instance.

Important: Users are responsible for the changes at the target if this option is used.

You can reinstall a feature over an instance that already has the feature by using the -force-reinstall option.

Use with caution: The -force-reinstall option overwrites existing installed features or a complete IDS installation without checking for version compatibility

(for example, checking if the server being installed is an older version than the one that is already installed in the install location).

1. From a command prompt, run the following installation command:
   media_location/SERVER/installserver -force-reinstall
2. Read and accept the license to proceed with the installation.
3. If your $INFORMIXDIR path does not appear by default, specify the correct path.
4. Choose custom setup type.
5. Clear both Base Server and all features that you do not want to install at this time. Some features are mutually dependent to function properly in the database server. The -force-reinstall operation does not enforce features interdependencies.
6. Optional: Select whether to create a demonstration database server.

   Important: The settings for the demonstration database server name, server number, and ROOTPATH must be unique to the demonstration instance that you want to create and not shared with other instances on your system. Go back to adjust the installation options as necessary.

Removing IBM Informix products and features (UNIX and Linux)

You can remove IBM Informix Dynamic Server completely, or just some of its installed features without removing the base server. You can also remove related IBM Informix products one at a time.

The following topics describe how to remove IDS, its features, and related products on UNIX and Linux:

- "Removing IDS and installed features (UNIX and Linux)"
- "The uninstallserver command" on page 6-3
- "Removing Client SDK, Informix Connect, and IBM Informix JDBC Driver" on page 6-4
- "Removing IDS with RPM Package Manager (Linux)" on page 6-5

Removing IDS and installed features (UNIX and Linux)

An uninstallation application (called *uninstaller*) is provided to remove the product and its features from a system.

To remove IBM Informix Dynamic Server and its features, you must have root privileges and have a valid JRE version on the system. You can use the uninstaller or a **java -jar** command.

Important: See "JRE on the installation media" on page 1-3 and "Extracting JRE from the installation media manually" on page 1-4 for more information about ensuring your system will have the correct JRE ready version for the uninstaller.

To remove IDS from Linux or UNIX systems by using the uninstaller:

1. From a command prompt, change directory to $INFORMIXDIR.
2. Set the **$INFORMIXDIR** environment variable to the current directory.
3. Run **uninstallserver** with the appropriate options. The uninstall application runs in console mode by default, unless you specify GUI mode when you issue the command.

4. Follow the instructions in the application. By default, the product and all its features are selected to be removed. If you want to remove just some features, ensure that only those features are selected. You cannot remove the base server without all the other features.

   Important: If Client SDK is installed in the same directory as IDS:
   - You must uninstall IDS before you uninstall Client SDK.
   - Do not remove the Global Language Support (GLS) and Messages features because both products have dependencies on the features.

Alternatively, set the **$INFORMIXDIR** environment variable to the current directory and remove Client SDK and its features with the following command:

```
java -jar uninstall_ids1150/uninstall.jar
```

By default, the command starts in console mode. To uninstall in another mode, specify one of the following parameters with the command:

-swing
Graphical user interface mode.

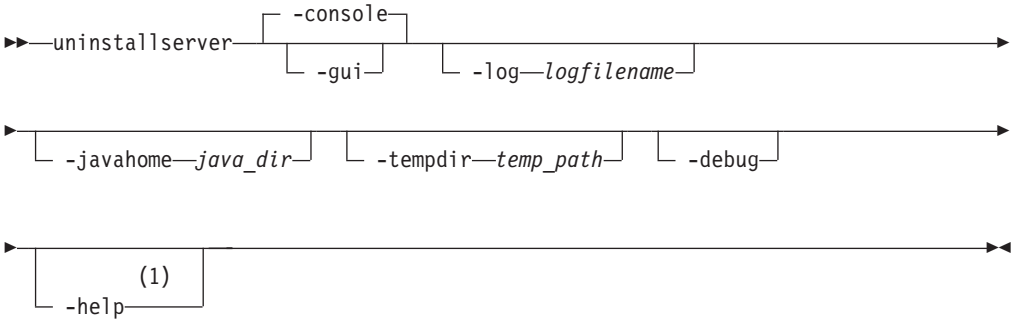
-silent Silent mode, which enables you to uninstall without interactively specifying options.

After IDS is removed, you can manually delete the `$INFORMIXDIR` directory. It is not deleted automatically. Also, you can remove Client SDK if you no longer require it. To remove IBM Informix client products, you must use Java with `-jar` options.

The uninstallserver command

Syntax and usage for uninstalling IBM Informix Dynamic Server with the **uninstallserver** command.

You need to have root privileges to use this command.



Notes:

1 Do not use the `-help` option simultaneously with other options when you run the command. The `-help` option invalidates any other options put into the same command line.

Table 6-1. Elements for **uninstallserver** *command options*

Element	Purpose	Restrictions
java_dir	Specifies the JRE on the host computer. Points to the directory that contains `bin/java`.	The JRE must be version 1.4.2 or higher.
logfilename	Specifies a non-default log file name.	None
temp_path	Specifies path to temporary directory. If you receive an error during file extraction that there is not enough space in the `/tmp` directory, set the `-tempdir` option to a different temporary directory.	None

The following table describes the options for the uninstaller.

Table 6-2. Options for the uninstaller

Option	Meaning
uninstallserver	Use to start the uninstaller to remove IDS and all of its installed features.
`-console`	Start the uninstaller in console mode. This is the default mode.
`-gui`	Start the uninstaller in graphical user interface (GUI) mode.
`-log` *logfilename*	Use to log progress of the uninstaller.
`-javahome` *java_dir*	Use specified JRE.
`-tempdir` *temp_path*	Use specified temporary directory.
`-debug`	Use to store all internal messages to a log file for debugging problems while uninstalling the product or its features.
`-help`	Use to display a list of supported options and their purpose.

Usage

When you run the command, the uninstaller opens. Follow the instructions on the interface to remove the whole product or selected features.

Important: If Client SDK is installed in the same directory as IDS:

- You must uninstall IDS before you uninstall Client SDK.
- Do not remove Global Language Support (GLS) because both IDS and Client SDK use this feature.

Example

The following command starts the uninstaller in GUI mode and logs information in a file named `myuninstall.log`.

```
$INFORMIXDIR/uninstallserver -gui -log myuninstall.log
```

Removing Client SDK, Informix Connect, and IBM Informix JDBC Driver

Commands to remove Client SDK, Informix Connect, and IBM Informix JDBC Driver.

Important:

- Do not remove any IBM Informix products by manually deleting files.

- If Client SDK is installed in the same directory as IBM Informix Dynamic Server:
  - You must uninstall IDS before you uninstall Client SDK.
  - Do not remove Global Language Support (GLS) because both products have dependencies on this feature.

Uninstall the products one at a time by running these commands from `$INFORMIXDIR` and following the prompts to complete the uninstallation. These commands require Java Runtime Environment (JRE) Version 1.4.2 or higher. See "JRE on the installation media" on page 1-3 and "Extracting JRE from the installation media manually" on page 1-4 for more information about ensuring your system will have JRE ready for the uninstall operations.

Client SDK

```
java -jar uninstall_csdk/uninstall.jar
```

IConnect

```
java -jar uninstall_conn/uninstall.jar
```

JDBC driver

```
java -jar _uninst/uninstall.jar
```

By default, the commands for Client SDK and Informix Connect start in console mode while the command for IBM Informix JDBC Driver starts in graphical user interface (GUI) mode. The following options used with one of the **java -jar** commands set the uninstaller mode:

-swing
GUI mode.

-silent Silent mode, which enables you to uninstall without interactively specifying options.

Removing IDS with RPM Package Manager (Linux)

Use the **rpm -e** command to uninstall IBM Informix products that were installed using RPM Package Manager (RPM).

You must be **root** user to uninstall with the RPM command. Removing products using this method is equivalent to erasing the package.

You must know the name of the package that was used to install the IBM Informix products to run the uninstallation command. See RPM Package Manager documentation on how to query the RPM database to obtain the name.

To remove IBM Informix products that were installed using RPM:

Run the following command:

```
rpm -e package_name
```

Uninstalling an RPM package does not remove user **informix** and group **informix** from the computer.

Chapter 7. Modifying installations on Mac OS X

To complete uninstallation, remove IBM Informix Dynamic Server and any related client products that you have installed separately. You can add or remove database server features without reinstalling.

Adding features to installed IDS (Mac OS X)

If you have a custom installation of IBM Informix Dynamic Server that does not include some features, and you want to add one or more of those features, you can do so without reinstalling the server.

Your system must have enough free disk space for the features that you want to install.

Adding features to an existing installation requires you to run the IDS installation GUI for `$INFORMIXDIR` again. The installation application detects what features you do not have installed and lets you add them. The GUI displays the amount of disk space your selection of features requires before actual installation of the files.

Some database server features are mutually dependent to function properly. When you add features to an existing instance, the installation application enforces these interdependencies.

While adding features to an instance, it is possible that the computer prompts you for the administrator password.

To add features to an instance on Mac OS X:

1. Open the IDS installation media (the `iif` package file) on the computer hosting the database server instance.
2. Read and accept the license to proceed with the installation.
3. If your `$INFORMIXDIR` path does not appear by default, specify the correct path.
4. Choose custom setup type.
5. Select the features that you want to add.
6. Optional: Select whether to create a demonstration database server instance.

   Important: The settings for the demonstration database server name, server number, and ROOTPATH must be unique to the demonstration instance that you want to create and not shared with other instances on your system. Go back to adjust the installation options as necessary.
7. Complete, and then exit, the installation application.

Removing IDS and installed features (Mac OS X)

Use the **uninstallserver** command to start the uninstallation application (called *uninstaller*) for removal of the product and its features.

You must have the privilege to run the **sudo** command for uninstalling on your system to remove IBM Informix Dynamic Server and its features with the uninstaller.

See the information in "The uninstallserver command" on page 6-3 for details about what options are supported by this command.

To remove IDS from Mac OS X systems by using the uninstaller:

1. Open a terminal window so that you can work in a command-line environment.
2. Change directory to `$INFORMIXDIR`.
3. Set the **$INFORMIXDIR** environment variable to the current directory.
4. Run **sudo uninstallserver** with the appropriate options. The uninstallation application runs in console mode by default, unless you specify GUI mode when you run the command.
5. Follow the instructions in the application. By default, the product and all its features are selected to be removed. If you want to remove just some features, ensure that only those features are selected. You cannot remove the base server without all the other features.

   Important: If Client SDK is installed in the same directory as IDS:
   - You must uninstall IDS before you uninstall Client SDK.
   - Do not remove the Global Language Support (GLS) and Messages features because both products have dependencies on the features.

Removing Client SDK and Informix Connect (Mac OS X)

Uninstall Client SDK and Informix Connect by running the GUI uninstallation application.

Important: If Client SDK is installed in the same directory as IBM Informix Dynamic Server:

- You must uninstall IDS before you uninstall Client SDK.
- Do not remove the Global Language Support (GLS) and Messages features because both products have dependencies on the features.

When you uninstall Client SDK or Informix Connect, the registered IBM Informix ODBC Driver is unregistered if this registered driver is on the system. The uninstallation application also prompts you to confirm that you want to delete the user-defined `sqlhosts` file entries used by ODBC connections.

To uninstall IBM Informix client products in GUI mode on Mac OS X:

1. From `$INFORMIXDIR`, run the following command:

   ```
   sudo java -jar uninstall_csdk/uninstall.jar -swing
   ```

2. Follow the prompts to complete the uninstallation.

Chapter 8. Deploying IDS with the deployment utility

Use the command-line deployment utility to deploy a snapshot of IBM Informix Dynamic Server. The deployment utility provides a quick alternative to installing IDS on many computers.

The deployment utility

The IBM Informix deployment utility can deploy snapshots of pre-configured IBM Informix Dynamic Server instances (with or without data) on one or more computers.

A snapshot is an image that includes the IDS installation directory, configuration settings, and any data spaces associated with the instance. To take a snapshot, you must have installed IDS. The installation can be a working instance, or simply an installation that you set up as a template from which to deploy the instance on other computers.

Deploying a snapshot is different from installing IDS with the silent installation option. It is much quicker because you are simply recreating the installed instance from a snapshot, you are not installing the product all over again. Similarly, if you deployed a snapshot on a computer, you can replace the snapshot or remove it by using the deployment utility.

The following list describes some scenarios for which the deployment utility can be useful:

- You want to deploy a particular database server configuration on multiple computers. You can tune only one instance as the template instance, and then use the utility to deploy it on to other computers in silent mode.
- You want to clone an instance on the same computer or set up multiple instances quickly.
- You want to upgrade multiple instances to a different fix pack or version level to take advantage of newer product enhancements but this requires tuning certain configuration parameters or environment variables. You can tune the template instance, and then use the utility to upgrade other instances rapidly.
- You are embedding an IDS application on multiple computers and want to reduce application installation and setup time. You can specify the installation location and a single path for all application files including the database server files during deployment to avoid waiting for data loading and database server initialization.

Most deployment utility functionality can be invoked by using either command-line options or setting options in a text-based template configuration (`.conf`) file to accommodate your working preference. The `.conf` file also facilitates easier reuse of an instance setup because you can save your settings in a copy of the file.

To operate the deployment utility, run the **ifxdeploy** executable from a command line or from a script as part of an application installation. The utility can be run without user interaction, in silent mode.

Rapid IDS embeddability with the deployment utility

A snapshot of an instance can be reconfigured and initialized by running the deployment utility with a combination of command line options or by setting values in the `ifxdeploy.conf` file.

You can preinitialize the instance by indicating the location of the IBM Informix Dynamic Server chunk paths on the target computer.

The `ifxdeploy.conf` file allows for more dynamic customization than the command-line options because in the file you can specify any configuration parameter values, set key environment variables, and create multiple database server aliases.

To apply configuration settings of the `ifxdeploy.conf` file to an instance you are deploying, enter the file name as an argument to the `-config` option when you run the **ifxdeploy** command.

If you set different values for the same instance in the `ifxdeploy.conf` file and as an option to the **ifxdeploy** command option, the deployment utility uses the value specified on the command line. For example, if you specify `-p mypassword1` on the command line but set the INFORMIXPASSWORD parameter to `mypassword2` in the `ifxdeploy.conf` file, the deployed instance requires `mypassword1` for authentication.

Initialized dbspaces

If you create a snapshot with initialized dbspaces, you can deploy the snapshot as an initialized instance without having to wait for disk space initialization on the target system.

To deploy the dbspaces to different locations from where they were when the snapshot was taken, use the `-relocate` option. In the `-relocate` option you specify one or more parent directories for the chunks of the deployed instance.

If you want to relocate the chunk parent directories, verify the following before you run the utility:

- The chunk files on the target computer exist in path locations that correspond with your chunk parent directory relocation settings.
- Each chunk file has an ownership and permissions setting that allows you to modify it.
- You know the ROOTPATH (and MIRRORPATH, if applicable) for the deployed instance, and provide the path information in a configuration parameter setting or by using the `-rootpath` option.

Database server configuration

You can set essential configuration parameters in the command-line options of the **ifxdeploy** command, instead of setting the values in the `onconfig` file.

In the `ifxdeploy.conf` file, you can provide server configuration parameters in the following ways:

- Edit essential configuration parameter settings for your instance; the parameter options that appear in the file mirror those that are available as command-line options.

- If you do not edit a configuration parameter setting listed in the file, accept the default value.
- Indicate a pre-existing `onconfig` file for the instance to use.
- Customize configuration parameter settings in the ONCONFIG part of the `ifxdeploy.conf` file, which overrides any `onconfig` file settings. This is particularly useful if you have brought your snapshot to the target computer, analyzed the environment, and know that there are a few specific parameters that are easier to adjust through the deployment utility instead of manually editing the `onconfig` file.

Attention: The values of any options that you pass on the **ifxdeploy** command line supersede the corresponding settings of the `ifxdeploy.conf` file.

An `onconfig` file is generated from `onconfig.std` if you do not specify one and the **ONCONFIG** environment variable is not set.

Environment variables

You can specify **INFORMIXDIR**, **INFORMIXSERVER**, **INFORMIXSQLHOSTS**, and **ONCONFIG** environment variables in the `ifxdeploy.conf` file.

The deployment utility can read the following environment variables from the process environment and use them to configure the deployed instance:

- **INFORMIXDIR**
- **INFORMIXSERVER**
- **CLIENT_LOCALE**
- **DB_LOCALE**
- **DBLANG**
- **GL_USEGLU**
- **SERVER_LOCALE**

If the **INFORMIXDIR** and **INFORMIXSERVER** environment variables are not set on the target computer, you must enter them in the configuration file or when prompted by the deployment utility. No default values are provided for these two environment variables.

The **INFORMIXSQLHOSTS** environment variable points to the location of the settings for client/server connectivity. On UNIX and Linux, the environment variable setting is the location of the `sqlhosts` file.

If the **ONCONFIG** environment variable is not set, the utility creates one from a combination of whatever parameter settings you provide in the configuration file and `onconfig.std`. The file name format of the autogenerated `onconfig` file is `onconfig.`*`server_name`*.

Database server aliases

With the `ifxdeploy.conf` file, you can set up multiple database server aliases that are equivalent to setting the DBSERVERALIASES configuration parameter in the `onconfig` file. The "ALIAS" section of the file consists of fields in which you can provide the SQLHOSTS connection information for each alias. The "ALIAS" setting can expedite your deployment if you plan to use database server aliases because you enter the connection information as part of the configuration file setup and do not need to configure SQLHOSTS information separately.

Creating a snapshot for deployment

Create a snapshot of IBM Informix Dynamic Server that you can use with the deployment utility to place pre-configured instances on multiple computers.

Before you create a snapshot, you must meet the following prerequisites:

- User **informix** or root privileges on the computer.
- Sufficient disk space to save the snapshot in a file. If space is limited, you might want to store the snapshot in a compressed file.

To create a snapshot, complete the following steps on the computer where you installed the IDS instance:

1. Shut down the instance in a consistent state with **onmode -kuy**.
2. Create a snapshot of the following items:
   - IDS installation directory

     Tip: Ensure you include the `IDSFILES.txt` file, which is in the installation directory. That file is required if you want to use the deployment utility to remove the snapshot from the target computer after you deploy it.
   - Configuration settings
   - Optional: Data spaces associated with the instance

     Tip: Store the components of the snapshot in a compressed file if you want to save space. If you compress the snapshot with Gzip tar on UNIX or Linux or into a zip file on Windows, the utility can be automatically decompressed by the deployment utility. ***Example with Gzip:*** Use the **cd** command to go to the directory containing the template `$INFORMIXDIR` and then enter `tar cvzf ifxdir.tgz *` to create the archive.
3. Optional: After you create the snapshot, you can restart the instance.

Deploying a snapshot with the deployment utility

Deploy a snapshot of an instance by using the **ifxdeploy** command on the target computer.

Before you deploy a snapshot, you must meet the following prerequisites:

- Root privileges on the target computer.
- If you plan to include data with the deployed instance *without* using the `-relocate` option in the **ifxdeploy** command to specify one or more parent directories for the chunks, note the absolute path of the instance on the template computer. You must remember to set the root dbspace on the target computer to the same absolute path of the instance on the template computer.
- The target computer has sufficient disk space for the snapshot.

  Tip: You need the same amount of space as was used on the template computer. The space required depends on what you included in the snapshot, such as data, extra files, or other applications.

To deploy the snapshot on the target computer:

1. Save a copy of the snapshot.
2. If not set, set the environment variables for **INFORMIXDIR**, **INFORMIXSERVER**, and your locale. You can set the environment variables in the `ifxdeploy.conf` file. The default locale is U.S. English. If the environment

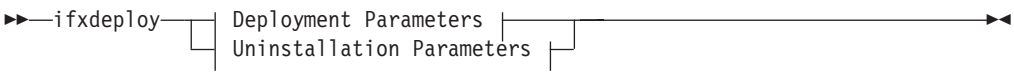
variables or the locale are not set, the utility reads these settings from the process environment and uses them to configure the instance.

3. If you want to provide your own configuration file, set the **ONCONFIG** environment variable to the location of the file that you want to use. You can set the **ONCONFIG** environment variable in the `ifxdeploy.conf` file. If you do not set the **ONCONFIG** environment variable, or if the file specified by the **ONCONFIG** environment variable cannot be found, the deployment utility automatically creates a configuration file with standard configuration settings (based on the `onconfig.std` file).
4. Optional: If there are specific parameter values in the `onconfig` file that you want to modify, set them in the "ONCONFIG" option section of the `ifxdeploy.conf` file.
5. Run the **ifxdeploy** command with the appropriate options. The utility is located in the `bin` subdirectory of the installation path. See "The ifxdeploy command: The deployment utility" for supported options.

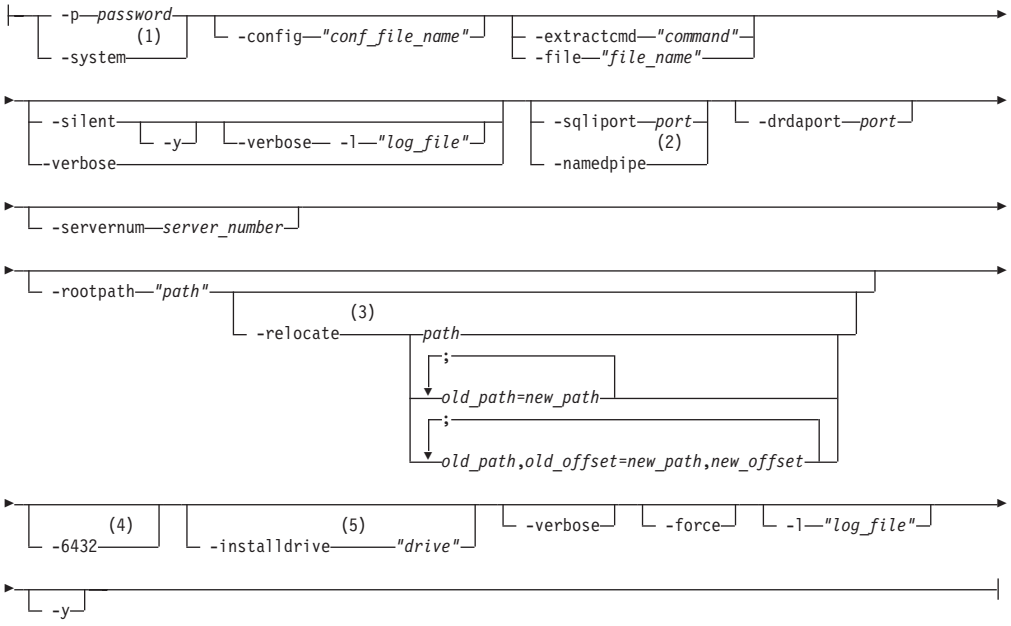
The ifxdeploy command: The deployment utility

Use the **ifxdeploy** command to deploy a snapshot or remove a snapshot that you already deployed.

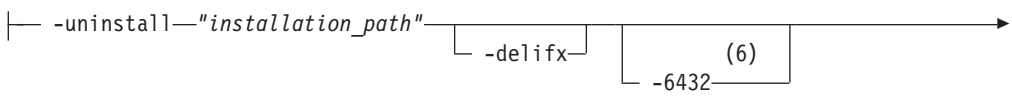
Syntax

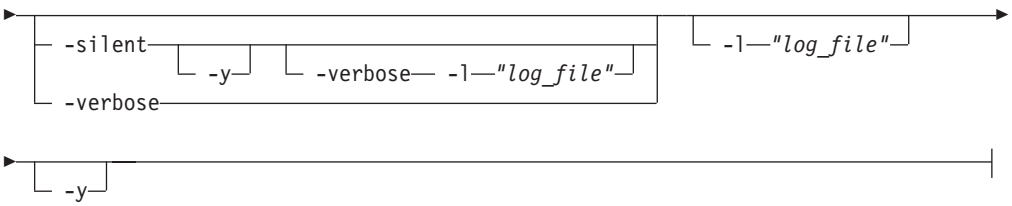


Deployment parameters:



Uninstallation parameters:





Notes:

1 **-system** functions on Windows only

2 **-namedpipe** functions on Windows only

3 **-relocate** can run without **-rootpath** option if ROOTPATH is set in an ONCONFIG parameter

4 **-6432** functions on Windows only

5 **-installdrive** functions on Windows only

6 **-6432** functions on Windows only

Command options

Table 8-1. The **ifxdeploy** *command options*

Element	Purpose	Key considerations
`-config` *"conf_file_name"*	Specifies deployment configuration file to run with utility.	
`-delifx`	Removes user **informix** and group **informix**.	The `-delifx` option functions when there is only one IDS installation on the computer.
`-drdaport` *port*	Specifies the Distributed Relational Database Architecture (DRDA) service port for use with the IBM Common Clients.	The default is 9089.
`-extractcmd` *"command"*	Extracts the snapshot that you want to deploy or modify.	Specify the command and the file that contains the snapshot files.
`-file` *"file_name"*	Decompresses the snapshot from the *"file_name"* file by using Gzip software.	Use this option only if the target computer has 7-Zip for Windows or Gzip for UNIX or Linux.
`-force`	Overwrites the existing instance settings on the target computer.	
`-l` *"file_path"*	Sends status messages to a text file.	Indicate the full path and file name for the log file that you want to use. If the file does not exist, it will be created for you.

Table 8-1. The **ifxdeploy** *command options (continued)*

Element	Purpose	Key considerations
`-p` *password*	Specifies the user **informix** password used to create the IDS service.	Specify the password for user **informix** on the target computer. If you specify a password and the user **informix** does not exist on the target computer, the user will be created and will have the specified password.

`-relocate` *path*	Specifies new parent directory of chunks in the deployed instance.	You can specify a single new parent directory or map multiple separate chunk paths to different locations. In addition, you can substitute offsets of the old paths with new values if you are indicating multiple new parent directories.
		
		Windows: If the parent directories have spaces in the paths, place the string of paths after the `-relocate` option in double-quotation marks. Example:
		`ifxdeploy -relocate "C:\Program Files\IBM\IBM Dynamic Server\11.50\ tmp=D:\IFMXDATA\myserver"`
		
		Linux: If multiple parent directories are specified and have spaces in the paths, place the string of paths after the `-relocate` option in single-quotation marks. Example:
		`ifxdeploy -relocate '/opt/IBM/informix1150/ tmp=/local/data/myserver; /opt/IBM/informix1150/ dbspace=/local2/data/myserver'`

`-rootpath` *"path"*	Indicates the location of the root dbspace.	default path:`/opt/IBM/informix/`*`server_name`*`/rootdbs`
`-servernum` *server_number*	Specifies the server number of the instance.	The number must be an integer from 0 to 255. The default is 0.
`-silent`	Directs the utility to run in silent mode.	When you use this option, messages do not display on the screen but are written in a log file. If you use the `-silent` option and `-verbose` option together, you must also include the `-l` argument.
`-sqliport` *port*	Specifies the SQLHOSTS service port for the server instance.	The default port is 9088.
`-uninstall` *installation_path*	Removes a snapshot that was originally deployed by the deployment utility.	

Table 8-1. The **ifxdeploy** *command options (continued)*

Element	Purpose	Key considerations
`-verbose`	Runs the command in verbose mode.	
`-y`	Runs the command without prompting for confirmation.	

Usage

Before you use this command, create a snapshot and copy it to the computer where you want to deploy the snapshot. See "Creating a snapshot for deployment" on page 8-4 for more information.

Run this command, with options, on the computer where you want to deploy the snapshot. When you specify a value for a parameter, if the value contains a space, enclose the value in double quotation marks. You must run the command either as an Administrator user or as the **root** user.

If you placed the snapshot in a compressed file, you must extract it. Use the `-extractcmd` option to decompress a snapshot with a customized command or script. Alternatively, if you have 7-zip software for Windows or Gzip for UNIX or Linux installed, you can use the `-file` option to decompress the snapshot.

Use the `-force` parameter to deploy a snapshot to multiple computers and override the database server instance settings on the target computer.

Examples of deployment utility usage on Linux and UNIX

Decompressing a snapshot saved as a `.tgz` file with Gzip and other options

In this example, the deployment utility decompresses a snapshot saved as `/opt/IBM/informix/ifxdir.tgz` by using Gzip. The command will run in verbose mode, create the log file `/tmp/mylog`, and not prompt for confirmation.

```
ifxdeploy -file /opt/IBM/informix/ifxdir.tgz -l /tmp/mylog -verbose -y
```

Specifying SQLHOSTS settings and the server number for the deployed instance

In this example, the IDS files are already in place and you are creating a new instance by specifying port numbers for DRDA and the service port, as well as setting the server number for the instance. The snapshot is not compressed, so neither the `-extractcmd` option nor the `-file` option is needed. The **INFORMIXDIR** and **INFORMIXSERVER** environment variables have been updated to new values as needed.

```
ifxdeploy -sqliport 9093 -drdaport 9094 -servernum 3
```

Dynamic relocation of chunks to single parent directory

In this example, the chunks are relocated to a single parent directory and indicate location of the root dbspace:

```
ifxdeploy -rootpath /opt/ibm/IDS/exa/space -relocate /opt/ibm/IDS/exa/space2
```

Chunk relocation to multiple paths

In this example, the location of the root dbspace has been specified with the ROOTPATH configuration parameter, so the command does not need to be run with the `-rootpath` option. Each mapping between the old path and the new path is separated by a semicolon.

```
ifxdeploy -relocate /opt/IBM/ex3=/idsb/myserver;/opt/IBM/ex4=/idslogs/myserver
```

Chunk relocation to multiple paths with new offsets

In this example, the location of the root dbspace has been specified with the ROOTPATH configuration parameter, so the command does not need to be run with the `-rootpath` option. The mapping of the old paths and the new paths includes offset values (in kilobytes), which are indicated after the commas.

```
ifxdeploy -relocate /opt/IBM/dbspaces,0=/lv1/data,4;/opt/IBM,2=/ids/myserver,6
```

The ifxdeploy.conf file: The deployment utility configuration file

The `ifxdeploy.conf` file is a text-file template in which you can configure an instance snapshot prior to deploying it with the **ifxdeploy** command.

Purpose

The `ifxdeploy.conf` file is in `$INFORMIXDIR/etc/` on UNIX and Linux and `%INFORMIXDIR%\etc` on Windows.

By using the `ifxdeploy.conf` file, you can run the deployment utility with fewer command-line options to configure the instance. You can save and reuse the file to deploy instances to other locations. The file supports the same functionality as the **ifxdeploy** command options, but also additional functionality that is useful for embedding IBM Informix Dynamic Server when you are deploying a snapshot in multiple locations that require minimal or no modification in instance setup. See "Rapid IDS embeddability with the deployment utility" on page 8-2 for a description of the major embeddability features of the `ifxdeploy.conf` file.

Parameters

The `ifxdeploy.conf` file is value pair based. If there is a parameter with a default value that you want to change, provide the value in an uncommented line.

Attention: The values of parameters that are set on the **ifxdeploy** command line overwrite the values of the same parameters in the `ifxdeploy.conf` file.

The following table explains the parameters in the same order that they appear in the configuration template file.

Table 8-2. The ifxdeploy.conf file parameters

Parameter	Description	Example of value setting (uncommented line)
INFORMIXSERVER	Primary database server name. Must be set either here or as environment variable before deployment (no default value is provided).	`INFORMIXSERVER deploy3`

Table 8-2. The ifxdeploy.conf file parameters (continued)

Parameter	Description	Example of value setting (uncommented line)
PROTOCOL1	Primary network protocol. **Linux and UNIX**: This is equivalent to the `sqlhosts` file's NETTYPE setting.	`PROTOCOL1 olscoctcp`
PORT1	Number of the primary listening port. No value required for the onipcnmp protocol. The range of permissible values is from 1 to 32767.	`PORT1 9094`
SERVERNUM	The server number. Corresponds to the SERVERNUM configuration parameter. The range of permissible values is from 0 to 255.	`SERVERNUM 100`
INFORMIXSQLHOSTS	**Linux and UNIX**: Full path to `sqlhosts` file for the instance to use.	

BEGIN ALIAS . . . END ALIAS	Specifies new database server aliases and related SQLHOSTS connectivity settings for the deployed instance. The optional OPTIONS line sets a SQLHOSTS parameter value. In the example, `b=32767` sets buffers.	`BEGIN ALIAS`
		`SERVERNAME alias1`
		`PROTOCOL drsoctcp`
		`PORT 9091`
		`OPTIONS b=32767`
		`END ALIAS`

INFORMIXDIR	Path for the deployed instance. Must be set here or as environment variable (no default path is provided).	**UNIX andLinux**: `/tmp/informix`
ONCONFIG	The `onconfig` file name. If none is specified here and no **ONCONFIG** environment variable is set, a new file is created from `onconfig.std`.	`onconfig.sample`

Table 8-2. The ifxdeploy.conf file parameters (continued)

Parameter	Description	Example of value setting (uncommented line)
SNAPSHOT	**Note:** This parameter can only be used if you are deploying an instance from a snapshot compressed as a `.tgz` file on UNIX or Linux or a `.zip` file on Windows. Indicates the location of a supported, compressed archive type containing the snapshot. This parameter is equivalent to the `-file` command-line option.	

RELOCATE	Set chunk paths for the deployed instance. You can indicate a parent directory for all chunk path names or map them individually to separate parent directories. You can also deploy the chunks with specific offset values. Offset values are in kilobytes.	*Example 1: Relocate all chunk paths to one directory:*
		
		UNIX and Linux: `/example1`
		
		Example 2: Select individual chunk paths and specify the directories where the paths are relocated:
		
		UNIX and Linux:
		`/ex2=/ex3;/ex4=C:ex5`
		
		Example 3: Change multiple chunk paths and offsets:
		
		UNIX and Linux:
		`/ex6,10=/ex7,100;`
		`/ex8,20=/ex9,200`

INFORMIXPASSWORD	Password for user **informix** on the target computer. Sets password to what you enter as a value if no user **informix** exists on the computer.	`INFORMIXPASSWORD` *password*
LOGFILE	Sets the full path name for the log file of the deployment utility's errors and messages.	**UNIX andLinux**: `LOGFILE` `/tmp/mylog`
LOGLEVEL	Sets amount of information to write to log. Refer to the `ifxdeploy.conf` file for permissible values.	`LOGLEVEL 5`
SILENT	Sets whether or not the utility displays console output while it is running.	`SILENT 1` (no console output) `SILENT 0` (displays console output)
FORCE	Overwrites existing environment variable and `onconfig` file settings of the target computer.	`FORCE 0` (Does not overwrite) `FORCE 1` (Overwrites existing settings)

Table 8-2. The ifxdeploy.conf file parameters (continued)

Parameter	Description	Example of value setting (uncommented line)
ROOTPATH	Sets the location of the root dbspace.	**UNIX and Linux** default path: `/opt/IBM/informix/server_name/rootdbs`

BEGIN ONCONFIG . . .
END ONCONFIG
	Specify values for any configuration file parameters. Enter each parameter and value exactly as they would be entered in the `onconfig` file.
	
	Can be used to overwrite specific `onconfig` file parameter values or instead of providing an `onconfig` file.
		`BEGIN ONCONFIG`
		`LOCKS 10000`
		`END ONCONFIG`

The ifxdeploy.conf file template

The following shows the contents of the `ifxdeploy.conf` file.

```
#  Licensed Material - Property Of IBM
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#
#  IBM Informix Dynamic Server
#  Copyright IBM Corporation 2009 All rights reserved.
#
#  Title:       ifxdeploy.conf
#  Description: Configuration file for the IDS Deployment Utility
#
#  Uncomment any values that you want to change from the default values.
#
#  Note that any parameters set on the command line will override these values.

# Primary server values
#     - These values define the primary server name, protocol, and port.
#     - Use the BEGIN ALIAS section to define additional sever names and
#       protocols (such as DRDA).

# INFORMIXSERVER - Set the primary server name, or set it as an environment
#                  variable or command line parameter.
#INFORMIXSERVER

# PROTOCOL1 - Set the primary protocol (the sqlhosts NETTYPE field) for the
#             primary server.
#           - Values: onsoctcp, onipcnmp
#PROTOCOL1 onsoctcp

# PORT1 - Set the primary listening port for the primary server (not needed for
#         onipcnmp).
#           - Range: 1-32767
#PORT1 9088

# SERVERNUM - Set the primary server number (the value for the SERVERNUM
#             configuration parameter).
#           - Range: 0-255
#SERVERNUM

# INFORMIXSQLHOSTS - Set a value for the INFORMIXSQLHOSTS environment
#                    variable. On UNIX this value specifies the sqlhosts file
```

```
#                    (default is $INFORMIXDIR/etc/sqlhosts). On Windows, this
#                    value is generally not used but can be used to point to a
#                    remote machine (for example, \\machinename) whose registry
#                    contains SQLHOSTS information.
#INFORMIXSQLHOSTS

# Define additional server names and listeners with the BEGIN/END ALIAS
# statements.
# Each ALIAS results in a new SQLHOSTS entry and a new value for the
# DBSERVERALIASES configuration parameter in the onconfig file.
# For example:
#BEGIN ALIAS
#SERVERNAME alias1
#PROTOCOL drsoctcp
#PORT 9091
#OPTIONS # optional SQLHOSTS parameters (for example, b=32767 to set buffers)
#END ALIAS

# INFORMIXDIR - Set the location of the installation directory.
#             - Alternatively, set the INFORMIXDIR environment variable.
#INFORMIXDIR

# ONCONFIG - Set the onconfig file.
#          - If not specified and the ONCONFIG environment variable is not set,
#            a new onconfig file is created based on the onconfig.std file.
#ONCONFIG

# SNAPSHOT - Set the location of the compressed archive. This parameter is the
#            equivalent to the -file command line option. The archive must be a
#            .tgz file on UNIX or Linux and a .zip file on Windows. Only set
#            this value if you are supplying a compressed snapshot of an IDS
#            instance.
#SNAPSHOT

# RELOCATE  - Set to the new location of dbspace chunks.
#          Use one of these methods or a combination of methods 2 and 3:
#          - Method 1: new_path (relocates all chunks to the specified path)
#          - Method 2: old_path=new_path (relocates only chunks
#                                created in the old path to the new path)
#          - Method 3: old_path,old_offset=new_path,new_offset;
#                                (relocates chunks and moves offsets)
#          You can specify multiple paths with methods 2 and 3 by
#          separating old and new path sets with a semicolon (;).
#
#RELOCATE

# Authentication values
# INFORMIXPASSWORD - Set the password for the informix user.
#                  -  If not set, can be supplied on command line or
#                     interactively.
#                  - Not required if the SYSTEM parameter is set to 2.
#INFORMIXPASSWORD

# SYSTEM - Windows only - Set the IDS service to log on as the Windows
#          Local System user.
#        - Values:
#             0 - IDS service logs on as the informix user.
#             1 - IDS service logs on as the Local System user but creates the
#                 informix user.
#             2 - Do not create the informix user.
#SYSTEM 0

# Logging parameters
# LOGFILE - Set the file for Deployment  Utility errors and messages.
#LOGFILE

# LOGLEVEL - Set the amount of information to write to the log.
```

```
#
# 1  - FATAL - only print fatal errors.
# 3  - WARNING - print warnings and fatal errors.
# 5  - INFO - print informational messages, warnings, and fatal errors.
# 10 - DEBUG - print debugging information and all other messages.
#
#LOGLEVEL 5

# SILENT - Set to 1 to prevent console output sot that errors and
#                     messages only appear in the log file.
#        - Range: 0,1
#SILENT 1

# FORCE - Set to 1 to overwrite existing settings
#       - Range: 0,1
#FORCE 0

# INSTALLDRIVE - Windows only - Set to the drive where data spaces will be
#                created
#              - Range: C-Z
#INSTALLDRIVE C

# ROOTPATH   - Set to the path for the root dbspace
#            - Default is \ifmxdata\$INFORMIXSERVER\rootdbs_dat.000
#ROOTPATH

# WIN6432 - Windows only - Set this to 1 if installing a 32-bit version of IDS
#           on a 64-bit Windows operating system.
#           - Range: 0,1
#WIN6432 0

# Onconfig customization
# Use the BEGIN ONCONFIG and END ONCONFIG statements to add or override
# configuration parameters values in the onconfig file.
# Use instead of providing an onconfig file.
# Example:
#BEGIN ONCONFIG
#LOCKS 10000
#END ONCONFIG
```

Removing a snapshot with the deployment utility

Use the deployment utility to remove a snapshot that was originally deployed by the deployment utility. In addition, you can use this utility to remove user **informix** and group **informix** from the operating system.

You must have root privileges.

You must have the IDSFILES.txt file in the etc subdirectory of the installation path.

To remove a snapshot:

Run the **ifxdeploy** command with the uninstallation options on the computer where the snapshot is deployed. See "The ifxdeploy command: The deployment utility" on page 8-5 for details about the command syntax.

The following command is an example of how to use the deployment utility to remove a snapshot and to display runtime status messages:

```
ifxdeploy -u /tmp/informix -verbose
```

The following is an example of how to uninstall a snapshot and to remove user **informix** and the administrative group:

```
ifxdeploy -u /tmp/informix -verbose -delifx
```

Appendix. Accessibility

IBM strives to provide products with usable access for everyone, regardless of age or ability.

Accessibility features for IBM Informix products

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use information technology products successfully.

Accessibility features

The following list includes the major accessibility features in IBM Informix products. These features support:

- Keyboard-only operation.
- Interfaces that are commonly used by screen readers.
- The attachment of alternative input and output devices.

Tip: The information center and its related publications are accessibility-enabled for the IBM Home Page Reader. You can operate all features using the keyboard instead of the mouse.

Keyboard navigation

This product uses standard Microsoft® Windows navigation keys.

Related accessibility information

IBM is committed to making our documentation accessible to persons with disabilities. Our publications are available in HTML format so that they can be accessed with assistive technology such as screen reader software.

You can view the publications in Adobe® Portable Document Format (PDF) using the Adobe Acrobat Reader.

IBM and accessibility

See the *IBM Accessibility Center* at http://www.ibm.com/able for more information about the commitment that IBM has to accessibility.

Dotted decimal syntax diagrams

The syntax diagrams in our publications are available in dotted decimal format, which is an accessible format that is available only if you are using a screen reader.

In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always present together (or always absent together), the elements can appear on the same line, because they can be considered as a single compound syntax element.

Each line starts with a dotted decimal number; for example, 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that your screen reader is set to read punctuation. All syntax elements that have the same dotted decimal number (for example, all syntax elements that have the number 3.1) are mutually exclusive

alternatives. If you hear the lines 3.1 USERID and 3.1 SYSTEMID, your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with dotted decimal number 3 is followed by a series of syntax elements with dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, the word or symbol is preceded by the backslash (\) character. The * symbol can be used next to a dotted decimal number to indicate that the syntax element repeats. For example, syntax element *FILE with dotted decimal number 3 is read as 3 * FILE. Format 3* FILE indicates that syntax element FILE repeats. Format 3* * FILE indicates that syntax element * FILE repeats.

Characters such as commas, which are used to separate a string of syntax elements, are shown in the syntax just before the items they separate. These characters can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line can also show another symbol that provides information about the syntax elements. For example, the lines 5.1*, 5.1 LASTRUN, and 5.1 DELETE mean that if you use more than one of the LASTRUN and DELETE syntax elements, the elements must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, that element is defined elsewhere. The string following the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 means that you should refer to a separate syntax fragment OP1.

The following words and symbols are used next to the dotted decimal numbers:

? Specifies an optional syntax element. A dotted decimal number followed by the ? symbol indicates that all the syntax elements with a corresponding dotted decimal number, and any subordinate syntax elements, are optional. If there is only one syntax element with a dotted decimal number, the ? symbol is displayed on the same line as the syntax element (for example, 5? NOTIFY). If there is more than one syntax element with a dotted decimal number, the ? symbol is displayed on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines 5 ?, 5 NOTIFY, and 5 UPDATE, you know that syntax elements NOTIFY and UPDATE are optional; that is, you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.

! Specifies a default syntax element. A dotted decimal number followed by the ! symbol and a syntax element indicates that the syntax element is the default option for all syntax elements that share the same dotted decimal number. Only one of the syntax elements that share the same dotted decimal number can specify a ! symbol. For example, if you hear the lines 2? FILE, 2.1! (KEEP), and 2.1 (DELETE), you know that (KEEP) is the default option for the FILE keyword. In this example, if you include the FILE keyword but do not specify an option, default option KEEP is applied. A default option also applies to the next higher dotted decimal number. In

this example, if the FILE keyword is omitted, default FILE(KEEP) is used. However, if you hear the lines 2? FILE, 2.1, 2.1.1! (KEEP), and 2.1.1 (DELETE), the default option KEEP only applies to the next higher dotted decimal number, 2.1 (which does not have an associated keyword), and does not apply to 2? FILE. Nothing is used if the keyword FILE is omitted.

* Specifies a syntax element that can be repeated zero or more times. A dotted decimal number followed by the * symbol indicates that this syntax element can be used zero or more times; that is, it is optional and can be repeated. For example, if you hear the line 5.1* data-area, you know that you can include more than one data area or you can include none. If you hear the lines 3*, 3 HOST, and 3 STATE, you know that you can include HOST, STATE, both together, or nothing.

Notes:

1. If a dotted decimal number has an asterisk (*) next to it and there is only one item with that dotted decimal number, you can repeat that same item more than once.
2. If a dotted decimal number has an asterisk next to it and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the previous example, you could write HOST STATE, but you could not write HOST HOST.
3. The * symbol is equivalent to a loop-back line in a railroad syntax diagram.

\+ Specifies a syntax element that must be included one or more times. A dotted decimal number followed by the + symbol indicates that this syntax element must be included one or more times. For example, if you hear the line 6.1+ data-area, you must include at least one data area. If you hear the lines 2+, 2 HOST, and 2 STATE, you know that you must include HOST, STATE, or both. As for the * symbol, you can only repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the * symbol, is equivalent to a loop-back line in a railroad syntax diagram.

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Index

Special characters

A

B

C

D

E

F

G

I

J

L

M

N

O

P

X

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