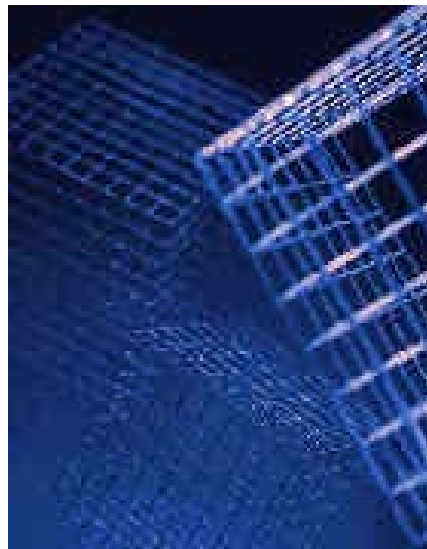# Source Code for Tools:
SAP DB

Copyright

Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Typographic Conventions

Type Style	Description
Example text	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.
Example text	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, source code, names of variables and parameters as well as names of installation, upgrade and database tools.
`EXAMPLE TEXT`	Keys on the keyboard, for example, function keys (such as `F2`) or the `ENTER` key.
`Example text`	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.

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 `Ctrl-D,` click the right mouse button on the desired database instance and then choose `Trace`
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 and :

- 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 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:

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

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
Open	Open a new input file
Open VB	Open the Microsoft Visual Basic development environment with the chosen project
Edit vbp	Open the project file in the Notepad program
Options	Define options for creating the software
	Check project file date
	Takes the project file date into consideration when deciding if a component should be updated (recompiled).
	Ignore read only attributes on targets
	Ignore the `read only` attribute of files to be created
	Make typelib compatible before compilation
	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.
	Make winrunner support file before compilation
	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.
Make	Compile the selected project Possibility to decide exactly what should be compiled:
	Make current and all dependent projects
	Compile all dependent projects and then the selected project
	Make current projects only
	Compile only the selected project
	Make dependent projects only
	Compile only the dependent projects
Execute	Run the selected project if it is an executable program
Register	Register the selected project (or the created components)
Set	Define selected properties of a project file, for example for Debug purposes
Touch	Set the current time stamp for the selected project file
Cancel	Terminate the current action
Info	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
SQLStudioUtil	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
SQLStudioDBLayer	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
SQLStudioMan	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)	
SQLStudioCt	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
SQLStudioCCon	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
SQLStudioQCon	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
SQLStudioCDCon	Control elements for creating database objects	TableDefinition ViewDefinition IndexDefinition SynonymDefinition SequenceDefinition	VB 6.0
CatalogView	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
SQLStudio	Main program	Main SQL Studio program	VB 6.0
DSQLControl	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
StudioUtil	Help function implemented in C	Conversion UTF8 -> UCS2 Display of ASCII characters as hex values	SAP DB Development Environment
TableDefC	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*, your 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
```