IBM® DB2 Connect™

Quick Beginnings for DB2 Connect™ Personal Edition

Version 8.2

GC09-4834-01

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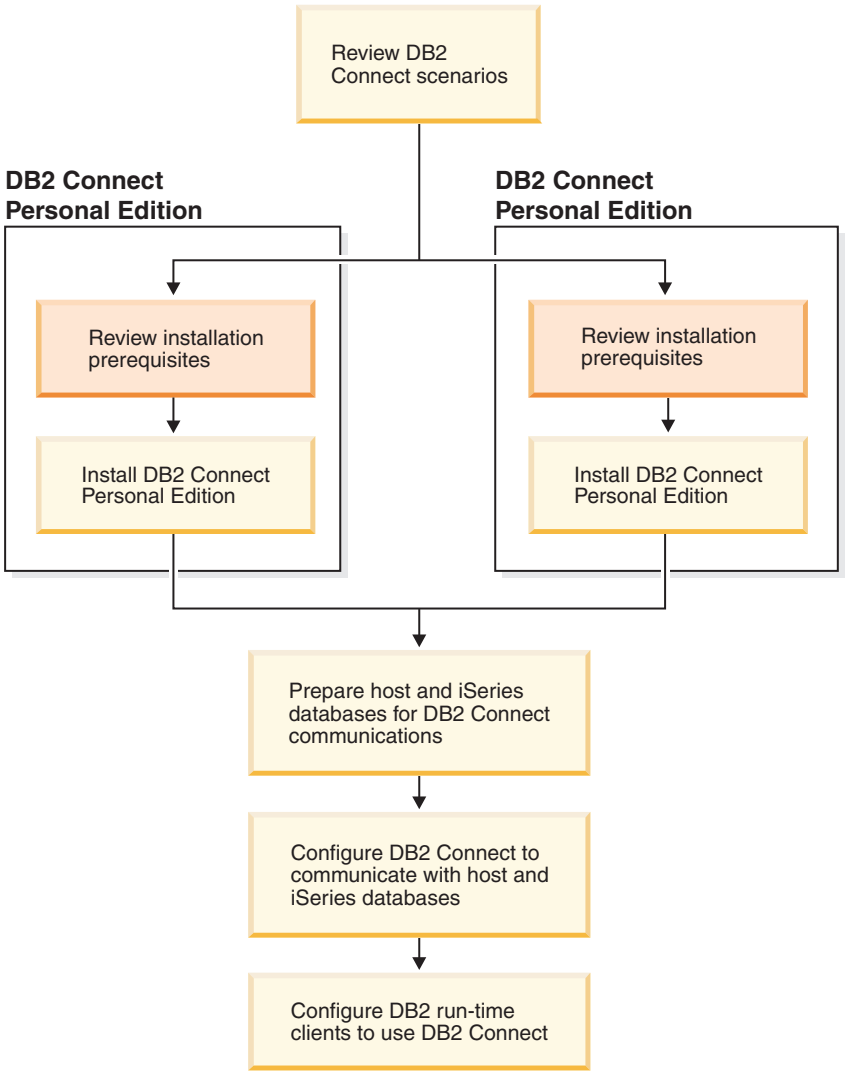
Contents

Part 1. About DB2 Connect



Chapter 1. An Introduction to DB2 Connect

DB2 Connect provides connectivity to mainframe and midrange databases from Windows, and UNIX platforms. You can connect to DB2 databases on OS/390 and z/OS, iSeries, VSE, and VM. You can also connect to non-IBM databases that comply with the Distributed Relational Database Architecture (DRDA).

DB2 Connect product offerings

DB2 Connect has several connection solutions.

DB2 Connect Enterprise Edition

DB2 Connect Enterprise Edition is a connectivity server that concentrates and manages connections from multiple desktop clients and web applications to DB2 servers running on host or iSeries systems. IBM's DB2 Universal Database (UDB) for iSeries, DB2 for OS/390 and z/OS, and DB2 for VSE & VM databases continue to be the systems of choice for managing most critical data for the world's largest organizations. While these host and iSeries databases manage the data, there is a great demand to integrate this data with applications running on Windows and UNIX workstations.

DB2 Connect Enterprise Edition enables local and remote client applications to create, update, control, and manage DB2 databases and host systems using Structured Query Language (SQL), DB2 APIs (Application Programming Interfaces), ODBC (Open Database Connectivity), JDBC (Java Database Connectivity), SQLJ (Embedded SQLJ for Java), or DB2 CLI (Call Level Interface). In addition, DB2 Connect supports Microsoft Windows data interfaces such as ActiveX Data Objects (ADO), Remote Data Objects (RDO), and Object Linking and Embedding (OLE) DB.

DB2 Connect Enterprise Edition is currently available for AIX, HP-UX, Linux, Solaris Operating Environment, and Windows operating systems. These servers provide support for applications running on UNIX (AIX, HP-UX, Linux, and Solaris Operating Environment), and Windows workstations.

DB2 Connect Enterprise Edition is often installed on an intermediate server to connect DB2 clients to a host or iSeries database. It can also be used on machines where multiple local users want to access the host or iSeries servers directly.

For example, DB2 Connect Enterprise Edition may be installed on a large machine with many local users. It may also be installed on a web server, a machine that is running a Transaction Processor (TP) monitor, or other 3-tier application servers with multiple local SQL application processes and threads. In these cases, you can install DB2 Connect Enterprise Edition on the same machine for simplicity, or on a separate machine to off-load CPU cycles.

DB2 Connect Enterprise Edition is most appropriate for environments where:

- Servers do not support native TCP/IP connectivity and direct connectivity from desktop workstations via SNA is not desirable.
- Web servers run web-based applications.

- Web servers run web-based application using data-aware Java applications.
- A middle-tier application server is used.
- TP monitors, such as CICS, Encina, Microsoft Transaction Server (MTS), Tuxedo, Component Broker, and MQSeries, are used.

DB2 Connect Personal Edition

DB2 Connect Personal Edition provides access from a single workstation to DB2 databases residing on servers such as OS/390, z/OS, OS/400, VM and VSE, as well as to DB2 Universal Database servers on UNIX and Windows operating systems. DB2 Connect Personal Edition provides the same rich set of APIs as DB2 Connect Enterprise Edition.

This product is currently available for Linux and Windows operating systems.

DB2 Connect Personal Edition is used to connect a single Windows operating system, or Linux workstation, to a host or iSeries database. DB2 Connect Personal Edition is best suited for environments where native TCP/IP support is provided by the DB2 servers, and the application being deployed is a traditional 2-tier client-server application.

For example, DB2 Connect Personal Edition is a good choice for enabling traditional 2-tier VisualBasic and Microsoft Access applications. Applications that require a mid-tier application server need to use DB2 Connect Enterprise Edition.

DB2 Connect Unlimited Edition

DB2 Connect Unlimited Edition is a unique package offering that allows complete flexibility of DB2 Connect deployment and simplifies product selection and licensing. This product contains both DB2 Connect Personal Edition and DB2 Connect Enterprise Edition with license terms and conditions that allow the unlimited deployment of any DB2 Connect product. License charges are based on the size of the S/390 or zSeries server that DB2 Connect users will be working with.

This package offering is only available for OS/390 and z/OS systems, and licensing is only valid for DB2 for OS/390 and z/OS data sources.

DB2 Connect Application Server Edition

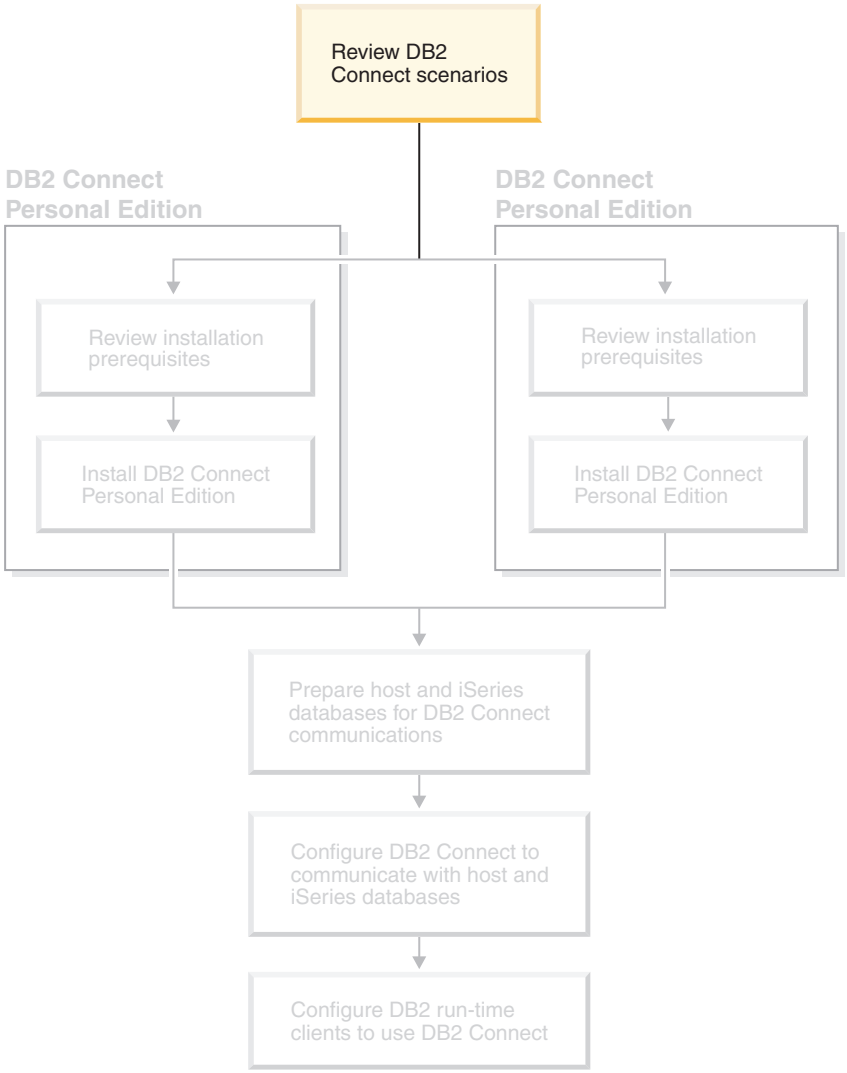
DB2 Connect Application Server Edition is identical to the DB2 Connect Enterprise Server in its technology. It is designed for large scale demanding environments. However, its licensing terms and conditions are meant to address specific needs of multi-tier client-server applications as well as applications that utilize web technologies.

Related tasks:

- "Installing DB2 Connect Personal Edition (Windows)" on page 18
- "Installing DB2 Connect Personal Edition (Linux)" on page 24
- "Installing DB2 Connect Enterprise Edition (Windows)" in the *Quick Beginnings for DB2 Connect Enterprise Edition*
- "Installing DB2 Connect Enterprise Edition (Solaris Operating Environment)" in the *Quick Beginnings for DB2 Connect Enterprise Edition*
- "Installing DB2 Connect Enterprise Edition (Linux)" in the *Quick Beginnings for DB2 Connect Enterprise Edition*

- "Installing DB2 Connect Enterprise Edition (HP-UX)" in the *Quick Beginnings for DB2 Connect Enterprise Edition*
- "Installing DB2 Connect Enterprise Edition (AIX)" in the *Quick Beginnings for DB2 Connect Enterprise Edition*

DB2 Connect scenarios



Accessing host or iSeries DB2 data using DB2 Connect Personal Edition

A direct connection without intermediate servers is a very convenient and desirable configuration. This is especially true for situations where the host or iSeries™ database server supports TCP/IP connectivity. For example, DB2® UDB for OS/390® Version 6.1 or later, or DB2 UDB for iSeries Version 5 Release 1 or later, or DB2 UDB for VM Version 6.1. In such a configuration, each DB2 Connect™ workstation establishes a direct TCP/IP connection to DB2 for OS/390 or, for platforms with integrated SNA Support, connects via APPC to DB2 on other host or iSeries databases.

TCP/IP connectivity requires that the host or iSeries database support TCP/IP. DB2 UDB for OS/390 Version 6.1 or later, DB2 UDB for iSeries Version 5 Release 1 or later, and DB2 Server for VSE & VM Version 7 or later support native TCP/IP connections. An alternative to native TCP/IP is MPTN connectivity. MPTN connections require that IBM® AnyNet® products be installed on the target database system, but do not require the host or iSeries database to provide native TCP/IP support.

To connect to an IBM mainframe database you require a licensed DB2 Connect product or a licensed product that contains a DB2 Connect component, like DB2 Universal Database™ Enterprise Server Edition. You cannot connect to an IBM mainframe database using a DB2 Run-Time client.

Figure 1 shows a workstation, with DB2 Connect Personal Edition installed, directly connected to a host or iSeries database server.

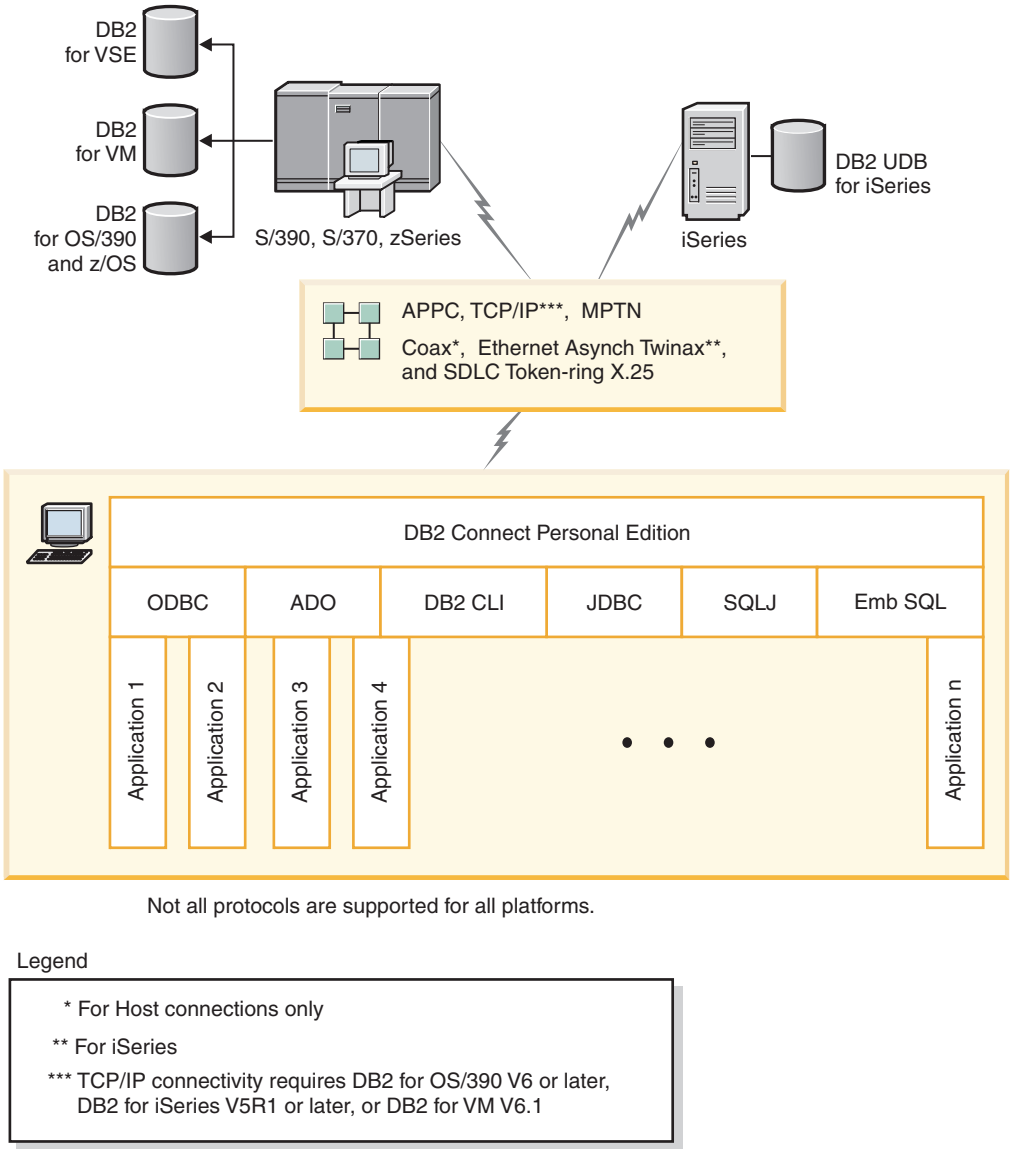


Figure 1. Direct connection between DB2 Connect and a host or iSeries database server

Related concepts:

- "Direct access to host databases" in the *DB2 Connect User's Guide*

Managing connections to databases using the Configuration Assistant

The Configuration Assistant (CA) helps you manage your database connections to remote servers. This is the preferred method to set up any client to server communications.

You can also use the command line processor to set up DB2® clients on any platform.

With the CA, you can:

- Catalog databases so that they can be used by applications. Three methods are available:
  - Use a profile provided by a database administrator to automatically define your connections. Client access is automatically set up for that database.
  - Search the network for available databases and select one. Client access is automatically set up for those databases defined in the profile. DB2 Connect™ Personal Edition cannot search for host or iSeries™ databases except through a DB2 Connect Enterprise Edition server that has host or iSeries databases defined.
  - Manually configure a connection to a database by entering the required connection parameters.
- Remove cataloged databases, or change the properties of a cataloged database.
- Export and import client profiles that contain database and configuration information for a client.
- Test connections to local or remote databases identified on your system.
- Bind applications to a database by selecting utilities or bind files from a list.
- Add, change, remove CLI/ODBC data sources, and configure CLI/ODBC configuration settings.
- Tune the client configuration parameters on your system. Parameters are logically grouped and suggested settings are provided on the interface as parameters are selected.
- Update the database server password.

Related tasks:

- "Configuring client-to-server connections using the Configuration Assistant (CA)" in the *Quick Beginnings for DB2 Servers*
- "Binding database utilities on DB2 Connect" in the *Quick Beginnings for DB2 Connect Enterprise Edition*
- "Configuring a connection to host or iSeries database servers using the CA" on page 47

Developing applications using the DB2 Application Development Client

The DB2 Application Development Client is a collection of tools that is designed to meet the needs of database application developers. It includes libraries, header

files, documented APIs, and sample programs to build character-based, multimedia, or object-oriented applications.

A platform-specific version of the DB2 Application Development Client is available on each server CD-ROM. In addition, the Developer Edition package contains the Application Development Clients for multiple supported operating systems. The Personal Developer's Edition package contains the Application Development CD-ROMs for Windows and Linux. The Universal Developer's Edition package contains the Application Development CD-ROMs for all supported operating systems.

Through a DB2 client, these applications can access all servers and, by using the DB2 Connect product (or the DB2 Connect functionality supplied with DB2 Enterprise Server Edition), they can also access DB2 UDB for iSeries, DB2 for OS/390 and z/OS, and DB2 for VSE & VM database servers.

The DB2 Application Development Client allows you to develop applications that use the following interfaces:

- Embedded SQL
- Call Level Interface (CLI) development environment (which is compatible with ODBC from Microsoft)
- Java Database Connectivity (JDBC)
- Embedded SQL for Java (SQLj)
- DB2 Application Programming Interfaces (APIs) that use administrative functions to manage a DB2 database.

Related concepts:

- "DB2 Developer's Edition Products" in the *Application Development Guide: Building and Running Applications*

Related reference:

- "DB2 Application Development Client" in the *Application Development Guide: Building and Running Applications*

Typical steps required to install and configure DB2 Connect Personal Edition

Setting up DB2® Connect is a multi-step process. The topic will discuss the typical steps required to install and configure DB2 Connect™ Personal Edition.

1. Determine how you want to use DB2 Connect in your network.
2. Verify that you have the correct hardware and software prerequisites on both your workstation and the host database server.
3. Verify that your host or iSeries™ database server is configured to accept connections from DB2 Connect servers.
4. Install your DB2 Connect software. You will use this workstation to configure and verify your host and iSeries connections.
5. After installation, establish the connection between DB2 Connect and your host or iSeries database system.

   DB2 Connect can locate and configure all TCP/IP and most SNA connections for you. You can use the Configuration Assistant (CA) to find the host database.

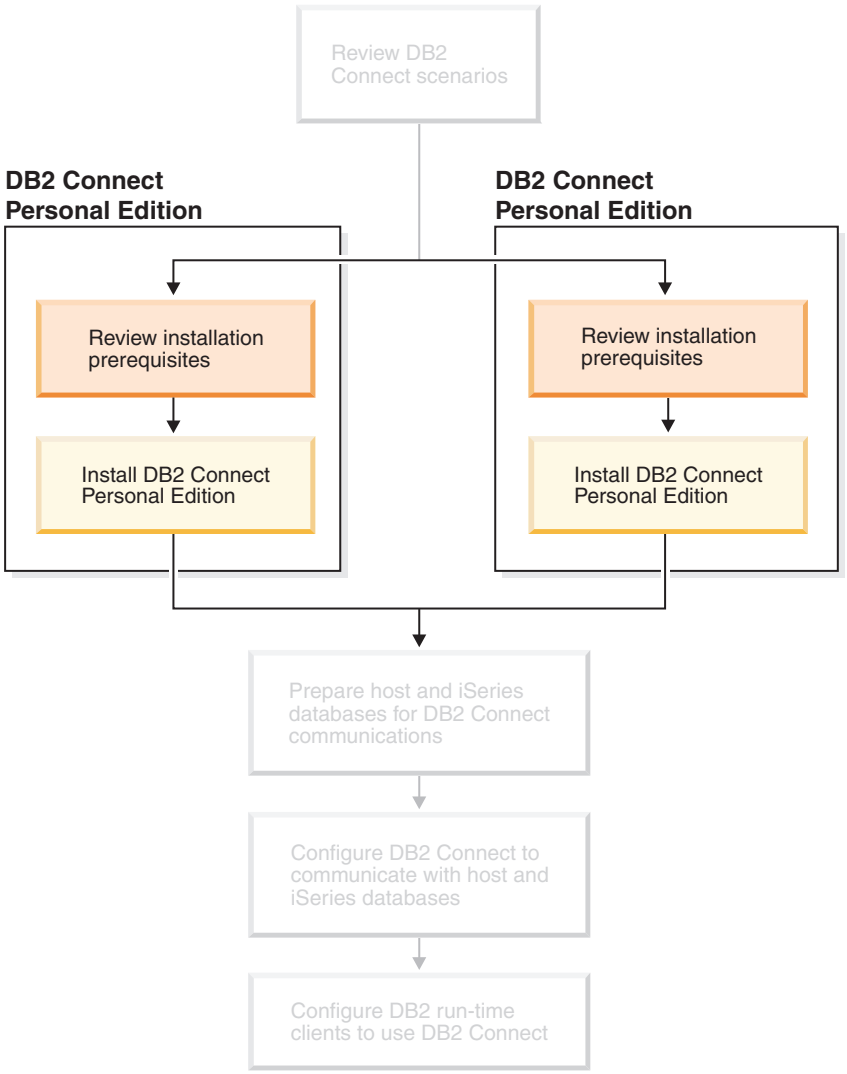
Note: You should consider switching to TCP/IP as SNA may no longer be supported in future release of DB2 Connect. SNA requires significant configuration knowledge and the configuration process itself can prove to be error prone. TCP/IP is simple to configure, has lower maintenance costs, and provides superior performance.

6. Bind the programs and utilities provided with DB2 Connect to your host or iSeries database.
7. Test the host or iSeries connection.
8. You are now ready to use DB2 Connect with all your applications. Workstations that will be used for application development should have the DB2 Application Development Client installed.
9. If you want to use this workstation to administer DB2 for OS/390® and z/OS™, or DB2 Universal Database™ for UNIX®, Windows® servers, install the DB2 Administration Client.

Related tasks:

- "Binding database utilities on DB2 Connect" in the *Quick Beginnings for DB2 Connect Enterprise Edition*
- "Configuring a connection to host or iSeries database servers using the CA" on page 47

Part 2. Planning and installation



Chapter 2. Installing DB2 Connect PE on Windows

Installation requirements

Installation requirements for DB2 Connect Personal Edition (Windows)

To install DB2 Connect Personal Edition, the following operating system, software, and communications requirements must be met:

Operating system requirements

One of:

- Windows ME
- Windows NT Version 4 with Service Pack 6a or later
- Windows 2000
- Windows XP (32-bit and 64-bit)
- Windows Server 2003 (32-bit and 64-bit)

Software requirements

- MDAC 2.7 is required. The DB2 Setup wizard will install MDAC 2.7 if it is not already installed.
- You require the appropriate SDK to use Java-based tools like the DB2 Control Center, and to create and run Java applications, including stored procedures and user-defined functions. If the SDK is required by some component being installed, and the SDK is not already installed, the SDK will be installed if you use either the DB2 Setup wizard or a response file to install the product. The SDK is not installed with the DB2 Run-Time client. The SDK requirements are:
  - Windows 32–bit: SDK 1.3.1 or SDK 1.4.1 Service Release 1
  - Windows 64–bit: SDK 1.4.1 Service Release 1

  For the most up-to-date SDK information, see http://www.ibm.com/software/data/db2/udb/sysreqs.html.

Communication requirements

- You can use APPC, TCP/IP, and MPTN (APPC over TCP/IP)
- For SNA (APPC) connectivity, one of the following communication products is required:
  - Windows ME
    - IBM Personal Communications Version 5.7 or later.
  - Windows NT:
    - IBM Communications Server Version 6.1.1 or later.
    - IBM Personal Communications Version 5.7 or later.
  - Windows 2000:
    - IBM Communications Server Version 6.1.1 or later.
    - IBM Personal Communications Version 5.7 or later.
  - Windows XP:
    - IBM Personal Communications Version 5.7 or later

– Microsoft SNA Server Version 3 Service Pack 3 or later.

Notes:

1. You should consider switching to TCP/IP as SNA may no longer be supported in future releases of DB2 Connect. SNA requires significant configuration knowledge and the configuration process itself can prove to be error prone. TCP/IP is simple to configure, has lower maintenance costs, and provides superior performance.
2. SNA is not supported on Windows XP (64-bit) and Windows Server 2003 (64-bit).

Related tasks:

- "Installing DB2 Connect Personal Edition (Linux)" on page 24

Related reference:

- "Java SDK levels for DB2 UDB" in the *Quick Beginnings for DB2 Servers*

Disk and memory requirements (Windows and UNIX)

Disk requirements:

The disk space required for your product depends on the type of installation you choose and the type of file system you have. The DB2 Setup wizard provides dynamic size estimates based on the components selected during a typical, compact, or custom installation.

On Windows, you might require significantly more space on FAT (File Allocation Table) drives with large cluster sizes than with NTFS (New Technology File System) drives.

Remember to include disk space for required software, communication products, and documentation.

Memory requirements:

At a minimum, DB2 UDB requires 256 MB of RAM. 512MB of RAM memory is recommended if you use the GUI tools. When determining memory requirements, be aware of the following:

- For DB2 client support, these memory requirements are for a base of 5 concurrent client connections. You will need an additional 16 MB of RAM per 5 client connections.
- Additional memory is required for other software that is running on your system.
- Additional memory might be required to improve the performance of the DB2 GUI tools.
- Specific performance requirements can determine the amount of memory needed.
- Memory requirements are affected by the size and complexity of your database system.
- Memory requirements are affected by the extent of database activity and the number of clients accessing your system.
- On Linux, a SWAP space of at least twice as large as your RAM is recommended, but not required.

Extending the directory schema (Windows)

If you plan to use Lightweight Directory Access Protocol (LDAP) with Windows 2000 or Windows Server 2003, you must extend the directory schema to contain DB2 object classes and attribute definitions. You must perform this task before you install any DB2 products.

Prerequisites:

Your Windows user account must have Schema Administration authority.

Procedure:

To extend the directory schema:

1. Log on as a domain controller.
2. Run the **db2schex.exe** program from the installation CD with Schema Administration authority. You can run this program with Schema Administration authority without logging off and logging on again, as follows:

   ```
   runas /user:MyDomain\Administrator x:\db2\Windows\utilities\db2schex.exe
   ```

   where `x:` represents the CD-ROM letter.

   When **db2schex.exe** completes, you can proceed with the installation of your DB2 product.

Related reference:

- "Installation requirements for DB2 servers (Windows)" in the *Quick Beginnings for DB2 Servers*

Required user accounts for installation of DB2 servers (Windows)

If you are installing on Windows NT, Windows 2000, Windows XP, or Windows Server 2003, you require the following DB2 server user accounts:

- an installation user account and
- one or more setup user accounts
  - a DB2 Administration Server (DAS) user account
  - a DB2 instance user account.

The installation user account must be defined prior to running the DB2 Setup wizard. The setup user accounts can be defined prior to installation or you can have the DB2 Setup program create them for you.

All user account names must adhere to your system naming rules and to DB2 naming rules.

DB2 enhanced security on Windows:

DB2 now offers enhanced Windows security. You can install DB2 with a user ID, but unless that user ID belongs to either the DB2ADMNS and DB2USERS group, that user ID won't be able to run any DB2 commands.

The DB2 installer creates these two new groups. You can either use a new name or accept the default names.

To enable this security feature, select the Enable operating system security check box on the Enable operating system security for DB2 object panel during the installation of DB2. Accept the default values for the DB2 Administrators Group field, and the DB2 Users Group field. The default group names are DB2ADMNS and DB2USERS. If there is a conflict with existing group names, you will be prompted to change the group names. If required, you can specify your own values.

DB2 server user accounts:

Installation user account

A local or domain user account is required to perform the installation. The user account must belong to the *Administrators* group on the machine where you will perform the installation.

For domain accounts, to verify userIDs on the DB2 server, the installation userID must belong to the Domain Administrators group on the domain where the accounts are going to be created.

You may also use the the built-in LocalSystem account to run the installation for all products except DB2 UDB Enterprise Server Edition.

DB2 Administration Server (DAS) user account

A local or domain user account is required for the DB2 Administration Server (DAS).

If you are performing a response file installation, you can also specify the Local System Account in the response file. For more details, refer to the sample response files in the db2\windows\samples directory.

The DB2 Administration Server (DAS) is a special DB2 administration service used to support the GUI tools and assist with administration tasks on local and remote DB2 servers. The DAS has an assigned user account that is used to log the DAS service on to the computer when the DAS service is started.

You can create the DAS user account before installing DB2 or you can have the DB2 Setup wizard create it for you. If you want to have the DB2 Setup wizard create a new domain user account, the user account you use to perform the installation must have authority to create domain user accounts. The user account must belong to the *Administrators* group on the machine where you will perform the installation. This account will be granted the following user rights:

- Act as part of the operating system
- Debug programs
- Create token object
- Lock pages in memory
- Log on as a service
- Increase quotas
- Replace a process level token

The Lock pages in memory privilege is required for AWE (Advanced Windowing Extensions) support. The ″Debug programs″ privilege is only needed when DB2 group lookup is explicitly specified to use the access token.

If the user account is created by the install program, the user account will be granted these privileges and if the user account already exists, this account will also be granted these privileges. If the install grants the

privileges, some of them will only be effective on first log-on by the account that was granted the privileges or reboot.

It is recommended that the DAS user have SYSADM authority on each of the DB2 systems within your environment so that it can start or stop other instances if required. By default, any user that is part of the *Administrator* group has SYSADM authority.

DB2 instance user account

A local or domain user account is required for the DB2 instance. Every DB2 instance has one user that is assigned when the instance is created. DB2 logs on with this user name when the instance is started.

You may also use the the built-in LocalSystem account to run the installation for all products except DB2 UDB Enterprise Server Edition.

You can create the DB2 instance user account before installing DB2 or you can have the DB2 Setup wizard create it for you. If you want to have the DB2 Setup wizard create a new domain user account, the user account you use to perform the installation must have authority to create domain user accounts. The user account must belong to the *Administrators* group on the machine where you will perform the installation. This account will be granted the following user rights:

- Act as part of the operating system
- Debug programs
- Create token object
- Increase quotas
- Lock pages in memory
- Log on as a service
- Replace a process level token

The Lock pages in memory privilege is required for AWE (Advanced Windowing Extensions) support. The ″Debug programs″ privilege is only needed when DB2 group lookup is explicitly specified to use the access token.

If the user account is created by the install program, the user account will be granted these privileges and if the user account already exists, this account will also be granted these privileges. If the install grants the privileges, some of them will only be effective on first log-on by the account that was granted the privileges or reboot.

Choosing a directory when installing DB2 on Windows 2000

DB2 should be installed to a directory to which all users have write access. If DB2 is installed to a directory to which only some users (for example, Administrators) have write access, a regular user may receive error SQL1035N when attempting to use the DB2 Command Line Processor.

Related concepts:

- “User, user ID and group naming rules” in the *Administration Guide: Implementation*

Related tasks:

- “Single-partition installation (Windows)” in the *Quick Beginnings for DB2 Servers*
- “Partitioned installation (Windows)” in the *Quick Beginnings for DB2 Servers*

Installing DB2 Connect Personal Edition (Windows)

This task describes how to install DB2 Connect Personal Edition on Windows operating systems.

Prerequisites:

Before you launch the DB2 Setup wizard:

- Ensure that your system meets the following requirements:
  - Hardware, distribution, and software requirements
  - Disk and Memory requirements
- If you are installing on Windows 2000 or Windows Server 2003 and intend to use Lightweight Directory Access Protocol (LDAP), you must extend the directory schema.
- It is recommended that you use an Administrator account to perform the installation. The Administrator account must belong to the local administrator's group on the Windows computer where you are installing your DB2 product and should have the following advanced user rights:
  - Act as part of the operating system
  - Create token object
  - Increase quotas
  - Replace a process level token

  You can perform the installation without advanced user rights, but the setup program may be unable to validate accounts.
- If you want to install DB2 Connect with a non-Administrator account, refer to the non-administrator installation of DB2 Connect.

Procedure:

To install DB2 Connect Personal Edition:

1. Log on to the system as a user with administrator authority.
2. Close all programs so the installation program can update files as required.
3. Insert the CD-ROM into the drive. The auto-run feature automatically starts the DB2 Setup wizard. The DB2 Setup wizard will determine the system language, and launch the setup program for that language. If you want to run the setup program in a different language, or the setup program failed to auto-start, you can run invoke the DB2 Setup wizard manually.

4. The DB2 Launchpad opens.

   From this window, you can view the installation prerequisites and the release notes, or you can proceed directly to the installation.
5. Once you have initiated the installation, proceed by following the setup program's prompts. Online help is available to guide you through the remaining steps. To invoke the online help, click Help or press F1. You can click **Cancel** at any time to end the installation.

For information on errors encountered during installation, see the `db2.log` file. The `db2.log` file stores general information and error messages resulting from the install and uninstall activities. By default, the `db2.log` file is located in the `x:\db2log` directory, where x: represents the drive on which your operating system is installed.

To invoke the DB2 Setup wizard manually:

1. Click **Start** and select the **Run** option.
2. In the **Open** field, enter the following command:

   ```
   x:\setup /i language
   ```

   where:
   - *x:* represents your CD-ROM drive
   - *language* represents the territory code for your language (for example, EN for English).
3. Click **OK**.

If you want your DB2 product to have access to DB2 documentation either on your local computer or on another computer on your network, then you must install the DB2 Information Center. The DB2 Information Center contains documentation for DB2 Universal Database and DB2 related products.

Related concepts:

- "Non-Administrator installation of DB2 Connect (Windows)" on page 20

- "Typical steps required to install and configure DB2 Connect Personal Edition" on page 8
- "DB2 Information Center" on page 72
- "DB2 Information Center installation scenarios" on page 73

Related tasks:

- "Extending the directory schema (Windows)" on page 15
- "Installing the DB2 Information Center using the DB2 Setup wizard (Windows)" on page 78

Related reference:

- "Installation requirements for DB2 Connect Personal Edition (Windows)" on page 13
- "setup - Install DB2 Command" in the *Command Reference*

Non-Administrator installation of DB2 Connect (Windows)

For a non-Administrator's installation, which is only available on Windows® NT, Windows 2000 Professional, and Windows XP, the account you are logged on as must belong to a group with more authority than the Guests group. On Windows 2000 and Windows XP, you must belong to the Power Users group. On Windows NT®, you must at least belong to the Users group.

Some information about DB2® Connect that must appear in the registry must be entered in the HKEY_CURRENT_USER folder in the registry. Although many items will be stored under the HKEY_LOCAL_MACHINE folder in the registry for non-Administrator installations of DB2 Connect™, the environment settings must be changed in HKEY_CURRENT_USER.

System shortcuts must be changed to user shortcuts for the non-Administrator install. Moreover, since services are required to install any of the DB2 Connect products, but cannot be created without administrative authority, services that would be automatically started are run as processes when a non-administrator installs.

The following are installation situations you might encounter in an environment where both administrator and non-administrator installations exist:

- A non-Administrator has installed DB2 Connect, and then an Administrator attempts to install DB2 Connect on the same machine. The Administrator will get a message that the product is already installed. The Administrator does have the authority to uninstall and reinstall the product to get around this issue. These products cannot co-exist on Windows platforms because there is only a single registry and you can not have DB2 installed multiple times.
- A non-administrator has installed DB2 Connect, and then a second non-Administrator attempts to install DB2 Connect on the same machine. In this scenario, the installation will fail, and return an error message that the user must be an Administrator to install the product.
- An Administrator has installed DB2 Connect, and then a non-Administrator attempts to install DB2 Connect on the same machine. In this scenario, the install will fail, and return an error message that the user must be an Administrator to install the product. An Administrator always has the authority to uninstall or reinstall.

Related tasks:

- "Installing DB2 Connect Personal Edition (Windows)" on page 18
- "Installing DB2 Connect Enterprise Edition (Windows)" in the *Quick Beginnings for DB2 Connect Enterprise Edition*

Chapter 3. Installing DB2 Connect PE on Linux

Installation requirements

Installation requirements for DB2 Connect Personal Edition (Linux)

To install a DB2 Connect Personal Edition, the following operating system, software, and communications requirements must be met:

Hardware requirements

Your processor must be one of:

- x86 compatible (for example, Intel, AMD, or Cyrix).
- Intel Itanium processor (IA64) for the 64-bit version of Linux

Distribution requirements

For the latest information on supported distribution and kernel levels, see: http://www.ibm.com/db2/linux/validate.

Software requirements

You require the appropriate SDK to use Java-based tools like the DB2 Control Center, and to create and run Java applications, including stored procedures and user-defined functions. If the SDK is required by some component being installed, and the SDK is not already installed, the SDK will be installed if you use either the DB2 Setup wizard or a response file to install the product. The SDK is not installed with the DB2 Run-Time client. The SDK requirements are:

- Linux 32–bit: SDK 1.3.1 or SDK 1.4.1 Service Release 1
- Linux Red Hat EL 3 32–bit: SDK 1.4.1 Service Release 2
- Linux IPF 64–bit: SDK 1.3.1
- LinuxAMD 64–bit: SDK 1.3.1

For the most up-to-date SDK information, see http://www.ibm.com/software/data/db2/udb/sysreqs.html.

A browser is required to view online help.

Communication requirements

For TCP/IP connectivity, no additional software is required.

Related tasks:

- "Mounting the CD-ROM (Linux)" in the *Quick Beginnings for DB2 Servers*
- "Installing DB2 Connect Personal Edition (Linux)" on page 24

Related reference:

- "Java SDK levels for DB2 UDB" in the *Quick Beginnings for DB2 Servers*

Disk and memory requirements (Windows and UNIX)

Disk requirements:

The disk space required for your product depends on the type of installation you choose and the type of file system you have. The DB2 Setup wizard provides dynamic size estimates based on the components selected during a typical, compact, or custom installation.

On Windows, you might require significantly more space on FAT (File Allocation Table) drives with large cluster sizes than with NTFS (New Technology File System) drives.

Remember to include disk space for required software, communication products, and documentation.

Memory requirements:

At a minimum, DB2 UDB requires 256 MB of RAM. 512MB of RAM memory is recommended if you use the GUI tools. When determining memory requirements, be aware of the following:

- For DB2 client support, these memory requirements are for a base of 5 concurrent client connections. You will need an additional 16 MB of RAM per 5 client connections.
- Additional memory is required for other software that is running on your system.
- Additional memory might be required to improve the performance of the DB2 GUI tools.
- Specific performance requirements can determine the amount of memory needed.
- Memory requirements are affected by the size and complexity of your database system.
- Memory requirements are affected by the extent of database activity and the number of clients accessing your system.
- On Linux, ensure that your SWAP space is at least twice as large as your RAM.

Installing DB2 Connect Personal Edition (Linux)

We recommend that you use the DB2 Setup wizard to install DB2 Connect Personal Edition on Linux. The DB2 Setup wizard is a Java-based installation tool that automates the installation and configuration of any DB2 products. If you prefer not to use this wizard, you can install a DB2 product manually using the db2_install script.

Prerequisites:

Before beginning your installation:

- Ensure that your system meets the following requirements:
  - Hardware, distribution, and software requirements
  - Disk and Memory requirements
- You require root authority to perform the installation.
- The DB2 product CD-ROM must be mounted on your system. See mounting the DB2 installation CD.

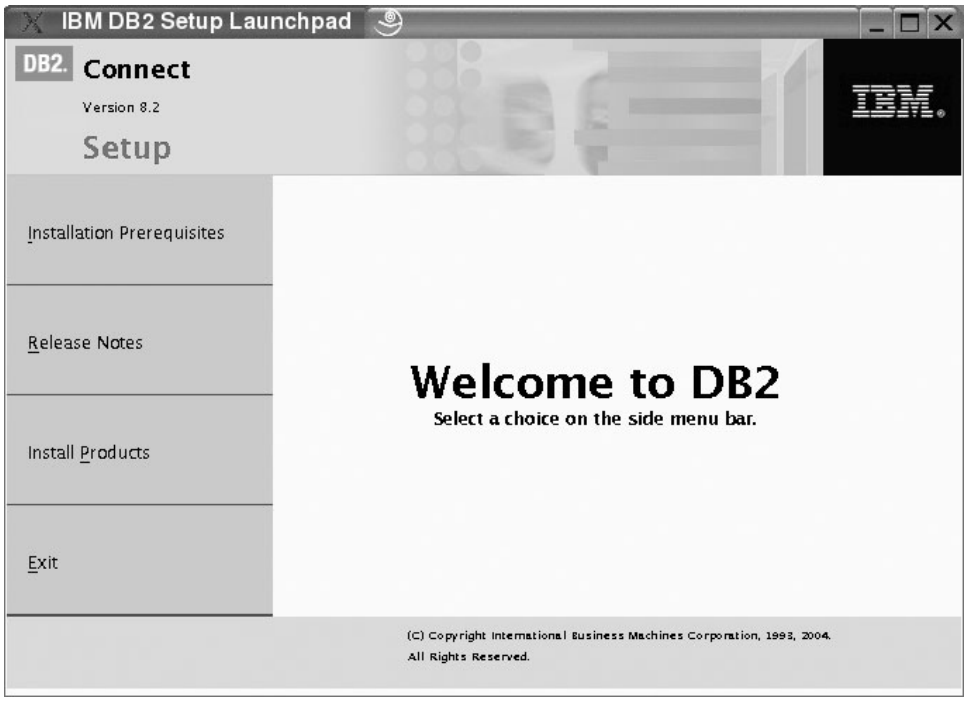
Procedure:

To install DB2 Connect Personal Edition on Linux:

1. Log on to the system as a user with root authority.
2. Change to the directory where the CD-ROM is mounted by entering the following command:

   ```
   cd /mnt/cdrom
   ```

   where */mnt/cdrom* represents the mount point of the CD-ROM.
3. Enter the **./db2setup** command to start the DB2 Setup wizard. You must have X windows running to launch the graphical installer. After a few moments, the IBM DB2 Setup Launchpad opens.



   From this window, you can view the installation prerequisites and the release notes or you can proceed directly to the installation.

   Once you have initiated the installation, proceed through the DB2 Setup wizard installation panels and make your selections. Installation help is available to guide you through the DB2 Setup wizard. To invoke the installation help, click **Help** or press F1. You can click **Cancel** at any time to end the installation. DB2 files will only be copied to you system once you have clicked **Finish** on the last DB2 Setup wizard installation panel.

   When you have completed your installation, DB2 Connect Personal Edition will be installed in `/opt/IBM/db2/V8.1`.

If you want your DB2 product to have access to DB2 documentation either on your local computer or on another computer on your network, then you must install the DB2 Information Center. The DB2 Information Center contains documentation for DB2 Universal Database and DB2 related products.

Related concepts:

- "Typical steps required to install and configure DB2 Connect Personal Edition" on page 8
- "DB2 Information Center" on page 72
- "DB2 Information Center installation scenarios" on page 73

Related tasks:

- "Mounting the CD-ROM (Linux)" in the *Quick Beginnings for DB2 Servers*
- "Installing the DB2 Information Center using the DB2 Setup wizard (UNIX)" on page 76

Related reference:

- "Installation requirements for DB2 Connect Personal Edition (Linux)" on page 23
- "Availability of Asian fonts (Linux)" in the *Release notes*

Part 3. Post-installation tasks

Chapter 4. Adding your user ID

Adding your user ID to the DB2ADMNS and DB2USERS user groups

After successfully completing a DB2 installation, you now have to add users to the DB2ADMNS or the DB2USERS groups to give them access to DB2. The DB2 installer creates two new groups. You can either use a new name or accept the default names. The default group names are DB2ADMNS and DB2USERS.

Prerequisites:

- You must have installed DB2.
- You must have selected the Enable operating system security check box on the Enable operating system security for DB2 object panel during the installation of DB2.

Procedure:

To add users to the appropriate group:

1. Launch the Users and Passwords Manager tool.
2. Select the user name you want to add from the list.
3. Click Properties. In the Properties window, click the Group Membership tab.
4. Select the Other radio button.
5. Select the appropriate group from the drop-down list.

If you did the install and chose not to enable the new security feature you can still do so post-install by running the **db2secv82.exe** command.

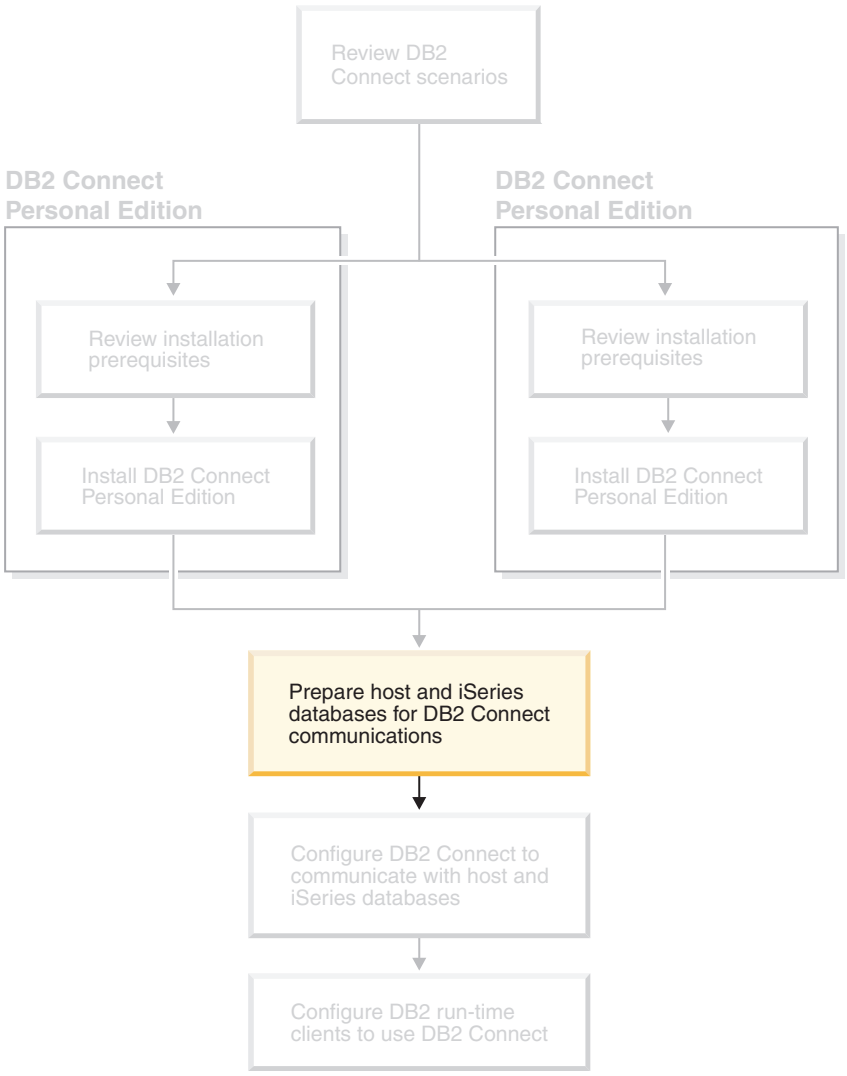
Once you enable this security feature using the **db2secv82.exe** command, you have two options for backing out:

1. Run the db2secv82.exe command again immediately WITHOUT making any additional changes to the system. If there have been any changes at all made to the system you must use option 2.
2. Add the Everyone group to the DB2ADMNS and DB2USERS groups.

Related reference:

- "db2secv82 - Set permissions for DB2 objects Command" in the *Command Reference*

Part 4. Preparing host and iSeries databases for DB2 Connect communications



These topics describe the steps required to configure host and iSeries database servers to accept connections from DB2 Connect workstations. These steps must be performed by users who have the necessary system privileges and special expertise, such as your network or system administrator, or your DB2 administrator.

For more information on configuring host and iSeries database servers, refer to the following publications:

- The *DB2 for OS/390 and z/OS Installation Guide* contains the most complete and up-to-date information for DB2 Universal Database for z/OS and OS/390.
- *Distributed Relational Database Cross Platform Connectivity and Applications* contains useful post-configuration information.
- *AS/400 Distributed Database Programming*

The sample values used in this section match those used elsewhere in this book. When you follow the instructions provided you *must* substitute your own values for elements such as host name, port number, network name, Logical Unit (LU) name, and mode name.

Chapter 5. Preparing DB2 for OS/390 and z/OS databases for DB2 Connect communications

Preparing DB2 Universal Database for OS/390 and z/OS for connections from DB2 Connect

Your VTAM administrator and your host system administrator must configure VTAM and OS/390 or z/OS to prepare DB2 Universal Database for z/OS and OS/390 to receive inbound connection requests from your DB2 Connect workstation.

This topic provides:

- Instructions for establishing TCP/IP network connections between DB2 Connect and DB2 Universal Database for z/OS and OS/390.
- Examples of VTAM definitions required at your DB2 Universal Database for z/OS and OS/390 host for use with DB2 Connect SNA connections. These should be compared with current definitions.
- DB2 host configuration steps. Many details of these steps changed with the introduction of DB2 UDB for OS/390 Version 6.1. These steps apply to users who will connect to DB2 Universal Database for z/OS and OS/390 via TCP/IP. However, some of these steps also apply to SNA users. It is recommended that you use the steps that apply to TCP/IP.

If you anticipate that DB2 for OS/390 or z/OS will participate in a multisite update transaction (two-phase commit) then refer to the *Enabling Multisite Updates* topic.

Procedure:

To prepare DB2 Universal Database for z/OS and OS/390 to receive connection requests from DB2 Connect, you need to configure your protocol:

- Configuring TCP/IP for DB2 Universal Database for OS/390 and z/OS
- Configuring DB2 Universal Database for OS/390 and z/OS
- Configuring VTAM

Related tasks:

- "Configuring TCP/IP for DB2 Universal Database for OS/390 and z/OS" on page 33
- "Configuring DB2 Universal Database for OS/390 and z/OS" on page 36
- "Configuring VTAM" on page 37
- "Enabling Multisite Updates using the Control Center" in the *DB2 Connect User's Guide*

Configuring TCP/IP for DB2 Universal Database for OS/390 and z/OS

This topic describes how to configure TCP/IP communications between your DB2 Connect workstation and DB2 UDB for OS/390 Version 6.1 or later. The instructions assume the following conditions:

- You are connecting to a single host database via TCP/IP. Multiple host connections will be handled in exactly the same way, although the *port number* and *service number* required in each case may be different.
- The target database resides on DB2 UDB for OS/390 Version 6.1 or later.
- All the necessary software prerequisites are installed.
- DB2 clients have been set up as required.

Prerequisite OS/390 software for TCP/IP support:

OS/390 V2R3+ is the minimum operating system level required for TCP/IP support. OS/390 V2R5+ is the recommended operating system level, and the best performer. All versions of z/OS support TCP/IP.

The following informational APARs for DB2 for OS/390 are regularly updated with information about PTFs to install for various OS/390 components, particularly TCP/IP for OS/390. If you use TCP/IP connectivity with DB2 for OS/390, it is extremely important that you review and apply PTFs and APAR fixes described in the following DB2 for OS/390 information APARs:

- II11164
- II11263
- II10962

Collecting information:

Before you can use DB2 Connect over a TCP/IP connection, you must collect information about both the host database server and the DB2 Connect server. For each host server that you are connecting to via TCP/IP, you must have the following information:

- The location of the TCP/IP services and hosts files at the DB2 Connect workstation:

  On UNIX
  `/etc/`

  On Windows NT, Windows 2000, Windows XP and Windows Server 2003
  Usually *%SystemRoot%*\system32\drivers\etc\, where *%SystemRoot%* represents the Windows install path directory.

  On Windows 98 and Windows ME
  Usually *x:*`\windows\`, where *x:* represents the Windows install path directory.

  You may want to add the host information to a *domain name server* to avoid maintaining this file on multiple systems.
- The locations of the equivalent files at the target DB2 Universal Database for z/OS and OS/390 host.
- The TCP/IP *port number* defined to DB2 Universal Database for z/OS and OS/390.

  Note: The associated *service name* information is not exchanged between the DB2 Connect workstation and DB2 Universal Database for z/OS and OS/390. Port number 446 has been registered as the default for communication from a DB2 Connect workstation.
- The TCP/IP addresses and host names for both the host and the DB2 Connect workstation.

- The LOCATION NAME of the DB2 for OS/390 database server.
- The user ID and password to be used when issuing CONNECT requests to the database at the host or iSeries server.

Refer to your local network administrator and your DB2 for OS/390 and z/OS administrator for help getting this information. Use one copy of the example work sheet, Table 1, to plan *each* TCP/IP connection between DB2 Connect and a host database server.

Table 1. Example Worksheet for Planning TCP/IP Connections to DB2 Universal Database for z/OS and OS/390

Ref.	Description	Sample Value	Your Value
User Information			
TCP-1	User name	A.D.B.User	
TCP-2	Contact info	(123)-456-7890	
TCP-5	User ID	ADBUSER	
TCP-6	Database type	db2390	
TCP-7	Connection type (must be TCPIP).	TCPIP	TCPIP
Network Elements at the Host			
TCP-8	Host name	MVSHOST	
TCP-9	Host IP address	9.21.152.100	
TCP-10	Service name	db2inst1c	
TCP-11	Port number	446	446
TCP-12	LOCATION NAME	NEW_YORK3	
TCP-13	User ID		
TCP-14	Password		
Network Elements at the DB2 Connect Workstation			
TCP-18	Host name	mcook02	
TCP-19	IP address	9.21.27.179	
TCP-20	Service name	db2inst1c	
TCP-21	Port number	446	446
DB2 Directory Entries at the DB2 Connect Workstation)			
TCP-30	Node name	MVSIPNOD	
TCP-31	Database name	nyc3	
TCP-32	Database alias	mvsipdb1	
TCP-33	DCS database name	nyc3	

Notes:

1. To obtain the host's IP address TCP-9, enter at the host:

   ```
   TSO NETSTAT HOME
   ```

2. To obtain the port number TCP-11, look for `DSNL004I` in the DB2 master address space or system log.

Configuring the TCP/IP connection:

Use these steps in this section to complete the configuration and make the connection.

Complete the worksheet:

Complete a copy of the example worksheet for each TCP/IP host:

1. Fill in the values to be used for the host name and IP address of the DB2 Universal Database for z/OS and OS/390 host (items 8 and 9).

2. Fill in the values to be used for the host name and IP address of the DB2 Connect workstation (items 18 and 19).
3. Determine the port number or service name to be used for the connection (items 10 and 11, or 20 and 21).
4. Determine the LOCATION NAME of the DB2 for OS/390 and z/OS database server to which you wish to connect.
5. Determine the values to be used for user ID and PASSWORD when connecting to the host database.

Update the DB2 Universal Database for z/OS and OS/390 host:

At your zSeries server:

1. Verify the host address or the host name.
2. Verify the port number or the service name.
3. Update the services file with the correct port number and service name if necessary.
4. Update the hosts file (or the Domain Name Server used by the DB2 Universal Database for z/OS and OS/390 system) with the host name and IP address of the DB2 Connect workstation if necessary.
5. Ensure the new definitions are active before attempting to test the connection. Refer to your host network administrator or change control staff if necessary.
6. Check with the DB2 Universal Database for z/OS and OS/390 administrator that you have a valid user ID, password, and database *LOCATION NAME*.
7. PING the DB2 Connect server, using the correct port number if that option is supported by TCP/IP on the host system. For example:

```
ping remote_host_name -p port_number
```

Related tasks:

• "Configuring VTAM" on page 37

Configuring DB2 Universal Database for OS/390 and z/OS

Before you can use DB2 Connect, your DB2 Universal Database for z/OS and OS/390 Administrator must configure DB2 Universal Database for z/OS and OS/390 to permit connections from DB2 Connect workstations. This section indicates the *minimum* updates required to permit a DB2 Connect client to make a connection to the DB2 Universal Database for z/OS and OS/390 database server. For more detailed examples, refer to the *DB2 for OS/390 and z/OS Installation Guide*.

Recommended APARs:

DB2 for OS/390 and z/OS Version 7: Apply the fixes for APARs PQ50016 and PQ50017.

Updating SYSIBM.LUNAMES:

This section contains examples of commands to update these tables for DB2 Universal Database for z/OS and OS/390. Work with your DB2 administrator to determine the updates required for your DB2 Universal Database for z/OS and OS/390 system. For more information on the DB2 Universal Database for z/OS and OS/390 communications database tables, refer to the *DB2 Universal Database for z/OS and OS/390 SQL Reference*.

To permit database connection requests to be accepted from any incoming DB2 Connect LU, just insert a blank row. Use an SQL similar to the following:

```
INSERT INTO SYSIBM.LUNAMES (LUNAME) VALUES ('        ')
```

Alternatively, if you want to restrict access by LU name, you can use an SQL command similar to the following to update this table:

```
INSERT INTO SYSIBM.LUNAMES (LUNAME,
                            SECURITY_OUT,
                            ENCRYPTPSWDS,
                            USERNAMES)
                    VALUES('NYX1GW01','P','N','O');
```

Result:

Table 2. Result set from update to table

COLUMN	EXAMPLE	REMARK
======	=======	======
LUNAME	NYX1GW01	Name of the DB2 Connect LU
SECURITY_OUT	P	
ENCRYPTPSWDS	N	
USERNAMES	O	

Related tasks:

- "Configuring TCP/IP for DB2 Universal Database for OS/390 and z/OS" on page 33

Configuring VTAM

To configure VTAM, your VTAM Administrator needs to determine the names and options to be used on your system. The following definitions must be provided to enable the DB2 Connect workstation to connect to the host:

- The VTAM APPL definition for DB2 Universal Database for z/OS and OS/390. The APPL name, or LU name, for the DB2 subsystem is NYM2DB2 in these examples.
- The VTAM PU and LU definitions for DB2 Connect. The PU and LU definitions for the DB2 Connect workstation are NYX1 and NYX1GW01 respectively in these examples.
- The VTAM log mode definition for DB2. The log mode entry to be used for the connection is IBMRDB in these examples.

The sample VTAM definitions are provided in the sections that follow.

Sample Network Element Names (VTAM):

The following example shows the sample VTAM definitions used to configure a host database server.

```
DB2 Connect Server:
        - Network ID              : SPIFNET
        - Local Node Name         : NYX1        (PU name)
        - Local Node ID           : 05D27509

        - LU Name                 : SPIFNET.NYX1GW01
                                    (the same LU is used
                                       for DB2 Connect,
                                       for DB2 Universal Database,
                                       and for the SPM)
        - LU Alias                : NYX1GW01

HOST:
        - Network ID              : SPIFNET
        - Node Name               : NYX

        - LU Name                 : SPIFNET.NYM2DB2
        - LU Alias                : NYM2DB2
        - LAN Destination Address : 400009451902 (NCP TIC address)

MODE DEFINITION:
        - Mode Name               : IBMRDB

DB2 for OS/390:
        - Location                : NEW_YORK3

SECURITY:
        - Security Type           : Program
        - Authentication Type     : DCS
```

Sample VTAM APPL Definition for OS/390 or z/OS:
The following example shows the sample VTAM application major node definitions. In most cases, such a definition will already exist with a different LU name. Otherwise, this application major node must be defined, and DB2 Universal Database for z/OS and OS/390 must be customized to use the LU name defined. This name is the Partner LU name required by DB2 Connect.

```
----+----1----+----2----+----3----+----4----+----5----+----6----+----7--

DB2APPLS VBUILD TYPE=APPL

NYM2DB2  APPL  APPC=YES,                                              X
               AUTH=(ACQ),                                             X
               AUTOSES=1,                                              X
               DLOGMOD=IBMRDB,                                         X
               DMINWNL=512,                                            X
               DMINWNR=512,                                            X
               DSESSLIM=2048,                                          X
               EAS=6000,                                               X
               MODETAB=RDBMODES,                                       X
               PARSESS=YES,                                            X
               PRTCT=SFLU,                                             X
               MODETAB=RDBMODES,                                       X
               SECACPT=ALREADYV,                                       X
               SRBEXIT=YES,                                            X
               VERIFY=NONE,                                            X
               VPACING=8
```

Note: Continuations must begin in column 16, with continuation marks in column 72.

Sample VTAM PU and LU Definitions for DB2 Connect:

If your security policies allow it, enable DYNPU and DYNLU in VTAM to allow any PU and LU access through VTAM. Contact your VTAM administrator for more information.

The following example shows the sample VTAM switched major node definitions. Follow this example to enable a specific LU or PU.

If you already use SNA applications on the DB2 Connect workstation, then a PU definition already exists. However, an independent LU definition might not exist. The independent LU definition required for DB2 Connect must have LOCADDR=0 specified.

```
----+----1----+----2----+----3----+----4----+----5----+----6----+----7--

        SWITCHED MAJOR NODE DEFINITION FOR PU NYX1 and
        INDEPENDENT LU NYX1GW01

LOC300    VBUILD TYPE=LOCAL

NYX1            ADDR=01,IDBLK=071,IDNUM=27509,ANS=CONT,DISCNT=NO,       X
                IRETRY=YES,ISTATUS=ACTIVE,MAXDATA=4302,MAXOUT=7,        X
                MAXPATH=1,PUTYPE=2,SECNET=NO,MODETAB=RDBMODES           X
                SSCPFM=USSSCS,PACING=0,VPACING=2

NYX1GW01  LOCADDR=000,MODETAB=RDBMODES,DLOGMODE=IBMRDB

OTHERLU   LOCADDR=002
```

Sample VTAM Log Mode Definition for DB2:
The following example shows the sample VTAM logon mode table definition for the IBMRDB and SNASVCMG modes. This example specifies a 4K *RUSIZE*, which may not be suitable for your environment, for example, if you are using Ethernet, which has a maximum Frame Size of 1536 bytes. Your VTAM administrator should check these values and advise you which mode table entry name and *RUSIZE* to specify for DB2 Connect. You must define the *SNASVCMG* logon mode when using APPC.

```
----+----1----+----2----+----3----+----4----+----5----+----6----+----7---

RDBMODES MODTAB

IBMRDB   MODEENT LOGMODE=IBMRDB,   DRDA DEFAULT MODE                   *
               TYPE=0,             NEGOTIABLE BIND                    *
               PSNDPAC=X'01',      PRIMARY SEND PACING COUNT          *
               SSNDPAC=X'01',      SECONDARY SEND PACING COUNT        *
               SRCVPAC=X'00',      SECONDARY RECEIVE PACING COUNT     *
               RUSIZES=X'8989',    RUSIZES IN-4K    OUT-4K            *
               FMPROF=X'13',       LU6.2 FM PROFILE                   *
               TSPROF=X'07',       LU6.2 TS PROFILE                   *
               PRIPROT=X'B0',      LU6.2 PRIMARY PROTOCOLS            *
               SECPROT=X'B0',      LU6.2 SECONDARY PROTOCOLS          *
               COMPROT=X'D0B1',    LU6.2 COMMON PROTOCOLS             *
               PSERVIC=X'06020000000000000000122F00'    LU6.2 LU TYPE

SNASVCMG MODEENT LOGMODE=SNASVCMG, DRDA DEFAULT MODE                   *
               PSNDPAC=X'00',      PRIMARY SEND PACING COUNT          *
               SSNDPAC=X'02',      SECONDARY SEND PACING COUNT        *
               SRCVPAC=X'00',      SECONDARY RECEIVE PACING COUNT     *
               RUSIZES=X'8585',    RUSIZES IN-1K    OUT-1K            *
               FMPROF=X'13',       LU6.2 FM PROFILE                   *
               TSPROF=X'07',       LU6.2 TS PROFILE                   *
               PRIPROT=X'B0',      LU6.2 PRIMARY PROTOCOLS            *
               SECPROT=X'B0',      LU6.2 SECONDARY PROTOCOLS          *
               COMPROT=X'D0B1',    LU6.2 COMMON PROTOCOLS             *
               PSERVIC=X'060200000000000000000300'    LU6.2 LU TYPE
```

Related tasks:

- "Preparing DB2 Universal Database for iSeries for connections from DB2 Connect" on page 41

Chapter 6. Preparing DB2 UDB for iSeries databases for DB2 Connect communications

Preparing DB2 Universal Database for iSeries for connections from DB2 Connect

DB2 Connect gives remote system applications access to data on your DB2 UDB for iSeries system.

Procedure:

To set up the connection, you need to know the following:

1. The local network name. You can get this information by entering `DSPNETA`.
2. The local adapter address. You can get this information by entering `WRKLIND (*trlan)`.
3. The mode name. You can get a list of mode names by entering `WRKMODD`. If the mode IBMRDB has been defined on your iSeries system, you should use it.
4. The local control point name. You can get this information by entering `DSPNETA`.
5. The remote transaction program name. The default is X'07'6DB (X'07F6C4C2'). The default is always used by DB2 UDB for iSeries. If entering a hexadecimal number is not convenient, an alias is QCNTEDDM.
6. The relational database name. You can get this information by entering `DSPRDBDIRE`. This will display a list. The line containing `*LOCAL` in the Remote Location column identifies the RDBNAME which must be defined to the client. If there is no *LOCAL entry, you can add one, or use the system name obtained from the DSPNETA command on the server.

   Here is an example:

```
                  Display Relational Database Directory Entries

Position to  . . . . . .

Type options, press Enter.
    5=Display details   6=Print details

                  Relational                  Remote

Option            Database                    Location Text


       _          ____________________

       _          DLHX                        RCHAS2FA

       _          JORMT2FA                    JORMT2FA

       _          JORMT4FD                    JORMT4FD

       _          JOSNAR7B                    RCHASR7B

       _          RCHASR7B                    *LOCAL

       _          RCHASR7C                    RCHASR7C

       _          R7BDH3SNA                   RCH2PDH3

       _          RCHASDH3                    RCHASDH3
```

When you have obtained these parameters from your iSeries server, enter your values into the worksheet that follows:

Table 3. Configuration parameters from iSeries

Item	Parameter	Example	Your value
A-1	Local network name	SPIFNET	
A-2	Local adapter address	400009451902	
A-3	Mode name	IBMRDB	
A-4	Local control point name	SYD2101A	
A-5	Remote transaction program	X'07F6C4C2'(default)	
A-6	Relational database name	NEW_YORK3	

For more information, refer to the *DRDA Connectivity Guide*.

Related tasks:

• "Preparing DB2 for VSE & VM for connections from DB2 Connect" on page 43

Chapter 7. Preparing DB2 for VSE and VM databases for DB2 Connect communications

Preparing DB2 for VSE & VM for connections from DB2 Connect

For information about how to set up DB2 Server for VSE & VM as an application server, refer to the *DRDA Connectivity Guide*.

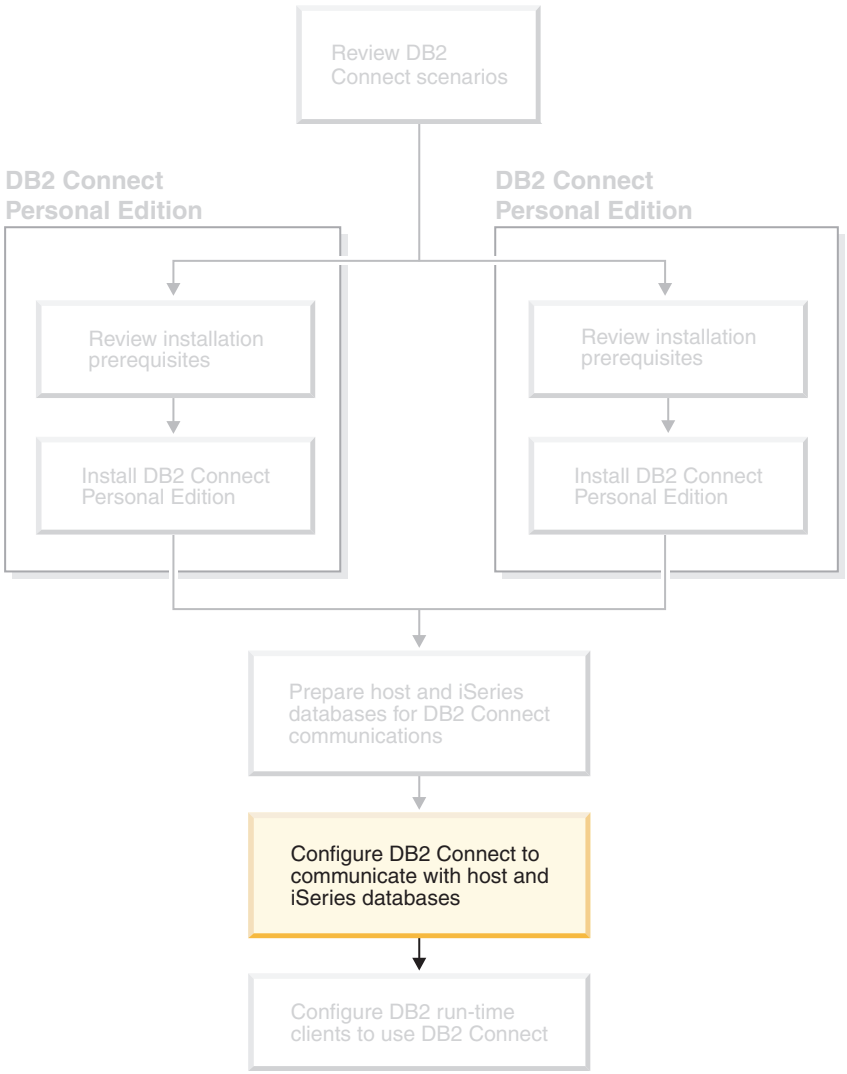
Related concepts:

- "DB2 for VM" in the *Connectivity Supplement*
- "DB2 for VSE" in the *Connectivity Supplement*

Related tasks:

- "Preparing the application requester or application server for DRDA communications (VM)" in the *Connectivity Supplement*

Part 5. Configuring DB2 Connect to communicate with host and iSeries databases



Chapter 8. Configuring DB2 Connect to communicate with host and iSeries databases

Configuring a connection to host or iSeries database servers using the CA

This task describes how to connect DB2 Connect Personal Edition (PE) or DB2 Connect Enterprise Edition to a remote database host or iSeries database server using the Configuration Assistant (CA). The Configuration Assistant is a DB2 GUI tool that can be used to configure database connections and other database settings.

The Configuration Assistant (CA) was referred to as the Client Configuration Assistant (CCA) in previous releases of DB2.

Prerequisites:

- The Configuration Assistant must be installed on DB2 Connect workstation. In DB2 version 8, the Configuration Assistant is available as part of the DB2 Administration Client and DB2 Application Development Client.
- The remote server must be configured to accept inbound client requests. By default, the server installation program detects and configures most protocols on the server for inbound client connections.

Procedure:

To configure a connection to a database using the CA, select one of the following methods:

- Connecting to a database using discovery
- Connecting to a database using a profile
- Connecting to a database manually using the CA

Related tasks:

- "Configuring a database connection using discovery" on page 49
- "Configuring a database connection using a profile" on page 49
- "Configuring a database connection manually using the Configuration Assistant (CA)" on page 47

Configuration tasks

Configuring a database connection manually using the Configuration Assistant (CA)

If you have the information for the database you want to connect to and the server upon which it resides, you can manually enter all of the configuration information. This method is analogous to entering commands using the command line processor, however, the parameters are presented graphically.

Prerequisites:

- Ensure that you have a valid DB2 user ID.
- If you are adding a database to a system that has a DB2 Server or DB2 Connect server product installed, ensure that you have a user ID with SYSADM or SYSCTRL authority for the instance.

Procedure:

To add a database to your system manually using the CA:

1. Log on to the system with a valid DB2 user ID.
2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.
3. On the CA menu bar, under **Selected**, choose **Add Database Using Wizard**.
4. Select the **Manually configure a connection to a database** radio button and click **Next**.
5. If you are using Lightweight Directory Access Protocol (LDAP), select the radio button that corresponds to the location where you want DB2 directories to be maintained. Click **Next**.
6. Select the radio button that corresponds to the protocol that you want to use from the **Protocol** list.

   If DB2 Connect is installed on your system and you select TCP/IP or APPC, you have the option to select **The database physically resides on a host or OS/400 system**. If you select this check box, you have the option of selecting the type of connection that you want to make to the host or OS/400 database:
   - To make a connection through a DB2 Connect gateway, select the **Connect to the server via the gateway** radio button.
   - To make a direct connection, select the **Connect directly to the server** radio button.

   Click **Next**.
7. Type the required communication protocol parameters and click **Next**.
8. Type the database alias name of the remote database that you want to add in the **Database name** field and a local database alias name in the **Database alias** field.

   If you are adding a host or OS/400 database, type the location name for an OS/390 or z/OS database, the RDB name for an OS/400 database, or the DBNAME for a VSE or VM database in the **Database name** field. Optionally, you can add a comment that describes this database in the **Comment** field.

   Click **Next**.
9. If you are planning to use ODBC, register this database as an ODBC data source. ODBC must be installed to perform this operation.
10. In the **Specify the node options** window, select the operating system, and type the remote instance name for the database system you want to connect to.
11. In the **Specify the system options** window, ensure that system name, host name, and operating system are correct. You can optionally enter a comment. Click **Next**.
12. In the **Specify the security options** window, specify the security option that will be used for authentication.
13. Click **Finish**. You can now use this database. Select the **Exit** menu action to close the CA.

Related tasks:

Configuring a database connection using a profile

A server profile contains information about server instances on a system and databases within each server instance. A client profile contains database information that was cataloged on another client system.

Use the steps in the following task to configure one database using a server profile. If you want to configure connections to multiple databases at the same time, you should use the Configuration Assistant (CA)'s import function.

Prerequisites:

- Ensure that you have a valid DB2 user ID.
- If you are adding a database to a system that has a DB2 Server or DB2 Connect server product installed, ensure that you have a user ID with SYSADM or SYSCTRL authority for the instance.

Procedure:

To configure a database connection using a profile:

1. Log on to the system with a valid DB2 user ID.
2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.
3. On the CA menu bar, under **Selected**, choose **Add Database Using Wizard**.
4. Select the **Use a profile** radio button and click **Next**.
5. Click **...** and select a profile.
6. Click **Load** and select a database in the profile.
7. Click **Next**.
8. Type a local database alias name in the **Database alias** field and optionally type a comment that describes this database in the **Comment** field. Click **Next**.
9. If you are planning to use ODBC, you need to register this database as an ODBC data source. Ensure that the **Register this database for ODBC** check box is selected. ODBC must be installed to perform this operation.
10. Click **Finish**. You can now use this database.

Related tasks:

- "Creating and exporting client profiles using the Configuration Assistant" on page 60
- "Importing and configuring client profiles using the Configuration Assistant" on page 61

Configuring a database connection using discovery

You can use the discovery feature of the Configuration Assistant to search a network for databases.

Prerequisites:

- Ensure that you have a valid DB2 user ID.
- If you are adding a database to a system that has a DB2 Server or DB2 Connect server product installed, ensure that you have a user ID with SYSADM or SYSCTRL authority for the instance.

Restrictions:

The discovery feature may be unable to detect a remote system if:

- The Administration Server is not running on the remote system.
- The discovery function times out. By default, the discovery function will search the network for 10 seconds; this may not be long enough to detect the remote system. You can set the DB2DISCOVERYTIME registry variable to specify a longer period of time.
- The network that the discovery request is running on is configured so that the discovery request does not reach the remote system desired.

Restrictions:

A DB2 Administration Server (DAS) must be running and enabled for the discovery feature of the CA to return information about DB2 systems.

Procedure:

To add a database to your system using Discovery:

1. Log on to the system with a valid DB2 user ID.
2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.
3. On the CA menu bar, under **Selected**, choose **Add Database Using Wizard**. The **Add Database** wizard opens.
4. Select the **Search the network** radio button and click **Next**.
5. Double-click on the folder beside **Known Systems** to list all the systems known to your client. Double-click on the folder beside **Other Systems** to list all the systems on the network.
6. Expand the list of instances and databases and select the database that you want to add. Click **Next**.
7. Type a local database alias name in the **Database alias** field and optionally type a comment that describes this database in the **Comment** field.
8. If you are planning to use ODBC, register this database as an ODBC data source. ODBC must be installed to perform this operation.
9. Click **Finish**. You can now use the database you added. Click **Close** to exit the CA.

Related tasks:

- "Configuring a database connection manually using the Configuration Assistant (CA)" on page 47
- "Configuring a database connection using a profile" on page 49
- "Testing a database connection using the Configuration Assistant" on page 51

Testing a database connection using the Configuration Assistant

After configuring your client-to-server connection, the database connection should be tested.

Procedure:

To test a database connection:

1. Start the **Configuration Assistant**.
2. Highlight the database in the details view and select **Test Connection** from the **Selected** menu item. The Test Connection window opens.
3. Select the types of connection that you would like to test (**CLI** is the default). You can test more than one type at the same time. Enter a valid user ID and password for the remote database and click **Test Connection**. If the connection is successful, a message confirming the connection appears on the Results page.

   If the connection test failed, you will receive a help message. To change any settings you may have incorrectly specified, select the database in the details view and select **Change Database** from the **Selected** menu item.

Related tasks:

- "Configuring a database connection using discovery" on page 49
- "Configuring a database connection manually using the Configuration Assistant (CA)" on page 47
- "Configuring a database connection using a profile" on page 49

Running your own applications

You can build and run DB2® applications with a DB2 Application Development Client installed. You can also run DB2 applications on the DB2 Run-Time Client and the DB2 Administration Client.

Various types of applications can access DB2 databases:

- Applications developed using the DB2 Application Development Client that include embedded SQL, APIs, stored procedures, user-defined functions or calls to the DB2 CLI.
- ODBC applications such as Lotus® Approach.
- JDBC applications and applets.
- Net.Data® macros containing HTML and SQL.

On Windows® operating systems, the following can also access DB2 databases:

- ActiveX Data Objects (ADO) implemented in Microsoft® Visual Basic and Microsoft Visual C++
- Remote Data Objects (RDO) implemented in Microsoft Visual Basic
- Object Linking and Embedding (OLE) Automation Routines (UDFs and Stored Procedures)
- Object Linking and Embedding Database (OLE DB) table functions

An application on a DB2 client can access a remote database without knowing its physical location. The DB2 client determines the location of the database, manages the transmission of the requests to the database server, and returns the results.

To run a database client application:

1. Ensure the server is configured and running.
2. On the DB2 UDB server, ensure that the database manager is started on the database server to which the application program is connecting. If it is not, you must issue the **db2start** command at the server before starting the application.
3. Ensure that you can connect to the database that the application uses.
4. Bind the utilities and the applications to the database.
5. Run the application program.

Related concepts:

- "DB2 Supported Programming Interfaces" in the *Application Development Guide: Programming Client Applications*

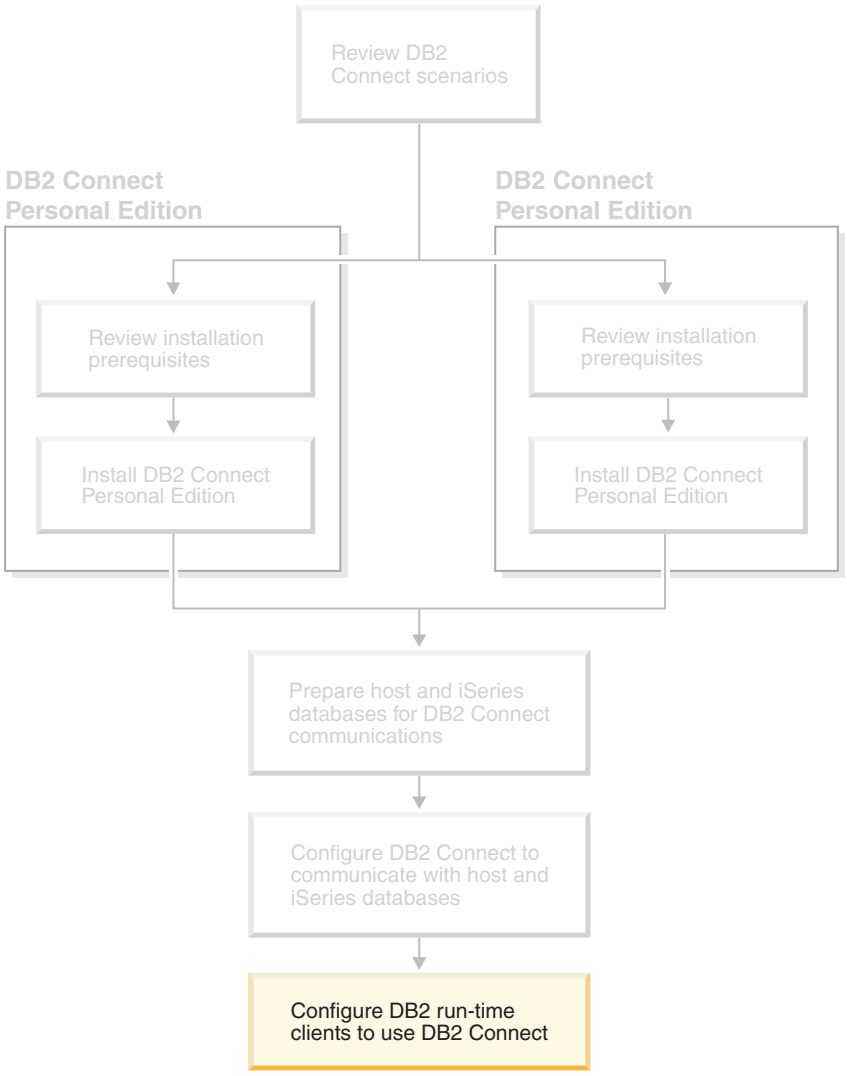
Related tasks:

- "Setting up the CLI environment" in the *CLI Guide and Reference, Volume 1*
- "Setting up the UNIX ODBC environment" in the *CLI Guide and Reference, Volume 1*
- "Setting up the Windows CLI environment" in the *CLI Guide and Reference, Volume 1*

Related reference:

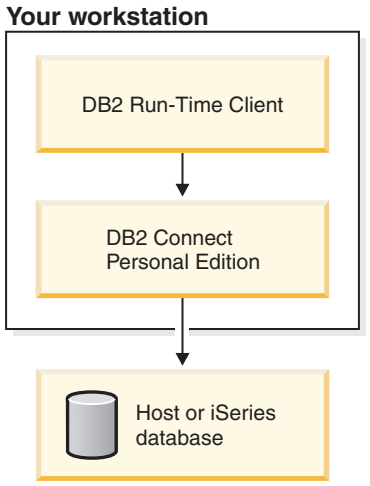
- "DB2 Application Development Client" in the *Application Development Guide: Building and Running Applications*

Part 6. Configuring DB2 run-time clients to use DB2 Connect



Chapter 9. Configuring DB2 clients to use DB2 Connect

When installing DB2 Connect Personal Edition you also install the DB2 run-time client. These topics detail the instructions on how to configure a connection from the DB2 run-time client to a DB2 UDB server. The DB2 run-time client can connect to databases on Windows and UNIX, as well as host or iSeries databases using DB2 Connect. You can connect directly to host or iSeries databases using DB2 Connect Personal Edition, if you have it installed on the same workstation as the DB2 run-time client, or you can connect through a DB2 Connect Enterprise Edition server.



Configuring a client to server connection using the Configuration Assistant (CA)

This task describes how to connect your DB2 client to a remote database using the Configuration Assistant (CA). The Configuration Assistant is a DB2 GUI tool that can be used to configure database connections and other database settings.

The Configuration Assistant (CA) was referred to as the Client Configuration Assistant (CCA) in previous releases of DB2.

Prerequisites:

- The Configuration Assistant must be installed on your DB2 client. For DB2 version 8, the Configuration Assistant is available as part of the DB2 Administration Client and DB2 Application Development Client.
- The remote server must be configured to accept inbound client requests. By default, the server installation program detects and configures most protocols on the server for inbound client connections.

Procedure:

To configure a connection to a database using the CA, select one of the following methods:

- Connecting to a database using discovery
- Connecting to a database using a profile

- Connecting to a database manually using the CA

Configuration tasks

Configuring a database connection using the Configuration Assistant (CA)

If you have the information for the database you want to connect to and the server upon which it resides, you can manually enter all of the configuration information. This method is analogous to entering commands via the command line processor, however, the parameters are presented graphically.

Prerequisites:

Before you configure a connection to a database using the CA:

- Ensure that you have a valid DB2 user ID.
- If adding a database to a system that has a DB2 Server or DB2 Connect server product installed, ensure that you have a user ID with SYSADM or SYSCTRL authority for the instance.

Procedure:

To add a database to your system manually using the CA:

1. Log on to the system with a valid DB2 user ID.
2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.
3. On the CA menu bar, under **Selected**, choose **Add a database using wizard**.
4. Select the **Manually configure a connection to a database** radio button and click **Next**.
5. If you are using Lightweight Directory Access Protocol (LDAP), select the radio button that corresponds to the location where you would like your DB2 directories to be maintained. Click **Next**.
6. Select the radio button that corresponds to the protocol that you want to use from the **Protocol** list.

   If DB2 Connect is installed on your machine and you select TCP/IP or APPC, you have the option to select **The database physically resides on a host or OS/400 system**. If you select this check box, you will have the option of selecting the type of connection that you want to make to the host or OS/400 database:

   - To make a connection through a DB2 Connect gateway, select the **Connect to the server via the gateway** radio button.
   - To make a direct connection, select the **Connect directly to the server** radio button.

   Click **Next**.
7. Enter the required communication protocol parameters and click **Next**.
8. Enter the database alias name of the remote database that you want to add in the **Database name** field and a local database alias name in the **Database alias** field.

   If you are adding a host or OS/400 database, type the Location name for an OS/390 or z/OS database, the RDB name for an OS/400 database, or the

DBNAME for a VSE or VM database in the **Database name** field. Optionally add a comment that describes this database in the **Comment** field.

Click **Next**.

9. If you are planning to use ODBC, register this database as an ODBC data source. ODBC must be installed to perform this operation.
10. Click **Finish**. You are now able to use this database. Select the **Exit** menu action to close the CA.

Related tasks:

- "Configuring a database connection using discovery" on page 49
- "Configuring a database connection using a profile" on page 49
- "Testing a database connection using the Configuration Assistant" on page 51

Configuring a database connection using a profile

A server profile contains information about server instances on a system, and databases within each server instance. A client profile contains database information that was cataloged on another client system. Use the steps in the following task to connect to a database using a profile.

Prerequisites:

Before you connect to a database through the CA using a profile:

- Ensure that you have a valid DB2 user ID.
- If adding a database to a system that has a DB2 Server or DB2 Connect server product installed, ensure that you have a user ID with SYSADM or SYSCTRL authority for the instance.

Procedure:

To connect to a database using a profile:

1. Log on to the system with a valid DB2 user ID.
2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.
3. On the CA menu bar, under **Selected**, choose **Add a database using wizard**.
4. Select the **Use a profile** radio button and click **Next**.
5. Click the **...** push button and select a profile. Select a remote database from the object tree that is displayed from the profile, and if the database selected is a gateway connection, select a connection route to the database. Click the **Next** push button.
6. Enter a local database alias name in the **Database alias** field and optionally enter a comment that describes this database in the **Comment** field. Click **Next**.
7. If you are planning to use ODBC, register this database as an ODBC data source. ODBC must be installed to perform this operation.
8. Click **Finish**. You are now able to use this database. Select the **Exit** menu action to exit the CA.

Related tasks:

- "Creating and exporting client profiles using the Configuration Assistant" on page 60

- "Importing and configuring client profiles using the Configuration Assistant" on page 61

Configuring a database connection using Discovery

You can use the Discovery feature of the Configuration Assistant to search a network for databases.

Prerequisites:

Before you configure a connection to a database using Discovery:

- Ensure that you have a valid DB2 user ID.
- If adding a database to a system that has a DB2 Server or DB2 Connect server product installed, ensure that you have a user ID with SYSADM or SYSCTRL authority for the instance.

Restrictions:

A DB2 Administration Server (DAS) must be running and enabled for the Discovery feature of the CA to return information about DB2 systems.

Procedure:

To add a database to your system using Discovery:

1. Log on to the system with a valid DB2 user ID.
2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.
3. On the CA menu bar, under **Selected**, choose **Add a database using wizard**.
4. Select the **Search the network** radio button and click **Next**.
5. Double-click on the folder beside **Known Systems** to list all the systems known to your client.
6. Click the **[+]** sign beside a system to get a list of the instances and databases on it. Select the database that you want to add, click the **Next** push button,
7. Enter a local database alias name in the **Database alias** field and optionally enter a comment that describes this database in the **Comment** field.
8. If you are planning to use ODBC, register this database as an ODBC data source. ODBC must be installed to perform this operation.
9. Click **Finish**. You are now able to use the database you added. Click **Close** to exit the CA.

Related tasks:

- "Configuring a database connection manually using the Configuration Assistant (CA)" on page 47
- "Configuring a database connection using a profile" on page 49
- "Testing a database connection using the Configuration Assistant" on page 51

Testing a database connection

After configuring the database, the database connection should be tested.

Procedure:

To test a database connection:

1. Start the **CA**.
2. Highlight the database in the details view and invoke the **Test Connection** menu action. The Test Connection window opens.
3. Select the type of connection that you would like to test (**CLI** is the default). Enter a valid user ID and password for the remote database and click **Test Connection**. If the connection is successful, a message confirming the connection appears on the Results page.

   If the connection test failed, you will receive a help message. To change any settings you may have incorrectly specified, select the database in the details view and invoke the **Change Database** menu action.

Related tasks:

- "Configuring a database connection using discovery" on page 49
- "Configuring a database connection manually using the Configuration Assistant (CA)" on page 47
- "Configuring a database connection using a profile" on page 49

Using client and server profiles

About client profiles

Client profiles are used to configure database connections between DB2® clients and servers. A client profile is generated from a client using the export function of the Configuration Assistant (CA) or by using the **db2cfexp** command. The information contained in a client profile is determined during the export process.

Depending on the settings chosen, it can contain information such as the following:

- Database connection information (including CLI or ODBC settings).
- Client settings (including database manager configuration parameters and DB2 registry variables).
- CLI or ODBC common parameters.
- Configuration data for the local NetBIOS communications subsystem.

Once the information in a client profile has been determined, it can be used to configure other clients by using either the import function of the CA, or by importing profiles using the **db2cfimp** command. Clients can import all or a subset of the configuration information in an existing profile.

Related tasks:

- "Exporting and importing a profile" on page 62
- "Creating and exporting client profiles using the Configuration Assistant" on page 60
- "Importing and configuring client profiles using the Configuration Assistant" on page 61

Related reference:

- "db2cfimp - Connectivity Configuration Import Tool Command" in the *Command Reference*
- "db2cfexp - Connectivity Configuration Export Tool Command" in the *Command Reference*

Creating and exporting client profiles using the Configuration Assistant

Client profiles are used to create connections between DB2 clients and servers. The information contained in a client profile is determined during the export process. Once the information in a client profile has been determined, it can be used to configure other clients using the import process.

Procedure:

To create client profiles using the export function of the Configuration Assistant (CA):

1. Log on to the system with a valid DB2 user ID.
2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.
3. From the **Configure** menu, select **Export Profile**.
4. Select one of the following options:

   All If you want to create a profile that contains all of the databases cataloged on your system, and all of the configuration information for this client. Type a name for your client profile and click **Save**.

   Database Connections
   If you want to create a profile that contains all of the databases cataloged on your system *without* any of the configuration information for this client. Type a name for your client profile and click **Save**.

   Customize
   If you want to select a subset of the databases that are cataloged on your system, or a subset of the configuration information for this client. In the **Customize Export Profile** window:

   a. Type a name for your client profile.
   b. Select the **Database connections** checkbox to include database connections in the client profile you want to export.
   c. From the **Available database aliases** box, select the databases to be exported and click **>** to add them to the **Selected database aliases** box. To add all of the available databases to the **Selected database aliases** box, click **>>**.
   d. Select the check boxes that correspond to the options that you want to set up for the target client.
   e. Click **Export** to complete this task.
   f. Check your results displayed in the Results tab.

Once you have completed this task, you can then use the import function to configure other clients using the client profile you have created.

Related concepts:

- "About client profiles" on page 59

Related tasks:

- "Configuring a database connection using a profile" on page 49
- "Exporting and importing a profile" on page 62

- "Importing and configuring client profiles using the Configuration Assistant" on page 61

Importing and configuring client profiles using the Configuration Assistant

Client profiles are used to create connections between DB2 clients and servers. The information contained in a client profile is determined during the export process. Once the information in a client profile has been determined, it can be used to configure other clients by using the import process.

You can use the Configuration Assistant's import profiles function to import the connection information for several databases rather than use the **Add Database** wizard. The **Add Database** wizard allows you to only add one database at a time.

Procedure:

To configure client profiles using the Configuration Assistant (CA):

1. Log on to the system with a valid DB2 user ID.
2. Start the CA. The CA can be started from the Start menu on Windows or using the **db2ca** command on both Windows and UNIX systems.
3. From the **Configure** menu, select **Import Profile**.
4. Select one of the following import options. You can choose to import all or a subset of the information in a client profile.

   All Select this option to import everything in a client profile. Open the client profile you want to import. A DB2 Message will inform you of the import result.

   Customize
   Select this option to import a specific database or settings that are defined in a client profile. From the **Customize Import Profile** window:

   a. Select the client profile you want to import and click **Load**.
   b. Select the databases to be imported from the **Available database aliases** box and click **>** to add them to the **Selected database aliases** box. Click **>>** to add all of the available databases to the **Selected database aliases** box.
   c. Select the check boxes that correspond to the options that you want to customize.
   d. Click **Import** to complete this task.
   e. Check your results displayed in the Results tab.

Related concepts:

- "About client profiles" on page 59

Related tasks:

- "Configuring a database connection using a profile" on page 49
- "Exporting and importing a profile" on page 62
- "Creating and exporting client profiles using the Configuration Assistant" on page 60

Exporting and importing a profile

Procedure:

If you did not use a configuration profile when you installed your DB2 product using the response file that was created by the response file generator, you can enter the **db2cfexp** command to create a configuration profile. The **db2cfimp** command can then be used to import a configuration profile.

You can also use the CA to export and import a configuration profile.

Related concepts:

- "About the response file generator (Windows)" in the *Installation and Configuration Supplement*

Related reference:

- "db2cfimp - Connectivity Configuration Import Tool Command" in the *Command Reference*
- "db2cfexp - Connectivity Configuration Export Tool Command" in the *Command Reference*
- "db2rspgn - Response File Generator Command (Windows)" in the *Command Reference*

Part 7. Appendixes

Appendix A. Language Support

Changing the DB2 interface language (Windows)

The interface language of DB2 is the language that appears in messages, help, and graphical tool interfaces. When installing DB2, you have the option of installing support for one or more languages. If, at some time after installation, you want to change the interface language for DB2 to one of the other installed interface languages, use the steps outlined in this task.

Do not confuse languages supported by DB2 with languages supported by the DB2 interface. Languages supported by DB2, that is, languages that *data* can exist in, are a superset of languages supported by the DB2 interface.

Prerequisites:

The DB2 interface language you want to use must be installed on your system. DB2 interface languages are selected and installed when you install DB2 using the DB2 Setup wizard. If you change the interface language of DB2 to a supported interface language that has not been installed, the DB2 interface language will default to the operating system language first, and if that is not supported, English.

Procedure:

Changing the interface language for DB2 on Windows requires that you change the default language setting for your Windows operating system.

To change the DB2 interface language on Windows:

1. Through the Control Panel on your Windows operating system, select **Regional Options**.
2. In the Regional Options dialog window, change the default language setting for the system to the language in which you want to interface with DB2.

Refer to your operating system help for additional information about changing the default system language.

Related reference:

- "Supported territory codes and code pages" in the *Administration Guide: Planning*
- "Supported DB2 interface languages" on page 66

Changing the DB2 interface language (UNIX)

The interface language of DB2 is the language that appears in messages, help, and graphical tool interfaces. When installing DB2, you have the option of installing support for one or more languages. If, at some time after installation, you want to change the interface language for DB2 to one of the other installed interface languages, use the steps outlined in this task.

Do not confuse languages supported by DB2 with languages supported by the DB2 interface. Languages supported by DB2, that is, languages that *data* can exist in, are a superset of languages supported by the DB2 interface.

Prerequisites:

Support for the DB2 interface language you want to use must be installed on your system. DB2 interface language support is selected and installed when you install DB2 using the DB2 Setup wizard. If you change the interface language of DB2 to a supported interface language that has not been installed, the DB2 interface language will default to the operating system language first, and if that is not supported, English.

Procedure:

To change the DB2 interface language on UNIX systems, set the LANG environment variable to the desired locale.

For example, to interface with DB2 in French using DB2 for AIX, you must have French language support installed and you must set the LANG environment variable to a French locale, for example, fr_FR.

Related reference:

- "Supported territory codes and code pages" in the *Administration Guide: Planning*
- "Supported DB2 interface languages" on page 66

Supported DB2 interface languages

DB2 language support for DB2 interfaces can be categorized into server group languages and client group languages. Server group languages will translate most messages, help, and DB2 graphical interface elements. Client group languages will translate the DB2 Run-time client component, which will include most messages and certain help documentation.

Server group languages include: Brazilian Portuguese, Czech, Danish, Finnish, French, German, Italian, Japanese, Korean, Norwegian, Polish, Russian, Simplified Chinese, Spanish, Swedish, and Traditional Chinese.

Client group languages include: Arabic, Bulgarian, Croatian, Dutch, Greek, Hebrew, Hungarian, Portuguese, Romanian, Slovak, Slovenian, and Turkish.

Do not confuse languages supported by DB2 with languages supported by the DB2 interface. Languages supported by DB2 that is, languages that *data* can exist in, are a superset of languages supported by the DB2 interface.

Related tasks:

- "Changing the diagnostic error level before DB2 migration" in the *Quick Beginnings for DB2 Servers*
- "Changing the DB2 interface language (Windows)" on page 65
- "Changing the DB2 interface language (UNIX)" on page 65

Related reference:

- "National language versions" in the *Administration Guide: Planning*
- "Supported territory codes and code pages" in the *Administration Guide: Planning*

- "Conversion tables for code pages 923 and 924" in the *Administration Guide: Planning*
- "Conversion table files for euro-enabled code pages" in the *Administration Guide: Planning*

Language identifiers for running the DB2 Setup wizard in another language

If you want to run the DB2 Setup wizard in a language different from the default language on your computer, you can start the DB2 Setup wizard manually, specifying a language identifier. The language must be available on the platform where you are running the installation.

Table 4. Language identifiers

Language	Language identifier
Arabic	ar
Brazilian Portuguese	br
Bulgarian	bg
Chinese, Simplified	cn
Chinese, Traditional	tw
Croatian	hr
Czech	cz
Danish	dk
Dutch	nl
English	en
Finnish	fi
French	fr
German	de
Greek	el
Hebrew	iw
Hungarian	hu
Italian	it
Japanese	jp
Korean	kr
Norwegian	no
Polish	pl
Portuguese	pt
Romanian	ro
Russian	ru
Slovak	sk
Slovenian	sl
Spanish	es
Swedish	se
Turkish	tr

Conversion of character data

When character data is transferred between machines, it must be converted to a form that the receiving machine can use.

For example, when data is transferred between a DB2 Connect server and a host or iSeries™ database server, it is usually converted from a server code page to a host CCSID, and vice versa. If the two machines use different code pages or CCSIDs, code points are mapped from one code page or CCSID to the other. This conversion is always performed at the receiver.

Character data sent *to* a database consists of SQL statements and input data. Character data sent *from* a database consists of output data. Output data that is interpreted as bit data is not converted. For example, data from a column declared with the FOR BIT DATA clause. Otherwise all input and output character data is converted if the two machines have different code pages or CCSIDs.

For example, if DB2 Connect is used to access DB2 Universal Database for z/OS and OS/390 data, the following happens:

1. DB2® Connect sends an SQL statement and input data to OS/390® or z/OS.
2. DB2 Universal Database for z/OS and OS/390 converts the data to an EBCDIC CCSID and processes it.
3. DB2 Universal Database for z/OS and OS/390 sends the result back to the DB2 Connect server.
4. DB2 Connect™ converts the result to an ASCII or ISO code page and returns it to the user.

The table that follows shows the conversions that are supported between code pages (on the DB2 Connect Server) and CCSIDs (on the host or iSeries server).

Table 5. Server Code Page to host or iSeries CCSID Conversion

Host CCSIDs	Code Page	Territory
037, 273, 277, 278, 280, 284, 285, 297, 500,871, 1140-1149	437, 819, 850, 858, 860, 863, 1004, 1051,1252, 1275	Albania, Australia, Austria, Belgium, Brazil, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Latin America, Netherlands, New Zealand, Norway, Portugal, South Africa, Spain, Sweden, Switzerland, UK, USA
423, 875	737, 813, 869, 1253, 1280	Greece
870	852, 912, 920[4] ,1250, 1282	Croatia, Czech Republic, Hungary, Poland, Romania, Serbia/Montenegro (Latin), Slovakia, Slovenia
1025	855, 866, 915, 1251, 1283	Bulgaria, FYR Macedonia, Russia, Serbia/Montenegro(Cyrillic)
1026	857, 920, 1254, 1281	Turkey
424	862, 916, 1255	Israel[3]
420	864, 1046, 1089, 1256	Arabic countries[3]

Table 5. Server Code Page to host or iSeries CCSID Conversion (continued)

Host CCSIDs	Code Page	Territory
838	874	Thailand
930, 939, 5026, 5035	932, 942, 943, 954, 5039	Japan
937	938, 948, 950, 964	Taiwan
933, 1364	949, 970, 1363	Korea
935, 1388	1381, 1383, 1386	Republic of China
1112, 1122	921, 922	Estonia, Latvia, Lithuania
1025	915, 1131, 1251, 1283	Belarus
1123	1124, 1125, 1251	Ukraine

Notes:

1. Code page 1004 is supported as code page 1252.
2. In general, data can be converted from a code page to a CCSID and back again to the same code page with no change. The following are the only exceptions to that rule:
   - In double-byte character set (DBCS) code pages, some data containing user-defined characters may be lost.
   - For single-byte code pages defined within mixed-byte code pages, and for some newer single-byte code pages, characters that do not exist in both the source and the target may be mapped to substitution characters and then lost when the data is converted back to the original code page.
3. For bidirectional languages, a number of special "BiDi CCSIDS" have been defined by IBM® and are supported by DB2 Connect.

   If the bidirectional attributes of the database server are different from those of the client you can use these special CCSIDS to manage the difference.

   See the DB2 Connect Release notes for detailed information about how to set them up for host or iSeries connections.
4. This code page is not supported on VM systems.

Related concepts:

- "Character-conversion guidelines" in the *Administration Guide: Performance*

Appendix B. DB2 Universal Database technical information

DB2 documentation and help

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

- DB2 Information Center
  - Topics
  - Help for DB2 tools
  - Sample programs
  - Tutorials
- Downloadable PDF files, PDF files on CD, and printed books
  - Guides
  - Reference manuals
- Command line help
  - Command help
  - Message help
  - SQL state help
- Installed source code
  - Sample programs

You can access additional DB2 Universal Database™ technical information such as technotes, white papers, and Redbooks™ online at ibm.com®. Access the DB2 Information Management software library site at www.ibm.com/software/data/pubs/.

DB2 documentation updates

IBM® may periodically make documentation FixPaks and other documentation updates to the DB2 Information Center available. If you access the DB2 Information Center at http://publib.boulder.ibm.com/infocenter/db2help/, you will always be viewing the most up-to-date information. If you have installed the DB2 Information Center locally, then you need to install any updates manually before you can view them. Documentation updates allow you to update the information that you installed from the *DB2 Information Center CD* when new information becomes available.

The Information Center is updated more frequently than either the PDF or the hardcopy books. To get the most current DB2 technical information, install the documentation updates as they become available or go to the DB2 Information Center at the www.ibm.com site.

Related concepts:

- "CLI sample programs" in the *CLI Guide and Reference, Volume 1*
- "Java sample programs" in the *Application Development Guide: Building and Running Applications*
- "DB2 Information Center" on page 72

Related tasks:

- "Invoking contextual help from a DB2 tool" on page 89

- "Updating the DB2 Information Center installed on your computer or intranet server" on page 81
- "Invoking message help from the command line processor" on page 90
- "Invoking command help from the command line processor" on page 90
- "Invoking SQL state help from the command line processor" on page 91

Related reference:

- "DB2 PDF and printed documentation" on page 83

DB2 Information Center

The DB2® Information Center gives you access to all of the information you need to take full advantage of DB2 family products, including DB2 Universal Database™, DB2 Connect™, DB2 Information Integrator and DB2 Query Patroller™. The DB2 Information Center also contains information for major DB2 features and components including replication, data warehousing, and the DB2 extenders.

The DB2 Information Center has the following features if you view it in Mozilla 1.0 or later or Microsoft® Internet Explorer 5.5 or later. Some features require you to enable support for JavaScript™:

Flexible installation options

You can choose to view the DB2 documentation using the option that best meets your needs:

- To effortlessly ensure that your documentation is always up to date, you can access all of your documentation directly from the DB2 Information Center hosted on the IBM® Web site at http://publib.boulder.ibm.com/infocenter/db2help/
- To minimize your update efforts and keep your network traffic within your intranet, you can install the DB2 documentation on a single server on your intranet
- To maximize your flexibility and reduce your dependence on network connections, you can install the DB2 documentation on your own computer

Search

You can search all of the topics in the DB2 Information Center by entering a search term in the **Search** text field. You can retrieve exact matches by enclosing terms in quotation marks, and you can refine your search with wildcard operators (*, ?) and Boolean operators (AND, NOT, OR).

Task-oriented table of contents

You can locate topics in the DB2 documentation from a single table of contents. The table of contents is organized primarily by the kind of tasks you may want to perform, but also includes entries for product overviews, goals, reference information, an index, and a glossary.

- Product overviews describe the relationship between the available products in the DB2 family, the features offered by each of those products, and up to date release information for each of these products.
- Goal categories such as installing, administering, and developing include topics that enable you to quickly complete tasks and develop a deeper understanding of the background information for completing those tasks.

- Reference topics provide detailed information about a subject, including statement and command syntax, message help, and configuration parameters.

Show current topic in table of contents
You can show where the current topic fits into the table of contents by clicking the **Refresh / Show Current Topic** button in the table of contents frame or by clicking the **Show in Table of Contents** button in the content frame. This feature is helpful if you have followed several links to related topics in several files or arrived at a topic from search results.

Index You can access all of the documentation from the index. The index is organized in alphabetical order by index term.

Glossary
You can use the glossary to look up definitions of terms used in the DB2 documentation. The glossary is organized in alphabetical order by glossary term.

Integrated localized information
The DB2 Information Center displays information in the preferred language set in your browser preferences. If a topic is not available in your preferred language, the DB2 Information Center displays the English version of that topic.

For iSeries™ technical information, refer to the IBM eServer™ iSeries information center at www.ibm.com/eserver/iseries/infocenter/.

Related concepts:

- "DB2 Information Center installation scenarios" on page 73

Related tasks:

- "Updating the DB2 Information Center installed on your computer or intranet server" on page 81
- "Displaying topics in your preferred language in the DB2 Information Center" on page 82
- "Invoking the DB2 Information Center" on page 80
- "Installing the DB2 Information Center using the DB2 Setup wizard (UNIX)" on page 76
- "Installing the DB2 Information Center using the DB2 Setup wizard (Windows)" on page 78

DB2 Information Center installation scenarios

Different working environments can pose different requirements for how to access DB2® information. The DB2 Information Center can be accessed on the IBM® Web site, on a server on your organization's network, or on a version installed on your computer. In all three cases, the documentation is contained in the DB2 Information Center, which is an architected web of topic-based information that you view with a browser. By default, DB2 products access the DB2 Information Center on the IBM Web site. However, if you want to access the DB2 Information Center on an intranet server or on your own computer, you must install the DB2 Information Center using the DB2 Information Center CD found in your product Media Pack. Refer to the summary of options for accessing DB2 documentation which follows, along with the three installation scenarios, to help determine which

method of accessing the DB2 Information Center works best for you and your work environment, and what installation issues you might need to consider.

Summary of options for accessing DB2 documentation:

The following table provides recommendations on which options are possible in your work environment for accessing the DB2 product documentation in the DB2 Information Center.

Internet access	Intranet access	Recommendation
Yes	Yes	Access the DB2 Information Center on the IBM Web site, or access the DB2 Information Center installed on an intranet server.
Yes	No	Access the DB2 Information Center on the IBM Web site.
No	Yes	Access the DB2 Information Center installed on an intranet server.
No	No	Access the DB2 Information Center on a local computer.

Scenario: Accessing the DB2 Information Center on your computer:

Tsu-Chen owns a factory in a small town that does not have a local ISP to provide him with Internet access. He purchased DB2 Universal Database™ to manage his inventory, his product orders, his banking account information, and his business expenses. Never having used a DB2 product before, Tsu-Chen needs to learn how to do so from the DB2 product documentation.

After installing DB2 Universal Database on his computer using the typical installation option, Tsu-Chen tries to access the DB2 documentation. However, his browser gives him an error message that the page he tried to open cannot be found. Tsu-Chen checks the installation manual for his DB2 product and discovers that he has to install the DB2 Information Center if he wants to access DB2 documentation on his computer. He finds the *DB2 Information Center CD* in the media pack and installs it.

From the application launcher for his operating system, Tsu-Chen now has access to the DB2 Information Center and can learn how to use his DB2 product to increase the success of his business.

Scenario: Accessing the DB2 Information Center on the IBM Web site:

Colin is an information technology consultant with a training firm. He specializes in database technology and SQL and gives seminars on these subjects to businesses all over North America using DB2 Universal Database. Part of Colin's seminars includes using DB2 documentation as a teaching tool. For example, while teaching courses on SQL, Colin uses the DB2 documentation on SQL as a way to teach basic and advanced syntax for database queries.

Most of the businesses at which Colin teaches have Internet access. This situation influenced Colin's decision to configure his mobile computer to access the DB2 Information Center on the IBM Web site when he installed the latest version of DB2 Universal Database. This configuration allows Colin to have online access to the latest DB2 documentation during his seminars.

However, sometimes while travelling Colin does not have Internet access. This posed a problem for him, especially when he needed to access to DB2 documentation to prepare for seminars. To avoid situations like this, Colin installed a copy of the DB2 Information Center on his mobile computer.

Colin enjoys the flexibility of always having a copy of DB2 documentation at his disposal. Using the **db2set** command, he can easily configure the registry variables on his mobile computer to access the DB2 Information Center on either the IBM Web site, or his mobile computer, depending on his situation.

Scenario: Accessing the DB2 Information Center on an intranet server:

Eva works as a senior database administrator for a life insurance company. Her administration responsibilities include installing and configuring the latest version of DB2 Universal Database on the company's UNIX® database servers. Her company recently informed its employees that, for security reasons, it would not provide them with Internet access at work. Because her company has a networked environment, Eva decides to install a copy of the DB2 Information Center on an intranet server so that all employees in the company who use the company's data warehouse on a regular basis (sales representatives, sales managers, and business analysts) have access to DB2 documentation.

Eva instructs her database team to install the latest version of DB2 Universal Database on all of the employee's computers using a response file, to ensure that each computer is configured to access the DB2 Information Center using the host name and the port number of the intranet server.

However, through a misunderstanding Migual, a junior database administrator on Eva's team, installs a copy of the DB2 Information Center on several of the employee computers, rather than configuring DB2 Universal Database to access the DB2 Information Center on the intranet server. To correct this situation Eva tells Migual to use the **db2set** command to change the DB2 Information Center registry variables (DB2_DOCHOST for the host name, and DB2_DOCPORT for the port number) on each of these computers. Now all of the appropriate computers on the network have access to the DB2 Information Center, and employees can find answers to their DB2 questions in the DB2 documentation.

Related concepts:

- "DB2 Information Center" on page 72

Related tasks:

- "Updating the DB2 Information Center installed on your computer or intranet server" on page 81
- "Installing the DB2 Information Center using the DB2 Setup wizard (UNIX)" on page 76
- "Installing the DB2 Information Center using the DB2 Setup wizard (Windows)" on page 78

Related reference:

- "db2set - DB2 Profile Registry Command" in the *Command Reference*

Installing the DB2 Information Center using the DB2 Setup wizard (UNIX)

DB2 product documentation can be accessed in three ways: on the IBM Web site, on an intranet server, or on a version installed on your computer. By default, DB2 products access DB2 documentation on the IBM Web site. If you want to access the DB2 documentation on an intranet server or on your own computer, you must install the documentation from the *DB2 Information Center CD*. Using the DB2 Setup wizard, you can define your installation preferences and install the DB2 Information Center on a computer that uses a UNIX operating system.

Prerequisites:

This section lists the hardware, operating system, software, and communication requirements for installing the DB2 Information Center on UNIX computers.

- **Hardware requirements**

  You require one of the following processors:
  - PowerPC (AIX)
  - HP 9000 (HP-UX)
  - Intel 32–bit (Linux)
  - Solaris UltraSPARC computers (Solaris Operating Environment)
- **Operating system requirements**

  You require one of the following operating systems:
  - IBM AIX 5.1 (on PowerPC)
  - HP-UX 11i (on HP 9000)
  - Red Hat Linux 8.0 (on Intel 32–bit)
  - SuSE Linux 8.1 (on Intel 32–bit)
  - Sun Solaris Version 8 (on Solaris Operating Environment UltraSPARC computers)

  Note: The DB2 Information Center runs on a subset of the UNIX operating systems on which DB2 clients are supported. It is therefore recommended that you either access the DB2 Information Center from the IBM Web site, or that you install and access the DB2 Information Center on an intranet server.
- **Software requirements**
  - The following browser is supported:
    - Mozilla Version 1.0 or greater
- The DB2 Setup wizard is a graphical installer. You must have an implementation of the X Window System software capable of rendering a graphical user interface for the DB2 Setup wizard to run on your computer. Before you can run the DB2 Setup wizard you must ensure that you have properly exported your display. For example, enter the following command at the command prompt:

  ```
  export DISPLAY=9.26.163.144:0.
  ```
- **Communication requirements**
  - TCP/IP

Procedure:

To install the DB2 Information Center using the DB2 Setup wizard:

1. Log on to the system.
2. Insert and mount the DB2 Information Center product CD on your system.
3. Change to the directory where the CD is mounted by entering the following command:

   ```
   cd /cd
   ```

   where */cd* represents the mount point of the CD.
4. Enter the **./db2setup** command to start the DB2 Setup wizard.
5. The IBM DB2 Setup Launchpad opens. To proceed directly to the installation of the DB2 Information Center, click **Install Product**. Online help is available to guide you through the remaining steps. To invoke the online help, click **Help**. You can click **Cancel** at any time to end the installation.
6. On the **Select the product you would like to install** page, click **Next**.
7. Click **Next** on the **Welcome to the DB2 Setup wizard** page. The DB2 Setup wizard will guide you through the program setup process.
8. To proceed with the installation, you must accept the license agreement. On the **License Agreement** page, select **I accept the terms in the license agreement** and click **Next**.
9. Select **Install DB2 Information Center on this computer** on the **Select the installation action** page. If you want to use a response file to install the DB2 Information Center on this or other computers at a later time, select **Save your settings in a response file**. Click **Next**.
10. Select the languages in which the DB2 Information Center will be installed on **Select the languages to install** page. Click **Next**.
11. Configure the DB2 Information Center for incoming communication on the **Specify the DB2 Information Center port** page. Click **Next** to continue the installation.
12. Review the installation choices you have made in the **Start copying files** page. To change any settings, click **Back**. Click **Install** to copy the DB2 Information Center files onto your computer.

You can also install the DB2 Information Center using a response file.

The installation logs `db2setup.his`, `db2setup.log`, and `db2setup.err` are located, by default, in the `/tmp` directory.

The `db2setup.log` file captures all DB2 product installation information, including errors. The `db2setup.his` file records all DB2 product installations on your computer. DB2 appends the `db2setup.log` file to the `db2setup.his` file. The `db2setup.err` file captures any error output that is returned by Java, for example, exceptions and trap information.

When the installation is complete, the DB2 Information Center will be installed in one of the following directories, depending upon your UNIX operating system:

- AIX: /usr/opt/db2_08_01
- HP-UX: /opt/IBM/db2/V8.1
- Linux: /opt/IBM/db2/V8.1
- Solaris Operating Environment: /opt/IBM/db2/V8.1

Related concepts:

- "DB2 Information Center" on page 72
- "DB2 Information Center installation scenarios" on page 73

Related tasks:

- "Installing DB2 using a response file (UNIX)" in the *Installation and Configuration Supplement*
- "Updating the DB2 Information Center installed on your computer or intranet server" on page 81
- "Displaying topics in your preferred language in the DB2 Information Center" on page 82
- "Invoking the DB2 Information Center" on page 80
- "Installing the DB2 Information Center using the DB2 Setup wizard (Windows)" on page 78

Installing the DB2 Information Center using the DB2 Setup wizard (Windows)

DB2 product documentation can be accessed in three ways: on the IBM Web site, on an intranet server, or on a version installed on your computer. By default, DB2 products access DB2 documentation on the IBM Web site. If you want to access the DB2 documentation on an intranet server or on your own computer, you must install the DB2 documentation from the *DB2 Information Center CD*. Using the DB2 Setup wizard, you can define your installation preferences and install the DB2 Information Center on a computer that uses a Windows operating system.

Prerequisites:

This section lists the hardware, operating system, software, and communication requirements for installing the DB2 Information Center on Windows.

- **Hardware requirements**

  You require one of the following processors:

  – 32-bit computers: a Pentium or Pentium compatible CPU
- **Operating system requirements**

  You require one of the following operating systems:

  – Windows 2000

  – Windows XP

  Note: The DB2 Information Center runs on a subset of the Windows operating systems on which DB2 clients are supported. It is therefore recommended that you either access the DB2 Information Center on the IBM Web site, or that you install and access the DB2 Information Center on an intranet server.
- **Software requirements**

  – The following browsers are supported:

    - Mozilla 1.0 or greater

    - Internet Explorer Version 5.5 or 6.0 (Version 6.0 for Windows XP)
- **Communication requirements**

  – TCP/IP

Restrictions:

- You require an account with administrative privileges to install the DB2 Information Center.

Procedure:

To install the DB2 Information Center using the DB2 Setup wizard:

1. Log on to the system with the account that you have defined for the DB2 Information Center installation.
2. Insert the CD into the drive. If enabled, the auto-run feature starts the IBM DB2 Setup Launchpad.
3. The DB2 Setup wizard determines the system language and launches the setup program for that language. If you want to run the setup program in a language other than English, or the setup program fails to auto-start, you can start the DB2 Setup wizard manually.

   To start the DB2 Setup wizard manually:

   a. Click **Start** and select **Run**.
   b. In the **Open** field, type the following command:

      ```
      x:\setup.exe /i 2-letter language identifier
      ```

      where *x:* represents your CD drive, and *2-letter language identifier* represents the language in which the setup program will be run.
   c. Click **OK**.
4. The IBM DB2 Setup Launchpad opens. To proceed directly to the installation of the DB2 Information Center, click **Install Product**. Online help is available to guide you through the remaining steps. To invoke the online help, click **Help**. You can click **Cancel** at any time to end the installation.
5. On the **Select the product you would like to install** page, click **Next**.
6. Click **Next** on the **Welcome to the DB2 Setup wizard** page. The DB2 Setup wizard will guide you through the program setup process.
7. To proceed with the installation, you must accept the license agreement. On the **License Agreement** page, select **I accept the terms in the license agreement** and click **Next**.
8. Select **Install DB2 Information Center on this computer** on the **Select the installation action** page. If you want to use a response file to install the DB2 Information Center on this or other computers at a later time, select **Save your settings in a response file**. Click **Next**.
9. Select the languages in which the DB2 Information Center will be installed on **Select the languages to install** page. Click **Next**.
10. Configure the DB2 Information Center for incoming communication on the **Specify the DB2 Information Center port** page. Click **Next** to continue the installation.
11. Review the installation choices you have made in the **Start copying files** page. To change any settings, click **Back**. Click **Install** to copy the DB2 Information Center files onto your computer.

You can install the DB2 Information Center using a response file. You can also use the **db2rspgn** command to generate a response file based on an existing installation.

For information on errors encountered during installation, see the `db2.log` and `db2wi.log` files located in the `'My Documents'\DB2LOG\` directory. The location of the `'My Documents'` directory will depend on the settings on your computer.

The `db2wi.log` file captures the most recent DB2 installation information. The `db2.log` captures the history of DB2 product installations.

Related concepts:

- "DB2 Information Center" on page 72
- "DB2 Information Center installation scenarios" on page 73

Related tasks:

- "Installing a DB2 product using a response file (Windows)" in the *Installation and Configuration Supplement*
- "Updating the DB2 Information Center installed on your computer or intranet server" on page 81
- "Displaying topics in your preferred language in the DB2 Information Center" on page 82
- "Invoking the DB2 Information Center" on page 80
- "Installing the DB2 Information Center using the DB2 Setup wizard (UNIX)" on page 76

Related reference:

- "db2rspgn - Response File Generator Command (Windows)" in the *Command Reference*

Invoking the DB2 Information Center

The DB2 Information Center gives you access to all of the information that you need to use DB2 products for Linux, UNIX, and Windows operating systems such as DB2 Universal Database, DB2 Connect, DB2 Information Integrator, and DB2 Query Patroller.

You can invoke the DB2 Information Center from one of the following places:

- Computers on which a DB2 UDB client or server is installed
- An intranet server or local computer on which the DB2 Information Center installed
- The IBM Web site

Prerequisites:

Before you invoke the DB2 Information Center:

- *Optional*: Configure your browser to display topics in your preferred language
- *Optional*: Configure your DB2 client to use the DB2 Information Center installed on your computer or intranet server

Procedure:

To invoke the DB2 Information Center on a computer on which a DB2 UDB client or server is installed:

- From the Start Menu (Windows operating system): Click **Start → Programs → IBM DB2 → Information → Information Center**.
- From the command line prompt:
  - For Linux and UNIX operating systems, issue the **db2icdocs** command.
  - For the Windows operating system, issue the **db2icdocs.exe** command.

To open the DB2 Information Center installed on an intranet server or local computer in a Web browser:

- Open the Web page at http://<host-name>:<port-number>/, where <host-name> represents the host name and <port-number> represents the port number on which the DB2 Information Center is available.

To open the DB2 Information Center on the IBM Web site in a Web browser:

- Open the Web page at publib.boulder.ibm.com/infocenter/db2help/.

Related concepts:

- "DB2 Information Center" on page 72

Related tasks:

- "Displaying topics in your preferred language in the DB2 Information Center" on page 82
- "Invoking contextual help from a DB2 tool" on page 89
- "Updating the DB2 Information Center installed on your computer or intranet server" on page 81
- "Invoking message help from the command line processor" on page 90
- "Invoking command help from the command line processor" on page 90
- "Invoking SQL state help from the command line processor" on page 91

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

The DB2 Information Center available from http://publib.boulder.ibm.com/infocenter/db2help/ will be periodically updated with new or changed documentation. IBM may also make DB2 Information Center updates available to download and install on your computer or intranet server. Updating the DB2 Information Center does not update DB2 client or server products.

Prerequisites:

You must have access to a computer that is connected to the Internet.

Procedure:

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

1. Open the DB2 Information Center hosted on the IBM Web site at: http://publib.boulder.ibm.com/infocenter/db2help/
2. In the Downloads section of the welcome page under the Service and Support heading, click the **DB2 Universal Database documentation** link.
3. Determine if the version of your DB2 Information Center is out of date by comparing the latest refreshed documentation image level to the documentation level you have installed. The documentation level you have installed is listed on the DB2 Information Center welcome page.
4. If a more recent version of the DB2 Information Center is available, download the latest refreshed *DB2 Information Center* image applicable to your operating system.
5. To install the refreshed *DB2 Information Center* image, follow the instructions provided on the Web page.

Related concepts:

- "DB2 Information Center installation scenarios" on page 73

Related tasks:

- "Invoking the DB2 Information Center" on page 80
- "Installing the DB2 Information Center using the DB2 Setup wizard (UNIX)" on page 76
- "Installing the DB2 Information Center using the DB2 Setup wizard (Windows)" on page 78

Displaying topics in your preferred language in the DB2 Information Center

The DB2 Information Center attempts to display topics in the language specified in your browser preferences. If a topic has not been translated into your preferred language, the DB2 Information Center displays the topic in English.

Procedure:

To display topics in your preferred language in the Internet Explorer browser:

1. In Internet Explorer, click the **Tools** —> **Internet Options** —> **Languages...** button. The Language Preferences window opens.
2. Ensure your preferred language is specified as the first entry in the list of languages.
   - To add a new language to the list, click the **Add...** button.

     Note: Adding a language does not guarantee that the computer has the fonts required to display the topics in the preferred language.
   - To move a language to the top of the list, select the language and click the **Move Up** button until the language is first in the list of languages.
3. Refresh the page to display the DB2 Information Center in your preferred language.

To display topics in your preferred language in the Mozilla browser:

1. In Mozilla, select the **Edit** —> **Preferences** —> **Languages** button. The Languages panel is displayed in the Preferences window.
2. Ensure your preferred language is specified as the first entry in the list of languages.
   - To add a new language to the list, click the **Add...** button to select a language from the Add Languages window.
   - To move a language to the top of the list, select the language and click the **Move Up** button until the language is first in the list of languages.
3. Refresh the page to display the DB2 Information Center in your preferred language.

Related concepts:

- "DB2 Information Center" on page 72

DB2 PDF and printed documentation

The following tables provide official book names, form numbers, and PDF file names. To order hardcopy books, you must know the official book name. To print a PDF file, you must know the PDF file name.

The DB2 documentation is categorized by the following headings:

- Core DB2 information
- Administration information
- Application development information
- Business intelligence information
- DB2 Connect information
- Getting started information
- Tutorial information
- Optional component information
- Release notes

The following tables describe, for each book in the DB2 library, the information needed to order the hard copy, or to print or view the PDF for that book. A full description of each of the books in the DB2 library is available from the IBM Publications Center at www.ibm.com/shop/publications/order

Core DB2 information

The information in these books is fundamental to all DB2 users; you will find this information useful whether you are a programmer, a database administrator, or someone who works with DB2 Connect, DB2 Warehouse Manager, or other DB2 products.

Table 6. Core DB2 information

Name	Form Number	PDF File Name
IBM DB2 Universal Database Command Reference	SC09-4828	db2n0x81
IBM DB2 Universal Database Glossary	No form number	db2t0x81
IBM DB2 Universal Database Message Reference, Volume 1	GC09-4840, not available in hardcopy	db2m1x81
IBM DB2 Universal Database Message Reference, Volume 2	GC09-4841, not available in hardcopy	db2m2x81
IBM DB2 Universal Database What's New	SC09-4848	db2q0x81

Administration information

The information in these books covers those topics required to effectively design, implement, and maintain DB2 databases, data warehouses, and federated systems.

Table 7. Administration information

Name	Form number	PDF file name
IBM DB2 Universal Database Administration Guide: Planning	SC09-4822	db2d1x81

Table 7. Administration information (continued)

Name	Form number	PDF file name
IBM DB2 Universal Database Administration Guide: Implementation	SC09-4820	db2d2x81
IBM DB2 Universal Database Administration Guide: Performance	SC09-4821	db2d3x81
IBM DB2 Universal Database Administrative API Reference	SC09-4824	db2b0x81
IBM DB2 Universal Database Data Movement Utilities Guide and Reference	SC09-4830	db2dmx81
IBM DB2 Universal Database Data Recovery and High Availability Guide and Reference	SC09-4831	db2hax81
IBM DB2 Universal Database Data Warehouse Center Administration Guide	SC27-1123	db2ddx81
IBM DB2 Universal Database SQL Reference, Volume 1	SC09-4844	db2s1x81
IBM DB2 Universal Database SQL Reference, Volume 2	SC09-4845	db2s2x81
IBM DB2 Universal Database System Monitor Guide and Reference	SC09-4847	db2f0x81

Application development information

The information in these books is of special interest to application developers or programmers working with DB2 Universal Database (DB2 UDB). You will find information about supported languages and compilers, as well as the documentation required to access DB2 UDB using the various supported programming interfaces, such as embedded SQL, ODBC, JDBC, SQLJ, and CLI. If you are using the DB2 Information Center, you can also access HTML versions of the source code for the sample programs.

Table 8. Application development information

Name	Form number	PDF file name
IBM DB2 Universal Database Application Development Guide: Building and Running Applications	SC09-4825	db2axx81
IBM DB2 Universal Database Application Development Guide: Programming Client Applications	SC09-4826	db2a1x81
IBM DB2 Universal Database Application Development Guide: Programming Server Applications	SC09-4827	db2a2x81
IBM DB2 Universal Database Call Level Interface Guide and Reference, Volume 1	SC09-4849	db2l1x81

Table 8. Application development information (continued)

Name	Form number	PDF file name
IBM DB2 Universal Database Call Level Interface Guide and Reference, Volume 2	SC09-4850	db2l2x81
IBM DB2 Universal Database Data Warehouse Center Application Integration Guide	SC27-1124	db2adx81
IBM DB2 XML Extender Administration and Programming	SC27-1234	db2sxx81

Business intelligence information

The information in these books describes how to use components that enhance the data warehousing and analytical capabilities of DB2 Universal Database.

Table 9. Business intelligence information

Name	Form number	PDF file name
IBM DB2 Warehouse Manager Standard Edition Information Catalog Center Administration Guide	SC27-1125	db2dix81
IBM DB2 Warehouse Manager Standard Edition Installation Guide	GC27-1122	db2idx81
IBM DB2 Warehouse Manager Standard Edition Managing ETI Solution Conversion Programs with DB2 Warehouse Manager	SC18-7727	iwhe1mstx80

DB2 Connect information

The information in this category describes how to access data on mainframe and midrange servers using DB2 Connect Enterprise Edition or DB2 Connect Personal Edition.

Table 10. DB2 Connect information

Name	Form number	PDF file name
IBM Connectivity Supplement	No form number	db2h1x81
IBM DB2 Connect Quick Beginnings for DB2 Connect Enterprise Edition	GC09-4833	db2c6x81
IBM DB2 Connect Quick Beginnings for DB2 Connect Personal Edition	GC09-4834	db2c1x81
IBM DB2 Connect User's Guide	SC09-4835	db2c0x81

Getting started information

The information in this category is useful when you are installing and configuring servers, clients, and other DB2 products.

Table 11. Getting started information

Name	Form number	PDF file name
IBM DB2 Universal Database Quick Beginnings for DB2 Clients	GC09-4832, not available in hardcopy	db2itx81
IBM DB2 Universal Database Quick Beginnings for DB2 Servers	GC09-4836	db2isx81
IBM DB2 Universal Database Quick Beginnings for DB2 Personal Edition	GC09-4838	db2i1x81
IBM DB2 Universal Database Installation and Configuration Supplement	GC09-4837, not available in hardcopy	db2iyx81
IBM DB2 Universal Database Quick Beginnings for DB2 Data Links Manager	GC09-4829	db2z6x81

Tutorial information

Tutorial information introduces DB2 features and teaches how to perform various tasks.

Table 12. Tutorial information

Name	Form number	PDF file name
Business Intelligence Tutorial: Introduction to the Data Warehouse	No form number	db2tux81
Business Intelligence Tutorial: Extended Lessons in Data Warehousing	No form number	db2tax81
Information Catalog Center Tutorial	No form number	db2aix81
Video Central for e-business Tutorial	No form number	db2twx81
Visual Explain Tutorial	No form number	db2tvx81

Optional component information

The information in this category describes how to work with optional DB2 components.

Table 13. Optional component information

Name	Form number	PDF file name
IBM DB2 Cube Views Guide and Reference	SC18–7298	db2aax81
IBM DB2 Query Patroller Guide: Installation, Administration and Usage Guide	GC09–7658	db2dwx81
IBM DB2 Spatial Extender and Geodetic Extender User's Guide and Reference	SC27-1226	db2sbx81

Table 13. Optional component information (continued)

Name	Form number	PDF file name
IBM DB2 Universal Database Data Links Manager Administration Guide and Reference	SC27-1221	db2z0x82
DB2 Net Search Extender Administration and User's Guide **Note:** HTML for this document is *not* installed from the HTML documentation CD.	SH12-6740	N/A

Release notes

The release notes provide additional information specific to your product's release and FixPak level. The release notes also provide summaries of the documentation updates incorporated in each release, update, and FixPak.

Table 14. Release notes

Name	Form number	PDF file name
DB2 Release Notes	See note.	See note.
DB2 Installation Notes	Available on product CD-ROM only.	Not available.

Note: The Release Notes are available in:

- XHTML and Text format, on the product CDs
- PDF format, on the PDF Documentation CD

In addition the portions of the Release Notes that discuss *Known Problems and Workarounds* and *Incompatibilities Between Releases* also appear in the DB2 Information Center.

To view the Release Notes in text format on UNIX-based platforms, see the `Release.Notes` file. This file is located in the `DB2DIR/Readme/%L` directory, where `%L` represents the locale name and `DB2DIR` represents:

- For AIX operating systems: `/usr/opt/db2_08_01`
- For all other UNIX-based operating systems: `/opt/IBM/db2/V8.1`

Related concepts:

- "DB2 documentation and help" on page 71

Related tasks:

- "Printing DB2 books from PDF files" on page 88
- "Ordering printed DB2 books" on page 88
- "Invoking contextual help from a DB2 tool" on page 89

Printing DB2 books from PDF files

You can print DB2 books from the PDF files on the *DB2 PDF Documentation* CD. Using Adobe Acrobat Reader, you can print either the entire book or a specific range of pages.

Prerequisites:

Ensure that you have Adobe Acrobat Reader installed. If you need to install Adobe Acrobat Reader, it is available from the Adobe Web site at www.adobe.com

Procedure:

To print a DB2 book from a PDF file:

1. Insert the *DB2 PDF Documentation* CD. On UNIX operating systems, mount the DB2 PDF Documentation CD. Refer to your *Quick Beginnings* book for details on how to mount a CD on UNIX operating systems.
2. Open index.htm. The file opens in a browser window.
3. Click on the title of the PDF you want to see. The PDF will open in Acrobat Reader.
4. Select **File → Print** to print any portions of the book that you want.

Related concepts:

- "DB2 Information Center" on page 72

Related tasks:

- "Mounting the CD-ROM (AIX)" in the *Quick Beginnings for DB2 Servers*
- "Mounting the CD-ROM (HP-UX)" in the *Quick Beginnings for DB2 Servers*
- "Mounting the CD-ROM (Linux)" in the *Quick Beginnings for DB2 Servers*
- "Ordering printed DB2 books" on page 88
- "Mounting the CD-ROM (Solaris Operating Environment)" in the *Quick Beginnings for DB2 Servers*

Related reference:

- "DB2 PDF and printed documentation" on page 83

Ordering printed DB2 books

If you prefer to use hardcopy books, you can order them in one of three ways.

Procedure:

Printed books can be ordered in some countries or regions. Check the IBM Publications website for your country or region to see if this service is available in your country or region. When the publications are available for ordering, you can:

- Contact your IBM authorized dealer or marketing representative. To find a local IBM representative, check the IBM Worldwide Directory of Contacts at www.ibm.com/planetwide
- Phone `1-800-879-2755` in the United States or `1-800-IBM-4YOU` in Canada.

- Visit the IBM Publications Center at http://www.ibm.com/shop/publications/order. The ability to order books from the IBM Publications Center may not be available in all countries.

At the time the DB2 product becomes available, the printed books are the same as those that are available in PDF format on the *DB2 PDF Documentation CD*. Content in the printed books that appears in the *DB2 Information Center CD* is also the same. However, there is some additional content available in DB2 Information Center CD that does not appear anywhere in the PDF books (for example, SQL Administration routines and HTML samples). Not all books available on the DB2 PDF Documentation CD are available for ordering in hardcopy.

Note: The DB2 Information Center is updated more frequently than either the PDF or the hardcopy books; install documentation updates as they become available or refer to the DB2 Information Center at http://publib.boulder.ibm.com/infocenter/db2help/ to get the most current information.

Related tasks:

- "Printing DB2 books from PDF files" on page 88

Related reference:

- "DB2 PDF and printed documentation" on page 83

Invoking contextual help from a DB2 tool

Contextual help provides information about the tasks or controls that are associated with a particular window, notebook, wizard, or advisor. Contextual help is available from DB2 administration and development tools that have graphical user interfaces. There are two types of contextual help:

- Help accessed through the **Help** button that is located on each window or notebook
- Infopops, which are pop-up information windows displayed when the mouse cursor is placed over a field or control, or when a field or control is selected in a window, notebook, wizard, or advisor and F1 is pressed.

The **Help** button gives you access to overview, prerequisite, and task information. The infopops describe the individual fields and controls.

Procedure:

To invoke contextual help:

- For window and notebook help, start one of the DB2 tools, then open any window or notebook. Click the **Help** button at the bottom right corner of the window or notebook to invoke the contextual help.

  You can also access the contextual help from the **Help** menu item at the top of each of the DB2 tools centers.

  Within wizards and advisors, click on the Task Overview link on the first page to view contextual help.
- For infopop help about individual controls on a window or notebook, click the control, then click **F1**. Pop-up information containing details about the control is displayed in a yellow window.

Note: To display infopops simply by holding the mouse cursor over a field or control, select the **Automatically display infopops** check box on the **Documentation** page of the Tool Settings notebook.

Similar to infopops, diagnosis pop-up information is another form of context-sensitive help; they contain data entry rules. Diagnosis pop-up information is displayed in a purple window that appears when data that is not valid or that is insufficient is entered. Diagnosis pop-up information can appear for:

- Compulsory fields.
- Fields whose data follows a precise format, such as a date field.

Related tasks:

- "Invoking the DB2 Information Center" on page 80
- "Invoking message help from the command line processor" on page 90
- "Invoking command help from the command line processor" on page 90
- "Invoking SQL state help from the command line processor" on page 91
- "How to use the DB2 UDB help: Common GUI help"
- "Setting up access to DB2 contextual help and documentation: Common GUI help"

Invoking message help from the command line processor

Message help describes the cause of a message and describes any action you should take in response to the error.

Procedure:

To invoke message help, open the command line processor and enter:

```
? XXXnnnnn
```

where *XXXnnnnn* represents a valid message identifier.

For example, `? SQL30081` displays help about the SQL30081 message.

Related concepts:

- "Introduction to messages" in the *Message Reference Volume 1*

Related reference:

- "db2 - Command Line Processor Invocation Command" in the *Command Reference*

Invoking command help from the command line processor

Command help explains the syntax of commands in the command line processor.

Procedure:

To invoke command help, open the command line processor and enter:

```
? command
```

where *command* represents a keyword or the entire command.

For example, `? catalog` displays help for all of the CATALOG commands, while `? catalog database` displays help only for the CATALOG DATABASE command.

Related tasks:

- "Invoking contextual help from a DB2 tool" on page 89
- "Invoking the DB2 Information Center" on page 80
- "Invoking message help from the command line processor" on page 90
- "Invoking SQL state help from the command line processor" on page 91

Related reference:

- "db2 - Command Line Processor Invocation Command" in the *Command Reference*

Invoking SQL state help from the command line processor

DB2 Univerrsal Database returns an SQLSTATE value for conditions that could be the result of an SQL statement. SQLSTATE help explains the meanings of SQL states and SQL state class codes.

Procedure:

To invoke 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.

Related tasks:

- "Invoking the DB2 Information Center" on page 80
- "Invoking message help from the command line processor" on page 90
- "Invoking command help from the command line processor" on page 90

DB2 tutorials

The DB2® tutorials help you learn about various aspects of DB2 Universal Database. The tutorials provide lessons with step-by-step instructions in the areas of developing applications, tuning SQL query performance, working with data warehouses, managing metadata, and developing Web services using DB2.

Before you begin:

You can view the XHTML versions of the tutorials from the Information Center at http://publib.boulder.ibm.com/infocenter/db2help/.

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

DB2 Universal Database tutorials:

Click on a tutorial title in the following list to view that tutorial.

Business Intelligence Tutorial: Introduction to the Data Warehouse Center
Perform introductory data warehousing tasks using the Data Warehouse Center.

Business Intelligence Tutorial: Extended Lessons in Data Warehousing
Perform advanced data warehousing tasks using the Data Warehouse Center.

Information Catalog Center Tutorial
Create and manage an information catalog to locate and use metadata using the Information Catalog Center.

Visual Explain Tutorial
Analyze, optimize, and tune SQL statements for better performance using Visual Explain.

DB2 troubleshooting information

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

DB2 documentation
Troubleshooting information can be found throughout the DB2 Information Center, as well as throughout the PDF books that make up the DB2 library. You can refer to the ″Support and troubleshooting″ branch of the DB2 Information Center navigation tree (in the left pane of your browser window) to see a complete listing of the DB2 troubleshooting documentation.

DB2 Technical Support Web site
Refer to the DB2 Technical Support Web site 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), FixPaks and the latest listing of internal DB2 error codes, and other resources. You can search through this knowledge base to find possible solutions to your problems.

Access the DB2 Technical Support Web site at http://www.ibm.com/software/data/db2/udb/winos2unix/support

DB2 Problem Determination Tutorial Series
Refer to the DB2 Problem Determination Tutorial Series Web site to find information on how to quickly identify and resolve problems you might encounter while working with DB2 products. One tutorial introduces you to the DB2 problem determination facilities and tools available, and helps you decide when to use them. Other tutorials deal with related topics, such as ″Database Engine Problem Determination″, ″Performance Problem Determination″, and ″Application Problem Determination″.

See the full set of DB2 problem determination tutorials on the DB2 Technical Support site at http://www.ibm.com/software/data/support/pdm/db2tutorials.html

Related concepts:

- “DB2 Information Center” on page 72
- “Introduction to problem determination - DB2 Technical Support tutorial” in the *Troubleshooting Guide*

Accessibility

Accessibility features help users with physical disabilities, such as restricted mobility or limited vision, to use software products successfully. The following list specifies the major accessibility features in DB2® Version 8 products:

- All DB2 functionality is available using the keyboard for navigation instead of the mouse. For more information, see "Keyboard input and navigation."
- You can customize the size and color of the fonts on DB2 user interfaces. For more information, see "Accessible display."
- DB2 products support accessibility applications that use the Java™ Accessibility API. For more information, see "Compatibility with assistive technologies" on page 94.
- DB2 documentation is provided in an accessible format. For more information, see "Accessible documentation" on page 94.

Keyboard input and navigation

Keyboard input

You can operate the DB2 tools using only the keyboard. You can use keys or key combinations to perform operations that can also be done using a mouse. Standard operating system keystrokes are used for standard operating system operations.

For more information about using keys or key combinations to perform operations, see Keyboard shortcuts and accelerators: Common GUI help.

Keyboard navigation

You can navigate the DB2 tools user interface using keys or key combinations.

For more information about using keys or key combinations to navigate the DB2 Tools, see Keyboard shortcuts and accelerators: Common GUI help.

Keyboard focus

In UNIX® operating systems, the area of the active window where your keystrokes will have an effect is highlighted.

Accessible display

The DB2 tools have features that improve accessibility for users with low vision or other visual impairments. These accessibility enhancements include support for customizable font properties.

Font settings

You can select the color, size, and font for the text in menus and dialog windows, using the Tools Settings notebook.

For more information about specifying font settings, see Changing the fonts for menus and text: Common GUI help.

Non-dependence on color

You do not need to distinguish between colors in order to use any of the functions in this product.

Compatibility with assistive technologies

The DB2 tools interfaces support the Java Accessibility API, which enables you to use screen readers and other assistive technologies with DB2 products.

Accessible documentation

Documentation for DB2 is provided in XHTML 1.0 format, which is viewable in most Web browsers. XHTML allows you to view documentation according to the display preferences set in your browser. It also allows you to use screen readers and other assistive technologies.

Syntax diagrams are provided in dotted decimal format. This format is available only if you are accessing the online documentation using a screen-reader.

Related concepts:

• "Dotted decimal syntax diagrams" on page 94

Dotted decimal syntax diagrams

Syntax diagrams are provided in dotted decimal format for users accessing the Information Center 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), they 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 out punctuation. All the syntax elements that have the same dotted decimal number (for example, all the syntax elements that have the number 3.1) are mutually exclusive alternatives. If you hear the lines 3.1 USERID and 3.1 SYSTEMID, you know that 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, it 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 given the format 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 giving 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, this indicates a reference that is defined elsewhere. The string following the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 means that you should refer to separate syntax fragment OP1.

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

- ? means 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.
- ! means 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 will be 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.
- * means a syntax element that can be repeated 0 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 one data area, more than one data area, or no data area. If you hear the lines 3*, 3 HOST, and 3 STATE, you know that you can include HOST, STATE, both together, or nothing.

  Notes:

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

and can be repeated. 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. Similar to the * symbol, the + symbol can only repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the * symbol, is equivalent to a loop-back line in a railroad syntax diagram.

Related concepts:

- "Accessibility" on page 93

Related tasks:

- "Keyboard shortcuts and accelerators: Common GUI help"

Related reference:

- "How to read the syntax diagrams" in the *SQL Reference, Volume 2*

Common Criteria certification of DB2 Universal Database products

DB2 Universal Database is being evaluated for certification under the Common Criteria at evaluation assurance level 4 (EAL4). For more information about Common Criteria, see the Common Criteria web site at: http://niap.nist.gov/cc-scheme/.

Appendix C. Notices

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Index

M

N

O

P

S

T

U

V

W

Z

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