

IBM DB2 10.1
for Linux, UNIX, and Windows

Installing IBM Data Server Clients



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Note

Before using this information and the product it supports, read the general information under Appendix C, "Notices," on page 67.

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About this publication

If you are interested in installing and configuring an IBM data server clients or driver, setting up a thin client, or DB2 Connect™ thin client environment, you should read this book.

Part 1. IBM data server clients

Chapter 1. Introduction to IBM data server clients

IBM data server clients and drivers overview

Several types of IBM® data server clients and drivers are available. Each provides a particular type of support.

The IBM data server client and driver types are as follows:

- IBM Data Server Driver Package
- IBM Data Server Driver for JDBC and SQLJ
- IBM Data Server Driver for ODBC and CLI
- IBM Data Server Runtime Client
- IBM Data Server Client

Each IBM data server client and driver provides a particular type of support:

- For Java applications only, use IBM Data Server Driver for JDBC and SQLJ.
- For applications using ODBC, CLI, .NET, OLE DB, PHP, Ruby, JDBC, CLPPlus or SQLJ, use IBM Data Server Driver Package.
- For applications using DB2CI, use IBM Data Server Client.
- For command line processor (CLP), with function not available in the recommended IBM Data Server Driver Package.

In general, it is recommended that you use the IBM Data Server Driver Package. The IBM Data Server Driver Package has a small footprint and provides runtime support for applications using ODBC, CLI, .NET, OLE DB, PHP, JDBC, or SQLJ, without the need to install the IBM Data Server Runtime Client or IBM Data Server Client. Information about the installation requirements, installation and uninstallation procedure of the IBM Data Server Driver Package is discussed in details throughout this book. You can find information about the IBM Data Server Client in the Appendixes of this book

IBM Data Server Driver Package overview

The IBM Data Server Driver Package is a lightweight deployment solution that provides runtime support for applications that use ODBC, CLI, .NET, OLE DB, PHP, Ruby, JDBC, or SQLJ, without the need to install the Data Server Runtime Client or Data Server Client .

This driver has a small footprint and is designed to be redistributed by independent software vendors (ISVs). This driver is also designed to be used for application distribution in mass deployment scenarios that are typical of large enterprises.

The IBM Data Server Driver Package includes the following capabilities:

- DB2® Command Line Processor Plus (CLPPlus) for dynamically creating, editing, and running SQL statements and scripts.
- Support for applications that use ODBC, CLI, PHP, or Ruby to access databases.
- On Windows operating systems, support for applications that use .NET or OLE DB to access databases. In addition, this driver package is available as an installable image. Using merge modules, you can easily embed the driver in a Windows Installer-based installation.

- Support for client applications and applets that you write in the Java language by using JDBC and for embedded SQL for Java (SQLJ).
- Support for running embedded SQL applications. No precompiler or bind capabilities are provided.
- Application header files to rebuild the PHP, Ruby, Python, and Perl drivers. The Python and Perl drivers are not available in the IBM Data Server Driver Package; however, you can download and build these drivers by using the header files.
- Support for DB2 interactive CLI through the **db2c1i** command.
- Support for DRDA[®] traces through the **db2drdat** command.

Connections to midrange and mainframe databases

With the IBM Data Server Driver Package, you can connect to DB2 databases on mainframe and midrange platforms, namely the OS/390[®] and z/OS[®], System i[®], VSE, and VM platforms. You can also connect to other databases that comply with the Distributed Relational Database Architecture[™] (DRDA) protocol.

To connect to a z/OS server or a System i server with the IBM Data Server Driver Package, you must activate a DB2 Connect license key on the DB2 for z/OS subsystem. To activate the license key on a DB2 for z/OS subsystem:

1. Ensure that Java Runtime Environment 1.4.2 or later is available on the DB2 for Linux, UNIX, and Windows workstation from which you want to run the activation utility.
2. From the *activation_cd_root\consv_zs\db2\license* directory, issue the command for your operating system, with the appropriate options:
 - On UNIX operating systems: `db2connectactivate.sh options`
 - On Windows operating systems: `db2connectactivate options`

For more information on the **db2connectactivate** command, see the **db2connectactivate** command topic in the DB2 Connect User's Guide.

You can connect to a midrange or mainframe database from a workstation in the following ways:

- Install the IBM Data Server Driver Package locally and use it to connect directly to a host.
- Connect to the same or different host through an intermediate DB2 Connect server gateway.

Command line processor plus (CLPPlus)

Command line processor plus (CLPPlus) provides a command-line user interface that you can use to connect to databases and to define, edit, and run statements, scripts, and commands.

CLPPlus complements the functions that the command line processor (CLP) provides. CLPPlus includes the following features:

- Support for establishing connections to databases when you provide a database user ID and password.
- A buffer that you can use to store scripts, script fragments, SQL statements, SQL PL statements, or PL/SQL statements for editing and then execution. You can list, print, or edit the text in the buffer or run the text in the buffer as a batch script.

- A comprehensive set of processor commands that you can use to define variables and strings that you can store in the buffer.
- A set of commands that retrieve information about a database and database objects.
- The ability to store buffers or buffer output in a file.
- Multiple options for formatting the output of scripts and queries.
- Support for executing system-defined routines.
- Support for executing operating system commands.
- An option for recording the output of executed commands, statements, or scripts.

CLPPlus supports SERVER, SERVER_ENCRYPT, and KERBEROS authentication only.

Combinations of clients, drivers, and server levels

Various versions of a client or driver can connect to different versions of a server and DB2 databases on midrange and mainframe servers.

DB2 client levels required for IBM DB2 pureScale® Feature features

For your application to make full use of DB2 pureScale features, your DB2 client must be at certain release levels:

Server version	Client version	Features available
Version 9.8 or later	Version 9.7, Fix Pack 1 or later	Transaction-level and connection-level workload balancing Automatic client reroute based on workload Client affinities
Version 9.8 or later	Version 9.1, Version 9.5, or Version 9.7 (before Fix Pack 1)	Connection-level workload balancing (transaction-level workload balancing is not available) Automatic client reroute based on workload

Combinations of DB2 Version 9.1, DB2 Version 9.5, DB2 Version 9.7, and DB2 Version 10.1 clients and servers

Generally, DB2 Version 9.1, DB2 Version 9.5, and DB2 Version 9.7 clients can access a remote DB2 Version 10.1 server. However, if different versions of a client and a DB2 server are located on the same system, local client-to-server connections using Interprocess Communication (IPC) are not supported. Instead, you can establish a connection as a remote connection (called a *loopback connection*) by using TCP/IP.

The IBM Data Server Driver Package can access servers of a later or earlier version. However, when a later version driver accesses an earlier version server, the functionality of the later version is not available to the client. For example, IBM Data Server Driver Package Version 10.1 can access a DB2 Version 9.1 server; however, DB2 Version 9.7 functionality is not available to the client. To use the latest functionality of the server, migrate to the latest version of the server.

Combinations of DB2 Version 10.1 and DB2 products on midrange and mainframe platforms

DB2 servers support access from the following clients on midrange and mainframe platforms:

- DB2 for z/OS and OS/390 Version 8 or later
- DB2 for i5/OS® Version 5 or later
- DB2 for VM and VSE Version 7

Part 2. Installing the IBM Data Server Driver Package

Chapter 2. IBM Data Server Driver Package installation requirements

Disk and memory requirements

Ensure that an appropriate amount of disk space is available for the installation of the IBM Data Server Driver Package, and allocate memory accordingly.

Disk requirements

The minimum disk space that is required for the IBM Data Server Driver Package is approximately 130 MB.

Memory requirements

Because the IBM Data Server Driver Package has a smaller footprint than that of the IBM Data Server Runtime Client and IBM Data Server Client, the RAM that is required is very small: approximately 512 MB.

Installation requirements (Windows)

The following restrictions apply to installing the IBM Data Server Driver Package:

- You must install the IBM Data Server Driver Package separately.
- You cannot install any other database product in the same path as the IBM Data Server Driver Package.
- For JDBC and embedded SQL for Java (SQLJ), the IBM Data Server Driver Package supports only the DB2 JDBC type 4 driver.
- Installation of multiple copies of the IBM Data Server Driver Package is an advanced installation method that is not recommended for most users.
- The default installation path of the IBM Data Server Driver Package is Program Files\IBM\IBM DATA SERVER DRIVER. If you install multiple copies of the IBM Data Server Driver Package on the same machine, the default directory name is Program Files\IBM\IBM DATA SERVER DRIVER_*nn*, where *nn* is the generated number that makes the directory name unique. For example, if you install a second copy on the same machine, the default directory name is Program Files\IBM\IBM DATA SERVER DRIVER_02.

To install the IBM Data Server Driver Package package, obtain the compressed file that contains this driver package:

1. Go to the IBM Support Fix Central website (www.ibm.com/support/fixcentral/).
2. From the **Product Group** list, select **Information Management**.
3. From the **Product** list, select **IBM Data Server Client Packages**.
4. From the **Installation Version** list, select a particular version or all versions.
5. From the **Platform** list, select a particular platform or all platforms, and click **Continue**.

Click **Continue** again on the next screen and you are presented with a list of all client and driver packages that are available for your platform.

Installation requirements (Linux and UNIX)

The following restrictions apply to IBM Data Server Driver Package in Linux and UNIX operating systems:

- You must install the IBM Data Server Driver Package separately.
- You cannot install any other database product in the same path as the IBM Data Server Driver Package.

To install the IBM Data Server Driver Package package, obtain the compressed file that contains this driver package:

1. Go to the IBM Support Fix Central website (www.ibm.com/support/fixcentral/).
2. From the **Product Group** list, select **Information Management**.
3. From the **Product** list, select **IBM Data Server Client Packages**.
4. From the **Installation Version** list, select a particular version or all versions.
5. From the **Platform** list, select a particular platform or all platforms, and click **Continue**.

Click **Continue** again on the next screen and you are presented with a list of all client and driver packages that are available for your platform.

Chapter 3. Installing IBM Data Server Driver Package

Windows

Installing the IBM Data Server Driver Package (Windows)

The procedure to install the IBM Data Server Driver Package on Windows operating systems is described in the following section.

Procedure

To install the IBM Data Server Driver Package from a fix pack image on a Windows operating system:

1. From the IBM Support Fix Central website (www.ibm.com/support/fixcentral/), download the driver package that contains the setup program.
2. To begin installing the downloaded IBM Data Server Driver Package, run the setup executable.
3. Accept the terms of the license agreement.
4. Select the installation path for the IBM Data Server Driver Package.
5. Provide the IBM Data Server Driver Package copy name, which should be the location in which the package is installed. The default copy name is IBMDBCL1.
6. Make sure that all the appropriate paths are specified by verifying the installation settings.

Results

The IBM Data Server Driver Package is now installed at the location that you specified during the installation process.

What to do next

You can optionally create and populate the `db2dsdriver.cfg` configuration file with database directory information.

Command-line options to install the IBM Data Server Driver Package (Windows)

You can install the IBM Data Server Driver Package by running the DB2 **setup** command from the command line.

The command-line options for the **setup** command are as follows. For more information about the Windows Installer options, see <http://www.msdn.microsoft.com/>.

/n *[copy_name]*

Specifies the copy name that you want the installation to use. If the copy exists, a maintenance installation is performed on that copy. Otherwise, a new installation is performed by using the specified copy name. Specifying this option overrides the installation path in the response file.

/o Specifies that a new copy installation with a generated default copy name is to be performed.

- /u** [*response_file*]
Specifies the full path and file name of the response file.
- /m** Shows the progress window during the installation. However, you are not prompted for any input. Use this option with the **/u** option.
- /l** [*log_file*]
Specifies the full path and file name of the log file.
- /p** [*install_directory*]
Changes the installation path of the product. Specifying this option overrides the installation path in the response file.
- /i** *language*
Specifies the two-letter language code of the language in which to perform the installation.
- /?** Generates usage information.

The following examples show how to use some of the command-line parameters:

- To install a new copy with a generated default copy name, issue the following command:
setup /o
- To install a second copy, issue the following command:
setup /n "*copy_name*"
- To perform a response file installation, issue the following command:
setup /u "[*Full path to the response file*]"

A sample response file is located in the `\samples` subdirectory.

Linux and UNIX

Installing the IBM Data Server Driver Package (Linux and UNIX)

On Linux and UNIX operating systems, the IBM Data Server Driver Package is installed by running the **installDSDriver** command. This driver package includes database drivers for Java, ODBC/CLI, PHP, and Ruby on Rails, each of which is stored in its own subdirectory. The Java and ODBC/CLI drivers are compressed.

Procedure

To install the IBM Data Server Driver Package:

1. Uncompress the IBM Data Server Driver Package archive.
2. Copy the files onto the target machine.
3. For the Java and ODBC/CLI drivers, uncompress the driver file into your chosen installation directory on the target machine.
4. Optional: Remove the compressed driver file.

What to do next

You can optionally create and populate the `db2dsdriver.cfg` configuration file with data source information.

Part 3. Database connections for the IBM Data Server Driver Package

Chapter 4. Client-to-server communications configuration overview

To choose a suitable method for configuring client-to-server communications, you should understand the components and scenarios that are involved in client-to-server communications.

The basic components of client-to-server communications are as follows:

Client The initiator of the communications. This role is taken by the IBM Data Server Driver Package.

Server The receiver of the communications request from the client. This role is normally filled by a DB2 for Linux, UNIX, and Windows server product. When DB2 Connect products are present, the term *server* can also mean a DB2 server on a midrange or mainframe platform.

Communications protocol

The protocol that is used to send data between the client and server. The DB2 product supports the following protocols:

- TCP/IP. The version can be TCP/IPv4 or TCP/IPv6.
- Named Pipes. This option is available on Windows operating systems only.

An additional component applies in some environments:

Lightweight Directory Access Protocol (LDAP)

In an LDAP-enabled environment, it is not necessary to configure client-to-server communications. When a client attempts to connect to a database that not exist in the database directory on the local machine, the LDAP directory is searched for information that is required to connect to the database.

An example of using client-to-server communications is the IBM Data Server Driver Package establishing communications with a DB2 server by using TCP/IP.

When setting up a server to work with development environments such as IBM Data Studio, you might encounter error message SQL30081N at the initial DB2 connection. A possible cause is that the firewall at the remote database server prevented the connection from being established. In this case, verify that the firewall is correctly configured to accept connection requests from the client.

Chapter 5. Communication protocols

The supported protocols for connecting from the IBM Data Server Driver Package to a DB2 server include the following ones:

- Connecting from an IBM data server client to midrange or mainframe hosts by using DB2 Connect products
- Connecting from midrange or mainframe platforms to DB2 for Linux, UNIX, and Windows databases

The TCP/IP protocol is supported on all operating systems on which DB2 for Linux, UNIX, and Windows software is available. Both TCP/IPv4 and TCP/IPv6 are supported. IPv4 addresses have a four-part structure, for example, 9.11.22.314. IPv6 addresses have an eight-part structure, where each part consists of four hexadecimal digits that are delimited by a colon. Two colons (::) represent one or more sets of zeros, for example, 2001:0db8:4545:2::09ff:fe7:62dc.

DB2 database products also support the SSL protocol and accept SSL requests from applications that use the IBM Data Server Driver Package.

In addition, the Windows Named Pipes protocol is supported on Windows networks.

Functionality supported with restrictions

The IBM Data Server Driver Package supports certain functionality with restrictions:

- Lightweight Directory Access Protocol (LDAP) is supported, but the LDAP cache is not saved to disk. There is no local database directory. Instead of the local database directory, the `db2dsdriver.cfg` configuration file is used. The `db2dsdriver.cfg` configuration file provides more control over the configuration of the IBM Data Server Driver Package than the database directory allows.
- Runtime support for embedded SQL is available with the following restrictions:
 - Support is runtime only; there is no **PREP** or **BIND** command capability. With embedded SQL, you must issue the **PREP** or **BIND** command with the IBM Data Server Client first and then deploy the command with the IBM Data Server Driver Package.
 - Sysplex capabilities are not supported.
 - APIs for loading data (`db2Load` and `db2LoadQuery`), exporting data (`db2Export`), and importing data (`db2Import`) are not supported.
- Executing an embedded compound statement with substatements is not supported.

Unsupported functionality

The following functionality is not supported:

- The DB2 command line processor (CLP)
- Administrative APIs
- CLIENT type authentication

Chapter 6. db2dsdriver configuration file

The `db2dsdriver.cfg` configuration file contains database directory information and client configuration parameters in a human-readable format.

The `db2dsdriver.cfg` configuration file is an XML file that is based on the `db2dsdriver.xsd` schema definition file. The `db2dsdriver.cfg` configuration file contains various keywords and values that you can use to enable various features to a supported database through ODBC, CLI, .NET, OLE DB, PHP, or Ruby applications. You can associate the keywords globally, with all database connections, or you can associate keywords with a specific database source name (DSN) or database connection. You can also use this configuration file to enable high availability connection to databases.

db2dsdriver configuration file structure

The scope of configuration keywords and their associated values are defined by the position of the keywords in the `db2dsdriver.cfg` file. Depending on the position of the configuration keyword, the keyword can have a global effect (affecting all connections), or it might affect only the specific connection made to a database or alias. You can specify some keywords in only in a specific section. The `db2dsdriver.cfg` configuration file contains the following sections:

Data source name

This section is contained within the `<dsncollection>` and `</dsncollection>` tags. Keywords in this section apply only to a particular data source name.

Database information

This section is contained within the `<databases>` and `</databases>` tags. Keywords in this section apply only to a particular database connection.

To enable high availability features, you can define two subsections in the database information section:

Workload balancing

This subsection is contained within the `<wlb>` and `</wlb>` tags. In this subsection, you specify keywords that are related to workload balancing.

Automatic client reroute

This subsection is contained within the `<acr>` and `</acr>` tags. In this subsection, you specify parameters that are related to automatic client reroute.

Global attributes

This section is contained within the `<parameters>` and `</parameters>` tags. Parameters in this section apply to all databases and aliases.

LDAP This section is contained within the `<ldapserver>` and `</ldapserver>` tags. You can use this section to specify LDAP server information.

Example of a db2dsdriver.cfg file

The following sample `db2dsdriver.cfg` configuration file has a data source name section (which uses `<dsncollection>` and `</dsncollection>` tags), a database

information section (which uses `<database>` and `</database>` tags), and a global attributes section (which uses `<parameters>` and `</parameters>` tags):

```
<configuration>
  <dsncollection>
    <dsn alias="alias1" name="name1" host="server1.net1.com" port="50001"/>
    <!-- Long aliases are supported -->
    <dsn alias="longaliasname2" name="name2" host="server2.net1.com" port="55551">
      <parameter name="Authentication" value="Client"/>
    </dsn>
  </dsncollection>
  <databases>
    <database name="name1" host="server1.net1.com" port="50001">
      <parameter name="CurrentSchema" value="OWNER1"/>
      <wlb>
        <parameter name="enableWLB" value="true"/>
        <parameter name="maxTransports" value="50"/>
      </wlb>
      <acr>
        <parameter name="enableACR" value="true"/>
      </acr>
    </database>
  </databases>
  <parameters>
    <parameter name="GlobalParam" value="Value"/>
  </parameters>
</configuration>
```

db2dsdriver configuration file restrictions

The following restrictions apply to the `db2dsdriver.cfg` configuration file:

- The `db2dsdriver.cfg` configuration file supports a consistent set of lowercase XML tags. The underscore (`_`) is not supported. XML tag attributes, between which you specify IBM Data Server Driver Package configuration keywords, can contain uppercase, lowercase, and underscore (`_`) characters.
- The configuration file cannot contain multiple identical entries for a database with the following properties: database name, server name, and port number. In addition, the configuration file cannot contain multiple identical database alias entries.
- The `<dsncollection>` entries (alias, name, host, and port) and the `<database>` entries (name, host, port) must contain a value.
- If you define multiple parameters on a single line, they are ignored.

db2dsdriver configuration file location

The `db2dsdriver.cfg` configuration file is not provided with DB2 software. Instead, the `db2dsdriver.cfg.sample` sample configuration file is provided to help you get started. Use the contents of the `db2dsdriver.cfg.sample` file to create a `db2dsdriver.cfg` file in the same location as the sample configuration file. The location of the sample configuration file depends on your driver type and operating system. For the IBM Data Server Driver Package, the configuration file is created in one of the following paths:

- On AIX®, HP-UX, Linux, or Solaris operating systems: `install_path/cfg`
- On Windows XP Professional and Windows Server 2003: `C:\Documents and Settings\All Users\Application Data\IBM\DB2\driver_copy_name\cfg`
- On Windows Vista, Windows 7, and Windows Server 2008: `C:\ProgramData\IBM\DB2\driver_copy_name\cfg`

You can use the **DB2DSDRIVER_CFG_PATH** registry variable to specify a different location for the `db2dsdriver.cfg` file.

You can copy and edit the `db2dsdriver.cfg` configuration file. After editing the file, you must restart your ODBC, CLI, .NET, OLE DB, PHP, or Ruby applications for the changes to take effect.

If you have the IBM Data Server Runtime Client or IBM Data Server Client, you can copy the existing database directory information into the `db2dsdriver.cfg` configuration file by using the **db2dsdcfgfi11** command. When you run this command, the configuration file is populated based on the contents of the local database directory, node directory, and Database Connection Services (DCS) directory of a specific database manager instance.

The IBM Data Server Client and IBM Data Server Runtime Client can catalog remote databases locally, and you can define client parameters for the databases that are cataloged. The IBM Data Server Client and IBM Data Server Runtime Client derive database, host, and port information from the catalog directory and use that information to locate the corresponding entry in the `db2dsdriver.cfg` configuration file.

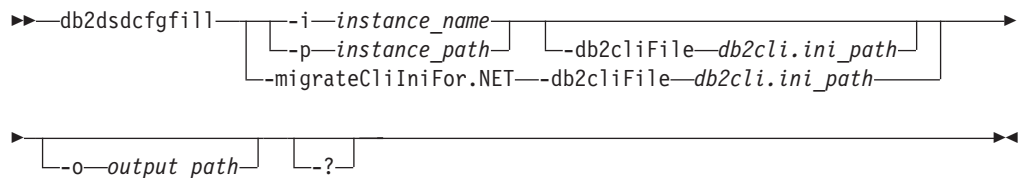
Chapter 7. db2dsdcfgfill - Create configuration file db2dsdriver.cfg

After installing the IBM Data Server Driver Package, you can run the **db2dsdcfgfill** command to create and populate the `db2dsdriver.cfg` configuration file in a human-readable format.

Description

The **db2dsdcfgfill** command copies database directory information from either the IBM Data Server Client or IBM Data Server Runtime Client to the `db2dsdriver.cfg` configuration file.

Command syntax



Command parameters

-i instance_name

Specifies the name of the database manager instance whose database directory, node directory, and Database Connection Services (DCS) directory are used as input.

You cannot use this parameter with the **-p** or **-migrateCliIniFor.NET** parameter.

-p instance_path

Specifies the full path of the database manager instance directory under which the system database directory, node directory, and DCS directory are located.

You cannot use this parameter with the **-i** or **-migrateCliIniFor.NET** parameter.

-migrateCliIniFor.NET

Copies certain entries from the `db2cli.ini` file into the `db2dsdriver.cfg` file. This parameter is for Microsoft Windows systems only. Only the following keywords are migrated:

- **Txnisolation**
- **Connecttimeout**
- **Currentschema**

The keywords are migrated in the following manner:

- Entries in the common section of the `db2cli.ini` file are copied to the global section of the `db2dsdriver.cfg` file.
- Entries that have a database name, host name, and port information are copied to the database section.

- Entries for cataloged databases are copied to the data source name section.

You cannot use this parameter with the **-i** or **-p** parameter.

Restriction: For .NET applications and applications that use embedded SQL, the IBM Data Server Client and IBM Data Server Runtime Client can use the `db2dsdriver.cfg` file to retrieve only Sysplex-related settings.

-db2cliFile*db2cli.ini_path*

Specifies the full path of the `db2cli.ini` file. This parameter is for Microsoft Windows systems only.

-o*output_path*

Specifies the path where the **db2dsdcfgfill** command creates the `db2dsdriver.cfg` configuration file.

If you do not specify a value for this parameter and you have a copy of the `db2dsdriver.cfg` file from Version 9.7 Fix Pack 2 or earlier, that copy is replaced. Otherwise, if you do not specify a value for this parameter, the `db2dsdriver.cfg` configuration file is created in a directory that depends on your driver type and operating system. For information about the location of the `db2dsdriver.cfg` file, see the "db2dsdriver configuration file" topic in Chapter 6 of this book.

-? Displays usage information.

Usage notes

When you run the **db2dsdcfgfill** command without the **-migrateCliIniFor.NET** parameter, if a `db2dsdriver.cfg` configuration file already exists in the output directory, the existing `db2dsdriver.cfg` configuration file is overwritten. However, when the **-migrateCliIniFor.NET** option is used with an existing `db2dsdriver.cfg` file, it will merge the information into the existing file instead.

Chapter 8. Validating the IBM Data Server Driver Package installation

Testing client-to-server communications using CLPPlus

Follow the instructions to validate your installation of the IBM Data Server Driver Package (ds driver) for CLPPlus.

To verify that CLPPlus works correctly:

1. At the operating system prompt, start CLPPlus by issuing the **clpplus** command with the *username* and *dsn_alias* parameters. For the *dsn_alias* parameter, specify the DSN alias *sampledsn* that is defined in the *db2dsdriver.cfg* file.

```
clpplus username@sampledsn
```
2. When prompted, enter the password that is associated with the user name that you provided.

A successful connection to the *sampledsn* DSN alias indicates that CLPPlus works correctly. The following sample output shows the two-step verification process and a successful connection:

```
C:\>clpplus db2admin@sampledsn
CLPPlus: Version 1.4
Copyright (c) 2009, 2011, IBM CORPORATION. All rights reserved.
```

```
Enter password: *****
```

```
Database Connection Information :
-----
Hostname = samplehost.domain.com
Database server = DB2/NT SQL09074
SQL authorization ID = db2admin
Local database alias = SAMPLEDSN
Port = 19766
```

Testing client-to-server connections using CLI

Follow the instructions to validate your installation of the IBM Data Server Driver Package (ds driver) by using CLI.

You can issue `db2cli validate -dsn sampledsn` to validate the DSN alias *sampledsn* that is configured in the *db2dsdriver.cfg* file. If the entries are correct, validation is successful.

Sample output for a Linux operating system is as follows:

```
C:\Program Files\IBM\IBM DATA SERVER DRIVER\bin>db2cli validate -dsn
sampledsn
db2cli validate -dsn alias1
IBM DATABASE 2 Interactive CLI Sample Program
(C) COPYRIGHT International Business Machines Corp. 1993,1996
All Rights Reserved
Licensed Materials - Property of IBM
US Government Users Restricted Rights - Use, duplication or
disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
-----
[ CLI Driver Version : 09.07.0000 ]
[ Informational Tokens : "DB2 v9.7.0.5","s111017","IP23292","Fixpack 5" ]
```

```
[ CLI Driver Type      : IBM Data Server Driver For ODBC and CLI ]
```

```
-----  
db2dsdriver.cfg Schema Validation :  
Success: The schema validation operation completed successfully.  
The configuration file /home/hotel75/ashojose/DS/dsdriver/cfg/db2dsdriver.cfg  
is valid
```

```
Note: The validation operation utility could not find the  
configuration file named db2cli.ini.  
The file is searched at /home/hotel75/ashojose/DS/dsdriver/cfg/db2cli.ini
```

```
db2dsdriver.cfg Validation :
```

```
-----  
[ DB2DSDRIVER_CFG_PATH env var : unset ]  
[ db2dsdriver.cfg Path      : /home/hotel75/ashojose/DS/dsdriver/cfg/  
db2dsdriver.cfg ]
```

```
-----  
[ Valid keywords used for DSN : alias1 ]
```

Keyword	Value
DATABASE	name1
HOSTNAME	server1.net1.com
PORT	50001
CURRENTSCHEMA	OWNER1

```
[ Parameters used for WLB ]
```

Parameter	Value
enableWLB	true
maxTransports	50

```
[ Parameters used for ACR ]
```

Parameter	Value
enableACR	true

```
The validation completed.
```

On Windows operating systems, the **db2cli validate** command output includes the DB2 copy name, as shown in the following example:

```
>db2cli validate -dsn sampledsn  
IBM DATABASE 2 Interactive CLI Sample Program  
(C) COPYRIGHT International Business Machines Corp. 1993,1996  
All Rights Reserved  
Licensed Materials - Property of IBM  
US Government Users Restricted Rights - Use, duplication or  
disclosure restricted by GSA ADP Schedule Contract with IBM Corp.  
-----  
[ CLI Driver Version   : 09.07.0000 ]  
[ Informational Tokens : "DB2 v9.7.500.702","s111017","IP23286","Fixpack 5"]  
[ CLI Driver Type     : IBM Data Server Driver Package ]  
[ CLI Copy Name       : IBMDBCL1 ]  
-----
```

```
db2dsdriver.cfg Schema Validation :  
Success: The schema validation operation completed successfully.  
The configuration file C:\Documents and Settings\All Users\Application Data\IBM  
\DB2\IBMDBCL1\cfg\db2dsdriver.cfg is valid
```

```
Note: The validation operation utility could not find the  
configuration file named db2cli.ini.  
The file is searched at C:\Documents and Settings\All Users\Application Data\IBM
```

\DB2\IBMDBCL1\cfg\db2cli.ini

db2dsdriver.cfg Validation :

```
-----  
[ DB2DSDRIVER_CFG_PATH env var : unset ]  
[ db2dsdriver.cfg_Path           : C:\Documents and Settings\All Users\  
Application Data\IBM\DB2\IBMDBCL1\cfg\db2dsdriver.cfg ]  
-----  
[ Valid keywords used for DSN : alias1 ]  
Keyword                           Value  
-----  
DATABASE                           name1  
HOSTNAME                           server1.net1.com  
PORT                               50001  
CURRENTSCHEMA                       OWNER1  
  
[ Parameters used for WLB ]  
Parameter                           Value  
-----  
enableWLB                           true  
maxTransports                       50  
  
[ Parameters used for ACR ]  
Parameter                           Value  
-----  
enableACR                           true  
-----
```

The validation completed.

If you are using the DB2 Connect product but are not using the server-based license key or a DB2 Connect server, you might get this message after attempting a connection:

```
[IBM][CLI Driver] SQL1598N An attempt to connect to the database server failed  
because of a licensing problem.  SQLSTATE=42968
```

To resolve this error message, perform the following steps:

- If you are using the DB2 Connect Unlimited Edition for System z[®] product, use a server-based license key. This step prevents the need for client-based license keys. For details, see the topic about activating the license key for the DB2 Connect Unlimited Edition for System z product in the DB2 Connect User's Guide.
- If the preceding step does not resolve the error message, place the DB2 Connect license key from the DB2 Connect Edition product that you purchased (for example, db2conpe.lic) into the C:\Program Files\IBM\IBM DATA SERVER DRIVER\license license directory, underneath the installation location for IBM Data Server Driver Package.

After the db2dsdriver.cfg file is populated with the correct database connection information, register the DSN alias with the ODBC driver manager as a data source. On Windows operating systems, you can make the data source available to all users of the system, as a system data source, or only to the current user, as a user data source.

Testing client-to-server connections using ADO.NET

You can verify that DB2 ADO.NET drivers are installed correctly and are fully operational by running the **testconn20.exe** utility. Perform the following steps to validate your installation of the IBM Data Server Driver Package (ds driver) for ADO.NET.

- To verify that DB2 ADO.NET drivers are installed correctly and are fully operational by running the **testconn20.exe** utility:

1. Issue the **-dtc** command option to verify XA transaction support setup.

```
C:\Program Files\IBM\IBM DATA SERVER DRIVER\bin>testconn20 -dtc "database=
sampledsn;uid=username;pwd=password"
adding MSDTC step
```

```
Step 1: Printing version info
.NET Framework version: 2.0.50727.3615
64-bit
DB2 .NET provider version: 9.0.0.2
DB2 .NET file version: 9.7.3.2
Capability bits: ALLDEFINED
Build: 20101113
Factory for invariant name IBM.Data.DB2 verified
Factory for invariant name IBM.Data.Informix verified
IDS.NET from DbFactory is Common IDS.NET
VSAI is not installed properly
Elapsed: 1.2969165
```

```
Step 2: Validating db2dsdriver.cfg against db2dsdriver.xsd schema file
C:\ProgramData\IBM\DB2\IBMDBCL1\cfg\db2dsdriver.cfg against
C:\ProgramData\IBM\DB2\IBMDBCL1\cfg\db2dsdriver.xsd
Elapsed: 0
```

```
Step 3: Connecting using "database=sampledsn;uid=username;pwd=password"
Server type and version: DB2/NT 09.07.0003
Elapsed: 2.8594665
```

```
Step 4: Selecting rows from SYSIBM.SYSTABLES to validate existence of
packages SELECT * FROM SYSIBM.SYSTABLES FETCH FIRST 5 rows only
Elapsed: 0.3281355
```

```
Step 5: Calling GetSchema for tables to validate existence of schema
functions
Elapsed: 0.906279
```

```
Step 6: Creating XA connection
DB2TransactionScope: Connection Closed.
Elapsed: 3.2657295
```

Test passed.

You can ignore the error message VSAI is not installed properly. This error occurs because VSAI is available only in a 32-bit version and is not detected by a 64-bit **testconn20** utility. The 32-bit version of the **testconn20** utility should correctly report VSAI information.

- To test connectivity to a particular server without adding an alias to the db2dsdriver.cfg file, you can specify full connectivity information in the connection string, as shown in the following example:

```
C:\Program Files\IBM\IBM DATA SERVER DRIVER\bin>testconn20 -dtc "database=
sample;server=samplehost.domain.com:19766;uid=username;pwd=password"
```

- To test connectivity for your 32-bit applications that are running in a 64-bit environment, you can use the 32-bit version of the **testconn20** utility, as shown in the following example:

```
C:\Program Files\IBM\IBM DATA SERVER DRIVER\bin>testconn20_32 -dtc "database=
sampledsn;uid=username;pwd=password" adding MSDTC step
```

```
Step 1: Printing version info
.NET Framework version: 2.0.50727.3615
DB2 .NET provider version: 9.0.0.2
```

DB2 .NET file version: 9.7.3.2
Capability bits: ALLDEFINED
Build: 20101113
Factory for invariant name IBM.Data.DB2 verified
Factory for invariant name IBM.Data.Informix verified
IDS.NET from DbFactory is Common IDS.NET
VSAI assembly version: 9.1.0.0
VSAI file version: 9.7.3.1012
Elapsed: 1.0000192

Step 2: Validating db2dsdriver.cfg against db2dsdriver.xsd schema file
C:\ProgramData\IBM\DB2\IBMDBCL1\cfg\db2dsdriver.cfg against
C:\ProgramData\IBM\DB2\IBMDBCL1\cfg\db2dsdriver.xsd
Elapsed: 0

Step 3: Connecting using "database=sampledsn;uid=username;pwd=password"
Server type and version: DB2/NT 09.07.0003
Elapsed: 2.8594665

Step 4: Selecting rows from SYSIBM.SYSTABLES to validate existence of
packages SELECT * FROM SYSIBM.SYSTABLES FETCH FIRST 5 rows only
Elapsed: 0.3281355

Step 5: Calling GetSchema for tables to validate existence of schema
functions
Elapsed: 0.906279

Step 6: Creating XA connection
DB2TransactionScope: Connection Closed.
Elapsed: 3.2657295

Test passed.

Part 4. IBM Data Server Driver Package merge modules

Chapter 9. IBM Data Server Driver Package instance merge modules (Windows)

Two types of merge modules are available: DB2 instance merge modules and IBM Data Server Driver Package instance merge modules. It is recommended that you use IBM Data Server Driver Package instance merge modules.

Using Windows Installer merge modules for the IBM Data Server Driver Package instance, you can easily add IBM Data Server Driver Package functionality to any product that uses the Windows Installer.

When you merge the modules, you are prompted to supply the copy name. You can install multiple copies of IBM Data Server Driver Package products on the same machine, so each copy is known by its unique name. You use this name when installing on each target machine. Choose a name that is unlikely to already be used for another IBM data server driver or DB2 copy. Suitable names include the name of your application, for example, myapp_dsdrivercopy_1. If the name is not unique, the installation fails.

For more information about merge module technology, see the documentation that is included with your installation authoring product or at <http://msdn.microsoft.com>.

The IBM Data Server Driver Package Merge Module.msm merge module provides support for applications that use ODBC, CLI, .NET, OLE DB, PHP, Ruby, JDBC, or SQLJ to access data. It also enables your application to use the IBM Data Server Provider for .NET (DB2 .NET Data Provider and IDS .NET Data Provider) software. The IBM Data Server Provider .NET software is an extension of the ADO.NET interface that enables your .NET applications to quickly and securely access data from DB2 or Informix® databases.

You create the IBM Data Server Driver Package by using the merge module. The process of registering the IBM Data Server Provider for .NET software is based on the version of the .NET framework that is installed on your system. For example, you must install Microsoft .NET framework 2.0 before the installation.

The following merge modules contain language-specific messages that are used by the IBM Data Server Driver Package. Depending on the languages of your product, include and install the components in the appropriate merge module.

- IBM DSDRIVER Messages - Arabic.msm
- IBM DSDRIVER Messages - Bulgarian.msm
- IBM DSDRIVER Messages - Chinese(Simplified).msm
- IBM DSDRIVER Messages - Chinese(Traditional).msm
- IBM DSDRIVER Messages - Croatian.msm
- IBM DSDRIVER Messages - Czech.msm
- IBM DSDRIVER Messages - Danish.msm
- IBM DSDRIVER Messages - Dutch.msm
- IBM DSDRIVER Messages - English.msm
- IBM DSDRIVER Messages - Finnish.msm
- IBM DSDRIVER Messages - French.msm
- IBM DSDRIVER Messages - German.msm
- IBM DSDRIVER Messages - Greek.msm

IBM DSDRIVER Messages - Hebrew.msm
IBM DSDRIVER Messages - Hungarian.msm
IBM DSDRIVER Messages - Italian.msm
IBM DSDRIVER Messages - Japanese.msm
IBM DSDRIVER Messages - Korean.msm
IBM DSDRIVER Messages - Norwegian.msm
IBM DSDRIVER Messages - Polish.msm
IBM DSDRIVER Messages - Portuguese(Brazilian).msm
IBM DSDRIVER Messages - Portuguese(Standard).msm
IBM DSDRIVER Messages - Romanian.msm
IBM DSDRIVER Messages - Russian.msm
IBM DSDRIVER Messages - Slovak.msm
IBM DSDRIVER Messages - Slovenian.msm
IBM DSDRIVER Messages - Spanish.msm
IBM DSDRIVER Messages - Swedish.msm

Part 5. Uninstalling

Chapter 10. Uninstalling the IBM Data Server Driver Package (Windows)

To uninstall the IBM Data Server Driver Package on Windows operating systems, perform the following step.

Procedure

To uninstall the IBM Data Server Driver Package software on a Windows operating system, use the Add/Remove Programs window, accessible through the Windows Control Panel. For more information about removing software products from your Windows operating system, refer to your operating system help.

Chapter 11. Uninstalling the IBM Data Server Driver Package (Linux and UNIX)

To uninstall the IBM Data Server Driver Package on Linux and UNIX operating systems, perform the following step.

Procedure

To uninstall the IBM Data Server Driver Package on a Linux or UNIX operating system, remove the directory that contains the software by issuing `rm -rf`.

Part 6. Appendixes

Chapter 12. IBM Data Server Client overview

The IBM Data Server Client includes all the functionality of the IBM Data Server Runtime Client, plus functionality for database administration, application development, and client/server configuration.

The IBM Data Server Runtime Client provides a way to run applications on remote databases. GUI tools are not included with the IBM Data Server Runtime Client.

The IBM Data Server Client includes the following capabilities:

- On Windows operating systems, the ability to prune the IBM Data Server Client installation image to reduce its size.
- The following tools to set up and administer all replication programs for Q replication and SQL replication: the Replication Center, the ASNCLP command-line program, and the Replication Alert Monitor tool. The Replication Center is available only on Linux and Windows operating systems.
- First Steps documentation for new users.
- Visual Studio tools.
- Application header files.
- Precompilers for various programming languages.
- Bind support.
- Samples and tutorials.

Chapter 13. Installing IBM data server clients (Windows)

Instructions to install the IBM Data Server Client, and the IBM Data Server Runtime Client are discussed in this topic. This procedure covers a simple, but common, case where no DB2 database product is already installed.

Before you begin

- If the machine has an earlier version of a client installed, review the topics that cover upgrading.
- Determine which client best suits your needs.
- Locate a DVD that contains an installation image or another installation image. To download an image,
 1. Go to the IBM Support Fix Central website (www.ibm.com/support/fixcentral/).
 2. From the **Product Group** list, select **Information Management**.
 3. From the **Product** list, select **IBM Data Server Client Packages**.
 4. From the **Installation Version** list, select a particular version or all versions.
 5. From the **Platform** list, select a particular platform or all platforms, and click **Continue**.

Click **Continue** again on the next screen and you are presented with a list of all client and driver packages that are available for Windows. Ensure that you have the appropriate 32-bit or 64-bit version, depending on your machine.

- Ensure that you have a Windows user account that is part of the Administrators group.

Note: If you are planning to use a non-Administrator user account to install the software, first install the VS2005 runtime library. The VS2005 runtime library is available from the Microsoft runtime library download website. Choose the `vcredist_x86.exe` library for 32-bit systems or the `vcredist_x64.exe` library for 64-bit systems.

- Ensure that your system meets all memory, disk space, and installation requirements. The installation program checks the disk space and basic system requirements and notifies you if there is a problem.

About this task

If the machine already has a DB2 database server product installed, it is not necessary to install an IBM data server client because the DB2 database server provides all the capabilities of an IBM data server client.

Restrictions

- You cannot install another DB2 database product in the same path as one of the following products:
 - The IBM Data Server Runtime Client
 - The IBM Data Server Driver Package
 - The DB2 Information Center
- The DB2 Setup wizard fields do not accept non-English characters.

The following procedure covers the simple case. Information for other cases is covered elsewhere in this topic.

Procedure

To install any IBM data server client on a Windows operating system:

1. Log on to the system with the user account that you want to use to perform the installation.
2. Optional: Shut down any other programs.
3. Insert the DVD into the drive. The autorun feature starts the DB2 Setup wizard, which determines the system language and starts the setup program for that language.

For the IBM Data Server Client, you can run the DB2 Setup wizard in a language other than the default system language by manually invoking the DB2 Setup wizard by using the **setup** command and specifying a language code. For example, the **setup -i fr** command runs the DB2 Setup wizard in French. For the IBM Data Server Runtime Client or IBM Data Server Driver Package, there are separate installation images for each language.

4. Install your chosen IBM data server client type:
 - To install the IBM Data Server Client:
 - a. Launch the DB2 Setup wizard.
 - b. From the DB2 Launchpad, select **Install a Product**.
 - c. Follow the prompts in the DB2 Setup wizard.
 - To install the IBM Data Server Runtime Client, see the related links for **setup** command parameters. The IBM Data Server Runtime Client does not have a launchpad.

To install a second copy of the IBM Data Server Runtime Client, issue the following command:

```
setup /v" TRANSFORMS=:InstanceIdn.mst MSINewINSTANCE=1"
```

where *n* is 1.

To install each subsequent copy of the IBM Data Server Runtime Client, up to a maximum of 16 copies, modify the command by incrementing *InstanceId*n**, for example:

```
setup /v" TRANSFORMS=:InstanceId2.mst MSINewINSTANCE=1"
```

Important: It is strongly recommended that only advanced users install multiple copies.

- To install the IBM Data Server Driver Package, use one of the following methods:
 - Run the **setup** command from the product DVD.
 - Install the driver from a fix pack image by downloading the driver from <http://www.ibm.com/support/docview.wss?rs=71&uid=swg27007053>. For information about the parameters of the **setup** command, see the related links.

To install a second copy of the IBM Data Server Driver Package, use one of the following methods:

- Perform a new copy installation with a generated default copy name by issuing the following command:

```
setup /o
```
- Perform a maintenance or upgrade installation on an existing copy.

- Perform a new copy installation by using a specified copy name by issuing the following command:

```
setup /n copyname
```

After installing the IBM Data Server Driver Package, you can optionally create and populate the `db2dsdriver.cfg` configuration file with database directory information.

5. If you are installing the IBM Data Server Client on a machine that already has a DB2 Universal Database™ Universal Database (UDB) Version 8 copy installed, you are presented with the option to install a new copy or to upgrade the DB2 UDB Version 8 copy. Installing a new copy preserves the DB2 UDB Version 8 copy and installs an additional DB2 Version 9 copy. Upgrading the copy copies the DB2 UDB Version 8 client instance settings to the DB2 Version 9 copy and then removes the DB2 UDB Version 8 copy.

Restriction: If a machine already has a DB2 UDB Version 8 copy installed, you cannot set the Version 9 copy to be the default.

If you are installing the IBM Data Server Runtime Client, the installation program always installs a new copy. To upgrade a DB2 UDB Version 8 client instance as a subsequent step, see the topics on migration.

Results

The product is now installed at the location that you specified during the installation.

As part of the IBM Data Server Client installation procedure, an instance of the DB2 database manager is created. The instance is called DB2 if there is no other instance called DB2. If a copy of a DB2 UDB Version 8 or DB2 Version 9.1 instance is already installed, the default instance is DB2_01.

The default installation path of the first copy of the IBM Data Server Client and IBM Data Server Runtime Client on a particular machine is Program Files\IBM\sql1ib. For additional copies on a particular machine, the default directory name is Program Files\IBM\sql1ib_*nn*, where *nn* is the number of copies installed on that machine minus one. For example, if you install a second copy on the same machine, the default directory name is Program Files\IBM\sql1ib_01.

The default installation path of the first copy of the IBM Data Server Driver Package on a particular machine is Program Files\IBM\IBM DATA SERVER DRIVER. For additional copies on a particular machine, the default directory name is Program Files\IBM\IBM DATA SERVER DRIVER_*nn*, where *nn* is a generated number that makes the directory name unique. For example, if you install a second copy on the same machine, the default directory name is Program Files\IBM\IBM DATA SERVER DRIVER_02.

You can install a maximum of 16 copies of the IBM Data Server Driver Package. You must install each copy in a different directory.

The default copy name of the IBM Data Server Client or IBM Data Server Runtime Client is DB2COPY1. The default copy name of the IBM Data Server Driver Package is IBMDBCL1.

This installation does not include product documentation.

What to do next

After installing your IBM data server client, configure it to access remote DB2 database servers.

Installing using a user account that is not a member of the Administrators group

Members of the Power Users group can install an IBM data server client. Members of the Users group can also install an IBM data server client if a member of the Administrators group provides write permission for the following scenarios:

- The HKEY_LOCAL_MACHINE\SOFTWARE registry branch
- The system directory (for example, c:\WINNT).
- The default installation path (c:\Program Files) or another installation path

A non-administrator can also install fix packs if a non-administrator performed the original installation. However, a non-administrator cannot install fix packs if the original installation was performed by someone with an Administrator user account.

Chapter 14. Installing IBM data server clients (Linux and UNIX)

To install an IBM data server client on Linux or UNIX operating systems, perform the following instructions. The instructions apply to the IBM Data Server Client and the IBM Data Server Runtime Client.

Before you begin

- If the machine already has an earlier version of a client installed, review the topics that cover upgrading.
- Determine whether the IBM Data Server Client or the IBM Data Server Runtime Client best suits your needs.
- Locate a DVD or other installation image that you need. To download an image,
 1. Go to the IBM Support Fix Central website (www.ibm.com/support/fixcentral/).
 2. From the **Product Group** list, select **Information Management**.
 3. From the **Product** list, select **IBM Data Server Client Packages**.
 4. From the **Installation Version** list, select a particular version or all versions.
 5. From the **Platform** list, select a particular platform or all platforms, and click **Continue**.
- Ensure that your system meets all memory, disk space, and installation requirements. The installation program checks the disk space and basic system requirements and notifies you if there is a problem.
- If you are installing an IBM data server client on a Solaris or HP-UX operating system, you must update your kernel configuration parameters. This step is also recommended for Linux operating systems.

About this task

If the machine already has a DB2 database server product installed, it is not necessary to install a client because the DB2 database server provides all the capabilities of the IBM Data Server Client software.

Procedure

To install any IBM data server client on a Linux or UNIX operating system:

1. Insert and mount the appropriate DVD.
2. In the directory where the DVD is mounted, start the DB2 Setup wizard by entering `./db2setup`.
3. When the DB2 Launchpad opens, choose **Install a Product**.
4. Select the client that you want to install.
5. Follow the prompts in the DB2 Setup wizard. Help is available in the wizard to guide you through the remaining steps.

Results

When installation is complete, the IBM data server client is installed in the following directories by default:

Linux operating systems

/opt/ibm/db2/V10.1

UNIX operating systems

/opt/IBM/db2/V10.1

What to do next

This installation does not include product documentation.

After installing your IBM data server client, configure it to access a remote DB2 server.

National language installations

You can run the DB2 Setup wizard in a language other than the default system language by manually invoking the DB2 Setup wizard and specifying a language code. For example, the `./db2setup -i fr` command runs the DB2 Setup wizard in French. However, the DB2 Setup wizard fields do not accept non-English characters.

Installing on a machine that has an existing DB2 Version 9.5 client

The default directory name for the first copy is V10.1. For additional copies on a particular machine, the default directory name is V10.1_*nn*, where *nn* refers to the number of copies that are installed minus one. For example, the second installation has a default directory name of V10.1_01.

Installing the IBM Data Server Client or IBM Data Server Runtime Client on a system that already has a DB2 Version 9 client preserves that copy and installs an additional DB2 Version 9.5 or higher copy. For information about upgrading client instances to DB2 Version 9.5 or higher, see the upgrading topics.

Chapter 15. Uninstalling an IBM data server client

To uninstall an IBM data server client, perform the following steps.

Procedure

- To uninstall an IBM data server client on a Linux or UNIX operating system, issue `db2_deinstall -a` from the `DB2DIR/install` directory, where `DB2DIR` is the location that you specified when you installed the data server client.
- To uninstall an IBM data server client on a Windows operating system, use one of the following options:
 - For any client, use the Add/Remove Programs window, accessible through the Windows Control Panel. For more information about removing software products from your Windows operating system, refer to your operating system help.
 - For the IBM Data Server Client, run the **db2unins** command. For more information, see the **db2unins** command topic in the Command Reference documentation.

Part 7. Appendixes

Appendix A. DB2 database product and packaging information

DB2 database products are available in several different editions. There are also optional DB2 features. Some DB2 database products and features are only available on specific operating systems.

The following tables list the DB2 database products and features that are available on each operating system.

Table 1. Availability of DB2 database products and features on UNIX operating systems

DB2 database products and features	AIX	HP-UX on IA-64 hardware	Solaris on UltraSPARC hardware	Solaris on x86-64 ("x64") hardware
DB2 Advanced Enterprise Server Edition	Yes	Yes	Yes	Yes
DB2 Enterprise Server Edition	Yes	Yes	Yes	Yes
DB2 Workgroup Server Edition	Yes	Yes	Yes	Yes
DB2 Personal Edition	No	No	No	No
DB2 Express® Edition	No	No	No	Yes
DB2 Express-C	No	No	No	Yes
Data Server Client and Data Server Runtime Client	Yes	Yes	Yes	Yes
DB2 Advanced Access Control Feature	Yes	Yes	Yes	Yes
IBM DB2 High Availability Feature for Express Edition	No	No	No	Yes
IBM Homogeneous Replication Feature for DB2 Enterprise Server Edition	Yes	Yes	Yes	Yes
IBM DB2 Performance Optimization Feature for Enterprise Server Edition	Yes	Yes	Yes	Yes
DB2 Storage Optimization Feature	Yes	Yes	Yes	Yes

Table 2. Availability of DB2 database products and features on Linux operating systems

DB2 database products and features	Linux on x86-32 hardware	Linux on x64 hardware	Linux on IBM Power Systems™	Linux on System z
DB2 Advanced Enterprise Server Edition	No ¹	Yes	Yes	Yes
DB2 Enterprise Server Edition	No ¹	Yes	Yes	Yes
DB2 Workgroup Server Edition	Yes	Yes	Yes	No
DB2 Personal Edition	Yes	Yes	No	No
DB2 Express Edition	Yes	Yes	Yes	No
DB2 Express-C	Yes	Yes	Yes	No
Data Server Client and Data Server Runtime Client	Yes	Yes	Yes	Yes
DB2 Advanced Access Control Feature	No ¹	Yes	Yes	Yes
DB2 Geodetic Data Management Feature	No ¹	Yes	No	Yes
IBM DB2 High Availability Feature for Express Edition	Yes	Yes	Yes	No
IBM Homogeneous Replication Feature for DB2 Enterprise Server Edition	No ¹	Yes	Yes	Yes

Table 2. Availability of DB2 database products and features on Linux operating systems (continued)

DB2 database products and features	Linux on x86-32 hardware	Linux on x64 hardware	Linux on IBM Power Systems™	Linux on System z
IBM DB2 Performance Optimization Feature for Enterprise Server Edition	No ¹	Yes	Yes	Yes
DB2 Storage Optimization Feature	No ¹	Yes	Yes	Yes
Note:				
1. Only test and development are supported in DB2 Enterprise Server Edition for Linux on x86-32 hardware. However, you can use DB2 Enterprise Server Edition for Linux on x86-32 as a try and buy or by installing the IBM Database Enterprise Developer Edition license certificate onto a trial copy.				

Table 3. Availability of DB2 database products and features on Windows operating systems

DB2 database products and features	Windows XP, Windows Vista, Windows 7 (32-bit editions)	Windows XP, Windows Vista, Windows 7 (64-bit editions) on x86 64-bit ("x64") hardware	Windows Server 2003, Windows Server 2008 (32-bit editions)	Windows Server 2003, Windows Server 2008 (64-bit editions) on x64 hardware
DB2 Advanced Enterprise Server Edition	No ¹	No ¹	Yes	Yes
DB2 Enterprise Server Edition	No ¹	No ¹	Yes	Yes
DB2 Workgroup Server Edition	Yes	Yes	Yes	Yes
DB2 Personal Edition	Yes	Yes	Yes	Yes
DB2 Express Edition	Yes	Yes	Yes	Yes
DB2 Express-C	Yes	Yes	Yes	Yes
Data Server Client and Data Server Runtime Client	Yes	Yes	Yes	Yes
DB2 Advanced Access Control Feature	No ¹	No ¹	Yes	Yes
DB2 Geodetic Data Management Feature	No ¹	No ¹	Yes	Yes
IBM DB2 High Availability Feature for Express Edition	Yes	Yes	Yes	Yes
IBM Homogeneous Replication Feature for DB2 Enterprise Server Edition	No ¹	No ¹	Yes	Yes
IBM DB2 Performance Optimization Feature for Enterprise Server Edition	No ¹	No ¹	Yes	Yes
DB2 Storage Optimization Feature	No ¹	No ¹	Yes	Yes
Note:				
1. Only test and development are supported in DB2 Advanced Enterprise Server Edition, DB2 Enterprise Server Edition, and IBM Database Enterprise Developer Edition on Windows Vista Ultimate, Enterprise and Business editions and Windows XP Professional edition.				

For information about DB2 database product and packaging information, see <http://www-1.ibm.com/support/docview.wss?rs=73&uid=swg21219983>.

For information about DB2 Express-C, see: www.ibm.com/software/data/db2/express

Appendix B. Overview of the DB2 technical information

DB2 technical information is available in multiple formats that can be accessed in multiple ways.

DB2 technical information is available through the following tools and methods:

- DB2 Information Center
 - Topics (Task, concept and reference topics)
 - Sample programs
 - Tutorials
- DB2 books
 - PDF files (downloadable)
 - PDF files (from the DB2 PDF DVD)
 - printed books
- Command-line help
 - Command help
 - Message help

Note: The DB2 Information Center topics are updated more frequently than either the PDF or the hardcopy books. To get the most current information, install the documentation updates as they become available, or refer to the DB2 Information Center at ibm.com.

You can access additional DB2 technical information such as technotes, white papers, and IBM Redbooks® publications online at ibm.com. Access the DB2 Information Management software library site at <http://www.ibm.com/software/data/sw-library/>.

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Do not use this email address to contact DB2 Customer Support. If you have a DB2 technical issue that the documentation does not resolve, contact your local IBM service center for assistance.

DB2 technical library in hardcopy or PDF format

The following tables describe the DB2 library available from the IBM Publications Center at www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss. English and translated DB2 Version 10.1 manuals in PDF format can be downloaded from www.ibm.com/support/docview.wss?rs=71&uid=swg2700947.

Although the tables identify books available in print, the books might not be available in your country or region.

The form number increases each time a manual is updated. Ensure that you are reading the most recent version of the manuals, as listed below.

Note: The *DB2 Information Center* is updated more frequently than either the PDF or the hard-copy books.

Table 4. DB2 technical information

Name	Form Number	Available in print	Last updated
<i>Administrative API Reference</i>	SC27-3864-00	Yes	April, 2012
<i>Administrative Routines and Views</i>	SC27-3865-00	No	April, 2012
<i>Call Level Interface Guide and Reference Volume 1</i>	SC27-3866-00	Yes	April, 2012
<i>Call Level Interface Guide and Reference Volume 2</i>	SC27-3867-00	Yes	April, 2012
<i>Command Reference</i>	SC27-3868-00	Yes	April, 2012
<i>Database Administration Concepts and Configuration Reference</i>	SC27-3871-00	Yes	April, 2012
<i>Data Movement Utilities Guide and Reference</i>	SC27-3869-00	Yes	April, 2012
<i>Database Monitoring Guide and Reference</i>	SC27-3887-00	Yes	April, 2012
<i>Data Recovery and High Availability Guide and Reference</i>	SC27-3870-00	Yes	April, 2012
<i>Database Security Guide</i>	SC27-3872-00	Yes	April, 2012
<i>DB2 Workload Management Guide and Reference</i>	SC27-3891-00	Yes	April, 2012
<i>Developing ADO.NET and OLE DB Applications</i>	SC27-3873-00	Yes	April, 2012
<i>Developing Embedded SQL Applications</i>	SC27-3874-00	Yes	April, 2012
<i>Developing Java Applications</i>	SC27-3875-00	Yes	April, 2012
<i>Developing Perl, PHP, Python, and Ruby on Rails Applications</i>	SC27-3876-00	No	April, 2012
<i>Developing User-defined Routines (SQL and External)</i>	SC27-3877-00	Yes	April, 2012
<i>Getting Started with Database Application Development</i>	GI13-2046-00	Yes	April, 2012

Table 4. DB2 technical information (continued)

Name	Form Number	Available in print	Last updated
<i>Getting Started with DB2 Installation and Administration on Linux and Windows</i>	GI13-2047-00	Yes	April, 2012
<i>Globalization Guide</i>	SC27-3878-00	Yes	April, 2012
<i>Installing DB2 Servers</i>	GC27-3884-00	Yes	April, 2012
<i>Installing IBM Data Server Clients</i>	GC27-3883-00	No	April, 2012
<i>Message Reference Volume 1</i>	SC27-3879-00	No	April, 2012
<i>Message Reference Volume 2</i>	SC27-3880-00	No	April, 2012
<i>Net Search Extender Administration and User's Guide</i>	SC27-3895-00	No	April, 2012
<i>Partitioning and Clustering Guide</i>	SC27-3882-00	Yes	April, 2012
<i>pureXML Guide</i>	SC27-3892-00	Yes	April, 2012
<i>Spatial Extender User's Guide and Reference</i>	SC27-3894-00	No	April, 2012
<i>SQL Procedural Languages: Application Enablement and Support</i>	SC27-3896-00	Yes	April, 2012
<i>SQL Reference Volume 1</i>	SC27-3885-00	Yes	April, 2012
<i>SQL Reference Volume 2</i>	SC27-3886-00	Yes	April, 2012
<i>Text Search Guide</i>	SC27-3888-00	Yes	April, 2012
<i>Troubleshooting and Tuning Database Performance</i>	SC27-3889-00	Yes	April, 2012
<i>Upgrading to DB2 Version 10.1</i>	SC27-3881-00	Yes	April, 2012
<i>What's New for DB2 Version 10.1</i>	SC27-3890-00	Yes	April, 2012
<i>XQuery Reference</i>	SC27-3893-00	No	April, 2012

Table 5. DB2 Connect-specific technical information

Name	Form Number	Available in print	Last updated
<i>DB2 Connect Installing and Configuring DB2 Connect Personal Edition</i>	SC27-3861-00	Yes	April, 2012
<i>DB2 Connect Installing and Configuring DB2 Connect Servers</i>	SC27-3862-00	Yes	April, 2012
<i>DB2 Connect User's Guide</i>	SC27-3863-00	Yes	April, 2012

Displaying SQL state help from the command line processor

DB2 products return an SQLSTATE value for conditions that can be the result of an SQL statement. SQLSTATE help explains the meanings of SQL states and SQL state class codes.

Procedure

To start SQL state help, open the command line processor and enter:

```
? sqlstate or ? class code
```

where *sqlstate* represents a valid five-digit SQL state and *class code* represents the first two digits of the SQL state.

For example, ? 08003 displays help for the 08003 SQL state, and ? 08 displays help for the 08 class code.

Accessing different versions of the DB2 Information Center

Documentation for other versions of DB2 products is found in separate information centers on ibm.com[®].

About this task

For DB2 Version 10.1 topics, the *DB2 Information Center* URL is <http://publib.boulder.ibm.com/infocenter/db2luw/v10r1>.

For DB2 Version 9.8 topics, the *DB2 Information Center* URL is <http://publib.boulder.ibm.com/infocenter/db2luw/v9r8/>.

For DB2 Version 9.7 topics, the *DB2 Information Center* URL is <http://publib.boulder.ibm.com/infocenter/db2luw/v9r7/>.

For DB2 Version 9.5 topics, the *DB2 Information Center* URL is <http://publib.boulder.ibm.com/infocenter/db2luw/v9r5/>.

For DB2 Version 9.1 topics, the *DB2 Information Center* URL is <http://publib.boulder.ibm.com/infocenter/db2luw/v9/>.

For DB2 Version 8 topics, go to the *DB2 Information Center* URL at: <http://publib.boulder.ibm.com/infocenter/db2luw/v8/>.

Updating the DB2 Information Center installed on your computer or intranet server

A locally installed DB2 Information Center must be updated periodically.

Before you begin

A DB2 Version 10.1 Information Center must already be installed. For details, see the “Installing the DB2 Information Center using the DB2 Setup wizard” topic in *Installing DB2 Servers*. All prerequisites and restrictions that applied to installing the Information Center also apply to updating the Information Center.

About this task

An existing DB2 Information Center can be updated automatically or manually:

- Automatic updates update existing Information Center features and languages. One benefit of automatic updates is that the Information Center is unavailable for a shorter time compared to during a manual update. In addition, automatic updates can be set to run as part of other batch jobs that run periodically.
- Manual updates can be used to update existing Information Center features and languages. Automatic updates reduce the downtime during the update process, however you must use the manual process when you want to add features or languages. For example, a local Information Center was originally installed with both English and French languages, and now you want to also install the German language; a manual update will install German, as well as, update the existing Information Center features and languages. However, a manual update requires you to manually stop, update, and restart the Information Center. The Information Center is unavailable during the entire update process. In the automatic update process the Information Center incurs an outage to restart the Information Center after the update only.

This topic details the process for automatic updates. For manual update instructions, see the “Manually updating the DB2 Information Center installed on your computer or intranet server” topic.

Procedure

To automatically update the DB2 Information Center installed on your computer or intranet server:

1. On Linux operating systems,
 - a. Navigate to the path where the Information Center is installed. By default, the DB2 Information Center is installed in the `/opt/ibm/db2ic/V10.1` directory.
 - b. Navigate from the installation directory to the `doc/bin` directory.
 - c. Run the `update-ic` script:

```
update-ic
```
2. On Windows operating systems,
 - a. Open a command window.
 - b. Navigate to the path where the Information Center is installed. By default, the DB2 Information Center is installed in the `<Program Files>\IBM\DB2 Information Center\Version 10.1` directory, where `<Program Files>` represents the location of the Program Files directory.
 - c. Navigate from the installation directory to the `doc\bin` directory.
 - d. Run the `update-ic.bat` file:

```
update-ic.bat
```

Results

The DB2 Information Center restarts automatically. If updates were available, the Information Center displays the new and updated topics. If Information Center updates were not available, a message is added to the log. The log file is located in `doc\eclipse\configuration` directory. The log file name is a randomly generated number. For example, `1239053440785.log`.

Manually updating the DB2 Information Center installed on your computer or intranet server

If you have installed the DB2 Information Center locally, you can obtain and install documentation updates from IBM.

About this task

Updating your locally installed *DB2 Information Center* manually requires that you:

1. Stop the *DB2 Information Center* on your computer, and restart the Information Center in stand-alone mode. Running the Information Center in stand-alone mode prevents other users on your network from accessing the Information Center, and allows you to apply updates. The Workstation version of the DB2 Information Center always runs in stand-alone mode. .
2. Use the Update feature to see what updates are available. If there are updates that you must install, you can use the Update feature to obtain and install them

Note: If your environment requires installing the *DB2 Information Center* updates on a machine that is not connected to the internet, mirror the update site to a local file system by using a machine that is connected to the internet and has the *DB2 Information Center* installed. If many users on your network will be installing the documentation updates, you can reduce the time required for individuals to perform the updates by also mirroring the update site locally and creating a proxy for the update site.

If update packages are available, use the Update feature to get the packages. However, the Update feature is only available in stand-alone mode.

3. Stop the stand-alone Information Center, and restart the *DB2 Information Center* on your computer.

Note: On Windows 2008, Windows Vista (and higher), the commands listed later in this section must be run as an administrator. To open a command prompt or graphical tool with full administrator privileges, right-click the shortcut and then select **Run as administrator**.

Procedure

To update the *DB2 Information Center* installed on your computer or intranet server:

1. Stop the *DB2 Information Center*.
 - On Windows, click **Start > Control Panel > Administrative Tools > Services**. Then right-click **DB2 Information Center** service and select **Stop**.
 - On Linux, enter the following command:

```
/etc/init.d/db2icdv10 stop
```
2. Start the Information Center in stand-alone mode.
 - On Windows:
 - a. Open a command window.
 - b. Navigate to the path where the Information Center is installed. By default, the *DB2 Information Center* is installed in the *Program_Files\IBM\DB2 Information Center\Version 10.1* directory, where *Program_Files* represents the location of the Program Files directory.
 - c. Navigate from the installation directory to the *doc\bin* directory.
 - d. Run the *help_start.bat* file:

```
help_start.bat
```

- On Linux:
 - a. Navigate to the path where the Information Center is installed. By default, the *DB2 Information Center* is installed in the `/opt/ibm/db2ic/V10.1` directory.
 - b. Navigate from the installation directory to the `doc/bin` directory.
 - c. Run the `help_start` script:

```
help_start
```

The systems default Web browser opens to display the stand-alone Information Center.

3. Click the **Update** button (🔧). (JavaScript must be enabled in your browser.) On the right panel of the Information Center, click **Find Updates**. A list of updates for existing documentation displays.
4. To initiate the installation process, check that the selections you want to install, then click **Install Updates**.
5. After the installation process has completed, click **Finish**.
6. Stop the stand-alone Information Center:
 - On Windows, navigate to the `doc\bin` directory within the installation directory, and run the `help_end.bat` file:

```
help_end.bat
```

Note: The `help_end` batch file contains the commands required to safely stop the processes that were started with the `help_start` batch file. Do not use `Ctrl-C` or any other method to stop `help_start.bat`.
 - On Linux, navigate to the `doc/bin` directory within the installation directory, and run the `help_end` script:

```
help_end
```

Note: The `help_end` script contains the commands required to safely stop the processes that were started with the `help_start` script. Do not use any other method to stop the `help_start` script.
7. Restart the *DB2 Information Center*.
 - On Windows, click **Start > Control Panel > Administrative Tools > Services**. Then right-click **DB2 Information Center** service and select **Start**.
 - On Linux, enter the following command:

```
/etc/init.d/db2icdv10 start
```

Results

The updated *DB2 Information Center* displays the new and updated topics.

DB2 tutorials

The DB2 tutorials help you learn about various aspects of DB2 database products. Lessons provide step-by-step instructions.

Before you begin

You can view the XHTML version of the tutorial from the Information Center at <http://publib.boulder.ibm.com/infocenter/db2luw/v10r1/>.

Some lessons use sample data or code. See the tutorial for a description of any prerequisites for its specific tasks.

DB2 tutorials

To view the tutorial, click the title.

“pureXML®” in *pureXML Guide*

Set up a DB2 database to store XML data and to perform basic operations with the native XML data store.

DB2 troubleshooting information

A wide variety of troubleshooting and problem determination information is available to assist you in using DB2 database products.

DB2 documentation

Troubleshooting information can be found in the *Troubleshooting and Tuning Database Performance* or the Database fundamentals section of the *DB2 Information Center*, which contains:

- Information about how to isolate and identify problems with DB2 diagnostic tools and utilities.
- Solutions to some of the most common problem.
- Advice to help solve other problems you might encounter with your DB2 database products.

IBM Support Portal

See the IBM Support Portal if you are experiencing problems and want help finding possible causes and solutions. The Technical Support site has links to the latest DB2 publications, TechNotes, Authorized Program Analysis Reports (APARs or bug fixes), fix packs, and other resources. You can search through this knowledge base to find possible solutions to your problems.

Access the IBM Support Portal at http://www.ibm.com/support/entry/portal/Overview/Software/Information_Management/DB2_for_Linux,_UNIX_and_Windows

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Spine information:

IBM DB2 10.1 for Linux, UNIX, and Windows

Installing IBM Data Server Clients

