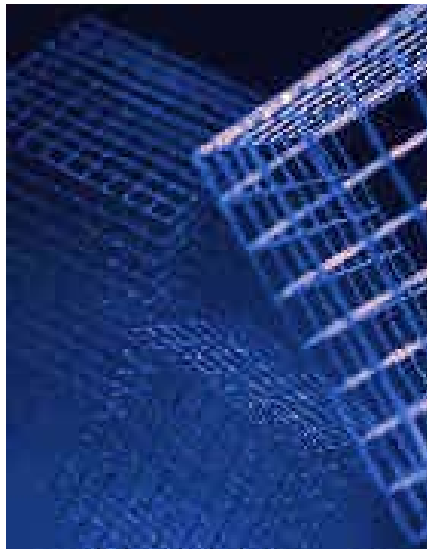


# Source Code for Tools: SAP DB








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<http://www.gnu.org/copyleft/fdl.html#SEC4>.

## Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

## Typographic Conventions

Type Style	Description
<i>Example text</i>	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths and options.  Cross-references to other documentation
<b>Example text</b>	Emphasized words or phrases in body text, titles of graphics and tables
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example, SELECT and INCLUDE.
Example text	Screen output. This includes file and directory names and their paths, messages, names of variables and parameters, source code as well as names of installation, upgrade and database tools.
<b>Example text</b>	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example text>	Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.
EXAMPLE TEXT	Keys on the keyboard, for example, function keys (such as F2) or the ENTER key

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## Source Code for Tools: SAP DB

The SAP DB tools Database Manager GUI and SQL Studio were developed using Microsoft Visual Basic 6.0.

This document describes how you install the source code for each of the tools and for the development environment VBMAKE and then create the software for it.

[Database Manager GUI \[Page 5\]](#)

[SQL Studio \[Page 10\]](#)

For a detailed description of the use of these tools, **see also: *Database Manager GUI: SAP DB and SQL Studio: SAP DB.***



## Database Manager GUI

The Database Manager GUI is a database management tool. The Database Manager GUI is used to control and monitor the database instance and to execute of backups. The Database Manager allows you to access remote database servers.

The Database Manager GUI was developed exclusively using Microsoft Visual Basic 6.0. The [Components of the Database Manager GUI \[Page 5\]](#) are ActiveX libraries and ActiveX control elements.



Note which [Software \[Page 6\]](#) is required for [Installing the Source Code \[Page 7\]](#) and [Creating the Database Manager GUI Software \[Page 7\]](#).



In our experience, it is difficult to work with group projects in the development environment of Microsoft Visual Basic because of the very complex structure of the Database Manager GUI program. For this reason, SAP recommends that you use the [VBMAKE \[Page 8\]](#) tool to create the Database Manager GUI, and that you follow the procedure described under Creating the Database Manager GUI Software.



## Components of the Database Manager GUI

The Database Manager GUI was developed exclusively with Microsoft Visual Basic 6.0.

Name of Component	Function	Description
DBMGUI	Client	Main Database Manager GUI program
DBMLIB	Object Library	Extensive object hierarchy for functionality of Database Manager GUI
DBMSOB	Server Object	Object for Database Manager API (dbmapi.dll)
DBMEVE	Event Handler	Global event manager
DBMAPP	Application Server	ActiveX Server that manages a registered database

		instance
DBMDOC	Documents	Contains a control element for each main function of the Database Manager GUI
DBMRES	Resource Library	All images (images and icons) that are used
DBMCMD	Command Control	Manages command lists from which the menus and toolbars are created
DBMINP	Input Control	Date and time entry
DBMSPL	SplitterBox Control	Manages ActiveX control elements so that the split/size can be changed using a resize bar
DBMREG	Registry Library	Functions for managing the registry
DBMSCR	ScrollBox Control	Manages an ActiveX control element so that you can change the position using a scroll bar
DBMDRT	DrawText Control	Displays text using the Windows API function of the same name
DBMFLB	FloodBar Control	Flood bar to display the fill levels of a database instance
DBMINF	InfoPanel Control	Control element for displaying various information
DBMSEP	SepLine Control	3D separator
DBMWIZ	Database Creation Wizard	Main program of the wizard to create database instances
DBMTIB	TitleBar Control	Title bar with image, title, time and close button
DBMPWD	Password Library	Encryption and decryption of the user password stored in the registry for a registered database instance (not available as source code).
DBMDBG	Debug Server	Utility for correction (debug). To do so, select database instance, choose <code>Ctrl-D</code> , click the right mouse button on the desired database instance and then choose <code>Trace</code>
DBMINS	Installer	Utility for registration and deregistration of all components of the Database Manager GUI



## Software for the Database Manager GUI

You must install the following software on your computer before [Installing of the Source Code \[Page 7\]](#) and [Creating the Database Manager GUI Software \[Page 7\]](#) :

- Microsoft Windows NT 4.0 Service Pack 5 or higher
- Microsoft Visual Basic 6.0 Service Pack 3 or higher

You also require the file

- `sapdb-tools-source-73.zip`

This contains all of the necessary [Components \[Page 5\]](#) for the installation of the source code and the creation of the Database Manager GUI software.



## Installing the Source Code

### Prerequisites

You have the software required for the installation ([Software for the Database Manager GUI \[Page 6\]](#), [Software for SQL Studio \[Page 11\]](#)).

### Procedure

1. Unpack the file `sapdb-tools-source-73.zip` in a location of your choice on your hard disk.

This operation creates the following directory structure:

<code>-\SAPDBTools...</code>	Main directory
<code>..\bin</code>	Created components and programs
<code>..\src...</code>	Source code
<code>..\DBMGUI...</code>	Source code components of the Database Manager GUI
<code>..\SQLStudio...</code>	Source code components of SQL Studio
<code>..\VBMAKE...</code>	Source code components of VBMAKE

2. Enter the TCPIP Port  

```
sql6      7210/tcp      # SAP DB
```

in the list of known Services (`filename services`), in order to be able to access databases over the network.

You can find this file in the Microsoft Windows system directory using the following path:  
`..\system32\drivers\etc.`



## Creating the Database Manager GUI Software

### Prerequisites

You have the required [Software \[Page 6\]](#) for the creation of the Database Manager GUI.

You have installed the source code on your computer ([Installing the Source Code \[Page 7\]](#)).

### Procedure

First of all, register the program files copied to the hard disk during the installation of the source code.

- To do this, open the `bin` directory in the Windows NT Explorer
- Open the `DBMIns.exe` program contained there by double clicking it (SAP DB Database Manager Installer).  
This program opens the file `DBMIns.ini` and displays all of the data contained there
- Choose *Register* to register all ActiveX programs, libraries and control elements.

Now run the VBMAKE program ( [Execution of the VBMAKE Program \[Page 8\]](#)).



## Runtime Environment

The execution of the client program requires that a SAP DB client runtime environment is available. You can find a current version of the runtime environment in the `bin` directory.



## Execution of the Database Manager GUI Program

### Prerequisites

If you want to start the Database Manager Project (Name: DBMGUI) program in the Microsoft Visual Basic development environment, the [Runtime Environment \[Page 8\]](#) must be accessible.

There are a number of ways in which you can do this:

- By entering the `bin` directory in the system variable *Path*
- By calling the Microsoft Visual Basic development environment with the Database Manager Projekt *DBMGUI* in an environment in which you have temporarily extended the path to the `bin` directory
- By copying the following runtime environment files to the `...\src\DBM\DBMGUI` directory

### Database Manager GUI Files in the SAP DB Client Runtime Environment

```
dbmapi.dll  
sqltcp.dll  
sqltcp1.dll  
sqltcp2.dll  
sqltcpn.dll  
sqluser73.dll  
sapni.dll
```



## VBMAKE

VBMAKE is a tool developed by SAP DB with which you can manage complex projects in Microsoft Visual Basic. It was created in connection with the development of the SAP DB tools Database Manager GUI and SQL Studio.

[Execution of the VBMAKE program \[Page 8\]](#)



## Execution of the VBMAKE Program

### Calling the Program

The program file `vbmake.exe` is in the `bin` directory.



Open this file by double clicking it, if you want to work with VBMAKE.

VBMAKE read the file `VBMake.ini`, in which all of the main components to be managed are listed. Among the project files listed there (file extension `.vbp`), there may be a file in the project file directory with the name `vbmake.dep`. In this file all projects that are dependent on the corresponding project are listed.

After calling the VBMAKE program, you will see a directory structure on the left side of the screen with all projects and their dependent projects as subnodes.

When you choose a project, various information about the project is displayed on the right side of the screen.

## Available Functions

Use the toolbar to call the VBMAKE functions.

Function	Description
<i>Open</i>	Open a new input file
<i>Open VB</i>	Open the Microsoft Visual Basic development environment with the chosen project
<i>Edit vbp</i>	Open the project file in the Notepad program
<i>Options</i>	Define options for creating the software
	<i>Check project file date</i>
	Takes the project file date into consideration when deciding if a component should be updated (recompiled).
	<i>Ignore read only attributes on targets</i>
	Ignore the <code>read only</code> attribute of files to be created
	<i>Make typelib compatible before compilation</i>
	Create a project file before compilation in which the type lib information of ActiveX components is reconciled with the information in the registry. This file is then called during compilation.
	<i>Make winrunner support file before compilation</i>
	Create a project file before compilation that contains the required information for the WinRunner tool (Mercury Interactive Corporation). This file is then called during compilation.
<i>Make</i>	Compile the selected project Possibility to decide exactly what should be compiled:
	<i>Make current and all dependent projects</i>
	Compile all dependent projects and then the selected project
	<i>Make current projects only</i>
	Compile only the selected project
	<i>Make dependent projects only</i>
	Compile only the dependent projects
<i>Execute</i>	Run the selected project if it is an executable program
<i>Register</i>	Register the selected project (or the created components)
<i>Set</i>	Define selected properties of a project file, for example for Debug purposes
<i>Touch</i>	Set the current time stamp for the selected project file
<i>Cancel</i>	Terminate the current action
<i>Info</i>	General Public Licence Info



## SQL Studio

SQL Studio is a tool for creating and changing database objects such as tables, views, and so on, and for creating and executing SQL statements.

SQL Studio was developed using Microsoft Visual Basic 6.0, Microsoft Visual C++ 6.0 and the SAP DB development environment. The components of SQL Studio are ActiveX libraries, ActiveX control elements and dynamic run time libraries (DLLs).



Note which [Software \[Page 11\]](#) is required for [Installing the Source Code \[Page 7\]](#) and [Creating the SQL Studio Software \[Page 12\]](#).



SAP recommends that you use the [VBMAKE \[Page 8\]](#) tool to create the SQL Studio software, and that you follow the procedure described under Creating the SQL Studio Software.

You can, however, also use the Microsoft Visual Basic development environment and use the group file `SQLStudio.vbg` in the `...\SQLStudio\Main` directory with it.



## Components of SQL Studio

SQL Studio was developed using Microsoft Visual Basic 6.0, Microsoft Visual C++ 6.0 and the SAP DB development environment.



If you want to gain an overview of the dependencies between the individual components of SQL Studio, we recommend that you use the [VBMAKE \[Page 8\]](#) tool.

Name of Component	Function	Description	Development Environment Used
<i>SQLStudioUtil</i>	Various help functions	ActiveX library, contains functions such as access to the Microsoft Windows registration database, setting of the SQL Studio position indicator, and the management of the SQL statement history, organized into classes	VB 6.0
<i>SQLStudioDBLayer</i>	Contains database accesses	ActiveX library in which the SQL Studio database accesses occur using ODBC and VB classes (Classes to create a database connection, execution of SQL statements, scrolling in a resulting set).	VB 6.0
<i>SQLStudioMan</i>	SQL Studio Objects	ActiveX library that contains classes with which specific SQL Studio information is stored (such as: user profile, program settings, stored SQL Studio objects,	VB 6.0

		predicates for the QueryByExample dialog)	
<i>SQLStudioCt</i>	User Password	Encryption and decryption of the user password stored in the registry for a registered database instance (not available as source code).	VB 6.0
<i>SQLStudioCCon</i>	General Control Elements	ActiveX component that contains various control elements: Table window for the VisualQuery dialog Navigation bar for the QueryByExample dialog Navigation bar for the results window Suggestion list for the DirectSQL dialog	VB 6.0
<i>SQLStudioQCon</i>	Control elements for creating a database query	ActiveX component for dialogs to execute SQL statements and their results: DirectSQL dialog QueryByExample dialog VisualQuery dialog Result dialog Zoom window for the Result dialog	VB 6.0
<i>SQLStudioCDCon</i>	Control elements for creating database objects	TableDefinition ViewDefinition IndexDefinition SynonymDefinition SequenceDefinition	VB 6.0
<i>CatalogView</i>	Display of the database catalog	Among other things, provides navigation through the database catalog, calling dialogs to create database objects and SQL Studio objects (such as provided SQL statements)	VB 6.0
<i>SQLStudio</i>	Main program	Main SQL Studio program	VB 6.0
<i>DSQLControl</i>	Entry window of the DSQL dialog	Allows, among other things, the setting of different fonts and colors for SQL statements and SQL keywords	VC 6.0
<i>StudioUtil</i>	Help function implemented in C	Conversion UTF8 -> UCS2 Display of ASCII characters as hex values	SAP DB Development Environment
<i>TableDefC</i>	Help function implemented in C	Functions for SQLStudioCDCon	SAP DB Development Environment



## Software for SQL Studio

You must install the following software on your computer before [Installing of the Source Code \[Page 7\]](#) and [Creating the SQL Studio Software \[Page 12\]](#) :

- Microsoft Windows NT 4.0 Service Pack 5 or higher
- Microsoft Visual Basic 6.0 Service Pack 3 or higher
- Microsoft Visual C++ 6.0 Service Pack 3 or higher
- Microsoft ODBC 3.51
- riched20.dll 5.30.11.2110 (Richedit Version 3.0), oder higher

You also require the file

- `sapdb-tools-source-73.zip`

This contains all of the necessary [Components \[Page 10\]](#) for the installation of the source code and the creation of the Database Manager GUI software.



## Creating the SQL Studio Software

### Prerequisites

You have the required [Software \[Page 6\]](#) for the creation of SQL Studio.

You have installed the source code on your computer ([Installing the Source Code \[Page 7\]](#)).

### Procedure

First of all, register the program files copied to the hard disk during the installation of the source code.

You must then edit the file `SQLSTDREG.bat` depending on your operating system:

- Windows 95/98:  
Activate the line `rem regsvr32 /s DSQLControl\Win9x\SQLStudioDSQL.dll` by removing the character string `rem`.
- Windows NT:  
Activate the line `rem regsvr32 /s DSQLControl\WinNT\SQLStudioDSQL.dll` by removing the character string `rem`.

Then execute the file `SQLSTDREG.bat`.

The SQL Studio program can now be called or created.



The components of SQL Studio are created in various development environments ([SQL Studio Components \[Page 10\]](#)).

To create the component *DSQLControl*, you require the include file `Tom.h` and the library `riched20.dll 5.3011.2110` (oder höher).

The file `Tom.h` is part of the Microsoft Platform Software Development Kit (SDK). If the library `riched20.dll 5.3011.2110` is not available to you, copy it from the `bin` directory to the corresponding Windows directory (for example: `../Winnt/System32` for Windows NT).



## Execution of the SQL Studio Program

### Prerequisites

If you want to start the SQL Studio program in the Microsoft Visual Basic development environment, the [Runtime Environment \[Page 8\]](#) must be accessible.

You should therefore copy the following runtime environment files to the group file directory `...\SQLStudio\Main`.

**SQL Studio Files in the SAP DB Client Runtime Environment**

sqlod32.dll  
sqluser73dll  
sapni.dll  
sqlsp32.dll  
sqltcp2.dll  
sqltcp1.dll  
sqltcp.dll  
sqltcpn.dll  
sqlodext.dll  
libsqlcls.dll  
wapi.dll  
dbfsapi.dll  
odcompr.dll  
StudioUtil.dll  
TableDefC.dll