Db2® Database
Demonstration Program Version 11.1
Installation and Quick Reference Guide

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Db2 Demonstration Program Version 11.1

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Introduction

Now that you've installed DB2, you probably want to know what it can do. The DB2DEMO program lets you explore the various features of DB2, including:

- SQL Features:

  - Referential Integrity
  - Domains and Constraints
  - Triggers
  - Recursive SQL
  - Outer Joins

- Advanced Object-Relational Features:

  - Large Object Support (BLOBs)
  - User-defined Types
  - User-defined Functions
  - Table functions
  - Row-types and Typed Tables
  - Reference Types
  - SQL PL Stored Procedure Language

- XML Support

  - SQL/XML Functions
  - XML Data type
  - XQuery Language Extensions

- Business Intelligence Features:

  - Star Schema support
  - Multi-dimensional Analysis
  - Dynamic Bitmap indexes
  - Automatic Summary Tables
  - Compression
  - Table Partitioning

- Manageability

- Performance

This demo lets you try out many of these features of DB2, including showing you some of the administrative and performance features. The only thing you need to do is check that you have requirements and then install the code!

Installation Requirements

This program is meant to be used for demonstrating the functionality of the Db2 for Linux, UNIX, and Windows V11.1 product. To use this program, you need the following configuration:

- Windows Operating System (Windows 7+)
- Browser (Internet Explorer, Firefox, Chrome, or any suitable browser)
- Access to a Db2 system with the SAMPLE database
- Windows 7+ x64 version for JSON support

Your workstation or laptop should have a minimum of 1Gb of memory to run Windows and DB2, although more than 2Gb is ideal. The DB2DEMO program itself needs approximately 5MB of disk space for the program and help files, but this can grow to 20MB to hold the sample tables that are created during the demonstration.

The program will work with Db2 Version 9+, but not all features will work if you use a down-level server. In addition to having a Db2 server available, the SAMPLE database must be created beforehand; otherwise the program will not be able to run any of the examples. The SAMPLE database is normally created as part of the First Steps program after the Db2 installation is complete. If you need to create the sample database, use the **db2sampl** command.

While the SAMPLE database is the default database used by the DB2DEMO program, any database can be accessed by the program on all of the Db2 supported platforms, including:

- AIX
- HP
- SUN
- Linux (all platforms)
- Windows 2003+, Windows 7, Windows 8
- iSeries (Db2 Connect Required)
- z/OS (Db2 Connect Required)

Although the database can reside on one of these machines, the actual client (demo) must run on Windows 7+. For details on how to do this, please see the installation procedure section.

Note: The DB2DEMO program can also be used against other Db2 databases in your environment, but many of the examples are strictly for the Db2 on the Linux, UNIX, and Windows platforms.

Using a Pre-configured System to Test Db2

There are three additional options available for trying out Db2 without having to install software on your own machine:

- Db2 on Cloud lite edition
- Db2 Digital Technical Engagement Trial Server
- Github Db2 Jupyter Notebooks

Db2 on Cloud

A free version of Db2 is available on the IBM Cloud. You need to sign up to use this service, but the Db2 server is free and provides 100Mb of storage for your database.

URL: https://cloud.ibm.com/registration?target=/catalog/services/db2

Db2 Digital Technical Engagement

The Digital Technical Engagement group (DTE) provides videos, product tours, and product labs for you to try out technology at your leisure. The product labs are fully functional servers that are provisioned for you. These servers contain the base products (Db2) along with self-paced tutorials on how to use the product. The Db2 product lab contains Jupyter notebooks which demonstrate most of the SQL found within the DB2DEMO program. This is an alternative method to learn about Db2 without having to install the database or demonstration program. Note that the server is available to you for only 1 week at a time.

URL: https://www.ibm.com/cloud/garage/dte/tutorial/modern-application-development-db2

GitHub Db2-Samples

There are a number of Db2 sample programs available on GitHub. If you have a Docker environment available, or are using Jupyter notebooks, then the following repository may be of interest. This repository includes support for a Jupyter %sql magic command that makes it easy to access and demonstrate Db2 within a Jupyter notebook.

URL: https://github.com/DB2-Samples/db2jupyter

Installing the DB2DEMO Program

Installation File

The DB2DEMO installation program consists of only one file that contains the executable along with all the supporting files required to run the program.

- DB2DEMOSETUP.EXE - Installation program for the DB2DEMO program

Before beginning the installation, make sure that you have about 10M of disk space available (half of this is temporary space that will be released when the installation is complete).
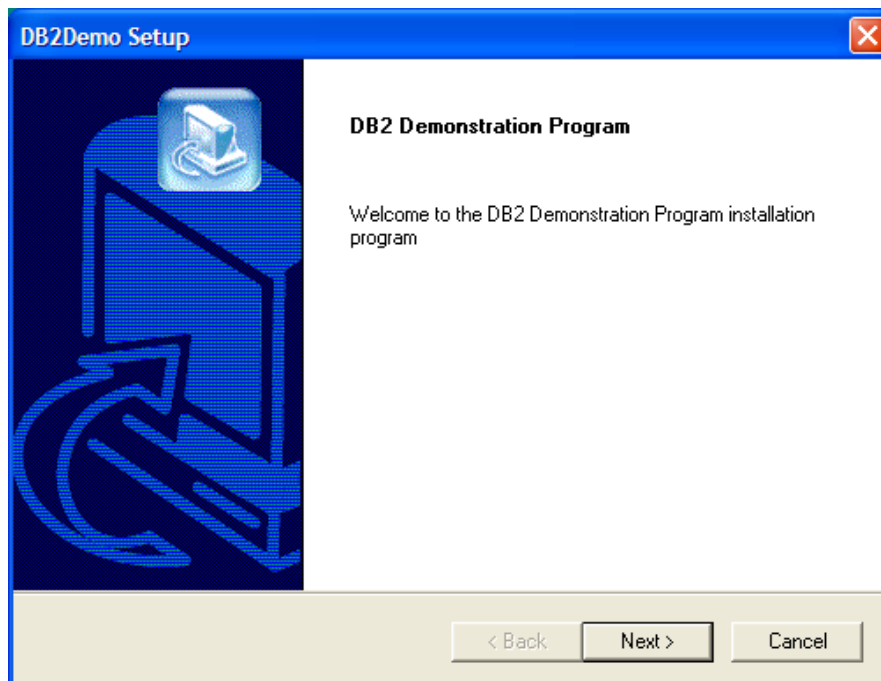

Setup and Installation of the Program

From within the directory that you placed the DB2DEMOSETUP program and double-click your left mouse button on this file name, or execute it from a command line:

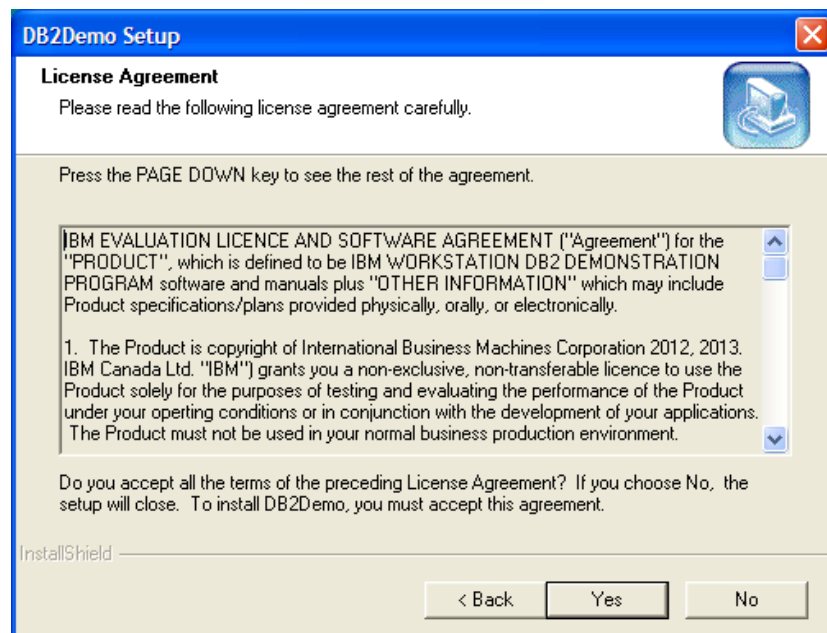- C:\DOWNLOADS>DB2DEMOsetup.exe

If you are running this command in Windows 7, make sure you run the program as an Administrator. This will ensure that any system objects required by the program will be properly registered in the system.

After clicking on the DB2DEMOSETUP program, there will be some temporary messages displayed while the program unpacks some files, and then you will be presented with the first installation screen.
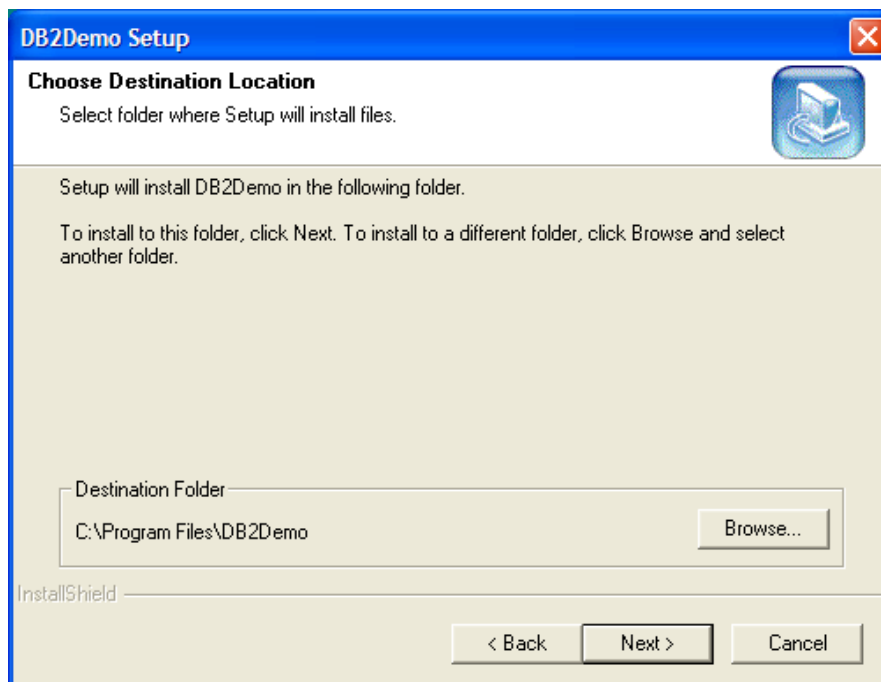
Make sure that you have exited any programs that may be currently running (just to be on the safe side) and the hit OK to continue to the next step.

The next screen gives you the copyright and legal information for the program. Please read it and say "YES" to continue:
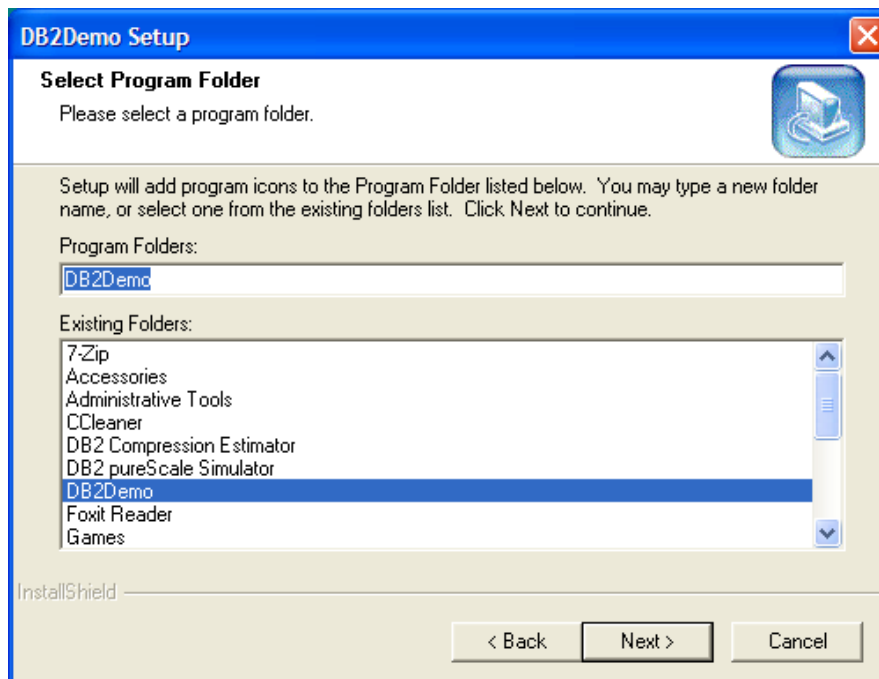
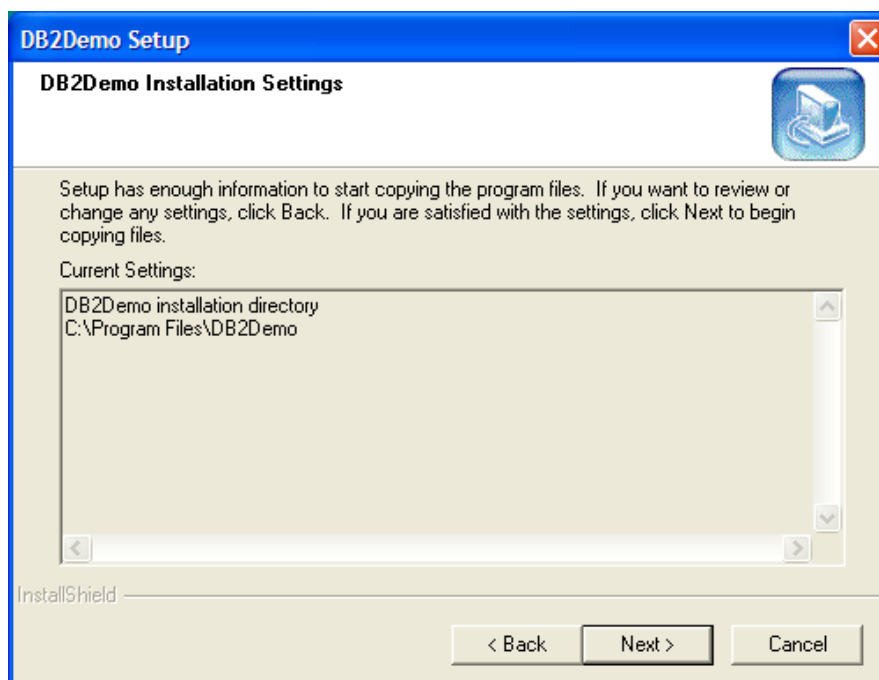The next screen that appears is the directory screen:

Select a drive and directory to place the DB2DEMO program into. By default, the name of the directory is called C:\Program Files\DB2DEMO and it is placed on the C: drive. The above example shows how the installation directory can be changed.
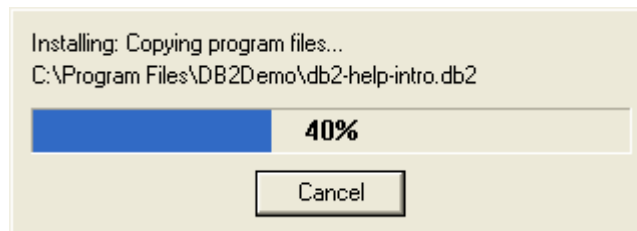
Use the Drives and Directories list boxes to change the value of the field to point to the installation directory you want. When you are ready to go, hit the **NEXT** button. At this point in time, the installation program will ask you for the Program Group that the DB2DEMO program will be placed into.
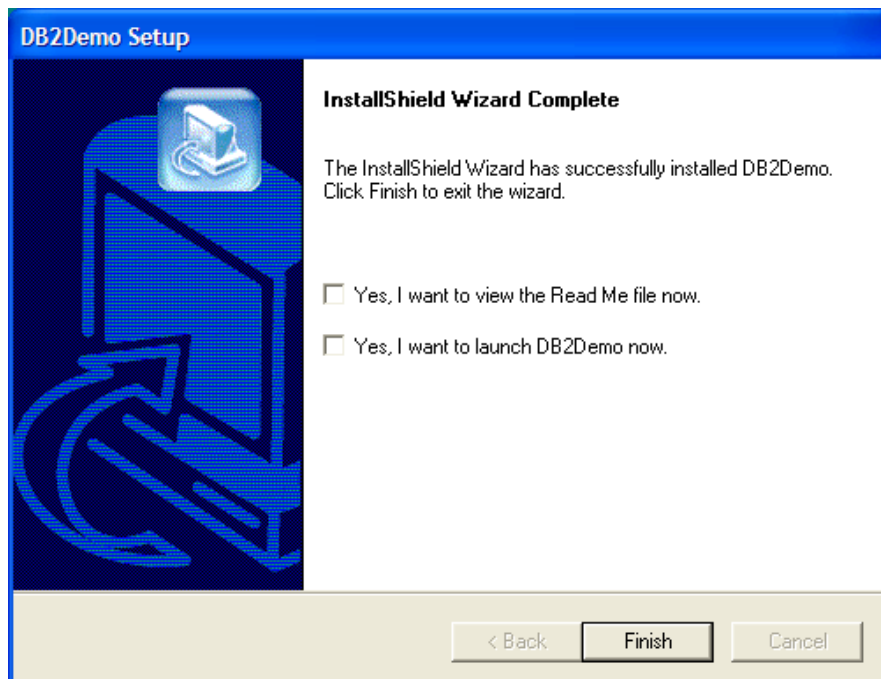
Once you have selected the group name, the program will confirm the installation information:

Once you hit the continue button, the program will begin copying files:

Installing: Copying program files...
C:\Program Files\DB2Demo\db2-help-intro.db2

40%

Cancel

When copying is complete, the completion box will be displayed:

DB2Demo Setup

InstallShield Wizard Complete

The InstallShield Wizard has successfully installed DB2Demo.
Click Finish to exit the wizard.

☐ Yes, I want to view the Read Me file now.

☐ Yes, I want to launch DB2Demo now.

< Back   Finish   Cancel

Depending on which operating system you were installing on, you may be asked to reboot the machine, or be given an option to try out the demo program or look at the additional README information that is supplied with the program. You can also start up DB2DEMO by going into the DB2DEMO group and selecting the DB2DEMO icon from the DB2DEMO group (or whatever you called it) and clicking on it:
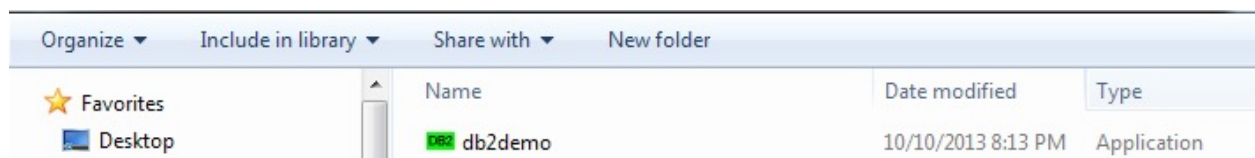
DB2Demo ▶ DB2 DB2Demo

DB2 DB2Demo SQL

To see how the program works, check out the section on running the program. If you want to run the DB2DEMO program against another server, please read the instructions on customization.

You can also select the DB2Demo SQL option to open an SQL window for running SQL commands instead of using the tutorial mode.
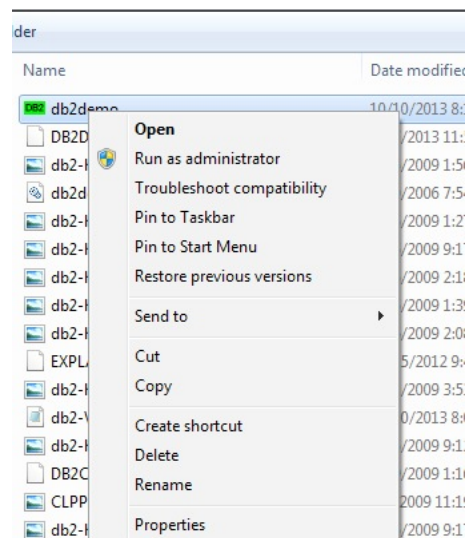
Windows 7+ Installation

For Windows 7+ users, you should make sure that the program is installed with Administrator privileges. One would assume that since you are probably an administrator on the system that any program that you execute would inherit the same privileges. Unfortunately, this isn't true in Windows 7+! DB2DEMO can run without administrator rights (all SQL will run), but any command that requires output to a file will fail. If you fail to run the install as "Administrator" then you can use the following procedure to fix this.
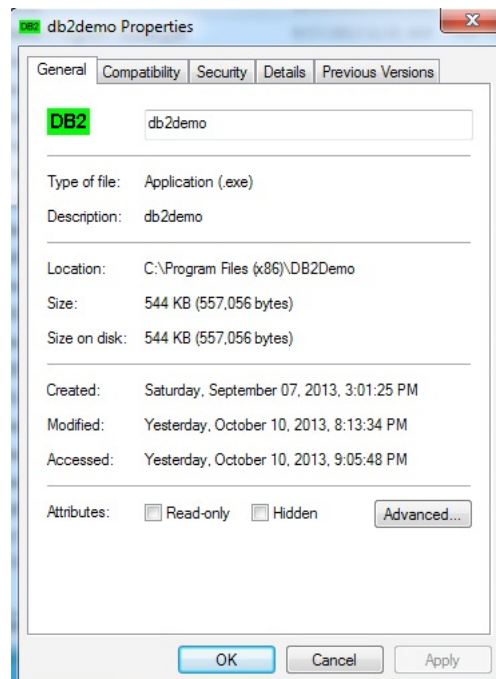
Using Windows Explorer go to the "C:\Program Files (x86)" directory and find DB2Demo. Inside the DB2Demo directory you will find the DB2Demo.exe executable.
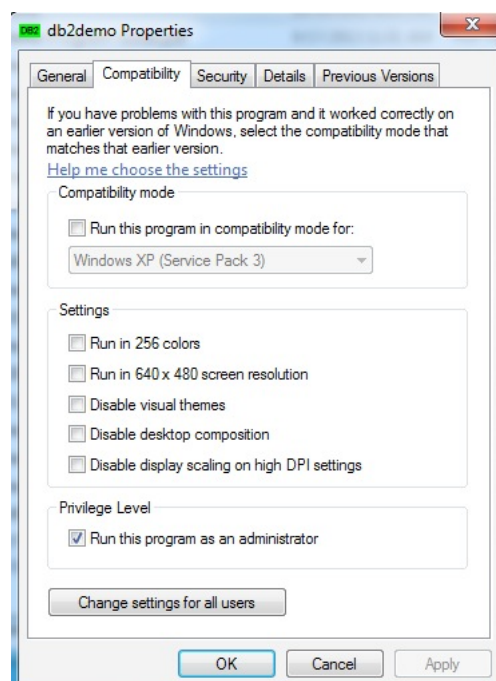

Right click on the program name to get a menu of options:

Select "Properties". This will present you with a dialog that lets you set various aspects of the program's behavior.

Select "Compatibility" and make sure that "Run this program as an administrator" is selected:

Once that has been done you can safely start the program without getting annoying messages from Windows 7+!

Advanced Installation

The SAMPLE database can be installed on any server supported by DB2. The program that creates that sample database is called **db2sampl** and can be found in the **sqllib\bin** directory on your server. When you install the database on a different machine, you still need to use the DB2DEMO program on Windows 7+, but the data will be on the server instead of the local machine.

To install this on a different server, you need to be very familiar with Db2 commands and the security of the machine you are working on. The steps required to run this demo against a different server are:

1. Install Db2 on the server operating system
2. Create a privileged userid that can administer the Db2 system
3. Create the sample database on the system

   The SAMPLE database can be installed on any server supported by DB2. The program that creates that sample database is called db2sampl and can be found in the sqllib\bin directory on your server. When you install the database on a different machine, you still need to use the DB2DEMO program on Windows 7+, but the data will be on the server instead of the local machine.

4. Create a userid on this system that can be used to connect from the remote system
5. Set up the Windows client so that the SAMPLE database has been catalogued properly. This includes installing the Db2 Client code on the workstation. Without this code, the demonstration program cannot run.

Once the installation is complete, you should be able to run the DB2DEMO program from the client and connect to the remote SAMPLE database.

Note: When running against a remote server, the SQL commands will work fine. However, any DB2, CLP, JSON, or file-based commands will not work since any output produced will remain on the remote server.

Program Options

DB2Demo has a configuration file called db2demo.opt that can be modified to change the fonts used by the program as well as change the program behavior. The options can also be used on a command line:

```
db2demo —sql —font "text font" —sqlfont "sql font" —sqlexplain
```

- `-sql` – Start DB2Demo with just an SQL window
- `-font "name"` – Use the font name supplied in quotes for all text display
- `-sqlfont "name"` – Use the font name for all SQL output (fixed spacing)
- `-sqlexplain` – Return a table of explain information rather than an explain graph

Replace the one line found in the db2demo.opt file with the options that you want to use. If you delete the file, DB2Demo will default to fonts that should work on all Windows installations. However, if you find that an error occurs in DB2Demo when results are displayed (the program will alert you), then you may need to look at your fonts on the system (Windows Control Panel) and find fonts that you believe are suitable for your system. Replace the font names found in the option file with the appropriate font name. You can also try the fonts by using a command prompt and typing in:

```
db2demo —font "Arial" —sqlfont "Courier New"
```

DB2Demo will check to see if the fonts are supported in the system before using them.

Remote Connections

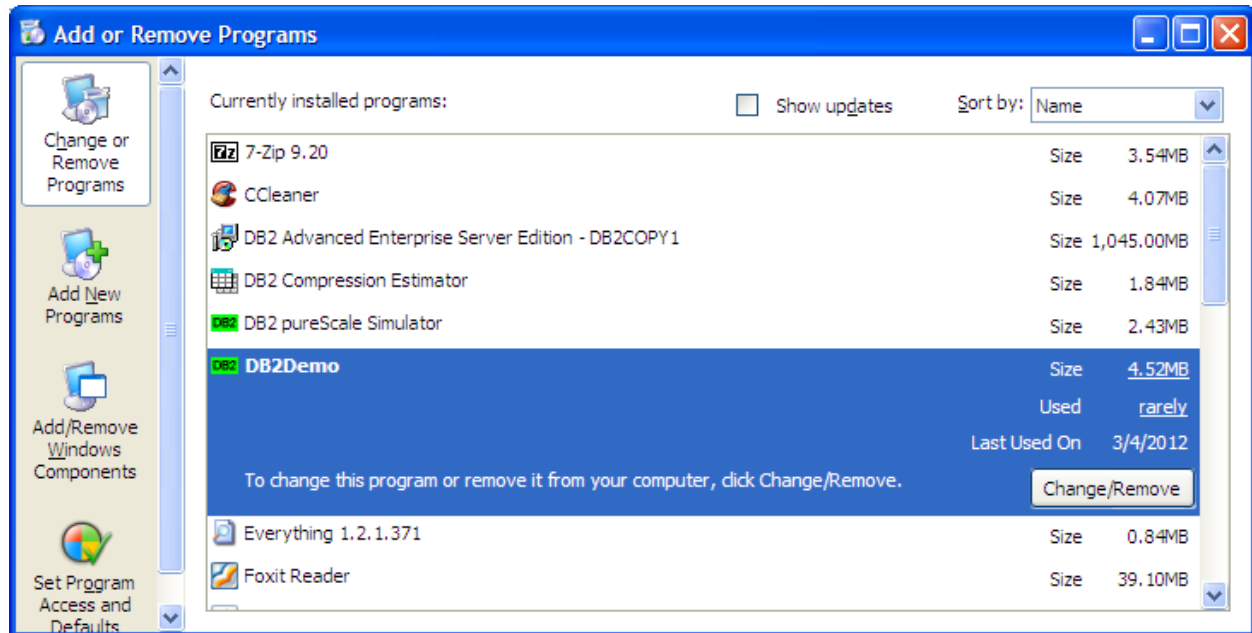Scripts that may not work on a remote database include:

- Db2 commands
- File commands that require information from the system that Db2 resides on
- Load of data from a file
- Explain statements

If DB2Demo detects that it has connected to a remote database (or thinks it has), then any of these commands will prompt the user asking if they want to try running the command. In some cases, the Db2 command will try and shutdown the instance to change some parameters, so this may not work remotely (and probably something you don't want to do if others are using the database at the same time!).

The SHOWPLAN command will automatically revert to a SQL description of the access plan rather than showing a graph. If you want to force all explain statements to use SQL then use the `—sqlexplain` option on the command line or in the options file.

Uninstalling the Demonstration

To uninstall the DB2DEMO program, use the Add/Delete panel within the Services group to delete the application:

Select the Db2 Demonstration program and the various files will be deleted. The directory may not be deleted if you have personalized any of the files.

Support

We've tried to think of everything, but occasionally things go wrong. If you have a problem with the demonstration code, please send us a note with your email address, name and a description of the problem. We can be reached at baklarz@ca.ibm.com.

Using the DB2DEMO Program
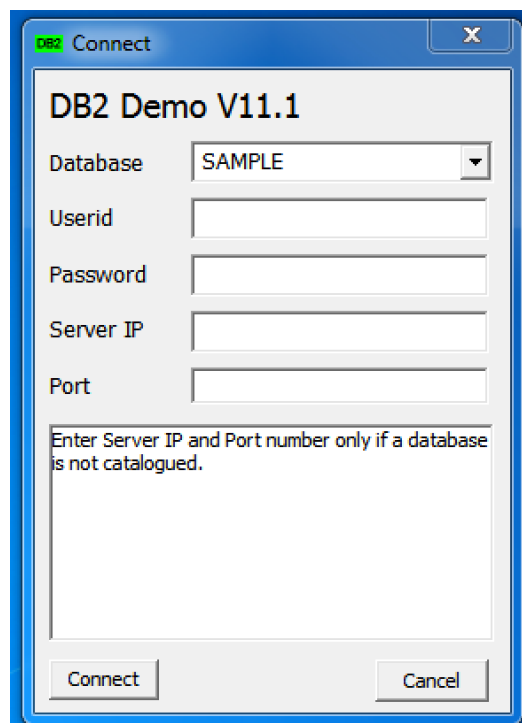
Starting the Program

To start the demonstration program, go either to a command or use Windows explorer to start the DB2DEMO program in the DB2DEMO directory (or wherever you chose to place it).
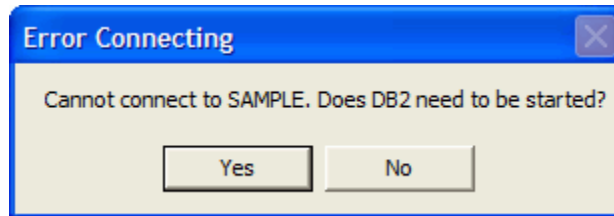

Or you can run it from a command line:

- `DB2DEMO [-sql]`

Once you have started the program, you will see the introduction screen:

The default database for the connection is SAMPLE. The DB2Demo scripts will be automatically loaded once you hit CONNECT. If the program cannot connect to the database, it will issue an error message asking whether Db2 should be started:
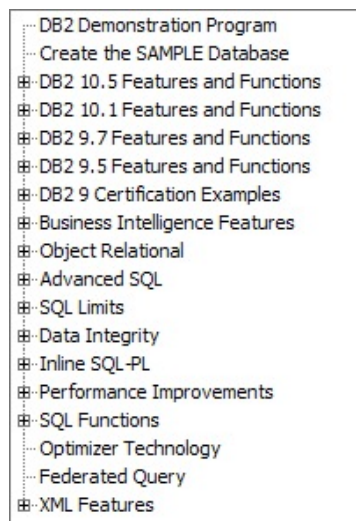
Selecting yes will attempt to start the local Db2 instance (remote instances are not supported). If no is pressed, the program will return to the connection panel. You can choose a different database from the list or adjust your userid and password and try connecting again. If you press CANCEL, the DB2DEMO.SQL script will be loaded and then the main DB2DEMO screen displayed. Note that no SQL will run until a subsequent connection to a database is established.

Several brief messages will display, and finally the demonstration screen will be displayed.

If the DB2DEMO.SQL file cannot be found, the program will not display an error message. Instead, it will only show the SQL window.

Quick Introduction

On the left-hand side, you will see a list of examples like the following screen:

Any topic with a [+] beside it will expand into more examples. Once you click on one of the examples it will load a script that will take you through examples of that topic.

A typical script is found on the next page.

Outer Join

The OUTER JOIN function nows allows you to do joins that include null values on one of the joined columns. In DB2 UDB, you can do either a left, right, or full OUTER JOIN.

Show Department Table

This query will show the contents of the department table. Note that one of the departments has no manager.

```
select * from department
```

Show Departments and their employees

This query will show departments and the employees that work for them. This is a standard join.

Notice that this list will not contain the one department that has no manager.

```
select deptname, lastname from employee, department
  where deptno = workdept;
```

Show missing department

This SQL will check for the department that does not have a manager assigned.

```
select deptname from department
  where mgrno is null;
```

You will see several icons in the margins of the scripts that you will be reading. One of icons is the green arrow for executing SQL:

```
SELECT * FROM DEPARTMENT;
```

Clicking on the SQL command will produce results below the select statement.

```
DEPTNO DEPTNAME              MGRNO   ADMRDEPT LOCATION
------ --------------------- ------  -------- ----------------
A00    SPIFFY COMPUTER SERV  000010  A00      -
B01    PLANNING              000020  A00      -
C01    INFORMATION CENTER    000030  A00      -
D01    DEVELOPMENT CENTER    -       A00      -
D11    MANUFACTURING SYSTEM  000060  D01      -
D21    ADMINISTRATION SYSTE  000070  D01      -
E01    SUPPORT SERVICES      000050  A00      -
E11    OPERATIONS            000090  E01      -
E21    SOFTWARE SUPPORT      000100  E01      -
F22    BRANCH OFFICE F2      -       E01      -

only 10 record(s) shown. (0.000s)
```

Output from an SQL command will create a separate line of output in the script. You will see that there is a listing icon beside the output.

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Any output produced by a SQL statement is limited to about 80 characters on the screen. In addition, only 10 rows are shown in the output to limit the amount of material displayed. However, if you press the listing icon, you will be able to see the full results in a scrollable output window.

#	DEPTNO	DEPTNAME	MGRNO	ADMRDEPT	LOCATION
1	A00	SPIFFY COMPUTER	000010	A00	-
2	B01	PLANNING	000020	A00	-
3	C01	INFORMATION CENTER	000030	A00	-
4	D01	DEVELOPMENT CENTER	-	A00	-
5	D11	MANUFACTURING	000060	D01	-
6	D21	ADMINISTRATION	000070	D01	-
7	E01	SUPPORT SERVICES	000050	A00	-
8	E11	OPERATIONS	000090	E01	-
9	E21	SOFTWARE SUPPORT	000100	E01	-
10	F22	BRANCH OFFICE F2	-	E01	-
11	G22	BRANCH OFFICE G2	-	E01	-

Pressing the ESCAPE key, scrolling the window, or clicking on another icon will remove the output window and revert to the listing.

Some examples are shown in light blue as in the following example.

```
SELECT <column list> FROM <table>
    WHERE ...
```

Examples in blue are meant to illustrate some SQL syntax that cannot run on the current system.

If you have an error in the SQL statement you've executed, an error message will be displayed with an information icon beside it.

```
SELECT * FROM X
```

```
SQL0204N  "BAKLARZ.X" is an undefined name.  SQLSTATE=42704
```

If the error message has more details, clicking on the information icon will give you the full error message text from the database.

There are other interesting things that you can do within this SCRIPT view. If you want to play with the SQL, all you need to do is double-click on the SQL box. Once you've made the change to the SQL, all you must do is click on the run icon to make it run.

Hitting escape, clicking on another SQL command, or scrolling on the screen will take you out of edit mode. There is no harm in editing the SQL to try things out.

There are many more features that DB2Demo has that we encourage you try out! The help section within the program has many more details of the capabilities of the demo and how you can create your own scripts. Enjoy the product!

DB2DEMO Program Credits

This program and documentation were compiled and created by:

George Baklarz
WW Digital Technical Engagement
Markham, ON, CANADA

I hope you enjoy using this demonstration package, and if you have any questions or comments, please send them to me at:

baklarz@ca.ibm.com

Thank-you for your time in trying out the Db2 Database Product!