Informix Product Family
Informix Client Software Development Kit
Version 4.10

IBM Informix Client Products Installation Guide

IBM

Informix Product Family
Informix Client Software Development Kit
Version 4.10

IBM Informix Client Products Installation Guide

IBM

Contents

Introduction

This introduction provides an overview of the information in this publication and describes the conventions that it uses.

About this Publication

This publication explains how to install IBM® Informix® Client Software Development Kit (Client SDK) and IBM Informix Connect by using stand-alone installation applications instead of the Informix software bundle that includes the database server product.

This publication is written for database administrators and software engineers who are installing IBM Informix client products, and assumes that you are familiar with the operating system on your computer.

Important: See the *IBM Informix JDBC Driver Programmer's Guide* for information about installation of the JDBC Driver.

What's new in installation for IBM Informix client products, Version 4.10

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

For a complete list of what's new in this release, go to http://pic.dhe.ibm.com/infocenter/informix/v121/topic/com.ibm.po.doc/new_features_ce.htm.

Table 1. What's New in IBM Informix Client Products Installation Guide for Version 4.10.xC2

Overview	Reference
IBM Informix .NET Provider support for .NET Framework versions The IBM Informix .NET Provider is an extension of the ADO.NET interface that allows .NET applications to access Informix database servers. The provider now supports .NET Framework 2.0 through 4.5: • Use the Informix .NET Framework 2.0 Provider for .NET Framework 2.0, 3.0, and 3.5. • Use the Informix .NET Framework 4.0 Provider for .NET Framework 4.0 and 4.5. The Informix .NET Provider support for .NET Framework 1.1 is deprecated. For application compatibility across .NET Framework versions, refer to the information provided by Microsoft.	"Differences between .NET Providers" on page xvi.

Table 2. What's New in IBM Informix Client Products Installation Guide for Version 4.10.xC1

Overview	Reference
OpenAdmin Tool (OAT) for Informix is installed by default with the Client SDK The IBM OpenAdmin Tool (OAT) for Informix is installed by default during a typical installation of the following products: • IBM Informix Client Software Development Kit (Client SDK), Version 4.10 • IBM Informix Connect, Version 4.10 Use the custom installation option if you do not want to install OAT. Previously, OAT was not installed by default.	Part 3, "Installing the OpenAdmin Tool for Informix with the Client SDK."

Additional documentation

Documentation about this release of IBM Informix products is available in various formats.

You can access Informix technical information such as information centers, technotes, white papers, and IBM Redbooks® publications online at http://www.ibm.com/software/data/sw-library/.

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.

Syntax diagrams

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

Table 3. Syntax Diagram Components
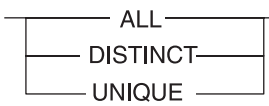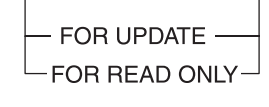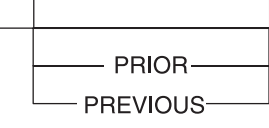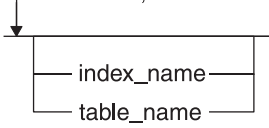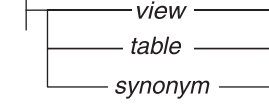
Component represented in PDF	Component represented in HTML	Meaning
►►—————————	>>---------------------	Statement begins.
—————————►	---------------------->	Statement continues on next line.
►—————————	>----------------------	Statement continues from previous line.
—————————►◄	-----------------------><	Statement ends.
———— SELECT ————	--------SELECT----------	Required item.

Table 3. Syntax Diagram Components (continued)

Component represented in PDF	Component represented in HTML	Meaning
LOCAL	`--+-----------------+---` `  '------LOCAL------'`	Optional item.

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

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

NEXT
PRIOR
PREVIOUS
	`  .---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 is used by default.

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

►►─│Table Reference│─►◄	`>>-| Table Reference |-><`	Reference to a syntax segment.

Table Reference
view
table
synonym
	`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

```
►►──onpladm create job─job──────────────── -n─ -d─device─ -D─database──────►
                            └ -p─project─┘


►─ -t─table──────────────────────────────────────────────────────────────►
```

```
                      ┌──────────────────────────────────────────────────┐
    ►──────────────────┴───────────────────────────────────────────────────────►◄
           │                      │                                (1)
           └─ -S──server─┘  └─ -T──target─┘  ►│ Setting the Run Mode ├─
```
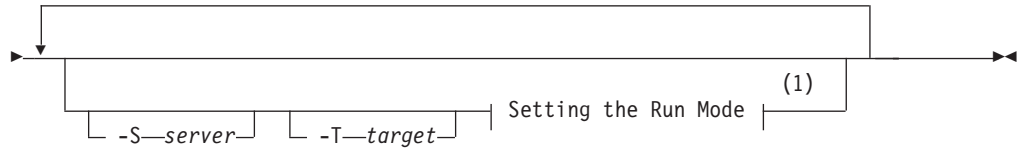
Notes:

1   See page Z-1

This diagram has a segment that is 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 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:

```
                        ┌─l─┐
                        │   └─c─┘
    ├── -f──┬───────┬───┼─────────┬────┬────┬────┬───┬───┤
            ├─d─┤       └─u───────┘    └─n─┘    └─N─┘
            ├─p─┤
            └─a─┘
```
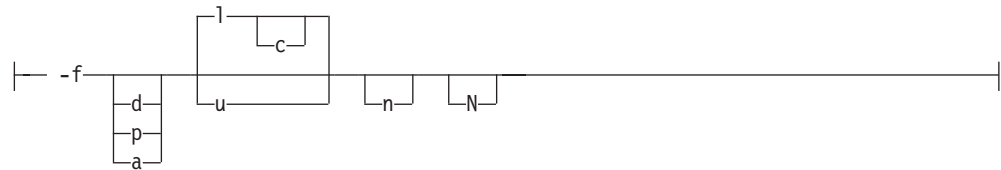
To see how to construct a command correctly, start at the upper left of the main diagram. Follow the diagram to the right, including the elements that you want. The elements in this diagram are case-sensitive because they illustrate utility syntax. Other types of syntax, such as SQL, are not case-sensitive.

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

1. Include **onpladm create job** and then the name of the job.
2. Optionally, include **-p** and then the name of the project.
3. Include 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 include 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 include **-f**, optionally include **d**, **p**, or **a**, and then optionally include **l** or **u**.
5. Follow the diagram to the terminator.

Keywords and punctuation

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

A keyword in a syntax diagram 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 other syntax diagrams. A variable in a syntax diagram, an example, or text, is shown in *lowercase italic*.

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

```
►►──SELECT──column_name──FROM──table_name────────────────────────────►◄
```

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 email to docinf@us.ibm.com.
- In the Informix information center, which is available online at http://www.ibm.com/software/data/sw-library/, open the topic that you want to comment on. Click the feedback link at the bottom of the page, complete the form, and submit your feedback.
- Add comments to topics directly in the 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!

Feedback from all methods is monitored by the team that maintains the user documentation. The feedback methods are reserved for reporting errors and omissions in the documentation. For immediate help with a technical problem, contact IBM Technical Support at http://www.ibm.com/planetwide/.

We appreciate your suggestions.

Informix Client SDK overview

This overview describes the components of the Client SDK.

IBM Informix Client Software Development Kit

Client SDK allows you to develop and run client applications.

The following table describes the components of Client SDK.

Table 4. Client SDK components

Component	Description
IBM Informix .NET Provider (Windows only)	The IBM Informix .NET Provider is a .NET assembly that lets .NET applications access and manipulate data in IBM Informix databases. It does this by implementing several interfaces in the Microsoft .NET Framework that are used to access data from a database. Using the IBM Informix .NET Provider is more efficient than accessing the IBM Informix database through either of these methods: • Using the Microsoft .NET Framework Data Provider for ODBC along with the IBM Informix ODBC Driver • Using the Microsoft .NET Framework Data Provider for OLE DB along with the IBM Informix OLE DB Provider For more information, see the IBM Informix .NET Provider Reference Guide.
Informix ESQL/C with XA support	An SQL embedded-language product that is used to create custom C applications. For more information, see the IBM Informix ESQL/C Programmer's Manual.
IBM Informix Object Interface for C++	A C++ interface to develop object-oriented client applications for use with all IBM Informix database servers and client-side value objects for IBM Informix For more information, see the IBM Informix Object Interface for C++ Programmer's Guide.
IBM Informix GLS (Global Language Support)	An interface that allows IBM Informix products to use different locales that have defined conventions for a particular language, culture, or code set. For more information, see the IBM Informix ESQL/C Programmer's Manual and the IBM Informix GLS User's Guide.
IBM Informix ODBC Driver with MTS support	An IBM Informix implementation of the Open Database Connectivity (ODBC) 3.0 Level 1+ standard that supports Microsoft Transaction Server (MTS). This driver contains extensibility support for IBM Informix. For more information, see the IBMInformix ODBC Driver Programmer's Manual.

Table 4. Client SDK components (continued)

Component	Description
IBM Informix OLE DB Provider (Windows only)	A client-side, native OLE DB provider that implements full functionality for base-level providers and contains extensibility support for IBM Informix. For more information, see the IBM Informix OLE DB Provider Programmer's Guide.
IBM OpenAdmin Tool (OAT) for Informix	OpenAdmin Tool (OAT) for Informix is a web application for administering and analyzing the performance of IBM Informix database servers.
IBM InformixGlobal Security Kit (GSKit)	The IBM InformixGlobal Security Kit (GSKit) provides libraries and utilities for SSL communication. For more information, see the IBM Global Security Kit.

The following table describes the IBM Informix common database utilities in the Client SDK.

Table 5. IBM Informix common database utilities

Component	Description
Documentation Viewer	Use the viewer to see the release and machine notes in text format.
The finderr utility on UNIX systems and the Informix Error Messages utility on Windows systems	Use these utilities to obtain information about error messages, including corrective actions, that are specific to IBM Informix.
The ILogin utility (Windows only)	Use the ILogin Demo utility to quickly test the connection to IBM Informix. Click **File** > **Run** then enter the IBM Informix connection parameters. You must create the target database before you connect to it.
Password CSM	IBM Informix Password Communications Support Module for client applications. Password CSM must also be installed on the Informix database server to which the client connects. To verify that your Informix database server supports this feature, see the *IBM Informix Administrator's Guide*.
Connection Manager	The Connection Manager is a utility that can monitor the workload and status of database servers in high-availability clusters, Enterprise Replication domains, grids, and server sets. Connection Managers can control failover for high-availability clusters, direct client connection requests to appropriate database servers, act as proxy servers to handle client/server communication, and prioritize connections between application servers and the primary server of a high-availability cluster.

Table 5. IBM Informix common database utilities (continued)

Component	Description
DB-Access	The DB-Access utility is included in the IBM Informix Client SDK when the corresponding IBM Informix server version is available for the same operating system. When the DB-Access utility is included in the Client SDK, it is the same utility that is delivered with the Informix server. The utility provides a stand-alone client command-line tool that can directly access an IBM Informix database instance. This dbaccess client supports the same user interface and functionality as the dbaccess server utility. For the setup requirements, see Requirements for using the DB-Access utility in the Informix Client Software Development Kit.
The ConnectTest utility (Windows only)	Use the ConnectTest utility to test the connection to the IBM Informix server. You can start the utility from the shortcut in the **Start** menu or from the $INFORMIX/bin directory. The utility populates the server details from the registry that is registered by the Setnet32 utility. You can manually edit the utility to connect to other servers not listed in the registry, which does not modify the registry entry. The utility shows the resulting data of the executed SQL query.

Applications that run on client computers require IBM Informix Connect to access database servers. Informix Connect is a runtime connectivity product that is composed of runtime libraries that are included in Client SDK.

Note: Beginning with Client SDK Version 3.50.xC6, IBM Database Add-Ins for Visual Studio is no longer installed with Client SDK or Informix Connect. IBM Database Add-Ins for Visual Studio is available for download at: https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?source=swg-daivs.

The latest version of IBM Database Add-Ins for Visual Studio supports only the Data Server .NET Provider and does not support Client SDK Informix .NET Provider. Information about using the add-ins with the Client SDK Informix .NET Provider is available at: http://www-933.ibm.com/support/fixcentral/.

Windows only: Client SDK and IBM Informix Connect packages include the Setnet 32 utility for configuring client products. Each package might include online help, example programs, and support programs.

Related concepts:

➥ IBM OpenAdmin Tool (OAT) for Informix (OpenAdmin Tool (OAT) for Informix)

➥ Connection management through the Connection Manager (Administrator's Guide)

IBM Data Server Driver

After you complete an IBM Informix product installation in GUI or console mode on most operating systems, you must select whether to install the IBM Data Server Driver Package.

If you select to install the driver, a separate, short installation application starts. If you do not install the driver during Informix product installation, you can install the driver separately later.

The IBM Data Server Driver Package enables you to use IBM Data Server .NET Provider to develop .NET applications with Informix software. The IBM Data Server .NET Provider includes better support for web application development in IBM Database Add-Ins for Visual Studio.

IBM Data Server Driver Package installation does not affect an existing installation of the IBM Informix .NET Provider, which is also included in the Client SDK installation. You can use either or both of the .NET Providers. For more information about the differences between the Data Server .NET Provider and the Informix .NET Provider, see "Differences between .NET Providers."

Differences between .NET Providers

There are runtime differences between the IBM Data Server .NET Provider and the IBM Informix .NET Provider. Knowing these differences will help you understand how each provider might affect existing applications and to select the provider that is right for your applications.

Both providers are available as part of the Client SDK (CSDK) for Informix.

For more information about these .NET Providers, see the *IBM Data Server Provider for .NET Programmer's Guide, Informix Edition* or the *IBM Informix .NET Provider Reference Guide*.

The following sections describe specific differences between the .NET providers.

IBM Informix .NET Provider

The IBM Informix .NET Provider, sometimes referred to as the CSDK .NET provider, works with only the Informix database server and internally uses the SQLI protocol to communicate with Informix.

IBM Data Server .NET Provider

The IBM Data Server .NET Provider, sometimes referred to as the Common .NET provider, is the next generation of the .NET provider for application development. This .NET provider includes a number of capabilities, especially in the area of web application development, making it the preferred .NET provider for new client development.

The Data Server .NET Provider works with several different IBM data servers, including Informix, DB2® for Linux, UNIX, and Windows, and U2, and uses the DRDA® protocol. This provider is composed of two different .NET provider assemblies that are designed for specific application developer requirements:

IBM.Data.DB2.dll
> Although the name of the provider indicates DB2, this is in fact the single .NET provider for IBM data servers including Informix and DB2. This is the recommended assembly for new application development for Informix Version 11.10 or later, and this is the preferred .NET provider.

IBM.Data.Informix.dll
> This .NET provider assembly was created to help migrate existing .NET

applications that were developed by using the Informix .NET Provider to use the latest DRDA protocol. This assembly works with Informix Version 11.10 or later. This assembly includes additional support for some of the legacy Informix client features and is targeted only for .NET application development for Informix.

Comparison of supported features

There are several major differences between the features that are supported by the IBM Informix .NET provider and the IBM Data Server .NET Provider. Many of the features that are supported by the IBM Data Server .NET Provider are not supported by the IBM Informix .NET Provider.

The following table shows these differences:

Table 6. Compare features supported by Informix .NET Provider and IBM Data Server .NET Provider

Feature	IBM Informix .NET Provider	IBM Data Server .NET Provider
Protocol support	SQLI	DRDA
LOB (BLOB & CLOB) column size limit	4 TB	2 GB
Support for .NET framework 2.0 and 4.0	Yes The Informix .NET Provider is supported to work with applications created by using the following .NET Frameworks: • .NET Framework 2.0 • .NET Framework 3.0 • .NET Framework 3.5 • .NET Framework 4.0 • .NET Framework 4.5	Yes
Support for LINQ (Entity Framework) and Entity Data Modeling (EDM)	No	Yes
VSAI support for Visual Studio 2008, web application development support, WPF and WWF enhancements	No	Yes
VSAI Designers to create tables, procedures, functions and triggers, run procedures and functions	No	Yes

Unsupported keywords in the ConnectionString property

There are several connection string keywords that are not supported by the IBM Data Server .NET Provider. For example:

- DB_LOCALE
- CLIENT_LOCALE
- EXCLUSIVE

Connection pooling settings

In the IBM Informix .NET Provider, the Connection Lifetime attribute specifies how long a connection can remain open.

In the IBM Data Server .NET Provider, the Connection Lifetime attribute specifies the number of seconds that the connection can remain open and idle in the pool.

Server keyword in the ConnectionString property

In the IBM Informix .NET Provider, the SERVER keyword should be used to specify the INFORMIXSERVER name as setup in the SetNet utility.

In the IBM Data Server .NET Provider, the SERVER keyword should be specified in the format <hostname>:<port_number>, where <hostname> is the machine name of the instance and <port_number> is the port on which the instance is listening.

Database keyword in the ConnectionString property

With the IBM Informix .NET Provider, you can connect to a server without specifying a database. With the IBM Data Server .NET Provider, database is a mandatory attribute.

The IBM Informix .NET Provider allows specifying the value for the Database attribute in the format dbname@server. The IBM Data Server .NET Provider does not support this format.

String values in quotation marks in the ConnectionString property

The IBM Informix .NET Provider supports database, server, and password keyword values in quotation marks.

Applications that use the IBM Data Server .NET Provider can specify values in quotation marks for the database and password keywords only when specifying an alias for a catalog connection.

IfxConnection.ServerType property

For this property, the IBM Informix .NET Provider returns the value *Informix*. The IBM Data Server .NET Provider returns the value that is received from the database server to which it is connected. For example, the provider connected to an Informix database server installed on a UNIX 64-bit system might return *IDS/UNIX64*.

Unsupported data types in SQL statements

The IBM Data Server .NET Provider does not allow access to the LIST, MULTISET, SET, or ROW data types because the Informix DRDA server does not support these types.

With the IBM Informix .NET Provider, you can select and return the values from the LIST, MULTISET, and ROW data types.

BYTE and TEXT data types

The IBM Data Server .NET Provider maps both Byte and BLOB data types to the IfxBlob data type. When binding an IfxBlob object as a parameter, applications must use the `::byte` clause after the parameter marker. This clause indicates that the IfxBlob value corresponds to a byte column. Without the `::byte` clause, a conversion error is returned.

The IBM Data Server .NET Provider maps both Text and CLOB data types to the IfxClob data type. When binding an IfxClob object as a parameter, applications must use the `::text` clause after the parameter marker. This clause indicates that the IfxClob value corresponds to a text column. Without the `::text` clause, a conversion error is returned.

```
DB2Parameter clobParam;

clobParam.IfxType = IfxType.Clob;
...
cmd.CommandText = "CALL textSP(?::text)";
---
cmd.ExecuteNonQuery();
```

Supported data types

The following table compares the more unusual Informix data types and how each .NET provider supports those data types.

Table 7. Differences between .NET provider support for unusual Informix data types

Informix Data Type	IBM Informix .NET Provider	IBM Data Server .NET Provider
CLOB, BLOB	Supported	Limited Support. The size limitation is 2 GB.
Collection	Supported	Not supported
Interval DayToFraction	Supported. This type must be read as a string.	Not supported
IntervalMonth	Supported	Not supported
LIST	Supported	Not supported
MONEY	Supported	Money will be treated as decimal data type.
MULTISET	Supported	Not Supported
ROW	Supported	Not Supported
SET	Supported	Not Supported

Comparing classes and structures

The following table compares the differences between the .NET provider support
for the data type classes and structures support.

Table 8. Differences between .NET provider support for data type classes and structures

Class / Structure	IBM Informix .NET Provider	IBM Data Server .NET Provider
IfxBlob	Supported	Limited Support. Some methods return a NotImplemented exception.
IfxClob	Supported	Limited Support. Some methods return a NotImplemented exception.
IfxTimeSpan	Supported	Not Supported
IfxMonthSpan	Supported	Not Supported
IfxSmartLOBLocator	Supported	Not Supported
IfxSmartLOB	Supported	Not Supported
IfxDecimal	Supported	Limited Support. Some methods return a NotImplemented exception.
IfxDateTime	Supported	Limited Support. DRDA client supports 6 digits in the fractional part of DateTime. The Informix server supports 5 digits of the fractional value. Because of this difference, the least significant digit of the fraction will be truncated. A DateTime value read from the Informix server has a 0 (zero) added to the least significant digit to match the DRDA format. This change affects applications that access the IfxDateTime type from the IBM Informix .NET Provider.

Stored procedure differences

With the IBM Informix .NET Provider applications can read the return value of a
stored procedure or function as a ReturnValue parameter.

With the IBM Data Server .NET Provider applications by default can read the
return value of a stored procedure or function as a data reader. To read it as a
ReturnValue parameter, applications must set the ResultSetAsReturnValue
parameter to true in the IfxCommand or IfxConnection object. To read it is a
ReturnValue parameter, applications must set the ResultSetAsReturnValue property
to true in the IfxCommand or IfxConnection object.

IfxCommand.ExecuteScalar() method

The following query is a sample SELECT query.

```
Cmd.CommandText = "SELECT COUNT(*) FROM Tab";
```

The data type that is returned depends on the .NET provider that you use:

IBM Informix .NET Provider
> When you use the IBM Informix .NET Provider, this query returns the count as decimal type.
>
> ```
> Decimal count = (Decimal) Cmd.ExecuteScalar();
> ```

IBM Data Server .NET Provider
> When you use the IBM Data Server .NET Provider, this query returns the count as Int32.
>
> ```
> Int32 count = (Int32) Cmd.ExecuteScalar();
> ```

IfxDataReader.GetString() method

The IBM Data Server .NET Provider does not allow the IfxDataReader.GetString() method if the underlying value is null. A null value results in an InvalidCast exception. This behavior is in contrast to the IBM Informix .NET Provider, which allows a null value and returns an empty string.

Error messages

Some error messages that are received by the IBM Data Server .NET Provider might differ from the messages received by the IBM Informix .NET Provider. For example, the IBM Informix .NET Provider has tags such as `[Informix .NET provider]` in the error messages. The IBM Data Server .NET Provider has just `[IBM]` in the error messages. Additionally, the error codes might be different for the same type of error.

Connectivity protocols

Platform/ OS	BSTP	IPSP	IPSM	TLTP	TLIX	MAXC	SSL
AIX®-32	onsoctcp	onipcstr	onipcshm			onsocimc	drsocssl onsocssl
AIX-64	onsoctcp	onipcstr	onipcshm			onsocimc	drsocssl onsocssl
HP Itanium 64	onsoctcp	onipcstr	onipcshm			onsocimc	drsocssl onsocssl
Linux 32-bit	onsoctcp	onipcstr	onipcshm			onsocimc	drsocssl onsocssl
Linux AMD 64	onsoctcp	onipcstr	onipcshm			onsocimc	drsocssl onsocssl
Linux pSeries	onsoctcp	onipcstr	onipcshm			onsocimc	drsocssl onsocssl

Platform/ OS	BSTP	IPSP	IPSM	TLTP	TLIX	MAXC	SSL
Mac OS X	onsoctcp	onipcstr	onipcshm			onsocimc	
Solaris-32	onsoctcp	onipcstr	onipcshm	ontlitcp	ontlispx	ontliimc	drsocssl onsocssl
Solaris-64	onsoctcp	onipcstr	onipcshm	ontlitcp		ontliimc	drsocssl onsocssl
Solaris Operton	onsoctcp	onipcstr	onipcshm	ontlitcp		onsocimc	drsocssl onsocssl

BSTP - Berkeley sockets using TCP/IP

IPSP - IPC using stream pipe

IPSM - IPC using shared memory

MAXC - MaxConnect

SSL - Secure Sockets Layer

TLTP - TLI using TCP/IP

TLIX - TLI using IPX/SPX

Notes:
- If you are using 64-bit servers: Remote 32-bit applications/tools (example: ESQL/C, 4GL, ISQL) can only connect to IBM Informix using the TCP/IP protocol. Local 32-bit applications/tools can connect to the 64-bit server using either TCP/IP protocols or IPC stream pipe protocols. Local 32-bit applications/tools cannot connect to the 64-bit server using IPC shared memory protocol.
- If you are using a NUMA system and have several IP addresses configured on the same physical interface: The IBM Informix TCP listener thread binds to a particular IP address/port. It listens for incoming calls addressed to only one IP address. If there are multiple IP addresses configured on the system, a TLI client is not able to connect to the server. (If DNS is configured to resolve the host name on a rotary of the four IP addresses, you do not know which of those addresses has been selected by the IBM Informix TCP listener). The solution is that in the $INFORMIXDIR/etc/sqlhosts file, use "*hostname" instead of "hostname". It will make the IBM Informix TCP listener bind to INADDR_ANY instead of a particular address.
- For additional information, see the Informix machine notes.

Related reference:

⬜➡ sqlhosts connectivity information (Administrator's Guide)

Part 1. Installing Client Products on UNIX, Linux, and Mac OS X

This section discusses preparing to install IBM Informix client products on UNIX, Linux, and Mac OS X systems, explains the installation processes, discusses post-installation tasks, and documents how to uninstall these products.

Important: The following topics of this documentation explain how to install Client SDK and Informix Connect as individual products using stand-alone client installation applications. Alternatively, you can install Client SDK or Informix Connect as part of the Informix software bundle installation media. The software bundle includes both the Informix database server and client products. For information about this installation method, see the *IBM Informix Installation Guide for UNIX, Linux, and Mac OS X*.

Related concepts:

Part 3, "Installing the OpenAdmin Tool for Informix with the Client SDK"

Chapter 1. Preparing to Install Client SDK and IBM Informix Connect on UNIX, Linux, and Mac OS X Systems

Overview of Client SDK and Informix Connect Installation

Before you install Client SDK or Informix Connect or connect a client application to a database server, complete the preparation steps applicable to the UNIX, Linux, or Mac OS X operating system on your computer.

See the IBM Informix machine notes for a list of supported UNIX, Linux, and Mac operating systems on which you can install the products.

Important: The following requirements might be lower for your system, depending on the operating system and environment.

The Client SDK installation requires approximately 200 MB of disk space, and the Informix Connect installation requires approximately 175 MB of disk space.

The installation requires approximately 512 MB RAM.

Ensure that you have 1 GB free space available in your temporary directory (/tmp by default) before installation on UNIX or Linux. This is to allow the extraction of the installation media and for running the installation program. This location can be altered by setting the IATEMPDIR environment variable to a location that contains sufficient storage before invoking the installation program. If there is insufficient space in the default temporary location, the installation program attempts to write the information into the home directory for the user's account.

Attention:
- The **$INFORMIXDIR** path, including path separators, should not exceed 200 characters.
- Client SDK does not support RPM installations.

Tip: Do not use *back* or *quit* as a string in the **$INFORMIXDIR** path or in any Informix product installation configuration settings on UNIX or Linux, including passwords.

Determine Location

Take note of media location and installation location.

Media Location

The directory where the media files are located is called **$MEDIADIR**. This can be on a disk device, such as a CD, or a directory on a file server where the downloaded source file is uncompressed.

Installation Location

You can install Client SDK or IBM Informix Connect on the computer on which your applications run.

IBM Informix documentation refers to the installation directory as **$INFORMIXDIR**. If the environment variable **INFORMIXDIR** is set, the default installation location is the setting in this variable. When you install Client SDK and IBM Informix Connect with the installation application, you can accept the default directory or select your own directory.

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

Attention: The **$INFORMIXDIR** path, including path separators, should not exceed 200 characters.

Check Online Files

The product files include online informational files that answer specific technical questions. These files are installed in the directory $MEDIADIR/doc.

Determine Installation Order

Install the database server and client products in separate directories to avoid overwriting common files and for easier installation and problem solving. Continue to the next topic if you follow this recommendation.

If you are installing client products and server products in the same **$INFORMIXDIR** directory, use the following table as a guide to the correct order for the respective versions of Client SDK and IBM Informix Connect.

Table 1-1. Order for Installing Client Products and Server Products in the Same Directory

Server version	Client SDK or Informix Connect version 2.7 and prior	Client SDK or Informix Connect version 2.8x	Client SDK or Informix Connect 2.9x	Client SDK or Informix Connect 3.x	Client SDK or Informix Connect 4.x
5.x	Database server first	Database server first	Database server first	Database server first	Database server first
7.2x	Database server first	Database server first	Database server first	Database server first	Database server first
7.3x	Database server first	Database server first	Database server first	Database server first	Database server first
8.5x	Client products first	Client products first	Client products first	Client products first	Database server first
9.2x	Database server first	Database server first	Database server first	Database server first	Database server first
9.3x	Database server first	Database server first	Database server first	Database server first	Database server first
9.4	Client products first	Database server first	Database server first	Database server first	Database server first
10.0	Client products first	Database server first	Database server first	Database server first	Database server first
11.x	N/A	N/A	Database server first	Database server first	Database server first
12.x	N/A	N/A	N/A	Database server first	Database server first

You might encounter problems if you install an older product after you install a new product. For example, if you install an older version of the **finderr** utility, the older version overwrites the newer version and you will not have the most current listing of error message text and corrective action. If you encounter problems with the **finderr** utility, see *IBM Informix Error Messages*.

Before the Client SDK, Version 2.01 release, clients and servers shared common message files. In later versions, the common message files for the client have new names. For more information about how to rename common message files, see the Client SDK release notes.

If you install more than one IBM Informix product, complete all installation procedures for one product before you start to install the next product. Do not load the files from another IBM Informix product onto your computer until you complete the current installation.

Attention: If you want to use IBM Informix ODBC Driver with an existing DSN that uses IBM Informix CLI driver or INTERSOLV DataDirect ODBC Driver, see the information about the DSN Migration Utility in the release notes for IBM Informix ODBC Driver.

Prepare the Environment (UNIX, Linux)

Prepare the environment for every shell within which you install or use IBM Informix client products.

To find out if you must apply patches to your computer, see the machine notes.

To complete a root installation that runs as user **informix**, user and group **informix** must exist on the operating system before installation. Installation of a root-based Informix server is dependent on these user and group accounts, so the objects are present already if there is a database server installation on the computer.

You can install the client product so that it runs on the computer without root and without user and group **informix** privileges. To do this, you must start the installation application as any user except root. The user account that performs the non-root installation is the owner of the installation. However, you cannot perform a non-root installation of a client product in an **$INFORMIXDIR** directory that has a standard, root-based installation of the Informix server.

Related concepts:

➡ Non-root installation (Installation Guide (UNIX))

Creating the Group informix and User informix (UNIX, Linux)

Create the group **informix** and user **informix** if they do not already exist.

User and group **informix** are required operating system objects for root-based installation. They are not required for computers hosting a non-root installation of the product.

To create the group informix and user informix:

1. Log in as user **root**.
2. Create the group **informix** using the **groupadd** utility followed by the name of the group, in this format:

   ```
   groupadd n informix
   ```

where *n* is an unused group ID greater than 100.

For AIX, use the **mkgroup** command instead of **groupadd**.

3. Create the user **informix** using the **useradd** utility followed by the group (**informix**) and user name (**informix**) in this format:

   ```
   useradd -u n -g informix informix
   ```

4. Create a password for the user **informix**. To do this, use the **passwd** utility and the following command:

   ```
   passwd informix
   ```

5. If you use a network, propagate the new user name to all the systems on the network that must recognize the user **informix**. For example, on some systems, you (or the network administrator) must run the **ypmake** utility. Do not add members to the group **informix** unless you want those members to have administrative access to the database server.

Configure the Database Server

Before you connect a client application to a database server, configure your database server environment.

For more information, see the *IBM Informix Installation Guide for UNIX, Linux, and Mac OS X* or the *IBM Informix Administrator's Guide*.

Chapter 2. Installing Client SDK and Informix Connect on UNIX and Linux Systems

Installation System Requirements for UNIX and Linux

When you install client products on UNIX and Linux systems, there are certain system requirements depending on the specific product and your method of installation.

The Client SDK and Informix Connect installation methods on UNIX and Linux systems are:

- Installing as part of the database server installation application included in the IBM Informix software bundle media
- Installing with a stand-alone client installation application
- Installing using extraction with command-line script

The Client SDK installation requires approximately 200 MB of disk space, and the Informix Connect installation requires approximately 175 MB of disk space. Some installation choices require additional disk space. 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.

Attention: Do not install the 32-bit and the 64-bit editions of the same versions of IBM Informix Client Software Development Kit and IBM Informix Connect on the same system.

You cannot install IBM Informix Client Software Development Kit and IBM Informix Connect in a directory with more than 215 characters in the full path name.

In addition to the product disk space requirements , ensure that you have 1 GB free space available in your temporary directory (/tmp by default) before installation on UNIX or Linux. This is to allow the extraction of the installation media and for running the installation program. This location can be altered by setting the IATEMPDIR environment variable to a location that contains sufficient storage before invoking the installation program. If there is insufficient space present in the default temporary location, the installation program will attempt to write the information into the home directory for the user's account.

The Informix Client Installation Application

This section describes how to install Client SDK and Informix Connect in console or GUI mode. Console installation is the default mode.

For other methods, see "Alternative Installation Methods" on page 2-5.

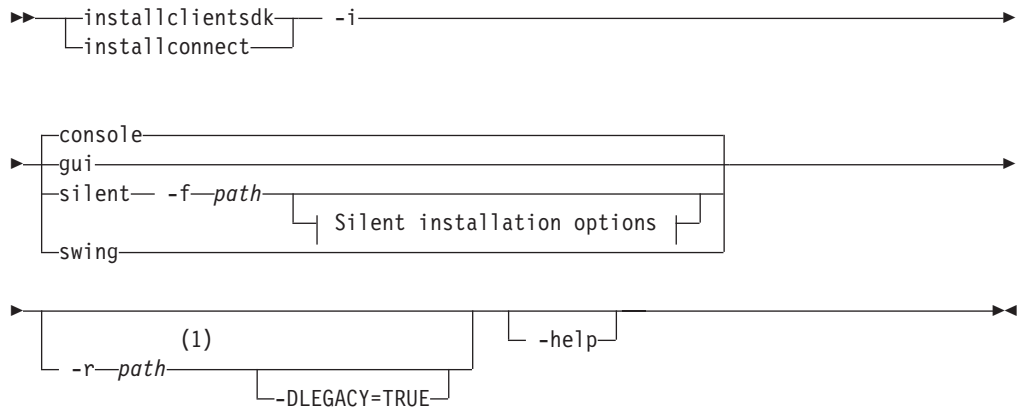### Client Products Installation Application Commands (UNIX and Linux)

Information about installation commands for Client SDK and Informix Connect.
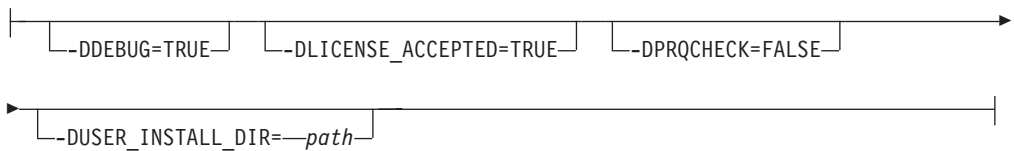
Purpose

The following syntax diagram illustrates the Client SDK and Informix Connect installation commands for GUI, console, and silent modes. If you do not specify an installation mode (GUI, console, or silent), then the installation application starts in console mode. Also, the usage of the -r option to create a response file for later silent installations is shown.

Run the following commands as root user.

Syntax

```
►►─┬─installclientsdk─┬─ -i ──────────────────────────────────────────────────►
   └─installconnect───┘
```

```
  ┌─console─────────────────────────────────────────────┐
►─┼─gui────────────────────────────────────────────────┼──────────────────────►
  ├─silent─ -f─path─┬────────────────────────────────┬─┤
  │                 └─┤ Silent installation options ├─┘ │
  └─swing───────────────────────────────────────────────┘
```

```
►─┬──────────────────(1)─────────────┬──┬──────┬──────────────────────────────►◄
  │            ┌──────────────────┐   │  └─-help─┘
  └─-r─path────┴──-DLEGACY=TRUE────┘
```

Silent installation options:

```
├──┬────────────┬──┬───────────────────────┬──┬──────────────────┬──────────────►
   └─-DDEBUG=TRUE─┘  └─-DLICENSE_ACCEPTED=TRUE─┘  └─-DPRQCHECK=FALSE─┘
```

```
►─┬───────────────────────────┬──────────────────────────────────────────────┤
   └─-DUSER_INSTALL_DIR=─path───┘
```

Notes:

1   Do not use the -r option with the silent -f option in the same command. The -r option records the configuration of a GUI or console installation.

Key words and parameter options

The following table describes the installation application options.

Table 2-1. Installation options

Option	Meaning
-DDEBUG=TRUE	Use this property setting for a silent installation if you want more details about execution of the installation application than the standard log files provide. The additional details are written to $INFORMIXDIR/ installer_debug.txt.
-DLEGACY=TRUE	Use this property setting to extract Informix product files from the installation media for script-based redistribution to other computers.
-DLICENSE_ACCEPTED=TRUE	Use this property setting for a silent installation to accept the product license terms instead of indicating acceptance in the response file.

Table 2-1. Installation options (continued)

Option	Meaning
-DPRQCHECK=FALSE	Use this property setting for a silent installation to bypass the installation application's operating system (OS) prerequisites check. **Important:** Use with caution. Disabling the prerequisites check might result in an installation that does not function properly because verification of OS updates needed for the installation is bypassed.
-DUSER_INSTALL_DIR=*path*	Use this property setting for a silent installation to specify the installation path on the command line instead of specifying the path in a response file. Replace *path* with the absolute path to the $INFORMIXDIR that you want to use as the target directory.
installclientsdk	Install Client SDK only.
installconnect	Install Informix Connect only.
-i gui	Start the installation program in GUI mode.
-i console	Start the installation in console mode. If no option is provided, installation is started in console mode by default.
-i silent -f *path*	Start a silent installation using the response file specified in *path*. See "Performing a Silent Client Product Installation on UNIX and Linux" on page 2-5 for more details.
-i swing	Start the installation program in GUI mode.
path	Specifies the absolute path and file name for the response file. The response file is a customized installation properties file that you can use for silent installations elsewhere.
-r *path*	Create a response file from the installation in the designated *path* location. The response file contains an installation configuration that you want to deploy in more than one location. Alternatively, you can edit a template response file that is shipped with the installation media and not record an installation.
-help	Display list of supported options and their functions.

Unsupported options

The following **installclientsdk** and **installconnect** command options are not supported:

- -add
- -remove
- -repair
- -uninstall

Related concepts:

Response file (UNIX and Linux) (Installation Guide (UNIX))

Related tasks:

Extracting and redistributing Informix products with scripts (UNIX, Linux) (Installation Guide (UNIX))

Installing Client Products in Console Mode

The following steps outline how to install client products in console mode, which is the default mode, on UNIX and Linux.

You must be root user to perform this task. Alternatively, do not log in with root-level privileges if the client products will be used with a non-root installation of the database server.

When installing in console mode, especially over a network, you might have to wait a few moments for the files to extract.

1. Run the command for the product you want to install:

   ```
   ./installclientsdk
   ```

   or

   ```
   ./installconnect
   ```

2. Read the software license agreement. You must accept the license terms to install the product.

3. Proceed with the different settings until you receive the message that installation is complete.

4. When the installation is complete, exit the installation application.

Related concepts:

➡ Non-root installation (Installation Guide (UNIX))

Installing Client Products in GUI Mode

The following procedure outlines how to install Client SDK and Informix Connect in GUI mode.

You must be root user to perform this task. Alternatively, do not log in with root-level privileges if the client products will be used with a non-root installation of the database server.

1. Run the command for the product you want to install:

   ```
   ./installclientsdk -i gui
   ```

   or

   ```
   ./installconnect -i gui
   ```

2. Read the software license agreement. You must accept the terms to install the product.

3. Proceed through the GUI windows until you receive the message that installation is complete.

Related concepts:

➡ Non-root installation (Installation Guide (UNIX))

Client Installation Log Files (UNIX and Linux)

You can find information that will help identify and resolve installation errors in the installation log files.

When you install Informix products, the installation application generates log files in $INFORMIXDIR. Log files are also created if you attempt to install any of the products but the installation application does not complete successfully.

The following log files are commonly generated when you run a client installation application:

- `$INFORMIXDIR/IBM_Informix_Client-SDK_InstallLog.log` for a Client SDK installation
- `$INFORMIXDIR/IBM_Informix_Connect_InstallLog.log` for an Informix Connect installation

- $INFORMIXDIR/IBM_Informix_GLS_InstallLog.log for a client installation that includes Global Language Support (GLS)

Alternative Installation Methods

The following table compares four alternative methods for installing Client SDK and Informix Connect.

The table uses a Client SDK installation example for **Format of Command**; for an Informix Connect installation, substitute the corresponding Informix Connect command.

Table 2-2. Alternative Installation Methods

Installation Method	Format of Command	Products Installed	Reasons to Use	Restrictions
Silent installation	`./installclientsdk -i silent -f path_name`	Use to install Client SDK or Informix Connect, with product-specific command	By using a response file (which you invoke in the `-f path_name` option), you can replicate a specific installation configuration on multiple computers with minimal or no user interaction. Silent installation can save much time for some user scenarios.	If you use the `bundle.properties` file as a template for your response file, you must change the response file setting for product license terms agreement to "Accept" for the file to function during silent installation.
Extraction with command-line script	`./installclientsdk -DLEGACY=TRUE`	Use to install Client SDK or Informix Connect individually.	The extraction with command-line installation alternative can be helpful in one of the following scenarios: • you want to install the product to redistribute it to multiple computers quickly and with minimal disk space usage • you want to avoid using Java™ Runtime Environment (JRE) during redistribution of the product	None

Performing a Silent Client Product Installation on UNIX and Linux

To perform a silent installation, which is sometimes referred to as an *unattended installation,* you must create a response file that contains information about how you want the product installed. You invoke this response file in a command-line option to perform the silent installation.

You must be logged in as **root** user to run the installation applications.

Attention: If you use the `csdk.properties` file or the `conn.properties` file as a template for your response file, you must change the response file setting for product license terms agreement to "Accept" for the file to function during silent installation.

To deploy Client SDK or Informix Connect in multiple directories:

1. Establish a response file by doing one of the following actions:
   - On a command line, start a product installation application in GUI or console mode and specify the `-r` option to generate a response file.
   - Save a local copy of the `csdk.properties` file or the `conn.properties` file that is on the installation media, rename the file, and configure the settings for your environment and agreement to the license terms. Skip to step 3.
2. Copy the response file to the computer where you want to install the client product.
3. Run the silent installation command for the product or products that you want to install, indicating the absolute path to the response file after the `-f` option:
   - `./installclientsdk -i silent -f` *path_name* to install Client SDK.
   - `./installconnect -i silent -f` *path_name* to install Informix Connect.
4. Repeat steps 2 and 3 for each location where you want to deploy the same installation setup.

Related concepts:

➡ Response file (UNIX and Linux) (Installation Guide (UNIX))

Extracting and Redistributing Client Products with Scripts

You can use the **-DLEGACY=TRUE** option with an installation command to extract files from the Informix client product media. Then, redistribute the software on other computers by using scripts. This method functions only on UNIX and Linux operating systems.

Use this method if you want to redistribute the client product files without adding a JRE or an uninstallation application to multiple host systems. You extract the product files by starting the installation application with the `-DLEGACY=TRUE` command on one computer. After you run the installation application, copy the files in the installation directory of the first computer to redistribute the product on other computers.

1. Run one of the following commands, depending on the product you are using:
   - `./installclientsdk -DLEGACY=TRUE`
   - `./installconnect -DLEGACY=TRUE`

   The installation application opens in console mode by default. If you want to run the installation application in GUI mode, enter the `-i gui` option at the end of the command.
2. Follow the instructions in the installation application.

   Important: When you use the **-DLEGACY** option, you must install the Global Security Kit (GSKit) manually. Log in as **root**. Go to the `INFORMIXDIR/gskit` directory and run the **installgskit** command.
3. Copy the contents of the installation directory and place them into the directory of another computer where you want to redistribute the products. The contents include the **RUNasroot** scripts that you use for redistribution.

4. Run the script for the product that you want to deploy on the other computer. You can deploy either Client SDK or Informix Connect in one location, not both.

Option	Description
RUNasroot.installclientsdk	Completes the redistribution of the Client SDK files.
RUNasroot.installconnect	Completes the redistribution of the Informix Connect files.

Chapter 3. Installing Client SDK and Informix Connect on Mac OS X

Install IBM Informix client products on a Mac OS X computer by running the graphical user interface (GUI) installation application.

Obtain the installation media by downloading the `.dmg` file for Client SDK or Informix Connect. Alternatively, you can install from the `.app` files on a CD or DVD.

You must have system administrator credentials to run the installation application.

Attention: Do not install the 32-bit and the 64-bit editions of the same versions of IBM Informix Client Software Development Kit and IBM Informix Connect on the same system.

Typical installations require the following approximate amount of disk space:
- Client SDK: 200 MB
- Informix Connect: 175 MB

The installation application automatically creates group **informix** and user **informix** if they are not on your computer. You are not required to create these group and user IDs on your host computer manually.

To install Client SDK or Informix Connect on Mac OS X:

1. You can install from a downloaded file or from a disk:
   a. Installing from a downloaded file: Open the self-extracting `.dmg` file, and then double-click the installer icon in the Finder window to start the installation application.
   b. Installing from a disk: Double-click the installer icon in the Finder window for either Client SDK or Informix Connect.
2. Enter the path for the installation or accept the default that is provided by the installation application. You cannot install IBM Informix Client Software Development Kit and IBM Informix Connect in a directory with more than 215 characters in the full path name.
3. Complete the remaining installation steps by following the text and replying to prompts in the GUI.

Chapter 4. Uninstalling Client SDK and Informix Connect on UNIX, Linux, and Mac OS X Systems

Using the Client Product Uninstallation Applications (UNIX, Linux, and Mac OS X)

You can uninstall IBM Informix client products with an uninstallation application in GUI, console, or silent mode on UNIX, Linux, and Mac OS X. Which mode you select depends on your objectives and system environment.

Important:
- Do not remove any IBM Informix products by manually deleting files.
- If Client SDK is installed in the same directory as the Informix database server:
  - You must uninstall Informix before you uninstall Client SDK.
  - Do not remove Global Language Support (GLS) because both products have dependencies on this feature.

Related concepts:

⇨ Non-root installation (Installation Guide (UNIX))

Uninstalling Client SDK or Informix Connect in Console Mode (Default Mode)

You must be logged in as root user to perform this task for root-based installations.

For non-root installations, either the installation owner or root user can remove the product. If you want to remove the product as root user, verify that the installation is not in use or in production before uninstalling.

To uninstall a client product in console mode:
1. From **$INFORMIXDIR**, as root user, run one of the following commands:
   - `uninstall/uninstall_csdk/uninstallcsdk`
   - `uninstall/uninstall_connect/uninstallconnect`

   You can specify the `-i console` option with the command, but passing this option is not required.
2. Follow the prompts to complete the uninstallation.

Uninstalling Client SDK or Informix Connect in GUI Mode

You must be logged in as root user to perform this task for root-based installations.

For non-root installations, either the installation owner or root user can remove the product. If you want to remove the product as root user, verify that the installation is not in use or in production before uninstalling.

To uninstall a client product in GUI mode:
1. From **$INFORMIXDIR**, as the root user, run one of the following commands:
   - `uninstall/uninstall_csdk/uninstallclientsdk -i gui`
   - `uninstall/uninstall_connect/uninstallconnect -i gui`

   You can use the option `-i swing` in place of the option `-i gui`.

2. Follow the prompts to complete the uninstallation.

Uninstalling After Using the Extraction Application with Command-Line Script (UNIX, Linux)

If you have used the extraction application with command-line script to install Client SDK, and you want to uninstall the server, you must remove the IBM Informix product files manually.

To remove the files manually, run the following command from the **$INFORMIXDIR** directory as the **root** user:

```
rm -rf productfiles
```

Part 2. Installing Client Products on Windows Systems

This section discusses preparing to install IBM Informix client products on Windows systems, explains the installation processes, and discusses post-installation tasks and how to uninstall these products.

Important: The following topics of this documentation explain how to install Client SDK and Informix Connect as individual products using stand-alone client installation applications. Alternatively, you can install Client SDK or Informix Connect as part of the Informix software bundle installation media. The software bundle includes both the Informix database server and client products.

Note: For information about this installation method, see the *IBM Informix Installation Guide for Windows*.

Related concepts:

Part 3, "Installing the OpenAdmin Tool for Informix with the Client SDK"

Chapter 5. Preparing to Install Client SDK and Informix Connect on Windows Systems

You install IBM Informix products on Windows systems by using a Windows installation program that copies files to your client computer.

Install IBM Informix products only as licensed by IBM. You cannot transfer software from one computer to another, or to another portion of your network, without re-registration and the written consent of IBM.

Before you install Client SDK or Informix Connect, you must install the appropriate operating-system patches and comply with the software, system, database server, protocol, compiler, and driver-manager requirements. This information can be found in the appropriate IBM Informix documentation. For example, if you use the ODBC driver manager you can read about the driver manager requirements in the *IBM Informix ODBC Driver Programmer's Manual*.

To install Client SDK or Informix Connect on Windows systems, you must have Administrator privileges.

System Requirements

Before installing an Informix client product on a Windows system, verify that your computer complies with the minimum hardware and disk space requirements.

The following list describes the system requirements for client products and Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008, and Windows 7 systems.

- **Hardware**: Pentium 3 or higher microprocessor
- **RAM**: 256 megabytes
- **Hard-disk storage**: 200 megabytes

Database Server Requirements

You can use Client SDK and Informix Connect on client computers that connect to Informix databases. For a list of compatible Informix database servers, see the online release notes for each client component.

Protocol Requirements

IBM Informix client products work with any TCP/IP protocol that complies with Windows Sockets 1.1.

To configure your client product utilities, select a protocol through the Setnet32 utility. For instructions, see "Setting Database Server Information" on page 7-2.

C Compiler Requirements

IBM Informix client products are certified with the Microsoft Visual C++ compiler, Version 8.0. For individual components for other supported compilers, see the release notes.

Installation Location and Order

Before you install client products, verify that the installation location and the installation order are correct.

Do not install Client SDK, Version 4.10, into a directory that contains a previous version. Uninstall the previous version before you install Version 4.10.

For more information about installation order, see "Determine Installation Order" on page 1-2.

Informix .NET Provider (Windows)

The Informix .NET Provider is automatically installed when you install Client SDK if the Microsoft .NET Framework is already installed on the system.

The Informix .NET Provider is copied and registered to the Global Assembly Cache (GAC).

Client SDK requires the full Microsoft .NET Framework SDK. Informix Connect only requires the Microsoft .NET Framework Redistributable Package.

If you are upgrading .NET applications on 64-bit Windows, you must clear the GAC to load the new version of the IBM Informix .NET Provider DLL. Clear the GAC with the **gacutil** utility using the following command:

```
gacutil  /u IBM.Data.Informix
```

You can perform this operation before upgrading IBM Informix .NET Provider.

Chapter 6. Installing Client SDK and Informix Connect on Windows Systems

About Client Product Installation on Windows

To install Client SDK on Windows systems, run the installation application.

The installation application for Windows allows you to install all components in a default directory or you can select a different installation directory and select which components you want to install. You cannot install IBM Informix Client Software Development Kit and IBM Informix Connect in a directory with more than 215 characters in the full path name.

To install Client SDK or Informix Connect on Windows systems, you must have Administrator privileges. If you log on to Windows without specifying a domain, only the local system is checked.

The following sections describe IBM Informix client product installation options, how to install your software, and solutions to installation problems.

Attention: You must install Client SDK products before you run Enterprise Replication commands and before you convert the **syscdr** database. For more information, see the *IBM Informix Enterprise Replication Guide*.

Attention: Do not install the 32-bit and the 64-bit editions of the same versions of IBM Informix Client Software Development Kit and IBM Informix Connect on the same system.

Installing Client SDK or Informix Connect in GUI Mode (Windows)

You can install an Informix client product using a minimal, typical, or custom installation setup of the GUI installation application.

You must have Administrator privileges to install Client SDK or Informix Connect.

To install Client SDK or Informix Connect:

1. Copy the installation media to the target computer. If the entire media is still in `.zip` archive format, extract the media.
2. Exit all other applications.
3. Open the `installclientsdk.exe` file to install Client SDK, or the `installconnect.exe` file to install Informix Connect.
4. Read the GUI Introduction information.
5. Read the software license agreement and, if you accept the agreement, select **I accept the terms of the license agreement**. You must accept the license agreement terms to proceed with the installation.
6. Select a destination folder for the installation. You can accept the default folder location or select a different location.
7. From the **Install Set** drop-down box, select the installation set of products you would like to install. The GUI displays a description of each feature when you click it in the feature tree.

- **Typical** is a full installation of all features in the client product.
- **Minimal** is a minimal installation of features from the client product.
- **Custom** allows you to select which features you want to install. By default, all features are selected, so you must clear features that you want to omit.

8. Review the preinstallation summary.

After you click **Install**, the selected features will be installed. You are given the option to also install the IBM Data Server Driver Package, and receive notification of the installation status. If you install the driver package, a new installation wizard will open after you click **Done**.

If you are upgrading to new release on Windows and all of the following conditions are true, you must restart your computer after the installation completes:

- The new installation location is different from the previous installation location
- You plan to use a distributed transaction application that uses the COM+ technology

Performing a Silent Client Product Installation on Windows

To perform a silent installation, which is sometimes referred to as an *unattended installation*, you must create a response file that contains information about how you want the product installed. You invoke this response file in a command-line option to perform the silent installation.

You must have Windows Administrator privileges to perform this task.

Attention: If you use the `csdk.properties` or `conn.properties` file as a template for your response file, you must change the response file setting to accept the license terms agreement. To accept license terms agreement, update `LICENSE_ACCEPTED=FALSE` to `LICENSE_ACCEPTED=TRUE` .

To deploy Client SDK or Informix Connect in multiple directories:

1. Establish a response file by doing one of the following:
   - On a command line, start a product installation in GUI mode and specify the `-r` option to generate a response file.
   - Save a local copy of the `csdk.properties` file or the `conn.properties` file that is on the installation media, rename the file, and configure the settings for your environment and agreement to the license terms. Skip to step 3.
2. Copy the response file to the computer where you want to install the client product.
3. Run the silent installation command for the product or products that you want to install, indicating the absolute path to the response file after the `-f` option:
   - `installclientsdk.exe -i silent -f` *path_name* to install Client SDK.
   - `installconnect.exe -i silent -f` *path_name* to install Informix Connect.
4. Repeat steps 2 and 3 for each location where you want to deploy the same installation setup.

If you are upgrading to new release on Windows and all of the following conditions are true, you must restart your computer after the installation completes:

- The new installation location is different from the previous installation location

- You plan to use a distributed transaction application that uses the COM+ technology

Chapter 7. Post-Installation Client Product Tasks on Windows Systems

Configuring IBM Informix Client Products on Windows Systems

This section describes how to use the **Setnet32** utility to configure Client SDK products.

The Setnet32 utility sets or modifies environment variables and network parameters that IBM Informix products use at run time. The environment variables and network parameters are stored in the Windows system registry and are valid for every IBM Informix client product that you install.

This section is divided into the following steps:
- "Setting the Environment Variables"
- "Setting Database Server Information" on page 7-2
- "Setting Host Information" on page 7-3

To set component-specific environment variables, see individual product documentation.

The Setnet32 utility has the following four pages:
- **Environment** allows you to set environment variables.
- **Server Information** allows you to set database server network information.
- **Host Information** allows you to set your host computer and login information.
- **About Setnet32** provides information about the Setnet32 utility.

Setting the Environment Variables

To obtain information about IBM Informix products and the environment in which they run, client products must access environment variables. Some environment variables are required and others are optional.

To set environment variables:
1. Double-click Setnet32 in the folder that contains the Client SDK products. The IBM Informix Setnet32 window opens.
2. Click the **Environment** tab to display the **Environment** page, which has the following elements:
   - **IBM Informix Client/Server Environment**

     Select an environment variable to edit.

     After you select an environment variable, the environment variable name is displayed above the **Variable Name** text box.
   - **Edit Environment Variable**

     Type a new value in the text box, edit the existing value, or select a value by clicking the down arrow.

     Click **Clear** to assign a null value to that environment variable. After you make your change, click **Set** to save that value.
   - **Save/Load**

Click **Load From File** to load your environment variables and their values from a specific file. However, you cannot load environment variables from a specific file unless the Setnet32 utility has already created that file. (Use the **Save To File** option to create a file.)

Click **Save To File** to save your environment variables and their values to a specific file.

- **Use my settings**

  The Setnet32 entries are stored under HKEY_LOCAL_MACHINE upon installation. To save the settings in HKEY_CURRENT_USER and set that as the default registry to modify the settings, select the **Use my settings** and click **Apply**. All environment settings are then copied over to HKEY_CURRENT_USER.

  To revert to the HKEY_LOCAL_MACHINE entries, clear **Use my settings** and click **Apply**.

  The **Use my settings** check box is an entry stored under HKEY_CURRENT_USER as DEFAULT_USER_SETTING, and can be either LM for local machine (default) or CU for current user.

For more information about environment variables, see Appendix A, "Environment Variables," on page A-1 and the *IBM Informix Guide to SQL: Reference*.

For more information about environment variables for locales, see the *IBM Informix GLS User's Guide*.

Setting Database Server Information

A client application connects to an Informix database server that is running on a computer that can be reached through the network. To establish the connection, use **Setnet32** to specify the location of the Informix database server on the network and the network communications protocol to use. You must obtain this information from the administrator of the database server you want to use.

To set database server information:

1. Double-click **Setnet32** in the folder that contains the Client SDK products.

   The Informix **Setnet32** window opens.

2. Click the **Server Information** tab to display the **Server Information** page, which has the following elements:

   - **Informix Server**

     Select an existing Informix database server or type the name of a new database server.

   - **Host Name**

     Select the host computer with the database server that you want to use or type the name of a new host computer.

   - **Protocolname**

     Select a network protocol from a list of protocols that the installation procedure provides.

   - **Service Name**

     Specify the service name that is associated with a specific database server. Type either the service name or the port number that is assigned to the database server on the host computer. You must obtain this information from the database server administrator.

Requirement: If you enter a service name, it must be defined on the client computer in the **services** file in the Windows installation directory. This file is located in **system32\drivers\etc\services**. The service definition must match the definition on the database server host computer.

- **Options**

  Enter options specific to the database server. For more information, see the *IBM Informix Administrator's Guide*.

- **Make Default Server**

  Sets the **INFORMIXSERVER** environment variable to the name of the current database server to make it the default database server.

- **Delete Server**

  Deletes the definition of a database server from the Windows registry. It also deletes the host name, protocol name, and service name associated with that database server.

3. Click **OK** to save the values.

Setting Host Information

A client application can make connections only to a host computer that it can access through the network. You describe a connection to a host computer by specifying host parameters.

To set Host Information:

1. Double-click Setnet32 in the folder that contains the Client SDK products.

   The IBM Informix Setnet32 window opens.

2. Click the **Host Information** tab to display the **Host Information** page, which has the following elements:

   - **Current Host**

     This field displays host computers previously defined in the current Windows registry. Select the name of a host computer with which to establish a network connection or edit or retype a name on the list to define a new host name.

   - **User Name**

     This field displays the user name for an account on the currently selected host computer. This text box accepts a case-sensitive value with a maximum length of 18 characters.

   - **Password Option**

     Select one of the following password options:

     Ask Password At Runtime
     Your application prompts the user for a password. For information about how to use the **sqlauth()** function to prompt for a password and verify it, see the *IBM Informix ESQL/C Programmer's Manual*.

     No password
     The user account has no password. When the application opens a new database, that application does not send a password to the database server. If the host computer of the database server requires a password, the connection fails, and you receive an error.

     Password
     The user account has a password that matches the encrypted value that the **Password** text box displays. When the application opens a new database, the database server compares the password that the

user enters with the login password for the host computer of the database server. If the passwords are not identical, the user cannot connect to that database server across a network.

- **Password**

  This field, which the **Password** option activates, displays asterisks (*) that represent the account password. When this field is enabled, it accepts a password value with a maximum length of 18 characters. The value is case-sensitive and cannot contain any spaces.

  To enter a new password, place the cursor inside the **Password** text box and type the new password. Asterisks (*) represent the characters that you type.

- **Delete Host**

  Click **Delete Host** to delete the name of the currently selected host computer from the Windows registry and the user name, password option, and password that is associated with that host computer.

For more information about host parameters, see your *IBM Informix Administrator's Guide*.

Overriding Information

You can use a set of environment variables with the function call **ifx_putenv** to override the information that was entered in the **Server Information** and **Host Information** pages of the **Setnet32** utility.

To use these environment variables, set the **INFORMIXSERVER** environment variable to a valid database server name. Overrides affect only that database server.

Client SDK, Version 4.10, supports the following WIN32 override environment variables. For more information about these environment variables, see the *IBM Informix ESQL/C Programmer's Manual*.

Table 7-1. WIN32 Override Environment Variables

Environment Variable	Overrides the Value For
WIN32HOST	The HOST network parameter
WIN32USER	The USER network parameter
WIN32PASS	The PASSWORD network parameter
WIN32ASKPASSATCONNECT	The PASSWORD OPTION network parameter
WIN32SERVICE	The SERVICE network parameter
WIN32PROTOCOL	The PROTOCOL network parameter

Configuring OLE DB Provider

To enable your IBM Informix database server for OLE DB access, a database administrator must run the SQL registration script, `coledbp.sql`, against the **sysmaster** database as user **informix**.

To drop OLE DB support, a database administrator must run the SQL unregistration script, `doledbp.sql`, against the **sysmaster** database as user **informix**.

Common Installation Problems

This section describes the most common installation problems and the corresponding solutions for users who receive their product materials directly from IBM.

If any of these problems persist, contact Technical Support at http://www.ibm.com/software/data/informix/support.

If you receive your IBM Informix product materials from an Electronic Software Download (ESD) vendor, consult the vendor documentation for information about how to solve any installation problems that you might encounter.

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

  ```
  Error 1311. Source File "d:\data.cab" Not Found.
  ```

  Drive letter and path/filename can vary.

  Solution. This is a Windows security error that occurs when the installation application that is running as the local system user is denied access to the **.cab** file. There are two ways to resolve this error:

  Option 1: Copy the installation files to your hard disk and run the installation from there.

  Option 2: Change the Security Option, as follows:

  1. Click **Start** > **Settings** > **Control Panel** > **Administrative Tools**.
  2. Select **Local Security Policy**.
  3. Expand the Local Policies folder.
  4. Select **Security Options**.
  5. From the right pane, depending on Windows version, select one of the following options:

     Devices: Restrict CD access to locally logged-on user only.

     Restrict CD access to locally logged-on user only.
  6. Change your selection to **Disabled**.

Chapter 8. Uninstalling Client SDK on Windows Systems

Uninstalling or modifying Client SDK and Informix Connect in GUI mode (Windows)

You can remove a Client SDK or Informix Connect installation quickly through a shortcut on the Windows Start menu.

To uninstall Client SDKor Informix Connect:
1. On the **Start** menu, click **All Programs**.
2. Click the appropriate Informix client product group.
3. Click the uninstallation option.

   The individual client products *cannot* be installed by using the **Add/Remove Programs** section of the Windows Control Panel.

Removing a Client SDK or Informix Connect Installation Using the Command Line

You can start uninstallation of a client product on the command line.

You must have Windows administrator privileges to complete the uninstallation.
1. Open a command-line environment.
2. Run one of the following commands, depending on which product you are removing:
   * `%INFORMIXDIR%\uninstall\uninstall_clientsdk\uninstallclientsdk.exe`
   * `%INFORMIXDIR%\uninstall\uninstall_connect\uninstallconnect.exe`

Part 3. Installing the OpenAdmin Tool for Informix with the Client SDK

The IBM OpenAdmin Tool (OAT) for Informix is installed by default on the supported platforms during a typical installation of the IBM Informix Client Software Development Kit (Client SDK) or when you install the IBM Informix software bundle and select Client SDK or Informix Connect.

Use the custom installation option if you do not want to install OAT.

The installation includes OAT, the Health Advisor plug-in, the JSON plug-in, the Replication plug-in, the Schema Manager plug-in, the TimeSeries plug-in, and all necessary software to run OAT, including pre-configured Apache, PHP, and PDO_informix.

Related concepts:

Part 1, "Installing Client Products on UNIX, Linux, and Mac OS X"

Part 2, "Installing Client Products on Windows Systems"

Chapter 9. Prerequisites for installing the OpenAdmin Tool (OAT) for Informix with the Client SDK

The IBM OpenAdmin Tool (OAT) for Informix has these prerequisites when it is installed with the IBM Informix Client Software Development Kit (Client SDK).

Supported platforms

OAT can be installed and run on these platforms:

Linux
- RHEL 5, x86
- RHEL 5, x86_64
- RHEL 6, x86
- RHEL 6, x86_64
- SuSE SLES 11, x86
- SuSE SLES 11, x86_64
- Asianux 3.0, x86
- Asianux 3.0, x86_64
- Ubuntu 10.04, x86
- Ubuntu 10.04, x86_64
- Ubuntu 12.04, x86
- Ubuntu 12.04, x86_64

Windows
- Windows 2003 SP2, 32-bit
- Windows 2003 SP2, 64-bit
- Windows 2008, 32-bit
- Windows 2008, 64-bit
- Windows 2008 R2, 64-bit
- Windows 2012 Server
- Windows 7, 32-bit
- Windows 7, 64-bit
- Windows 8
- Windows Vista, 32-bit
- Windows Vista, 64-bit
- Windows XP, 32-bit
- Windows XP, 64-bit

Note: Windows 64-bit systems can use OAT if OAT is installed through 32-bit Client SDK.

Mac OS X
- Mac OS X 10.5.2, 64-bit
- Mac OS X 10.6, 64-bit

System requirements

For Linux and Mac OS X, OAT requires these system resources:
- RAM: 40 MB
- Disk space: 125 MB

For Windows, OAT requires these system resources:
- RAM: 40 MB
- Disk space: 175 MB

IBM Informix versions required

For OAT and the OAT plug-ins, the following Informix versions are required:
- OAT: Informix 11.10 or later.
- IBM Informix Health Advisor Plug-in for OpenAdmin Tool (OAT): Informix 11.50.xC7 or later.
- IBM Informix JSON Plug-in for OpenAdmin Tool (OAT): Informix 12.10.xC2 or later.
- IBM Informix Replication Plug-in for OpenAdmin Tool (OAT): Informix 11.50.xC4 or later. To access a database with a non-English locale, the Replication plug-in requires Informix 11.70.xC4 or later.
- IBM Informix Schema Manager Plug-in for OpenAdmin Tool (OAT): Informix 11.10 or later.
- IBM Informix TimeSeries Plug-in for OpenAdmin Tool (OAT): Informix 11.10 or later.

Prerequisites for all operating systems
- A web browser: Mozilla Firefox (Recommended) 10, Microsoft Internet Explorer 8.0, Apple Safari 6.
- Adobe Flash Player 11.
- The UTF-8 locales for all the databases that you access through OAT. To access a database with a locale that is not included in the Client SDK, install the locale by using the IBM Informix International Language Supplement (ILS). After you install OAT, install ILS on the computer where OAT is installed in the Informix Connect or Client SDK directory. Use ILS to install the additional locale, including the UTF-8 version, in the Informix Connect or Client SDK directory that OAT is using. The database name must be in English characters.

Prerequisites for Linux

On Linux 32-bit operating systems, the following libraries must be installed in /lib/ or /usr/lib/. On Linux 64-bit operating systems, the libraries must be installed in /lib64, /usr/lib64, /lib/, or /usr/lib/.

These libraries are required for 32-bit and 64-bit operating systems. Some exceptions are noted.
- libc.so.6
- libcom_err.so.2
- libcrypt.so.1
- libcrypto.so.6
- libdl.so.2

- libexpat.so.0
- libfreebl3.so (RHEL 6 only)
- libgssapi_krb5.so.2
- libk5crypto.so.3
- libkeyutils.so.1
- libkrb5.so.3
- libkrb5support.so.0
- libm.so.6
- libnsl.so.1
- libpcre.so.0
- libpng12.so.0
- libpthread.so.0
- libresolv.so.2
- librt.so.1
- libselinux.so.1 (RHEL 5 and RHEL 6 only)
- libsepol.so.1 (RHEL 5 only)
- libssl.so.6
- libuuid.so.1
- libxml2.so.2
- libz.so.1

Prerequisites for Mac OS X

On Mac OS X, the following libraries must be installed:
- libapr-1.0.dylib
- libaprutil-1.0.dylib
- libexpat.1.dylib
- libgcc_s.1.dylib
- libiconv.2.dylib
- libsqlite3.0.dylib
- libSystem.B.dylib

Prerequisites for Windows

On Windows, the following prerequisites must be met for installation:
- Uninstall releases of IBM Informix Connect and Client SDK version 2.90 or earlier. If outdated versions of either of these products are found on the system, the OAT installation does not work.
- Uninstall any existing installations of PHP. If PHP is found on the system, the OAT installation does not work because PHP does not support multiple instances of installation on Windows.
- For Windows XP, verify that Service Pack 2 is installed.
- Uninstall any existing instance of OAT. Multiple instances of the OAT installation are not supported on Windows.

Chapter 10. Products that are installed with the OpenAdmin Tool (OAT) for Informix

The OAT installation in the Client SDK includes the supporting Apache and PHP software and the optional OAT plug-ins.

The following products are installed:
- IBM OpenAdmin Tool (OAT) for Informix
- Apache Server:
  - On Linux: version 2.4.2
  - On Windows: version 2.2.22
  - On Mac OS X: version 2.2.16
- PHP:
  - On Linux: version 5.4.4
  - On Windows: version 5.2.4
  - On Mac OS X: version 5.3.6
- PDO_INFORMIX:
  - On Linux: version 1.3.1
  - On Windows: version 1.2.6
  - On Mac OS X: version 1.3.1
- Optional: IBM Informix Health Advisor Plug-in for OpenAdmin Tool (OAT)
- Optional: IBM Informix JSON Plug-in for OpenAdmin Tool (OAT)
- Optional: IBM Informix Replication Plug-in for OpenAdmin Tool (OAT)
- Optional: IBM Informix Schema Manager Plug-in for OpenAdmin Tool (OAT)
- Optional: IBM Informix TimeSeries Plug-in for OpenAdmin Tool (OAT)

The PHP and Apache that are installed with OAT have a limited set of modules. To do other development work with OAT PHP, additional modules might be required.

The following PHP modules are installed with OAT on Linux and Windows. Some exceptions are noted.
- date
- gd
- libxml
- openssl
- pcre
- PDO
- pdo_sqlite
- pdo_informix
- Reflection
- session
- SimpleXML
- soap
- sockets

- SPL
- standard
- xml
- xmlreader
- xmlwriter
- zip
- zlib (Windows only)

The following Apache modules are installed with OAT on Linux and Windows. Some exceptions are noted.

- core
- http_core
- http_mod_imagemap (Windows only)
- mod_alias
- mod_asis
- mod_auth_basic
- mod_authn_default
- mod_authn_file
- mod_authz_default
- mod_authz_groupfile
- mod_authz_host
- mod_authz_user
- mod_autoindex
- mod_cgi
- mod_dir
- mod_actions
- mod_env
- mod_filter
- mod_include
- mod_isapi
- mod_log_config
- mod_mime
- mod_negotiation
- mod_php5
- mod_setenvif
- mod_so
- mod_ssl (Linux only)
- mod_status
- mod_userdir
- mod_win32 (Windows only)
- mpm_winnt (Windows only)
- prefork

Chapter 11. Installing the OpenAdmin Tool (OAT) for Informix

When you install the IBM Informix Client Software Development Kit (Client SDK), or when you install the IBM Informix software bundle and select Client SDK or IBM Informix Connect, the IBM OpenAdmin Tool (OAT) for Informix is installed by default.

Verify that your system meets the prerequisites for OAT. See Chapter 9, "Prerequisites for installing the OpenAdmin Tool (OAT) for Informix with the Client SDK," on page 9-1

To start OAT:

1. Open the OAT application:
   - Linux: From the `$INFORMIXDIR/OAT` directory, run the **StartApache** script.
   - Windows: Choose **Start** > **Programs** > **IBM OpenAdmin Tool for Informix** > **IBM OpenAdmin Tool for Informix**.
2. Connect to the database server. On the **Login** page for OAT, complete the server details fields and click **Log In**.

Chapter 12. Upgrading from a previous version of the OpenAdmin Tool (OAT) for Informix

You can upgrade the IBM OpenAdmin Tool (OAT) for Informix when you install a newer version of the IBM Informix Client Software Development Kit (Client SDK).

Upgrade methods depend on the version of OAT being upgraded. You cannot perform an inline upgrade of OAT; you must unistall OAT and then reinstall the new version of OAT, or you must install the new version of OAT into a different directory.

- If you installed OAT with Client SDK 3.70.xC4 or later, and you are upgrading to a newer 3.70-version of OAT, you can install the new version of OAT to a new directory when you upgrade Client SDK.
- If you installed OAT with Client SDK 3.70.xC4 or later, and you are upgrading to a 4.10-version of OAT, you must uninstall OAT and then install the new version of OAT into the original directory.
- If you installed OAT manually or with Client SDK 3.70.xC3 or earlier, you must uninstall OAT, and then install the new version of OAT into the original directory.

Upgrading Apache and PHP software

To upgrade the Apache and PHP software that is installed with OAT, uninstall OAT, and then install a newer version of OAT into the original directory. Installing a second, newer version of OAT without uninstalling the older version of OAT does not upgrade the Apache and PHP software.

Chapter 13. Uninstalling the OpenAdmin Tool (OAT) for Informix after installing it with the Client SDK

The IBM OpenAdmin Tool (OAT) for Informix has an uninstall program.

To uninstall OAT:

1. Change to this directory: `uninstall/uninstall_OpenAdmin`.
2. Start the uninstall program with one of the following methods:
   - GUI mode: Run the uninstall program:
     - Windows: uninstallOpenAdmin.exe
     - Linux: uninstallOpenAdmin
     - Mac OS X: uninstallOpenAdmin.app
   - Console mode: Enter the following command:
     - Windows: uninstallOpenAdmin.exe -i console
     - Linux: uninstallOpenAdmin -i console

     (No console mode is available for Mac OS X.)
3. Specify whether to preserve the existing connection information. If you select this option and install the next version of OAT in the same installation location, the connection information is preserved.

Part 4. Appendixes

Appendix A. Environment Variables

In this Appendix

This appendix provides a list of client-supported environment variables and their possible values and points you to where you can look for more information.

Environment variables for clients

Client SDK, Version 4.10, supports the following environment variables. For more information about these environment variables, see their descriptions in the respective publications.

Environment variable	Purpose	Publication reference and possible values
CC8BITLEVEL	Specifies how the C-language compiler processes non-ASCII (8-bit and multibyte) characters.	*IBM Informix GLS User's Guide* Default is 2.
CLIENT_LOCALE	Specifies the locale that the client application uses to perform read/write operations that involve the keyboard, display, file, or printer on the client computer.	*IBM Informix GLS User's Guide* Any valid locale specifier. No default.
COLLCHAR	Specifies a collation sequence for characters. Provided for backward compatibility with NLS products.	*IBM Informix Guide to SQL: Reference*
DB_LOCALE	Specifies the locale of all the databases that a client application accesses in a single connection (the database locale).	*IBM Informix GLS User's Guide*
DBALSBC	When set to 1, enables compatibility with ALS products.	*IBM Informix ESQL/C Programmer's Manual* Values: 0 or 1
DBANSIWARN	When turned on (y), causes the preprocessor to check for Informix extensions to ANSI-standard SQL syntax at compile time and causes an application to check for Informix extensions at run time.	*IBM Informix Guide to SQL: Reference* Default is n.
DBAPICODE	Enables pre-7.2 systems that use nonstandard or rare code sets to access databases that store data in a standard code set. Maximum size = 23 characters. Provided for backward compatibility with NLS and ALS products.	*IBM Informix ESQL/C Programmer's Manual*
DBASCIIBC	When set to 1, enables compatibility with ASCII products.	*IBM Informix ESQL/C Programmer's Manual* Values: 0 or 1
DBCENTURY	Specifies how to expand values of two-digit-year DATE and DATETIME values. P = past century, R = present century, C = closest century.	*IBM Informix Guide to SQL: Reference* Values: P, R, or C Default is R.
DBCODESET	Provides support for Asian-locale code set. Overrides the code set that DB_LOCALE specifies. Provided for backward compatibility with Version 4.x and 5.x ALS products.	*IBM Informix ESQL/C Programmer's Manual* Same values as ALS DBAPICODE. Default is 8859-1: (unless the **informix.rc** file specifies another system-wide default)

Environment variable	Purpose	Publication reference and possible values
DBCONNECT	Specifies whether connections are restricted. Provides backward compatibility for client applications that are based on earlier versions of IBM Informix products.	*IBM Informix ESQL/C Programmer's Manual* Values: 1 or 3
DBCSCONV	Controls code-set conversion initialization. Maximum size is eight characters. Provided for backward compatibility with ALS products.	*IBM Informix ESQL/C Programmer's Manual* Values: 1 or 2:*codesetname* See 5.0 ALS documentation.
DBCSOVERRIDE	Forces the user-specified DB_LOCALE value to override default restrictions on accessing databases with locales that are different than DB_LOCALE. Provided for backward compatibility with Version 6.0 ALS database servers.	*IBM Informix ESQL/C Programmer's Manual* Values: 0 or 1
DBCSWIDTH	Maximum number of display bytes (1-2) and storage bytes (1-4) for the characters in up to three code sets. Display and storage widths are separated by commas; code sets are separated by colons. Maximum size of this field is, therefore, 11 characters. Provided for backward compatibility with ALS products.	*IBM Informix ESQL/C Programmer's Manual* Example: 1,1:2,3 means a display and storage width of 1 byte for code set 1; a display width of 2 bytes and a storage width of 3 bytes for code set 2.
DBDATE	Specifies the end-user format for DATE values so that they can conform with various international date conventions. Provided for backward compatibility with pre-7.2 products. GL_DATE is recommended for 7.2 ESQL/C applications.	Default is MDY4 unless NLS variable LC_TIME is activated.
DBFLTMASK	Specifies the number of decimal digits to use when storing a DECIMAL, SMALLFLOAT, or FLOAT data type in a character buffer Dbaccess only.	*IBM Informix Guide to SQL: Reference* Values: 0–16 Default is 16.
DBLANG	Specifies the subdirectory of the Informix installation directory that contains the product-specific message (**.iem**) files.	*IBM Informix Guide to SQL: Reference* Default is ***msg***.
DBMONEY	Specifies the end-user format for MONEY values so that they can conform with various international and local monetary conventions.	*IBM Informix Guide to SQL: ReferenceIBM Informix GLS User's Guide* Default is $**.**,**.**
DBMONEYSCALE	Specifies the total number of digits and number of decimal digits for monetary values. Provided for backward compatibility with ALS products.	*IBM Informix ESQL/C Programmer's Manual*
DBPATH	Identifies the database servers that contain databases that the application accesses.	*IBM Informix GLS User's Guide*
DBSS2	Maximum size is four characters. Provided for backward compatibility with ALS products.	*IBM Informix ESQL/C Programmer's Manual*Values: 0x00–0xff or 0–255
DBSS3	Maximum size is four characters. Provided for backward compatibility with ALS products.	*IBM Informix ESQL/C Programmer's Manual* Values: 0x00–0xff or 0–255
DBTEMP	Specifies the directory on the client computer that the client processor uses to store temporary files (also called *swap* files).	*IBM Informix Guide to SQL: Reference* Default is \\tmp.

Environment variable	Purpose	Publication reference and possible values
DBTIME	Specifies the end-user format for DATETIME values so that they can conform with various international date conventions. GL_DATETIME is recommended for 7.2 ESQL/C applications. Provided for backward compatibility with pre-7.2 products.	*IBM Informix Guide to SQL: Reference IBM Informix GLS User's Guide* Default is %Y-%m-%d %H:%M:%S.
DELIMIDENT	Indicates whether (y) or (n) to interpret strings in double quotation marks as delimited identifiers.	*IBM Informix Guide to SQL: Reference* Default is n.
ESQLMF	Indicates whether the ESQL/C processor automatically invokes the ESQL/C multibyte filter (*value*=1 and CC8BITLEVEL<3, or not *value*=0).	*IBM Informix GLS User's Guide*
FET_BUF_SIZE	Overrides the default size of the fetch buffer.	*IBM Informix Guide to SQL: Reference* Any valid buffer size, in bytes. Default value depends on row size.
GL_DATE	Specifies a customized end-user format for DATE values.	*IBM Informix GLS User's Guide*
GL_DATETIME	Specifies a customized end-user format for DATETIME values.	*IBM Informix GLS User's Guide*
IFX_DISABLE_IPV6	Disables IPv6 support for a single database instance or for a single client application.	*IBM Informix Administrator's Guide*Values: yes or no. Default is no.
IFX_FLAT_USCQ	Overrides the global setting and directs the optimizer to use subquery flattening for all sessions.	Default is 0.
INFORMIXCONRETRY	Specifies the maximum number of additional connection attempts made to a database server in the time limit that CONTIME specifies.	*IBM Informix Guide to SQL: Reference* Default is 1.
INFORMIXCONTIME	Specifies the number of seconds an SQL CONNECT statement continues to try to establish a connection before it generates an error.	*IBM Informix Guide to SQL: Reference* Default is 60(seconds).
INFORMIXDIR	Identifies the location of the client programs, library files, message files, header files, and other IBM Informix software components. INFORMIXDIR must always be set.	*IBM Informix Guide to SQL: Reference* Default is C:\INFORMIX.
INFORMIXSERVER	Identifies the default database server.	*IBM Informix Guide to SQL: Reference*
INFORMIXSQLHOSTS	Specifies the name of the computer on which the central registry is located.	*IBM Informix Guide to SQL: Reference*
LANG	Specifies the language environment (called a *locale*) for an NLS database that an application accesses. Provided for backward compatibility with NLS products.	*IBM Informix ESQL/C Programmer's Manual* Default is C.
LC_COLLATE	Specifies a collation or sort sequence for data in NCHAR and NVARCHAR columns of an NLS database. Provided for backward compatibility with NLS products.	*IBM Informix ESQL/C Programmer's Manual* Default is the value that LANG specifies.

Environment variable	Purpose	Publication reference and possible values
LC_CTYPE	Specifies character attributes such as character classification and case conversion of regular expressions for data in NCHAR and NVARCHAR columns of an NLS database. Provided for backward compatibility with NLS products.	*IBM Informix ESQL/C Programmer's Manual* Default is the value that LANG specifies.
LC_MONETARY	Specifies the end-user format for MONEY values in an NLS database. Provided for backward compatibility with NLS products.	*IBM Informix ESQL/C Programmer's Manual* Default is the value that LANG specifies.
LC_NUMERIC	Specifies the end-user format for numeric values in an NLS database. Provided for backward compatibility with NLS products.	*IBM Informix ESQL/C Programmer's Manual* Default is the value that LANG specifies.
LC_TIME	Specifies the end-user format for DATE and DATETIME values in an NLS database. Provided for backward compatibility with NLS products.	*IBM Informix ESQL/C Programmer's Manual* Default is the value that LANG specifies.
NODEFDAC	Allows default table privileges for PUBLIC when a new table is created in a database that is not ANSI compliant.	*IBM Informix ESQL/C Programmer's Manual* Default is to allow privileges.
OPTMSG	Enables optimized message transfers (message chaining) for all SQL statements in an application.	*IBM Informix Guide to SQL: Reference* Default is the value that LANG specifies.
OPTOFC	Enables optimize-OPEN-FETCH-CLOSE functionality in an IBM Informix ESQL/C application that uses DECLARE and OPEN statements to execute a cursor.	*IBM Informix Guide to SQL: Reference* Default is the value that LANG specifies.
TMP	Can be used to change the location temporary space directory used during installation. This is useful if there is not enough space in the default /tmp directory.	Any valid path.

Appendix B. Distribute Your IBM Informix Client Applications (Windows)

In This Appendix

This appendix discusses the technical and legal requirements that you must observe when you distribute applications that are created using IBM Informix client APIs (such as IBM Informix ESQL/C and IBM Informix ODBC Driver) on Windows platforms.

With your client application files, you might distribute and install IBM Informix client runtime components that are required by your application.

To install these components, you can either:
- Require your customers to install the components separately
- Record the installation process and run the resulting script as part of your client application's installation program

By using prerecorded installation scripts to install and configure IBM Informix client APIs , you can enable your customers to bypass the installation windows that normally are displayed. Such an installation is referred to as a *silent* installation.

Distribute IBM Informix Client Applications and Components

When you distribute a client application that you developed by using an IBM Informix client API, you might decide to distribute IBM Informix components that are required by your application at runtime.

The following table lists the IBM Informix components that your customer needs in order to run your client application.

Table B-1. IBM Informix Component Needed to Run Client Application

Client Development API	Components Required at Runtime
IBM Informix Client SDK	IBM Informix Connect
IBM Informix .NET Provider	IBM Informix Connect
IBM Informix ESQL/C	IBM Informix Connect
IBM Informix ODBC Driver	IBM Informix Connect
IBM Informix Object Interface for C++	IBM Informix Connect
IBM Informix OLE DB Provider	IBM Informix Connect (including MDAC, obtained by recording a custom installation)
DataBlade® API	IBM Informix Connect

Client Runtime Component Redistribution Guidelines

IBM Informix runtime components can be redistributed.

You can redistribute IBM Informix runtime components in the following two ways:
- By installing all required components

- By installing specific components (for example, you can redistribute only the files that are required by IBM Informix OLE DB Provider)

Attention: Do not copy single files or directories from any IBM Informix client API into your application installation; doing so violates your Technical Support agreement or contract.

Appendix C. 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.

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.

IBM and accessibility

For more information about the IBM commitment to accessibility, see the *IBM Accessibility Center* at http://www.ibm.com/able.

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 that follows the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 refers 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 can write `HOST STATE`, but you cannot 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 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.

Notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing
Legal and Intellectual Property Law
IBM Japan, Ltd.
19-21, Nihonbashi-Hakozakicho, Chuo-ku
Tokyo 103-8510, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

IBM Corporation
J46A/G4
555 Bailey Avenue
San Jose, CA 95141-1003
U.S.A.

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy,

modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Each copy or any portion of these sample programs or any derivative work, must include a copyright notice as follows:

© (your company name) (year). Portions of this code are derived from IBM Corp. Sample Programs.

© Copyright IBM Corp. _enter the year or years_. All rights reserved.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

Privacy policy considerations

IBM Software products, including software as a service solutions, ("Software Offerings") may use cookies or other technologies to collect product usage information, to help improve the end user experience, to tailor interactions with the end user or for other purposes. In many cases no personally identifiable information is collected by the Software Offerings. Some of our Software Offerings can help enable you to collect personally identifiable information. If this Software Offering uses cookies to collect personally identifiable information, specific information about this offering's use of cookies is set forth below.

This Software Offering does not use cookies or other technologies to collect personally identifiable information.

If the configurations deployed for this Software Offering provide you as customer the ability to collect personally identifiable information from end users via cookies and other technologies, you should seek your own legal advice about any laws applicable to such data collection, including any requirements for notice and consent.

For more information about the use of various technologies, including cookies, for these purposes, see IBM's Privacy Policy at http://www.ibm.com/privacy and IBM's Online Privacy Statement at http://www.ibm.com/privacy/details the section entitled "Cookies, Web Beacons and Other Technologies" and the "IBM Software Products and Software-as-a-Service Privacy Statement" at http://www.ibm.com/software/info/product-privacy.

Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at http://www.ibm.com/legal/copytrade.shtml.

Adobe, the Adobe logo, and PostScript are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

Intel, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft, Windows, and Windows NT are trademarks of Microsoft Corporation in the United States, other countries, or both.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Other company, product, or service names may be trademarks or service marks of others.

Index

Special characters

IBM®

Printed in USA