

IBM DB2 Connect 10.1

*DB2 Connect Installing and Configuring
DB2 Connect Personal Edition*



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Note

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

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About this book

The *Installing and Configuring DB2 Connect Personal Edition* provides all the information you need to prepare for and then install the DB2 Connect™ Personal Edition product. Information specific to each supported operating system is included. The relationship between DB2 Connect Personal Edition and the supported database server products is presented including how to configure connections.

Who should use this book?

System administrators, database administrators, communications specialists, and software product installers would all be interested in part or all of this book.

Part 1. About this book

The *Installing and Configuring DB2 Connect Personal Edition* provides all the information you need to prepare for and then install the DB2 Connect Personal Edition product. Information specific to each supported operating system is included. The relationship between DB2 Connect Personal Edition and the supported database server products is presented including how to configure connections.

Who should use this book?

System administrators, database administrators, communications specialists, and software product installers would all be interested in part or all of this book.

Part 2. Introduction to DB2 Connect

Chapter 1. About DB2 Connect

DB2 Connect provides connectivity to mainframe and midrange databases from Linux, UNIX, and Windows operating systems.

You can connect to DB2® databases on z/OS®, IBM® i and IBM Power Systems™, 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, including DB2 Connect Personal Edition, and a number of DB2 Connect server products.

- DB2 Connect Enterprise Edition
- DB2 Connect Application Server Edition
- DB2 Connect Unlimited Edition for System z®
- DB2 Connect Unlimited Edition for System i®

For detailed information about DB2 Connect product offerings, see www.ibm.com/software/data/db2/db2connect/

Chapter 2. Common DB2 Connect scenarios

Common ways in which DB2 Connect is used to create working database environments and common ways of completing primary tasks involving DB2 Connect are presented. The scenarios include environments and tasks such as: direct connection between DB2 Connect and IBM mainframe database server; using the Configuration Assistant to manage connections to databases; and IBM data server client support for database application development.

Accessing System z host or IBM i 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 IBM mainframe database server supports TCP/IP connectivity. In such situations, each DB2 Connect workstation establishes a direct connection with the IBM mainframe database server.

TCP/IP connectivity requires that the IBM mainframe database support TCP/IP. The following versions support native TCP/IP connections:

- DB2 for z/OS Version 7.1 or later
- IBM DB2 for IBM i Version 5 Release 1 or later, and
- DB2 Server for VM and VSE Version 7 or later

To connect to an IBM mainframe database server, you require a DB2 Connect license which can be added to an IBM data server client.

Figure 1 on page 8 shows a workstation, with DB2 Connect Personal Edition installed, directly connected to an IBM mainframe database server.

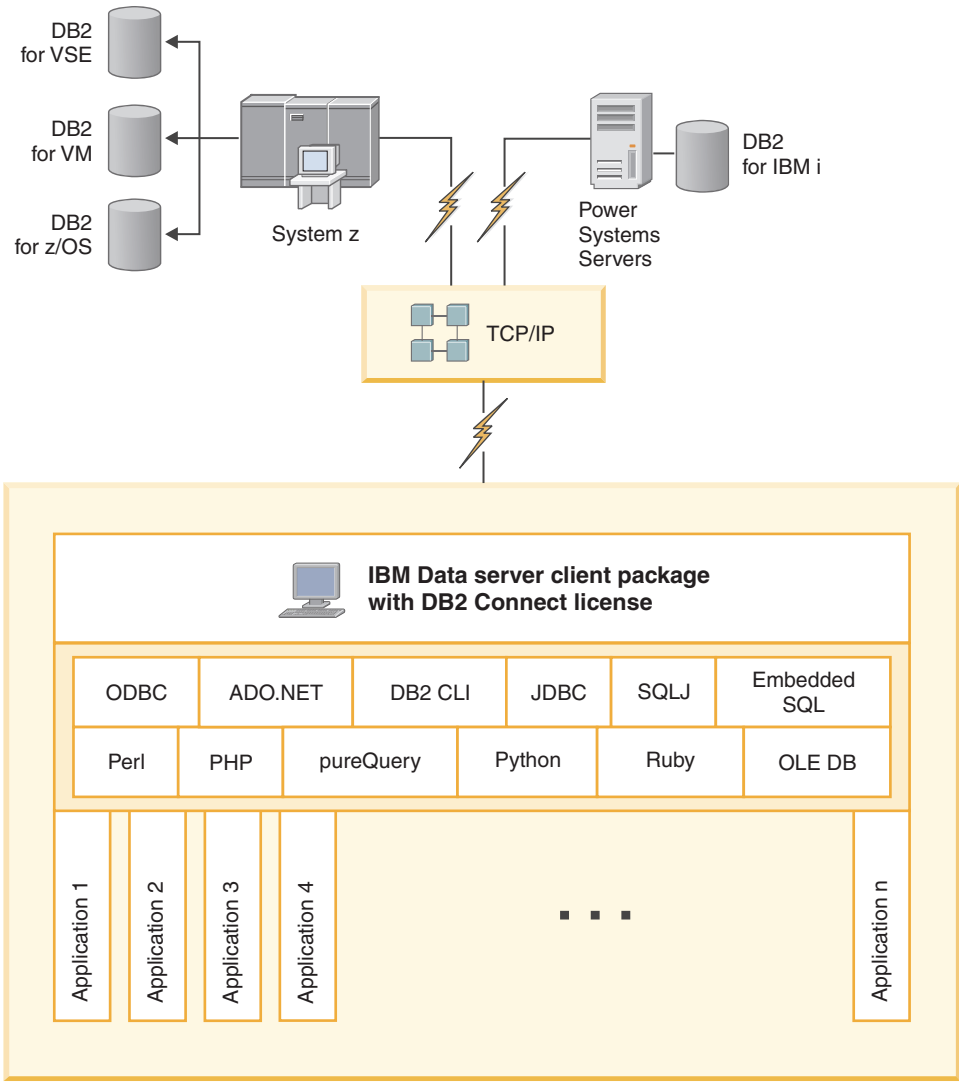


Figure 1. Direct connection between DB2 Connect and an IBM mainframe database server

Part 3. Installing DB2 Connect Personal Edition

Chapter 3. Typical steps required to install and configure DB2 Connect Personal Edition

Setting up DB2 Connect Personal Edition is a multi-step process. The typical steps required to install and configure DB2 Connect Personal Edition include verifying system prerequisites, installing the DB2 Connect software, testing the connection and binding programs and utilities.

Note: If you have a computer with a IBM data server client installed, you can activate DB2 Connect Personal Edition by registering your DB2 Connect Personal Edition license to that computer.

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 IBM mainframe database server.
3. Verify that your IBM mainframe database server is configured to accept connections from DB2 Connect.
4. Install your DB2 Connect software. You will use this workstation to configure and verify your IBM mainframe connections.
5. After installation, establish the connection between DB2 Connect and your IBM mainframe database system.

DB2 Connect can locate and configure all TCP/IP connections for you. For details, see the topic about validating IBM Data Server Driver Package (Windows) installation.

6. Bind the programs and utilities provided with DB2 Connect to your IBM mainframe database.

Note: This step is not required with IBM Data Server Driver Package (DS Driver). For larger client packages, rebinding is required with each Fix Pack upgrade.

7. Test the IBM mainframe 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 IBM data server client installed.
9. If you want to use this workstation to administer DB2 for z/OS, or DB2 Database for Linux, UNIX, and Windows servers, install the IBM data server client.

DB2 Connect disk and memory requirements

Ensure that an appropriate amount of disk space is available for your DB2 Connect environment, and allocate memory accordingly.

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.

Remember to include disk space for required databases, software, and communication products. Ensure that the file system is not mounted with concurrent I/O (CIO) option.

On Linux and UNIX operating systems, 2 GB of free space in the /tmp directory is recommended.

Memory requirements

Memory requirements are affected by the size and complexity of your database system, the extent of database activity, and the number of clients accessing your system. At a minimum, a DB2 database system requires 256 MB of RAM¹. For a system running just a DB2 product and the DB2 GUI tools, a minimum of 512 MB of RAM is required. However, 1 GB of RAM is recommended for improved performance. These requirements do not include any additional memory requirements for other software that is running on your system. For IBM data server client support, these memory requirements are for a base of five concurrent client connections. For every additional five client connections, an additional 16 MB of RAM is required.

For DB2 server products, the self-tuning memory manager (STMM) simplifies the task of memory configuration by automatically setting values for several memory configuration parameters. When enabled, the memory tuner dynamically distributes available memory resources among several memory consumers including sort, the package cache, the lock list, and buffer pools.

Paging space requirements

DB2 requires paging, also called swap to be enabled. This configuration is required to support various functions in DB2 which monitor or depend on knowledge of swap/paging space utilization. The actual amount of swap/paging space required varies across systems and is not solely based on memory utilization by application software. It is only strictly required by DB2 on the Solaris and HP platforms due to their use of early paging space allocation.

A reasonable minimum swap/paging space configuration for most systems is 25-50% of RAM. Solaris and HP systems with many small databases or multiple databases tuned by STMM might require a paging space configuration of 1 x RAM or higher. These higher requirements are due to virtual memory pre-allocated per database / instance, and retained virtual memory in the case of STMM tuning multiple databases. Additional swap/paging space might be wanted to provision for unanticipated memory overcommitment on a system.

Installing DB2 Connect Personal Edition (Linux)

To define your installation preferences and to install a DB2 Connect Personal Edition product on Linux, use the DB2 Setup wizard. Installing IBM Data Server Driver Package (DS Driver) and then applying the DB2 Connect Personal Edition license is the preferred alternative to the process listed in the following section. Refer to IBM data server client types for details.

1. DB2 products that run on HP-UX Version 11i for Itanium-based systems require a minimum of 512 MB of RAM.

Before you begin

Before beginning your installation:

- You can install DB2 Connect using either root or non-root authority. For more information about the non-root installation, see “Non-root installation overview (Linux and UNIX)”.
- Ensure that your system meets:
 - Disk and memory requirements
 - “Installation requirements for DB2 Connect Personal Edition (Linux)” on page 15.
- The DB2 database product DVD must be mounted on your system.
- The DB2 Connect product image must be available. If you are installing a non-English version of a DB2 Connect product, you must also have the appropriate National Language Packages.
- To locate DB2 database products already installed on your system, issue the **db2is** command..
- The DB2 Setup wizard is a graphical installer. You must have X windows software capable of rendering a graphical user interface for the DB2 Setup wizard to run on your machine. Ensure that the X windows server is running. Ensure that you have properly exported your display. For example, export `DISPLAY=9.26.163.144:0`.
- If security software such as Lightweight Directory Access Protocol (LDAP) is used in your environment, you must manually create required DB2 users before you start the DB2 Setup wizard. Refer to the “Centralized user-management considerations” topic in *Installing DB2 Servers* before you begin.

Note: Network Information Services (NIS) and Network Information Services Plus (NIS+) features are deprecated starting with DB2 Version 9.1 Fix Pack 2. Support for these features might be removed in a future release. Lightweight Directory Access Protocol (LDAP) is the recommended solution for centralized user-management services.

About this task

The DB2 Setup wizard is a Java-based installation tool that automates the installation and configuration of any DB2 database products. If you prefer not to use this utility, you have two alternatives. You can install a DB2 Connect Personal Edition product:

- Using the response file method
- Manually using the **db2setup** command. You *cannot* manually install a DB2 database product using the operating system's native installation utility **rpm**. Any existing scripts containing this native installation utility that you use to interface and query with DB2 installations will need to change.

Procedure

To install DB2 Connect Personal Edition on Linux using the DB2 Setup wizard:

1. Change to the directory where the DVD is mounted:

```
cd /db2dvd
```

where *db2dvd* represents mount point of the DVD.

2. If you downloaded the DB2 Connect product image, you must decompress and untar the product file.

- a. Decompress the product file:

```
gzip -d product.tar.gz
```

where *product* is the name of the database product that you downloaded.

- b. Untar the product file:

```
tar xvf product.tar
```

- c. Change directory:

```
cd ./product/disk1
```

Note: If you downloaded a National Language Package, untar it into the same directory. This will create the subdirectories (for example `./nlpack/disk2`) in the same directory, and allows the installer to automatically find the installation images without prompting

3. Enter the `./db2setup` command from the directory where the product image resides to start the DB2 Setup wizard. After a few moments, the IBM DB2 Setup Launchpad opens. For multiple CD installations, issue the `db2setup` command outside the mounted CD location with either a relative or absolute path name to ensure the DB2 Connect product CD can be unmounted as required. From this window, you can view the installation prerequisites and the release notes or you can proceed directly to the installation.
4. 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. Click **Help** to invoke the online help. You can click **Cancel** at any time to exit the installation. DB2 files will only be copied to your system once you have clicked **Finish** on the last DB2 Setup wizard installation panel. Once completed, the DB2 Connect Personal Edition product is installed using the `/opt/IBM/db2/Version 10.1` default installation path.

If you are installing on a system where this directory is already being used, the DB2 Connect product installation path will have `_xx` added to it, where *xx* are digits, starting at 01 and increasing depending on how many DB2 copies you have installed.

You can also specify your own DB2 database product installation path.

Results

National Language Packs can also be installed by running the `./db2setup` command from the directory where the National Language Pack resides, after a DB2 Connect product has been installed.

The installation logs, `db2setup.log` and `db2setup.err` will be located, by default, in the `/tmp` directory. You can specify the location of the log files.

If you want your DB2 database 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 the DB2 database and DB2 database-related products. See “Installing the DB2 Information Center using the DB2 Setup wizard (UNIX)” topic in *Installing DB2 Servers*.

Installation requirements for DB2 Connect Personal Edition (Linux)

Before you install DB2 Connect Personal Edition on Linux operating systems, ensure that the system you choose meets the necessary operating system, hardware, software, and communications requirements.

To install DB2 Connect Personal Edition, the following requirements must be met:

Hardware requirements

Your processor must be one of:

- x86 (Intel Pentium, Intel Xeon, and AMD Athlon)
- x64 (Intel EM64T and AMD64)

Distribution requirements

For the latest information about the supported Linux distributions, point your browser to www.ibm.com/db2/linux/validate.

You might be required to update your kernel configuration parameters. The kernel configuration parameters are set in `/etc/sysctl.conf`. Refer to your operating system manual for information about setting and activating these parameters using the **sysctl** command.

Software requirements

- A browser is required to view online help.
- An X Window System software capable of rendering a graphical user interface is required if you want to use the DB2 Setup wizard to install DB2 Connect or if you want to use any DB2 graphical tools.

Communication requirements

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

Mounting the CD or DVD for DB2 Connect (Linux)

To mount a CD-ROM on Linux operating systems, issue the **mount** command.

Before you begin

Depending on your system configuration, you might need root user authority to mount discs.

Procedure

To mount the CD or DVD on Linux operating systems:

1. Insert the CD or DVD in the drive and enter the following command:

```
mount -t iso9660 -o ro /dev/cdrom /cdrom
```

where `/cdrom` represents the mount point of the CD or DVD.
2. Log out.

Results

Your CD or DVD file system is now mounted. View the contents of the CD or DVD by placing the disc in the drive and enter the **cd /cdrom** command where `cdrom` is the mount point directory.

Installing DB2 Connect Personal Edition (Solaris)

To define installation preferences and to install DB2 Connect Personal Edition, use the DB2 Setup wizard. Installing IBM Data Server Driver Package (DS Driver) and then applying the DB2 Connect Personal Edition license is the preferred alternative to the process listed in the following section. Refer to IBM data server client types for details.

Before you begin

Before beginning your installation:

- You can install DB2 Connect using either root or non-root user authority. For more information about non-root installation, see “Non-root installation overview (Linux and UNIX)” in *Installing DB2 Servers*.
- Ensure that your system meets the installation, memory and disk requirements.
- The DB2 database product DVD must be mounted on your system.
- The DB2 Connect product image must be available. If you are installing a non-English version of a DB2 Connect product, you must also have the appropriate National Language Packages.
- To locate DB2 database products already installed on your system, use the **db2ls** command. Refer to the “Listing DB2 products installed on your system (Linux and UNIX)” topic in *Installing DB2 Servers*.
- The DB2 Setup wizard is a graphical installer. You must have X windows software capable of rendering a graphical user interface for the DB2 Setup wizard to run on your machine. Ensure that the X windows server is running. Ensure that you have properly exported your display. For example, export `DISPLAY=9.26.163.144:0`.
- If security software such as Lightweight Directory Access Protocol (LDAP) is used in your environment, you must manually create required DB2 users before you start the DB2 Setup wizard. Refer to “Centralized user-management considerations” in *Installing DB2 Servers* before you begin.

Note: Network Information Services (NIS) and Network Information Services Plus (NIS+) features are deprecated starting with DB2 Version 9.1 Fix Pack 2. Support for these features might be removed in a future release. Lightweight Directory Access Protocol (LDAP) is the recommended solution for centralized user-management services.

About this task

The DB2 Setup wizard is a Java-based installation tool that automates the installation and configuration of any DB2 database products. If you prefer not to use this wizard, you have two alternatives. You can install a DB2 Connect Personal Edition product:

- Using the response file method.
- Manually using the **db2setup** command. You *cannot* manually install a DB2 database product using the operating system's native installation utility **pkgadd**. Any existing scripts containing this native installation utility that you use to interface and query with DB2 installations will need to change.

Procedure

To install DB2 Connect Personal Edition on Solaris x64 using the DB2 Setup wizard:

1. Change to the directory where the DVD is mounted:

```
cd /db2dvd
```

where *db2dvd* represents the mount point of the DVD.

2. If you downloaded the DB2 Connect product image, you must extract and untar the product file.

- a. Decompress the product file:

```
gzip -d product.tar.gz
```

where *product* is the name of the DB2 Connect product that you downloaded.

- b. Untar the product file:

```
tar xvf product.tar
```

- c. Change directory:

```
cd ./product/disk1
```

Note: If you downloaded a National Language Package, untar it into the same directory. This will create the subdirectories (for example *./nlpack/disk2*) in the same directory, and allows the installer to automatically find the installation images without prompting

3. Enter the **./db2setup** command from the directory where the product image resides to start the DB2 Setup wizard. For multiple CD installations, issue the **db2setup** command outside the mounted CD location with either a relative or absolute path name to ensure the DB2 Connect product CD can be unmounted as required. 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.
4. 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. Click **Help** to invoke the online help. 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.

Once completed, DB2 Connect Personal Edition is installed using the */opt/IBM/db2/V10.1* default installation path.

If you are installing on a system where this directory is already being used, the DB2 Connect product installation path will have *_xx* added to it, where *xx* are digits, starting at 01 and increasing depending on how many DB2 copies you have installed.

You can also specify your own DB2 Connect product installation path.

Results

National Language Packs can also be installed by running the **./db2setup** command from the directory where the National Language Pack resides, after a DB2 Connect product has been installed.

The installation logs, *db2setup.log* and *db2setup.err* will be located, by default, in the */tmp* directory. You can specify the location of the log files.

If you want your DB2 database 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 the DB2 database and DB2 related products. See the “Installing the DB2 Information Center using the DB2 Setup wizard (UNIX)” topic in *Installing DB2 Servers*.

Installation requirements for DB2 Connect products (Solaris)

Before you install DB2 Connect products on the Solaris Operating System, ensure that the system you choose meets the necessary operating system, hardware, software, and communications requirements. The installation requirements are same for both the DB2 Connect Enterprise Edition and the DB2 Connect Personal Edition.

To install a DB2 Connect product on Solaris, the following requirements must be met:

Table 1. Solaris installation requirements

Operating System	Hardware
Solaris 10 Update 9 • 64-bit kernel	Solaris x64 (Intel 64 or AMD64)
Solaris 10 Update 9 • 64-bit kernel	UltraSPARC or SPARC64 processors

1. Support is only for the DB2 product to be installed on local zones. Installation on the global zone is not supported by the DB2 product at this time.

Operating system requirements

"Recommended & Security Patches" needs to be obtained.

The J2SE Solaris Operating System Patch Clusters are also required.

The Fujitsu PRIMEPOWER patches for the Solaris operating system can be downloaded from FTSI at: <http://download.ftsi.fujitsu.com/>.

For an additional list of issues that can affect DB2 database systems on Solaris, refer to: www.ibm.com/support/docview.wss?&uid=swg21257606

DB2 database products support Solaris ZFS filesystems and Logical Domains (LDoms).

For details about virtualization technology supported by DB2 products, see <http://www.ibm.com/developerworks/wikis/display/im/DB2+Virtualization+Support>.

Software requirements

- SUNWlibC software is required to install DB2 Connect on Solaris.
- A browser is required to view online help.

Communication requirements

You can use TCP/IP

- For TCP/IP connectivity, no additional software is required.
- DB2 Connect is supported on Sun Cluster 2.2 if:
 - The protocol to the host is TCP/IP
 - Two-phase commit is not used. This restriction is relaxed if the user configures the SPM log to be on a shared disk (this can be done through the **spm_log_path** database manager configuration parameter), and the failover system has an identical TCP/IP configuration (the same host name, IP address, and so on).

Mounting CDs or DVDs for DB2 Connect (Solaris)

If the CD-ROM is not automatically mounted when you insert it into the drive on Solaris Operating System, issue the **mount** command.

Before you begin

If you are mounting the CD or DVD drive from a remote system using NFS, the CD or DVD file system on the remote computer must be exported with root access. Depending on your local system configuration, you might also need root access on the local computer.

Procedure

To mount the CD or DVD on Solaris:

1. Insert the CD or DVD into the drive.
2. If the Volume Manager (**vol**) is running on your system, the disc is automatically mounted as `/cdrom/cd_label` if the CD or DVD has a label or `/cdrom/unnamed_cdrom` if it is unlabeled.

If the Volume Manager is not running on your system, complete the following steps to mount the CD or DVD:

- a. Determine the name of the device by entering the following command:

```
ls -al /dev/sr* |awk '{print "/" $11}'
```

This command returns the name of the CD or DVD device. In this example, the command returns the string `/dev/dsk/c0t6d0s2`.

- b. Enter the following commands to mount the CD or DVD:

```
mkdir -p /cdrom/unnamed_cdrom  
mount -F hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom/unnamed_cdrom
```

where `/dev/dsk/c0t6d0s2` represents the name of the device that was returned in the preceding step and `/cdrom/unnamed_cdrom` represents the CD or DVD mount directory.

3. Log out.

Results

Your CD or DVD file system is now mounted. View the contents of the CD or DVD by placing the disk in the drive and enter the **cd /cdrom** command where `cdrom` is the mount point directory.

Installing DB2 Connect Personal Edition (Windows)

You can install DB2 Connect Personal Edition on Windows operating systems using the DB2 Setup wizard. Installing IBM Data Server Driver Package (DS Driver) and then applying the DB2 Connect Personal Edition license is the preferred alternative to the process listed in the following section. Refer to IBM data server client types for details.

Before you begin

Before you launch the DB2 Setup wizard:

- Ensure that your system meets the following requirements:
 - Hardware and software requirements

- Disk and memory requirements
- If you are installing on Windows 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 database 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 might be unable to validate accounts.

- If you want to install DB2 Connect with a non-Administrator account, refer to the topic, “Non-Administrator installation of DB2 Connect (Windows)”.

Procedure

- To install DB2 Connect Personal Edition using the DB2 Setup wizard:
 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. If you have a computer with a IBM data server client installed, you can activate DB2 Connect Personal Edition by registering your DB2 Connect Personal Edition license to that computer. To install DB2 Connect Personal Edition by running the **setup** program, follow the remaining steps.
 4. Insert the DVD 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 the DB2 Setup wizard manually.
 5. 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.
 6. 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. Click **Help** to invoke the online help. You can click **Cancel** at any time to end the installation.

A log file stores general information and error messages resulting from the install and uninstall activities. The file name of the log follows the format *DB2-Product Abbreviation-Date Time.log*, such as *DB2-CLIENT-10-06-2006_17_23_42.log*. By default, the log file is located in the My Documents\DB2LOG directory.

- 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 DVD drive
- *language* represents the territory code for your language (for example, EN for English).

3. Click **OK**.

If you want your DB2 database 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 database systems and related products.

Installation requirements for DB2 Connect Personal Edition (Windows)

Before you install DB2 Connect Personal Edition on Windows operating systems, ensure that the system you choose meets the necessary operating system, hardware, software, and communications requirements.

To install DB2 Connect Personal Edition, the following requirements must be met:

Operating system requirements

One of:

- Windows XP Professional Edition (32-bit and 64-bit) with Service Pack 3 or later
- Windows 2003 with Service Pack 2 or later:
 - Standard Edition (32-bit and 64-bit)
 - Enterprise Edition (32-bit and 64-bit)
 - Datacenter Edition (32-bit and 64-bit)
- Windows Vista with Service Pack 2 or later
 - Business Edition (32-bit and x64)
 - Enterprise Edition (32-bit and x64)All Windows Vista service packs are supported.
- Windows 7 with Service Pack 1 or later
 - Professional Edition (32-bit and x64)
 - Enterprise Edition (32-bit and x64)
- Windows Server 2008 with Service Pack 2 or later
 - Standard Edition (32-bit and 64-bit)
 - Enterprise Edition (32-bit and 64-bit)
 - Datacenter Edition (32-bit and 64-bit)
- Windows Server 2008 R2
 - Standard Edition (64-bit)
 - Enterprise Edition (64-bit)
 - Datacenter Edition (64-bit)All Windows Server 2008 R2 service packs are supported.

Hardware requirements

- All Intel and AMD processors capable of running the supported Windows operating systems (32-bit and x64 based systems).

Software requirements

- A browser is required to view online help.

Communication requirements

- TCP/IP is supported and supplied by the operating system.

Windows (64-bit) considerations

- SQL requests sent by remote 32-bit clients from earlier versions are supported.

Features

This edition of DB2 Connect is intended for personal workstation use and application connectivity. Server or gateway functionality is not available. For complete details about features provided in this edition, visit <http://www.ibm.com/software/data/db2/db2connect/edition-pe.html>.

This edition of DB2 Connect is not intended to enable application servers and should not be installed on such servers.

Required user accounts for installation of DB2 Connect Personal Edition (Windows)

If you are installing DB2 Connect Personal Edition product on Windows, you require an installation user account.

The installation user account is the account of the user performing the installation. The installation user account must be defined before running the DB2 Setup wizard. The setup user accounts can be defined before installation or you can have the DB2 Setup wizard create them for you.

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

If you use an installation user account that contains non-English characters which are not specified in DB2 naming rules, the DB2 installation will fail.

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

Alternatively, a non-Administrator user account can be used. This alternative requires that a member of the Windows Administrators group first configure the Windows elevated privileges settings to allow a non-Administrator user account to perform an installation. For example, on a 64-bit operating system you must manually grant full permission on HKLM\Software\Wow6432Node before DB2 Connect Personal Edition can be successfully installed. On Windows Vista, a non-Administrator can perform an installation, but will be prompted for administrative credentials by the DB2 Setup wizard.

The user right "Access this computer from the network" is required for the installation user account.

For domain accounts, to verify user IDs, the installation user ID must belong to the Domain Administrators group on the domain where the accounts are going to be created.

You can also use the built-in Local System account to run the installation for all products.

User rights granted by the DB2 installer

The DB2 installation program does not grant the Debug Programs user right. The DB2 installer grants the following user rights:

- Act as part of the operating system

- Create token object
- Lock pages in memory
- Log on as a service
- Increase quotas
- Replace a process level token

Extended security on Windows

DB2 products offer extended Windows security. You can install DB2 Connect Personal Edition with a user ID, but unless that user ID belongs to either the DB2ADMNS or 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 specify a new name during a custom installation 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 objects** panel during the DB2 installation. 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.

Extending the Active Directory Schema for LDAP directory services (Windows)

If you plan to use the Lightweight Directory Access Protocol (LDAP) directory server feature with Windows Server 2003, you have to extend the Active Directory schema to contain DB2 object classes and attribute definitions using the **db2schex** command.

About this task

Extending the directory schema before installing DB2 database products and creating databases provide the following benefits:

- The default DB2 instance, created during the installation, is cataloged as a DB2 node in Active Directory, provided that the installation user ID had sufficient privileges to write to Active Directory.
- Any databases created after installation is automatically cataloged into Active Directory.

Procedure

To extend the directory schema:

1. Log onto any machine that is part of the Windows domain with a Windows user account that has Schema Administration authority.
2. Run the **db2schex** command from the installation DVD . You can run this command without logging off and logging on again, as follows:

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

where x: represents the DVD drive letter.

What to do next

When **db2schex** completes, you can proceed with the installation of your DB2 database product; or if you have already installed DB2 database products or created databases, you have to manually register the node and catalog the databases. For more information, see the “Enabling LDAP support after DB2 installation is complete” topic.

Non-Administrator installation of DB2 Connect (Windows)

There are some additional considerations when you install DB2 Connect on Windows operating systems using a non-Administrator user account.

For a non-Administrator's installation, the account you are logged on as must belong to Power® 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.

A member of the Windows Administrators group must configure the Windows elevated privileges settings to allow a non-Administrator user account to perform an installation. For example, on a 64-bit operating system you must manually grant full permission on HKLM\Software\Wow6432Node before a 32-bit DB2 Connect Personal Edition product can be successfully installed.

Note: If a non-Administrator user account is going to do the product installation, then the VS2010 runtime library must be installed before attempting to install a DB2 product. The VS2010 runtime library is needed on the operating system before the DB2 product can be installed. The VS2010 runtime library is available from the Microsoft runtime library download website. There are two choices: choose `vcredist_x86.exe` for 32-bit systems or `vcredist_x64.exe` for 64-bit systems.

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 scenarios are installation situations that 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 system. 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.
- A non-administrator has installed DB2 Connect, and then a second non-Administrator attempts to install DB2 Connect on the same system. 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 system. 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.

- Non-Administrator users cannot uninstall a DB2 product. Those non-Administrator users on a Windows Vista (and later) operating system **can** uninstall a DB2 product.

Chapter 4. User identification management

A key task following the installation of DB2 Connect Personal Edition is the adding of users to one of two user groups having the default names of DB2ADMNS and DB2USERS. This task is done as part of the database security policy that you will implement for your database environment.

Adding your user ID to the DB2ADMNS and DB2USERS user groups (Windows)

After successfully completing a DB2 installation, you now have to add users to the DB2ADMNS or the DB2USERS groups for users that need to run local DB2 applications and tools on the machine. 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. This process is also applicable to instance based clients.

Before you begin

- You must have installed a DB2 database product.
- 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 your DB2 database product.

Procedure

To add users to the appropriate group:

1. Click **Start** and select **Run**.
2. Type **lusrmgr.msc** and click **OK**.
3. Select **Local Users and Groups**.
4. Select **Users**.
5. Select the user you want to add.
6. Click **Properties**.
7. Click the **Member Of** tab.
8. Click **Add**.
9. Select the appropriate group.
10. Click **OK**.

What to do next

If you did the install and chose not to enable the new security feature you can still do so post-install by running the **db2extsec.exe** command. Adding a user to a group takes effect the first time the user logs on after the user has been added. For example, if you add your user ID to the DB2ADMNS group, you need to log out and then log in again for this change to take effect.

Part 4. Preparing for DB2 Connect communications

Chapter 5. Preparing IBM DB2 for IBM i for connections from DB2 Connect

DB2 Connect gives remote system applications access to data on your IBM DB2 for IBM i system.

Procedure

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

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 the **WRKLIND** command in one of the following ways:

WRKLIND (*e1an)

Lists Ethernet adapters

WRKLIND (*tr1an)

Lists token ring adapters

WRKLIND (*a11)

Lists all adapters

3. The hostname. You can get this information by entering **DSPNETA**.
4. The TCP/IP port or service name. The default is X'07'6DB (X'07F6C4C2'). The default is always used by DB2 for i. If entering a hexadecimal number is not convenient, an alias is QCNTEDDM.
5. 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.

Results

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 IBM Power Systems server, enter your values into the worksheet that follows:

Table 2. Configuration parameters from IBM Power Systems

Item	Parameter	Example	Your value
A-1	Local network name	SPIFNET	
A-2	Local adapter address	400009451902	
A-4	Hostname	SYD2101A	
A-5	TCP/IP port or service name	X'07F6C4C2' (default)	
A-6	Relational database name	NEW_YORK3	

For more information, refer to the “DRDA Considerations” section of the *DB2 Server for VSE & VM SQL Reference* (SC09-2989).

Chapter 6. Preparing DB2 for z/OS for connections from DB2 Connect

DB2 Connect gives remote system applications access to data on your DB2 for z/OS system.

Before you begin

If you anticipate that DB2 for z/OS will participate in a multisite update transaction (two-phase commit) then refer to the topic that discusses enabling multisite updates in the *DB2 Connect User's Guide*.

About this task

This topic provides instructions for establishing TCP/IP network connections between DB2 Connect Server or DB2 Connect client and DB2 for z/OS.

Procedure

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

- “Configuring TCP/IP for DB2 for z/OS” on page 34
-
- “Configuring DB2 for z/OS” on page 36

Host databases

The term *database* is used throughout this document to describe a relational database management system (RDBMS). Other systems with which DB2 Connect communicates might use the term database to describe a slightly different concept. The DB2 Connect term database can also refer to:

System z

DB2 for z/OS. A DB2 for z/OS subsystem identified by its LOCATION NAME. Use the z/OS **-display ddf** command to get the DB2 server location name, domain name, IP address and port.

A DB2 for z/OS location is the unique name of a database server. An application uses the location name to access a DB2 for z/OS subsystem or a DB2 for z/OS data sharing group. A data sharing group enables applications on different DB2 subsystems to read from and write to the same data concurrently. The application uses a DB2 data sharing group network address to access a DB2 data sharing location. The accessed DB2 subsystem is transparent to the application.

Since DB2 for z/OS supports multiple databases at the same DB2 location, the location name is analogous to a Linux, UNIX, and Windows database alias name. A database alias can be used to override the location or location alias name when accessing a location. A location alias is another name for a location. It is used to control which subsystems in a data sharing group are accessed by an application.

LOCATION NAME is also defined in the Boot Strap Data Set (BSDS) as well as the DSNL004I message (LOCATION=location), which is written when the Distributed Data Facility (DDF) is started. LOCATION NAME supports up to 8 alias location names, allowing applications the ability to use different dbalias names to access a Version 8 z/OS server.

IBM Power Systems Servers

IBM DB2 for IBM i, an integral part of the IBM i operating system. Only one database can exist on an IBM Power Systems server unless the system is configured to use independent auxiliary storage pools.

Configuring TCP/IP for DB2 for z/OS

To configure TCP/IP communications between your DB2 Connect workstation and DB2 for z/OS Version 8 or later, you must first collect network details about the host database server.

Before you begin

The instructions assume the following conditions:

- You are connecting to a single host database server or location 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 might be different. Use the group IP address to connect to a group location.
- The target database resides on DB2 for z/OS Version 8 or later.
- All the necessary software prerequisites are installed.
- DB2 clients have been set up as required.

Procedure

1. 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 and Linux

/etc/

On Windows XP and Windows Server 2003

Usually %SystemRoot%\system32\drivers\etc\, where %SystemRoot% represents the Windows install path directory.

You might 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 for z/OS host.
- The TCP/IP port number defined to DB2 for z/OS.

Note: The associated service name information is not exchanged between the DB2 Connect workstation and DB2 for z/OS.

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 z/OS database server.

- The user ID and password to be used when issuing CONNECT requests to the database at the IBM mainframe server.
2. Refer to your local network administrator and your DB2 for z/OS administrator for help getting this information. Use the tables that follow as a worksheet to plan *each* TCP/IP connection between DB2 Connect and a host database server.

Table 3. User Information

Ref.	Description	Sample Value	Your Value
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

Table 4. Network Elements at the Host

Ref.	Description	Sample Value	Your Value
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		

Note:

- a. To obtain the host's IP address TCP-9, enter at the host:
TSO NETSTAT HOME
- b. To obtain the port number TCP-11, look for DSNL004I in the DB2 master address space or system log.

Table 5. Network Elements at the DB2 Connect client and server

Ref.	Description	Sample Value	Your Value
TCP-18	Host name	mcook02	
TCP-19	IP address	9.21.27.179	
TCP-20	Service name	db2inst1c	
TCP-21	Port number	446	446

Table 6. DB2 Directory Entries at the DB2 Connect server

Ref.	Description	Sample Value	Your Value
TCP-30	Node name	MVSIPNOD	
TCP-31	Database name	nyc3	
TCP-32	Database alias	mvsipdb1	
TCP-33	DCS database name	nyc3	

3. Complete a copy of the worksheet example for each TCP/IP host:
 - a. Fill in the values to be used for the host name and IP address of the DB2 for z/OS host (TCP-8 and TCP-9).
 - b. Fill in the values to be used for the host name and IP address of the DB2 Connect workstation (TCP-18 and TCP-19).
 - c. Determine the service name or port number to be used for the connection (TCP-10 or TCP-20, or TCP-11 or TCP-21).
 - d. Determine the LOCATION NAME of the DB2 for z/OS database server to which you want to connect.
 - e. Determine the values to be used for user ID and PASSWORD when connecting to the host database.
4. At your System z server:
 - a. Verify the host address or the host name.
 - b. Verify the port number or the service name.
 - c. Update the services file with the correct port number and service name if necessary.
 - d. Update the hosts file (or the Domain Name Server used by the DB2 for z/OS system) with the host name and IP address of the DB2 Connect workstation if necessary.
 - e. Ensure the new definitions are active before attempting to test the connection. Refer to your host network administrator or change control staff if necessary.
 - f. Check with the DB2 for z/OS administrator that you have a valid user ID, password, and database LOCATION NAME.
 - g. 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
```

Support for your System z server is available at <http://www.ibm.com/servers/eserver/support/zseries/>

Configuring DB2 for z/OS

Before you can use DB2 Connect, your DB2 for z/OS Administrator must configure DB2 for z/OS to permit connections from DB2 Connect workstations.

About this task

This section indicates the *minimum* updates required to permit a DB2 Connect client to make a connection to the DB2 for z/OS database server. For more detailed examples, refer to the DB2 for z/OS installation documentation: <http://publib.boulder.ibm.com/infocenter/imzic> or refer to the DDF installation steps in the DB2 for z/OS installation manual.

Chapter 7. Preparing DB2 for VSE & VM for connections from DB2 Connect

About this task

For information about how to set up DB2 Server for VM and VSE as an application server, refer to the “DRDA Considerations” section of the *DB2 Server for VSE & VM SQL Reference* (SC09-2989) .

Chapter 8. Configuring connections to mainframe and midrange servers

After DB2 Connect is installed and the database server is configured to accept communications, you need to establish and fine-tune the connection between the two systems. The connections to the remote systems is done using either the command line processor (CLP).

Configuring connections to IBM mainframe database servers

You can manually configure your TCP/IP connection between a DB2 Connect server and a IBM mainframe database using the DB2 command line processor (CLP). For details on configuring connection using `db2dsdriver.cfg`, see the topic about `db2dsdriver` configuration file.

Before you begin

Before you manually configure a TCP/IP connection between DB2 Connect and a IBM mainframe database server, ensure that:

- TCP/IP is functional on the DB2 Connect server and IBM mainframe system.
- You have identified the following parameter values:
 - Hostname (*hostname*) or IP address (*ip_address*)
 - Connection Service name (*svcename*) or Port number/Protocol (*port_number/tcp*)
 - Target database name (*target_dbname*)
 - Local database name (*local_dcsname*)
 - Node name (*node_name*)

Procedure

To manually configure TCP/IP communications between your DB2 Connect server and an IBM mainframe database:

1. Configure TCP/IP on the DB2 Connect server. Refer to “Configuring TCP/IP for DB2 for z/OS” on page 34.
2. Catalog the TCP/IP node. Refer to the “CATALOG TCPIP/TCPIP4/TCPIP6 NODE command” topic in the *Command Reference*.
3. Catalog the IBM mainframe database as a Database Connection Service (DCS) database. Refer to the “CATALOG DCS DATABASE command” topic in the *Command Reference*.
4. Catalog the IBM mainframe database. Refer to the “CATALOG DATABASE command” topic in the *Command Reference*.
5. Bind utilities and applications to the IBM mainframe database server. Refer to “Binding database utilities on DB2 Connect” on page 51.
6. Test the IBM mainframe connection. Refer to the “CONNECT (Type 1) statement” topic in the *SQL Reference Volume 2*.

Results

Note: Due to the characteristics of the TCP/IP protocol, TCP/IP might not be immediately notified of a partner's failure on another IBM mainframe. As a result, a client application accessing a remote DB2 server using TCP/IP, or the corresponding agent at the server, might sometimes appear to be hung. The TCP/IP SO_KEEPALIVE socket option is used to detect when there has been a failure and the TCP/IP connection has been broken.

Part 5. Reference

Chapter 9. Configuring access to IBM mainframe databases

After DB2 Connect is installed and the database server is configured to accept communications, you need to establish and fine-tune the connection between the two systems.

This section describes how to use the DB2 command line processor (CLP) to find, connect, and bind to a database server.

Chapter 10. Supported DB2 Connect 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 IBM Data Server Runtime 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 the DB2 database product with languages supported by the DB2 interface. Languages supported by the DB2 database product means the languages in which data can exist. These languages are a superset of languages supported by the DB2 interface.

Displaying the DB2 Setup wizard in your national language (Linux and UNIX)

The **db2setup** command queries the operating system to determine the existing language settings. If the language setting of your operating system is supported by **db2setup**, then that language will be used when displaying the DB2 Setup wizard.

If your system uses the same code pages but different locale names than those supported by the DB2 interface, you can still see the translated **db2setup** by setting your **LANG** environment variable to the appropriate value by entering the following command:

bourne (sh), korn (ksh), and bash shells:

```
LANG=locale
export LANG
```

C shell:

```
setenv LANG locale
```

where *locale* is a locale supported by the DB2 interface.

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.

On Windows operating systems, you can run **setup.exe** with the **-i** parameter to specify the two-letter language code of the language the installation is to use.

On Linux and UNIX operating systems, it is recommended that you set the **LANG** environment variable to display the DB2 Setup wizard in your national language.

Table 7. Language identifiers

Language	Language identifier
Arabic (available on Windows platforms only)	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
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

Changing the DB2 Connect product interface language (Windows)

The DB2 interface language is the language that appears in messages, help, and graphical tool interfaces. When installing your DB2 database product, you have the option of installing support for one or more languages. After installation, you can change the DB2 interface language to one of the other installed interface languages.

About this task

Do not confuse languages supported by a DB2 database product with languages supported by the DB2 interface. Languages supported by a DB2 database product

means the languages in which data can exist. These languages are a superset of languages supported by the DB2 interface.

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

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

Procedure

To change the DB2 database product interface language on Windows operating systems:

1. Through the Control Panel, select **Regional and Language Options**.
2. On the **Regional Options** tab under **Standards and formats**, select the appropriate language. On Windows 2008 and Windows Vista or higher, use the **Formats** tab for this step.
3. On the **Regional Options** tab under **Location**, select the location that corresponds to the appropriate language.
4. On the **Advanced** tab under **Language for non-Unicode programs** select the appropriate language. On Windows 2008 and Windows Vista or higher, on the **Administrative** tab, under **Language for non-unicode programs**, click **Change system locale** and select the appropriate language. You will then be asked to reboot, click **Cancel**.
5. On the **Advanced** tab under **Default user account settings**, check the **Apply all settings to the current user account and to the default user profile** box. On Windows 2008 and Windows Vista or higher, on the **Administrative** tab under **reserved accounts**, click **Copy to reserved accounts** and check the accounts that you want to copy the language settings to.
6. You will be asked to reboot before these changes come into effect.

What to do next

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

Changing the DB2 Connect interface language (Linux and UNIX)

The interface language of the DB2 database product is the language that appears in messages, help, and graphical tool interfaces. When installing your DB2 database product, 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 to one of the other installed interface languages, use the steps outlined in this task.

Before you begin

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

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 a DB2 database product using the DB2 Setup wizard. If you change the interface language of the DB2 database product to a supported interface language that has not been installed, the DB2 interface language will default to the operating system language. If the operating system language is not supported, English is used as the DB2 interface language.

DB2 interface language support is selected and installed when you install your DB2 database product using the DB2 Setup wizard or by using the National Language Package.

About this task

To check which public locales are available in your system, run the `$ locale -a` command.

Procedure

To change the DB2 interface language:

Set the **LANG** environment variable to the locale you want.

- For bourne (sh), korn (ksh), and bash shells:

```
LANG=locale
export LANG
```

- For C shell:

```
setenv LANG locale
```

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

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 System i 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 data, the following happens:

1. DB2 Connect sends an SQL statement and input data to System z.
2. DB2 for z/OS converts the SQL statement and data to the host server's code page and then processes the data.
3. DB2 for z/OS sends the result back to the DB2 Connect server.
4. DB2 Connect converts the result to the code page of the user's environment.

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.

Refer to the supported territory codes and code pages topic for the supported conversions between code pages on the DB2 Connect and CCSIDS on the host or System i server.

Chapter 11. Developing database applications

Binding and running your applications in an environment that uses DB2 Connect has specific considerations.

Binding database utilities on DB2 Connect

You must bind the database utilities (import, export, reorg, the Command Line Processor) and CLI bind files to each database before they can be used with that database.

About this task

In a network environment, if you are using multiple clients that run on different operating systems or are at different versions or service levels of DB2, you must bind the utilities once for each operating system and DB2 version combination.

Binding a utility creates a *package*, which is an object that includes all of the information that is needed to process specific SQL statements from a single source file.

The bind files are grouped together in different `.lst` files in the `bnd` directory, under the installation directory (typically `sql11ib` for Windows). Each file is specific to a server.

Procedure

- To bind the utilities and applications to the IBM mainframe database server, connect to the IBM mainframe server and use the following example as a template:

```
connect to dbalias user userid using password
bind path/bnd/@ddcsmvs.lst blocking all sqlerror continue
      messages mvs.msg grant public
connect reset
```

where *path* corresponds to the **DB2PATH** registry value.

- To bind database utilities to a DB2 database, use the command line processor:
 1. Change to the `bnd` directory, which is `x:\sql11ib\bnd`, where `x`: represents the drive where you installed DB2.
 2. To connect to the database, enter the following commands in the Command Center[®] or the Command Line Processor:

```
connect to database_alias
```

where *database_alias* represents the alias of the database to which you want to connect.

3. Enter the following commands in the Command Line Processor:

```
"bind @db2ubind.lst messages bind.msg grant public"
"bind @db2cli.lst messages clibind.msg grant public"
```

In this example, `bind.msg` and `clibind.msg` are the output message files, and EXECUTE and BINDADD privileges are granted to public.

4. Reset the connection to the database by entering the following command:

```
connect reset
```

Note:

1. The `db2ubind.lst` file contains the list of bind (`.bnd`) files required to create the packages for the database utilities. The `db2cli.lst` file contains the list of bind (`.bnd`) files required to create packages for the CLI and the DB2 ODBC driver.
2. Binding might take a few minutes to complete.
3. If you have `BINDADD` authority, the first time you use the CLI or ODBC driver, the CLI packages will be bound automatically. If the applications that you are using require binding to the database, you can use the **BIND** command to perform the bind action.

Running your own applications

You can build and run DB2 applications with an IBM Data Server Client installed.

Various types of applications can access DB2 databases:

- Applications developed using the IBM data server client that include embedded SQL, APIs, stored procedures, user-defined functions or calls to the CLI
- ODBC applications
- Java applications using the JDBC or SQLJ interfaces
- PHP applications
- Ruby or Ruby on Rails applications
- Perl applications
- Python applications

On Windows operating systems, the following routines or objects can also access DB2 databases:

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

To run an application:

1. Ensure the server is configured and running.
2. On the DB2 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 necessary files to support the database application driver being used.
5. Run the application program.

Chapter 12. Uninstalling DB2 Connect

At some point in the future you may need to remove your DB2 Connect products from your system. The requirements for removing or uninstalling your DB2 Connect products are presented based on the operating system you are using.

Uninstalling DB2 Connect (Windows)

This task provides steps for completely removing your DB2 database product from your Windows operating system. Only perform this task if you no longer require your existing DB2 instances and databases.

About this task

If you are uninstalling the default DB2 copy, and you have other DB2 copies on your system, use the **db2swtch** command to choose a new default copy before you proceed with the uninstallation. Also, if your DB2 Administration Server (DAS) is running under the copy being removed, move your DAS to a copy that is not being removed. Otherwise, re-create the DAS using the **db2admin create** command after the uninstall, and you reconfigure the DAS for some function to work.

Procedure

To remove your DB2 database product from Windows:

1. Optional: Drop all databases using the **drop database** command. Be sure that you no longer need these databases. If you drop your databases, all of your data will be gone.
2. Stop all DB2 processes and services. This can be done through the Windows Services panel or by issuing the **db2stop** command. If DB2 services and processes are not stopped before attempting to remove your DB2 database product, you will receive a warning containing a list of processes and services that are holding DB2 DLLs in memory. If you will use Add/Remove Programs to remove your DB2 database product, this step is optional.
3. You have two options for removing your DB2 database product:
 - Add/Remove Programs
Accessible through the Windows Control Panel, use the Add/Remove Programs window to remove your DB2 database product. Refer to your operating system's help for more information about removing software products from your Windows operating system.
 - **db2unins** command
You can run the **db2unins** command from the *DB2DIR\bin* directory to remove your DB2 database products, features, or languages. Using this command, you can uninstall multiple DB2 database products at the same time using the **/p** parameter. You can use a response file to uninstall DB2 database products, features, or languages using **/u** parameter.

What to do next

Unfortunately, your DB2 database product cannot always be removed by using the **Control Panel > Add/Remove Programs** facility or using the **db2unins /p**

command or the **db2unins /u** command. The following uninstallation option must **ONLY** be attempted if the previous method fails.

To forcefully remove all DB2 copies from your Windows system, run the **db2unins /f** command. This command will perform a brute force uninstallation of ALL DB2 copies on the system. Everything except user data, such as DB2 databases, will be forcefully deleted. Before running this command with the **/f** parameter, see the **db2unins** command for details.

Uninstalling DB2 Connect (Linux and UNIX)

This task provides steps for removing a DB2 database product from your Linux or UNIX operating system.

About this task

This task is not required to install a new version of a DB2 database product. Each version of a DB2 database product on Linux or UNIX has a different installation path and can therefore coexist on the same computer.

Note: This task applies to DB2 database products that were installed with root user authority. A separate topic explains how to uninstall DB2 database products that were installed as a non-root user.

Procedure

To remove your DB2 database product:

1. Optional: Drop all databases. You can drop databases using the **DROP DATABASE** command. Database files remain intact on your file systems when you drop an instance without dropping databases first.
2. Stop the DB2 Administration Server. Refer to the *Installing DB2 Servers* manual.
3. Remove the DB2 Administration Server, or run the **dasupdt** command to update the DB2 Administration Server to another installation path. To remove the DB2 Administration Server, refer to the *Installing DB2 Servers* manual.
4. Stop all DB2 instances. Refer to the *Installing DB2 Servers* manual.
5. Remove the DB2 instances, or run the **db2iupdt** command to update the instances to another installation path. To remove the DB2 instances, refer to the *Installing DB2 Servers* manual.
6. Remove the DB2 database products. Refer to the *Installing DB2 Servers* manual.

Part 6. Appendixes

Appendix A. Overview of the DB2 technical information

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

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

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

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

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

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

DB2 technical library in hardcopy or PDF format

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

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

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

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

Table 8. DB2 technical information

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

Table 8. DB2 technical information (continued)

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

Table 9. DB2 Connect-specific technical information

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

Displaying SQL state help from the command line processor

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

Procedure

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

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

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

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

Accessing different versions of the DB2 Information Center

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

About this task

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

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

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

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

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

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

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

A locally installed DB2 Information Center must be updated periodically.

Before you begin

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

About this task

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

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

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

Procedure

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

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

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

```
update-ic.bat
```

Results

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

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

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

About this task

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

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

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

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

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

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

Procedure

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

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

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

```
help_start.bat
```

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

```
help_start
```

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

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

```
help_end.bat
```

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

```
help_end
```

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

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

Results

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

DB2 tutorials

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

Before you begin

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

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

DB2 tutorials

To view the tutorial, click the title.

“pureXML®” in *pureXML Guide*

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

DB2 troubleshooting information

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

DB2 documentation

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

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

IBM Support Portal

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

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

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