ASA Maestro

User's guide

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VIII Database Tools

1   Welcome to ASA Maestro!

ASA Maestro is the premier Windows GUI admin tool for Sybase SQL Anywhere development and management. It allows you to make all the database operations easy and fast.

Basic ASA Maestro features

Support of the latest Sybase SQL Anywhere features
Use ASA Maestro to work with Sybase SQL Anywhere from 10 to 17. Among other features and objects implemented in the latest versions of the server, our software supports Enter value, and a lot of other useful things.

Easy database management
 Database profiles give you the opportunity to connect to databases in one touch and work with the selected databases only. See the Database Management 21 for details.

Powerful database object management
ASA Maestro provides you with an ability to manage database objects in various ways. For example, you can perform operations with a group of objects as well as with a single object in Object Manager 56, sort, group and filter the database objects within Object Browser 54, copy an object from one database to another by a drag-and-drop operation inside the explorer tree, use Windows clipboard to copy a set of objects and so on. For details turn to the Database Object Management 59 section.

Working with tables and table subobjects
ASA Maestro wizards and editors allow you to create, edit and drop tables as well as their *fields, indexes,* and *foreign keys* in a couple of simple operations. See the Tables 63 section to learn more.

Building and executing queries
ASA Maestro provides two powerful tools which allow you either to edit query text directly with syntax highlighting and code completion or to build a query diagram visually selecting tables and fields, setting links between tables and so on. You can find the detailed description in the Queries 156 section.

Powerful data management tools
ASA Maestro puts at your disposal a complete set of data management tools with viewing, editing, grouping, sorting and filtering abilities, lookup editors, master-detail data view, BLOB Viewer/Editor, data export, data import and SQL dump modules and more. See the Data Management 172 to learn the details.

Wide choice of additional tools
ASA Maestro provides you with a number of tools for working with database metadata and SQL scripts, including Script Runner, SQL Script Editor with code folding and script explorer. Moreover, it gives such tools as Schema Designer, BLOB Viewer, Diagram Viewer, Data Analysis, Dependency Tracker, SQL Generator, Report Designer, and a lot of others. To learn more, see the Database Tools 207 section.

Full customization according to your preferences and needs
In ASA Maestro you can customize the behavior of all its tools, select a user interface scheme and set a lot of other preferences. All the options and their meanings are listed

within the Options 253 dialog description.

1.1 System Requirements

Client environment

- Pentium PC or higher;
- Windows NT4/2000/XP/Vista/Windows 7/Windows 8/Windows 10/Windows 11;
- 512 MB RAM (1 GB recommended);
- 25 MB of free hard disk space;
- SVGA-compatible video adapter.

Server environment

- Sybase SQL Anywhere from 10 to 17.

1.2   Installation

To install **ASA Maestro** for the first time on your PC:

- download the ASA Maestro distribution package from the <u>download page</u> at our site;
- run setup.exe from the local folder and follow the instructions of the installation wizard;
- find the ASA Maestro shortcut in the corresponding program group of the Windows Start menu after the installation is completed.

To upgrade the installed copy of ASA Maestro to the latest version:

- download the ASA Maestro executable file from the <u>download page</u> at our site;
- unzip downloaded file to any local folder, e.g. *c:\unzipped*;
- exit from ASA Maestro if it is running;
- replace previous version of ASA Maestro by copying unzipped files to the ASA Maestro folder;
- run ASA Maestro using its shortcut in the Windows Start menu.

You can also use the full distribution package to upgrade your current version of ASA Maestro. In this case you should repeat the steps of the first-time installation. Note that the full distribution package is larger than a single executable file.

1.3   How can I purchase ASA Maestro?

Thank you for your interest in purchasing **ASA Maestro**!

You can select licensing options and register ASA Maestro at its on-line order page. It is possible to purchase on-line, by fax, mail, toll-free phone call, or place a purchase order. We send the software activation key by email within 24 hours after completion of the order process. If you have not received the activation key within this period, please contact our sales department.

All our products and bundles are shipped with 12 months of free upgrades (minor and major ones) or with 36 months of free upgrades for a quite small additional fee. After this period you may renew your license for the next 12(36) months with a 50% discount.

ASA Maestro has a free 30-day trial. Upon purchasing the product you confirm that you have tested it and you are completely satisfied with its current version.

To obtain technical support, please visit the appropriate section on our website or contact us by email to support@sqlmaestro.com.

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1.5   About SQL Maestro Group

SQL Maestro Group is a privately-held company producing high-quality software for database administrators and developers. The united team of eminently qualified developers is pleased to create new software products for commercial, academic and government customers worldwide. We do our best to design and develop products that remove complexity, improve productivity, compress time frames, and increase database performance and availability. We are glad to realize that our products take usual chores upon themselves, so that our customers could have more time left for their creative work.

The company was founded in 2002 as an essential partner for every business that is trying to harness the explosive growth in corporate data. SQL Maestro Group employs an international team concentrating their efforts on cutting-edge DBA tools development.

The slogan of our company is **The Shortest Path to SQL**. It is aimed to denote that we set to create easy-to-use products meant for those who appreciate comfort, friendly program interface and support when working with SQL servers.

- We are pleased to facilitate your job.

- We aim at being of considerable assistance to our clients.

- We feel contented doing our beloved work.

At present, our company offers a series of Windows GUI admin tools for SQL management, control and development of the following servers: **MySQL, Microsoft SQL Server, PostgreSQL, Oracle, SQL Anywhere, DB2, SQLite, Firebird,** and **MaxDB**. We also produce universal tools to be used for administering any database engine accessible via ODBC driver or OLE DB provider. Such products may be the clear-cut decision for those who constantly work with several database servers.

SQL Maestro is the premier Windows GUI admin tool for database development, management, and control. It provides you with the ability to perform all the necessary database operations such as creating, editing, copying, extracting and dropping database objects; moreover, you can build queries visually, execute queries and SQL scripts, view and edit data including BLOBs, represent data as diagrams, export and import data to/from most popular file formats, manage users and their privileges (if possible), and use a lot of other tools designed for making your work with your server comfortable and efficient.	

SQL PHP Generator is a powerful tool for creating database-driven web applications visually. It allows you to generate high-quality PHP scripts for working with tables, views and queries through the web. You needn't have any programming background to use it.	
SQL Data Wizard is a high-capacity Windows GUI utility for managing your data. It provides you with a number of easy-to-use wizards for performing the required data manipulation easily and quickly. The tool allows you to export data from Sybase SQL Anywhere tables and queries to most popular formats, import data into the tables, generate SQL dump of selected tables, and export/import BLOB fields from/to files.	
SQL Code Factory is a premier GUI tool aimed at the SQL queries and scripts development. It allows you to manage SQL queries and scripts using such useful features as code folding, code completion and syntax highlighting, build query visually, execute several queries at a time, execute scripts from files, view and edit result data with filtering, sorting and grouping abilities, export data to as many as 14 file formats including Excel, RTF and HTML, import data from Excel, CSV, XML and text files, view and edit BLOBs in various way, build diagrams based on Oracle data, and much more.	
Database Converter is a user friendly tool to migrate any local or remote ADO-compatible database to Sybase SQL Anywhere. Such tools transfer database schema and data and are equipped with native support for the most popular database servers.	
Data Sync is a powerful and easy-to-use tool for database contents comparison and synchronization. Such tools can be useful for database administrators, developers and testers that need a quick, easy and reliable way to compare and synchronize their data.	

The software products are constantly optimized for the latest server versions support.

You can use the following contact information if necessary:

Our web-site   www.sqlmaestro.com

Postal address: **SQL Maestro Group**
                                      140 Broadway, Suite 706
                                      New York City, New York 10005
                                      United States

Thank you for your interest to our company!

1.6 What's new

Please find out the latest ASA Maestro news at http://www.sqlmaestro.com/products/sql_anywhere/maestro/news/

2   Getting Started

The topics in this section provide some basic information about ASA Maestro, what it is for and what you can do with it.

How to get started:

- Connect to a database with ASA Maestro [13]
- Explaining user interface [15]
- How ASA Maestro looks when you start it for the first time [16]
- Shortcut keys [20]

Learning more:

- ❑ Study the **Overview of Database Object Management** [36] section for detailed instructions on using ASA Maestro.

- ❑ See **Database Tools** [207] and **Queries** [156] sections for instructions on more advanced procedures!

- ❑ Find out more about **Working with Data in ASA Maestro** [172].

- ❑ Customize the way ASA Maestro works, see **Program Options** [253] for full details.

2.1   Connect to a database

To manage an existing database with ASA Maestro, you have to create the according database profile ²³ first. A profile stores database connection settings, and some additional options to customize the way the software works with the database. After the creation database profiles appear as nodes in the Explorer tree on the left (profile properties can be later changed with Database Profile Editor ²⁶).

When the profile is created you can connect to the database. To do so, select the database in the Explorer tree ⁵¹, or either select the Database | Connect to Database main menu item or use the Connect to Database item of the popup menu. You can also double click the database node in the explorer tree. If connection succeeds, the database node expands displaying the tree of database objects (tables, views, procedures, etc). The database becomes ready for your activities.

How can I disconnect from a database?

In order to disconnect from a database you should first select the database in the explorer tree, then either

- select the Database | Disconnect from Database main menu item

or

- use the Disconnect from Database item of the popup menu.

See also: Connection parameters ¹⁴

2.2   Connection parameters

To connect to an SQL Anywhere database with ASA Maestro, specify the following
connection options:

Host
The host name of the SQL Anywhere server.

Engine name
The name of a running database server to which you want to connect. Click the ellipsis
button to scan your network for available SQL Anywhere servers.

Port number
The TCP/IP port to use (default value is 2638).

ASA Maestro allows you to use integrated login (only for database servers running on
Windows). Otherwise, set the following server security options.

User name
The username used to connect to SQL Anywhere.

Password
The password for the user account on server.

Start database before connection
Starts a local database server (if available).

Stop database after last disconnect
Stops local database server when there are no more open non-HTTP connections.

2.3   Explaining user interface

The SQL Maestro Group products are famous for their clear and intuitive user interface. The programs are built around the three-pane workspace that includes the database explorer and child windows consisting of the navigation bar and work area.

This topic provides a brief guide to the components of ASA Maestro's user interface. For detailed descriptions, see below.
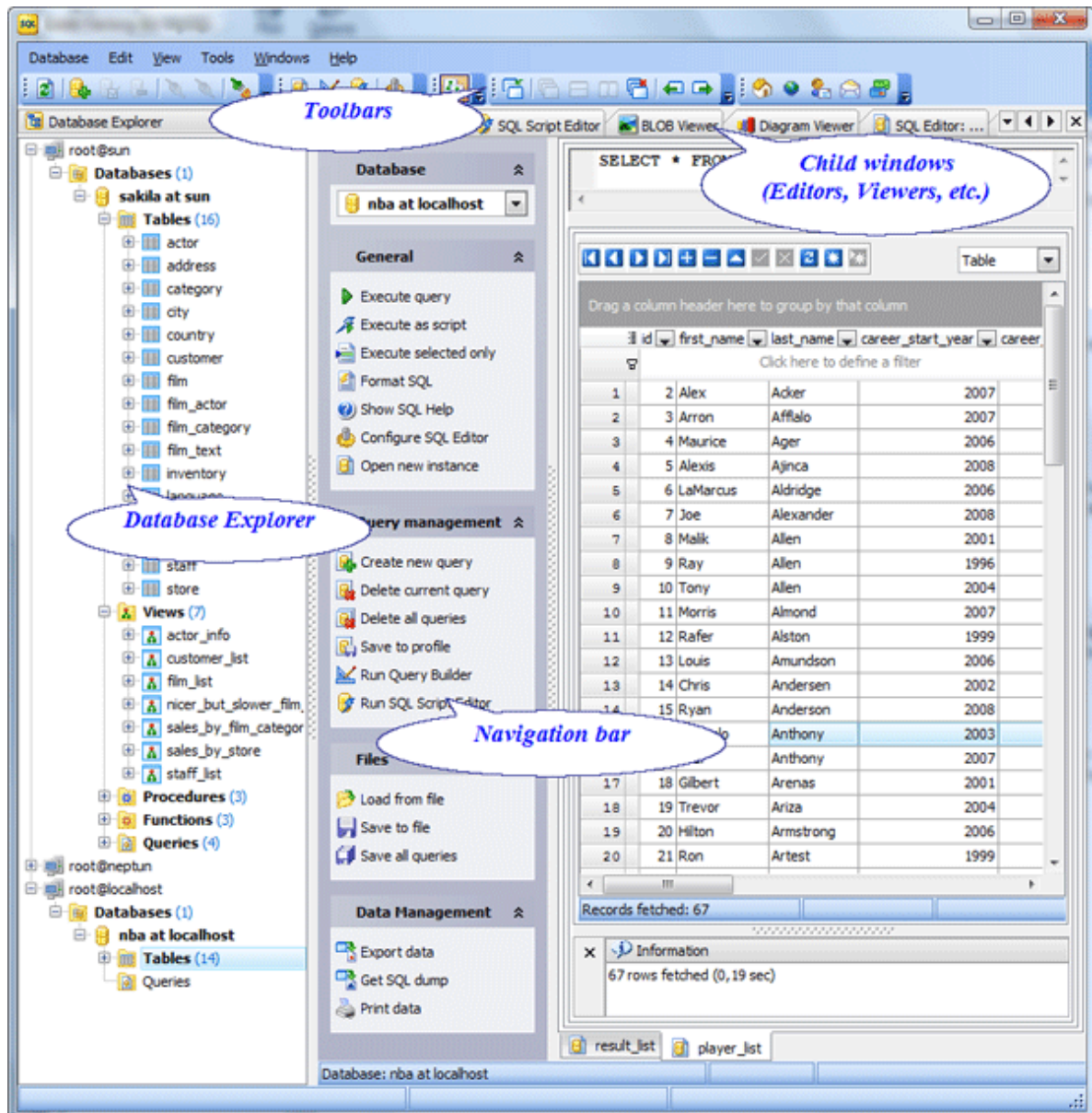
Database Explorer

The Database Explorer⌐51⌐ occupies the left side of ASA Maestro main window. It represents all the connected databases objects including system objects⌐27⌐.

The explorer provides the fastest way to reach the object properties, to perform the following operations with database profiles using the popup menu:

- create new objects (database profiles, database objects, table objects...);
- edit currently selected objects;
- remove currently selected objects from the explorer tree;
- duplicate objects;
- rename objects if available and edit object comments out of the object editor.

See also: Filtering explorer content [54]

Editors and Viewers

According to the MDI style implementation the ASA Maestro tools and editors are opened in appropriate windows. Each window consists of a navigation bar and work area. The software supports Classic and Tabbed MDI.

See also: Switching between windows [18], Tabbed MDI [17]

Navigation bar

The Navigation Bar contains a set of logically grouped links provided to realize the corresponding actions. Just position the mouse over a link and wait for a second to display the appropriate action shortcut making it possible for experienced users to control the program almost entirely with the keyboard.

See also: Shortcut keys [20]

Toolbars

The bars occupy the top of the main window. The Toolbars provide quick access to the most frequently-used functions. Just position the mouse over a tool and wait for a second to display a brief text describing what it is for.

2.3.1 First time started

This is how ASA Maestro looks when you run it for the first time. The Connect to database link allows you to start working with existing databases. Follow the link to open Create database profile [23]

The window provides you with quick access to the Create Database Object [37] dialog, Schema Designer [235], SQL Editor [158], and SQL Script Editor [209] recently used database profiles. At the bottom of the page the latest company news and current discount programs are represented.
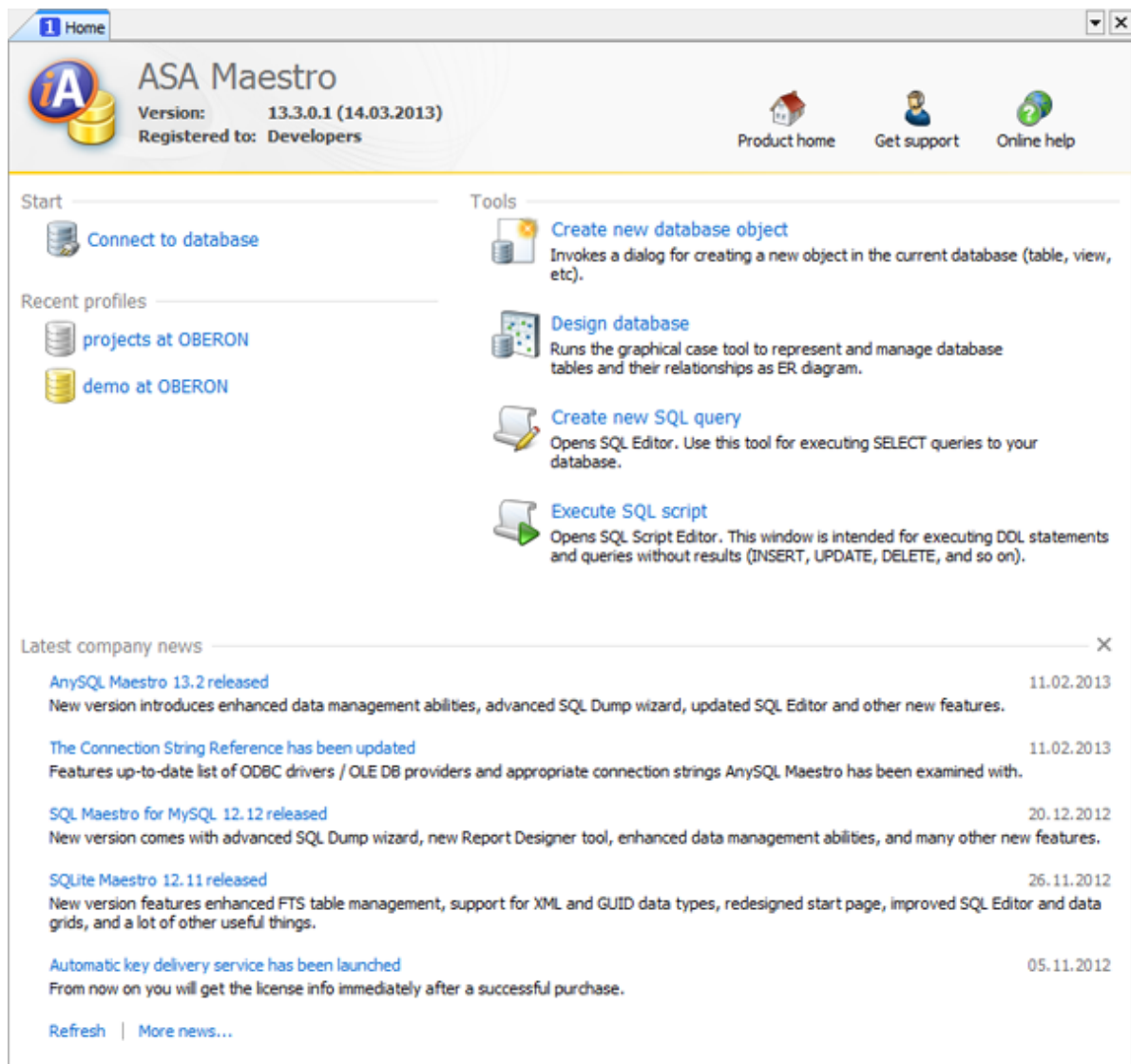
2.3.2 Tabbed MDI

ASA Maestro provides you with a possibility to choose (Options|Application) your favorite UI. Among the **classic MDI style** the **tabbed MDI style** is also available.

Applying the style you'll get all the objects editors opening on separate sheets. You can move from one sheet to another by clicking the sheet tabs at the bottom of the working area. The tab for the active sheet is underlined in the color you choose; tabs for inactive sheets are fully colored.

You can switch between the sheets with corresponding sheet tabs or using **Ctrl+Tab**. If you don't see the tool you want, click the tab scrolling buttons to display the tab, and then click the tab. You can also move the sheets.
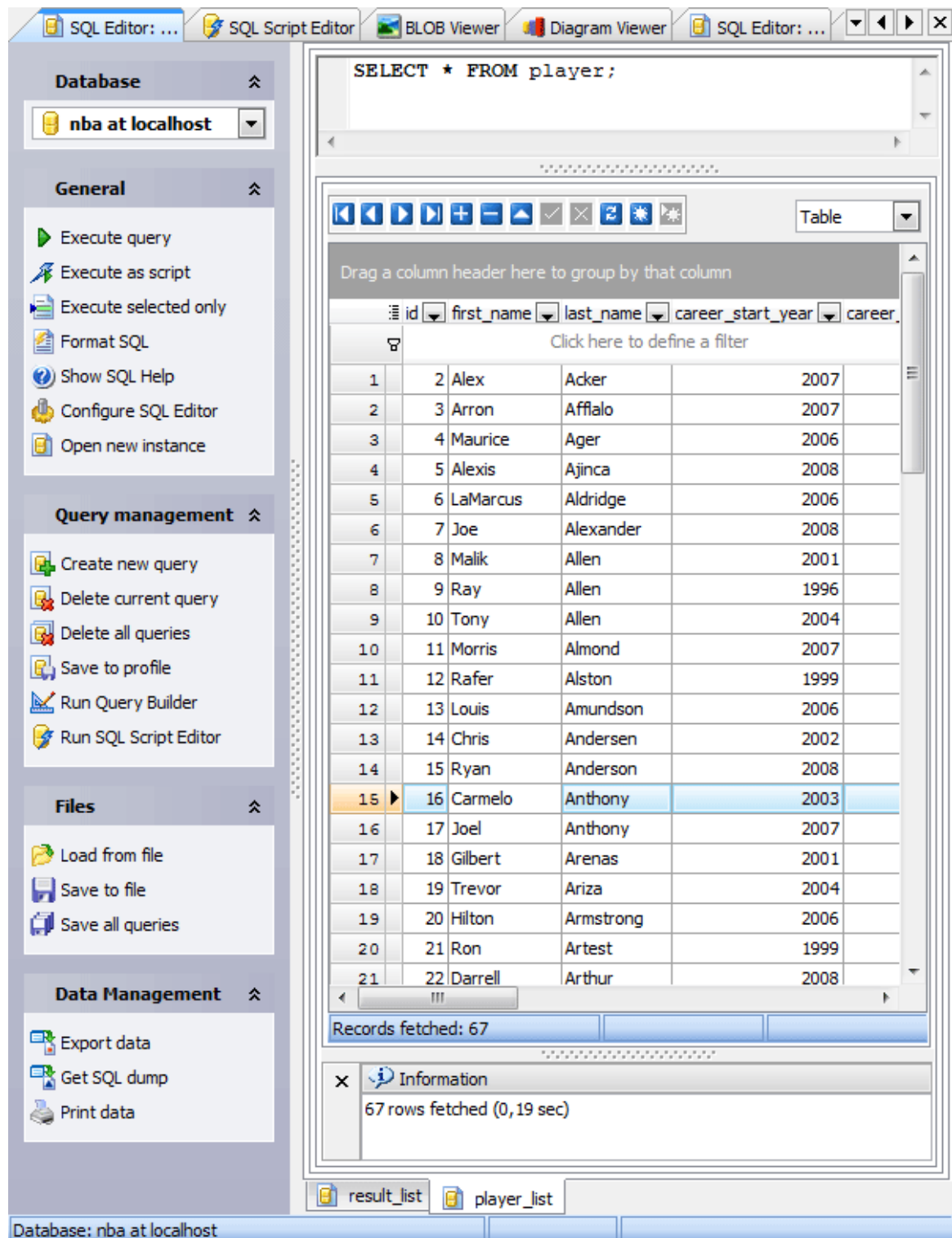
2.3.3   Switching between windows

The Window List dialog allows you to switch the child application windows quickly. To open the dialog select the Windows | Window List... item of the main menu or use the

Alt+0 hot keys combination.

Most of the windows are linked according to their active databases and displayed in the form of a tree, e.g. Table Editor, SQL Editor, Diagram Viewer, etc. Windows which are common for the entire program are shown as separate nodes of the tree.
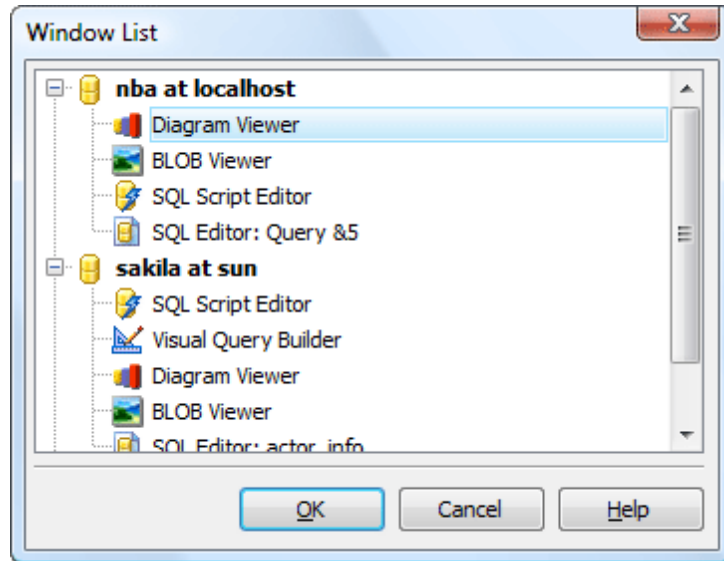
To activate the window you need, select one of the window tree items and click the **OK** button.

2.4   Shortcut keys

The following table describes the default shortcut keys in ASA Maestro.

Interface [15]	
Window list	**Alt+0**
Previous Window	**F6**
Next Window	**Ctrl+F6**
Show Database Explorer	**F11**
Refresh	**F5**
Exit	**Alt+F4**
ASA Maestro help	**F1**
Clipboard	
Cut	**Ctrl+X**
Copy	**Ctrl+C**
Paste	**Ctrl+V**
Select all	**Ctrl+A**
Find	**Ctrl+F**
Replace	**Ctrl+H**
Search again	**F3**
Undo	**Ctrl+Z**
Redo	**Shift+Ctrl+Z**
SQL Editors [158]	
Open SQL Editor	**Ctrl+E**
Open SQL Script Editor	**Ctrl+R**
Open Visual Query Builder	**Ctrl+Q**
Execute query	**(F9) or (F8)**
Execute query as script	**(Shift+F9) or (Shift+F8)**
Execute selected only	**(Alt+F9) or (Alt +F8)**
Go to line	**Ctrl+G**
Format selected SQL	**Ctrl+Alt+F**
Create new query	**Ctrl+N**
Delete current query	**Ctrl+Alt+D**
Load script from file	**Ctrl+O**
Database management [21]	
Create a new database profile	**Shift+Ctrl+P**
Edit an existing database profile	**Shift+Ctrl+E**
Rename a database profile (object)	**F2**
Remove database profile	**Shift+Ctrl+R**
Connect to the database	**Shift+Ctrl+C**
Disconnect from the database	**Shift+Ctrl+D**
Create a database object	**Shift+Ctrl+N**
Object Browser	**Shift+Ctrl+O**
Open BLOB Viewer	**Ctrl+B**

3 Databases and Database Profiles

ASA Maestro allows you to manipulate databases by means of database profiles. Profile contains database connection settings and a set of options to automatize common manipulations with databases (a possibility to connect to the database at ASA Maestro startup, login prompt before connection, etc.). To start working with databases in ASA Maestro, you should create database profile(s) first.

Use the following links for details:

☐ How can I create new database profiles?

In ASA Maestro database profiles are created within Create Database Profiles Wizard 23. In order to run the wizard you should either

- select the Database | Create Database Profiles... main menu item

or

- use the Create Database Profiles... item of the popup menu.

Using Create Database Profiles Wizard set the necessary connection and authorization options and click the Ready button to complete the operation.

☐ How can I edit existing database profile options?

Database connection properties and profile options are edited within the Database Profile Properties 26 dialog window. In order to open the dialog for the selected database profile you should either

- select the Database | Edit Database Profile... main menu item

or

- use the Edit Database Profile... item of the popup menu.

☐ How can I remove database profiles?

In order to remove a database profile you should first select the database profile in the explorer tree, then either select the Database | Remove Database Profile main menu item, or use the Remove Database Profile item of the popup menu and confirm removing profile in the dialog window to complete the operation.

☐ How can I connect to a database?

In order to connect to a database you should first select the database in the explorer tree, then either

- select the Database | Connect to Database main menu item

or

- use the Connect to Database item of the popup menu.

How can I disconnect from a database?

In order to disconnect from a database you should first select the database in the explorer tree, then either

- select the Database | Disconnect from Database main menu item

or

- use the Disconnect from Database item of the popup menu.

3.1 Creating Database Profiles

Create Database Profiles Wizard allows you to create a single database profile or several profiles from one host. To run the wizard, select the Database | Create Database Profiles... main menu item, or press the **Shift+Ctrl+P** hot keys combination. You can also use the Create Database Profiles button of the main toolbar.

- Set connection properties [23]
- Specify database profile options [23]

See also: Edit Database Profile Dialog [26]

3.1.1 Setting connection properties

Specify Sybase SQL Anywhere connection properties [14] to be used on further connections.
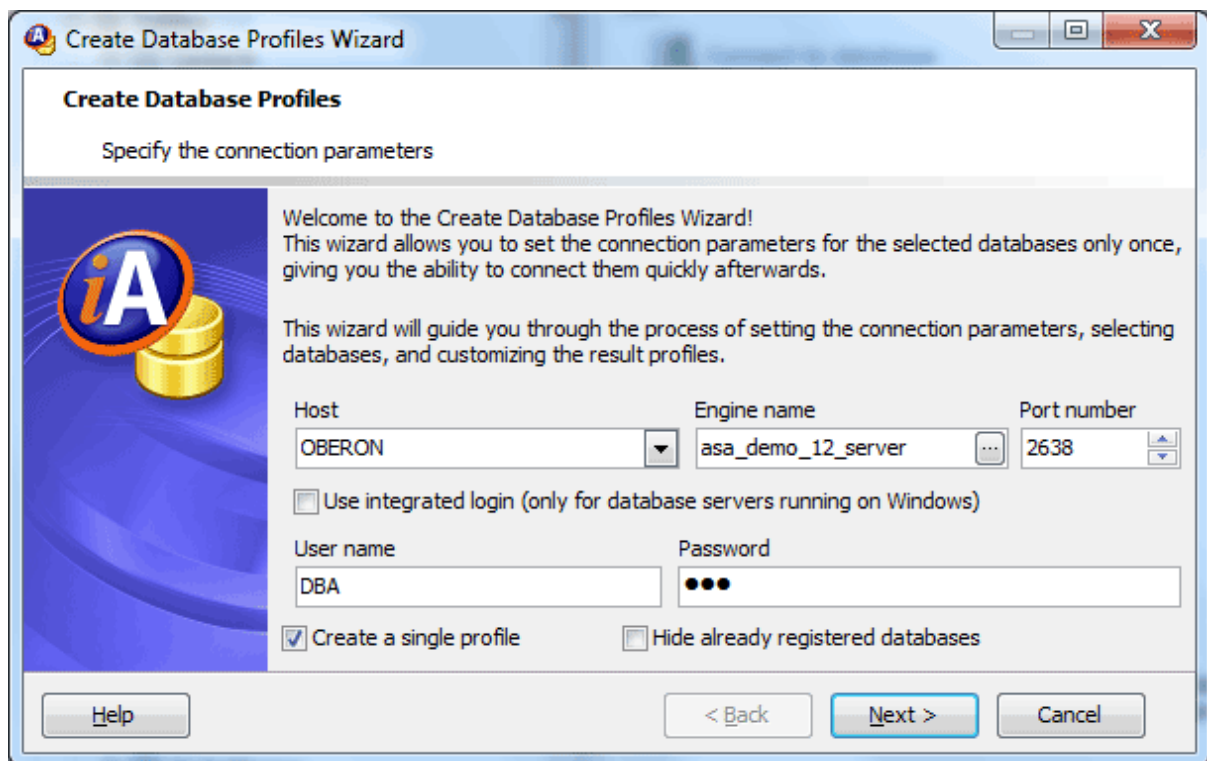
☑ Check the Create a single profile option to set the database name manually and create a single profile for this database.

☑ Hide already registered databases
Check the box to shorten the databases list on the next wizard step.

3.1.2 Setting profile options

To create a new profile, set the database name you want to connect.
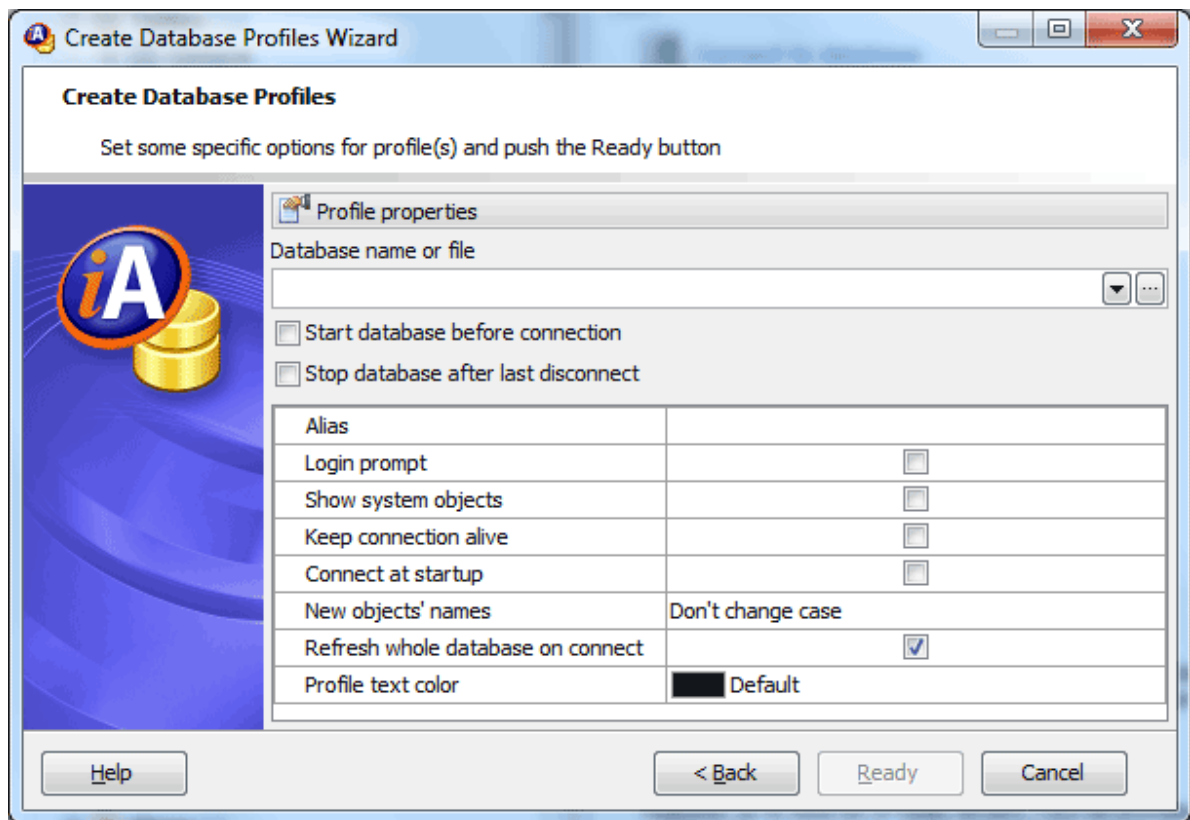
☑ **Login prompt before connection**
Use the option to enable ASA Maestro to prompt for user name and password every time you connect to the database.

☑ **Show system objects**
Check the box to make system objects visible.

☑ **Keep connection alive**
Check the box for pinging server before each query execution.

☑ **Connect at startup**
With this option on connection to the profile database is automatically established at the application startup.

New objects' names (Don't change case, Convert to upper case, Convert to lower case)
The option allows you to specify the newly created objects case.

☑ **Refresh whole database on connect**
Use the option along with the Show empty schemas explorer options to hide/show empty schemas in the explorer tree.

Profile text color
Select the color to be used to represent the database profile name at the Explorer tree. For example this option may be useful to mark development and production databases in different colors in order to prevent casual metadata or data changes in the production.

Click the Ready button when done to start working with the selected databases in ASA Maestro.

3.2   Editing Database Profile

Use the Edit Database Profile dialog to edit the profile properties set on its creation. To open the dialog, select the database in the explorer tree, then select the Database | Edit Database Profile... main menu item or press the **Shift+Ctrl+E** hot key combination. You can also use the Edit Database Profile button of the main toolbar.

Instead of manual profile options editing you can copy all the options from the another existing profile with the Copy profile button.

- Editing database connection properties ⌐26⌐
- Settings database options ⌐27⌐
- Setting default directories for database tools ⌐29⌐
- Editing obligatory scripts to execute ⌐29⌐
- Setting log options and file names ⌐30⌐

See also: Create Database Profile Wizard ⌐23⌐

3.2.1   Editing connection properties

The tab allows you to change connection properties ⌐14⌐ of an existing database profile. Here you can change the database group, database info and edit the database alias, an optional name to display the database in the Explorer tree and in all the application tools.
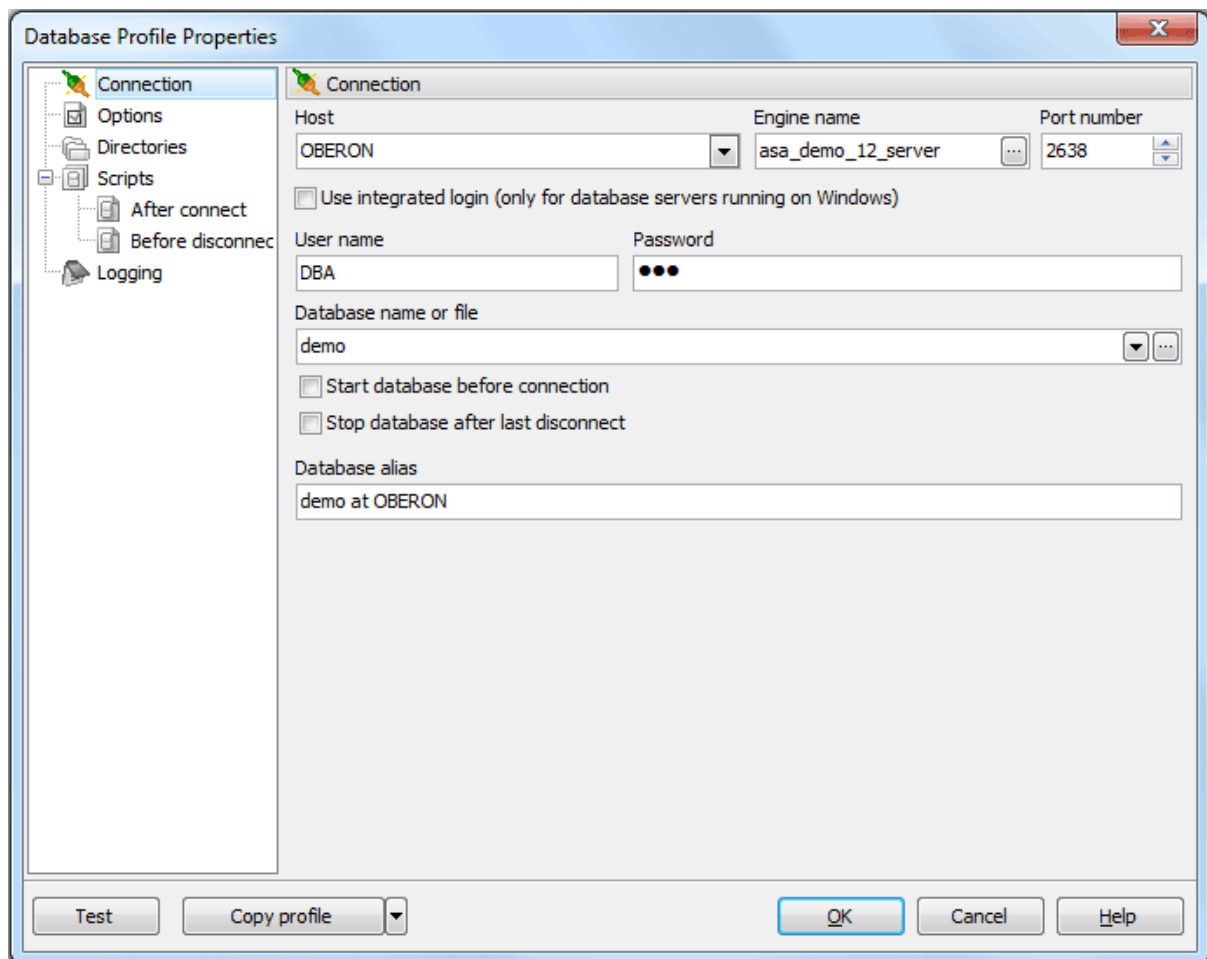
3.2.2 Setting profile options

Customize database options according to your needs. The detailed description is given below.
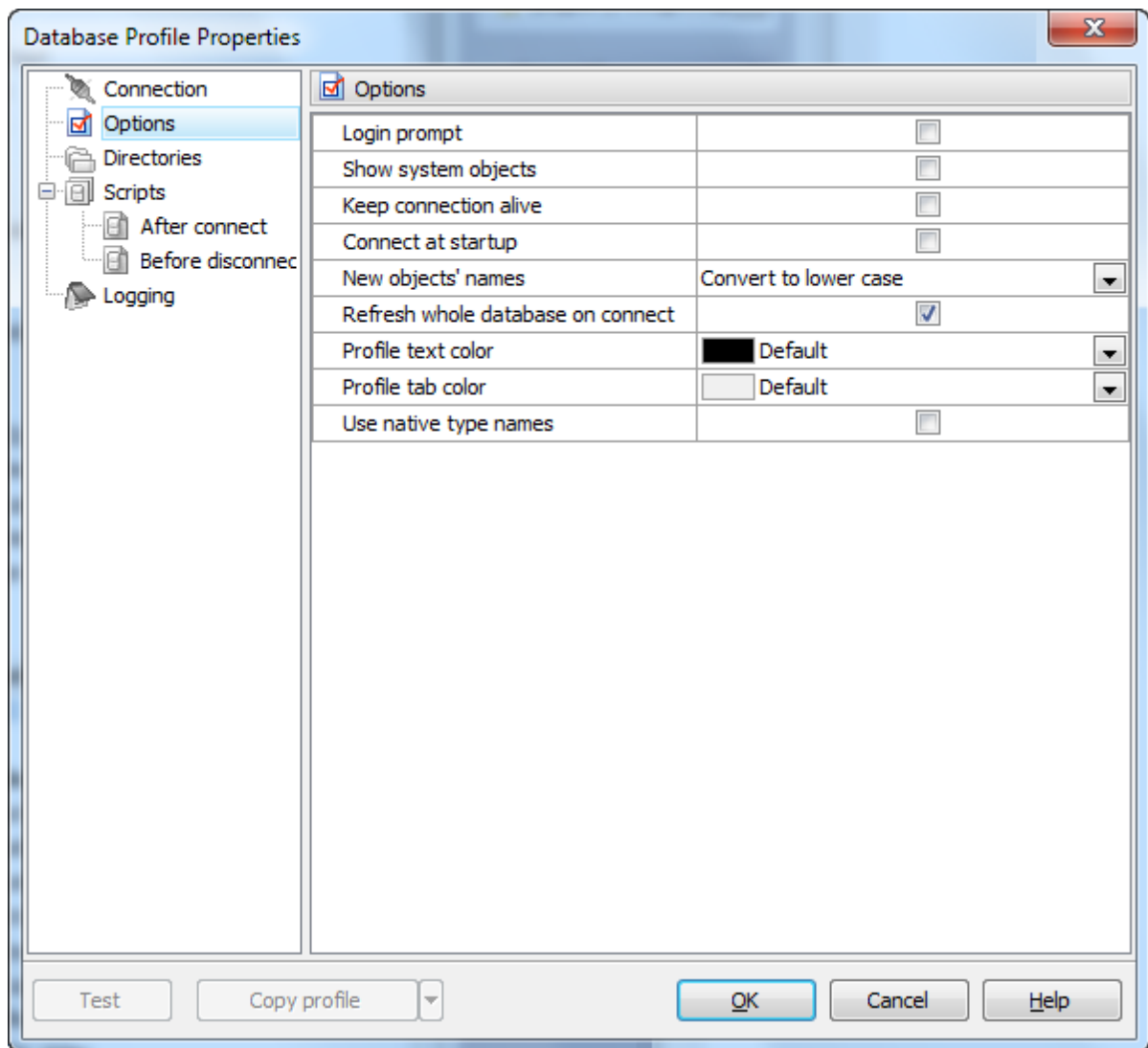
☑ Login prompt
Use the option to enable ASA Maestro to prompt for user name and password every time you connect to the database.

☑ Show system objects
Check the option to make system objects visible.

☑ Keep connection alive
Check the box for pinging server before each query execution.

☑ Connect at startup
With this option on connection to the profile database is automatically established at the application startup.

New objects' names (Don't change case, Convert to upper case, Convert to lower case)
Use the option to change the case for newly created objects.

☑ Refresh whole database on connect

Use the option along with the [Show empty schemas](#)[259] explorer options to hide/show empty schemas in the explorer tree.

You can also change here the font color the profile name is represented at the Explorer tree.

3.2.3 Setting default directories

Use the tab to specify the default directories respectively for database extract, data export, data import, and data dump.
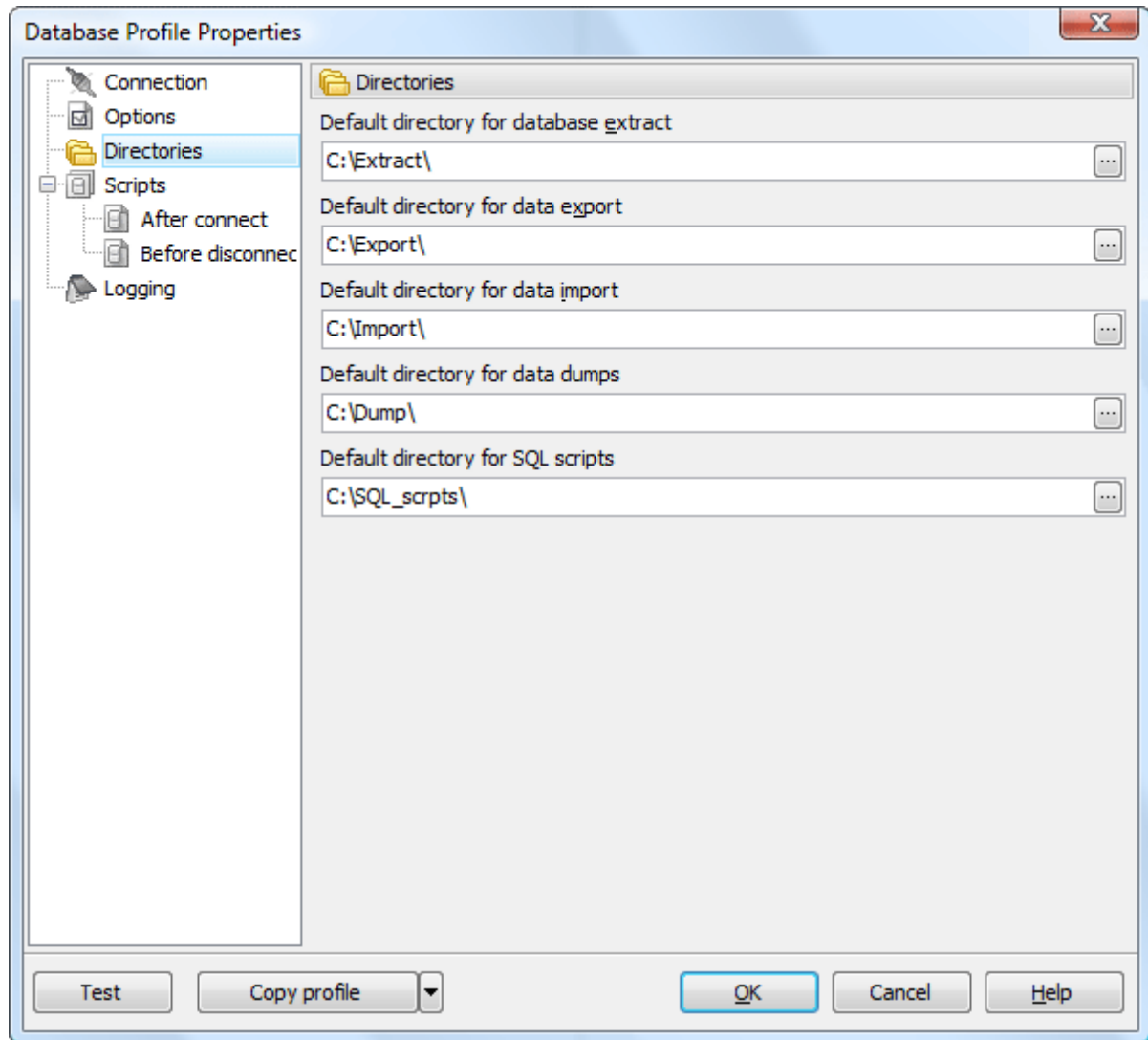
3.2.4 Editing obligatory scripts to execute

Use the tab to specify the obligatory scripts to execute in all database connections established by the software (on executing queries, browsing objects data, etc.). There is a possibility to enable/disable a written script.
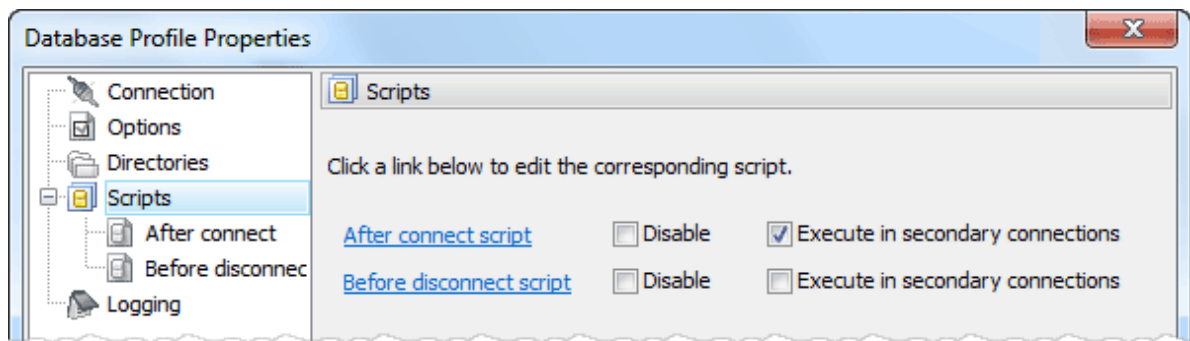
Below you can find an example of an obligatory script to execute after ASA Maestro will connect to the database. The script writes a connect time to the log table.
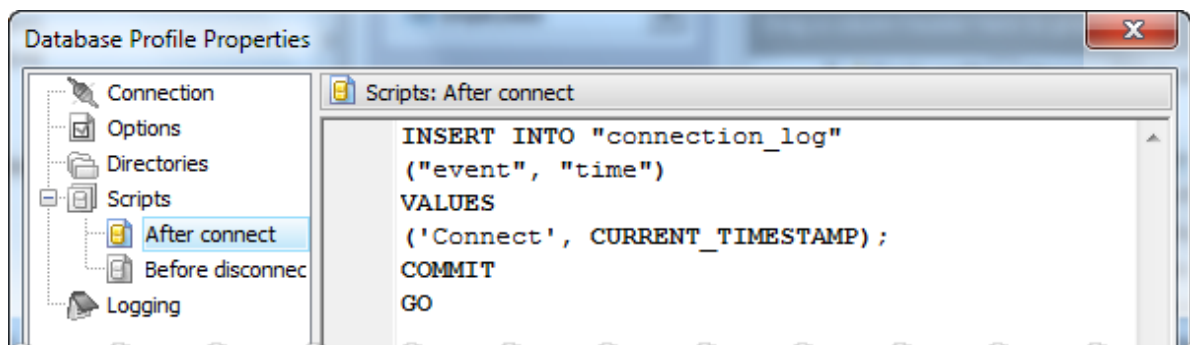
The next screen represents the example of an obligatory script to execute before ASA Maestro will disconnect from the database. The script writes a disconnect time to the log table.
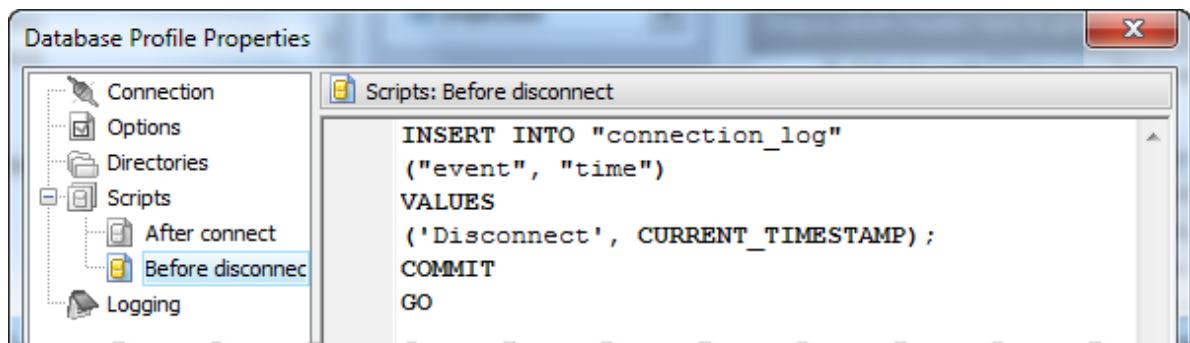
3.2.5   Setting log options

Enable/disable metadata changes logging and SQL query logging and specify the corresponding log file names if necessary.
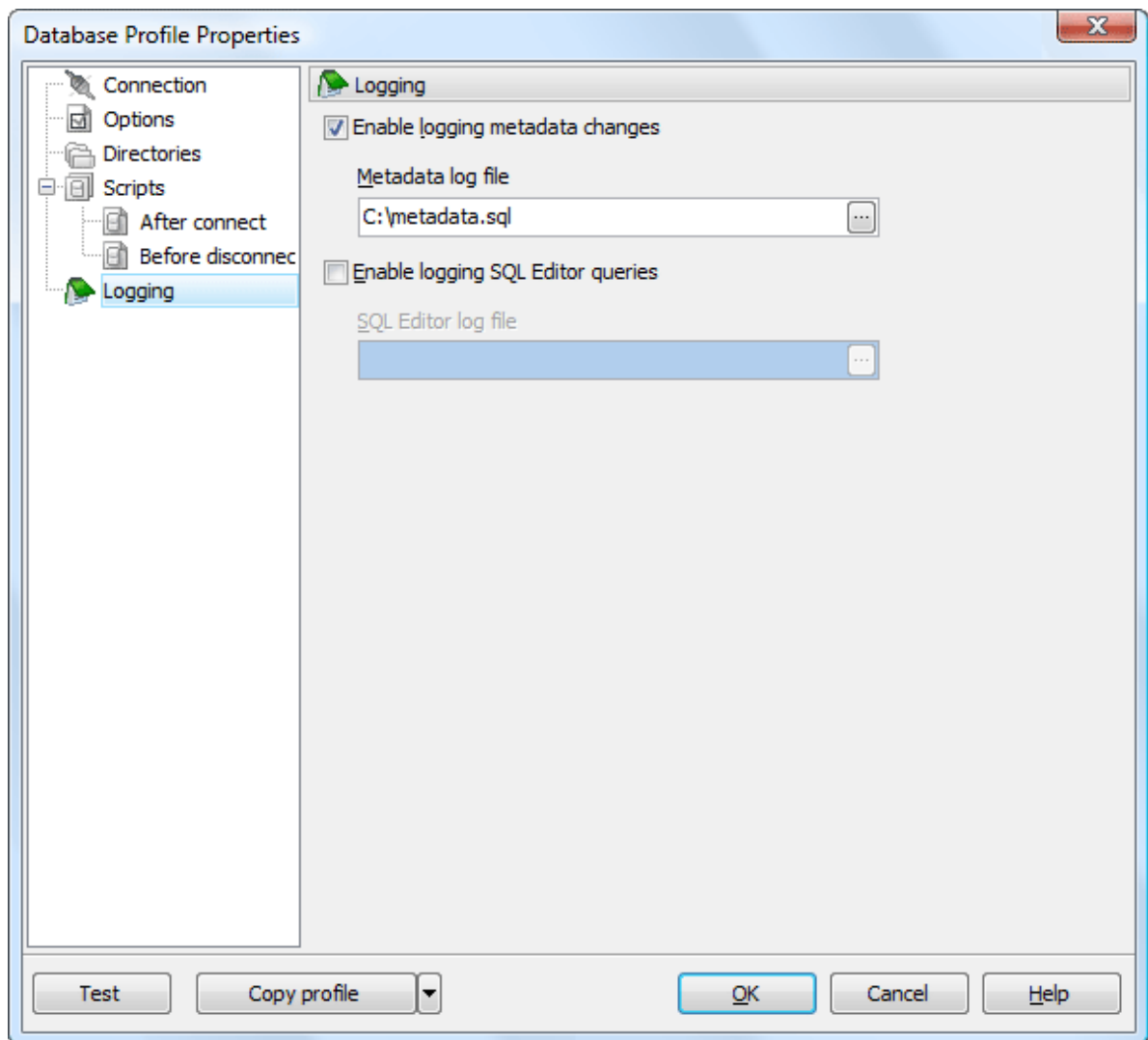
3.2.6   Statisitcs

This tab allows you to view usage statistics for the current profile. Click the **Reset Statistics** button to clear all the displayed values.

ⓘ Statistics

⊟ **Statistics**	
Creation time	N/A
Last modification time	N/A
Number of connections	6
Last connection time	18.08.2017 16:14:16
Total uptime	2:03:51:22

[Reset statistics]

3.3 Database Editor

Database Editor allows you to browse, add, edit and delete all objects of the selected database and its main properties.

To open the editor, use popup menu of the database node at the Explorer tree.
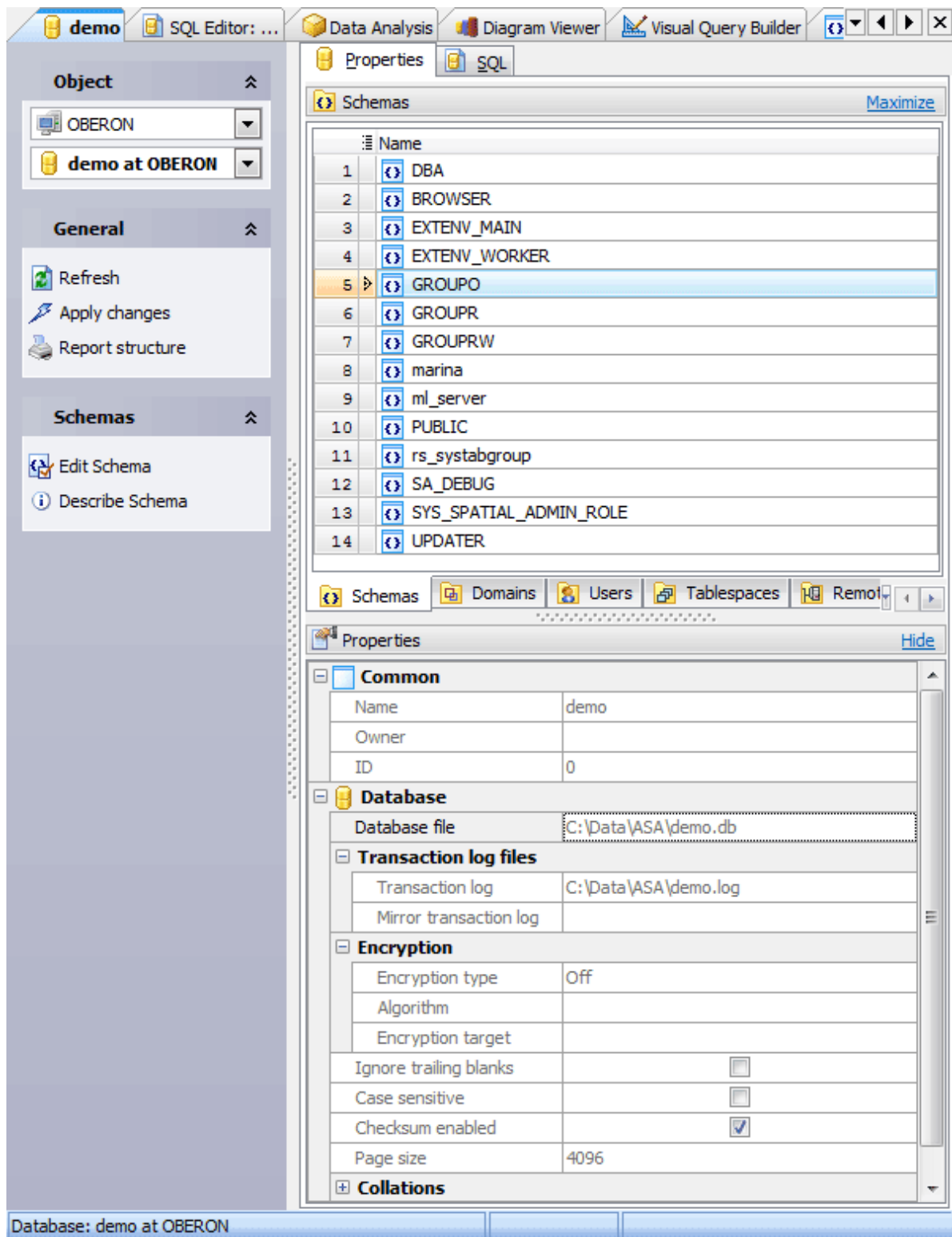
Subitems

Every tab is intended for managing corresponding database objects (e.g. *tables, views, queries*, etc.). Open the object in its editor by double-clicking or pressing the **Enter** key. The popup menu allows you to create new, edit or drop the selected database

objects. Using this menu you can also create a copy of the object.

You can operate on several objects at a time. For this you have to select database objects with the **Shift** or the **Ctrl** key pressed. After the group of objects is selected, you can operate on it, e.g. delete several objects at once, as it was a single object.

4 Database Object Management

ASA Maestro provides you with several tools to manage and navigate Sybase SQL Anywhere objects. To browse and modify objects, at least one connection to a database should be established.

- Browse Database Objects [51]
- Create New Objects [37]
- Edit Existing Objects [40]
- Duplicate Objects [46]

The options to create or edit an object in ASA Maestro follow the parameters defined by Sybase SQL Anywhere. If you need clarification on what an option means or how it should be used, see Sybase SQL Anywhere's documentation for more information. The documentation provides detailed description of objects, including their purpose, properties, and restrictions. The ASA Maestro manual provides you with only brief review of Sybase SQL Anywhere objects.

4.1 Create Objects

ASA Maestro provides a number of Create Object Wizards 37 to accomplish the most facile Sybase SQL Anywhere object creation.

There are several ways to invoke the necessary Create Object Wizard:

- select the Object | Create Database Object... main menu item;
- select the necessary icon (table, query, view, trigger, etc.) in the Create Database Object 37 dialog

or

- select the object list (Tables, Views, Triggers, etc.) or any object from that list in the Explorer tree (Object Manager and Object Browser);
- select the Create New Table (View, Trigger, etc.)... item from the popup menu or press **Insert**.

4.1.1 Create Database Object Dialog

The Create Database Object dialog allows you to create any type of database object supported by ASA Maestro. To open the dialog select the Object | Create Database Object... main menu item or use the **Shift+Ctrl+N** hot keys combination. Select an object type icon and click the OK button to invoke the corresponding wizard or dialog.
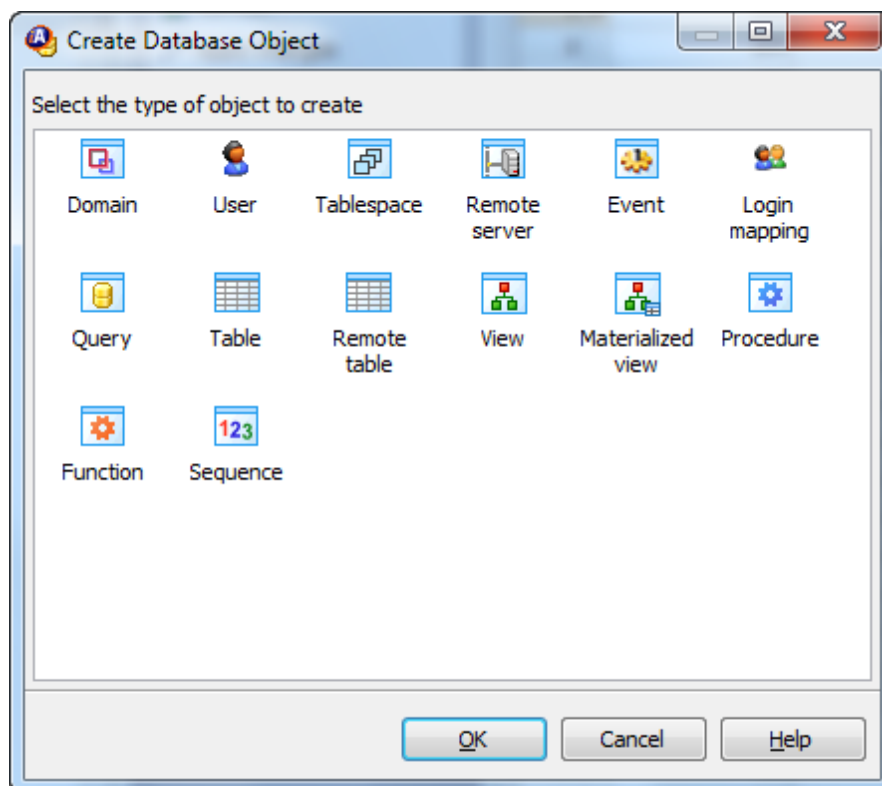
4.1.2 Overview of Create Objects Wizards

Several steps of Create Object Wizards are common for all of them. This part purpose is the formulation of the basic principles for the Create Object Wizard organization.

- On the [first wizard step] ³⁸ you need to specify the new object name.

- On the second one you have to define all the object properties. To clear up the object properties meanings see the appropriate topic of the respective Create Object Wizard section.

- Some objects has subitems (e.g. each table contains fields, indexes, procedures have parameters, etc). In this case the next step allows you to manage such subobjects of the object being created. We recommend you to store the following shortcuts in order to speed your work: the Ins key adds a new subobject, the Enter key displays the subobject's editor, and the Del key drops the subobject.

- The [next wizard step] ³⁹ is final. It is provided to sum up the Create Object Wizard operation.

Note: There are some objects to have an additional Create Object Wizard steps. The detailed description of the steps you can find at the appropriate topic of the corresponding section.

See also:
- [Create Table Wizard] 64
- [Create View Wizard] 91
- [Create Function Wizard] 116
- [Create Domain Wizard] 123
- [Creation of a New Query] 156
- [Create User Wizard] 131
- [Create Procedure Wizard] 107
- [Create Event Wizard] 134
- [Create Tablespace Wizard] 144
- [Create Materialized View Wizard] 100

4.1.2.1 Setting object name

Select the container (table, schema, database, etc.) for the new object from the list of available containers and enter the new object name in the respective box.

Note: the name of the object must be unique among all the object names in its container. Moreover, all the objects that are source of data need unique names among themselves. You can use any identifier that is allowed by Sybase SQL Anywhere server.

Welcome to the Create Table Wizard!
This wizard allows you to set up all the table properties, and create the new table according to these settings.

This wizard will guide you through the process of building the initial table structure and setting its properties.

Schema

NBA

Table name

PLAYER

4.1.2.2   Viewing common information

At this step common information about the object to be created is displayed. Select the Open object editor after creating option to open the appropriate Object Editor after the new object is created. Click the Ready button to complete creation of the object.

The following schema is selected:
        NBA
The following table will be created:
        PLAYER

☑ Open table editor after creating

Click "Ready" to create a new table.

4.2   Edit Objects

ASA Maestro allows you to view and modify existing database objects in several ways:

- edit object comment with the Describe Object ⌐45⌐ dialog;
- briefly view and modify object properties ⌐45⌐;
- view and modify the object including subitems within the object editor.

To open an Object Editor ⌐40⌐, just double click its node in the Database Explorer tree. Of course this action is also available through popup menus, navigation bars, and so on.

4.2.1   Overview of Object Editors

Database Object Editors are the basic ASA Maestro tools for working with existing objects. The proper editor can be opened automatically after the object is created. You can also open the necessary object editor with the corresponding items of popup menus of the Explorer Tree ⌐51⌐, Object Manager ⌐56⌐ or Object Browser ⌐54⌐.

The editors consist of a several tabs. Some tabs are similar for all editors. This part purpose is to formulate the basic principles of all Object Editors in ASA Maestro.

- To edit object options such as name, owner, etc. use the Properties tab. To understand an option, see the appropriate topic of the corresponding Object Editor manual section and Sybase SQL Anywhere documentation.

  This tab also allows you to manage objects belonging to the selected one. To reset any tab to default settings, open it when holding the **Ctrl** key.

- Use the Permissions ⌐41⌐ tab to manage access privileges (grants) of the corresponding object.

- In a similar manner, some objects called grantees (e.g. users or roles) can have rights to do something with other objects (e.g. a user can read data from a table). This relationship can be set up at the Grants ⌐41⌐ tab.

- Most of objects have a possibility to be created from an SQL script (SQL definition). If so, the corresponding script is available at the SQL ⌐43⌐ tab of the editor.

- There is a Result tab in editors of such routines as functions and procedures that can take parameters, perform calculations or other actions, and return a result. You can execute ⌐44⌐ any routine directly from its editor.

  Note: Some object editors have additional tabs. The detailed description of them you can find at the appropriate topic of the corresponding section.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.
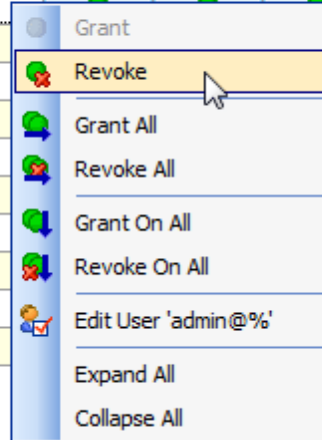
See also:
-
-
-
-
-
-
-
-
-

4.2.1.1 Permissions of the Object

The Permissions grid allows you to manage access privileges (grants) of users.

Grants give specific privileges for an object (*tables, procedures, views, etc.*) to one or more users.

Using the grid you can grant/revoke privileges as well as sort and filter displayed grantees.
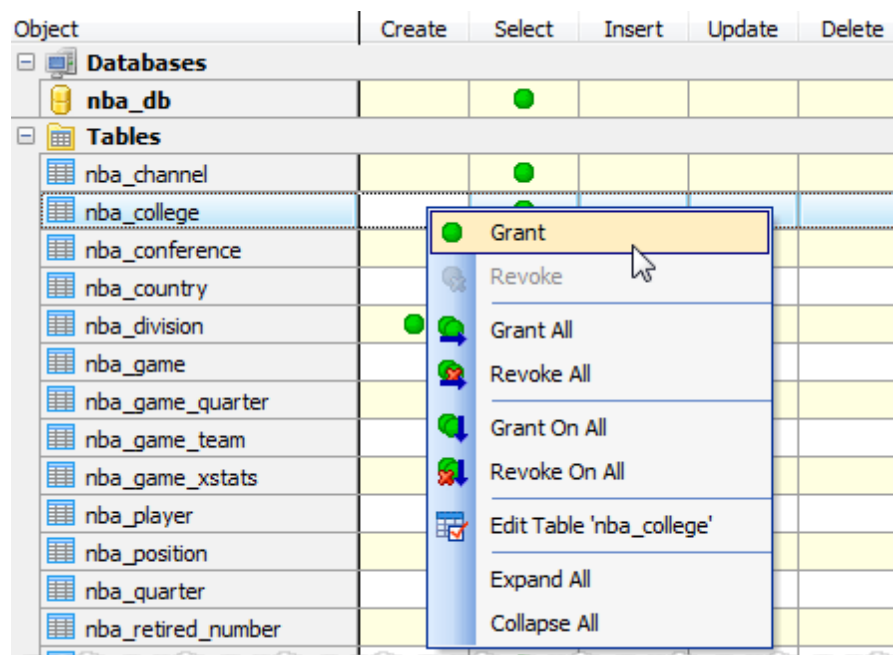
See also: Users 131 ,

4.2.1.2 Object grants

The Grants grid allows you to manage access privileges (grants) of the current object.

A grant gives specific privileges on an object (*table, view, procedure*) to the current one.

All objects are grouped by kind. Filter the object kinds using the checkboxes at the bottom of the window. Using the grid you may sort and filter data.

To grant the subject privilege on the object double-click an empty field; to revoke the privilege double-click a grant with grant option.

Use grid's popup menu to *grant, grant all, grant with grant option, grant all with grant option, grant on all, grant on all with grant option, revoke, revoke all* and *revoke on all*:

- select the Grant item to grant the subject privilege on the object;
- select the Grant All item to grant all the privileges on the object;
- if the Grant With Grant Option item is selected, the recipient of the privilege may in turn grant it to others (without a grant option specified, the recipient cannot do that; at present, grant options can only be granted to individual subject, not to groups or Public);
- select the Grant All With Grant Option item to grant with grant options the privilege on all the objects of the kind;
- select Grant On All or Grant On All With Grant Option to grant or grant with grant options respectively the subject privilege on all the objects;
- to revoke the privilege, all the privileges on the object or the privileges on all the server objects select the Revoke, Revoke All or Revoke On All items respectively.

Using the popup menu you can also collapse or expand all the object kinds.

4.2.1.3 Object Dependencies

When you create complex database structures involving many tables with foreign key constraints, views, triggers, Functions, etc. you will implicitly create a net of dependencies between the objects. For instance, a table with a foreign key constraint depends on the table it references. We tried to create a software to make your work easier, i.e. to give you the tools for efficient database objects management. The Dependencies tab allows you to control the correlation of objects efficiently.

The Depends on window represents all the objects the current object depends on.

The Referenced by window contains the tree of database objects constituting the dependency relationship on the current object.

Use items of the popup menu to edit the selected object in Object Editor or to drop the object.
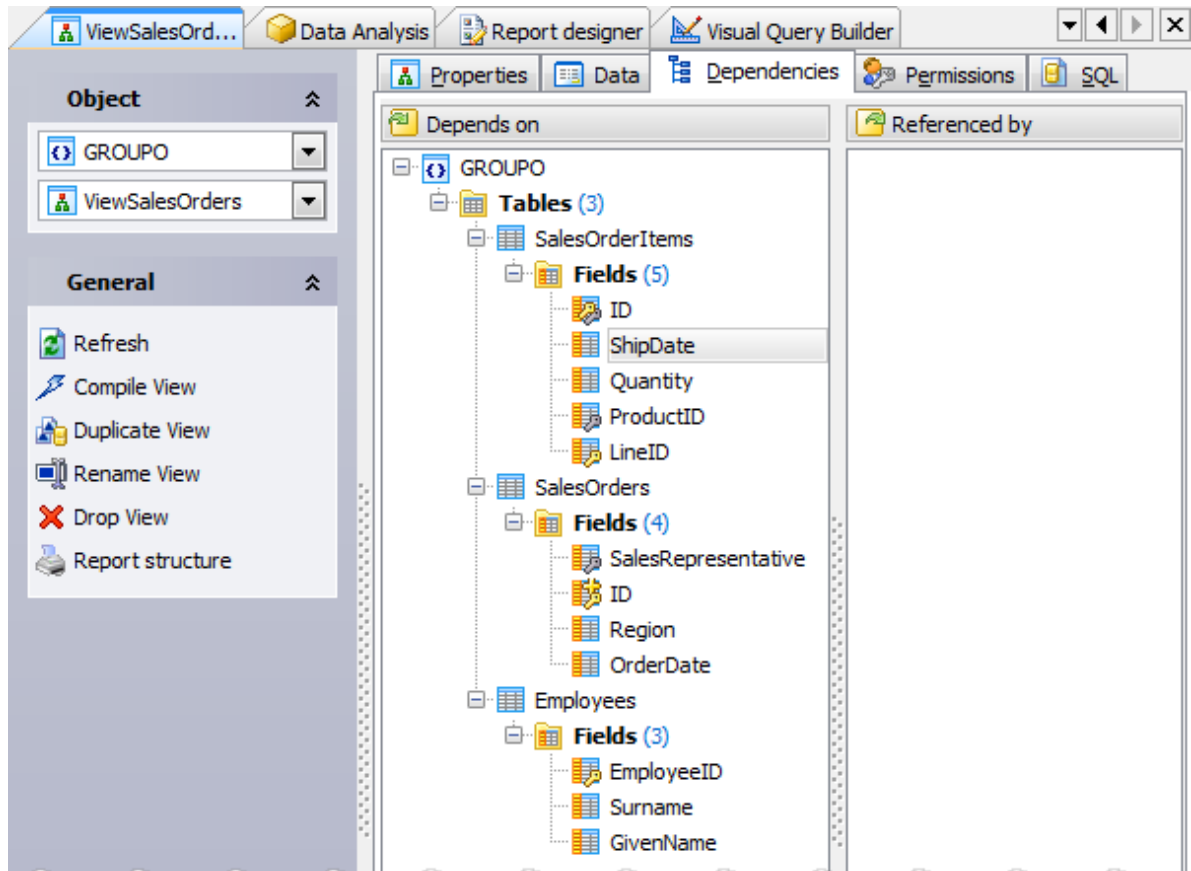
4.2.1.4   SQL Definition

The SQL tab displays the SQL definition for the object with all its properties. Bear in mind that this text is read-only. If you want to change the object definition, use the appropriate editor tabs instead, or copy the text to the Windows Clipboard to paste it in SQL Editor or SQL Script Editor.

The SQL definition window allows you to browse the text effectively. The popup menu and the extensive system of hot keys give you the opportunity to search expressions within the text, to select the whole text for copying it to the Windows Clipboard, to save the definition to the *.sql or *.txt files, to print the document, etc.

You can customize the displayed definition using the Editors & Viewers 276 options.

The Properties item of the popup menu displays the Options dialog in which you can establish optional settings concerning the current database.

The Code Folding item group makes it possible to view either the whole text or its logical parts (regions). Each region can be collapsed and extended.

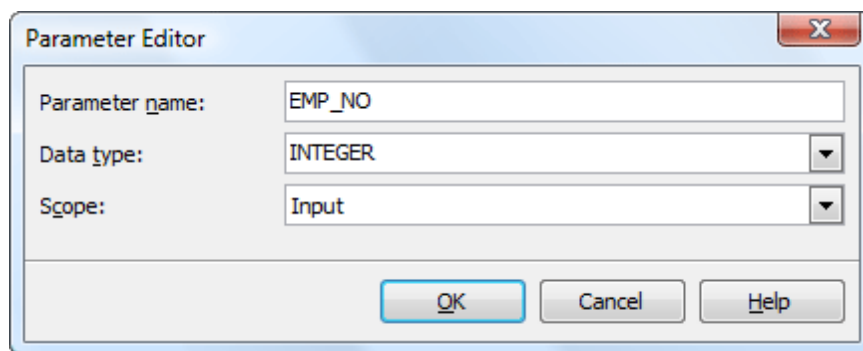In extended mode the whole text is displayed (set by default)

In collapsed mode the text is hidden behind one text line denoting the first line of the collapsed region.

Navigation Bar on the SQL tab allows you to copy the object's SQL definition (DDL) to the SQL Script Editor for future modifications.

4.2.1.5   Parameter Editor

The editor allows you to change the Parameter name, Data type.

Use the Scope box to set whether parameter is *Input, or Output,* or *Input-Output*.

4.2.1.6   Executing functions and procedures

Procedure/Function Editor provides an opportunity to execute current routine by opening the Results tab, by clicking the Execute item of the Navigation Bar, or by pressing the **F9** key.

If the procedure/Function has parameters, ASA Maestro will ask you to specify the values for these parameters in the Input parameters dialog which appears before the procedure execution. Input parameters dialog allows you to specify the values for all input parameters. After changes are made, click the OK button to execute the Function, or the Cancel button to abort the execution.

ASA Maestro supports Parameter History. Values that have been set previously as the routine parameters are represented in the History tab of the Input Parameter dialog with a date and time of their last using. Double click a necessary set of values to set them as the routine parameters. You can manage the Parameter History with Delete history item and Clear history links.

The result of the successfully executed routine can be found within the Results tab of Procedure/Function Editor.

> **Note**: If any unsaved changes are applied to the routine being currently edited, the execution of the routine is impossible until changes are saved by the Compile procedure item of the Navigation Bar.

4.2.2 Modify Object Properties

You can rename all objects those can be renamed with the corresponding option of the popup menu of the object at the Explorer tree. To edit other properties of the selected object without opening its editor, use the Object Properties dialog. To open this dialog, select the according item of the same popup menu. To clear up the object properties meanings, see the appropriate topic of the respective Object Editor section.

4.2.3 Describe Objects

Essentially a comment is the most often altered object property. To simplify it's editing, the ASA Maestro provides an ability to Describe the object within the Database Explorer immediately without opening of the object's editor.

Step-by-step:

- Select the necessary object in the explorer tree;
- Choose the Describe Object... item in the popup menu;
- Edit object comments within the Describe Object window;
- To commit the changes, push OK button.

4.3 Duplicate Objects

ASA Maestro offers several ways of objects duplicating.

1. **Duplicate Object Wizard.** The wizard is the most flexible tool of the coping. Along with a possibility to adjust the new object definition it allows you to copy data (for tables). But it consists of several steps 46 and takes more time than other manners.

2. **Duplicate Object** window allows you to attune new object's SQL definition. It is preferred for creation a copy of selected object. Here 48 you can find some additional info.

3. By **Drag-n-Drop** 49 **operation.**

4.3.1 Duplicate Object Wizard

The Duplicate Object Wizard allows you to create a new database object with the same properties as the existing one. It is the most flexible tool of copying objects provided by ASA Maestro. It also allows you to copy data of the selected table to the new one.

To run the wizard select the Object | Duplicate Database Object... main menu item.

- Selecting source and destination databases 46
- Selecting object to duplicate 47
- Modifying definition of a new object 48

See also: Create Database Object 37

4.3.1.1 Selecting source and destination databases

Select the database containing a source object from the list of connected databases, and then specify the database for the duplicated object.

You should connect to the destination database beforehand (see Database Management 21).

Welcome to the Duplicate Object Wizard!
This wizard allows you to create a new table or other database object with the same properties as one of the existing objects has.

This wizard will request the name of the new object and of the source object, generate the SQL statement for creating the new object, and execute this statement.

Source database

    nba_db at localhost

Destination database

    nba_db_new at sun

4.3.1.2   Selecting object to duplicate

Specify a database object to create the new one with the same properties.

1. Select the type of the object to duplicate from the Source objects drop-down list.

2. Pick up the necessary object from the list.

Source objects

    Tables

Objects

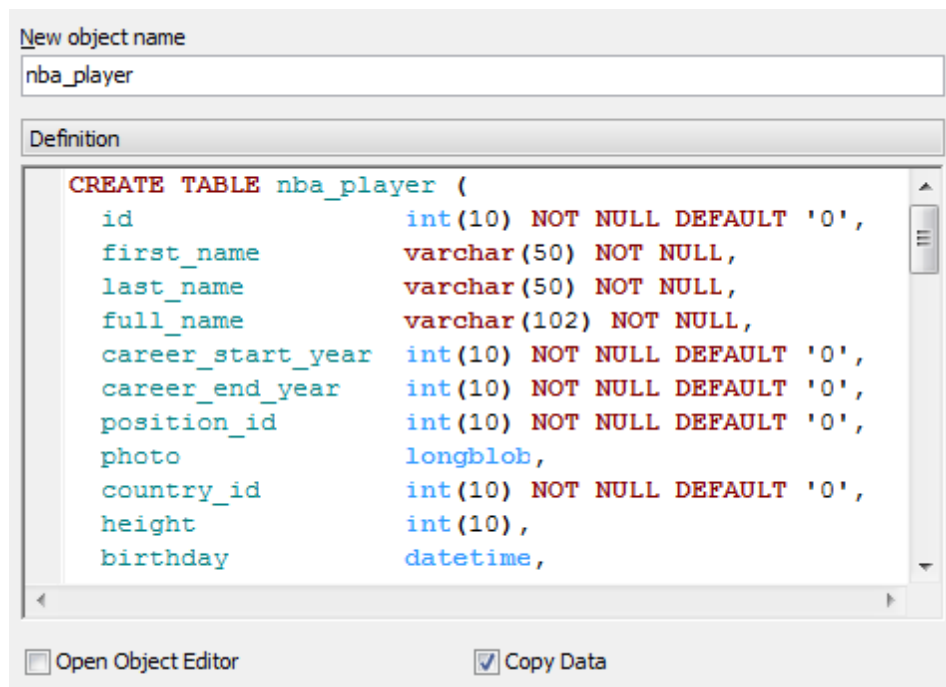| nba_channel	nba_season
nba_college	nba_season_team
nba_conference	nba_stats_figure
nba_country	nba_team
nba_division	
nba_game	
nba_game_quarter	
nba_game_team	
nba_game_xstats	
nba_player	
nba_position	
nba_quarter	
nba_retired_number	
nba_round	

4.3.1.3 Modifying new object definition

The last wizard step allows you to edit the new object definition directly.

Use this step to edit the name of object been creating (New Object Name). By default ASA Maestro generates the new object definition with the same name if the duplicating is to the source database, or like "%SOURCE_OBJECT_NAME%01" otherwise.

> **Note:** the name of the object must be unique among all the object names in its container. Moreover, all the objects that are source of data need unique names among themselves. You can use any identifier that is allowed by Sybase SQL Anywhere server.

You can edit the result SQL statement manually, add or remove fields, change field types, using the New object definition text area. Click the Ready button to complete the operation.

Check the according boxes to Copy Data (only for tables) and to Open Object Editor after the duplicating.

New object name

```
nba_player
```

Definition
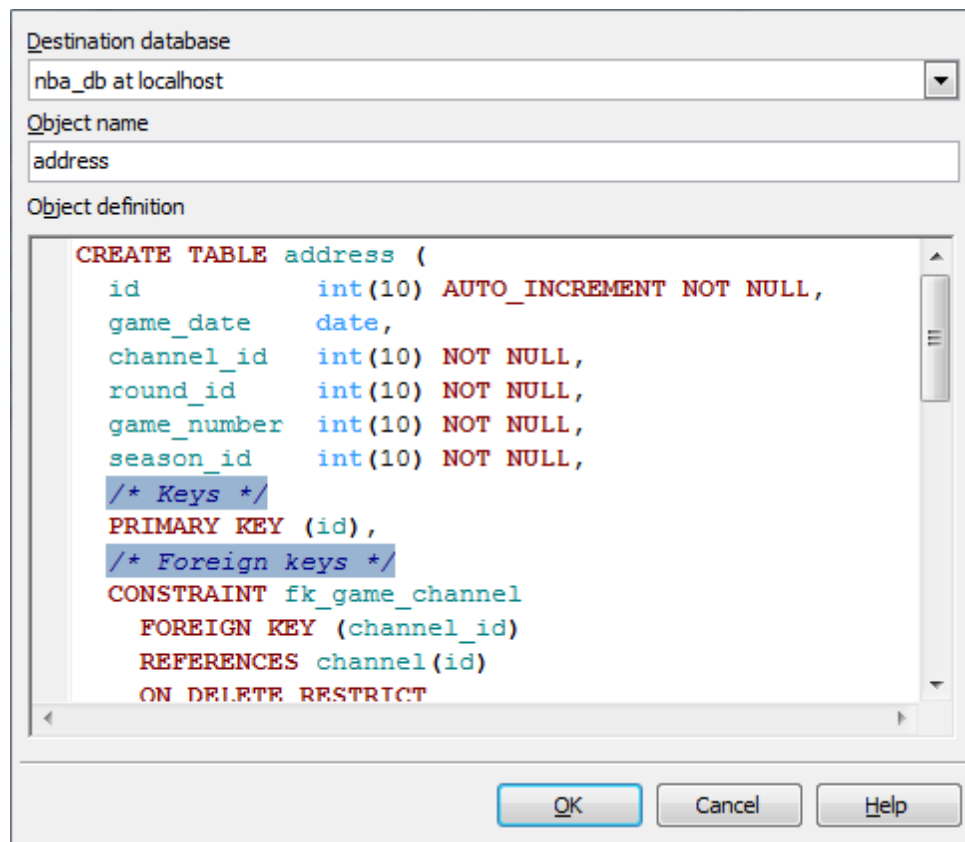
```
CREATE TABLE nba_player (
    id                int(10) NOT NULL DEFAULT '0',
    first_name        varchar(50) NOT NULL,
    last_name         varchar(50) NOT NULL,
    full_name         varchar(102) NOT NULL,
    career_start_year int(10) NOT NULL DEFAULT '0',
    career_end_year   int(10) NOT NULL DEFAULT '0',
    position_id       int(10) NOT NULL DEFAULT '0',
    photo             longblob,
    country_id        int(10) NOT NULL DEFAULT '0',
    height            int(10),
    birthday          datetime,
```

☐ Open Object Editor   ☑ Copy Data

4.3.2 Duplicate Selected Object

Within the Duplicate Object window you can duplicate a selected object fast and with some modifications.

It is available from the corresponding link of the object's popup menu at the Database Explorer.

Destination database

nba_db at localhost

Object name

address

Object definition

```
CREATE TABLE address (
  id              int(10) AUTO_INCREMENT NOT NULL,
  game_date       date,
  channel_id      int(10) NOT NULL,
  round_id        int(10) NOT NULL,
  game_number     int(10) NOT NULL,
  season_id       int(10) NOT NULL,
  /* Keys */
  PRIMARY KEY (id),
  /* Foreign keys */
  CONSTRAINT fk_game_channel
    FOREIGN KEY (channel_id)
    REFERENCES channel(id)
    ON DELETE RESTRICT
```

[OK]   [Cancel]   [Help]

Select the database for a new object from the list of connected databases first.

Enter the name for the new object.

> **Note:** the name of the object must be unique among all the object names in its container. Moreover, all the objects that are source of data need unique names among themselves. You can use any identifier that is allowed by Sybase SQL Anywhere server.

You can also edit the SQL definition of the object if necessary (add or remove fields, change field types, etc.).

4.3.3   Copy, Paste and Drag-n-Drop features

ASA Maestro provides you with an ability of copying database objects within the database or even from one database to another (in this case you should connect to both the source and the destination databases first).

To copy an object, just drag the object in a source window (such as Database Explorer, Object Manager, Object Browser) and drop it to the target container in another window. You also can use the Edit | Copy and the Edit | Paste main menu items or the **Ctrl+C**/ **Ctrl+V** hot keys combinations respectively. Copying several objects at a time is also available.

It is also possible to drag and drop objects between Database Explorer, Object Manager, Object Browser and SQL Editor or SQL Script Editor. This works as follows:

SQL Editor: after dropping the object you will get a query to retrieve object data (e.g. SELECT * FROM table_name) or the full name of the object if it doesn't contain data (domains, indexes, etc.).

SQL Script Editor: after dropping the object you will get its SQL definition if applicable.

See also: Database Explorer, Object Manager, and Object Browser

4.4   Browse Objects

ASA Maestro allows to browse objects stored in a Remote Server database in several ways:

- Database Explorer [51]: objects are represented as a hierarchy (grouped by kind and listed under the according Sybase SQL Anywhere database node, provided with subobjects if exist)
- Object Browser [54]: an extension of explorer with ability to sort, group, filter and multiple select objects.
- Object Manager [56]: an extension of the explorer with ability to select several objects at a time (to copy, drop, etc.)

All tool allows you to drag-and-drop between them and to perform all necessary operations upon database objects.

4.4.1   Database Explorer

Database Explorer is the basic feature of ASA Maestro which allows you to perform practically all necessary operations upon databases and their objects. The Database Explorer area occupies the left side of the ASA Maestro main window. All the objects at the Explorer tree are grouped by kind and listed under the according Sybase SQL Anywhere database node.

To start working with a database you need to create its profile first. The conception of database profiles gives you an opportunity to connect to databases in one touch and work with the selected databases only.

See also: Object Manager [56], Object Browser [54]

Note: In case your databases have a large quantity of objects you can speed up the object search by typing first letters of the object name in the explorer area.

Note: Explorer options [259] allow you to hide/display table subobjects, represent system objects in different color, etc.

The sections below describe each of these actions in detail.

- What operation can I accomplish upon database profiles within the Explorer Tree? [52]
- How can I connect to a database? [51]
- How can I disconnect from a database? [53]
- What operations can I accomplish upon database objects within the Explorer Tree? [53]
- Can I copy a database object from one database to another? [53]
- Can I filter Explorer content? [54]
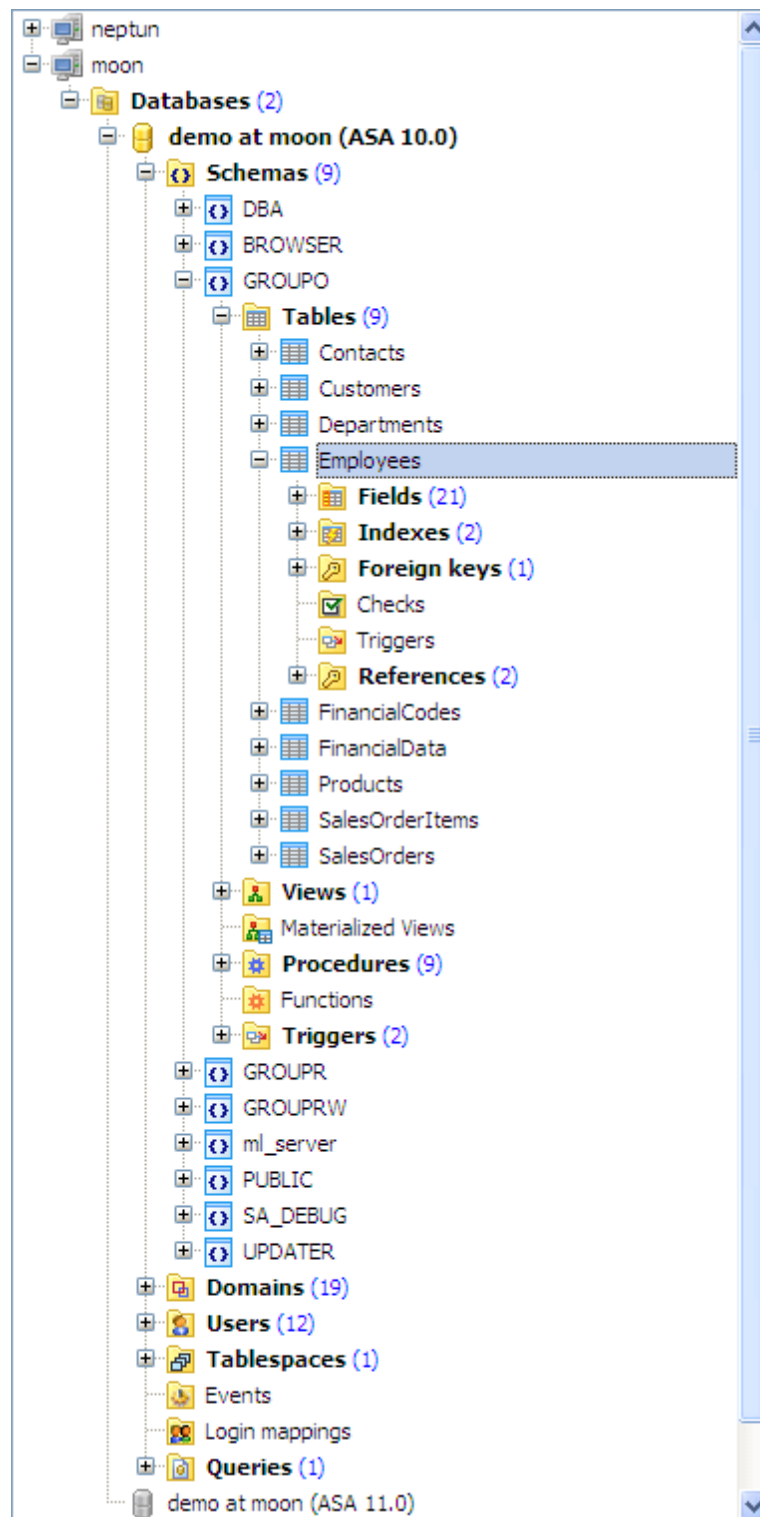
Operations upon database profiles in the Explorer Tree
Using popup menu of the Explorer area you can realize the following operations:

- create new database profiles [23] (the Create Database Profiles... item);
- rename currently selected database profile (the Rename Database Profile... item);
- edit currently selected database profile [26] (the Edit Database Profile... item);
- reorder existing database profiles (the Reorder Databases...item of Databases node's popup menu or using drag-n-drop);
- reorder servers (the Reorder Servers...item of a server's popup menu);
- remove currently selected database profile from the explorer tree (the Remove Database Profile item);
- remove all profiles of selected server (the Remove all Profiles item of Databases node's popup menu).

In addition to these operations, Database Explorer gives you an ability to reorder existing profiles by performing drag-and-drop operations within the explorer tree.

How can I connect to a database?
You can establish connection to a database in Database Explorer by selecting the database profile and double-clicking it or pressing the Enter key (alternatively, you may use the Shift+Ctrl+C hot key combination). The same operation is also available through the Connect to Database item from the explorer popup menu, or through the Database | Connect to Database main menu item.

How can I disconnect from a database?
You can abort connection from a database in Database Explorer by selecting the database profile and pressing the Shift+Ctrl+D hot key combination. The same operation is also available through the Disconnect from Database item from the explorer popup menu, or through the Database | Disconnect from Database main menu item.

Operations upon database objects
Database Explorer allows you to perform the following operations with database objects using its popup menu (note that the popup menu contains object-specific items only when some database object is currently selected in the explorer tree):

- create a new database object (the Create New Object... item);
- edit currently selected database object (using the Edit Object... item, pressing the Enter key or double-clicking the database object);
- drop the selected object from the database (the Drop Object... item);
- rename the selected database object (the Rename Object... item);
- edit the database object properties (the Object properties ... item);
- duplicate the selected object (the Duplicate Object... item).
- run the Object Browser tool (the Browse ... item).

Can I copy a database object from one database to another?
Database Explorer provides you with an ability of copying database objects from one database to another. To perform this operation, you should connect to both the source and the destination databases first. After the connection is established, simply drag and drop an object to copy from the source database to the corresponding node (Tables, Queries, etc.) of the destination database.
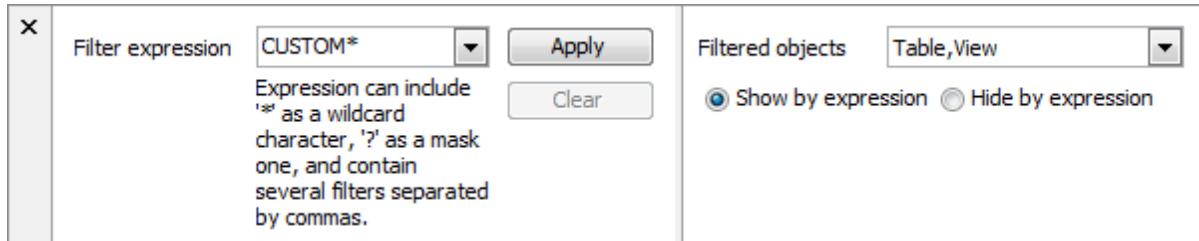
Note: You also can use the Edit | Copy and the Edit | Paste main menu items

to copy/paste a database object using Windows clipboard (alternatively, you may use the Ctrl+C/Ctrl+V hot keys combinations respectively).

4.4.1.1 Filtering explorer content

ASA Maestro allows you to reduce the number of represented objects in the explorer tree. To hide seldom usable objects, filter your explorer content.

Filter Panel is available through the View | Show Filter Panel main menu item.


- Specify the Filter expression. The expression can contain any part of object name combined with an asterisk ('*') as a wildcard character and a question-mark ('?') as a mask character.

- Define the Filtered objects, object types for filtering in the explorer tree.

- Check the according radio button (Show by expression, Hide by expression) to define whether database objects will be shown or hidden in accordance with the filter expression.

- Click Apply button.

  Note: A filter expression, if applied to the content of Database Explorer, is applied to the content of Object Manager 56 and Object Browser 54 as well.

4.4.2 Object Browser

Object Browser is a tool for operating on database objects designed as an extension of Database Explorer 51 with ability to *sort, group* and *filter* the database objects. It also provides such operation as multiple selecting of objects (for *copying*, *dropping*, etc.) and the ability of using drag-and-drop operations between Object Browser and Database Explorer. To open Object Browser select the Object | Object Browser main menu item.

  Note: At least one connection to a database should be established to make Object Browser available.
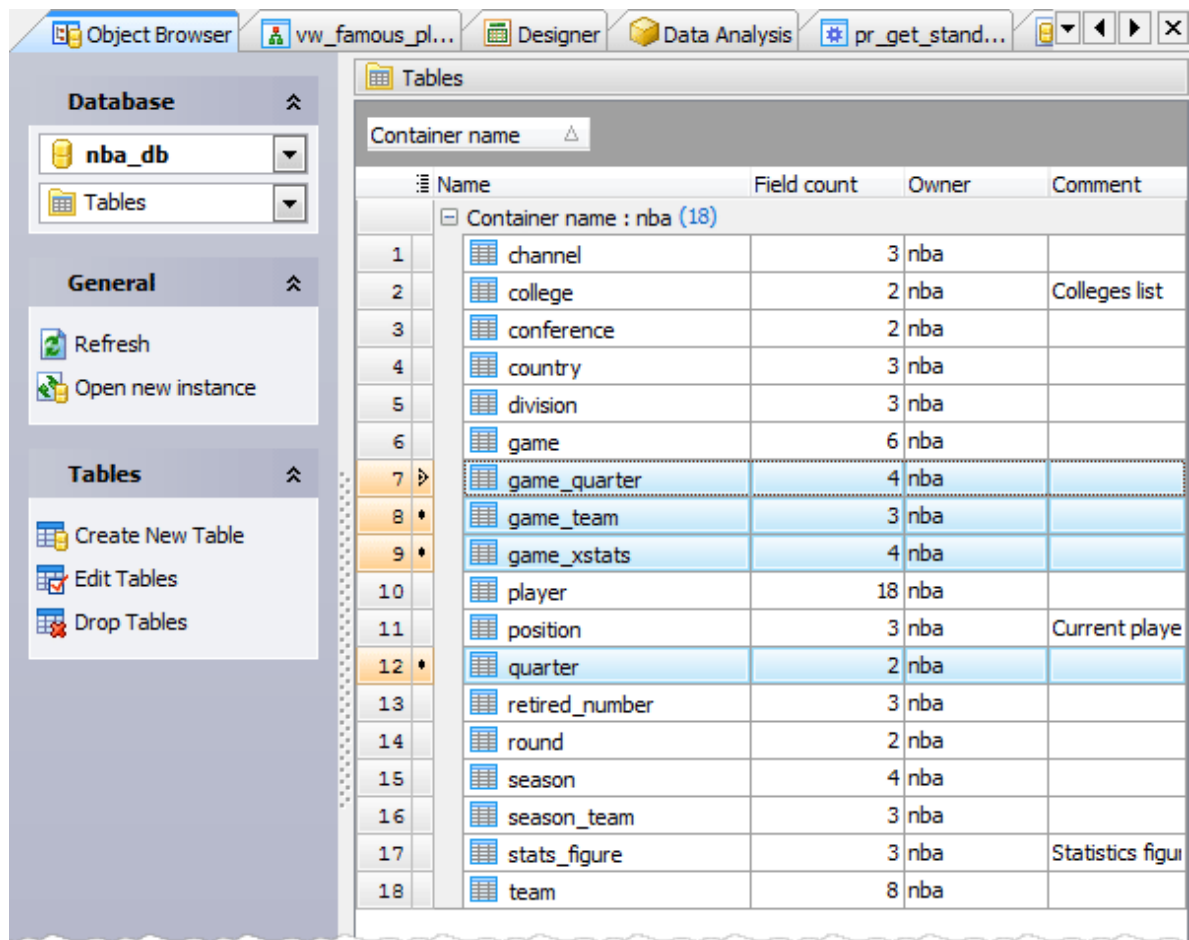
Sorting database objects

Object Browser represents database objects in a grid. The object kind to display is defined on the top of the Navigation bar. The columns correspond to the objects properties and rows correspond to the objects. Click the column caption to sort objects by the values of this column in the ascending or descending mode. The navigation buttons allow you to open current object editor, create new or drop the existing one.

As Object Manager the browser allows you to operate on several objects at a time. You have an opportunity to select a batch of objects and after the object group is selected, you can operate on it (e.g. *drop several objects at once*) as if it were a single object.

The unique feature of the ASA Maestro is an opportunity of drag-and-drop operations between Object Browser and SQL Editor, SQL Script Editor. After the action objects are represented in SQL Editor as SQL queries (if they contain data) or as their full name in the database otherwise. SQL Script Editor displays the objects as SQL definition.

Grouping database objects

You can group grid objects by any of the columns by dragging the column header to the destination area. Now all the records are displayed as subnodes to the grouping row value as shown in the picture. To reverse grouping, just drag the column name from the upper area back.

Filtering database objects
You can filter objects in the grid using one of the following methods:

- use the drop-down button in the column caption area to filter objects by the value of the selected column
- click the drop-down button in the column caption area, then select the Custom item and build a simple filter within the dialog in the following way: select a logical operator for checking the column values (like is less than, is greater than, etc) and set the value to be checked by this operator in the neighboring box; then set the second condition if necessary in the following way and set the relation between these two conditions, whether both of them should be matched or just one of them; use the '_' character to represent any single symbol in the condition and the '%' character to represent any series of symbols in the condition

After you set a filter, the filtering panel becomes visible at the bottom of the grid where you can see the active filtering condition and easily enable or disable it by clicking the check box on the left. Using this panel you can also customize your filter in a more complicated way by clicking the Customize button and building your filter within the Filter Builder dialog.

See also: Object Manager ⌐56¬, Data View ⌐173¬

4.4.3   Object Manager

Object Manager is a tool for operating on database objects designed as an extension of the Database Explorer ⌐51¬ with advanced features, such as multiple selecting of objects (for *copying*, *dropping*, etc.) and the ability of using drag-and-drop operations between Object Manager and Database Explorer as well as between two instances of the Object Manager. To open Object Manager select the Object | Object Manager main menu item.

Note: At least one connection to a database should be established to make Object Manager available.
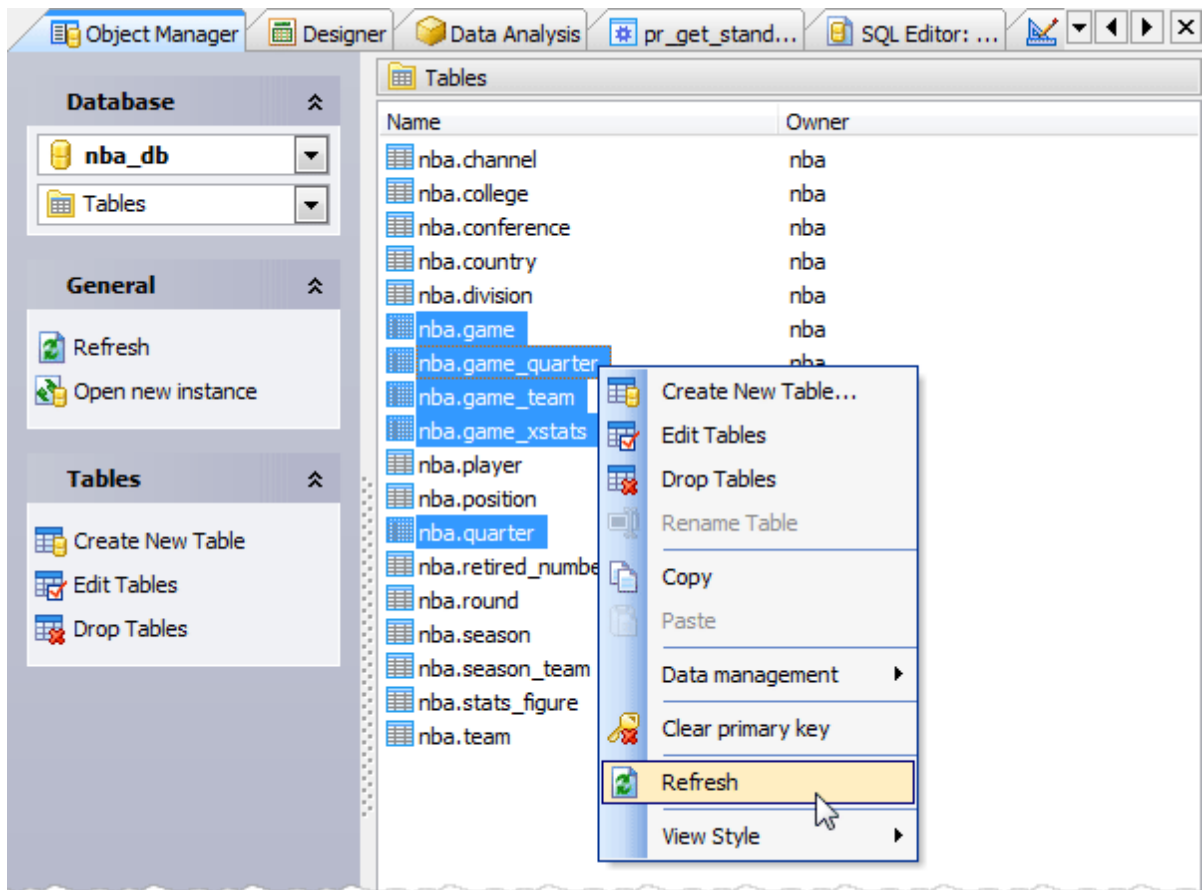
Using popup menu

The popup menu of Object Manager may have different content depending on the current selection. The common menu items allow you to switch the object list view between four standard modes *(large icons, small icons, list* and *report)*, refresh the current view, and select all the objects in the view. If none of objects are currently selected, other menu items are unavailable to use, except of the one for creating a new object. If one or more objects are selected, clipboard operations (such as copy and paste) become available as well as the items for editing and dropping selected object(s). If the current object type of the Object Manager is *"Tables"*, the *Empty Table(s)* menu item is also available.

Multiple selecting of database objects

Object Manager allows you to operate on several objects at a time. You have an opportunity to select a batch of objects and after the object group is selected, you can operate on it (e.g. *drop several objects at once*) as if it were a single object.

      See also: Object Browser 54

4.4.4   Filter Builder Dialog

Filter Builder Dialog allows to limit represented objects according to specified conditions. It may be useful for filtering records in data grids of Table Editors, SQL Editor or Visual Query Builder as well as to filter database objects in Object Browser, and on setting a condition on a new view creating. All these cases are similar, see how it works on the

following example.

5   Database Objects

The following list contains database objects supported by ASA Maestro. To work with database objects you should [connect to the database](#) 13 first.

- [Tables](#) 63
- [Remote Tables](#) 87
- [Views](#) 90
- [Functions](#) 115
- [Domains](#) 122
- [Users](#) 131
- [Procedures](#) 106
- [Events](#) 133
- [Tablespaces](#) 143
- [Login mappings](#) 153
- [Remote servers](#) 147
- [Materialized Views](#) 99

5.1 Schemas

A schema is a collection of tables and views along with their associated permissions. To create a schema, the userid must be the user ID of the current connection. You cannot create a schema for another user.

How can I edit an existing schema?

Schemas are edited within Schema Editor 61. In order to run the editor you should either

- select the schema for editing in the explorer tree (type the first letters of the schema name for quick search);
- select the Edit Schema... item from the popup menu

or

- open the database in Database Editor and the Schemas tab there;
- select the schema to edit;
- press the **Enter** key or select the Edit Schema item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

You can change the name of the schema using the Rename Schema dialog. To open the dialog you should either

- select the schema to rename in the explorer tree;
- select the Rename Schema item from the popup menu

or

- open the database in Database Editor and the Schemas tab there;
- select the schema to rename;
- select the Rename Schema item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

How can I drop an existing schema?

To drop a schema:

- select the schema to drop in the explorer tree;
- select the Drop Schema item from popup menu

or

- open the database in Database Editor and the Schemas tab there;
- select the schema to drop;
- press the **Delete** key or select the Drop Schema item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

5.1.1 Schema Editor

Schema Editor allows you to browse schema content, manage users permissions on the schema objects, and see the SQL definition of this schema.

The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40. Below you will find a description of editor tabs that are unique for the current object.
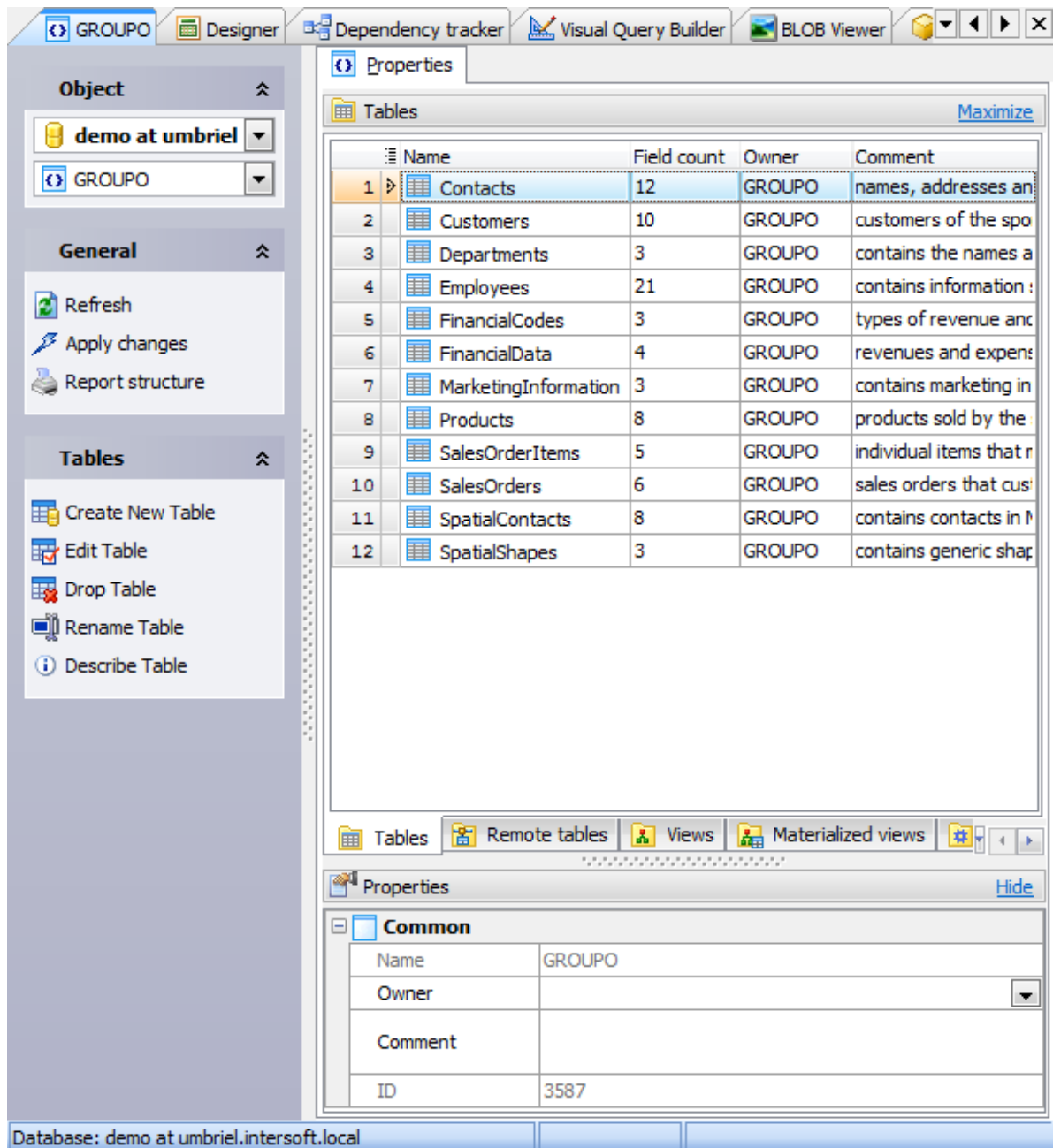
The Properties tab allows you to view schema options and to browse schema content divided into groups according to their types (*tables, views, functions,* etc.). The popup

menu of each tab allows you to create new, edit, copy or drop the appropriate schema object. The grid allows you to operate with several objects at a time. For this purpose select objects with the **Shift** or the **Ctrl** key pressed. After a group of objects is selected you can operate with them, e.g. *delete several objects* at once, as if it is a single object.

Name

Here you can view the schema name.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.2   Tables

ASA Maestro allows you to manipulate tables with easy: add new tables to the database, modify existing ones, browse table options and data. The sections below describe each of these actions in detail.

How can I add a new table?

New tables are created within Create Table Wizard ⌐64⌐. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the Table icon in the Create Database Object dialog

or

- select the Tables list or any object from that list in the explorer tree;
- select the Create New Table... item from the popup menu.

To create a new table with the same properties as one of the existing tables has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

How can I work with an existing table?

Tables can be edited within Table Editor ⌐66⌐. In order to run the editor you should either

- select the table for editing in the explorer tree (type the first letters of the table name for quick search);
- select the Edit Table... item from the popup menu

or

- open Schema (Database) Editor and the Tables tab there;
- select the table to edit;
- press the **Enter** key or select the Edit Table item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

You can also view and edit table properties without launching Table Editor:

- select the table for editing in the explorer tree (type the first letters of the table name for quick search);
- select the Table Properties... item from the popup menu;
- edit table properties within the Table Properties dialog.

You can change the name of the table using the Rename Table dialog. To open the dialog you should either

- select the table to rename in the explorer tree;

- select the Rename Table item from the popup menu

or

- open Schema (Database) Editor and the Tables tab there;
- select the table to rename;
- select the Rename Table item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

⊟ **How can I drop the existing table?**

To drop a table:

- select the table to drop in the explorer tree;
- select the Drop Table item from the popup menu

or

- open Schema (Database) Editor and the Tables tab there;
- select the table to drop;
- press the **Delete** key or select the Drop Table item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

Table Editor allows you to work with table data including master-detail views[68], generate simple SQL statements[241], CRUD procedures[242] to work with this table, and split the table[245] into two separate tables.

5.2.1   Create Table Wizard

Create Table Wizard guides you through the process of creating a new database table. The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic[37]. Below you will find a description of wizard steps that are unique for the current object.

Name
The name of the table being created as it was specified at the previous step.

Owner
You can specify here the name of the Sybase SQL Anywhere server user that will own the new table, or leave this field blank to use the default user (namely, the user executing the command). By default, only the owner of an object can perform various operations with the object. In order to allow other users to operate it, privileges must be granted. (However, users that have the superuser attribute can always access any object.)

Comment
Set the optional text to describe the new table.
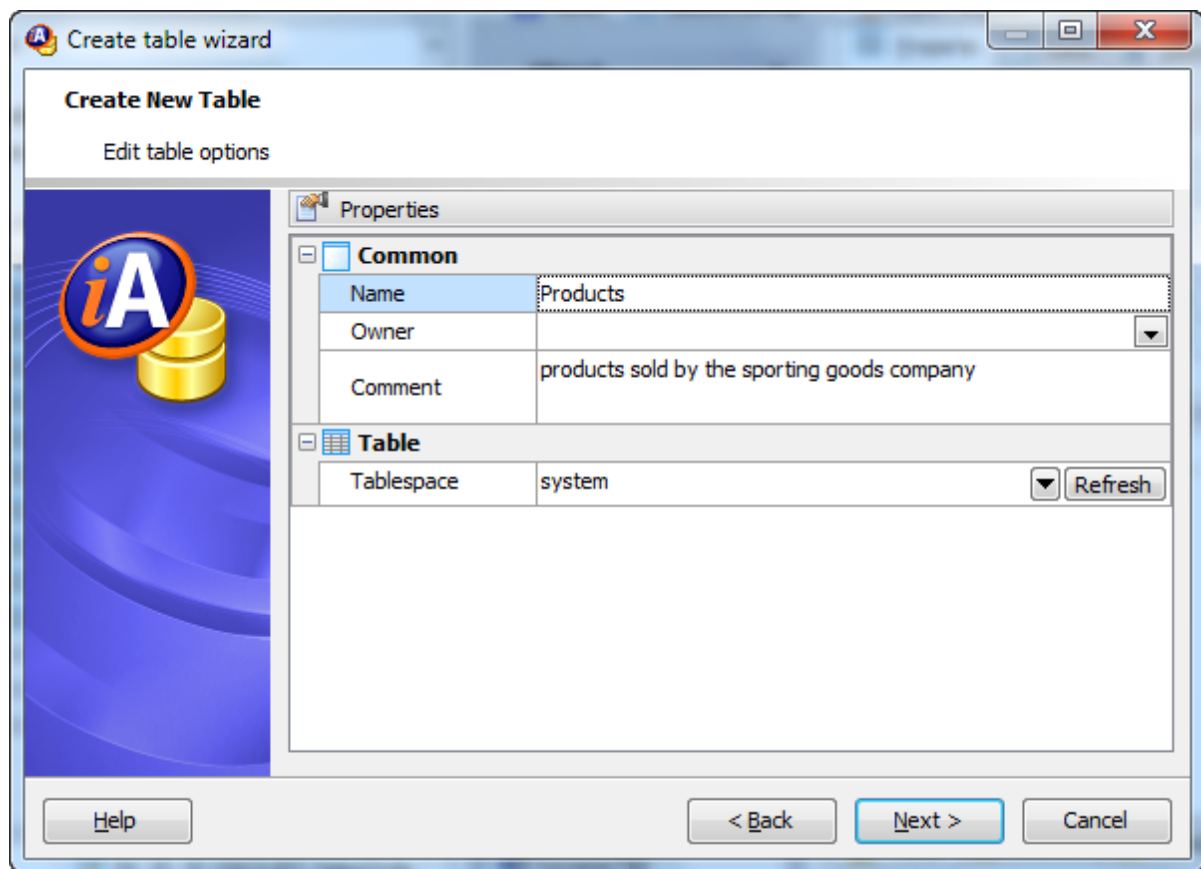
Adding table subitems

On this step of the wizard you can fullfill the new table with fields, indexes, and foreign keys. To add a new object:

- Choose the necessary page (Fields - to add table fields, Indexes - table indexes, and so on);
- Follow the corresponding link of the tab's pop-up menu;
- Specify properties of the new object. To find the description of field 70, foreign key 75, check 77, trigger 81, and index 72, follow the according link.

The popup menu of each tab allows to edit, drop, reorder, and rename specified objects, etc.
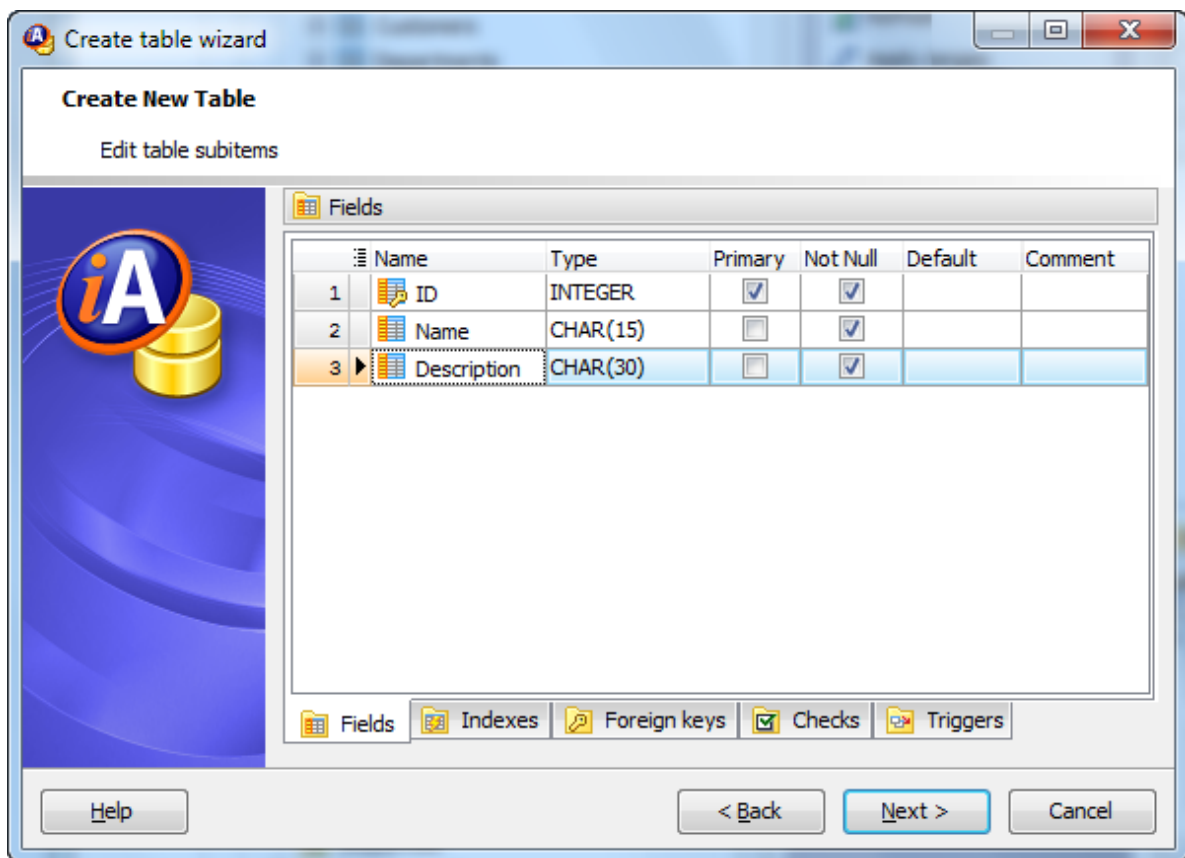
Click Add All or Add to include table(s) to table definition. Use the Remove or Remove All items to exclude table(s) from the list.

5.2.2   Table Editor

Table Editor allows you to create, edit and drop table fields, indexes, manage table data and other table subobjects. It can be opened automatically after the table is created and is available on editing the table. To open Table Editor, double-click the corresponding node at the Explorer Tree or Object Manager.

The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40 . Below you will find a description of editor tabs that are unique for the current object.

- Editing table properties 66
- Viewing table data 68

5.2.2.1   Editing table properties

The Properties section allows you to view general table properties and also to modify the table name, the table owner, and, and to add a comment for the table.
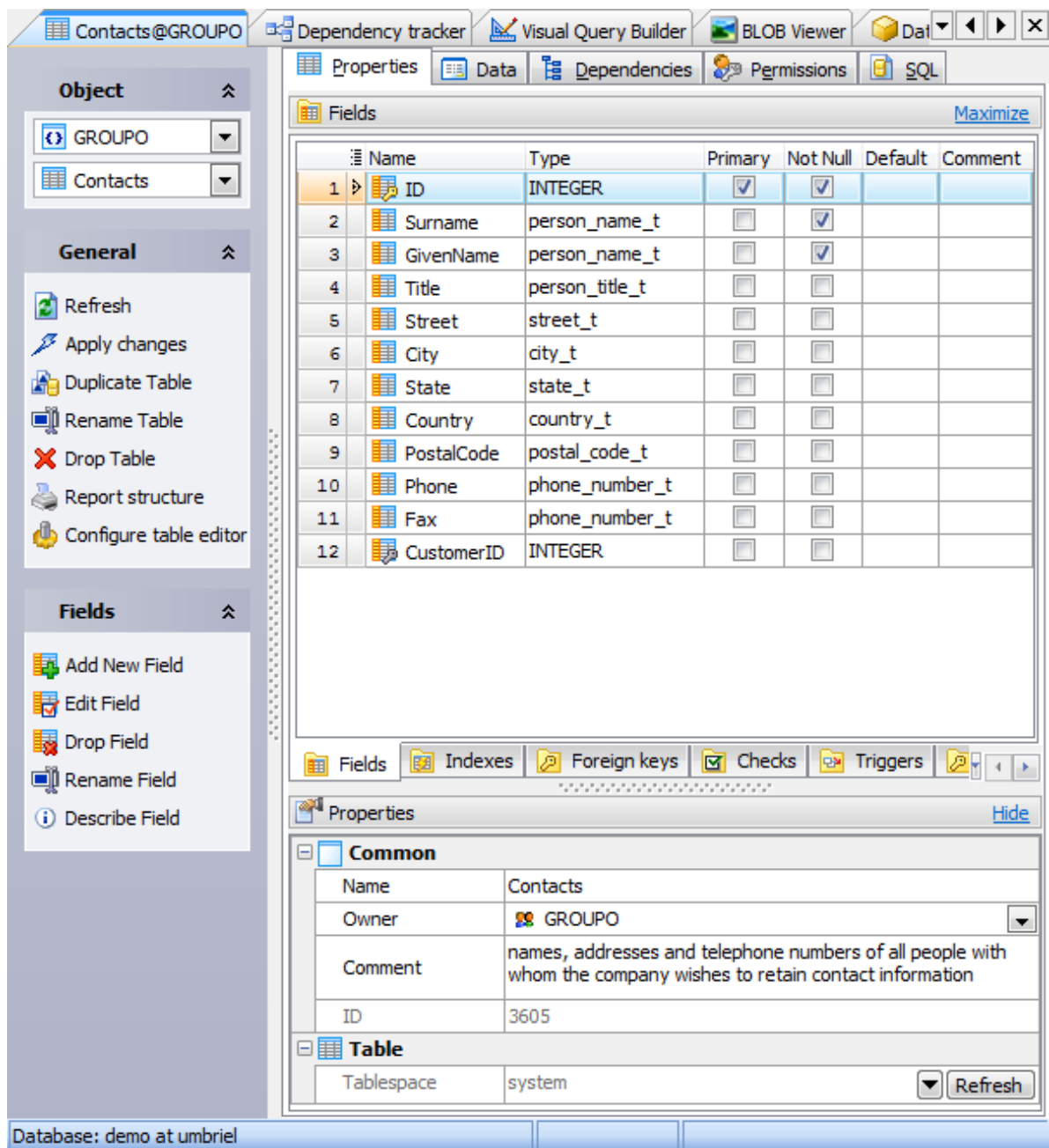
Subitems

Every tab is intended for work with defined objects (*fields*, *indexes*, *etc.*). To modify any object, double click it or use grid's popup menu. The menu also allows you to add new, rename, describe, copy/paste, and drop selected objects. To operate with several objects at a time, select them with the **Shift** or the **Ctrl** key pressed. After a group of objects is selected you can operate with it, e.g. *delete several objects at once*, as if it is a single object.

See also: Fields 70, Foreign Keys 75, Checks 77, Triggers 80, and Indexes 72.

Use the Name field to rename the table.

Note: the name of the object must be unique among all the object names in its container. Moreover, all the objects that are source of data need unique names among themselves. You can use any identifier that is allowed by Sybase SQL Anywhere server.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.2.2.2 Managing table data

The Data tab displays the table data as a grid or as info cards (see Data View 173 for details). To edit/add a table record, use Data Input Form or type the new data directly in the grid (card). To export/import/get SQL dump of the table data, invoke corresponding modules from the grid's popup menu. To view and edit the content of BLOB columns, run BLOB Editor 184.

Lookup editors
Lookup editor displays the content of parent table's columns within the drop-down window. ASA Maestro enables a lookup editor for a column linked by a foreign key with a single column from another table. To get the corresponding data, double click the field or use **F2** shortcut and press **Alt+Down Arrow Key**.

1		7	LINDA	WILLIAMS	LINDA.WILLIAMS@sakilacustomer.org		1
2		8	BARBARA	JONES	BARBARA.JONES@sakilacustomer.org		1
1	9	▼	ELIZABETH	BROWN	ELIZABETH.BROWN@sakilacustomer.org		1

2	⋮ address_id ▼	address	district	city_id ▼	postal_code ▲	1
1	5	5	1913 Hanoi Way	Nagasaki	463	35200 ⊟	1
2	6	6	1121 Loja Avenue	California	449	17886	1
2	7	7	692 Joliet Street	Attika	38	83579	1
1	8	8	1566 Inegl Manor	Mandalay	349	53561	1
2	9 ▶	9	53 Idfu Parkway	Nantou	361	42399	1
1	10	10	1795 Santiago de Compostela Way	Texas	295	18743	1
2	11	11	900 Santiago de Compostela Parkway	Central Serbia	280	93896	1
2	12	12	478 Joliet Way	Hamilton	200	77948 ▼	1
1	◄	Ⅲ			▸	1
2	☒				.::	0
1	21 DONNA	THOMPSON	DONNA.THOMPSON@sakilacustomer.org		1	

Master-Detail Data View
To get data in the master-detail view mode (multiple detail pages are displayed for a single master row), use the Show/Hide details link at the editor's navigation bar. This mode allows you add/edit/delete data of detail pages. To open/close the appropriate detail page click the +/- icon or use **+/-** shortcuts.

6	⊞	710	Mountain Bike Socks, L	SO-B909-L	White	3,3963	9,5
7	⊞	711	Sport-100 Helmet, Blue	HL-U509-B	Blue	13,0863	34,99
8	⊟	712	AWC Logo Cap	CA-1098	Multi	6,9223	8,99

1 SalesOrderDetail (ProductID)

	SalesOrderID ▼	SalesOrderDetailID ▼	OrderQty ▼	ProductID ▼	UnitPrice ▼	UnitPriceDisc
⌗						
ᛘ			Click here to define a filter			
1	71938	113283	1	712	5,394	
2	71897	112902	4	712	5,394	
3	71858	112375	3	712	5,394	
4	71902	112962	3	712	5,394	
5	71797	111053	6	712	5,394	
6	71816	111457	4	712	5,394	
7	71784	110761	10	712	5,394	
8	71783	110748	11	712	5,2142	
9	71782	110670	10	712	5,394	

|◀ ◀◀ ◀ ▶ ▶▶ ▶▶| + − ▲ ✓ ✕ ↻ ✳ ▸✱ ᛦ   ◀   ⸺ III ⸺

9	⊞	713	Long-Sleeve Logo Jersey, S	LJ-0192-S	Multi	38,4923	49,99
10	⊞	714	Long-Sleeve Logo Jersey, M	LJ-0192-M	Multi	38,4923	49,99
11	⊞	715	Long-Sleeve Logo Jersey, L	LJ-0192-L	Multi	38,4923	49,99

Import from Clipboard

ASA Maestro supports data import from clipboard. It is supposed that columns within the data block are separated by the tabulation symbol, records are separated by newlines and the first line of the data block contains column headers.

Example:
ColHeader1   ColHeader2
R1C1   R1C2
R2C1   R2C2

The same data format is supported by a lot of other applications, so the ability allows you to copy data from MS Excel, another table or view, or even from a data set from a different DBMS especially if it is opened with an appropriate our product.

Uploading files as BLOBs

ASA Maestro allows you to upload files as BLOBs into a table. For this purpose the file names must contain the information on the record they need to be placed to: the files need to be named in the same manner and include content of one or several table columns that can uniquely identify each row. To import files, specify the file name template using filed name tags (i.e. %id%, %user%, where 'id' and 'user' are the fact table columns). You can also set the default file to be uploaded to NULL fields.

Example:
Suppose we have a table 'employee' with Non-Blob data as follows:
Id   User
1   Max
2   July

And we need to import the 1.jpg and 2.jpg files to a BLOB column of the table. The files are stored in the "D:\Images" directory. In this case we need to specify the "D:\Images\%Id%.jpg" file name template.

5.2.3 Fields

Table columns are created and edited within the Field Editor.

☐ How to add a new column to a table?

To add a new table column, you should either:

- open the table in Table Editor and the Fields tab there;
- press the **Insert** key or select the Add New Field... item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

or

- select the table in the explorer tree and use the Create New Field popup menu item

or

- select the table Fields node or any field within the table in the explorer tree and use the Add New Field... popup menu item.

☐ How to edit an existing table field?

Table fields are edited within the Field Editor⌐70⌐ dialog window. In order to open the dialog you should either

- open the table in Table Editor and the Fields tab there;
- press the **Enter** key or select the Edit Field item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

or

- select the field to edit in the explorer tree and use the Edit Field popup menu item.

You can change the name of the field using the Rename Field dialog. To open the dialog you should either

- select the field to rename in the explorer tree;
- select the Rename Field item from the popup menu

or

- open the table in Table Editor and the Fields tab there;
- select the field to rename;
- select the Rename Field item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

### ☐ How to drop an existing table field?
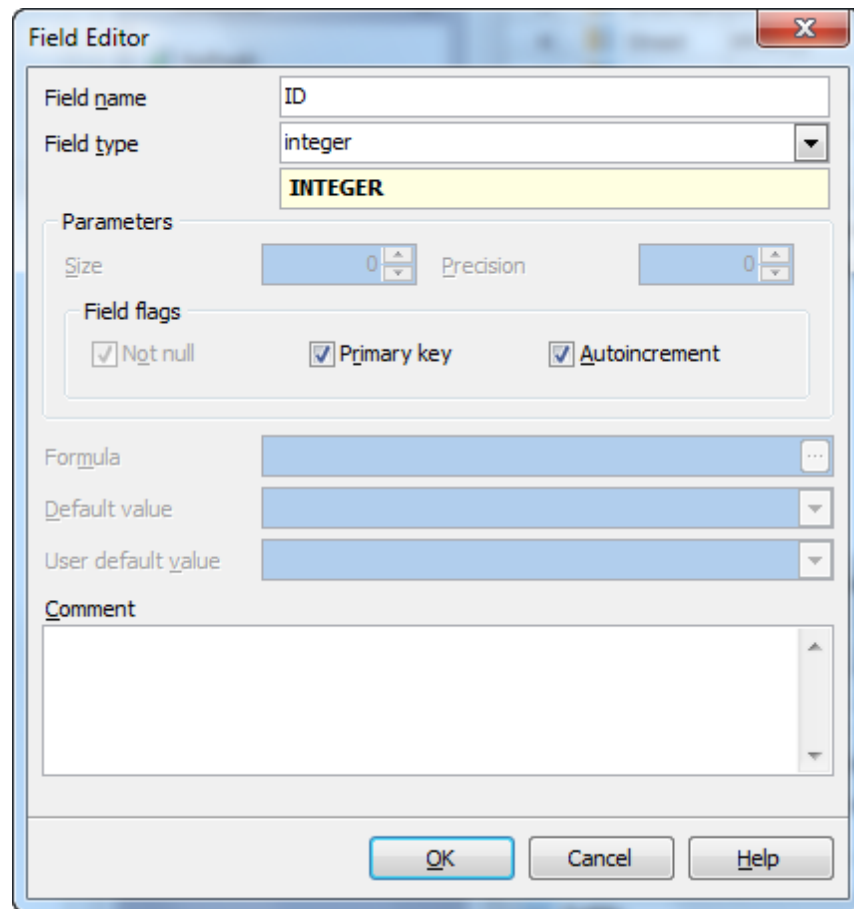
To drop the table field:

- select the field to drop in the explorer tree;
- select the Drop Field item from the popup menu

or

- open the table in Table Editor and the Fields tab there;
- press the **Delete** key or select the Drop Field item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

To specify the Data Type, select it from the drop-down list.

Note: the name of the object must be unique among all the object names in the table. You can use any identifier that is allowed by Sybase SQL Anywhere server.

Parameters
Use the Size edit box to define the length of the field value for integer, float, char and other data types and use Precision to define the precision of the field value, e.g. for *float* data type.

Field flags

☑ Not Null
Forbids the NULL values for the field.

☑ Unique
Includes the field into the unique key (index).

☑ Primary Key
With this option checked the field becomes the only field with a primary key. If you check this field, you will not be able to set this attribute for any other field in the table. Hence if you want to create a compound primary key, do not check this field but create a primary key through the Indexes tab of Table Editor 66 or the appropriate step of Create Table Wizard 64.

Default value
Within the box you can assign a default value for the field column. The action is optional. If the default value was specified during the new row created and no values is specified for some of the columns, the columns will be filled with their respective default values.

5.2.4 Indexes

Indexes are primarily used to enhance database performance (though inappropriate use may result in slower performance). The key field(s) for the index are specified as column names. Multiple fields can be specified if the index method supports multicolumn indexes.

⊟ **How can I create a table index?**

Table indexes are created within the Index Properties 72 dialog window. In order to open the dialog you should either

- open the table in Table Editor and the Indexes tab there;
- press the **Insert** key or select the Add New Index... item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

or

- select the table in the explorer tree and use the Create New Index popup menu item

or

- select the table Indexes node or any index within the table in the explorer tree and use the Add New Index... popup menu item.

⊟ **How can I edit an existing index?**

Table indexes are edited within the Index Properties 72 dialog window. In order to open the dialog you should either

- open the table in Table Editor and the Indexes tab there;
- press the **Enter** key or select the Edit Index item from the popup menu (alternatively, you may use the corresponding link of the

Navigation Bar)

or

- select the index to edit in the explorer tree and use the Edit Index popup menu item.

You can change the name of the index using the Rename Index dialog. To open the dialog you should either

- select the index to rename in the explorer tree;
- select the Rename Index item from the popup menu

or

- open the table in Table Editor and the Indexes tab there;
- select the index to rename;
- select the Rename Index item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

**How can I drop a table index?**

To drop the table index:

- select the index to drop in the explorer tree;
- select the Drop Index item from the popup menu

or

- open the table in Table Editor and the Indexes tab there;
- press the **Delete** key or select the Drop Index item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.
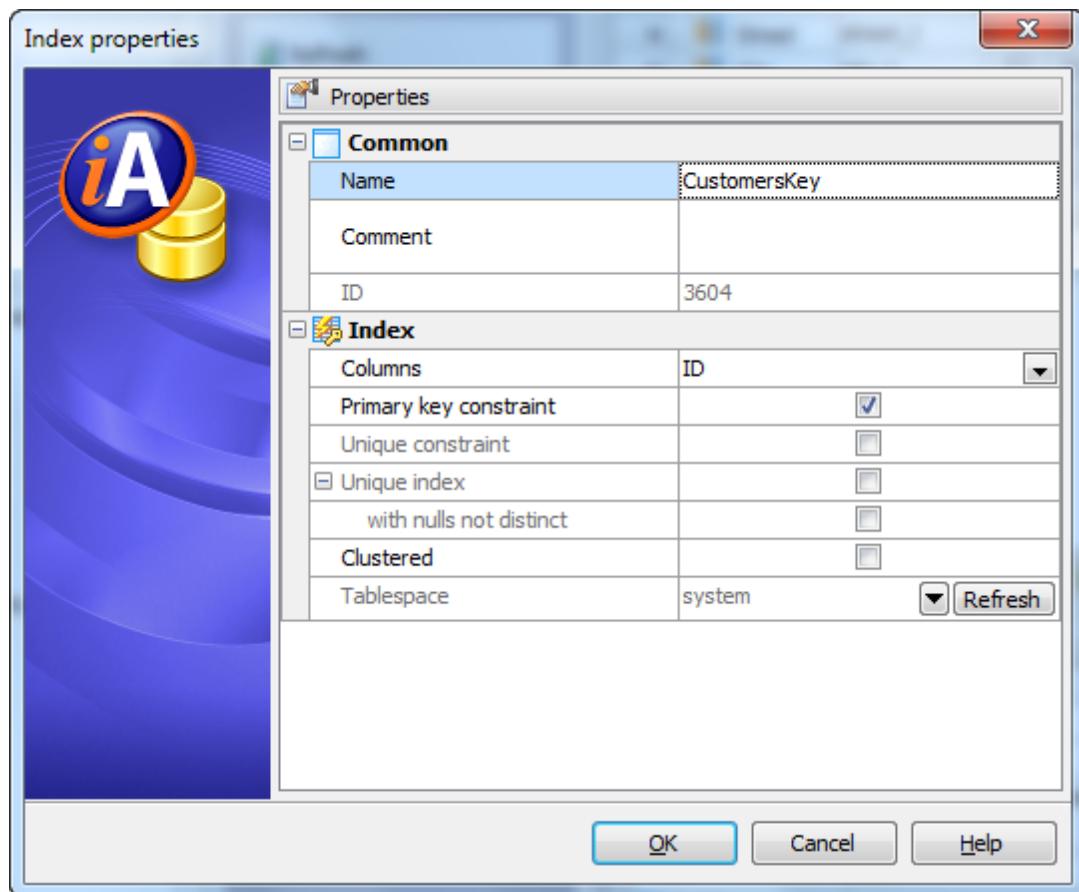
Use the Columns drop-down list to select a key field(s) for the index.

☑ Primary key constraint
With this option checked this field becomes a compound primary key. It is useful in case the table has more than one primary key.

☑ Unique constraint
Check the option to permit no duplicate values. A unique column must also define the NOT NULL attribute. A table can have one or more unique keys.

☑ Unique Index
If checked, creates a unique index for the table, i.e. the database system ensures that no two rows of the specified table have the same values in the indexed columns. In this way, if two rows both contain the NULL value for all columns of an index, the two index values are not considered to be identical. If at least one column does not contain the NULL value, two rows that have the same value in all non-NULL columns are considered to be identical.

☑ Clustered
Fill the box to declare that the index is clustered. The existence of an index with a clustering property causes the database server to attempt to store table rows in approximately the same order as they appear in the clustered index.

5.2.5   Foreign Keys

A foreign key is a field (or collection of fields) in one table that uniquely identifies a row of another table. In other words, a foreign key is a column or a combination of columns that is used to establish and enforce a link between the data in two tables.

▣ How can I add a new foreign key?

Foreign keys are created within the Foreign Key Properties 75 dialog window. In order to open the dialog you should either

- open the table in Table Editor and the Foreign Keys tab there;
- press the **Insert** key or select the Add New Foreign Key... item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

or

- select the table in the explorer tree and use the Create New Foreign Key popup menu item

or

- select the table Foreign Keys node or any foreign key within the table in the explorer tree and use the Add New Foreign Key... popup menu item.

▣ How can I edit an existing foreign key?

Foreign Keys are edited within the Foreign Key Properties 75 dialog window. In order to open the dialog you should either

- open the table in Table Editor and the Foreign Keys tab there;
- press the **Enter** key or select the Edit Foreign Key item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

or

- select the foreign key to edit in the explorer tree and use the Edit Foreign Key popup menu item.

You can change the name of the foreign key using the Rename Foreign Key dialog. To open the dialog you should either

- select the foreign key to rename in the explorer tree;
- select the Rename Foreign Key item from the popup menu

or

- open the table in Table Editor and the Foreign Keys tab there;
- select the foreign key to rename;
- select the Rename Foreign Key item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

▣ How can I drop a foreign key?

To drop the foreign key:

- select the foreign key to drop in the explorer tree;
- select the Drop Foreign Key item from the popup menu

or

- open the table in Table Editor and the Foreign Keys tab there;
- press the **Delete** key or select the Drop Foreign Key item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

Set the Foreign Key Name, select Columns from the Available Fields list to include into the foreign key, select the Foreign Table Name from the drop-down list and its fields from the list to include, set other foreign key properties and apply the changes by clicking the OK button.
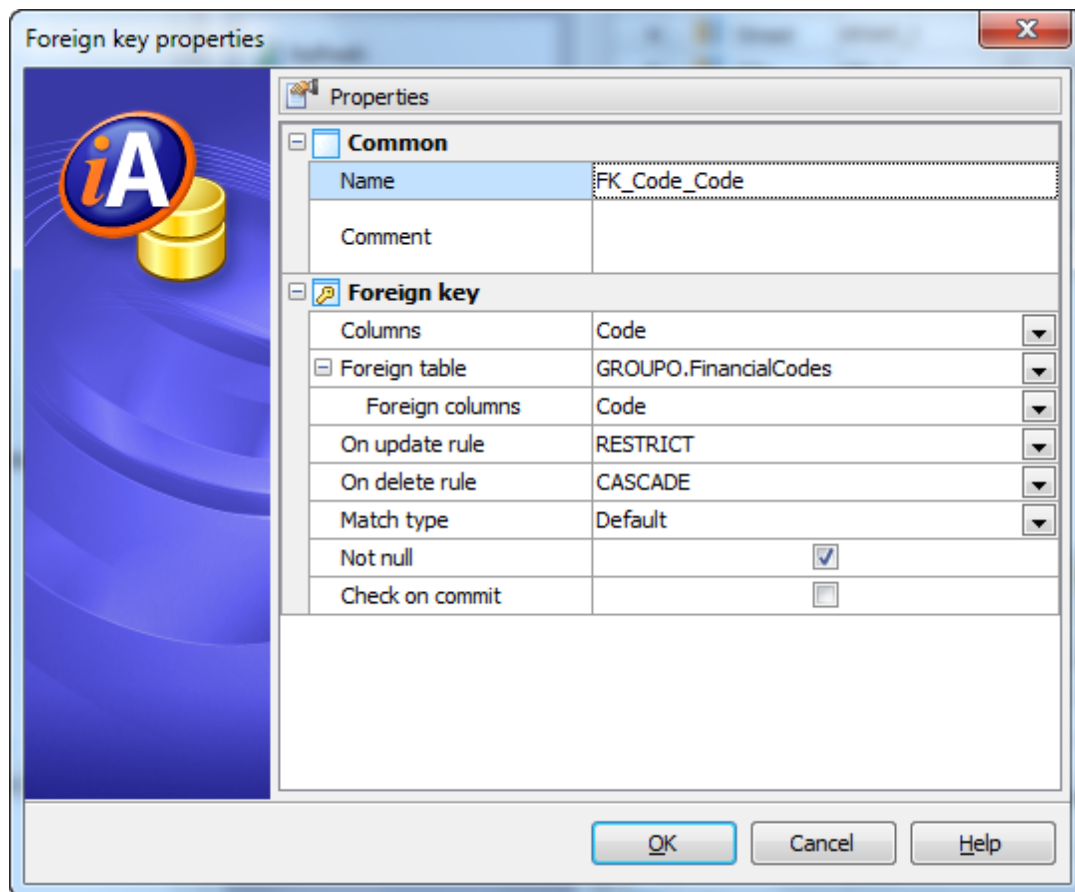
All the fields which are included into the Foreign Key must be included into indexes as well. See Indexes [72] for details.

Comment
The box allows you to set optional text describing the foreign key.

Set rules ON DELETE and ON UPDATE from the respective drop-down lists.

- *RESTRICT* Produce an error indicating that the deletion or update would create a foreign key constraint violation.

- *CASCADE* Delete any rows referencing the deleted row, or update the value of the referencing column to the new value of the referenced column, respectively.

- *SET NULL* Set the referencing column(s) to null.

- *SET DEFAULT* Set the referencing column(s) to their default values.

5.2.6   Checks

A check constraint is the most generic constraint type. It allows you to specify that the value in a certain column must satisfy a Boolean (truth-value) expression.

The Check Properties editor allows you to add a new check constraint or edit an existing one. This dialog can be invoked from Table Editor 66, or via the popup menu of the corresponding nodes of the explorer tree.

🔲 How can I add a new check?

Checks are created within Check Properties 77. In order to run the wizard you should either

- open the table in Table Editor and the Checks tab there;
- press the **Insert** key or select the Add New Check... item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

or
- select the table in the explorer tree and use the Create New Check... popup menu item

or
- select the table Checks node or any check within the table in the explorer tree and use the Add New Check... popup menu item.

🔲 How can I edit an existing check?

Checks are edited within the Check Properties 77 dialog window. In order to open the dialog you should either

- open the table in Table Editor the Checks tab there;
- press the **Enter** key or select the Edit Check item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

or
- select the check to edit in the explorer tree and use the Edit Check popup menu item.

You can change the name of the check using the Rename Check

dialog. To open the dialog you should either

- select the check to rename in the explorer tree;
- select the Rename Check item from the popup menu

or

- open the table in Table Editor and the Checks tab there;
- select the check to rename;
- select the Rename Check item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

How can I drop a check?

To drop the check:

- select the check to drop in the explorer tree;
- select the Drop Check item from the popup menu

or

- open the table in Table Editor and the Checks tab there;
- press the **Delete** key or select the Drop Check item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.
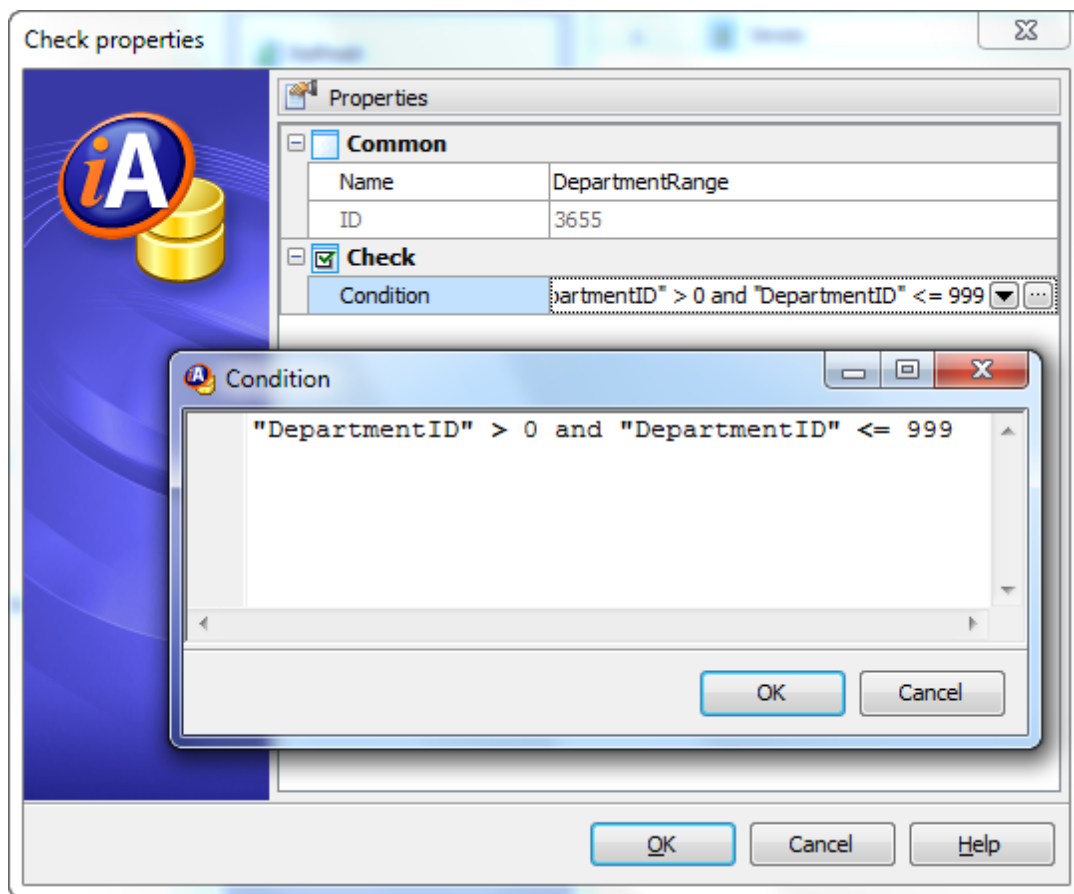
Name
The name of the check constraint.

Condition
Specify an expression producing a Boolean result which new or updated rows must satisfy for an insert or update operation to succeed. Expressions evaluating to True or Unknown succeed. In case any row of an insert or update operation produce a FALSE result an error exception is raised and the insert or update does not alter the database.

5.2.7 Triggers

A trigger is a specification that the database should automatically execute a particular function whenever a certain type of operation is performed. A trigger can be defined to execute before or after an INSERT, UPDATE, or DELETE operation, either once per modified row, or once per SQL statement. If a trigger event occurs, the trigger fires.

How can I add a new trigger?

Triggers are created within Create Trigger Wizard 81. In order to run the wizard you should either

- open the table in Table Editor and the Triggers tab there;

- press the **Insert** key or select the Add New Trigger... item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

or

- select the table in the explorer tree and use the Create New Trigger... popup menu item

or

- select the table Triggers node or any trigger within the table in the explorer tree and use the Add New Trigger... popup menu item.

How can I edit an existing trigger?

Triggers are edited within the Trigger Editor dialog window. In order to open the dialog you should either

- open the table in Table Editor and the Triggers tab there;
- press the **Enter** key or select the Edit Trigger item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

or

- select the trigger to edit in the explorer tree and use the Edit Trigger popup menu item.

You can change the name of the trigger using the Rename Trigger dialog. To open the dialog you should either

- select the trigger to rename in the explorer tree;
- select the Rename Trigger item from the popup menu

or

- open the table in Table Editor and the Triggers tab there;
- select the trigger to rename;
- select the Rename Trigger item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

How can I drop a trigger?

To drop the trigger:

- select the trigger to drop in the explorer tree;
- select the Drop Trigger item from the popup menu

or

- open the table in Table Editor and the Triggers tab there;
- press the **Delete** key or select the Drop Trigger item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

5.2.7.1 **Create Trigger Wizard**

Create Trigger Wizard guides you through the process of creating of a new table trigger.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic 37. Below you will find a description of wizard steps that are unique for the current object.

Specifying trigger properties

To define a new trigger, you need to set its Name, Type *(Before, After, Resolve).* This option determines whether the function is called before or after the event.

Comment
This field contains a comment to the table trigger.

Event
One of *Insert, Update, Update Fields* or *Delete*; this specifies the event that will fire the trigger.

Field list
This is available when Update of option is selected in Event select. You can specify which fields are to be updated to cause the trigger being fired.

When expression
If you supply when expression, the SQL statements specified as trigger steps are only executed for those rows for which the WHEN clause is true. If no WHEN clause is supplied, the SQL statements are executed for all rows.

Subject *(Row, Statement)*
This specifies whether the trigger procedure should be fired once for every row affected by the trigger event, or just once per SQL statement.

Order
Triggers of the same type (insert, update, or delete) that fire at the same time (before, after, or resolve) can use the clause to determine the order that the triggers are fired. Specifying 0 is equivalent to omitting the clause.

New name, Old name, Remote name
The clauses allow you to refer to the inserted, deleted or updated rows. For the purposes of this clause, an update is treated as a delete followed by an insert.

- An *Insert* event takes the new name clause, which represents the inserted row.
- A *Delete* event takes the old name clause, which represents the deleted row.
- An *Update* takes the old name clause, which represents the row before the update, and it takes the new name clause, which represents the row after the update.

The meaning of old name and new name differs, depending on whether the trigger is a row-level or a statement-level trigger.

- For row-level triggers, the old name clause allows you to refer to the values in a row prior to an update or delete, and the new name clause allows you to refer to the inserted or updated values. The OLD and NEW rows can be referenced in BEFORE and

AFTER triggers. The new name clause allows you to modify the new row in a BEFORE trigger before the insert or update operation takes place.

- For statement-level triggers, the old name and new name clauses refer to declared temporary tables holding the old and new values of the rows. The default names for these tables are deleted and inserted.

The Remote name clause is for use with SQL Remote. It allows you to refer to the values in the VERIFY clause of an UPDATE statement. It should be used only with RESOLVE UPDATE or RESOLVE UPDATE OF column-list triggers.

Specifying trigger definition
Here you can specify the trigger definition. Specify the trigger steps to be executed when the trigger fires. The step is optional: you can do it later using a non-modal editor.
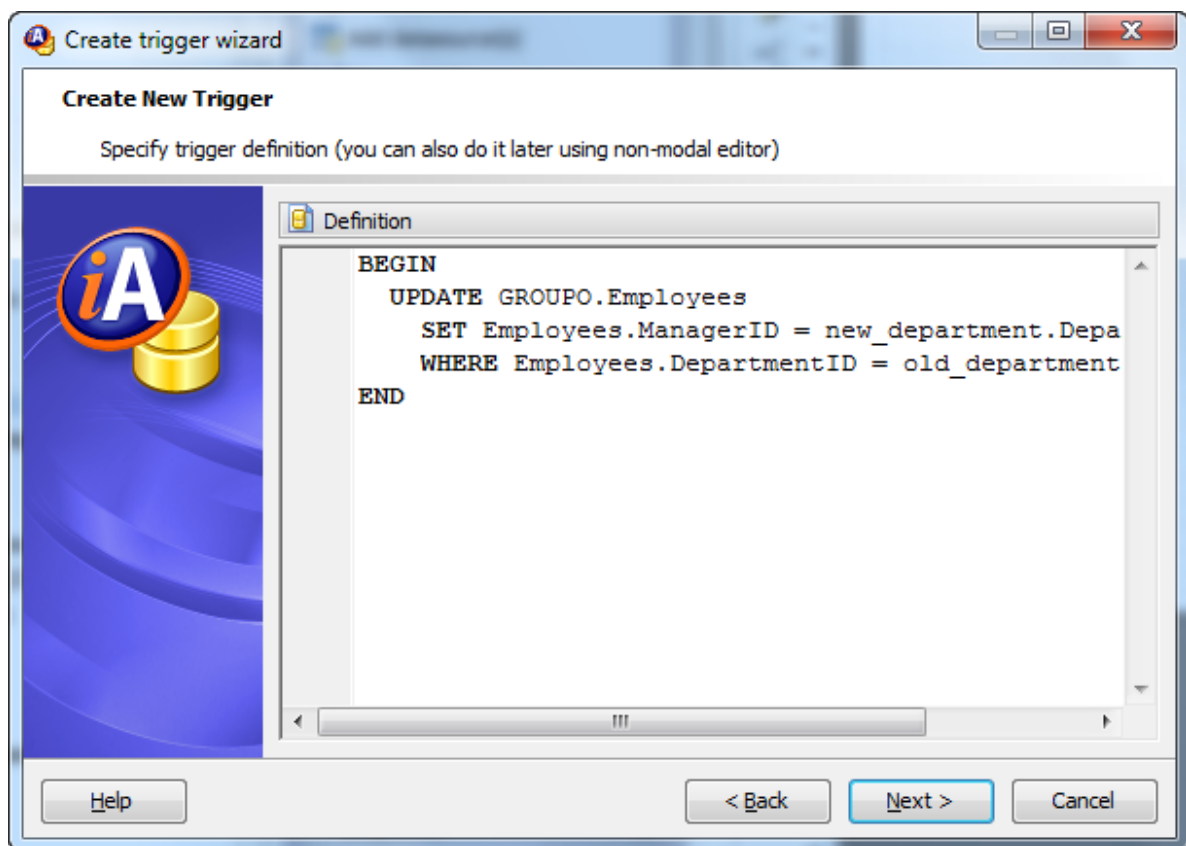
5.2.7.2   **Trigger Editor**

Trigger Editor can be opened automatically after the trigger is created and is available on editing the trigger.
The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40 . Below you will find a description of editor tabs that are unique for the current object.
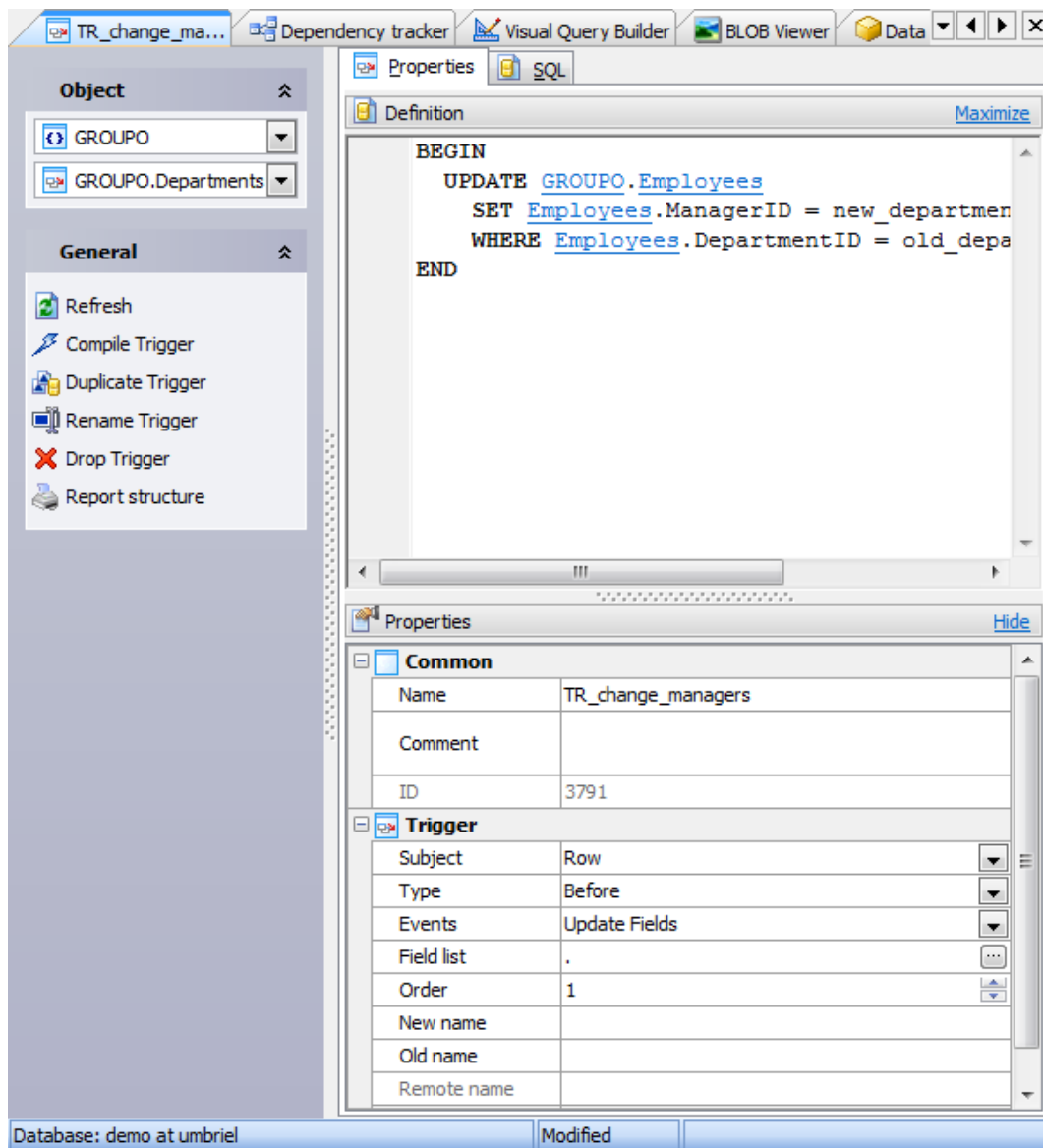
The main tab of the editor consists of several parts:, trigger definition, and trigger properties.

Definition
Defines the trigger conditions and actions.

Properties
Name
Here you can view and change the trigger name.

Note: the name of the object must be unique among all the object names in its container. Moreover, all the objects that are source of data need unique names among themselves. You can use any identifier that is allowed by Sybase SQL Anywhere server.

Comment
This field contains a comment to the trigger.

Subject *(Row, Statement)*
This specifies whether the trigger procedure should be fired once for every row affected by the trigger event, or just once per SQL statement.

Type*(Before, After, Resolve)*
Determines whether the function is called before or after the event.

Event (*Insert, Update, Update Fields* or *Delete)*
Specifies the event that will fire the trigger.

Order
Triggers of the same type (insert, update, or delete) that fire at the same time (before, after, or resolve) can use the clause to determine the order that the triggers are fired. Specifying 0 is equivalent to omitting the clause.

New name, Old name, Remote name
The clauses allow you to refer to the inserted, deleted or updated rows. For the purposes of this clause, an update is treated as a delete followed by an insert.

- An *Insert* event takes the new name clause, which represents the inserted row.
- A *Delete* event takes the old name clause, which represents the deleted row.
- An *Update* takes the old name clause, which represents the row before the update, and it takes the new name clause, which represents the row after the update.

The meaning of old name and new name differs, depending on whether the trigger is a row-level or a statement-level trigger.

- For row-level triggers, the old name clause allows you to refer to the values in a row prior to an update or delete, and the new name clause allows you to refer to the inserted or updated values. The OLD and NEW rows can be referenced in BEFORE and AFTER triggers. The new name clause allows you to modify the new row in a BEFORE trigger before the insert or update operation takes place.
- For statement-level triggers, the old name and new name clauses refer to declared temporary tables holding the old and new values of the rows. The default names for these tables are deleted and inserted.

The Remote name clause is for use with SQL Remote. It allows you to refer to the values in the VERIFY clause of an UPDATE statement. It should be used only with RESOLVE UPDATE or RESOLVE UPDATE OF column-list triggers.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.2.8   Foreign Key References

A foreign key specifies that the values in a column (or a group of columns) must match the values appearing in some row of another table. The Foreign Key References tab allows you to manage foreign keys created in other tables and reference for columns of

the current one. Table objects are managed within the corresponding tab of Table Editor 66. Unlike *tables* or *views,* Foreign Key References are actually not database objects. These are only references to foreign keys. They are designed specially for easy foreign keys management.
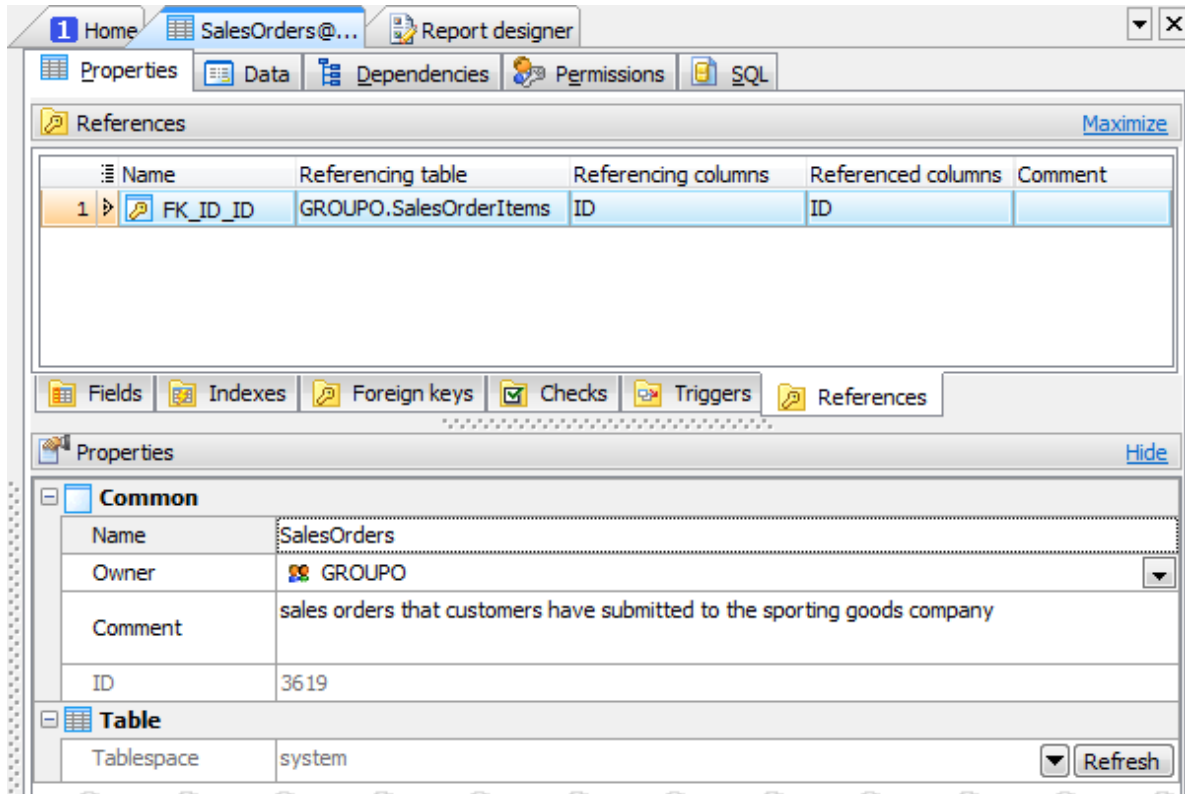
See also: Foreign Keys 75

☐ How can I add a new foreign key reference?

Table foreign key references are edited within the Foreign Key Editor 75 dialog window. In order to open the dialog you should either

- open the table in Table Editor;
- open the Subitems item and the Foreign Keys References tab there;
- press **Enter** key or select the Edit Foreign Key item from the popup menu

or
- select the foreign key to edit in the appropriate table group of the explorer tree and use the Edit Foreign Key popup menu item.

☐ How can I edit an existing foreign key reference?

Table foreign key references are edited within the Foreign Key Editor 75 dialog window. In order to open the dialog you should either

- open the table in Table Editor;

- open the Subitems item and the Foreign Keys References tab there;
- press **Enter** key or select the Edit Foreign Key item from the popup menu

or

- select the foreign key to edit in the appropriate table group of the explorer tree and use the Edit Foreign Key popup menu item.

How can I drop a foreign key reference?

To drop the foreign key reference:

- open the table in Table Editor;
- open the Subitems item and the Foreign Keys References tab there;
- press **Delete** key or select the Drop Foreign Key item from the popup menu;

or

- select the foreign key to drop in the appropriate table group of the explorer tree and use the Drop Foreign Key popup menu item.

and confirm dropping in the dialog window.

5.3 Remote tables

SQL Anywhere can access data located on different servers, both Sybase and non-Sybase, as if the data were stored on the local server (SQL Anywhere, Adaptive Server Enterprise, Oracle, IBM DB2, Microsoft SQL Server, and other ODBC data sources).

Location transparency of remote data is enabled by creating a Remote (local proxy) table that maps to the remote object. You can use a proxy table to access any object (including tables, views, and materialized views) that the remote database exports as a candidate for a proxy table.

Before you can map remote objects to a remote table, you have to:

1. Define the remote server ⌐147⌐ where the remote data is located.
2. Map the local user login information to the remote server user login information ⌐150⌐ if the logins on the two servers are different.

Must have *RESOURCE* authority. To create a table for another user, you must have *DBA* authority.

▣ **How can I create a new remote table?**

New remote tables are created within Create Remote Table Wizard ⌐88⌐. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the Remote Tables icon in the Create Database Object dialog

or

- select the Remote Tables list or any object from that list in the explorer tree;
- select the Create New Remote Table... item from the popup menu

To create a new remote table with the same properties as one of the existing one has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

▣ **How can I edit an existing remote table?**

Remote tables can be edited within Remote Table Editor ⌐89⌐. In order to run the editor you should either

- select the remote table for editing in the explorer tree (type the first letters of the table name for quick search);
- select the Edit Remote Table... item from the popup menu

▣ **How can I drop a remote table?**

To drop a remote table:

- select the table to drop in the explorer tree;
- select the Drop Remote Table item from the popup menu

and confirm dropping in the dialog window.

5.3.1 Create Remote Table Wizard

Create Remote Table Wizard allows you to create a new proxy table, which represents an existing object on a remote server. All the information how to run the wizard you can find here 87.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic 37. Below you will find a description of wizard steps that are unique for the current object.
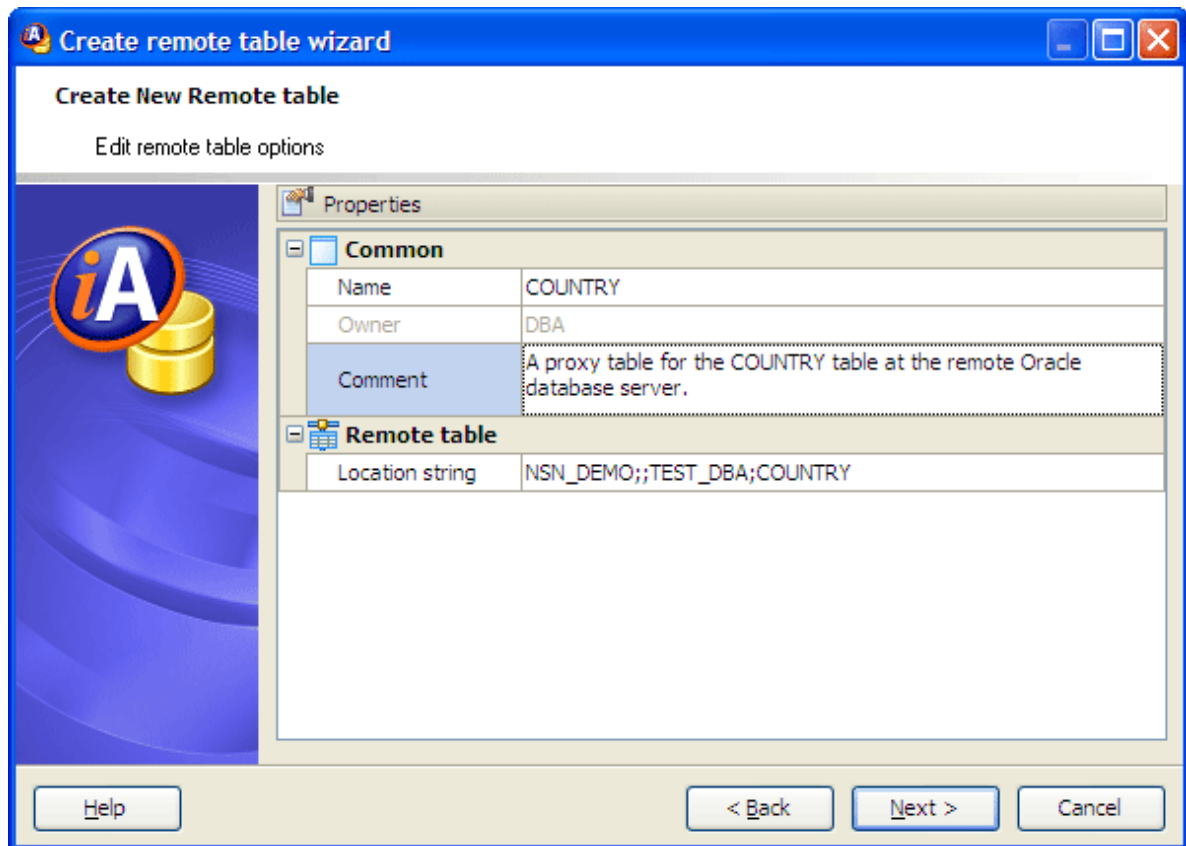
Name
Defines a name for the remote table.

Comment
Specify a comment to the remote table.

Location string specifies the location of the remote object. The string is of the form:

remote-server-name.[db-name].[owner].object-name| remote-server-name;[db-name];[owner];object-name

The clause supports the semicolon (;) as a delimiter. If a semicolon is present anywhere in the location-string string, the semicolon is the field delimiter. If no semicolon is present, a period is the field delimiter. This allows file names and extensions to be used in the database and owner fields. For example, the following statement maps the table a1 to the MS Access file mydbfile.mdb: 'access;d:\mydbfile.mdb;;a1'.

5.3.2   Remote Table Editor

Remote Table Editor allows you to manage data and properties of an existing object on a remote server. To open the editor, use the popup menu of the corresponding node on the Explorer tree.

The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40 . Below you will find a description of editor tabs that are unique for the current object.
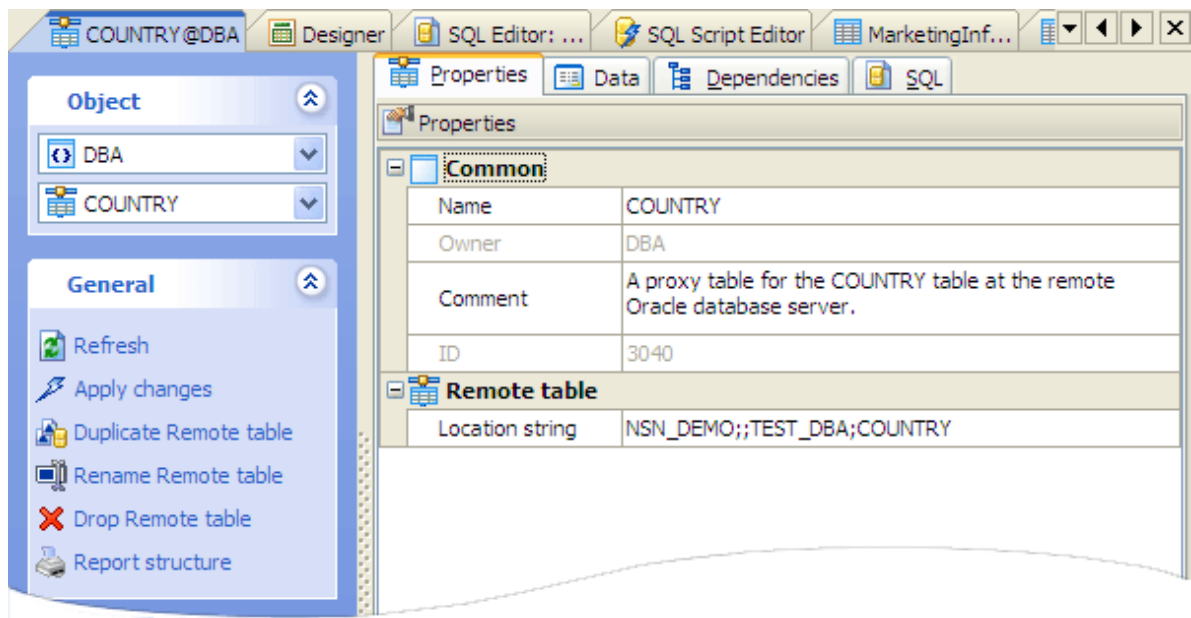
Specify Name and Comment to the remote table.

Location string specifies the location of the remote object. The clause supports the semicolon (;) as a delimiter. If a semicolon is present anywhere in the location-string string, the semicolon is the field delimiter. If no semicolon is present, a period is the field delimiter. This allows file names and extensions to be used in the database and owner fields. For example, the following statement maps the table a1 to the MS Access file mydbfile.mdb: 'access;d:\mydbfile.mdb;;a1'.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.4 Views

Views are useful for allowing users to access a set of relations (tables) as if it were a single table, and limiting their access to just that. Views can also be used to restrict access to rows (a subset of a particular table).

☐ How can I create a new view?

New views are created within Create View Wizard 91. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the View icon in the Create Database Object dialog

or

- select the Views list or any object from that list in the explorer tree;
- select the Create New View... item from the popup menu

or

- open Schema (Database) Editor and the Views tab there;
- press the **Insert** key or select the Create New View item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

To create a new view with the same properties as one of the existing views has:

- select the Object | Duplicate Database Object... main menu item.
- follow the instructions of Duplicate Object Wizard.

☐ How can I edit an existing view definition?

Views can be edited within View Editor 95. In order to run the editor you should either

- select the view for editing in the explorer tree (type the first letters of the view name for quick search);
- select the Edit View... item from the popup menu

or

- open Schema (Database) Editor and the Views tab there;
- select the view to edit;
- press the **Enter** key or select the Edit View item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

You can change the name of the view using the Rename View dialog. To open the dialog you should either

- select the view to rename in the explorer tree;
- select the Rename View item from the popup menu

or

- open Schema (Database) Editor and the Views tab there;

- select the view to rename;
- select the Rename View item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

⊟ How can I drop a view?

To drop a view:

- select the view to drop in the explorer tree;
- select the Drop View item from the popup menu

or

- open Schema (Database) Editor and the Views tab there;
- select the view to drop;
- press the **Delete** key or select the Drop View item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

5.4.1 Create View Wizard

Create View Wizard guides you through the process of creating a new view. See How To Create View⎜ 90⎟ to learn how to run this wizard.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic⎜ 37⎟. Below you will find a description of wizard steps that are unique for the current object.

Selecting fields for a new view
Select a table or a view from the Based on drop-down menu. Then specify which fields will be used in the new view. Use Add All or Add Selected buttons to include field(s) into view definition. Use the Remove Selected or Remove All items to exclude field(s) from the view's field list. Click the Next button to proceed.
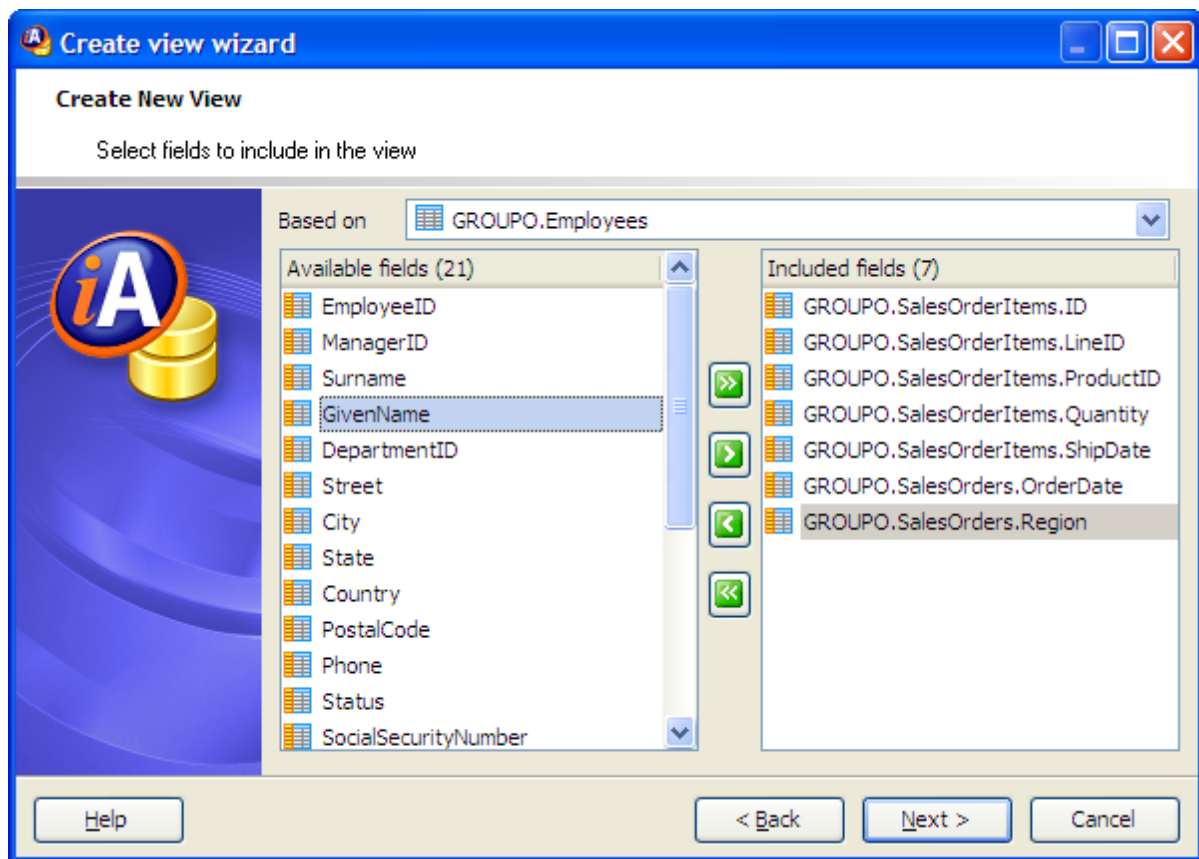
Specifying view options
Name
You may specify here the name of the view being created.

Owner
Defines the owner of the new view. By default, only the owner of an object can perform various operations with the object. In order to allow other users to operate it, privileges must be granted. (However, users that have the superuser attribute can always access any object.)

Comment
The box allows you to set optional text describing the view.

☑ With Check Option

The clause rejects any updates and inserts to the view that do not meet the criteria of the views as defined by its SELECT statement.

Specifying the WHERE condition
ASA Maestro provides the Filter Builder dialog to facilitate a creating of the WHERE condition.

▣ **Adding a new condition to the filter**

Suppose we need to select orders from the sample table *Orders* made between

01.02.2010 and 10.02.2010. These criteria are applied to the *OrderDate* column. Press the button to add this condition. Alternatively, you can use the Filter button and select the Add Condition option from the drop-down menu.

⊟ Setting a filter criteria in the condition

Select the *OrderDate* column in the drop-down list of the available columns.

⊟ Setting an operator in the condition

Set the proper operator. In our example it is BETWEEN.

Setting criteria values in the condition

Next, you need to specify the range values for the selected operator. The editor used in value boxes is determined by the editor type assigned to the corresponding column.

Now use the Apply button to see the filter result.

You can add additional conditions to the same root level to be combined by the AND operator.

Adding a new group

Suppose we need to select orders made between 01.02.2010 and 10.02.2010 and payed via 'Visa' or 'American Express'. This is a complex filter condition combining two simple conditions with the OR operator. Conditions from the same root level are combined by the AND operator. To add a condition combined with the previous one with the OR (NOT AND, NOT OR) operator, use a new group of conditions.

The next screen represents the finished filter conditions for this example.

5.4.2 View Editor

View Editor allows you to edit the existing view definition (view name and the SELECT statement it implements).

The basic principles of Object Editors in ASA Maestro are explained in a separate topic [40]. Below you will find a description of editor tabs that are unique for the current object.

See also: Create View Wizard [91]
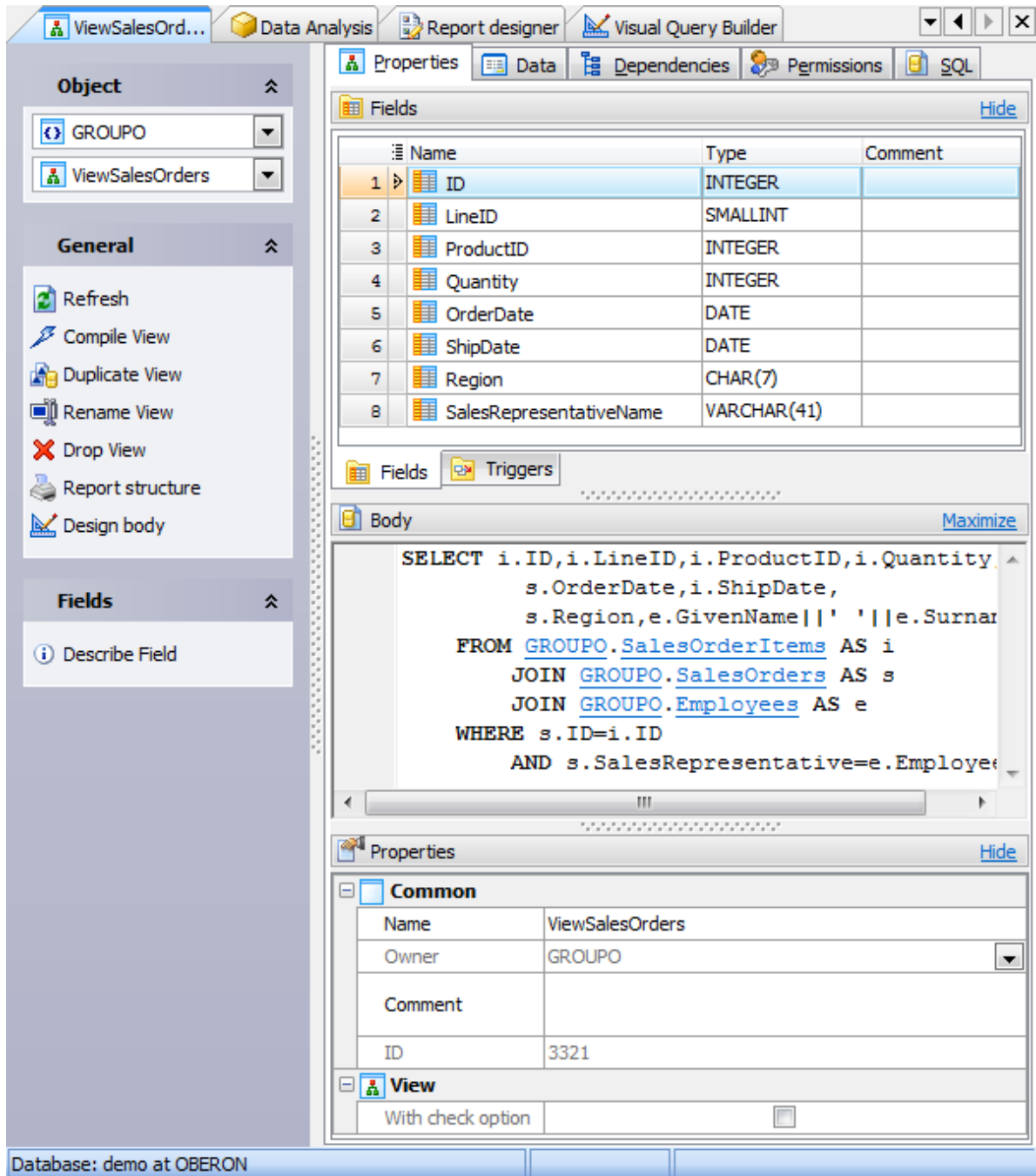
5.4.2.1 Editing view properties

View Editor provides you with an ability to edit view properties. The Properties tab allows you to change the view name, view definition.

Subitems

Every tab is intended for managing some view subitems (e.g. *fields*). Each object can be opened in its editor. Use grid's popup menu to create new, edit or drop the selected view subitems. Using the popup menu you can also copy the selected objects to clipboard or paste previously copied objects.

You can operate on several objects at a time. For this you have to select view objects with the **Shift** or the **Ctrl** key pressed. After a group of objects is selected you can operate on it, e.g. *delete several objects at once*, as if it were a single object.

See also: Fields ⁷⁰

Body

You can edit the view definition in this box.

Use the Name field to specify the view name.

Note: the name of the object must be unique among all the object names in its container. Moreover, all the objects that are source of data need unique names among themselves. You can use any identifier that is allowed by Sybase SQL Anywhere server.

☑ With Check Option

The clause rejects any updates and inserts to the view that do not meet the criteria of the views as defined by its SELECT statement.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.4.2.2 Viewing data

The Data tab displays the data represented in the view as a grid (see Data View for details). The popup menu of this tab and the Data Management navigation bar allow you to export data, get SQL dump, set the value of the selected record to *Null* or to *Now* (for Date values). In tables with BLOB fields you can also call BLOB Editor to view and edit the BLOB fields.

5.5 Materialized Vews

A materialized view is a view that has been computed and stored on disk. Materialized views have characteristics of both views (they are defined using a query specification), and of tables (they allow most table operations to be performed on them). The main differences between a materialized view and a table are that the materialized view cannot subsequently be directly updated and that the query used to create the materialized view is stored in exactly the same way that a view's query is stored, so that fresh data can be generated for the materialized view with the special command.

▣ How can I create a new materialized view?

New materialized views are created within Create Materialized view Wizard 100. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the Materialized view icon in the Create Database Object dialog

or

- select the Materialized view list or any object from that list in the explorer tree;
- select the Create New Materialized view... item from the popup menu

or

- open the schema in Schema Editor and the Materialized view tab there;
- press the **Insert** key or select the Create New Materialized view item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

To create a new materialized view with the same properties as one of the existing defaults has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

▣ How can I edit an existing materialized view definition?

Materialized views can be edited within Materialized view Editor. In order to run the editor you should either

- select the materialized view for editing in the explorer tree (type the first letters of the materialized view name for quick search);
- select the Edit Materialized view ... item from the popup menu

or

- open the schema in Schema Editor and the Materialized view tab there;
- select the materialized view to edit;
- press the **Enter** key or select the Edit Materialized view item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

You can change the name of the materialized view using the Rename Materialized view dialog. To open the dialog you should either

- select the materialized view to rename in the explorer tree;
- select the Rename Materialized view item from the popup menu

or

- open the schema in Schema Editor and the Materialized view tab there;
- select the materialized view to rename;
- select the Rename Materialized view item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

⊟ How can I drop a materialized view?

To drop a materialized view:

- select the materialized view to drop in the explorer tree;
- select the Drop Materialized view item from the popup menu

or

- open the schema in Schema Editor and the Materialized view tab there;
- select the materialized view to drop;
- press the **Delete** key or select the Drop Materialized view item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

5.5.1 Create Materialized Views Wizard

Create Materialized View Wizard guides you through the process of creating a new view. See How To Create Materialized View ⌐99⌐ to learn how to run this wizard.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic⌐37⌐. Below you will find a description of wizard steps that are unique for the current object.

Selecting fields
To specify fields to be used in the view, select a table or a view from the Based on drop-down menu and specify which fields will be used in the new view. Use Add All or Add Selected buttons to include field(s) into view definition. Use the Remove Selected or Remove All items to exclude field(s) from the view's field list. Click the Next button to proceed. If column names are not provided, they are taken from the output column names of the query.

Specifying options
Use this step to set Owner, and Comment for the new materialized view. If not specified, default values are consulted.

☑ Use in optimization
Fill the box to specify whether you want the materialized view to be available for use by

the optimizer. If it is unchecked, the materialized view is used only when executing queries that explicitly reference the view.

Specifying WHERE condition

Adding a new condition to the filter

Suppose we need to select orders from the sample table *Orders* made between 01.02.2010 and 10.02.2010. These criteria are applied to the *OrderDate* column. Press the button to add this condition. Alternatively, you can use the Filter button and select the Add Condition option from the drop-down menu.

Setting a filter criteria in the condition

Select the *OrderDate* column in the drop-down list of the available columns.

Setting an operator in the condition

Set the proper operator. In our example it is BETWEEN.

Setting criteria values in the condition

Next, you need to specify the range values for the selected operator. The editor used in value boxes is determined by the editor type assigned to the corresponding column.

Now use the Apply button to see the filter result.

You can add additional conditions to the same root level to be combined by the AND operator.

Adding a new group

Suppose we need to select orders made between 01.02.2010 and 10.02.2010 and payed via 'Visa' or 'American Express'. This is a complex filter condition combining two simple conditions with the OR operator. Conditions from the same root level are combined by the AND operator. To add a condition combined with the previous one with the OR (NOT AND, NOT OR) operator, use a new group of conditions.

The next screen represents the finished filter conditions for this example.

See also: Materialized View Editor 104

5.5.2 Materialized Views Editor

Materialized View Editor allows you to edit the existing view definition (view name and the SELECT statement it implements), browse and update the view data.

The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40. Below you will find a description of editor tabs that are unique for the current object.

The Properties tab allows you to rename the view, change the definition, the owner and the comment of the view.

The Fields tab represents fields included in the materialized view. Use grid's popup menu to describe or rename fields.

The Body area contains the query used to populate the view. To change the query, modify the SQL statement and use the Compile materialized view at the Navigation bar.

☑ Use in optimization
Fill the box to specify whether you want the materialized view to be available for use by the optimizer. If it is unchecked, the materialized view is used only when executing queries that explicitly reference the view.

You can also find here last time the view has been refreshed.

The Data tab displays current view data represented as a grid (see Data View 173 for details). The popup menu of this tab and the Data Management navigation bar allow you to export data, get SQL dump, set the value of the selected record to *Null* or to *Now* (for Date values). In tables with BLOB fields you can also call BLOB Editor 184 to view and edit the BLOB fields.

Materialized views are not automatically initialized with data when created. To initialize a

materialized view, use Refresh Data link on the popup menu of the corresponding Explorer node.
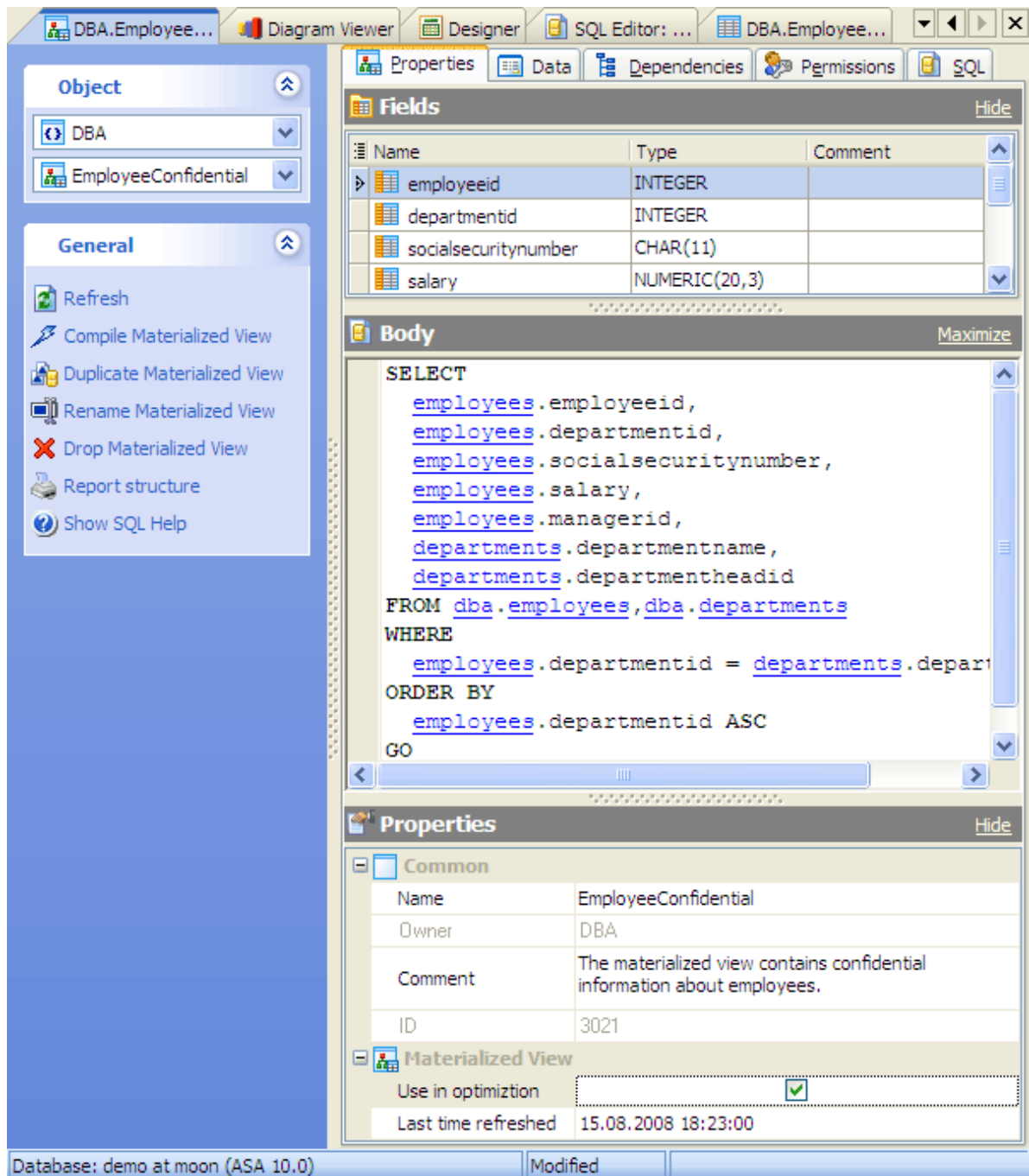
See also: Create Materialized View Wizard [100]

5.6   Procedures

A stored procedure is a program comprised of a sequence of SQL instructions, stored in the database and used to perform a particular task.

▣ How can I create a new procedure?

New procedures are created within Create Procedure Wizard 107. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the Procedure icon in the Create Database Object dialog

or
- select the Procedures list or any object from that list in the explorer tree;
- select the Create New Procedure... item from the popup menu

or
- open Schema Editor and the Procedures tab there;
- press the **Insert** key or select the Create New Procedure item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

To create a new procedure with the same properties as one of the existing procedures has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

▣ How can I edit an existing procedure definition?

Procedures can be edited within Procedure Editor 111. In order to run the editor you should either

- select the procedure for editing in the explorer tree (type the first letters of the procedure name for quick search);
- select the Edit Procedure... item from the popup menu

or
- open Schema Editor and the Procedures tab there;
- select the procedure to edit;
- press the **Enter** key or select the Edit Procedure item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

You can change the name of the procedure using the Rename Procedure dialog. To open the dialog you should either

- select the procedure to rename in the explorer tree;
- select the Rename Procedure item from the popup menu

or
- open Schema Editor and the Procedures tab there;
- select the procedure to rename;
- select the Rename Procedure item from the popup menu

(alternatively, you may use the corresponding link of the Navigation Bar).

How can I execute a procedure?

To execute a procedure:

- select the procedure in the explorer tree (type the first letters of the procedure name for quick search);
- select the Edit Procedure... item from the popup menu;
- execute the procedure using the Execute link of the Navigation Bar

or

open Schema Editor and the Procedures tab there;
- select the procedure to execute;
- press the **Enter** key or select the Edit Procedure item from the popup menu, or use the corresponding link of the Navigation Bar;
- execute the procedure using the Execute link of the Navigation bar.

How can I drop a procedure?

To drop a procedure:

- select the procedure to drop in the explorer tree;
- select the Drop Procedure item from the popup menu

or

- open Schema Editor and the Procedures tab there;
- select the procedure to drop;
- press the **Delete** key or select the Drop Procedure item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

5.6.1 Create Procedure Wizard

Create Procedure Wizard guides you through the process of creating a new procedure. See How To Create Procedure 106 for instructions on running this wizard.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic 37 . Below you will find a description of wizard steps that are unique for the current object.
- Specifying procedure options 108
- Managing parameters of a new procedure 109
- Specifying procedure definition 110

See also: Procedure Editor 111
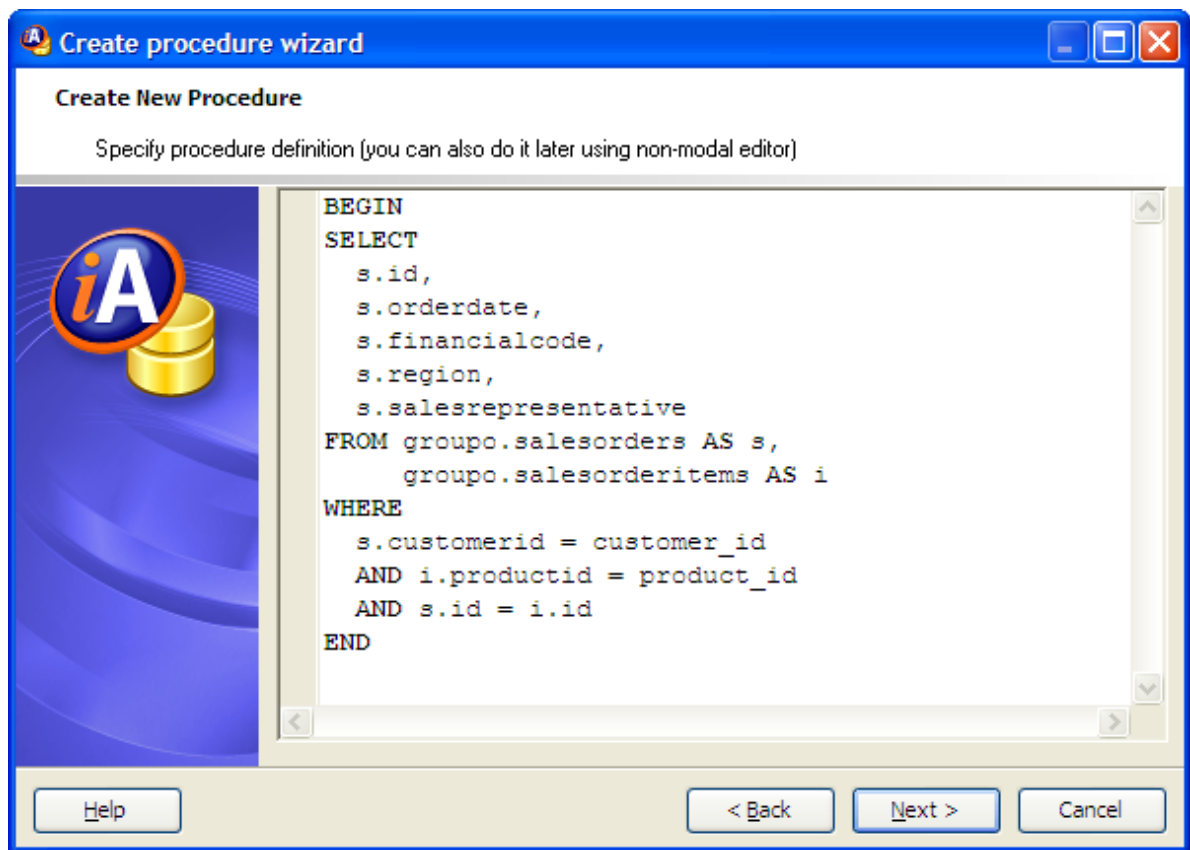
5.6.1.1 Specifying procedure options

Specify procedure options according to your needs. The detailed description is given below.
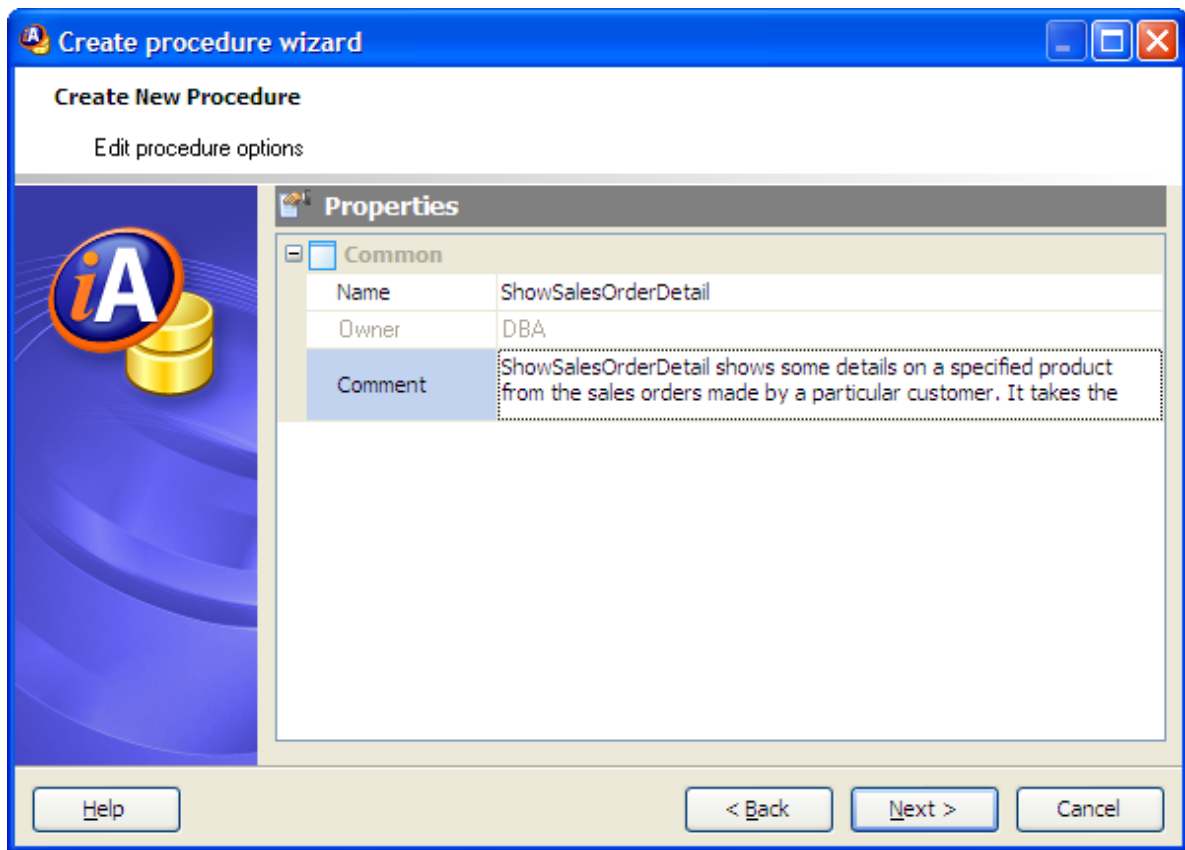
Name

The new procedure name as it was set on the previous step.

Owner

Defines the owner for the procedure. By default, only the owner of an object can perform various operations with the object. In order to allow other users to operate it, privileges must be granted. (However, users that have the superuser attribute can always access any object.)

Comment

Specify a comment for the procedure.

5.6.1.2   Managing parameters

Use the pop-up menu or press **Insert** to add a new parameter and set its properties in Parameter Editor 44 . Press **Enter** or use the appropriate pop-up menu item to edit the selected parameter, or the Delete to delete one.
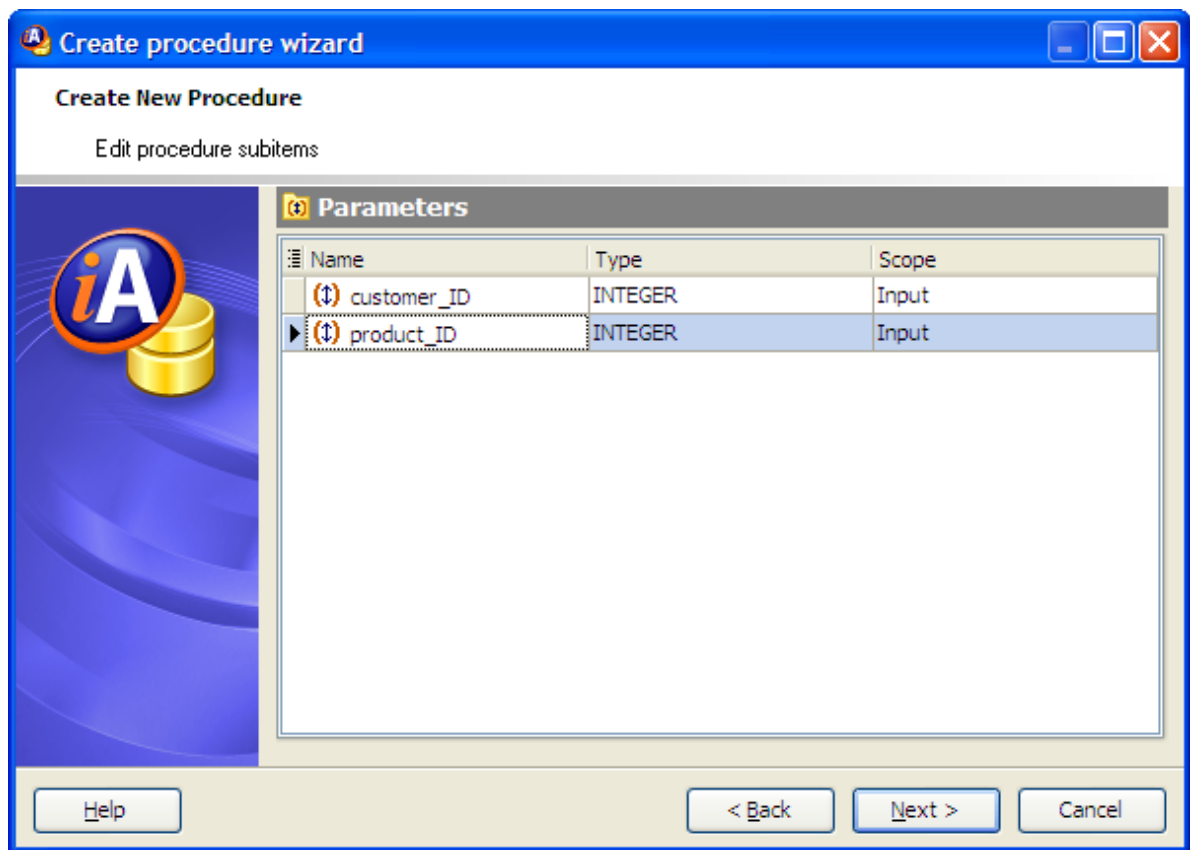
5.6.1.3 Specifying procedure definition

At this step you can specify the SQL definition for the new procedure. The step is optional: you can do it later using a non-modal editor.
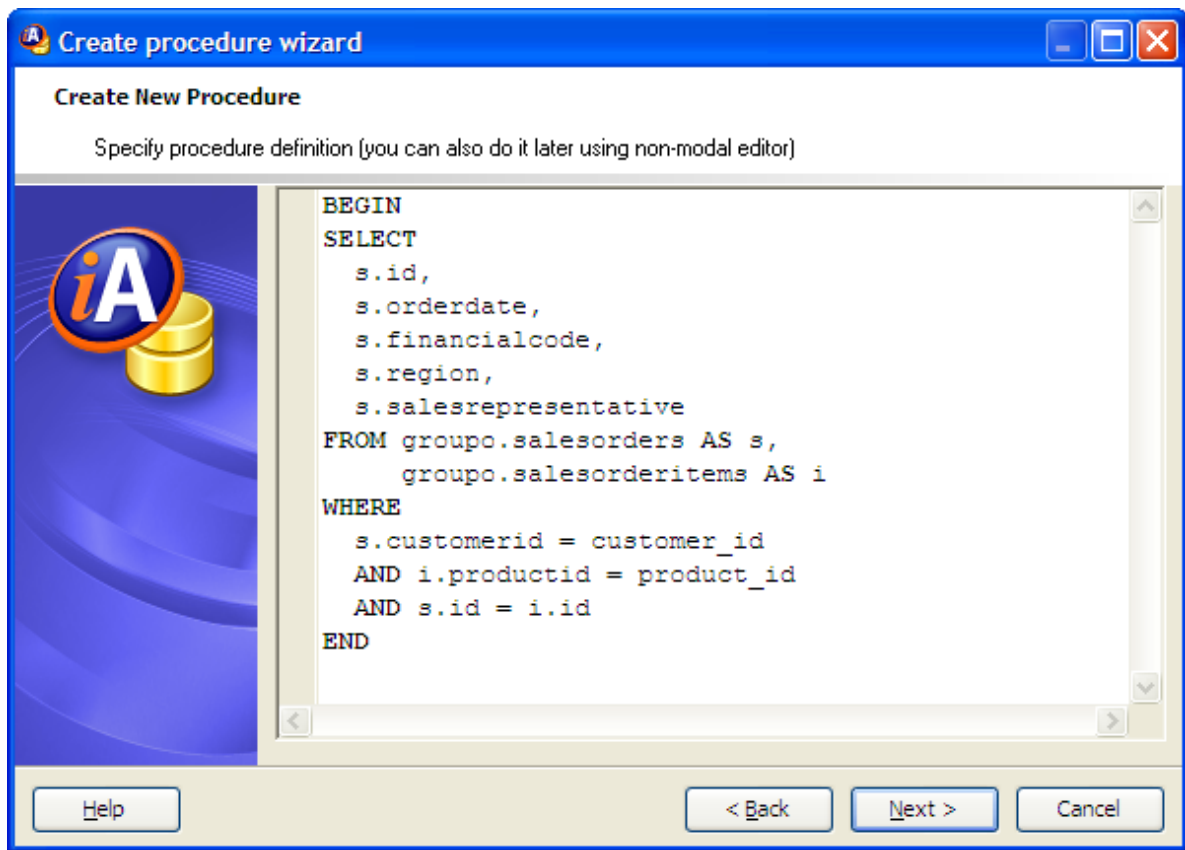
5.6.2 Procedure Editor

Procedure Editor allows you to execute the existing procedures or edit their definition (*procedure name, parameter list, procedure body,* etc.). It opens when you create a new procedure or edit the existing one (see How to edit procedure [106] for details).

The basic principles of Object Editors in ASA Maestro are explained in a separate topic [40]. Below you will find a description of editor tabs that are unique for the current object.

- Editing procedure properties [112]
- Viewing procedure results [113]

See also: Create Procedure Wizard [107]
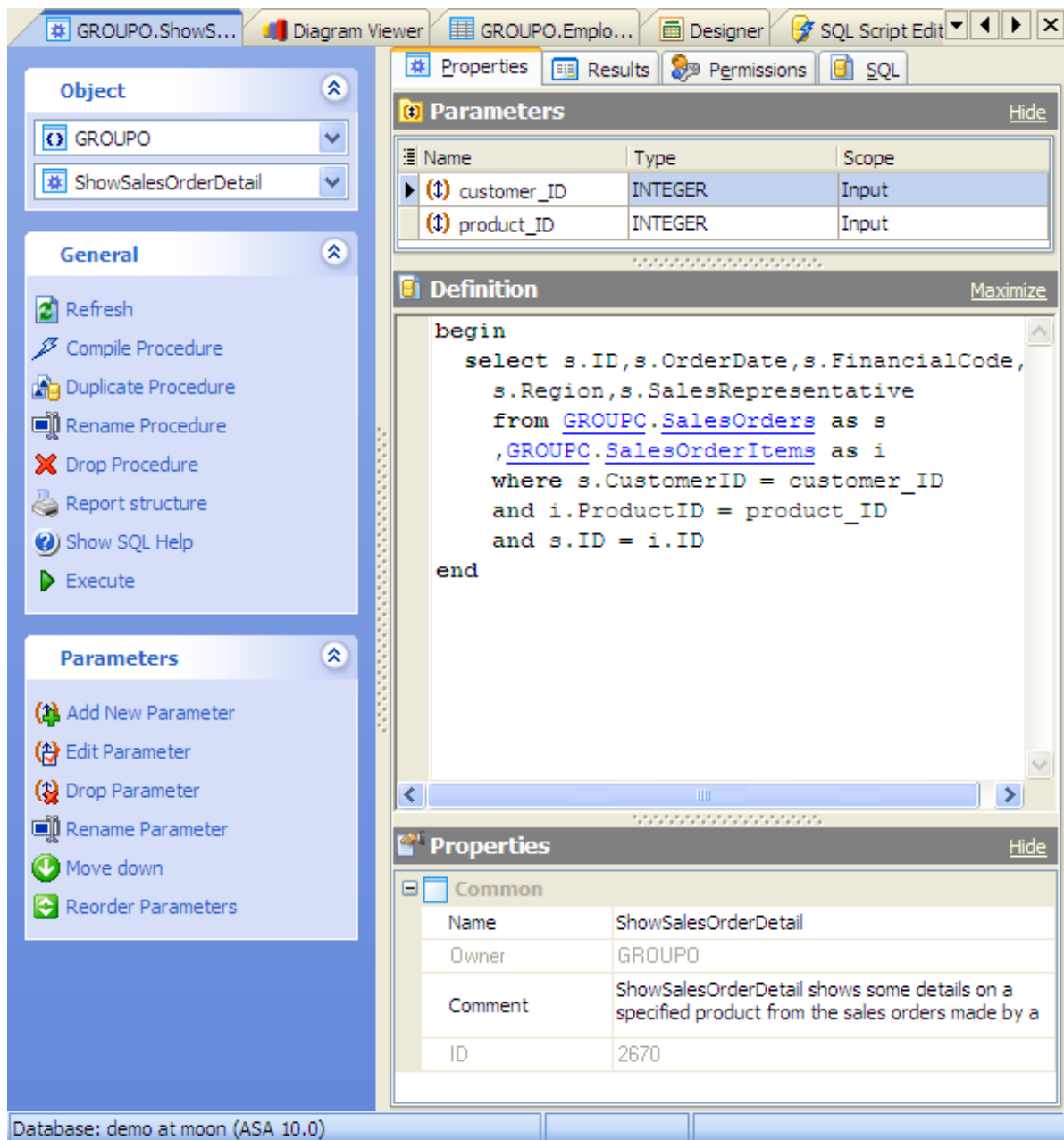
5.6.2.1 Editing properties

Parameters can be edited within the Parameter Editor dialog window. In order to open the dialog you should

- open the object in its editor and the Parameters tab there;
- select the parameter to edit;
- press the **Enter** key or select the Edit Parameter item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

Name
Defines the procedure name.

Note: the name of the object must be unique among all the object names in its container. Moreover, all the objects that are source of data need unique names among themselves. You can use any identifier that is allowed by Sybase SQL Anywhere server.

Owner

There is the owner for the procedure. By default, only the owner of an object can perform various operations with the object. In order to allow other users to operate it, privileges must be granted. (However, users that have the superuser attribute can always access any object.)

Comment

This field contains a comment to the procedure.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.6.2.2 **Viewing procedure results**

The Results tab represents the result of the successfully executed procedure, if it returns a data that is represented as a grid (see Data View for details). Use grid's popup menu to export data, get SQL dump. In result with BLOB fields you can also call the BLOB Editor to view the BLOB fields. The data in result set is always read-only.

See also: Executing procedure 44

GROUPO.ViewS...	GROUPO.ShowS...	Diagram Viewer	GROUPO.Emplo...	Desig

Properties | Results | Permissions | SQL

Table

Drag a column header here to group by that column

ID	OrderDate	FinancialCode	Region	SalesRepresentative
		Click here to define a filter		
2001	16.03.2000	r1	Eastern	299
2206	16.04.2000	r1	Eastern	299
2279	23.07.2000	r1	Eastern	299
2337	23.09.2000	r1	Eastern	949
2560	16.03.2001	r1	Eastern	129

Records fetched: 5

Information

5 rows fetched (0,00 sec)

Database: demo at moon (ASA 10.0)

Object

GROUPO
ShowSalesOrderDetail

General

Refresh
Compile Procedure
Duplicate Procedure
Rename Procedure
Drop Procedure
Report structure
Show SQL Help
Execute

Data Management

Export data
Get SQL dump
Print data

5.7   Functions

SQL Anywhere allows to define user-specific database functions. In an SQL statement, you can then use these user-defined database functions in the same way as any other predefined functions.

🔹 **How can I create a new Function?**

New Functions are created within Create Function Wizard 116. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the Function icon in the Create Database Object dialog

or

- select the Functions list or any object from that list in the explorer tree;
- select the Create New Function... item from the popup menu

or

- open and the Functions tab there;
- press the **Insert** key or select the Create New Function item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

To create a new Function with the same properties as one of the existing Functions has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

🔹 **How can I edit an existing Function definition?**

Functions can be edited within FunctionEditor 117. In order to open the editor you should either

- select the Function for editing in the explorer tree (type the first letters of the Function name for quick search);
- select the Edit Function item from the popup menu

or

- open and the Functions tab there;
- select the Function to edit;
- press the **Enter** key or select the Edit Function item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

You can change the name of the Function using the Rename Function dialog:

- select the Function to rename in the explorer tree;
- select the Rename Function item from the popup menu.

🔹 **How can I execute a Function?**

To execute the Function:

- select the Function in the explorer tree (type the first letters of the Function name for quick search);
- select the Edit Function... item from the popup menu;
- execute the Function using the Execute link of the Navigation Bar

or

- open Schema Editor and the Functions tab there;
- select the Function to execute;
- press the **Enter** key or select the Edit Function item from the popup menu, or use the corresponding link of the Navigation Bar;
- execute the Function using the Execute link of the Navigation bar.

How can I drop a Function?

To drop a Function:

- select the Function to drop in the explorer tree;
- select the Drop Function item from the popup menu

or

- open and the Functions tab there;
- select the Function to drop;
- press the **Delete** key or select the Drop Function item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

5.7.1 Create Function Wizard

Create Function Wizard guides you through the process of creating a new Function. See How To create Function 115 for instructions on running this wizard.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic 37. Below you will find a description of wizard steps that are unique for the current object.

Specify the properties for the new Function according to your needs. The detailed description is given below.

Specifying Function properties

Name

Specify a name for the function.

Owner

The field displays the owner of the new function. By default, only the owner of an object can perform various operations with the object. In order to allow other users to operate it, privileges must be granted. (However, users that have the superuser attribute can always access any object.)

Comment

Supply a comment to the Function if necessary.

Return type

Defines the data type of the function result. You can also adjust here the Size and Precision of the result value.

Managing parameters of a new Function

Use popup menu Add New Parameter... item to add a new parameter and set its properties in Parameter Editor 44. Use the Edit and Delete items to manage Function parameters.

5.7.2   Function Editor

Function Editor allows you to execute the existing Function, and edit its definition (Function name, parameter list, etc.). In order to open the editor you should either

- select the Function for editing in the explorer tree (type the first letters of the Function name for quick search);
- select the Edit Function item from the popup menu

or

- open and the Functions tab there;
- select the Function to edit;
- press the **Enter** key or select the Edit Function item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40. Below you will find a description of editor tabs that are unique for the current object.

- Editing Function properties 118
- Viewing Function results 120

5.7.2.1 Editing properties

The Parameters tab contains the list of the current Function parameters with its options. Here you can view the Name and the Type of each Function parameter and also supply a Comment for the parameter.

Parameters can be edited within the Parameter Editor dialog window. In order to open the dialog you should

- open the object in its editor and the Parameters tab there;
- select the parameter to edit;
- press the **Enter** key or select the Edit Parameter item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).
  The Definition field contains the definition of the Function. Specify a string constant defining the Function here; the meaning depends on the language. It may be an internal Function name, the path to an object file, an SQL command or text in a procedural language.
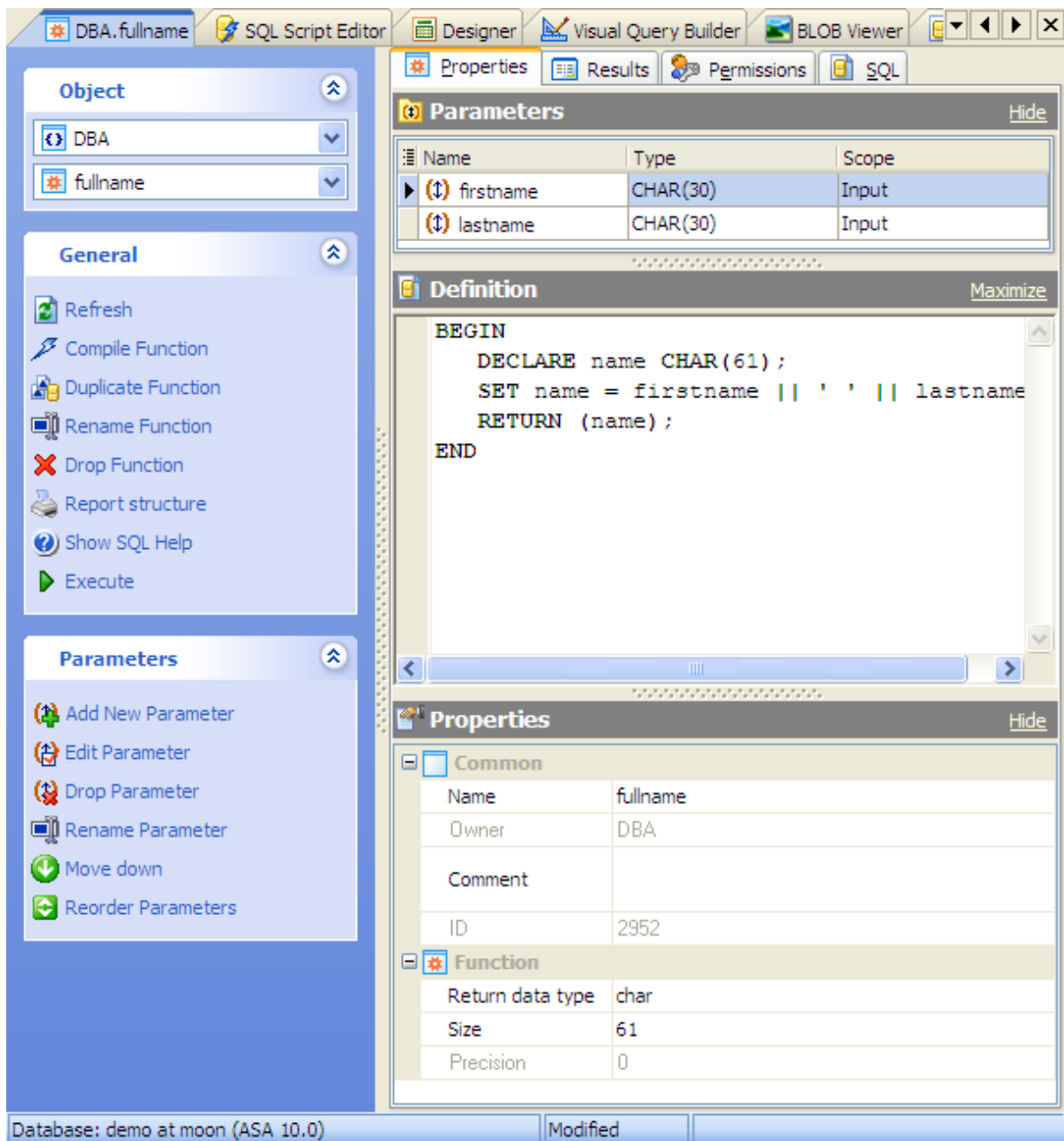
Name

You can edit the Function name here. The name of the Function must be unique among all the Function names in the database.

Owner

The field contains the owner of the Function. By default, only the owner of an object can perform various operations with the object. In order to allow other users to operate it, privileges must be granted. (However, users that have the superuser attribute can always access any object.)

Comment

Specify a comment to the Function if necessary.

Return type
The field defines the data type of the function result. You can also adjust here the Size and Precision of the result value.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.7.2.2   Viewing Function results

Procedure/Function Editor provides an opportunity to execute current routine by opening the Results tab, by clicking the Execute item of the Navigation Bar, or by pressing the **F9** key.

If the procedure/Function has parameters, ASA Maestro will ask you to specify the values for these parameters in the Input parameters dialog which appears before the procedure execution. Input parameters dialog allows you to specify the values for all input parameters. After changes are made, click the OK button to execute the Function, or the Cancel button to abort the execution.

Parameter Values	
(‡) @conference_id int	2
(‡) @division_id int	2
(‡) @team_id int	1

History			
Date and time	@conference_id	@division_id	@team_id
▶ 18.02.2010 17:44:44	2	2	1
18.02.2010 17:44:19	1	1	4
18.02.2010 17:42:41	1	3	2
18.02.2010 17:42:18	1	2	7

ASA Maestro supports Parameter History. Values that have been set previously as the routine parameters are represented in the History tab of the Input Parameter dialog with a date and time of their last using. Double click a necessary set of values to set them as the routine parameters. You can manage the Parameter History with Delete history item and Clear history links.

The result of the successfully executed routine can be found within the Results tab of Procedure/Function Editor.

Note: If any unsaved changes are applied to the routine being currently edited, the execution of the routine is impossible until changes are saved by the Compile

---

procedure item of the Navigation Bar.

5.8   Domains

Domains are aliases for built-in data types, including precision and scale values where applicable, and optionally including default values and check conditions. Some domains, such as the monetary data types, are pre-defined in SQL Anywhere. Also called user-defined data type.

☐ **How can I create a new Domain?**

New Domains are created within Create Domain Wizard. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the Domain icon in the Create Database Object dialog

or

- select the Domains list or any object from that list in the explorer tree;
- select the Create New Domain... item from the popup menu

or

- open and the Domains tab there;
- press the **Insert** key or select the Create New Domain item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

To create a new Domain with the same properties as one of the existing Domains has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

☐ **How can I edit an existing Domain?**

Domains can be edited within Domain Editor⏍124. In order to run the editor you should either

- select the Domain for editing in the explorer tree (type the first letters of the Domain name for quick search);
- select the Edit Domain... item from the popup menu

or

- open and the Domains tab there;
- select the Domain to edit;
- press the **Enter** key or select the Edit Domain item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

You can change the name of the Domain using the Rename Domain dialog. To open the dialog you should either

- select the Domain to rename in the explorer tree;
- select the Rename Domain item from the popup menu

or

- open Schema Editor and the Domains tab there;
- select the Domain to rename;
- select the Rename Domain item from the popup menu
  (alternatively, you may use the corresponding link of the
  Navigation Bar).

How can I drop a Domain?

To drop a Domain:

- select the Domain to drop in the explorer tree;
- select the Drop Domain item from the popup menu

or

- open Schema Editor and the Domains tab there;
- select the Domain to drop;
- press the **Delete** key or select the Drop Domain item from the
  popup menu (alternatively, you may use the corresponding link of
  the Navigation Bar)

and confirm dropping in the dialog window.

5.8.1 Create Domain Wizard

New Domains are created within Create Domain Wizard. In order to run the wizard you
should either

- select the Object | Create Database Object... main menu item;
- select the Domain icon in the Create Database Object dialog

or

- select the Domains list or any object from that list in the explorer tree;
- select the Create New Domain... item from the popup menu

or

- open and the Domains tab there;
- press the **Insert** key or select the Create New Domain item from the popup menu
  (alternatively, you may use the corresponding link of the Navigation Bar).

To create a new Domain with the same properties as one of the existing Domains has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate
topic 🗗. Below you will find a description of wizard steps that are unique for the current
object.

Specify the properties for the new Domain according to your needs. The detailed
description is given below.
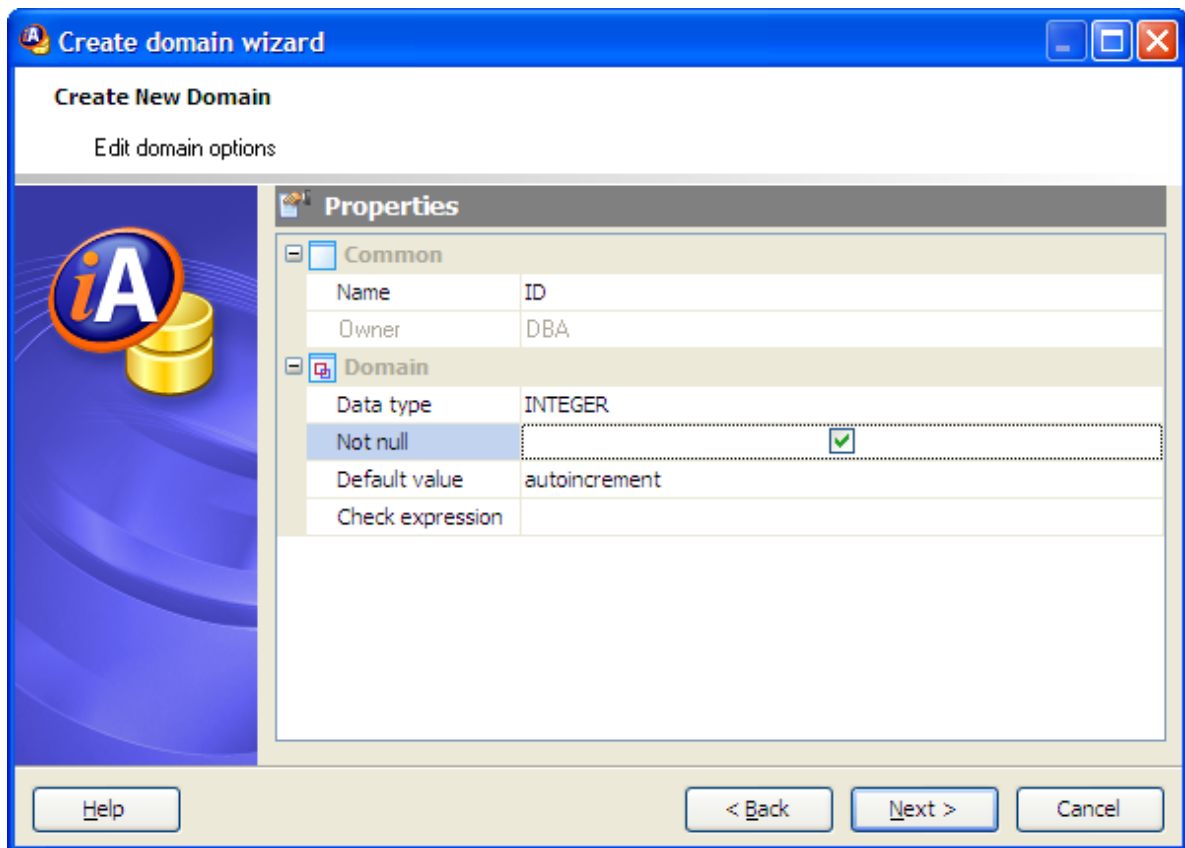
Data type
Select the underlying SQL data type for the domain.

☑ Not Null
The checkbox indicates that the values of the Domain are not allowed to be null.

Default value
Set the value to be used as the value for the column in any INSERT statement that does not specify a value for the column.

Check expression
When creating an expression, you can use a variable name prefixed with the @ sign in the expression. When the data type is used in the definition of a column, such a variable is replaced by the column name. This allows Check conditions to be defined on data types and used by columns of any name.

5.8.2 Domain Editor

Domain Editor is opened automatically after a new Domain is created and is available on editing the existing one (see Edit Domain 122 for details).

The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40. Below you will find a description of editor tabs that are unique for the current object.

Domain Editor provides you with an ability to edit Domain properties. The Properties tab allows you to change the Domain name, the Domain owner, etc.
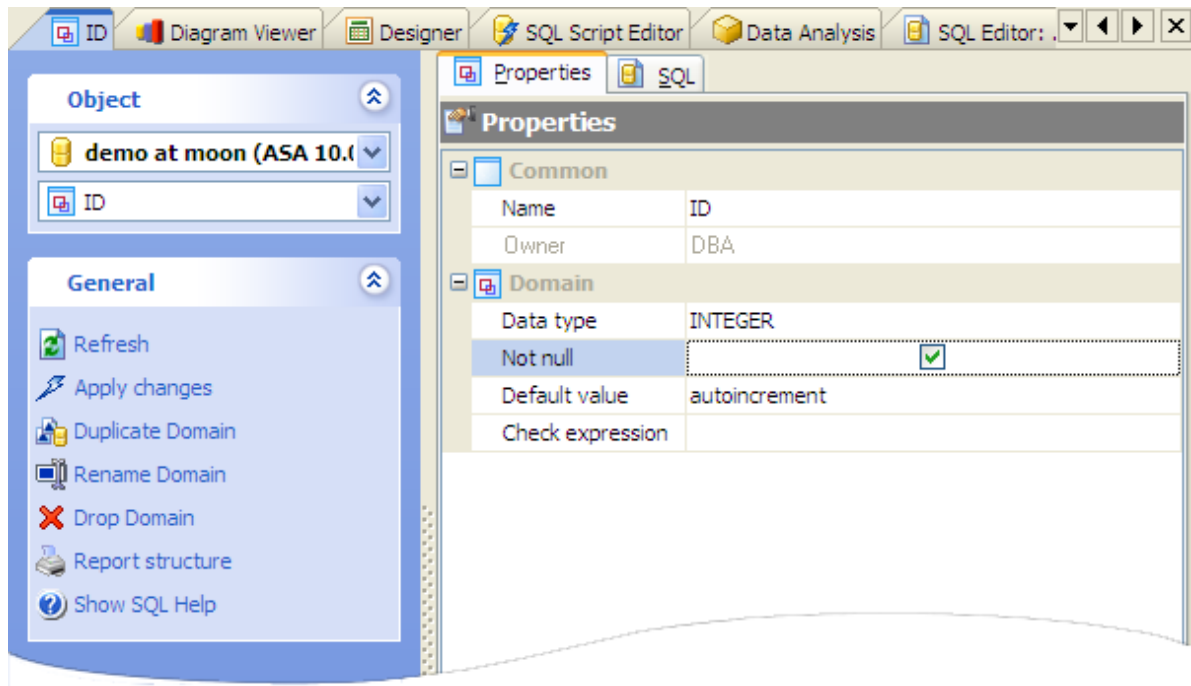
Name
Here you can view and edit the Domain name. The name of the Domain must be unique among all the Domain names in the schema.

Data type
Select the underlying SQL data type for the domain.

☑ Not Null
The checkbox indicates that the values of the Domain are not allowed to be null.

Default value
Set the value to be used as the value for the column in any INSERT statement that does not specify a value for the column.

Check expression
When creating an expression, you can use a variable name prefixed with the @ sign in the expression. When the data type is used in the definition of a column, such a variable is replaced by the column name. This allows Check conditions to be defined on data types and used by columns of any name.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the

Object Properties item of the popup menu of the selected object from the explorer tree.

5.9   Sequences

A sequence is stored is as a database object, and its value can be referred to anywhere that an expression can be used. Sequences can be used in applications to prevent concurrency and performance issues caused by the generation of unique key values outside the database. A sequence can generate values that are unique across multiple tables or that are different from a set of natural numbers.

▣ How can I create a new sequence?

New sequences are created within Create Sequence Wizard 128. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the Sequence icon in the Create Database Object dialog

or

- select the Sequences list or any object from that list in the explorer tree;
- select the Create New Sequence... item from the popup menu

or

- open the schema in Schema Editor and the Sequences tab there;
- press the **Insert** key or select the Create New Sequence item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

To create a new sequence with the same properties as one of the existing sequences has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

▣ How can I edit an existing sequence?

Sequences can be edited within Sequence Editor 129. In order to run the editor you should either

- select the sequence for editing in the explorer tree (type the first letters of the sequence name for quick search);
- select the Edit Sequence ... item from the popup menu

or

- open the schema in Schema Editor and the Sequences tab there;
- select the sequence to edit;
- press the **Enter** key or select the Edit Sequence item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

▣ How can I drop a sequence

To drop a sequence:

- select the sequence to drop in the explorer tree;
- select the Drop Sequence item from the popup menu

or

- open the schema in Schema Editor and the Sequences tab there;
- select the sequence to drop;
- press the **Delete** key or select the Drop Sequence item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

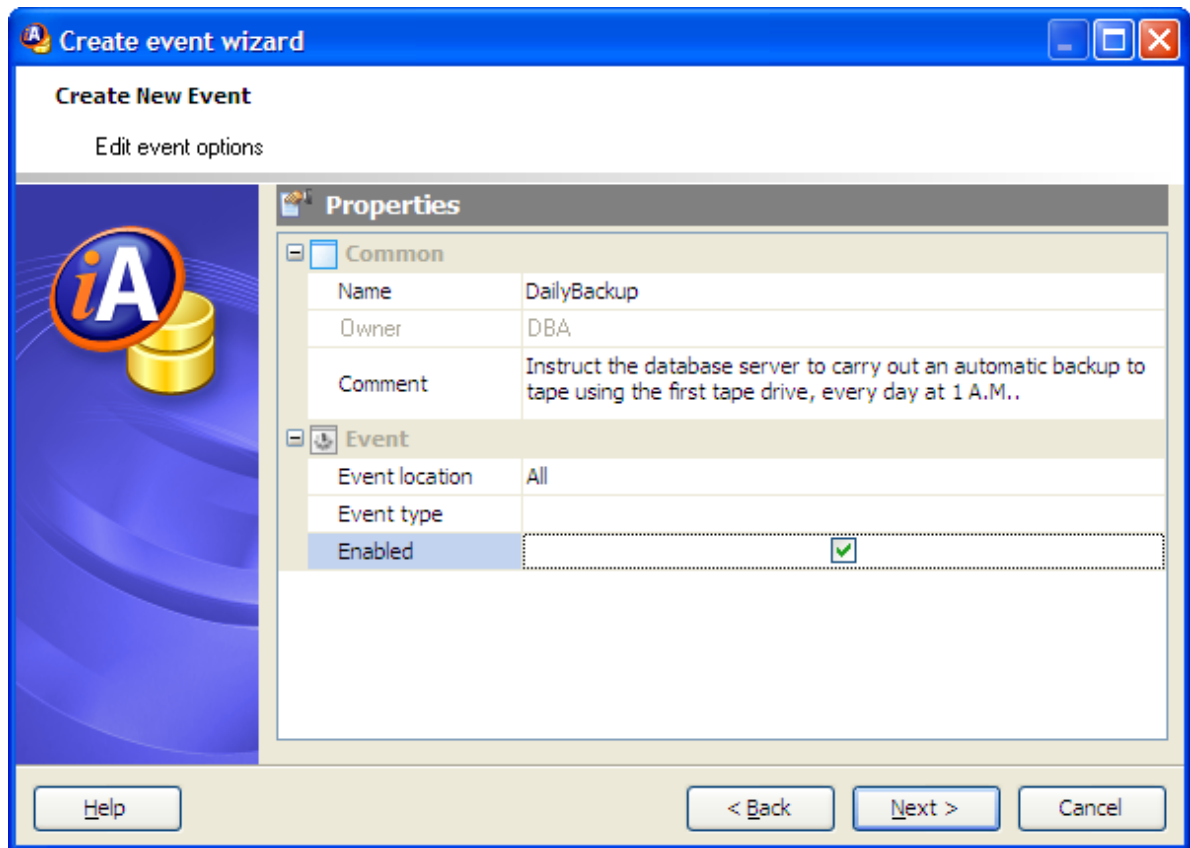## 5.9.1   Create Sequence Wizard

Sequences may be created with Create Sequence Wizard. Just specify the wizard options according to your needs.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic 37. Below you will find a description of wizard steps that are unique for the current object.

Name
The field allows you to specify the new sequence name being set on the previous wizard step.

Owner
Defines the owner of the new sequence.

Comment
The box allows you to set optional text to describe the new sequence.

Value
Specify the starting sequence value here. The default starting value is *minvalue* for ascending sequences and *maxvalue* for descending ones.

Increment by
Specify which value is added to the current sequence value to create a new value. A positive value will make an ascending sequence, a negative one a descending sequence. The default value is 1.

Maximum Value
Determine the maximum value for the sequence. If this clause is not supplied or NO MAXVALUE is specified, then default values will be used. The defaults are 2^63-1 and -1 for ascending and descending sequences, respectively.

Minimum Value
Determine the minimum value a sequence can generate. If this clause is not supplied or NO MINVALUE is specified, then defaults will be used. The defaults are 1 and -263-1 for ascending and descending sequences, respectively.

Cashe size
Specify how many sequence numbers are to be preallocated and stored in memory for faster access. The minimum value is 1 (only one value can be generated at a time, i.e., no cache), and this is also the default.

☑ Cycle

The CYCLE option allows the sequence to wrap around when the *maxvalue* or *minvalue* has been reached by an ascending or descending sequence respectively. If the limit is reached, the next number generated will be the minvalue or maxvalue, respectively.
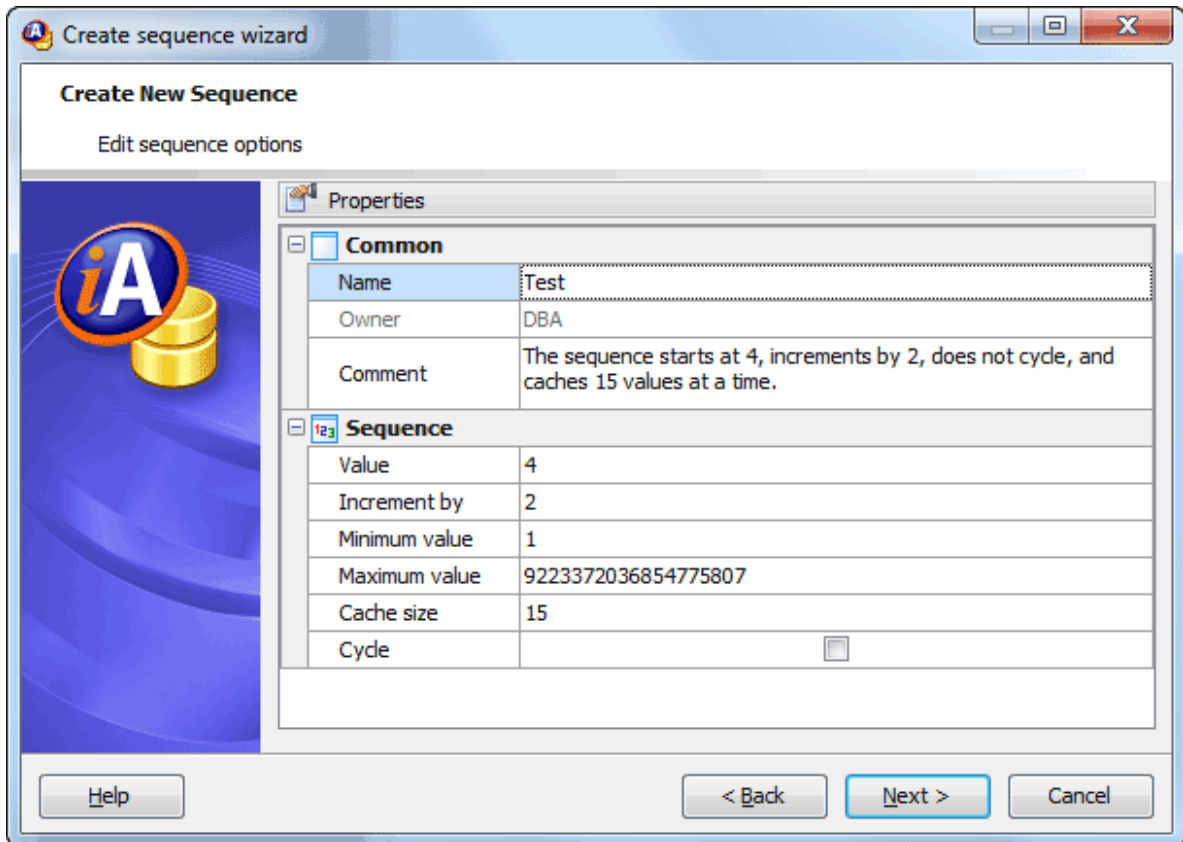
5.9.2   Sequence Editor

Use Sequence Editor to change properties of existing sequences. The editor can be opened automatically after the sequence is created 128 or from the Explorer Tree and Object Manager.

The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40. Below you will find a description of editor tabs that are unique for the current object.
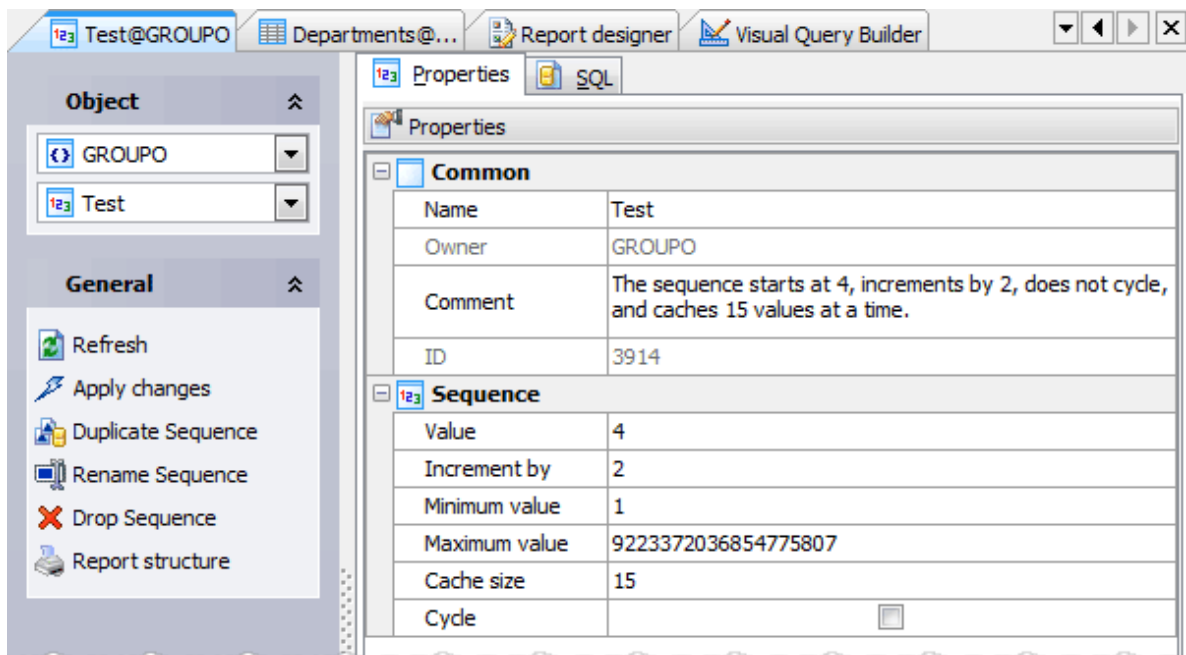
Name
Here you can rename the sequence.

Owner
Shows the owner of the sequence. By default, only the owner of an object can perform various operations with the object. In order to allow other users to operate it, privileges must be granted. (However, users that have the superuser attribute can always access any object.) Value contains the starting sequence value here.

Increment by
Here you can edit the value which is added to the current sequence value to create a new value.

The Maximum Value and the Minimum Value contain the maximum and the minimum values for the sequence.

Cashe size
Specify how many sequence numbers are to be preallocated and stored in memory for faster access.

☑ Cycle
The checkbox represents whether the sequence is cycle.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.10 Users

A database user is an account through which you can log in to the database, and to establish the means by which Sybase SQL Anywhere permits access by the user.

5.10.1 Create User Wizard

Create User Wizard guides you through the process of creating a new database user. See How To Create User 131 to learn how to run the wizard.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic 37 . Below you will find a description of wizard steps that are unique for the current object.

Specify the Name by which the user is identified inside this database.

> **Note:** the name of the object must be unique among all the object names in its container. Moreover, all the objects that are source of data need unique names among themselves. You can use any identifier that is allowed by Sybase SQL Anywhere server.

Comment
This field stores a comment to the user.

Password
A password can be either a valid identifier, as described in Identifiers, or a string (maximum 255 bytes) placed in single quotes. Passwords are case sensitive. It is recommended that the password be composed of 7-bit ASCII characters, as other characters may not work correctly if the database server cannot convert from the client's character set to UTF-8.

Specifying user's role membership
On the next wizard step you can grant standard permissions to the new user being created. To create user group, check the Group authority box on Permissions tab.

Member of tab allows you to add the new user to an existing database group.

See also: User Editor 131

5.10.2 User Editor

User Editor allows you to edit user properties, permissions, grants, and manage user's objects (see How to edit database user 131 for details).

The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40 . Below you will find a description of editor tabs that are unique for the current object.

This editor consists of several tabs: the Properties 132 tab allows to browse user options and the Objects tab allows to browse database objects owned by the user.

See also: [Create User Wizard](#) [131]

5.10.2.1 Editing user properties

The Properties tab allows you to change the user password, the user's ability to create databases and users, the group list the user belongs to.

To modify user to group and vice versa, check/uncheck the Group authority box on Permissions tab.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.11   Events

Sybase SQL Anywhere Events can be used in two main ways:

- *Scheduling actions* The database server carries out a set of actions on a schedule of times. You could use this capability to schedule backups, validity checks, queries to fill up reporting tables, and so on.
- *Event handling actions* The database server carries out a set of actions when a predefined event occurs. The events that can be handled include disk space restrictions (when a disk fills beyond a specified percentage), when the database server is idle, and so on. The actions of an event handler are committed if no error is detected during execution, and rolled back if errors are detected.

▣ How can I create a new event?

New events are created within Create Event Wizard 134. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the Event icon in the Create Database Object dialog

or

- select the Events list or any object from that list in the explorer tree;
- select the Create New Event... item from the popup menu

or

- open the database in Database Editor and the Events tab there;
- press the **Insert** key or select the Create New Event... item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

To create a new event with the same properties as one of the existing event has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

▣ How can I edit an existing event?

Events can be edited within Event Editor 139. In order to run the editor you should either

- select the event for editing in the explorer tree (type the first letters of the event name for quick search);
- select the Edit Event ... item from the popup menu

or

- open the database in Database Editor and the Events tab there;
- select the event to edit;
- press the **Enter** key or select the Edit Event item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

⊟ **How can I drop a event?**

To drop a event:

- select the event to drop in the explorer tree;
- select the Drop Event item from the popup menu

or

- open the database in Database Editor and the Events tab there;
- select the event to drop;
- press the **Delete** key or select the Drop Event item from the
  popup menu (alternatively, you may use the corresponding link of
  the Navigation Bar)

and confirm dropping in the dialog window.

5.11.1 Create Event Wizard

Create Event Wizard guides you through the process of creating a new scheduled event.
See How To Create Event ¹³³ for instructions on running this wizard.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate
topic ³⁷ . Below you will find a description of wizard steps that are unique for the current
object.

- Setting event properties 135
- Specifying event definition 138
- Schedule properties 137

See also: Event Editor 139

5.11.1.1 Setting event properties

This step is provided for specifying the new event properties in the most convenient way.

Name
The field contains the new scheduled event name as it was set on the previous step.

Comment
Specify a comment to the event or leave it blanc.

Event location *(Consolidated, Remote, All)*
If you want to execute events at remote or consolidated databases in a SQL Remote setup, you can use this clause to restrict the databases at which the event is handled. By default, all databases execute the event.

Event type
Select the event type from the listed set of system-defined event types.

*server idle (*ServerIdle): If the database contains an event handler for the event type, the database server checks for server activity every 30 seconds.

If the database contains an event handler for one of the Disk Space types, the database server checks the available space on each device associated with the relevant file every 30 seconds. Such event types are not supported on Windows CE.

- *database disk space checked* (DBDiskSpace): In the event the database has more than one dbspace, on separate drives, the event checks each drive and acts depending on the lowest available space.

- *transaction log disk space checked* (LogDiskSpace): The event type checks the location of the transaction log and any mirrored transaction log, and reports based on the least available space.

- *temporary file disk space checked (*TempDiskSpace): The event type checks the amount of temporary disk space.

If the appropriate event handlers have been defined (DBDiskSpace, LogDiskSpace, or TempDiskSpace), the database server checks the available space on each device associated with a database file every 30 seconds. Similarly, if an event has been defined to handle the system event type *server idle (*ServerIdle), the database server notifies the handler when no requests have been process during the previous 30 seconds.

- *global autoincrement near end of range* (GlobalAutoincrement): The event fires on each insert when the number of remaining values for a GLOBAL AUTOINCREMENT is less than 1% of the end of its range. A typical action for the handler could be to request a new value for the global_database_id option, based on the table and number of remaining values which are supplied as parameters to this event.

- *mirror server disconnected (*MirrorServerDisconnect), *mirror failover* (MirrorFailover) The MirrorServerDisconnect event fires when a connection from the primary database server to the mirror server or arbiter server is lost, and the MirrorFailover event fires whenever a server takes ownership of the database.

- *backup completed* (BackupEnd): You can use the event type to take action at the end of a backup.

- *database started* (DatabaseStart): You can use the event type to take action when a database is started.

- *user connected* ("Connect"), *connect failed* (ConnectFailed): Connection events When a connection is made (Connect) or when a connection attempt fails (ConnectFailed). You may want to use these events for security purposes. As an alternative to a connect event handler, you may want to consider using a login procedure.

- *user disconnect* ("Disconnect"): You can use the event to take action when a user or application disconnects.

- *database file extended* (GrowDB), *transaction log extended* (GrowLog), *temporary file extended* (GrowTemp): The file reaches a specified size. This can be used for the database file (GrowDB), the transaction log (GrowLog), or the temporary file (GrowTemp).

- *RAISERROR issued (*"RAISERROR") When an error is triggered, you can use the RAISERROR event type to take actions.

Enabled
Uncheck the option to keep the event been created from being active.

5.11.1.2 Schedule properties

On the Schedules step determine when scheduled actions are to take place. The sequence of times acts as a set of triggering conditions for the associated actions defined in the event handler.

You can create more than one schedule for a given event and its associated handler. This permits complex schedules to be implemented. While it is compulsory to provide a schedule-name when there is more than one schedule, it is optional if you provide only a single schedule.

5.11.1.3 Specifying event definition

Here you can specify the scheduled event definition. This step is optional. You can do it later in non-modal editor.
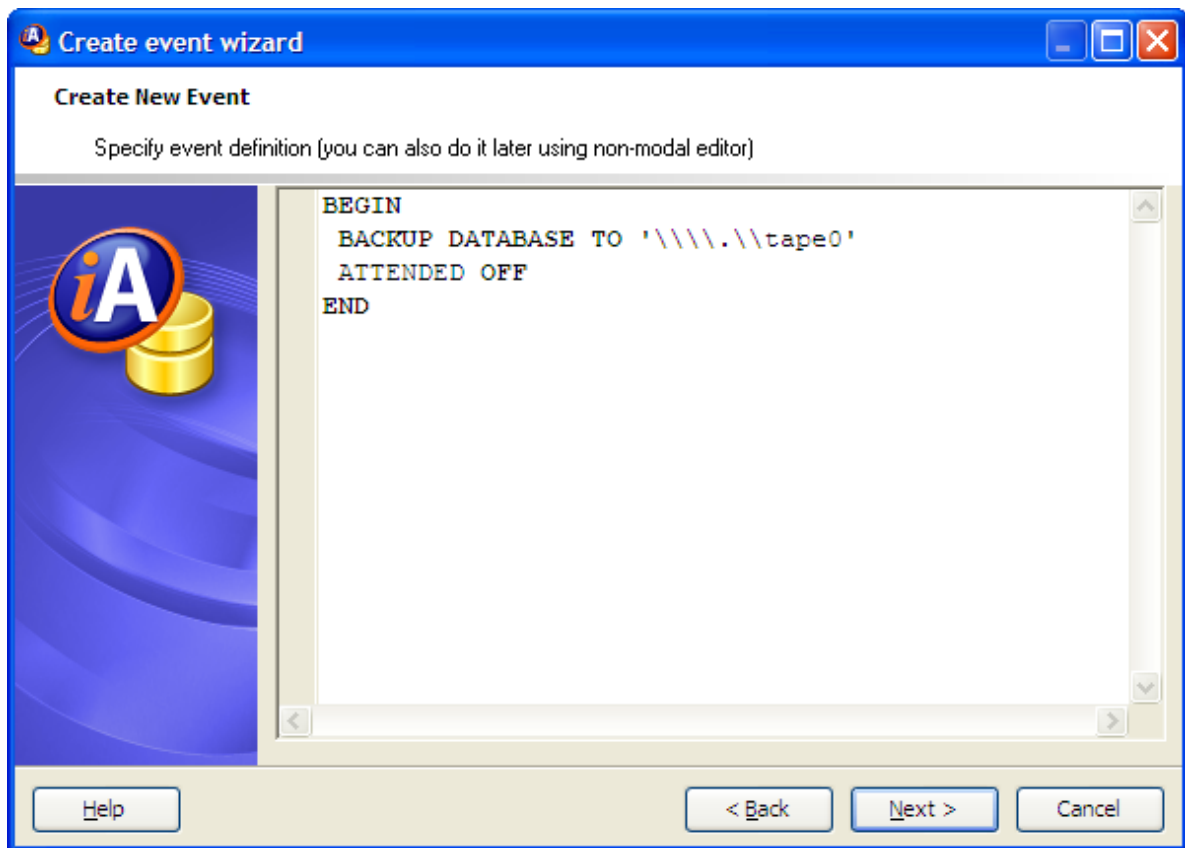
5.11.2 Event Editor

Event Editor allows you to edit all scheduled event properties, view the SQL statement for creating the event. It can be opened when you create a new scheduled event or edit the existing one (see How to edit event [133] for details).

The basic principles of Object Editors in ASA Maestro are explained in a separate topic [40]. Below you will find a description of editor tabs that are unique for the current object.

See also: Create Event Wizard [134]
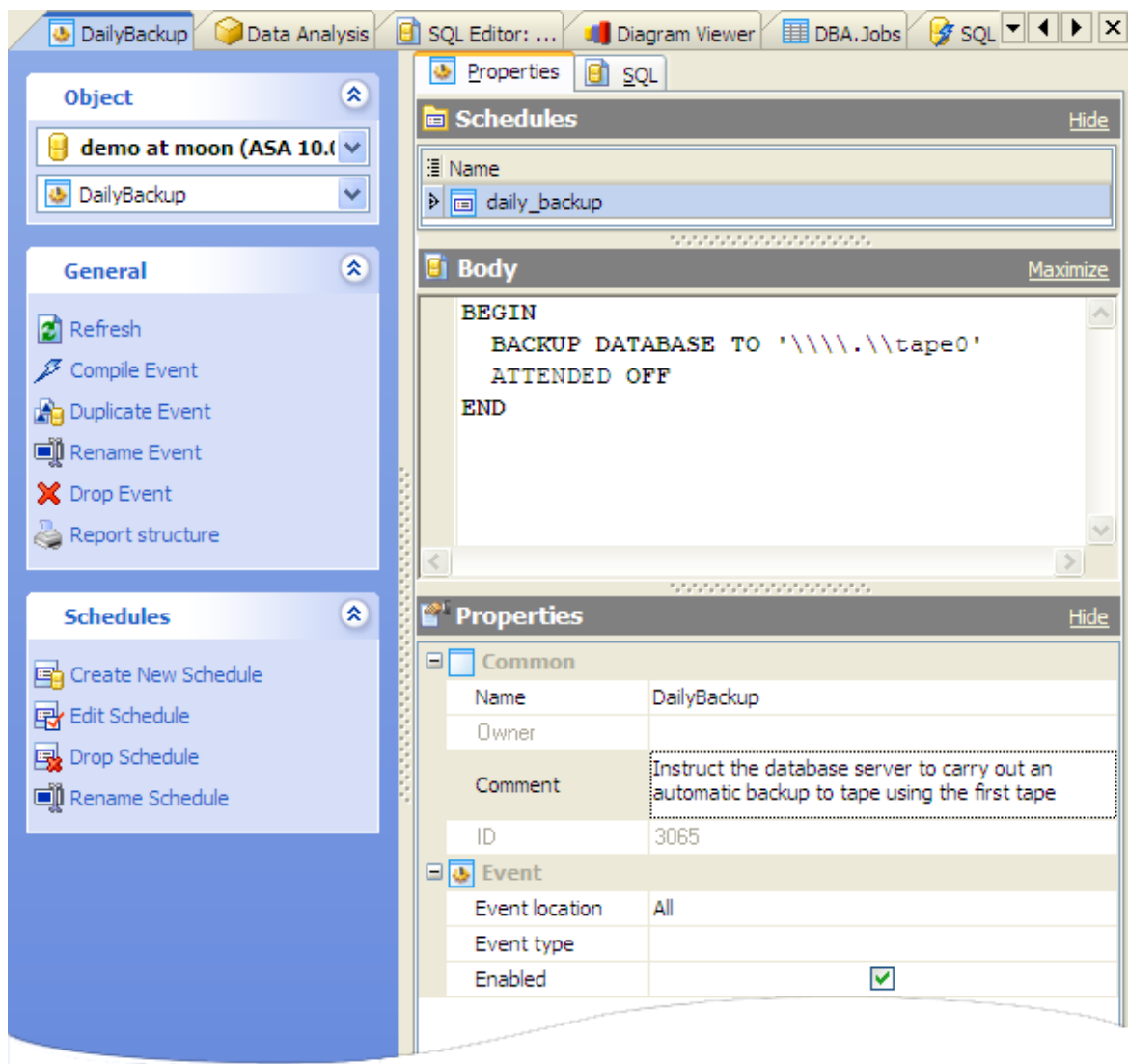
Schedules
Determine here the frequency and the duration for the SQL statement defined for the event repeats. For more information see Schedule properties [137].

Body
The field contains the SQL statement executing within the scheduled event.

Name
The field contains the new scheduled event name as it was set on the previous step.

Comment
Specify a comment to the event or leave it blanc.

Event location *(Consolidated, Remote, All)*
If you want to execute events at remote or consolidated databases in a SQL Remote setup, you can use this clause to restrict the databases at which the event is handled. By default, all databases execute the event.

Event type

Select the event type from the listed set of system-defined event types.

*server idle (*ServerIdle): If the database contains an event handler for the event type, the database server checks for server activity every 30 seconds.

If the database contains an event handler for one of the Disk Space types, the database server checks the available space on each device associated with the relevant file every 30 seconds. Such event types are not supported on Windows CE.

- *database disk space checked* (DBDiskSpace): In the event the database has more than one dbspace, on separate drives, the event checks each drive and acts depending on the lowest available space.

- *transaction log disk space checked* (LogDiskSpace): The event type checks the location of the transaction log and any mirrored transaction log, and reports based on the least available space.

- *temporary file disk space checked (*TempDiskSpace): The event type checks the amount of temporary disk space.

If the appropriate event handlers have been defined (DBDiskSpace, LogDiskSpace, or TempDiskSpace), the database server checks the available space on each device associated with a database file every 30 seconds. Similarly, if an event has been defined to handle the system event type *server idle (*ServerIdle), the database server notifies the handler when no requests have been process during the previous 30 seconds.

- *global autoincrement near end of range* (GlobalAutoincrement): The event fires on each insert when the number of remaining values for a GLOBAL AUTOINCREMENT is less than 1% of the end of its range. A typical action for the handler could be to request a new value for the global_database_id option, based on the table and number of remaining values which are supplied as parameters to this event.

- *mirror server disconnected (*MirrorServerDisconnect), *mirror failover* (MirrorFailover) The MirrorServerDisconnect event fires when a connection from the primary database server to the mirror server or arbiter server is lost, and the MirrorFailover event fires whenever a server takes ownership of the database.

- *backup completed* (BackupEnd): You can use the event type to take action at the end of a backup.

- *database started* (DatabaseStart): You can use the event type to take action when a database is started.

- *user connected* ("Connect"), *connect failed* (ConnectFailed): Connection events When a connection is made (Connect) or when a connection attempt fails (ConnectFailed). You may want to use these events for security purposes. As an alternative to a connect event handler, you may want to consider using a login procedure.

- *user disconnect* ("Disconnect"): You can use the event to take action when a user or application disconnects.

- *database file extended* (GrowDB), *transaction log extended* (GrowLog), *temporary file*

extended (GrowTemp): The file reaches a specified size. This can be used for the database file (GrowDB), the transaction log (GrowLog), or the temporary file (GrowTemp).

- RAISERROR issued ("RAISERROR") When an error is triggered, you can use the RAISERROR event type to take actions.

Enabled
Uncheck the option to keep the event been created from being active. Alternatively, you may check it to make explicit the default status, which is active.

5.12 Tablespaces

Tablespace is an allocation of space in the database that can contain schema objects. The database file for a new tablespace (dbspace) may be on the same disk drive as the main file or on another disk drive. You must have DBA authority to create dbspaces. For each database, you can create up to twelve tablespaces (dbspaces) in addition to the main tablespace.

How can I create a new tablespace?

New tablespaces are created within Create Tablespace Wizard 144. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the tablespace icon in the Create Database Object dialog

or

- select the tablespace list or any object from that list in the explorer tree;
- select the Create New Tablespace... item from the popup menu

or

- open the schema in Schema Editor and the Tablespaces tab there;
- press the **Insert** key or select the Create New Tablespace item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

To create a new tablespace with the same properties as one of the existing tablespace has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

How can I edit an existing tablespace?

Tablespaces can be edited within Tablespace Editor 145. In order to run the editor you should either

- select the tablespace for editing in the explorer tree (type the first letters of the tablespace name for quick search);
- select the Edit Tablespace... item from the popup menu

or

- open the database in Database Editor and the Tablespaces tab there;
- select the tablespace to edit;
- press the **Enter** key or select the Edit Tablespace item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

You can change the name of the tablespace using the Rename Tablespace dialog. To open the dialog you should either

- select the tablespace to rename in the explorer tree;
- select the Rename Tablespace item from the popup menu

or

- open the database in Database Editor and the Tablespaces tab there;
- select the tablespace to rename;
- select the Rename Tablespace item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar).

🔲 **How can I drop a tablespace?**

To drop a tablespace:

- select the tablespace to drop in the explorer tree;
- select the Drop Tablespace item from the popup menu

or

- open the schema in Schema Editor and the Tablespaces tab there;
- select the tablespace to drop;
- press the **Delete** key or select the Drop Tablespace item from the popup menu (alternatively, you may use the corresponding link of the Navigation Bar)

and confirm dropping in the dialog window.

5.12.1 Create Tablespace Wizard

Create Tablespace Wizard guides you through the process of creating a new tablespace. See How To Create Tablespace 144 for instructions on running this wizard.

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic 37. Below you will find a description of wizard steps that are unique for the current object.
- Specifying tablespace properties 145

See also: Tablespace Editor 145
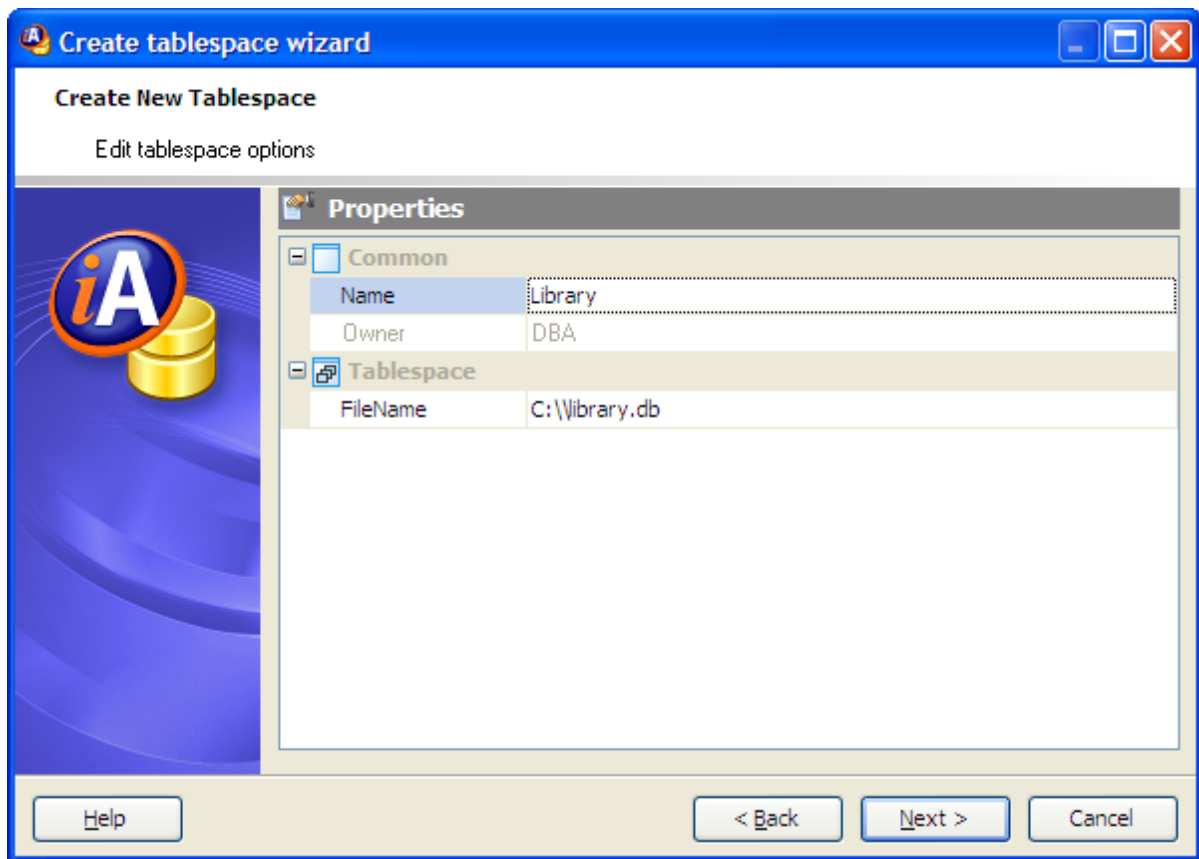
5.12.1.1 Specifying tablespace properties

The wizard step was supplied to define common tablespace properties. The detailed description of the properties you can find below.

Name
The field represents the new tablespace name as it was set on the previous wizard step.

Owner
Here you can see the owner of the new tablespace.

Filename
A file-name without an explicit directory is created in the same directory as the main database file. Any relative directory is relative to the main database file. The file-name is relative to the database server. When you are using the database server for NetWare, the file-name should use a volume name (not a drive letter) when an absolute directory is specified.

5.12.2 Tablespace Editor

Tablespace Editor can be opened automatically after the tablespace is created and is available on editing (see Editing Tablespaces 144 for details).

The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40. Below you will find a description of editor tabs that are unique for the current

object.
- Editing tablespace properties ¹⁴⁶

See also: Create Tablespace Wizard ¹⁴⁴
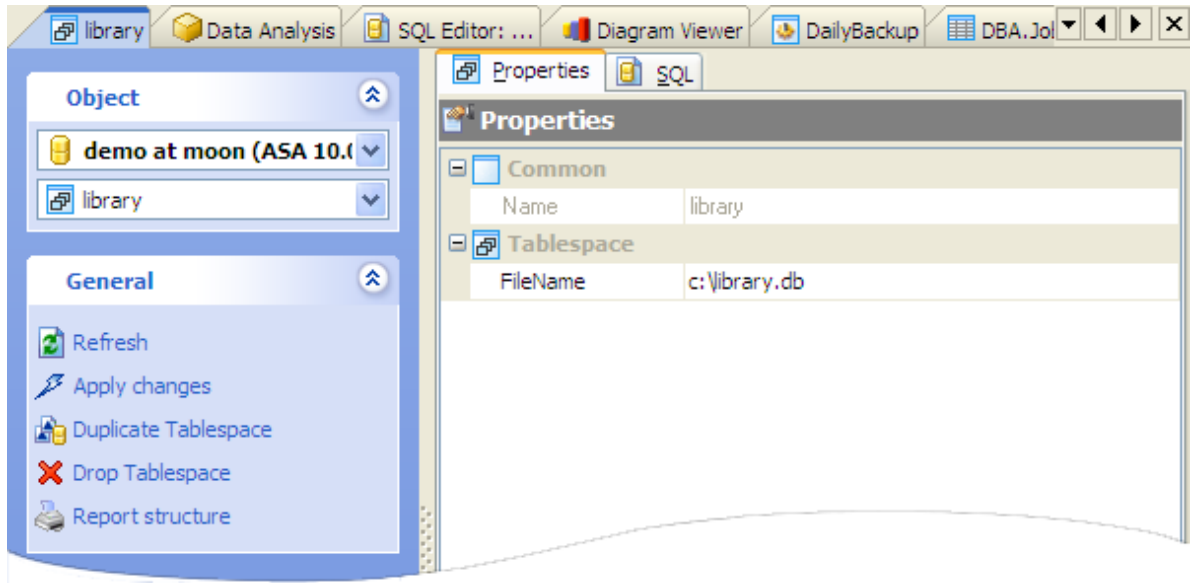
5.12.2.1 Editing tablespace properties

Tablespace Editor consists of Files, Quotas, Segments and Properties tabs: Here you can view and change the tablespace name.

Filename
A file-name without an explicit directory is created in the same directory as the main database file. Any relative directory is relative to the main database file. The file-name is relative to the database server. When you are using the database server for NetWare, the file-name should use a volume name (not a drive letter) when an absolute directory is specified.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.13 Remote servers

SQL Anywhere can access data located on different servers, both Sybase and non-Sybase, as if the data were stored on the local server (SQL Anywhere, Adaptive Server Enterprise, Oracle, IBM DB2, Microsoft SQL Server, and other ODBC data sources).

SQL Anywhere presents tables to a client application as if all the data in the tables were stored in the database to which the application is connected. Internally, when a query involving remote tables is executed, the storage location is determined, and the remote location is accessed so that data can be retrieved.

Before you can map remote objects to a local proxy table [87], you must define the remote server where the remote object is located.

🔸 **How can I add a new remote server?**

New remote servers are added within Create Remote Server Wizard [148]. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the Remote Servers icon in the Create Database Object dialog

or

- select the Remote Servers list or any object from that list in the explorer tree;
- select the Create New Remote Server... item from the popup menu

To create a new remote server with the same properties as one of the existing one has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

🔸 **How can I edit an existing remote server?**

Remote servers can be edited within Remote Server Editor [150]. In order to run the editor you should either

- select the remote server for editing in the explorer tree (type the first letters of the server name for quick search);
- select the Edit Remote Server... item from the popup menu

🔸 **How can I drop a remote server?**

To drop a remote server:

- select the server to drop in the explorer tree;
- select the Drop Remote Server item from the popup menu

and confirm dropping in the dialog window.

5.13.1 Create Remote Server Wizard

Create Remote Server Wizard allows you to set up a Remote Server definition. All the information how to run the wizard you can find here 147.

For ODBC connections, each remote server corresponds to an ODBC data source. For some systems, including SQL Anywhere, each data source describes a database, so a separate remote server definition is needed for each database.

You must have *RESOURCE* authority to create a remote server.
The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic 37. Below you will find a description of wizard steps that are unique for the current object.
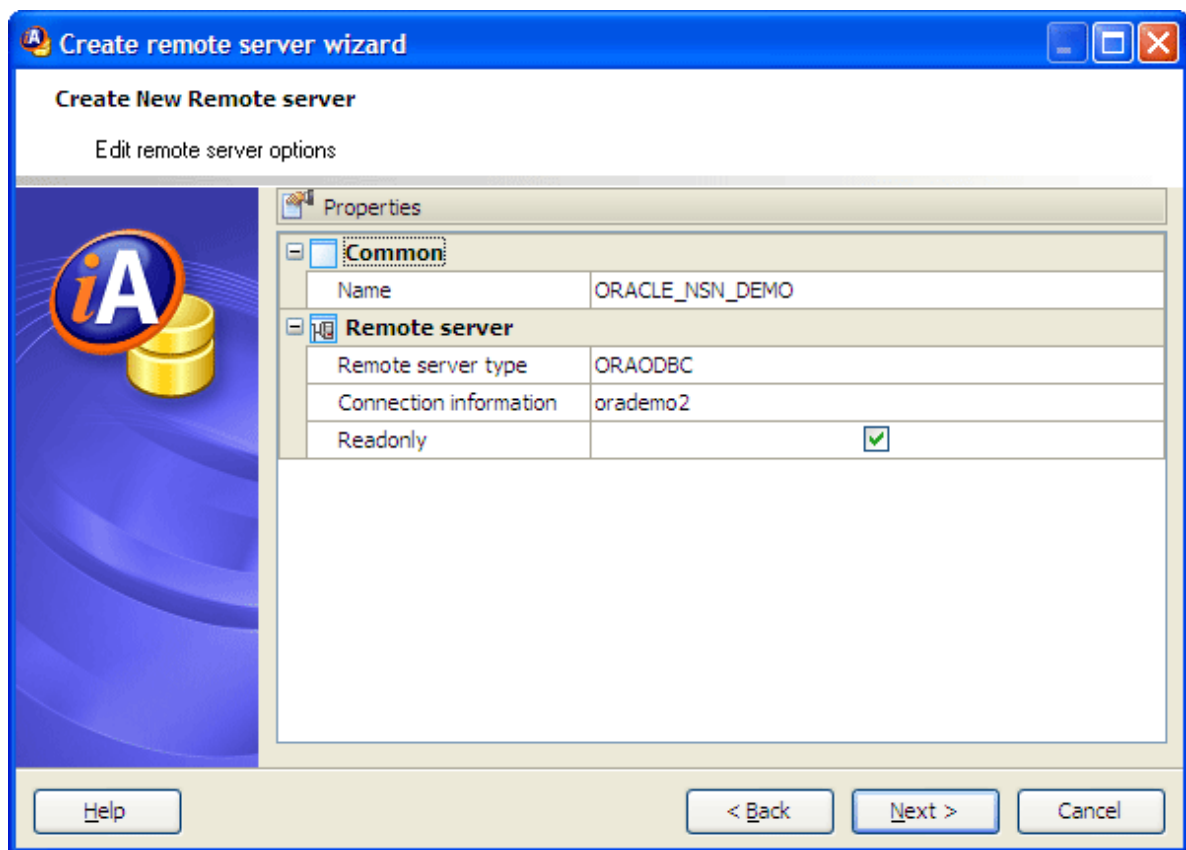
First of all set the new remote server name. It is the name by which the remote server is known within this database.

A remote server type (server class) specifies the server class you want to use for a remote connection. Server classes contain detailed server capability information. There are two groups of server classes. The first is ODBC-based, and the second is JDBC-based.

The ODBC-based server classes are:

- saodbc for SQL Anywhere.
- aseodbc for Adaptive Server Enterprise and SQL Server (version 10 and later).
- db2odbc for IBM DB2
- mssodbc for Microsoft SQL Server
- oraodbc for Oracle servers (version 8.0 and later)
- odbc for all other ODBC data sources

The JDBC-based server classes are:
- sajdbc for SQL Anywhere.
- asejdbc for Adaptive Server Enterprise and SQL Server (version 10 and later).

Connection information supplies a connection string for the database server. The appropriate connection string depends on the driver being used, which in turn depends on the server-class.

If a JDBC-based server class is used, the connection information is of the form hostname:portnumber [/dbname], where:
- hostname The computer the remote server runs on.
- portnumber The TCP/IP port number the remote server listens on. The default port number for SQL Anywhere is 2638.
- dbname For SQL Anywhere remote servers, if you do not specify a dbname, then the default database is used. For Adaptive Server Enterprise, the default is the master database, and an alternative to using dbname is to another database by some other means (for example, in the FORWARD TO statement).

If an ODBC-based server class is used, the connection information is the data-source-name. The data-source-name is the ODBC Data Source Name.

For SQL Anywhere remote servers (SAJDBC or SAODBC server classes), the connection-info parameter can be any valid SQL Anywhere connection string. You can use any SQL Anywhere connection parameters. For example, if you have connection problems, you can include a LOG connection parameter to troubleshoot the connection attempt.

Read only clause specifies whether the files accessed by the directory access server can be modified.

On the next step specify remote logins [150] and their properties. Use the pop-up menu or press Insert to add a new field and set its properties in Create Remote Login Wizard.
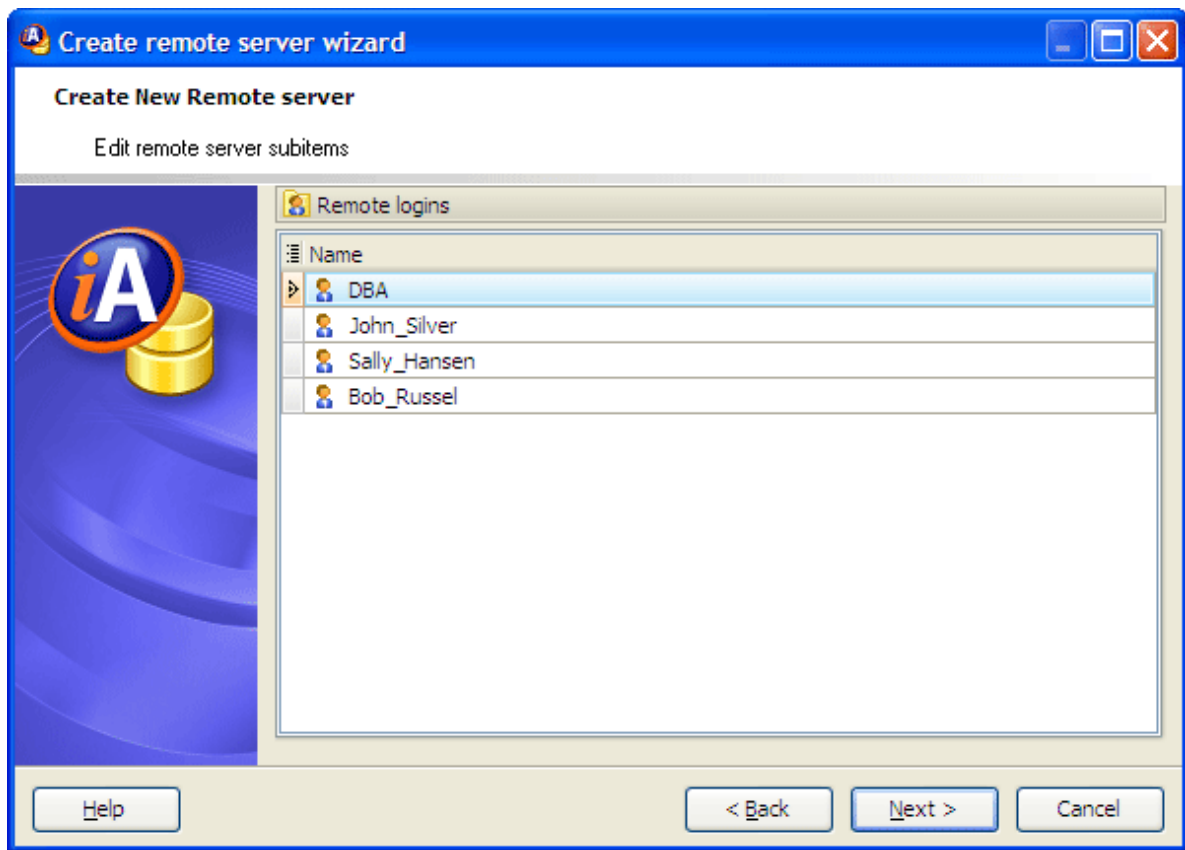
5.13.2 Remote Server Editor

Remote Server Editor allows you to view the remote server definition and manage its logins. To open the editor, use the popup menu of the corresponding node on the Explorer tree.

The basic principles of Object Editors in ASA Maestro are explained in a separate topic 40 . Below you will find a description of editor tabs that are unique for the current object.Popup menu of Remote logins area allows you to manage the logins. Use the corresponding editor 150 to rename or change password of selected remote login.
To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

5.13.3 Remote Logins

By default, SQL Anywhere uses the names and passwords of its clients whenever it connects to a remote server 147 on behalf of those clients. However, this default can be overridden by creating external logins. Remote (External) logins are alternate login names and passwords to be used when communicating with a remote server.

Only the DBA or user who will be using the external login can add or modify an external login.

Name specifies the local user login name. When using integrated logins, the login-name is the database user to which the Windows user or group is mapped.

Remote user name specifies the user account on remote server for the local user login name.

Password specifies the password for remote user. The remote user and the password combination must be valid on the remote server.

Remote login editor and Remote login properties window allow you to change the user password.
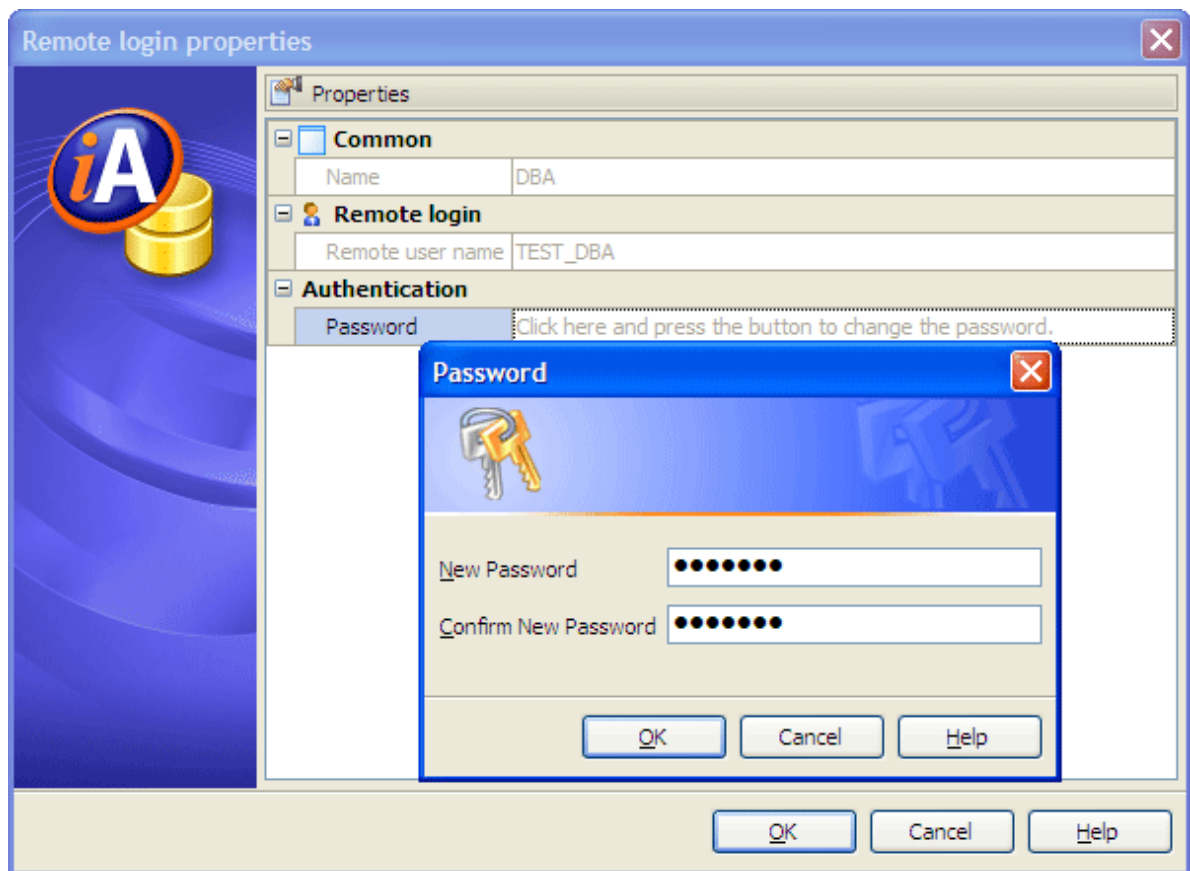
5.14   Login mappings

Login mapping (integrated and Kerberos logins) is a login feature that allows the same single user ID and password to be used for operating system logins, network logins, and database connections.

☐ How can I create a new login mapping?

New integrated logins are created within Create Login Mapping Wizard [153]. In order to run the wizard you should either

- select the Object | Create Database Object... main menu item;
- select the Login Mapping icon in the Create Database Object dialog

or

- select the Login Mappings list or any object from that list in the explorer tree;
- select the Create New Login Mapping... item from the popup menu

To create a new login mapping with the same properties as one of the existing one has:

- select the Object | Duplicate Database Object... main menu item;
- follow the instructions of Duplicate Object Wizard.

☐ How can I edit an existing login mapping?

Integrated logins can be edited within Login Mapping Editor. [154] In order to run the editor you should either

- select the login mapping for editing in the explorer tree (type the first letters of the login mapping name for quick search);
- select the Edit Login Mapping... item from the popup menu

☐ How can I drop a login mapping?

To drop an integrated logins:

- select the login mapping to drop in the explorer tree;
- select the Drop Login Mapping item from the popup menu

and confirm dropping in the dialog window.

5.14.1   Create Login Mapping Wizard

Create Login Mapping Wizard guides you through the process of creating a new integrated or Kerberos login. All the information how to run the wizard you can find here [153].

The basic principles of Create Object Wizards in ASA Maestro are explained in a separate topic ⏍37⏌. Below you will find a description of wizard steps that are unique for the current object.

Name
The login name can be of the form *domain\user-name.*

Comment
Specify a comment to the login mapping or leave it blanc.

Mapped to user name
Select a database user the integrated login will be mapped to.

You need also select the Login mapping type *(Integrated, Kerberos).*

5.14.2 Login Mapping Editor

Login Mapping Editor allows you to edit integrated or Kerberos login properties. To open the editor, use the popup menu of the corresponding node on the Explorer tree.

The basic principles of Object Editors in ASA Maestro are explained in a separate topic ⏍40⏌. Below you will find a description of editor tabs that are unique for the current object.
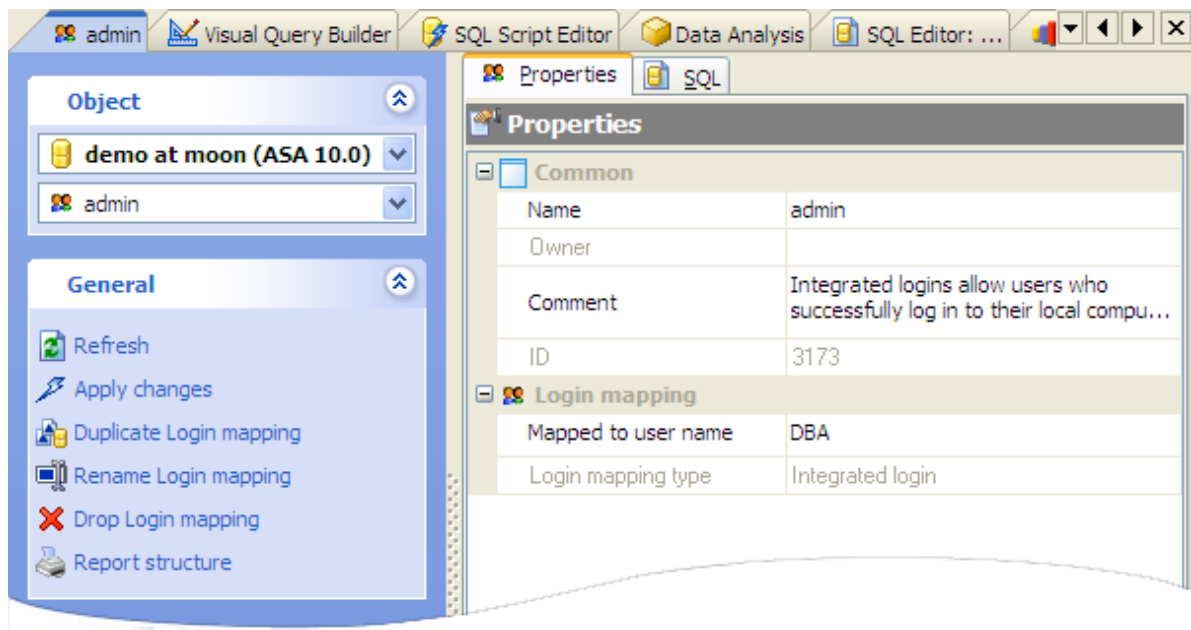
Name

The login name can be of the form *domain\user-name.*

Comment

Specify a comment to the login mapping or leave it blanc.

Mapped to user name

Select a database user the integrated login will be mapped to.

You can also view the Login mapping type *(Integrated, Kerberos)* here.

To apply the changes, select the Apply Changes item in the Navigation bar or use **Ctrl +F9** or **Ctrl+F7** shortcut keys.

It is also possible to modify object properties without opening the object editor: use the Object Properties item of the popup menu of the selected object from the explorer tree.

6   Queries

ASA Maestro provides several tools for working with SQL queries:

- SQL Editor [158] for editing the query text directly and executing SELECT queries;
- Visual Query Builder [163] for building SELECT, INSERT, UPDATE and DELETE queries visually;
- SQL Script Editor [209] for executing SQL scripts.

Both SQL Editor and Visual Query Builder supports parameters in queries [162]

Save frequently used queries to profiles and manage them in the same way as if they were database objects. This means that you can view queries in the explorer tree, in Object Manager and Object Browser, use them in BLOB Viewer and Diagram Viewer, perform drag-and-drop operation upon them, and copy them to clipboard like you copy an object.

How can I create a new SQL query?

New queries can be created either in SQL Editor or in Visual Query Builder.

To create a new query in SQL Editor:

- select the Tools | SQL Editor main menu item;
- select the Create New Query item from the navigation bar;
- edit the query text on the Editor tab of SQL Editor.

To create a new query in Query Builder:

- select the Tools | Visual Query Builder main menu item;
- build the query on the Diagram tab of Visual Query Builder.

ASA Maestro also provides you with SQL Generator, a tool to create simple SQL statements.

How can I save a query to a file/profile?

To save an existing query from the editor:

- to save the query to profile, use the Save to profile link from the Navigation bar.
- to save the current query to an *.sql file, select the Save to file item from the Navigation bar;
- to save all the opened queries to one file, select the Save all queries item from the Navigation bar;
- to save the designed diagram, select the Save diagram item from the Navigation bar of the Diagram tab of Visual Query Builder.

How can I edit an existing SQL query?

Queries can be opened either in SQL Editor or in Visual Query Builder.

You can open the query directly from the Explorer tree with a double click or using popup menu. By default it will be opened in SQL Editor.

To edit a query from file, open SQL Editor (the Tools | SQL Editor main menu item) and use Load From File from the Navigation Bar of SQL Editor to load a query from an *.sql* file.

To edit a query in Query Builder, open the builder (the Tools | Visual Query Builder main menu item) and then perform one of the following operations:

- to edit a query from a profile, drag it from the Explorer and drop on the Editor tab;

- to load a previously saved diagram, use the Load Diagram item from the Navigation Bar;

- to load a query from an *.sql* file, open the Editor tab and select the Load query item from the Navigation Bar .

On the Query Builder opening the Diagram tab contains the last edited query.

How can I execute an SQL query?

To execute a query:

- create a new query or open the existing one;
- select the Execute Query item from the navigation bar of SQL Editor or Visual Query Builder respectively;
- view/edit the returned data on the Result tab.

6.1   SQL Editor

SQL Editor is a tool for creating and executing SELECT queries. It allows you to create and edit SQL text for the query, prepare and execute queries, and view the results of execution. To open SQL Editor, select the Tools | SQL Editor main menu item. The most popular query management actions (creating, editing, deleting) are covered by the corresponding topic 156.

To use the editor for working with several queries, open new query tab with the Create new query link on the Navigation bar. With the tabs' popup menu you can create a new query, close existing one, save the query to profile, etc even if editor's navigation bar is closed. Queries' tabs can been 260 displayed at the all sides of the editor (bottom, top, left or right).

For more information about query executing and working with query result see the corresponding topic 160.

⊟   **Working with query text**

The popup menu of the editing area provides you with standard operations for working with text such as *Cut* (**Ctrl+X**), *Copy* (**Ctrl+C**), *Paste* (**Ctrl +V**), *Undo* (**Ctrl +Z**), *Redo* (**Shift+Ctrl+Z**) along with a possibility to convert selected text to different cases (*lower, UPPER,* and *NameCase*).

You can also comment/uncomment selected text (**Shift+Ctrl+.** and **Shift+Ctrl+,** shortcuts respectively). If no text is selected, the whole line will be commented. By the way, it is not necessary to select commented text to uncomment it, just press **Shift+Ctrl+,** having the cursor inside the commented text. Both kinds of comments (single-line and multi-line) are supported. SQL Formatter 159 is also at your disposal.

SQL Editor allows you to use Visual Query Builder 163 modal instance to design query visually and load the result query text directly in the editor area. For this purpose use the Design query link of the editor area's popup menu.

⊟   **Code completion**

ASA Maestro provides you with code completion (as on the screen below) to select from a list of tables, columns, views, or other objects without having to manually enter the object's name in the editor. You can activate the completion list by pressing the **Ctrl+Space** key combination.

⊟   **Syntax highlighting**

Database objects are highlighted in the text. You can open the proper object editor by clicking the object name in the text with the **Ctrl** key pressed or with the Find Object link on the Navigation bar. To adjust the highlighting settings, use SQL highlight options 280.

⊟   **Line modification markers**

Lines of code that have been edited during the current session are indicated with a yellow line in the left margin of the editor. When you save the file, the yellow markers turn green. Thus at any time, yellow markers show changed but unsaved

lines of code, and green markers show changes in this session that have been saved.

⊟ Find and replace text

Use find and replace to search for, and optionally, replace text in the SQL Editor. To open Find text/Replace text window, use Edit | Find/Replace main menu item, corresponding link of popup menu, or **Ctrl+F/Ctrl+H** shortcut. You can also use the Search again link to apply recent Find text dialog.

⊟ Transaction management

SQL Editor supports the explicit transaction management. You can execute queries either in autocommit mode (default behavior) or manage transactions manually. In the second case you have to issue the *BEGIN TRANSACTION* statement to start a transaction and explicitly end the transaction by *COMMIT* or *ROLLBACK* statements (it is also possible to use the corresponding links at the editor's navigation bar).

⊟ Managing the query text

To load query from .sql file, use the corresponding link on the Navigation bar. You can also find there links allowing you to save query text to file, export the contents of the editor to RTF and HTML formats (to file or to clipboard), copy the selected text from to clipboard as a ready-to-use string written in one of the following programming languages: C#, C++, Delphi (Object Pascal), and Java, and also print/ preview the contents of the editor.

See also: Visual Query Builder 163, SQL Script Editor, SQL Editor Options 260

6.1.1   SQL Formatter

ASA Maestro provides you with SQL Formatter for DML statements (*SELECT*, *INSERT*, *UPDATE* and *DELETE*). It can be invoked through the Format SQL link on the SQL Editor's navigation bar (**Ctrl+Alt+D** shortcut).

The following options allows you to tune up SQL scripts according to your preferences.

- Cases (for keywords, functions, and identifiers);
- Format type and column length for *INSERT/UPDATE*, and *SELECT* statements;
- *AND* and *OR* operators format.
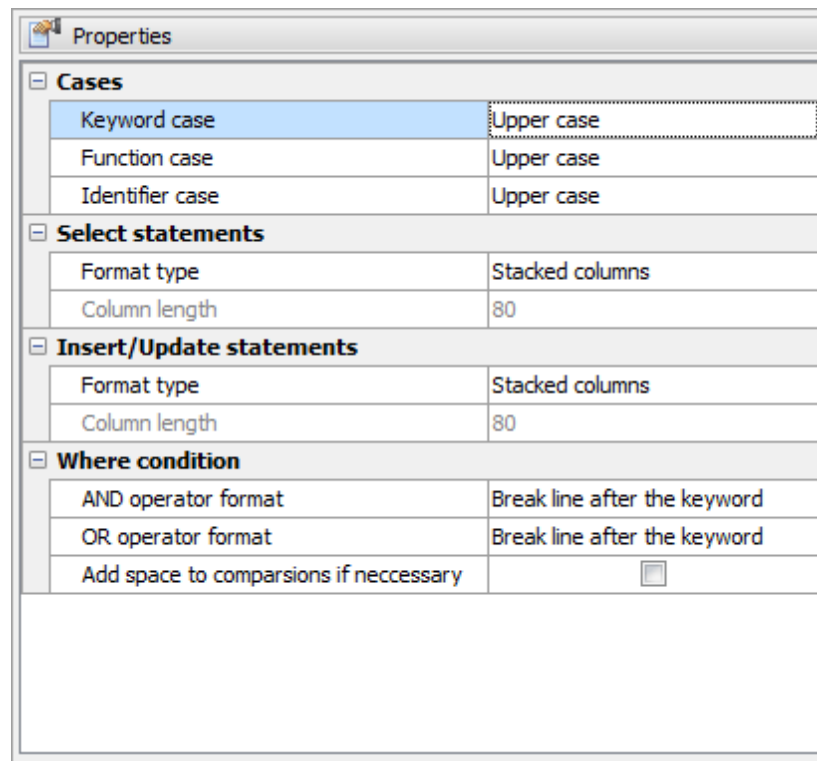
6.1.2 Executing query

SQL Editor provides you with several variants of the query executing.

- To execute all statements of the text area with result data, click the Execute query item of the Navigation bar or use **F5**, **F8**, or **F9** shortcuts. Statements of each tab of SQL Editor are executed together in a separate thread in order to continue your work with the software while the query is executing.

- You can also execute query as script (**Shift+F5**, **Shift+F8**, **Shift+F9**). In this case the query does not return data.

- To execute only a selected part of the query text, use Execute selected only or the **Alt+F5**, **Alt+F8**, **Alt+F9** shortcuts.

- There is also a possibility to execute a statement at the cursor position. For this purpose, use the Execute at cursor link at the Navigation bar or use the **Ctrl+F5**, **Ctrl+F8**, or **Ctrl+F9** shortcuts.

If the query text is correct, the query is executed, and if the query statement is supposed to return data (e.g. SELECT statement), the Result tab opens with the data returned by the query. If an error occurs while executing the query, execution stop is stopped and the appropriate error message is displayed in the Information tab.

The Result area displays the result data in grid. All principles of working with data you can find in Data Management 172 section.

SQL Editor: ...   BLOB Viewer   Dependency tracker   Visual Query Builder   GAME@N ▼ ◀ ▶ ✕

Database ⌃

🗄 **sdb_demo at sun** ▼

General ⌃

▶ Execute query
🔧 Execute as script
📄 Execute selected only
📄 Format SQL
❓ Show SQL Help
🔧 Configure SQL Editor
📄 Open new instance

Query management ⌃

📋 Create new query
📋 Delete current query
📋 Delete all queries
📋 Save to profile
📈 Run Query Builder
📄 Run SQL Script Editor

Files ⌃

📂 Load from file
💾 Save to file
📋 Save all queries

Data management ⌃

📋 Export data
📋 Get SQL dump
🖨 Print data

```
SELECT
  NBA.GAME.GAME_DATE,
  HOME_TEAM.CAPTION AS HOME_TEAM,
  (SELECT
    SUM(NBA.GAME_QUARTER.SCORE) AS FIELD_1
  FROM NBA.GAME_QUARTER
  WHERE
    (NBA.GAME_QUARTER.GAME_ID = NBA.GAME.ID)
    (NBA.GAME_QUARTER.TEAM_ID = HOME_TEAM.ID
  (SELECT
    SUM(NBA.GAME_QUARTER.SCORE) AS FIELD_2
  FROM NBA.GAME_QUARTER
```

Result 1   **Result 2**

Table ▼

Drag a column header here to group by that column

	GAME_DATE ▼	HOME_TEAM ▼	HOME_TEAM_SCORE
	▽	Click here to define a filter	
1 ▶	28.10.2008	Boston Celtics	
2	28.10.2008	Chicago Bulls	1
3	28.10.2008	Los Angeles Lakers	
4	29.10.2008	Philadelphia 76ers	
5	29.10.2008	Orlando Magic	
6	29.10.2008	Washington Wizards	
7	29.10.2008	New York Knicks	1
8	29.10.2008	Detroit Pistons	1
9	29.10.2008	Minnesota Timberwolves	
10	29.10.2008	Oklahoma City Thunder	
11	29.10.2008	San Antonio Spurs	

Records fetched: 1315

✕ ℹ Information

1315 rows fetched (0,56 sec)

📄 RESULT_LIST   📄 Query 5   📄 Query 1

Database: sdb_demo at sun

6.1.3   Query Parameters

Both [SQL Editor](#)[158] and [Visual Query Builder](#)[163] admit to using parameters inside the query text. A parameter is a kind of variable. Its value can be specified just before the query execution in the Parameters window. In the query text the parameter should appear as an identifier with a colon (':') at its beginning, e.g. *:param1*.

The Parameters dialog is used to specify the query parameters as well as values of the input parameters of procedures or functions before the execution. Enter parameter values and click the OK button to apply the values and execute the query or use the Cancel button to abort the execution.
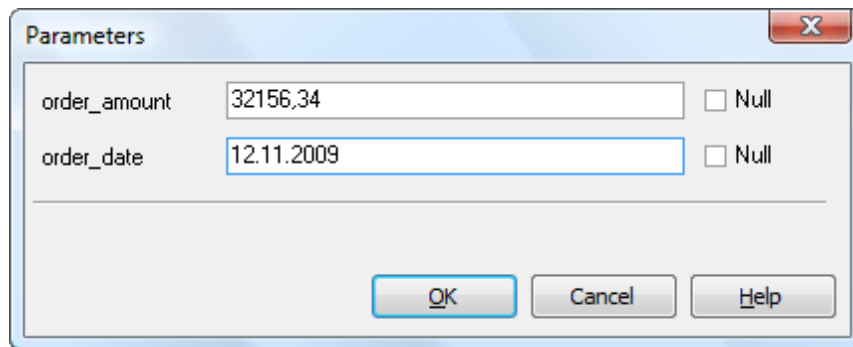
Note: To allow use parameters in query text, check the corresponding option at the [Tools](#)[257] tab of ASA Maestro Options.

6.2   Visual Query Builder

Visual Query Builder is provided for building data manipulation statements visually. It allows you to create and edit queries without knowledge of SQL, prepare and execute queries, and view the results of the execution. Builder can produce *INSERT*, *UPDATE* and *DELETE* statements as well as the *SELECT* statements containing subqueries and/or *UNIONs*. One instance of the builder can be used only for one query at a time. To open Visual Query Builder, select the Tools | Query Builder main menu item.

The most popular query management actions (creating, editing, deleting) are covered by the corresponding topic[156].

Builder consists of 3 tabs:

- Diagram[164] - to create a query from a graphical interface,
- Editor[169] – to modify the query text before its executing,
- Result[170] (appears after the query executing) – for working with data the query returns.

The builder also allows you to create a view based on the prepared query. For this purpose after the query creating and possibly testing use the Create view from SQL link at the Navigation bar to invoke the corresponding window, and specify view properties [91].

See also: SQL Editor[158], Visual Query Builder Options[262], Query Parameters[162]
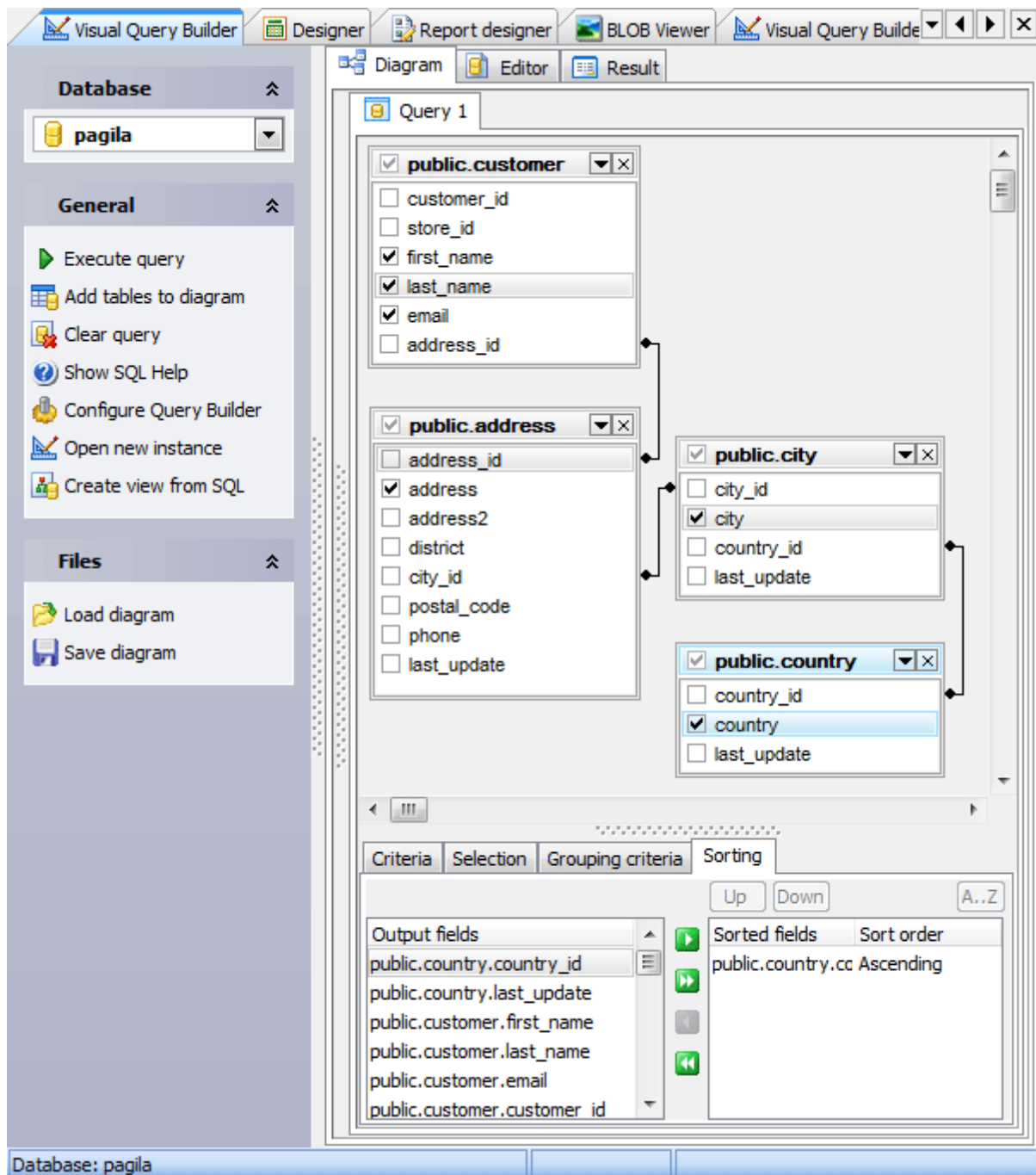
6.2.1 Creating query diagram

The Diagram tab is the main area of Visual Query Builder. Using its graphical interface you can select tables and views, join or select columns, and add conditions to the statement.

The Query Explorer field occupies the left side of Visual Query Builder main window. All the queries included in the result query (unions, subqueries) are represented at the Query Explorer for prompt access. They are grouped by kind and listed under the according node.

Below step-by-step description of query diagram creating.

- Select the statement type from the drop-down list at the top of the Diagram tab (*SELECT, INSERT, UPDATE, DELETE*).

▣ **Add required tables to the Diagram area.**

Use the Add Table(s) link of the area popup menu and select tables from the opened window (Use **Ctrl** or **Shift** pressed to select several tables).
To add only one table, simply drag it from the Database Explorer or from Object Manager/Browser to the Diagram area.

To remove the object, close its window or select the object and press the **Delete** key.

▣ **Pick up columns with data to output**

To include a table field to the query, tick off the option box to the left of the field name in the list or double-click it to see the blue icon next to the field name.
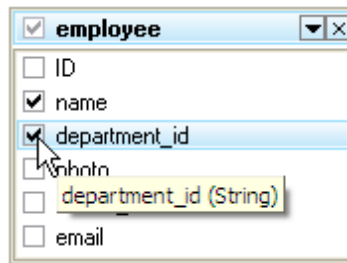
To include all the table fields, tick off the option box to the left of the table caption. In case none fields is included, the SQL statement is generated as SELECT * FROM <Table_Name>, i.e. all the fields are selected.
To remove the fields from the query, uncheck the corresponding boxes.

▣ **Join tables if necessary**

Visual Query Builder supports *INNER JOIN, LEFT OUTER JOIN*, and *RIGHT OUTER JOIN*. To associate database objects by two fields, drag a field from the first object's field list to a field from another object's field list. This will set a link between these objects by the selected fields. After you finish dragging, a line will appear between the linked fields. By default *INNER JOIN* syntax will be used.
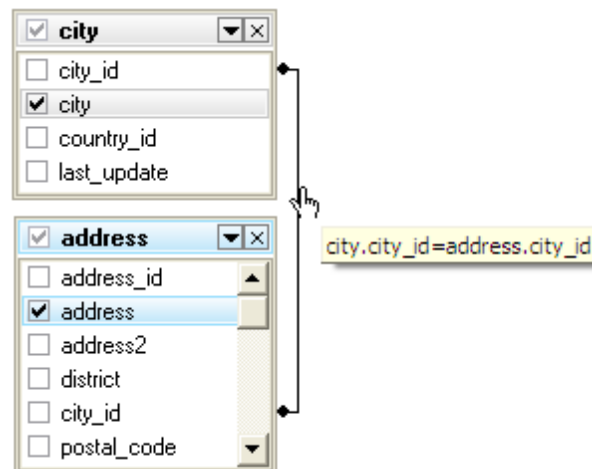
You can view the properties of the object association from the query tab directly. Just set the cursor to the link line. A hint containing the association condition will appear.

To edit the properties, select the Properties item from the popup menu. A dialog window will appear, there you can change the association condition by selecting it from the list (=, >, <, >=, <=, <>). To create *LEFT OUTER JOIN / RIGHT OUTER JOIN* statements, check All rows from first_table/All rows from second_table from the window.
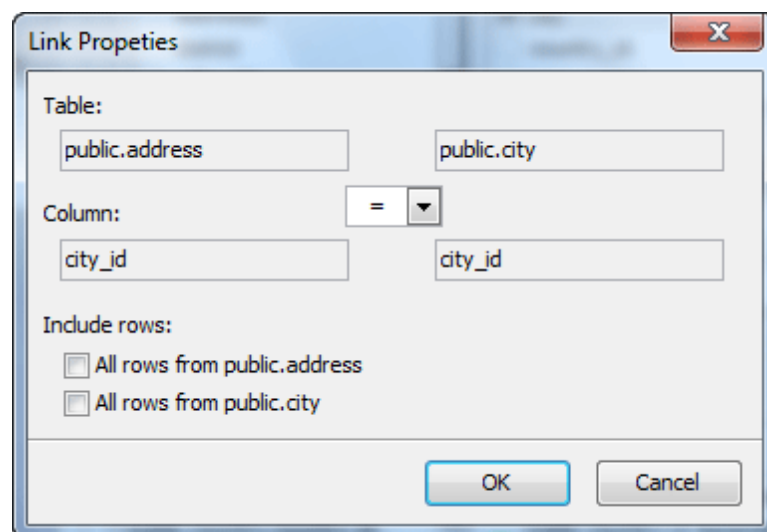
To remove a link between objects, select the Delete Link item from the popup menu.

To delete all the links of an object, click the '-' button next to the object alias. To insert a point to the link line, select the Insert Point item from the popup menu, and the new point will appear. Using the point you can move the link line. It does not cause any changes in the query but makes the diagram performance vivid and the visual building more obvious.

Specify WHERE condition

Criteria tab allows you to set the selection conditions. To add a condition, click the button on the left and select the Add condition item in the popup menu. Edit the condition by clicking its parts and setting their values. Clicking the button to the left of the condition string activates the popup menu which allows you to add a new condition of the same enclosure level, add a new enclosure level, delete the current condition, open or close the condition if it is composite.

A simple condition string contains three fields: an argument, a condition and a second argument (if required for the condition). Clicking each field allows you to set its value. Clicking the argument field make it possible to edit the argument as a text field. You can set a table name or a definite value in this field. The popup menu of the field in the editing mode which contains the Insert Field function (also called by the **Shift+Enter** hot keys combination).

This function allows you to choose a field from the list of all the table fields available in the query. The popup menu of the condition field allows you to specify the condition you need. The way of proceeding the condition is set in the upper string of the area (*All, Any, None,* or *Not all* of the following are possible variants). Click the underlined word to modify it.
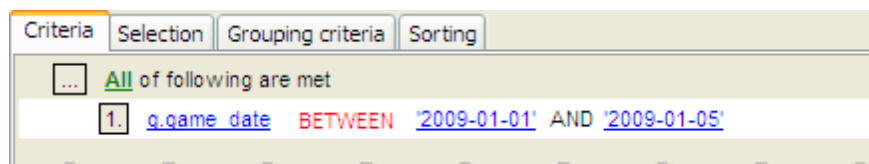
□   **Create subquery if necessary**

You can add one or more subqueries to further limit the tables and records returned from a *SELECT* statement when setting a *WHERE* condition in the query builder. To add subquery:
- open Criteria tab;
- click the button on the left and select the Add condition item in the popup menu;
- right click on an argument field and use the Insert query link of the popup menu;
- build the subquery in the new query tab that have appeared in the Diagram area, or
- open Selection tab;
- use the Insert query link of the popup menu;
- build the subquery in the new query tab that have appeared in the Diagram area.

□   **Use column aliases**

You can set/edit the object alias directly from the query tab by double-clicking the object caption.

In case the alias is used as the expression's column name use the Selection tab displays the output fields of the query. It allows you to edit the names of the query or CASE output fields, set their displaying order and set the aggregate functions (*SUM, MIN, MAX, AVG*, etc.) for each field.

AVG	Returns the average of the values in a group
BIT_AND	Returns the bitwise AND of all bits in the expression.
BIT_OR	Returns the bitwise OR of all bits in the expression.
COUNT	Returns the total number of items in a column. This function does not ignore NULL values when calculating results.
GROUP_CONCAT	Returns a string result with the concatenated non-NULL values from a group.
MAX	Returns the maximum value for the column.
MIN	Returns the minimum value for the column.
STD	Returns the population standard deviation of the expression.
STDDEV	Returns the sample standard deviation of a numeric expression evaluated over a set.
SUM	Returns the sum of all the values in the expression.
VARIANCE	Returns the population standard variance of the expression.

To remove the field from the list, select the Delete current row item from the popup menu of the field row.

To modify the input query field, double-click it and then type the field name or select one from the drop-down list.

To modify the output query field name, double-click it and enter the field name.

🔲 **DISTINCT option**

To specify removal of duplicate rows from the result set, open the Selection tab and check the Select only unique records box.

🔲 **Add HAVING statement**

Set the conditions to be included into the HAVING statement within the Grouping Criteria tab. They are set in the same way as the *WHERE* conditions. To set the aggregate function for the field, double-click the field row in the Aggregate column and then type the function name or select one from the drop-down list.

🔲 **ORDER BY clause**

Set the way of sorting the query records within the Sorting tab. The field list on the left represents all the output query fields; the list on the right contains fields by which the query records will be sorted. To move the field from one list to another, drag the selected field or use the Add and Remove buttons. To change the sorting order, select a field in the right list and move it using the Up and Down buttons.

To change the sorting direction, select a filed in the right list and switch the direction (*Ascending, Descending*) using the A..Z/Z..A button.

Create UNIONs

To combine the result from multiple SELECT statements into a single result set, use the Add union link of the Query Explorer popup menu.

> **Note:** The column names from the first SELECT statement are used as the column names for the results returned.
> Selected columns listed in corresponding positions of each SELECT statement should have the same data type.

6.2.2 Working with editor area

In the Editor area the query text is automatically generated while you are building the query.

You can edit this text according to the rules of SQL, and all the changes will be displayed on the Diagram page of Visual Query Builder.
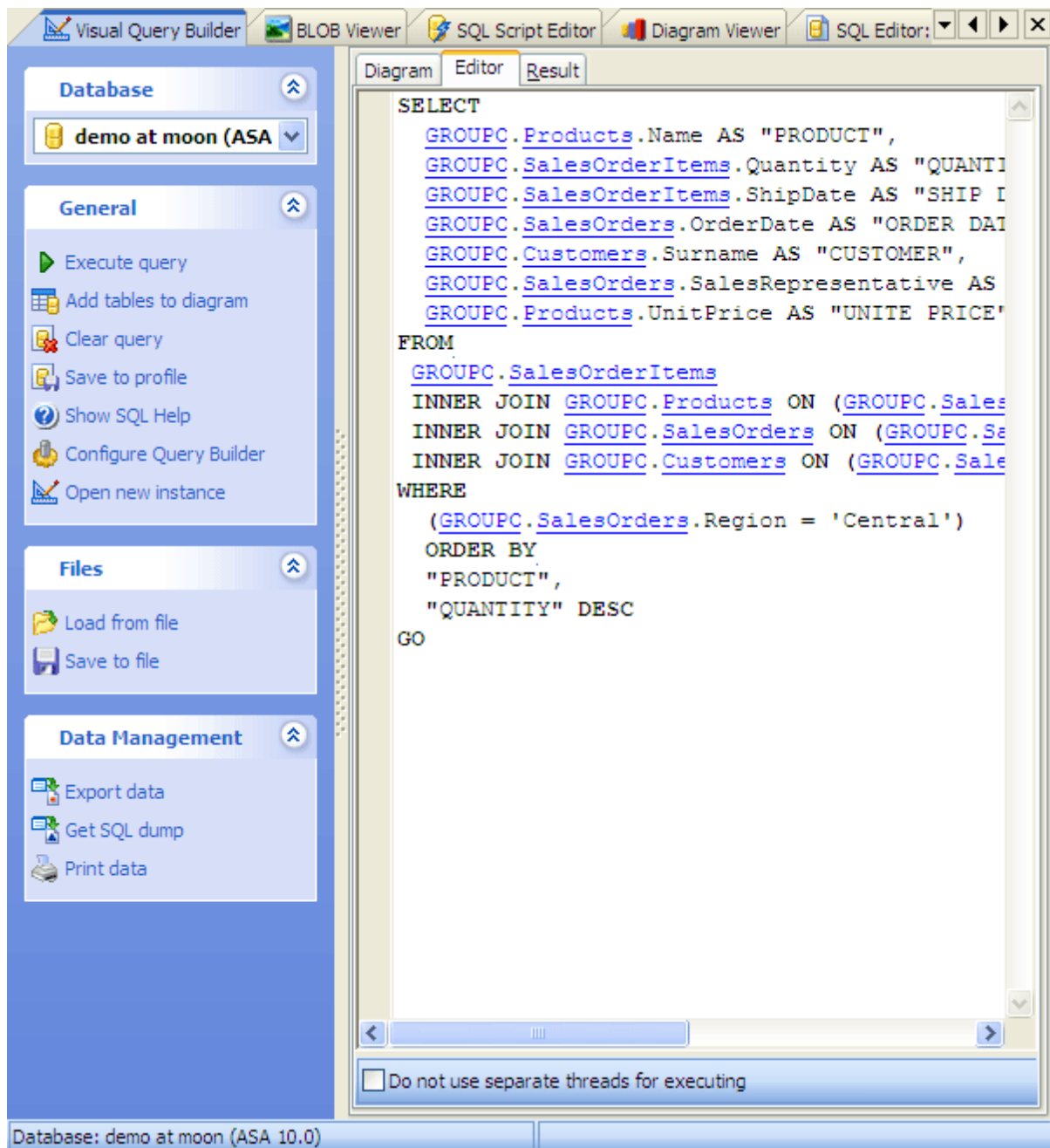
6.2.3 Executing query

To execute the query select the Execute item in the navigation bar. After that the Result tab is displayed. This page contains the result data returned by the query, as a grid (see Data View for details). The popup menu of this tab and the items of the navigation bar allow you to export data and get SQL dump.

| Visual Query Builder | Designer | Report designer | BLOB Viewer | Visual Query Builde |

| Diagram | Editor | Result |

Database ⌃

🟡 **pagila** ▾

General ⌃

❓ Show SQL Help
🗄 Configure Query Builder
📝 Open new instance
📊 Create view from SQL

Data Management ⌃

📤 Export data
📤 Get SQL dump
🖨 Print data

Table ▾

✱ country △ ▾

	✱ first_name ▾	✱ last_name ▾	email
	NULL	NULL	NULL
⊟ country : United Kingdom (9)			
1	ANNE	POWELL	ANNE.POWELL@sakilacustomer.
2	APRIL	BURNS	APRIL.BURNS@sakilacusto
3	ARMANDO	GRUBER	ARMANDO.GRUBER@sakilacust
4	CECIL	VINES	CECIL.VINES@sakilacustomer.o
5	DAN	PAINE	DAN.PAINE@sakilacustomer.org
6	GILBERT	SLEDGE	GILBERT.SLEDGE@sakilacustom
7	MARSHALL	THORN	MARSHALL.THORN@sakilacusto
8	MATTIE	HOFFMAN	MATTIE.HOFFMAN@sakilacusto
9	SANDRA	MARTIN	SANDRA.MARTIN@sakilacustom
⊟ country : United States (36)			
1	ALICE	STEWART	ALICE.STEWART@sakilacustome
2	ANA	BRADLEY	ANA.BRADLEY@sakilacustomer.
3	ASHLEY	RICHARDSON	ASHLEY.RICHARDSON@sakilacu
4	BETTY	WHITE	BETTY.WHITE@sakilacustomer.c
5	BILL	GAVIN	BILL.GAVIN@sakilacustomer.org
6	BRANDY	GRAVES	BRANDY.GRAVES@sakilacustom
7	BRYAN	HARDISON	BRYAN.HARDISON@sakilacusto
8	CAROLE	BARNETT	CAROLE.BARNETT@sakilacustor
9	CAROLINE	BOWMAN	CAROLINE.BOWMAN@sakilacus
10	CASSANDRA	WALTERS	CASSANDRA.WALTERS@sakilac
11	CLINTON	BUFORD	CLINTON.BUFORD@sakilacustor
12	DIANA	ALEXANDER	DIANA.ALEXANDER@sakilacusto
13	EVA	RAMOS	EVA.RAMOS@sakilacustomer.or
14	IAN	STILL	IAN.STILL@sakilacustomer.org

Records fetched: 599

✕ 💡 Information

599 rows fetched (0,19 sec)

Database: pagila

7 Data Management

Query results and table data are displayed on the Data [68] or Result [160] tabs of Table Editor [66], SQL Editor [158] or Visual Query Builder [163].

Data are displayed as a grid (or as info cards) which provide a lot of useful features such as editing, grouping, sorting, filtering, etc. See Data View [173] for details.

Navigation bars of these tabs as well as popup menus of their working areas places at your disposal the following functions for managing data:

- Export Data [189] allows you to export data to various formats, including MS Excel, MS Access, RTF, HTML, PDF and more.

- Get SQL Dump [196] exports data to the SQL script as a number of INSERT statements.

- Import Data [199] provides you with possibility to import data from MS Excel, MS Access, DBF, XML, TXT, and CSV.

- Edit BLOB [184] allows you to view and edit the content of BLOB and TEXT fields.

7.1 Data View

ASA Maestro represents all data (stored in tables and views, results of queries and procedures) in grid [174] or in info cards [179]. By default, data is displayed in a grid - tabular view of data. To change the type of the data representation, use the drop-down list at the top of the tab. Both of the data representations support UNICODE/UTF-8 data. The status bar displays the number of records in the current data set. To reset grid to default settings, open the Data tab when holding the **Ctrl** key.

Navigation buttons

Both data representations are equipped with navigation buttons. They are represented at the top of the data tab and allow you to navigate between records and to accomplish common operations:

- To add a new record, use the *Plus* button or the **Insert** shortcut.
- To delete a new record, use the *Minus* button or the **Delete** shortcut.
- To edit an existing record, push the corresponding button or invoke the Data Input Form [180] using popup menu of the necessary record, with **Ctrl+Alt+D** shortcut, or with the corresponding link at the Navigation bar. To edit a field value, click it and enter the new one inline.

The pagination option allows you to limit the number of browsed records. By default, the number of records represented in grid at once is 1000. To change the number of records represented in the current grid, enter the necessary value in the pagination bar. To specify the default one or to disable pagination, use the data grid option [269].

Navigation bar

The Data management group of the Navigation bar allows to invoke [Data Input Form](180), [SQL Editor](158) with SELECT query, [Data Export](189), and [Data Import](199) modules using corresponding links, also get [SQL dump](196) of the current data set and print current data with enabled preview in WYSIWYG mode.

See also: [Table Editor](66), [SQL Editor](158), [Visual Query Builder](163)

7.1.1 Working with data grid

Our software offers two grid modes:

- the full grid mode is a fully functional data representation equipped with abilities to filter and to sort data;

- the simple grid mode is provided for working with large number of records. For speed-up data fetching, filtering and sorting abilities are not enabled in this mode. The notification bar at the top of the grid (see the picture below) announces that the grid has been switched to the simple mode.

By default, the grid automatically switches to the simple mode for queries returning more than 5000 records (the number can be customized in the Options[269] dialog).

The following abilities are not available in the simple grid mode:

Sorting data (only in the full grid mode)

Click the column caption to sort data by the values of this column. To select sort order (ascending or descending), use popup menu of the column caption.

To sort data on a combination of grid columns, use the Advanced sort... link of the popup menu of the grid's header. The Advanced sorting window will be shown.
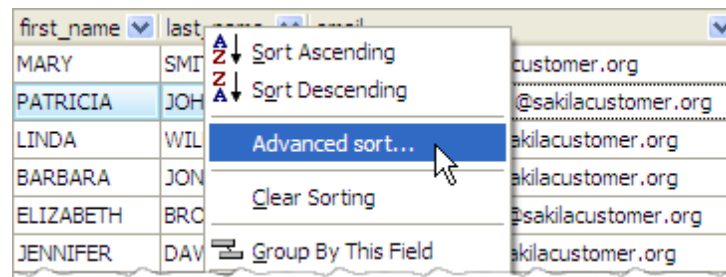
Select there the columns you want to sort from the Available columns list in the order of priority. Specify the sort order if necessary and click OK.
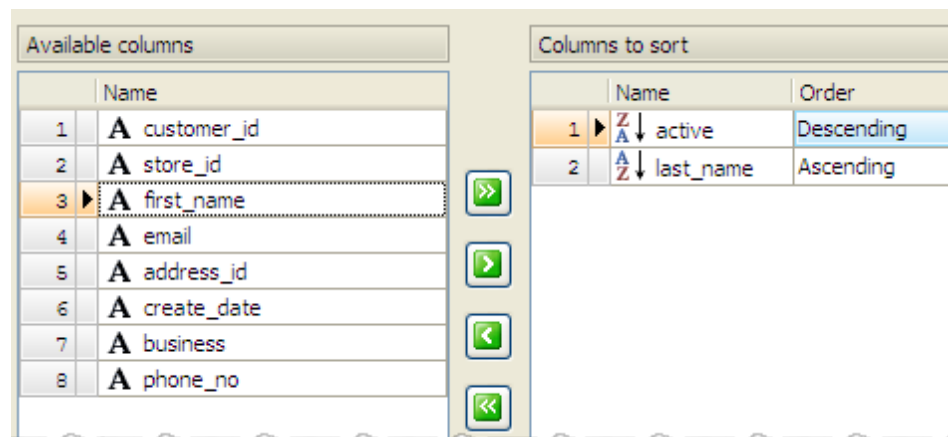
To cancel the sorting order, press **Ctrl** and click on the sorted column caption.

⊟ **Filtering represented records (only in the full grid mode)**

There are several ways to filter data represented in grid. See the corresponding topic 18ʰ to find out their descriptions.

⊟ **Hiding selected columns**

You can show/hide columns using a button in the left top corner of the grid. Just check/uncheck the column in the drop-down list.
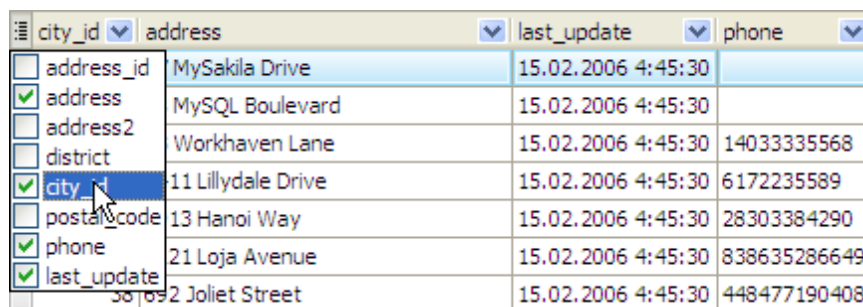
⊟ **Columns reordering**

To reorder columns, use drag-n-drop.

Grouping records

You can group grid data by any of the columns by dragging the column header to the destination area. Now all the records are displayed as subnodes to the grouping row value as shown in the picture. To reverse grouping, just drag the column name from the upper area back.

Using aggregate functions

To get a sum of column values, a min or a max value, an average column value or an amount of records, use Data Grid Footer. Select the Footer item at the grid caption's popup menu.
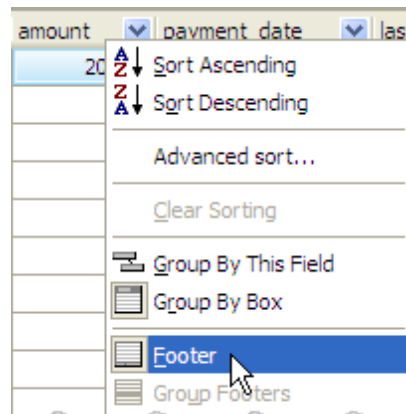
It will be shown at the bottom of the grid. The popup menu of the footer allows you to get an aggregate function result calculated with the corresponding column values.
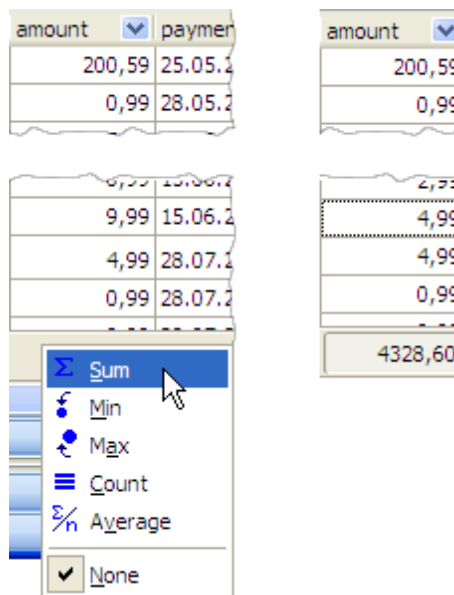
For grouped data use Group Footers.

▣ Data alignment

The grid's header popup menu allows to align column data. Use the Alignment link and select the alignment type.

▣ Fixing columns

You can fix grid columns to view them permanently when working with other grid data. To fix a column, choose the corresponding item from the grid's header popup menu.
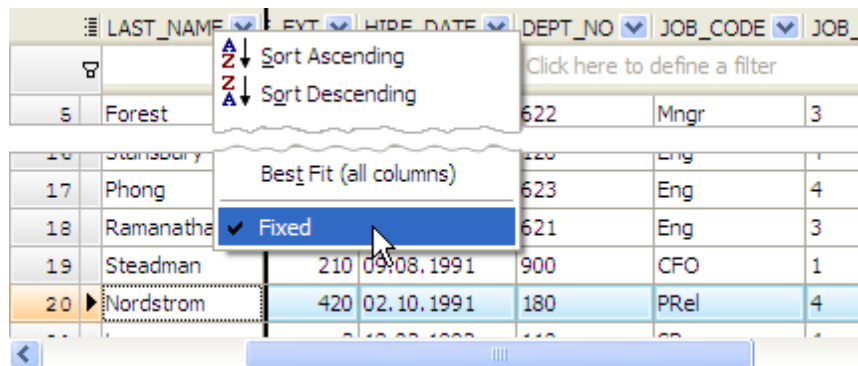
Row numbering

There is also a possibility to display row numbers in grids. You can adjust[270] the corresponding column to yours liking.

Inline images

It is possible to display images directly in the grid as on the picture below.
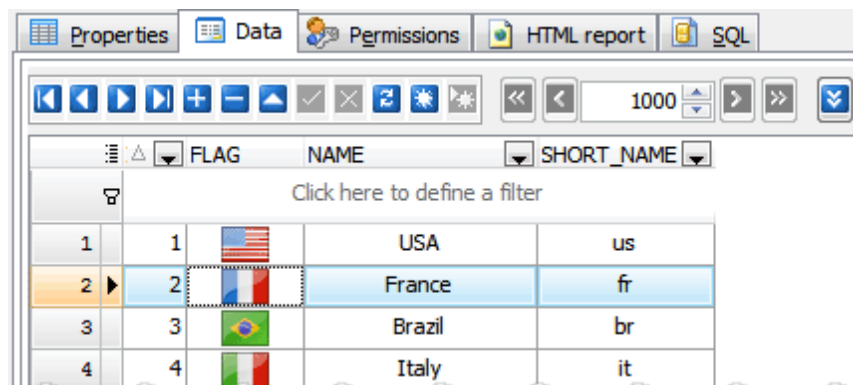
To enable/disable this view mode, open the *Enable inline images* window using the *Manage inline images* item of the column popup menu. The window options allow to set or change the image fitting and specify the row height. To add new images or change existing ones, use BLOB Editor[184] (see below).

Working with BLOBs

To edit a BLOB field[184], double click the field, or use the corresponding popup menu item. There are also possibilities to export all BLOBs stored in the table column to files and import BLOBs from a directory to the table columns. In this case you need to set the Target directory, specify the template to be used for file names and the column BLOBs to be exported from (imported to).

7.1.2 Working with info cards

Info cards correspond to the records. You can filter records by custom conditions[181] and edit data directly in info cards or with Data Input Form[180].

7.1.3   Data input form

Use Data Input Form to add new records or edit existing ones. To invoke the dialog, use the corresponding link from the popup menu or **Ctrl+Alt+D** shortcut.

The dialog's fields contain the values of the current grid row. Use the Insert button to enter values of a new record and the Post button to update the current row. The Cancel button reverts all the field values within a form to their initial values (or to the last posted values). The Previous and Next buttons allow you to switch between grid records without closing the dialog.

Controls containing values of primary and foreign key columns are marked with the 'gold key' and 'silver key' images accordingly. Controls containing values of required (NOT NULL) columns are marked with a red asterisk.

There are possibilities to use lookup editors on working with columns linked with foreign keys, a calendar for *timestamp* columns and a calculator for *decimal* ones.

7.1.4   Data filtering

ASA Maestro support filtering records by the following methods:
- **Filter by a column value**

  Select the Use as Filter item from the field popup menu to filter records by the current column value.

- **Filter by several column values**

Use the drop-down button in the column caption area to filter records by the selected column value(s) or enter the filter condition directly in the filter row²⁷⁴.

⊟   **Filter by two operators**

Invoke simple filter dialog using the Custom item of the column caption area drop-down list. Select a logical operator for checking the column values (like "is less than", "is greater than", etc.) and set the value to be checked by this operator in the next box; then set the second condition if necessary in the following way and set the relation between these two conditions, whether both of them should be matched or just one of them; use the '_' character to represent any single symbol in the condition and the '%' character to represent any series of symbols in the condition.

⊟   **Filter by any custom criteria**

To filter data according to more difficult custom conditions, use the Filter Builder dialog. To invoke the dialog, use the Set Filter link of popup menu or click the Customize button on the Filter panel. This panel is visible if any filtering is already applied to the grid (you can use column header menu or grid menu for quick filtering).
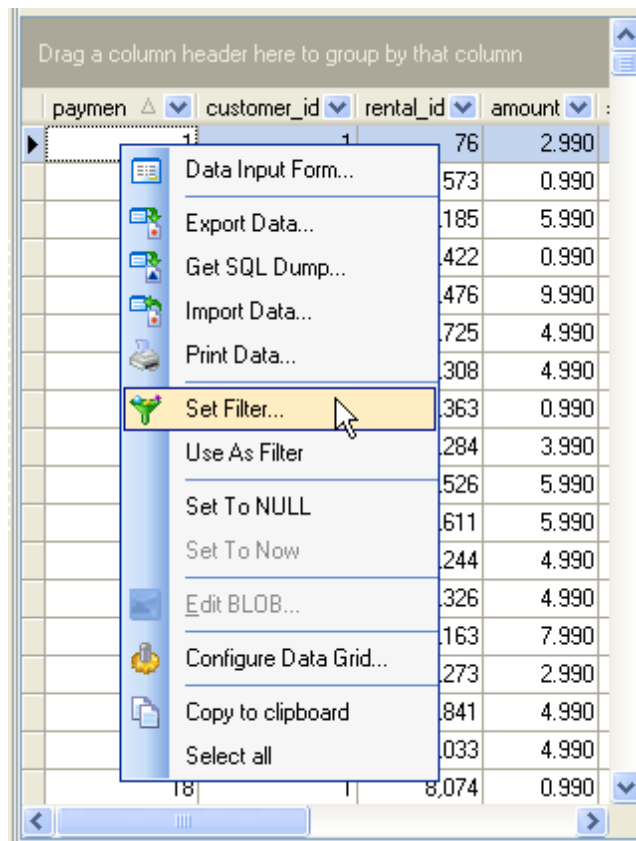
The dialog also allows to save filter criteria to an external file for future use.

After you set a filter, the filtering panel becomes visible at the top/bottom of the grid

where you can see the active filtering condition and easily enable or disable it by clicking the check box on the left. To customize the filtering process, use filter options 274.

The Copy current filter as SQL condition to clipboard feature is useful in case the same compound filter is applied several times. Just once apply the filter, copy to clipboard as SQL condition, paste to SQL Editor 158 and save as a query. You can also use Generate query link on the Navigation bar.

See also: Data View 173, Table Editor 66, SQL Editor 158, Visual Query Builder 163

7.2   BLOB Editor

BLOB Editor is a tool to view and edit BLOB data in the following ways: hexadecimal dump [185], plain text [185], graphical image [184], HTML page [186], or PDF document [187]. BLOB Editor is invoked from data grid [173] of any table editor [66] or the result tab of SQL Editor [158] and Visual Query Builder [163] by double clicking of the BLOB field to be edited or with the Edit BLOB link of the field's popup menu. The editor also can be called from BLOB Viewer [213] with the Edit current BLOB button.

With BLOB Editor you can work with all BLOB columns of the grid. To switch between columns, select the necessary one from the BLOB field list.

BLOB Editor allows you to navigate between the grid records using the Previous and Next buttons. You can load the new BLOB content and save or clear it using corresponding buttons. After changes are made, click the Post button to apply the changes or the Cancel button to discard them.

7.2.1   Editing as image

The Image panel of BLOB Editor displays field data as graphical image. Use the Save and Load buttons to save the image to a file or load an image from a file. A graphical representation of BLOB data supports five image formats: BMP, Windows metafile, JPEG, GIF and PNG.
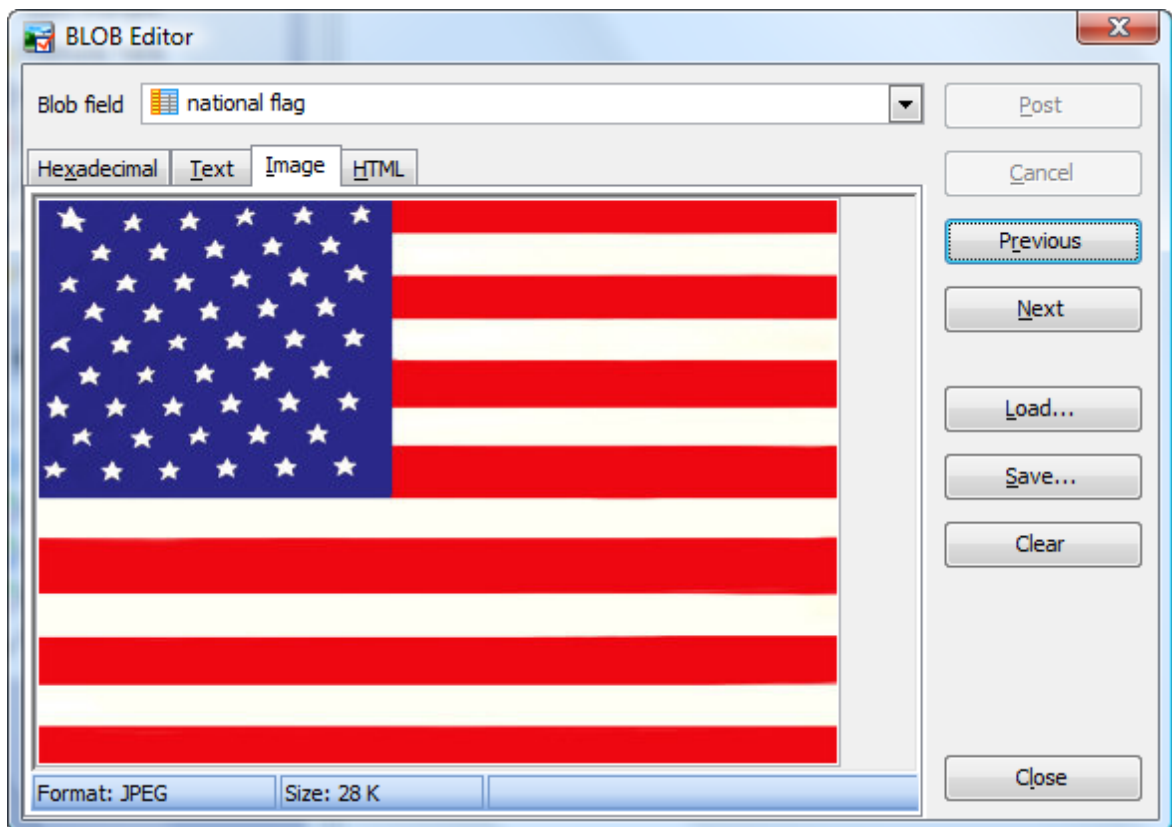
7.2.2   Editing as hexadecimal dump

The Hexadecimal panel allows you to edit data in hexadecimal mode. To load/save a hexadecimal dump from/to a file, use the corresponding buttons. Use the Insert key to switch between Insert and Overwrite modes.
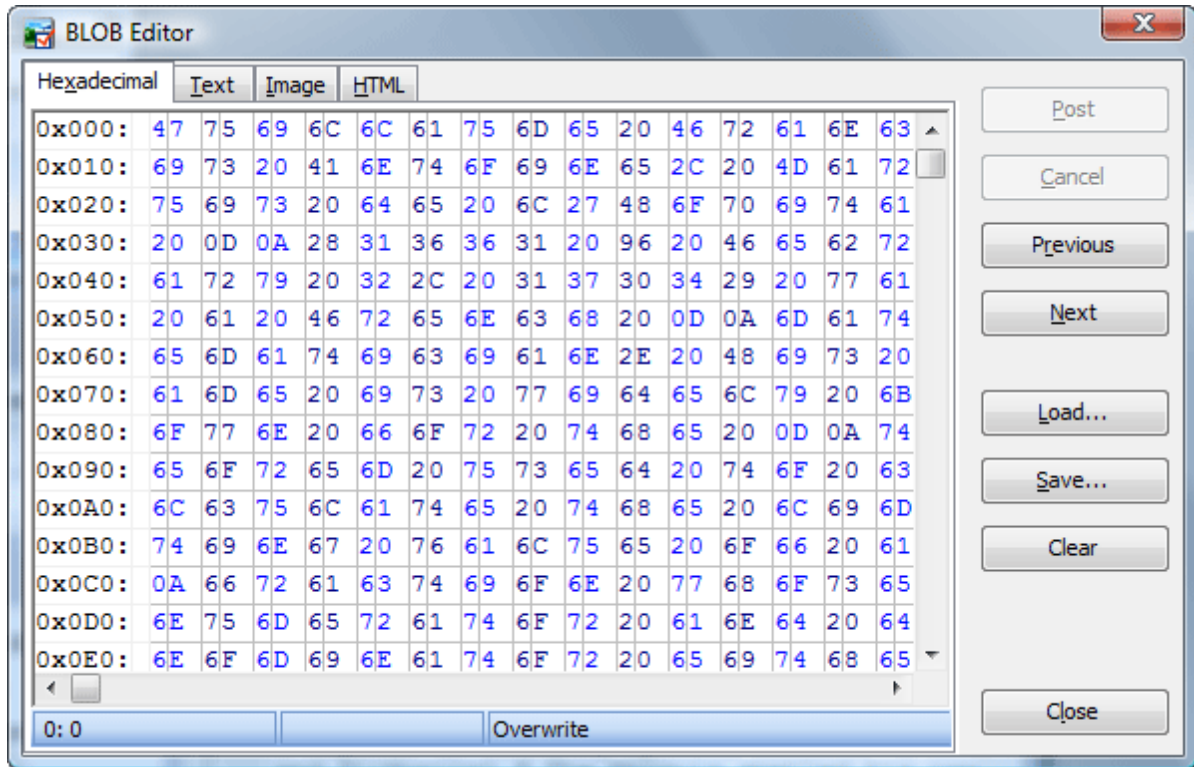
7.2.3   Editing as plain text

The Text panel allows you to edit data as a simple text. Several types of text highlighting are available (*Plain text, SQL, XML, Java, VBScript, JScript, Cmd batch, PHP, CSS, UnixShell Script, INI,* and *HTML*). The popup menu of the panel allows you to invoke Find Text, Replace Text and Go to line dialogs.
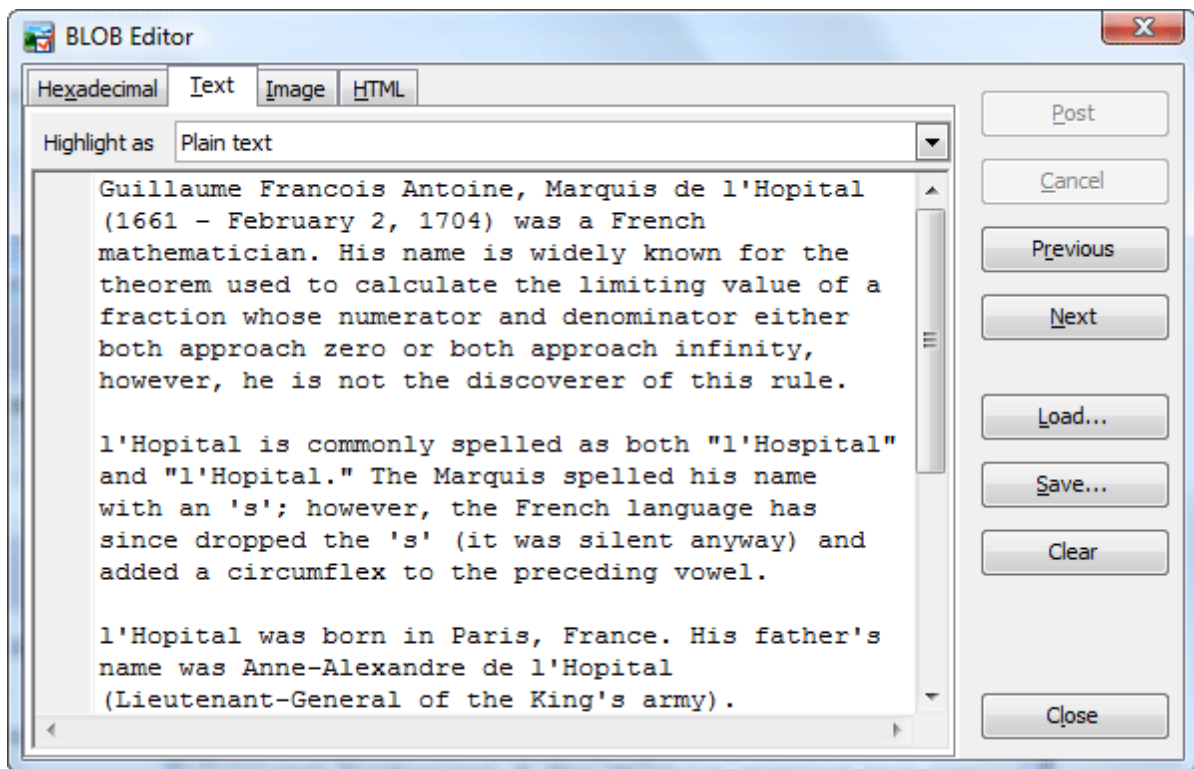
7.2.4 Editing as HTML

The HTML panel presents field data as HTML. You can load a new content of the current field from a .html file or type it manually within the Text tab of the editor.
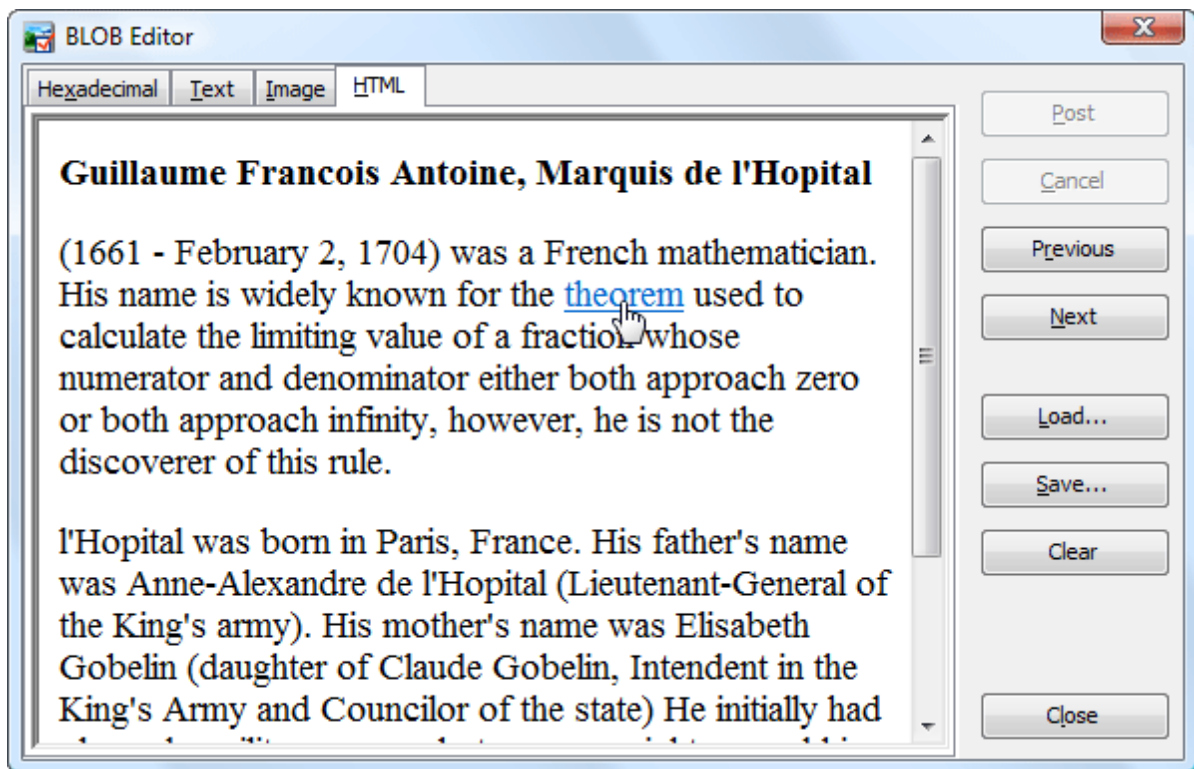
7.2.5   Editing as PDF document

The PDF panel presents field data as PDF document. To accomplish common operations with data, use the Adobe Reader toolbar.

BLOB Editor

Blob field ▣ manual ▾

Hexadecimal | Text | Image | HTML | **PDF**

Post

Cancel

Previous

Next

Load...

Save...

Clear

Close

80 / 103 75% ▾

Comment Share

| 77 | PostgreSQL PHP Generator Help |

7.1 Application

The Application section allows you to custo
Generator behavior. The section consists of se
about each of them.

- Page[77]
- Generation defaults[78]
- Display formats[79]
- Output[80]

7.1.1 Page

Page navigator
Use the field to enable/disable pagination, and
You can also specify the number of records per

8.50 x 11.00 in

7.3 Export Data Wizard

Data Export wizard is a tool to save data from Sybase SQL Anywhere tables, views, and queries to the most popular formats. It allows you to fully customize output files including header and footer, fonts, colors, and data formats.

Export Data tool supports:
- Microsoft Office Excel 97-2003, 2007
- CSV
- HTML
- XML
- Text
- Microsoft Office Word 97-2003, 2007
- Microsoft Office Access
- OpenDocument Spreadsheet
- OpenDocument Text
- DBF
- PDF
- RTF
- DIF
- SYLK
- LaTex.

In order to run the wizard you should either

- open the table in Table Editor;
- go on to the Data tab

or
- open and execute the query in SQL Editor or Query Builder;
- proceed to the Result tab

and select the Export Data item from the Navigation Bar.

To export your data,

- Set the format and the name [189] of the destination file;
- Specify such additional options of the result file as header and footer [190], formats applied to exported data [191] and some format-specific options [192];
- Select columns [191] you want to include into result files;
- Specify other export options [195].

   See also: Get SQL Dump, Import Data Wizard [199]

7.3.1 Setting destination file name and format

Select one of the available destination formats and set the name for the result file. The file name extension in the Destination file name box varies according to the selected export type.

The file name may contain current timestamp with the %ts:TIMESTAMP_FORMAT% string. Examples of valid log file names:

dbname_export_%ts:yyyy_mm_dd%.log
export_%ts:yyyy_mm_dd_hh_mm%.log
%ts:yyyy_mm_dd_hh_mm_ss%.log

7.3.2   Setting header and footer

To specify the result file's header and footer, double click the corresponding button and complete fields of the Header and Footer window.
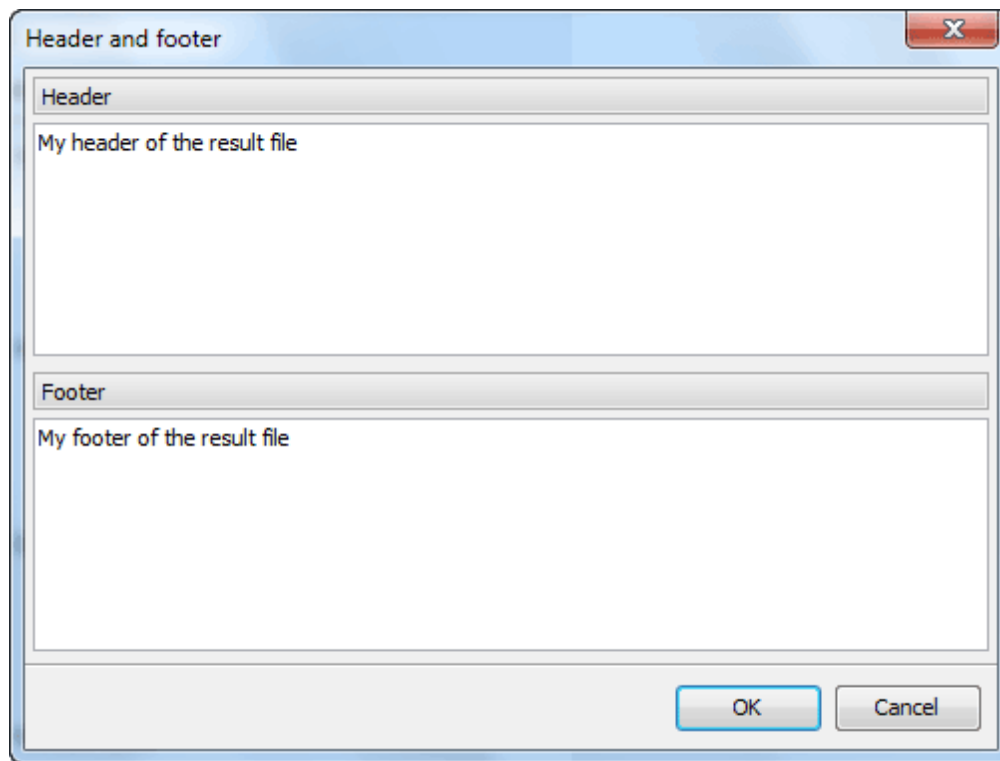
7.3.3   Selecting fields for export

Uncheck the Selected box to exclude the corresponding field from the export, specify a Caption to be used for the result column, and also width, and alignment for output columns (when applicable).
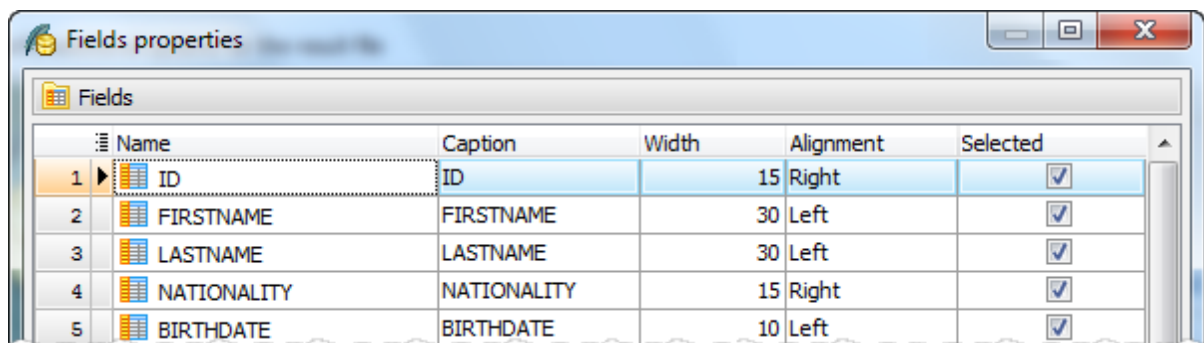
7.3.4   Adjusting data formats

This step allows you to customize formats applied to exported data. Edit the format masks to adjust the result format in the way you need.
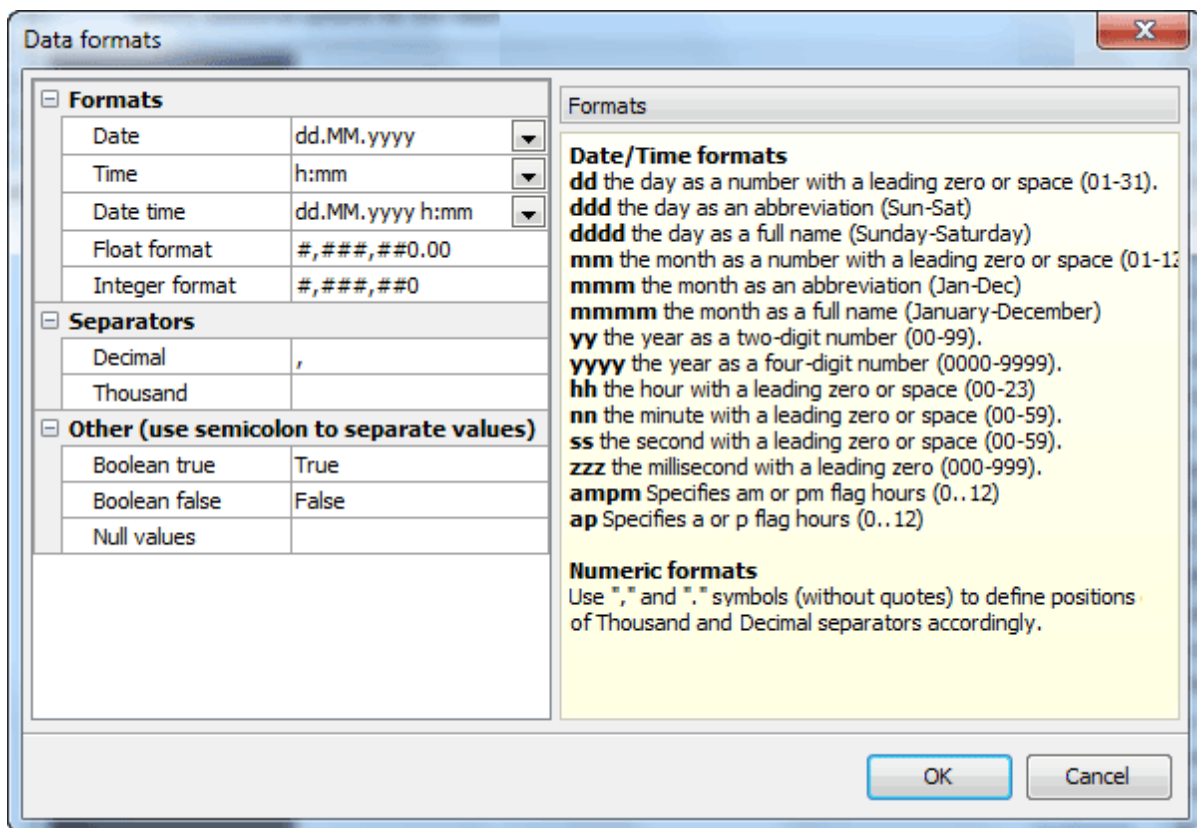
7.3.5   Setting format-specific options

Each format supposes corresponding additional export options. Use the wizard option to adjust export properties depending on the target file format you have selected earlier. The following formats are at your disposal: Microsoft Excel [192], Microsoft Excel 2007, CSV [194], Text [194], HTML [193], XML [194], Microsoft Word, Microsoft Word 2007, Microsoft Access, OpenDocument Spreadsheet, OpenDocument Text, DBF, PDF, RTF, DIF, SYLK, and LaTeX.

Microsoft Excel
The Data Format tab contains general options, which allow you to adjust the format for each kind of Excel cells. This means that you can specify such parameters as font, borders, filling color and method, etc. for each entity (such as data field, header, footer, caption, data, hyperlink and so on) separately. Also it is possible to create styles to make target Excel file be striped by columns or rows (the Styles tab).

The Extensions tab provides a possibility to add hyperlinks and notes to any cell of target file. Click the Plus button to add a new hyperlink or note to target Excel sheet and adjust its parameters. Click the Minus button to delete added hyperlink or note.

The Advanced tab allows you to define page header, page footer and title for target Excel sheet.
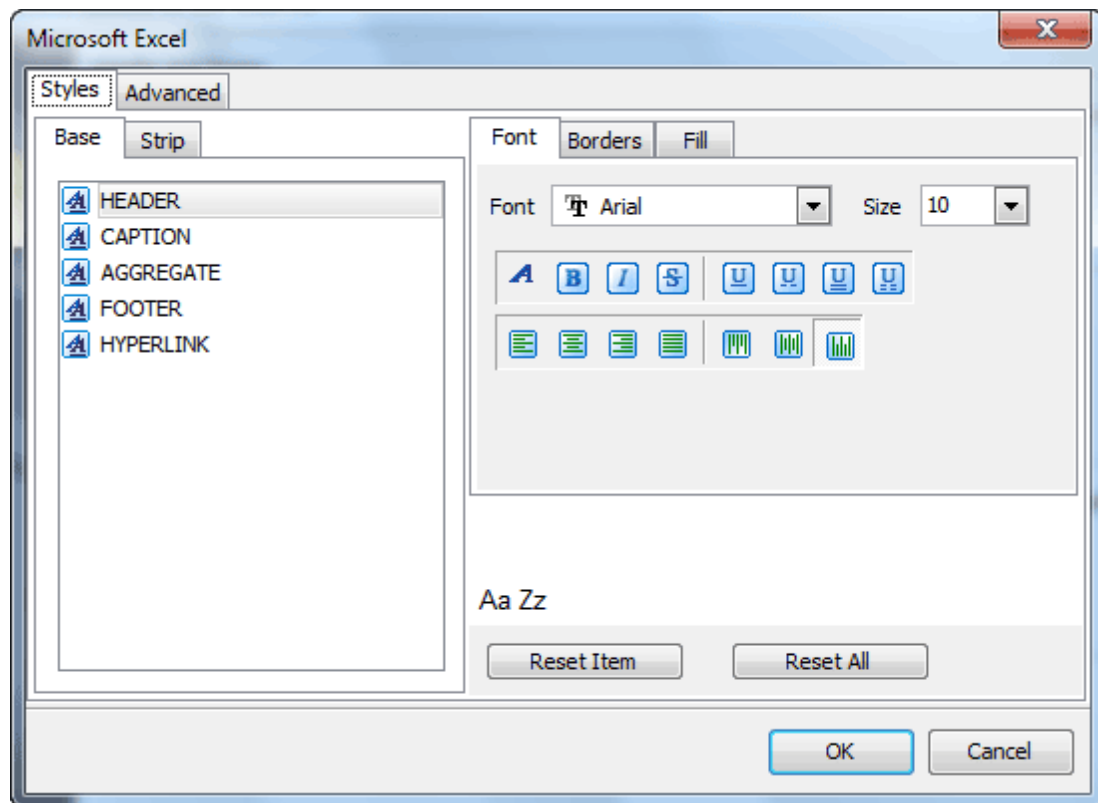
HTML

The Preview tab allows you to select the style of HTML file from a number of built-in templates provided by the Templates combo box. You can choose any of these templates, customize it by clicking on objects in the preview panel, and save it as a custom template using the Save template button. Use the Load template button to load previously saved custom templates from hard disk.

The Basic tab allows you to specify basic parameters of target HTML file, such as its title, cascade style sheet options, etc.

The Multi-file tab provides you with a possibility to split target HTML file into several separated files. This tab allows you to specify the record count for a single file, set an option to generate an index HTML file, and add an ability of navigation between each other to each of exported files.

The Advanced tab contains such HTML options as default font, background, cell padding and spacing, etc.
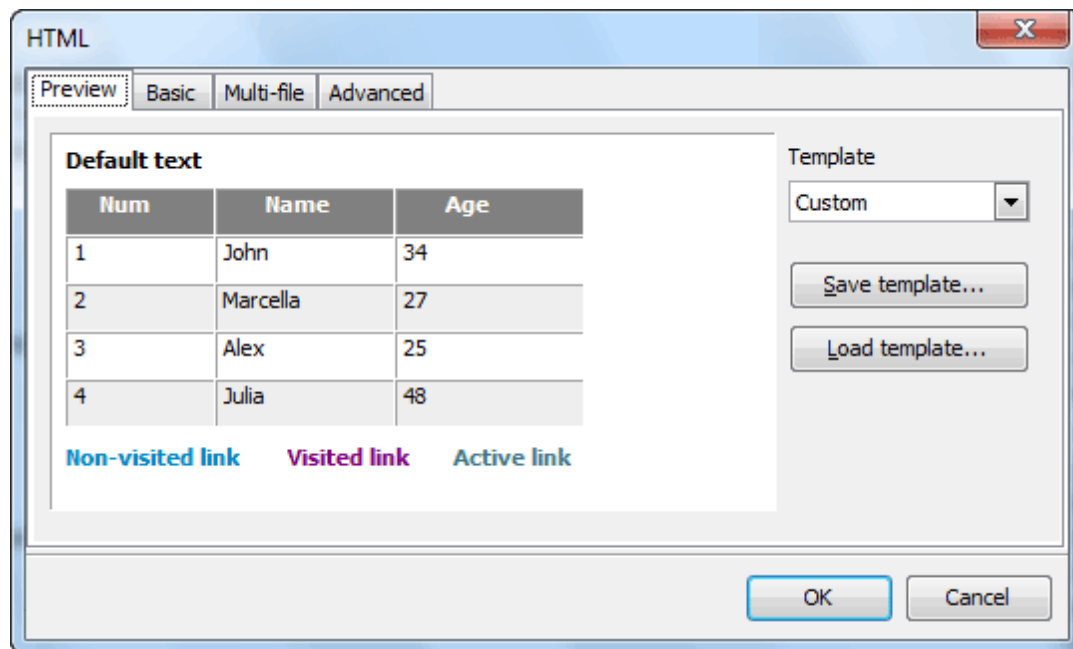
Text files

Set the Calculate column width options on if you want each column of target file to be adjusted to the maximum number of characters in it. The Spacing option specifies the number of spaces between columns in the target file.
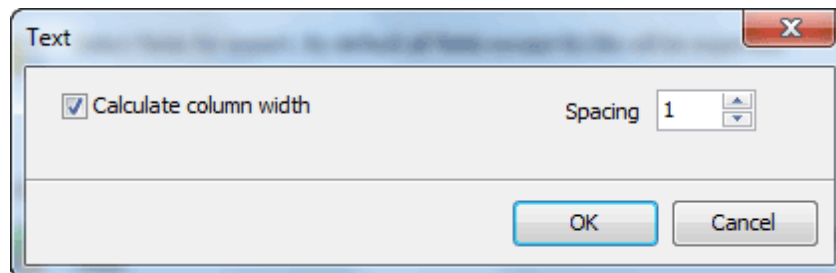
CSV files

You can specify column separator and optional values quote character for the target file on this step.
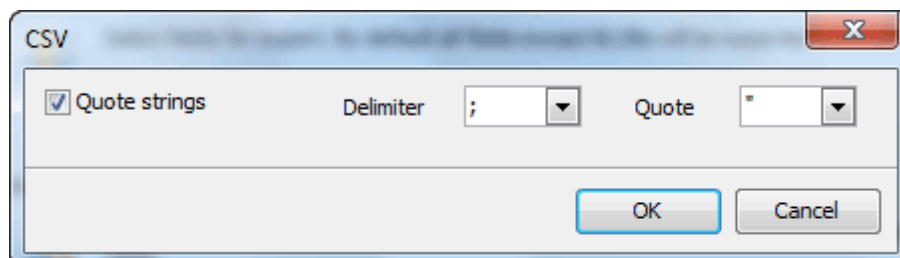
XML documents

Specify XML document encoding in the Encoding edit box and set the Standalone option on if you wish the target document to be standalone.
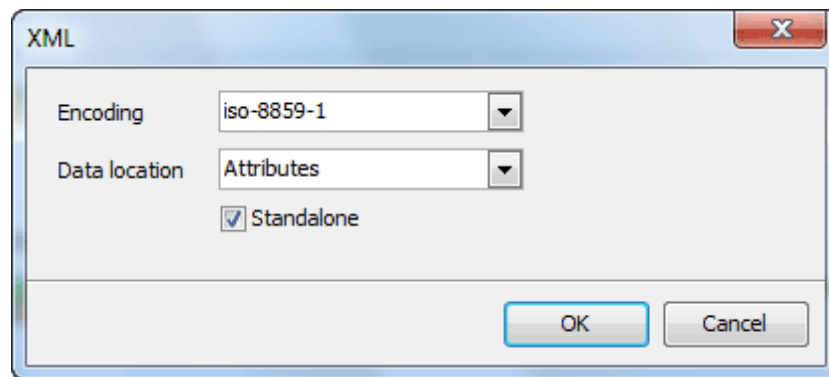
7.3.6   Setting common export options

Use this step to specify options to be applied to all exported data:

- Select the number of records to be exported from each table: a fixed number or all records.

- Specify actions to be executed after the export. To open the result files in the associated program (MS Excel, Notepad, default browser, etc), check the Open file box. To send the result files to the default printer, use the Print file checkbox.

7.4 Get SQL Dump

Get SQL Dump Wizard allows you to export data from a table or a query result to the SQL script as a number of INSERT statements.

In order to get a SQL dump from a table or a query:

- open the table in Table Editor or open and execute query in SQL Editor or Query Builder;
- open the Data tab or the Result tab respectively;
- use the Get SQL Dump item of the Navigation Bar.

- Selecting fields to include in the result INSERT statement [196]
- Specifying dump options [197]

See also: Export Data Wizard [189], SQL Script Editor [209]

7.4.1 Selecting fields

The first wizard step allows you to specify the table name as it will be included in the result script.

You can also select the fields to be included in the result *INSERT* statement. All the table fields are included into the Selected fields list by default. If you do not want some fields to be exported, move them back to the Available fields list. *Text*, *GUID*, *Date*, *Time*, and *DateTime* columns are included in the result INSERT statements according to the Storage Options of the Database Profile 27.
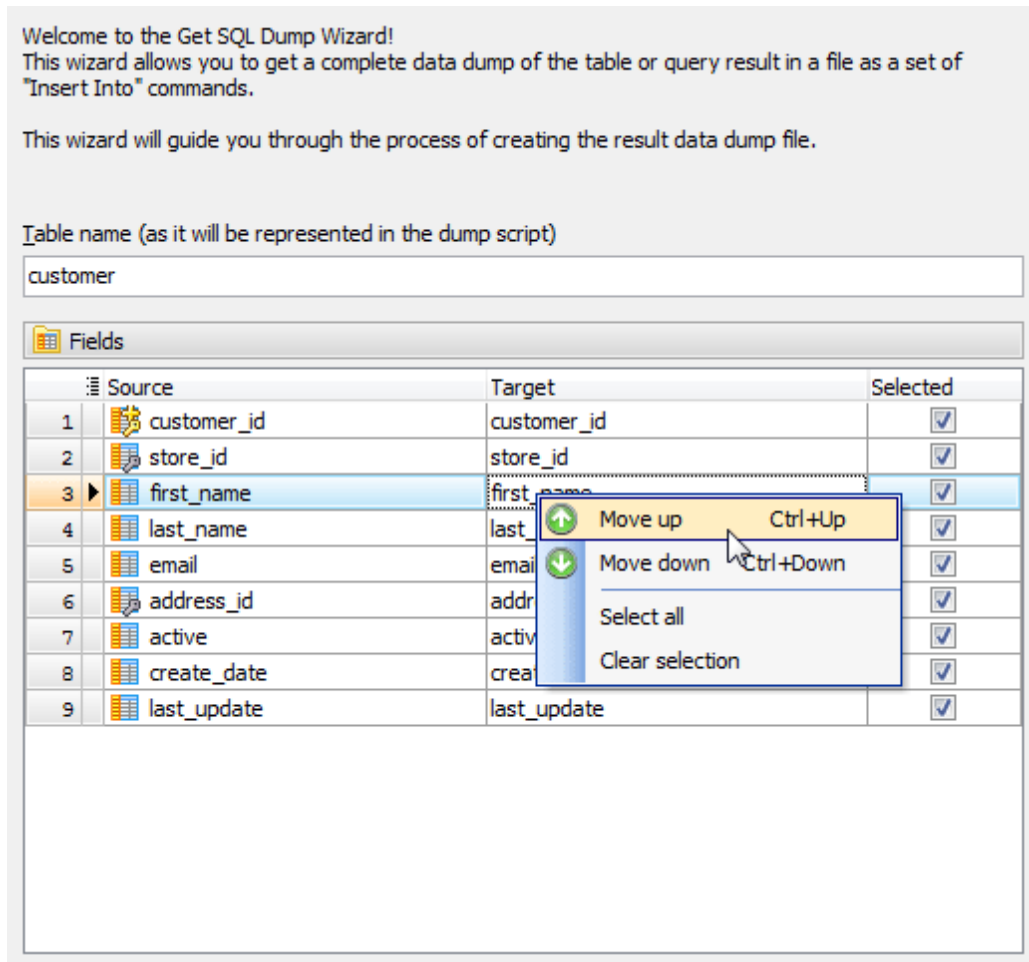
7.4.2   Specifying dump options

Select the data dump mode to be used (Multi-row INSERT statements or separate single-row INSERT statements) and specify commits' frequency.

To add the "CREATE TABLE" to the top of the dump, check the corresponding box.

Get SQL Dump Wizard allows you to send the result script to SQL Script Editor 209 or to save it to a specified file. Select the Send to script editor option to load the result to the editor. To save the result to the file, enter the script file name (*.sql).

Click the Ready button to start the process.

Data script

Specify the data dump options.

○ Use multi-row INSERT statements

Record count per each statement [500]

☐ Commit after each statement

◉ Use separate single-row INSERT statements

Commit after [500]

Statement syntax

| Native (ASA) | ▼ |

Native (ASA)
MySQL
PostgreSQL
SQL Server
Oracle
Firebird
SQLite

dump

Output

ript Editor or save it to a file.

◉ Send to script editor

○ Save to file

File name   Encoding

C:\Users\marina\Documents\Products.sql   [...] | ANSI ▼ |

Click "Ready" to dump your data.

7.5   Import Data Wizard

Import Data Wizard provides you with a graphical user interface to import data from the most popular files formats into existing Sybase SQL Anywhere tables. It allows you to adjust data formats, empty target tables, execute custom SQL scripts, etc.

Import Data tool supports:
- Microsoft Office Excel 95-2003
- Microsoft Office Excel 2007
- Microsoft Office Access
- Microsoft Office Access 2007
- Delimiter-separated values (CSV, DSV, TSV)
- DBF
- Text files
- XML
- ODBC data sources (any database accessible via an ODBC driver or OLE DB provider, such as SQL Server, MySQL, Oracle, MS Access, Sybase, DB2, PostgreSQL, etc.)

In order to run the wizard you should

- open the table in Table Editor;

- go on to the Data tab;

- select the Import Data item from the Navigation Bar.

To import data,
- Set the format [200] of the input data and the source file name;
- Map source file columns and target table fields [202];
- Specify other import options [205].

See also: Export Data Wizard [189]

7.5.1   Setting source file name and format

1. Select the format of the source file.

2. Specify the file you want to import. The file name extension in the File name box varies according to the selected import type. The wizard allows you to import data from several files at a time.

To import data from multiple files with the same structure, set the mask of the file names to the corresponding field. To see the list of matching files, use with the button on the right.

Example 1:

Suppose, you need to import data from the following tables:

D:\Data\Excel\country1.xls
D:\Data\Excel\country2.xls
D:\Data\Excel\country3.xls
D:\Data\Excel\country4.xls

The mask for these file names is *D:\Data\Excel\country*.xls*.
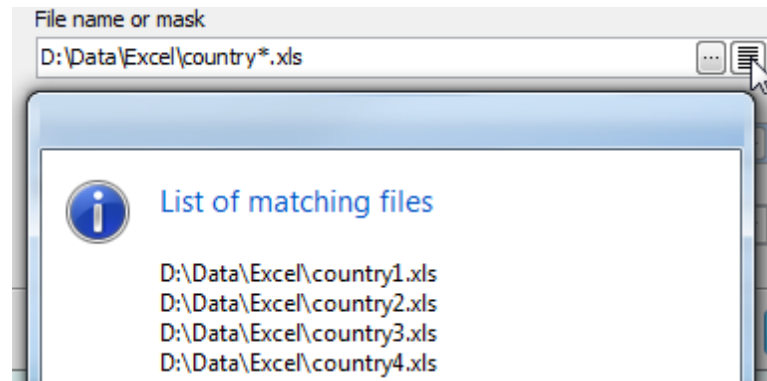
3. For ODBC data sources specify the connection string to be used to connect to the data source.

4. Select the data source to import: a table of MS Access database or a spreadsheet of MS Excel.

5. Enter the password to the database (MS Access).

6. For CSV file set the delimiter and quote characters.

7. Select source file Encoding.

8. For .XML files, define the XPath to the data to be imported to the selected table and select whether data is stored in Attributes or in Subnodes.

Example 2:
To import data from the following .xml file, use XPath=*/Employees/Employee* and Data location=*Subnodes*

```
<?xml version="1.0" encoding="utf-8"?>
<Employees>
  <Employee>
    <ID>1</ID>
    <FirstName>Klaus</FirstName>
    <LastName>Salchner</LastName>
    <PhoneNumber>410-727-5112</PhoneNumber>
  </Employee>
  <Employee>
    <ID>2</ID>
    <FirstName>Peter</FirstName>
    <LastName>Pan</LastName>
    <PhoneNumber>604-111-1111</PhoneNumber>
  </Employee>
</Employees>
```

Example 3:
To import data from the .xml file below, use XPath=*DATAPACKET/Data/Item* and Data location=*Attributes*

```
<?xml version="1.0"?>
```

```
<DATAPACKET Version="2.0">
<Data>
    <Item ID="1" FirstName="Klaus" LastName="Salchner" PhoneNumber="410-727-
5112" />
    <Item ID="2" FirstName="Peter" LastName="Pan" PhoneNumber="604-111-1111" />

</Data>
</DATAPACKET>
```

7.5.2   Setting the accordance between source and target columns

The wizard provides you with several ways to map input data to the target table columns.

- You can map columns automatically by order with the Auto Fill and Auto fill all maps buttons.

- You can do it manually using the drop-down list of Source column fields.

- To map columns visually, open Map builder [203] with the Build map link.

It's useful to save a specified map to a file for further using it in the next wizard sessions. To save a map, use the More... button and follow the Save map link.

To see the 100 first rows of input file or output table, use the More... button and follow the View source data or Preview results links respectively.

You can also specify Replacements to be applied to the selected column before the import and data format masks [204] used for the input file.

To exclude the first file row, use the File contains column header checkbox.

7.5.2.1 Map builder

To specify the accordance between source and target columns visually, use popup menu of the upper row to map source file columns to target table fields.
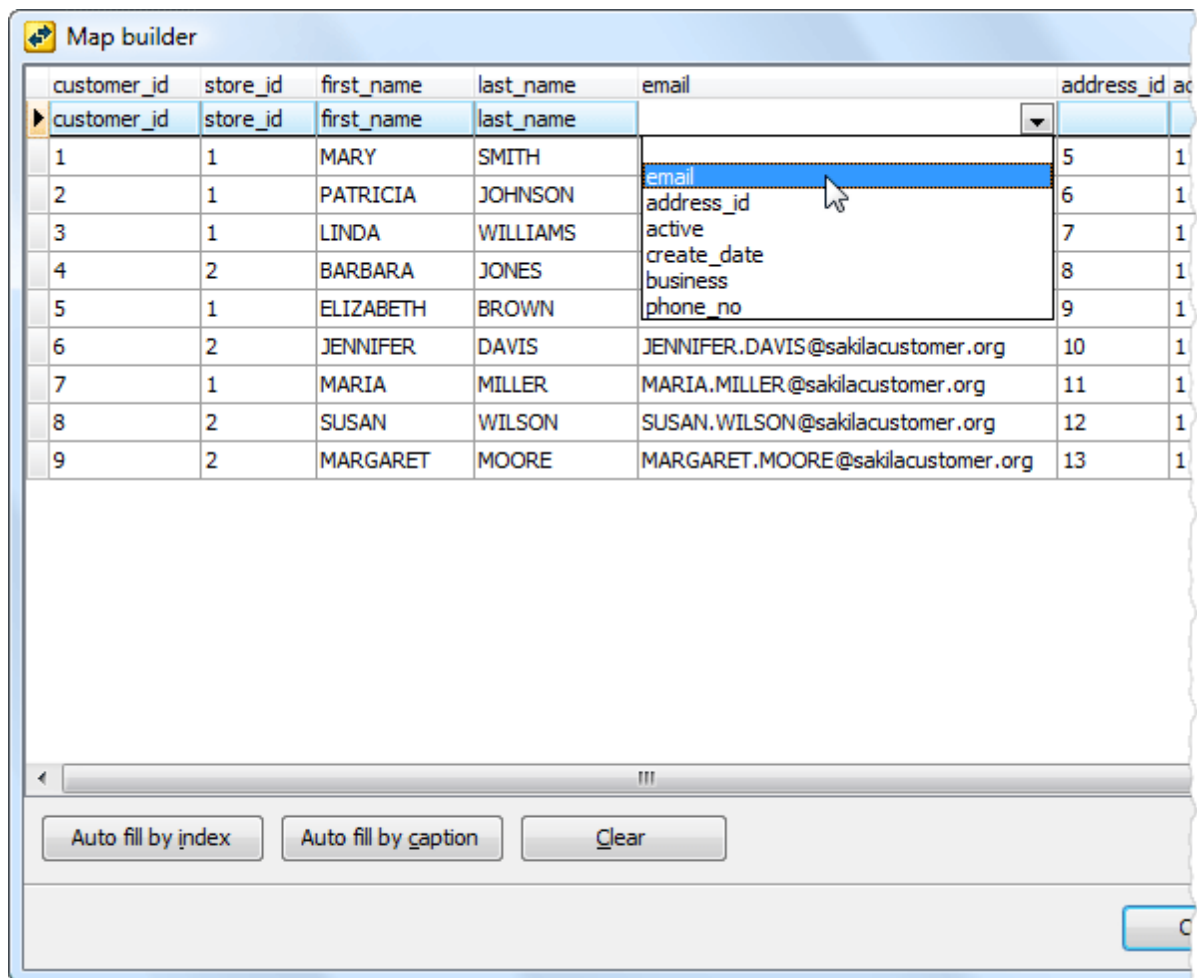
For text files define columns bounds first. To add a bound, double-click near the column data in the builder area. To map a column to a target table field, select the field in the Target field list and then click between the bounds.

7.5.2.2   Data formats

Use the window fields to indicate format masks of the source data imported to the table. It allows the application to import data correctly.

The components of the date time format mask are represented at the window. Compose

your date, time, and date time format mask of this components and separators. The following table contains some types of input fields and suggests masks to import them.

To import these input data correctly	Use these format masks
June 29	mmm dd
Jun 29, 2009	mmmm dd, yyyy
Tue Jun 14 16:50:49	ddd mmm dd hh:nn:ss
01/15/09 08:26 AM	mm/dd/yy h:nn ampm

You can also set decimal and thousand separators, and custom NULL,TRUE and FALSE values. If you have several values to be imported to NULL(TRUE, FALSE) value, use semicolons to separate them.

7.5.3   Customizing common options

On the wizard step you can set the number of records to import, whether the tool import all table records or only the specified number. In the second case you can set the number of records to skip.

Logging
This options group let you to manage logging of the import process.

Scripts
There are many cases where the import process is necessary to correct with additional scripts. So to disable table indexes before the importing, specify the corresponding scripts to be executed before and after the process.

The typical example of usage of the Before each table and After each table scripts is the import data to autoincrement columns of several tables. In this case it's neseccary to set the corresponding scripts:
SET IDENTITY_INSERT %table_name% ON
and
SET IDENTITY_INSERT %table_name% OFF
to be executed before and after import data to each table correspondingly.

LOAD TABLE statement

Import Data Wizard supports this command to insert data to the table. This feature can speed up the import process up to 10 times so it is recommended to use it always if possible. Uncheck this option to use INSERT statements instead.

8 Database Tools

ASA Maestro provides a number of powerful tools for working with databases.

The following tools are available:

- **SQL Editor** 158
  Creates and executes SQL queries.

- **Visual Query Builder** 163
  Builds queries visually.

- **Script Runner** 208
  Executes SQL scripts to the database.

- **SQL Script Editor** 209
  Allows to edit and execute SQL scripts.

- **Generate Database Report Wizard** 211
  Generates the database HTML or PDF report for structure of selected object in a whole or partially.

- **BLOB Viewer** 213
  Displays a content of BLOB fields in different representations.

- **Diagram Viewer** 219
  Represents data from a table or a query as a diagram in various ways.

- **Data Analysis** 223
  Allows to slice and dice information efficiently according your business rules.

- **Report Designer** 228
  Prepares data for reading, viewing, and printing in a polished look.

- **Schema Designer** 235
  Allows to represent database tables and relationships as ER diagrams.

- **SQL Generator** 241
  Provides you with a set of simple SQL statements.

- Simple tools for **DML procedures** 242 and **Updatable views** 244 generation allow to create a bunch of CRUD procedures automatically.

8.1 Script Runner

Script Runner is designed for executing of SQL scripts that don't require modifications. The window can be invoked from the Tools menu or with the Execute script from file link of SQL Script Editor [209].

Script Runner allows to execute .sql files as well as archived scripts directly from .zip files. In case archived files this tool unpacks zip archives to temporary files by itself for further executing.The tool neither starts any implicit transactions before executing the script nor issues COMMIT or ROLLBACK commands after the executing.

To execute a script with Script Runner, set the file name and the Stop execution on error option value. This option allows to view all the execution errors (OFF). The specified script will be executed immediately on the database which name is represented at the top of the window.
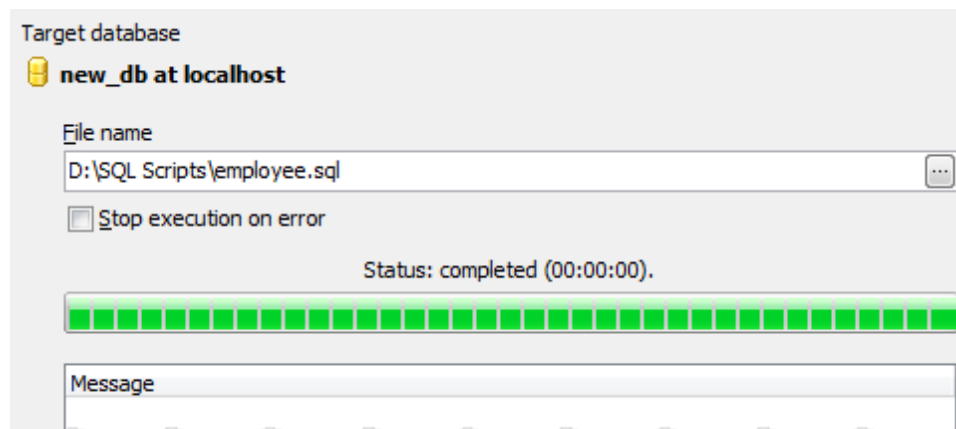
8.2   SQL Script Editor

SQL Script Editor is designed for SQL scripts editing and executing. The editor does not display results of SELECT queries. To work with such queries' data, use SQL Editor 158. If you have a script that is ready to use, execute it with Script Runner 208. To open SQL Script Editor, select the Tools | SQL Script Editor main menu item.

To work with a script within SQL Script Editor, load it from an *.sql* file or type it in the editor area directly. To prevent mistakes in SQL syntax, the editor supports syntax highlighting, code completion and divides the script text into logical parts that can be individually collapsed or expanded (code folding). All the logical parts are represented at the Explorer at the Navigation bar. It allows you to transfer to the proper script fragment quickly by clicking the corresponding node in the tree.

SQL Script Editor allows you to execute the whole SQL script or only its selected part. To make the executing of a large script much faster, execute the script directly from a file with Script Runner 208. By default, if a user opens a file larger than 100K, SQL Script Editor will suggest him to execute the script file without opening it in the editor. This file size may be changed at the editor's options 261 tab.
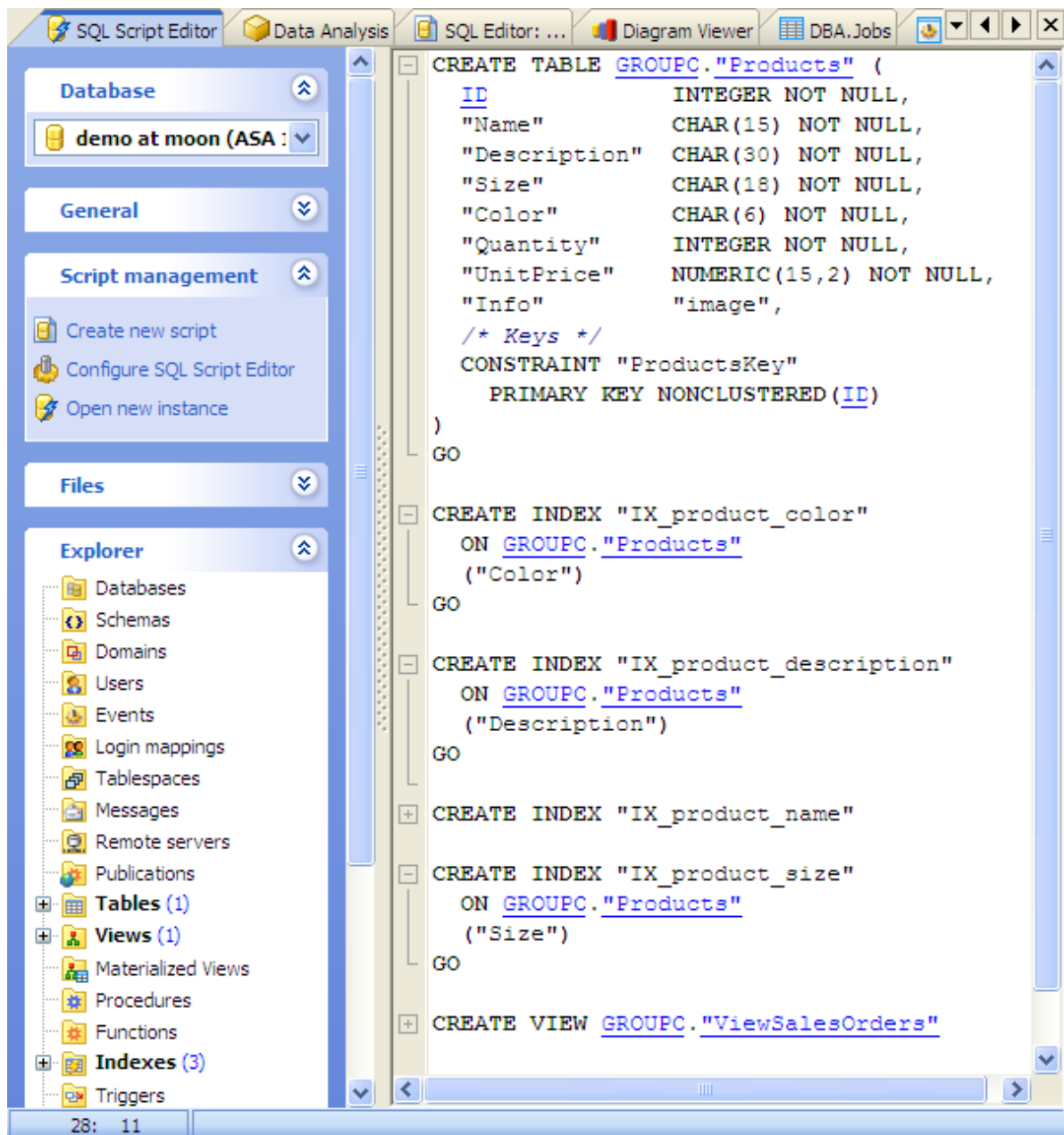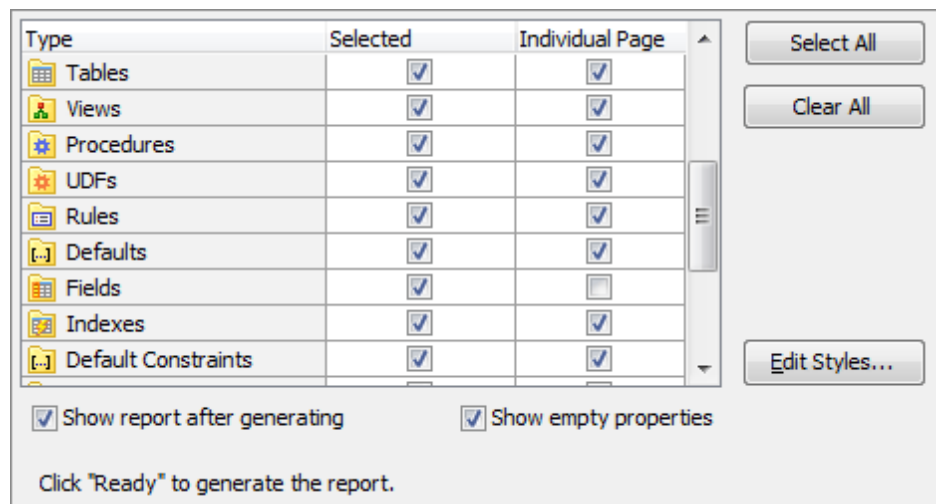
8.3 Generate Database Report

With the help of Generate Database Report Wizard you can create HTML or PDF report for the structure of the selected object in the whole or partially. To run this wizard select the Tools | Generate Database Report main menu item.

- Selecting reporting elements and setting other report options [211]
- Specifying reporting objects and editing styles [211]

8.3.1 Selecting reporting elements and setting other report options

Select the report object and the report format items, set the report title and the report path options in the respective boxes.

8.3.2 Reporting objects and editing styles options
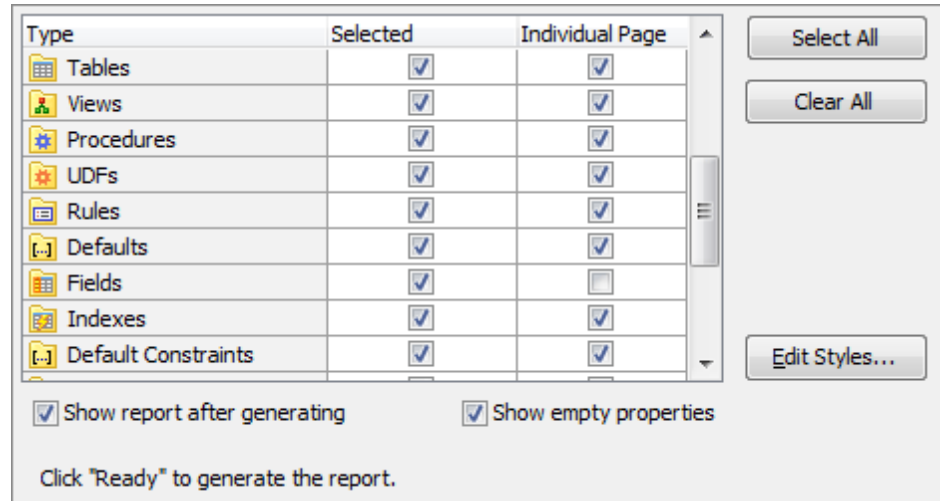
This step allows you to select the essential objects to report and to specify the output format and style using Report Style Editor [212].

☑ Show report after generating

If checked, opens the result files in the associated program after making the report.

☑ Show empty properties
If checked, allows you to report objects even if they are empty.

8.3.3 Editing database report style

Using Report Style Editor you can specify style properties of a report including font size, color and name for different elements.

8.4 BLOB Viewer

BLOB Viewer allows you to view the content of the BLOB fields in various representations.

- Viewing BLOB field as hexadecimal dump [213]
- Viewing BLOB field as plain text [214]
- Viewing BLOB field as graphical image [215]
- Viewing BLOB field as HTML [216]
- Viewing BLOB field as PDF [217]

See also: BLOB Editor [184]

BLOB Viewer also allows you to save all BLOBs from a table or view to a given directory. Just click Save to files on the Navigation bar and fill all fields in the Export BLOBs window shown below. You can use table columns' names enclosed in % as a file name template.
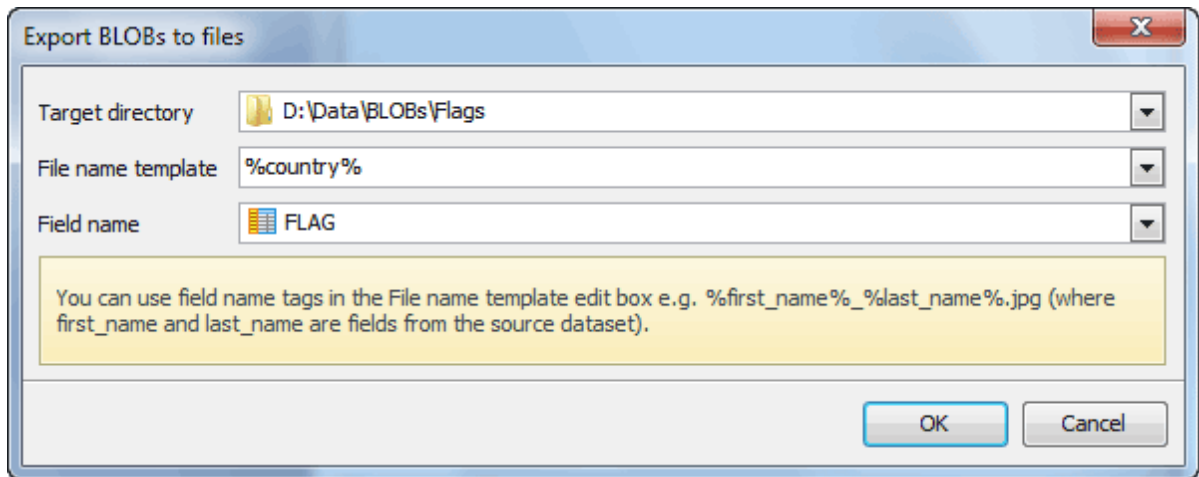
8.4.1 Viewing as hexadecimal dump

The Hexadecimal panel allows you to view data in hexadecimal mode.
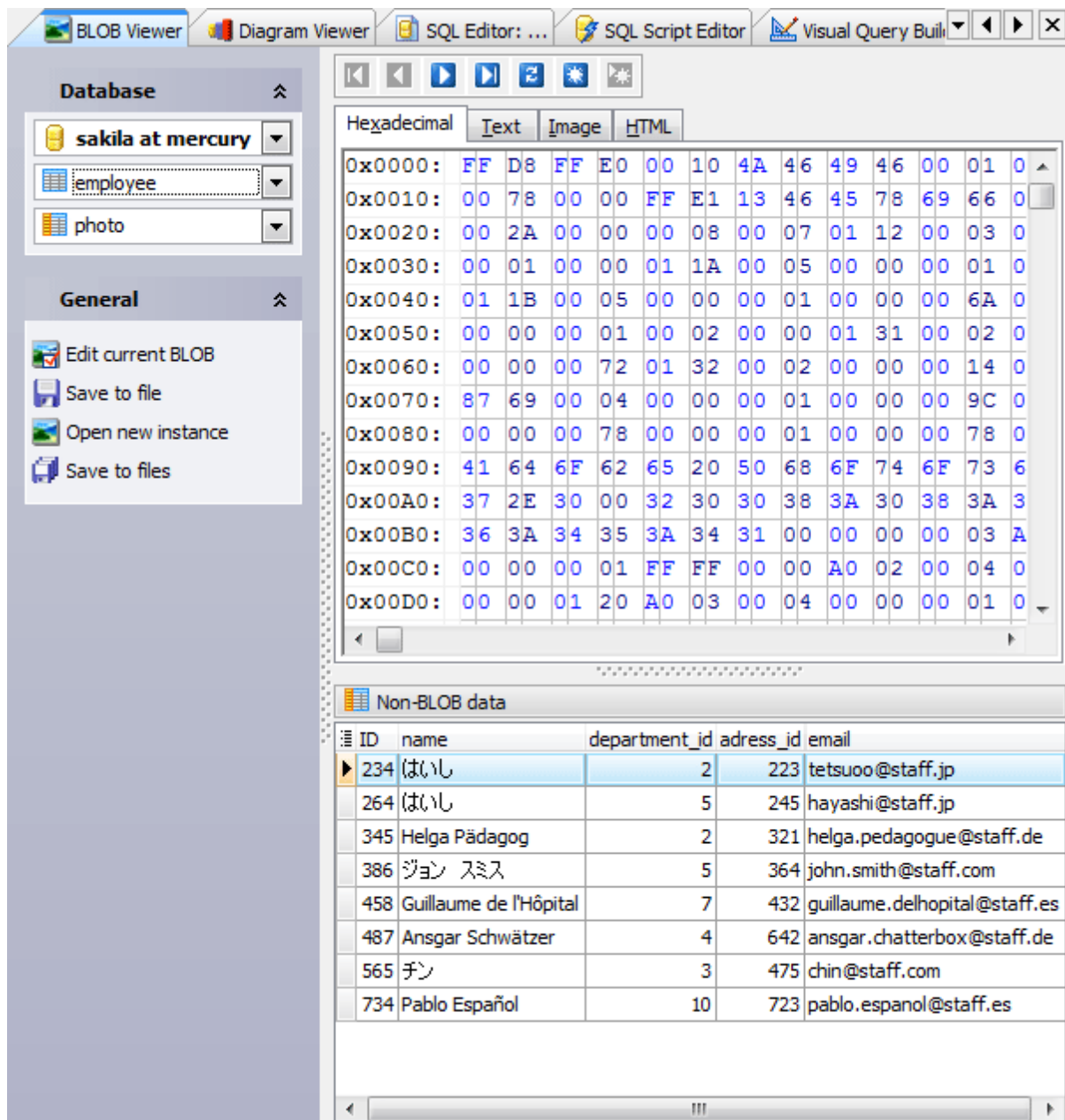
8.4.2   Viewing as plain text

The Text panel allows you to view data as simple text. For your convenience several types of text highlighting are available (*Plain text, HTML, JScript, CSS, PHP, XML, SQL, and SQLite DDL*). The popup menu of the panel provides you to Find or Replace a necessary text fragment.
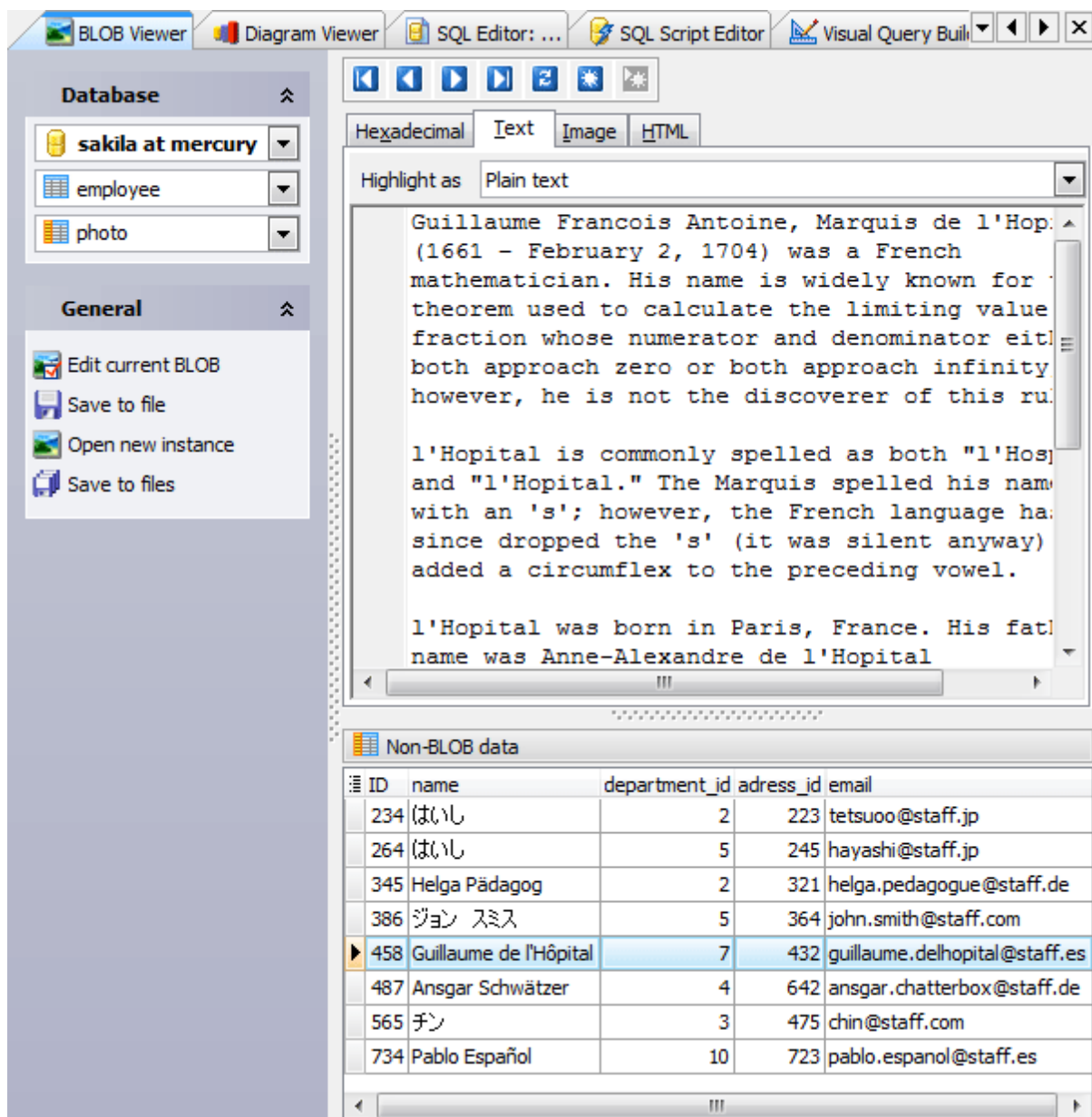
8.4.3 Viewing as image

The Image panel displays field data as image.
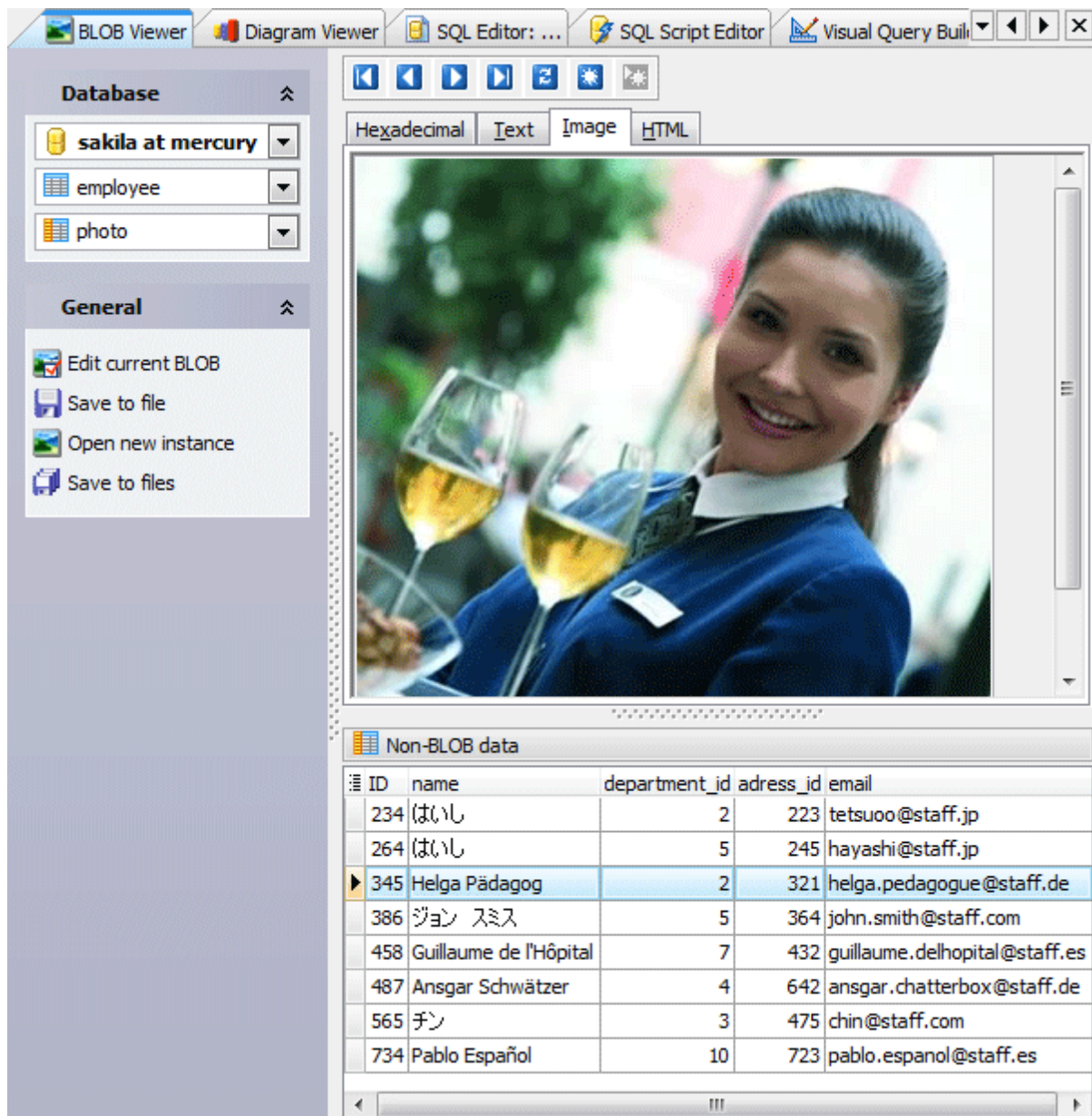
8.4.4 Viewing as HTML

The HTML panel displays field data as HTML.
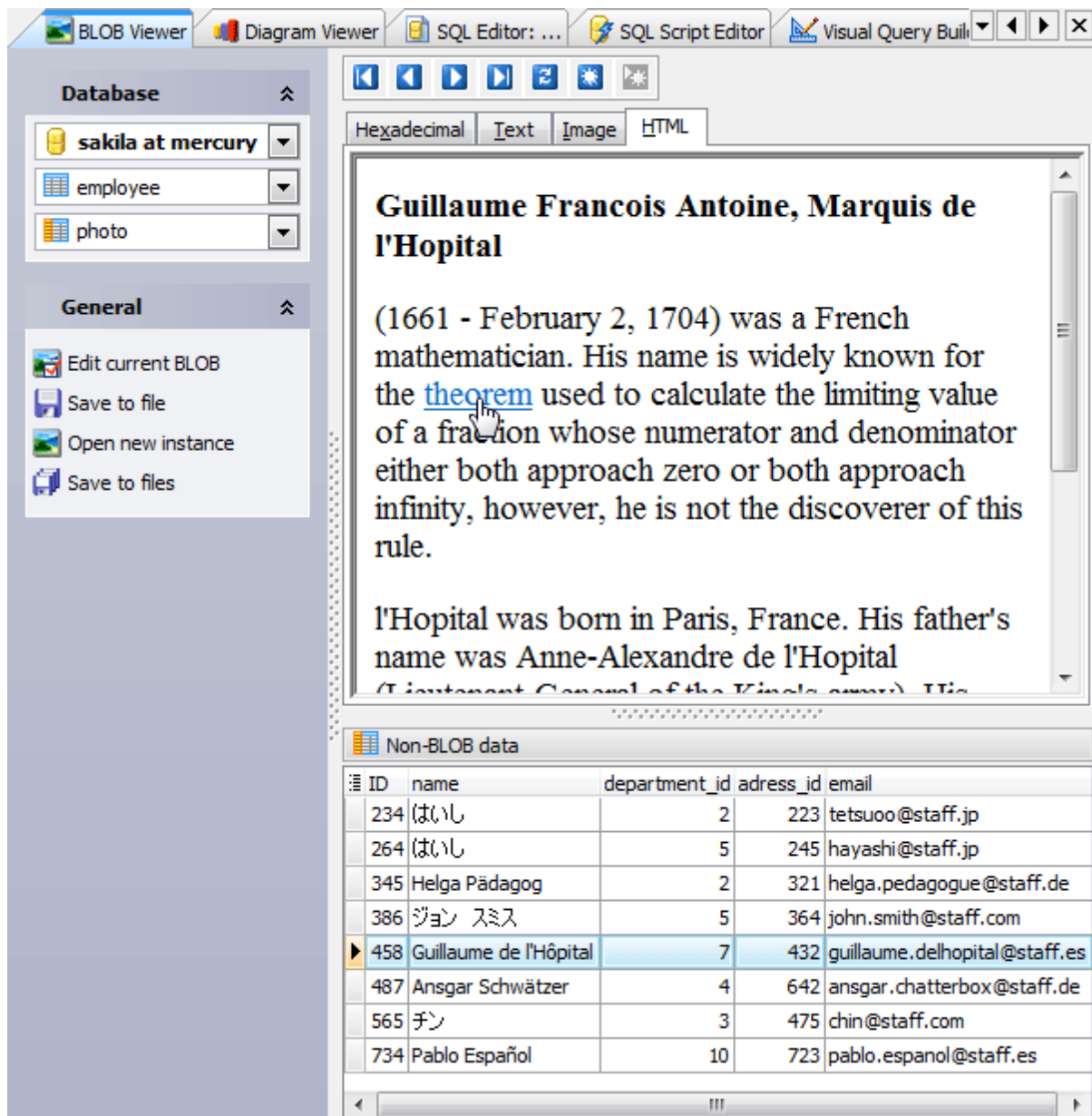
8.4.5 Viewing as PDF

The PDF panel allows you to browse PDF data stored in the database.

BLOB Viewer | SQL Script Editor | Data Analysis | Visual Query Builder | Designer

Hexadecimal | Text | Image | HTML | **PDF**

Database

🟡 **test_utf8 at d**

📊 public.software

📊 manual

General

🖼 Edit current BLOB
💾 Save to file
🖼 Open new instance
📋 Save to files

18 / 103 75% Comment Share

15   PostgreSQL PHP Generator Help

2   Getting started

Connection properties
Set the connection parameters for the c
with.

Script connection properties
Specify here connection parameters for Postgre
example, if your webserver and PostgreSQL se
Host as localhost.

Projects
When working with a project, all the session
and may be edited if necessary. To run a w
Project on the first wizard step and enter
projects are also available from this popup
Projects.

Connection properties

⦿ I can connect to the server directly or via SSH tunneling
Configure SSH options

8.50 x 11.00 in

📊 Non-BLOB data

id	full_name	description_id
1	PostgreSQL PHP Generator	1
2	Code Factory for MySQL	3
3	SQLite DataWizard	2
4	MS SQL Maestro	4

8.5   Diagram Viewer

Diagram Viewer is a tool for representing data from a table or a query as a diagram in various ways. This means you can build a diagram represented as bars, lines, areas, points or pies, colored or not, with axis visible or not; specify axis labels source, diagram header and more. The Diagram Viewer also has the Export diagram image [22h] and the Export diagram data features implemented, with a lot of formats supported.

- Customizing diagram options [220]
- Exporting diagram as a graphical image [22h]
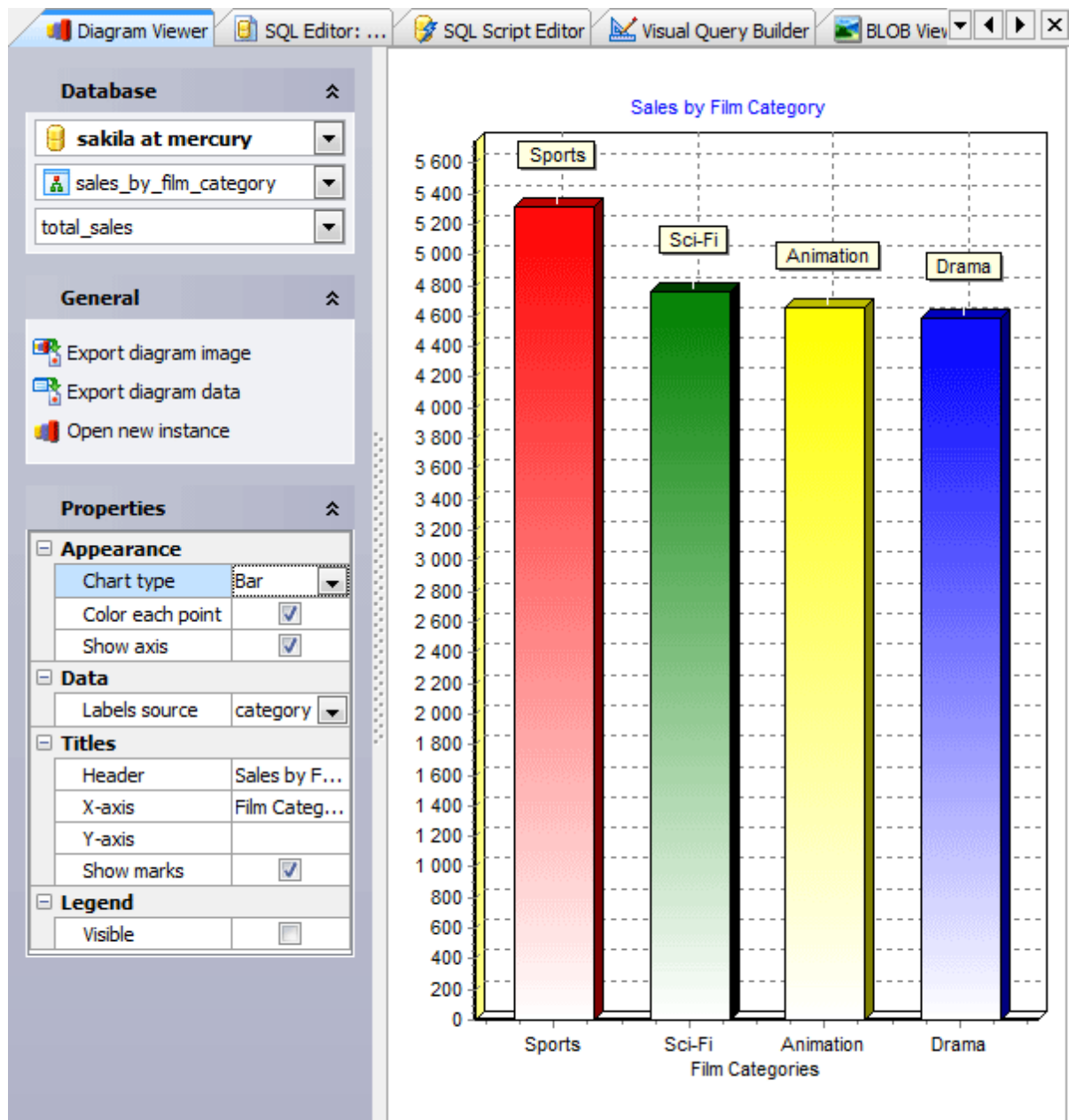
8.5.1   Customizing diagram properties

To build a diagram in Diagram Viewer, you should select the source field(s) to be represented in the diagram first. Only numeric types of fields can be used in the diagram, and each selected field corresponds to a separated diagram series. Fields are selected by checking items in the third combo box from the top in the Database group of the Navigation Bar. If the combo box is empty then either data source is not yet selected or it contains no numeric fields.
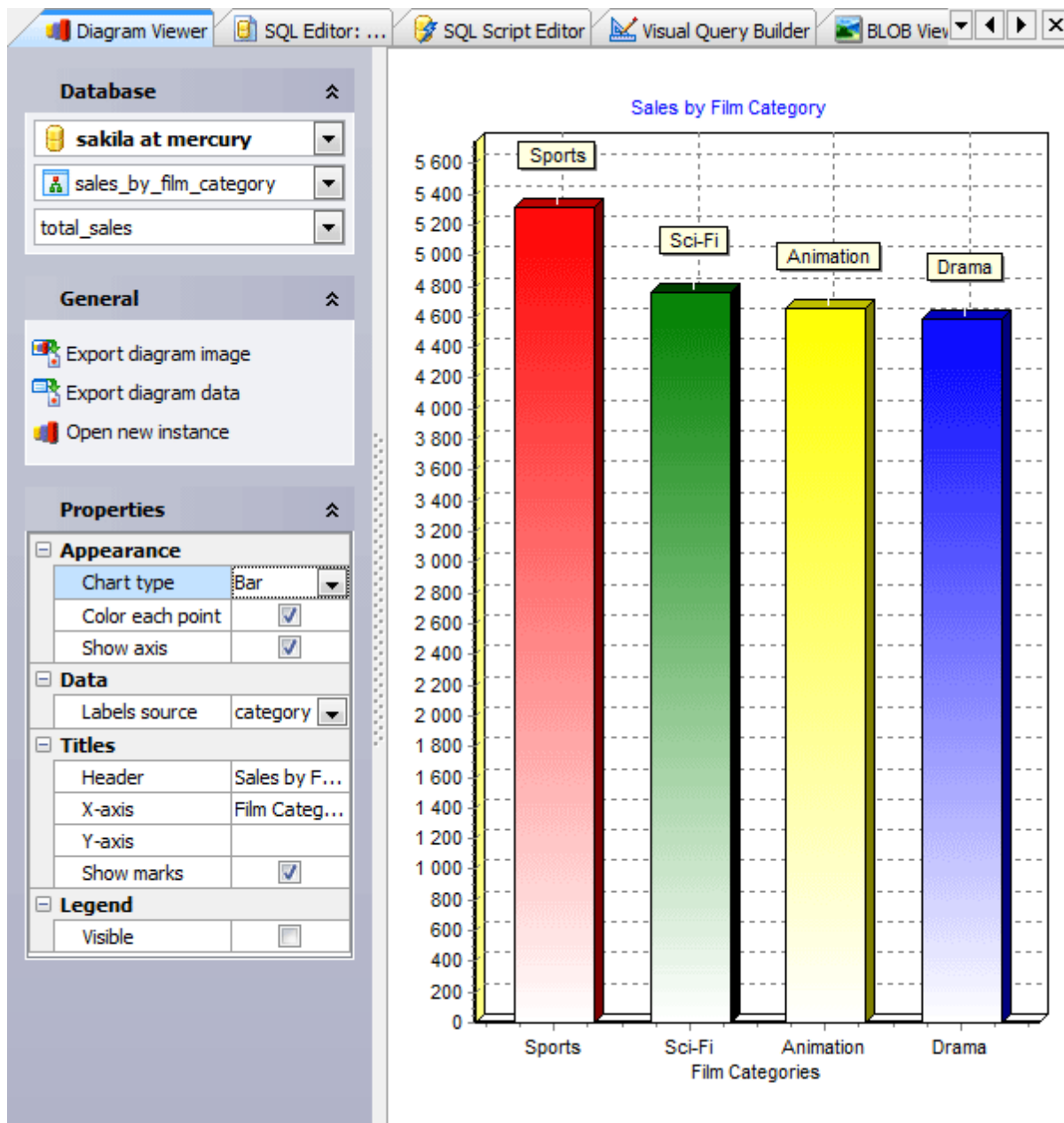
Diagram Viewer provides a special control for customizing the diagram properties. This control is located in the Properties group of the Navigation Bar and consists of four separate subgroups:

Appearance

Contains properties responsible for major diagram appearance:

- **Chart type** - defines a way of how the diagram will be represented: as bars, lines, areas, points, pies, or fast lines
- **Color each points** - if checked, each bar, point, line or sector of the diagram has an individual color; if not checked, all the points are colored red
- **Show axis** - defines if the diagram has the axis and background grid or not

Data

Contains the **Labels source** property which allows you to specify the field for X-axis labels as well as for diagram point marks .

Titles

Contains properties for defining titles for different parts of the diagram:

- **Header** - defines the title appeared on the top of the diagram
- **X-axis** and **Y-axis** - define the titles for diagram axis
- **Show marks** - defines if the diagram point marks are visible or not

Legend

The only **Visible** property of this subgroup specifies whether the legend rectangle should be represented on the right side of the diagram or not.

8.5.2   Exporting diagram image

Diagram Viewer provides an ability to export current diagram to a file as graphical image. This ability is constituted in **Export Diagram Wizard** which can be invoked by the **Export diagram image** item of the **Navigation Bar**.

Select the desired graphical format in the **Destination format** radio group and specify the file name in the **Destination file name** box.

Welcome to the Export Diagram Wizard!
This wizard allows you to export diagram as an image in most popular formats, such as Windows metafile, BMP, PDF, WML, JPEG and much more.

The wizard will guide you through the process of exporting diagram into the graphical file.

Destination format

- ⦿ BMP   ◯ PDF   ◯ JPEG   ◯ GIF   ◯ Postscript
- ◯ Metafile   ◯ VML   ◯ PNG   ◯ PCX

Destination file name

C:\Documents\Diagrams\sales_by_film_category.bmp

Set the destination width and height by the corresponding spin edits. Check or uncheck the **Keep aspect ratio** option to keep the image ratio for exported image or not. Check the **Open exported image in associated program** option to view the image after the export is done.

Image size

Width   386

Height   611

☑ Keep aspect ratio

☐ Open exported diagram in associated program

Click "Ready" to export the diagram.

8.6   Data Analysis

Data Analysis is a tool to define a multidimensional model with analytic calculations to analyze information also called OLAP cube. Such cubes could effectively be re-oriented. So the tool allows you to view data in various ways, such as displaying all the cities down the page and all the products across a page and then immediately view it in another way. Because this re-orientation involves re-summarizing very large amounts of data, this new view of the data has to be generated efficiently to avoid wasting the analyst's time, i.e. within seconds, rather than the hours a relational database and conventional report-writer might have taken. It allows you to focus on business rules rather than creating dozens and dozens of reports. To run Data Analysis, choose Tools | Data Analysis main menu item.

To get an OLAP cube:
- Input SELECT query 224 in the Query window or load it from the .cub file.
- Manage report data 225 in the Data window.

The Data Analysis tool allows you to save the created OLAP cube to .cub file, print it, or export it to Excel, HTML, XML, and text file.

		0736	0877	1389	Grand Total
⊟Bennet	The Busy Executive's Database Guide			19,99	19,99
⊟Blotchet-Halls	Fifty Years in Buckingham Palace Kitchens		11,95		11,95
⊟Carson	But Is It User Friendly?			22,95	22,95
⊟DeFrance	The Gourmet Microwave		2,99		2,99
⊟Dull	Secrets of Silicon Valley			20,00	20,00
⊟Green	The Busy Executive's Database Guide			19,99	19,99
	You Can Combat Computer Stress!	2,99			2,99
Green Total		2,99		19,99	22,98
⊟Gringlesby	Sushi, Anyone?		14,99		14,99
⊟Hunter	Secrets of Silicon Valley			20,00	20,00
⊟Karsen	Computer Phobic AND Non-Phobic Individuals: Beh		21,59		21,59
⊟Locksley	Emotional Security: A New Algorithm	7,99			7,99
	Net Etiquette				
Locksley Total		7,99			7,99
⊟MacFeather	Computer Phobic AND Non-Phobic Individuals: Beh		21,59		21,59
	Cooking with Computers: Surreptitious Balance Sh			11,95	11,95
MacFeather Total			21,59	11,95	33,54
⊟O'Leary	Cooking with Computers: Surreptitious Balance Sh			11,95	11,95
	Sushi, Anyone?		14,99		14,99
O'Leary Total			14,99	11,95	26,94
⊟Panteley	Onions, Leeks, and Garlic: Cooking Secrets of the		20,95		20,95
⊟Ringer	Is Anger the Enemy?	21,90			21,90
	Life Without Fear	7,00			7,00
	The Gourmet Microwave		2,99		2,99
Ringer Total		28,90	2,99		31,89
⊟Straight	Straight Talk About Computers			19,99	19,99
⊟White	Prolonged Data Deprivation: Four Case Studies	19,99			19,99
⊟Yokomoto	Sushi, Anyone?		14,99		14,99
⊟del Castillo	Silicon Valley Gastronomic Treats		19,99		19,99
Grand Total		59,87	147,02	146,82	353,71

8.6.1 Input SELECT query

To get an OLAP cube [225], enter SELECT query as a snowflake schema, represented by centralized fact tables (with numeric data) which are connected to multiple dimensions (the numeric data to be categorized by). Input the query text in the SQL Editor area directly or use "drag-n-drop" operation SQL Editor or Visual Query Builder areas and the Query tab of Data Analisis.
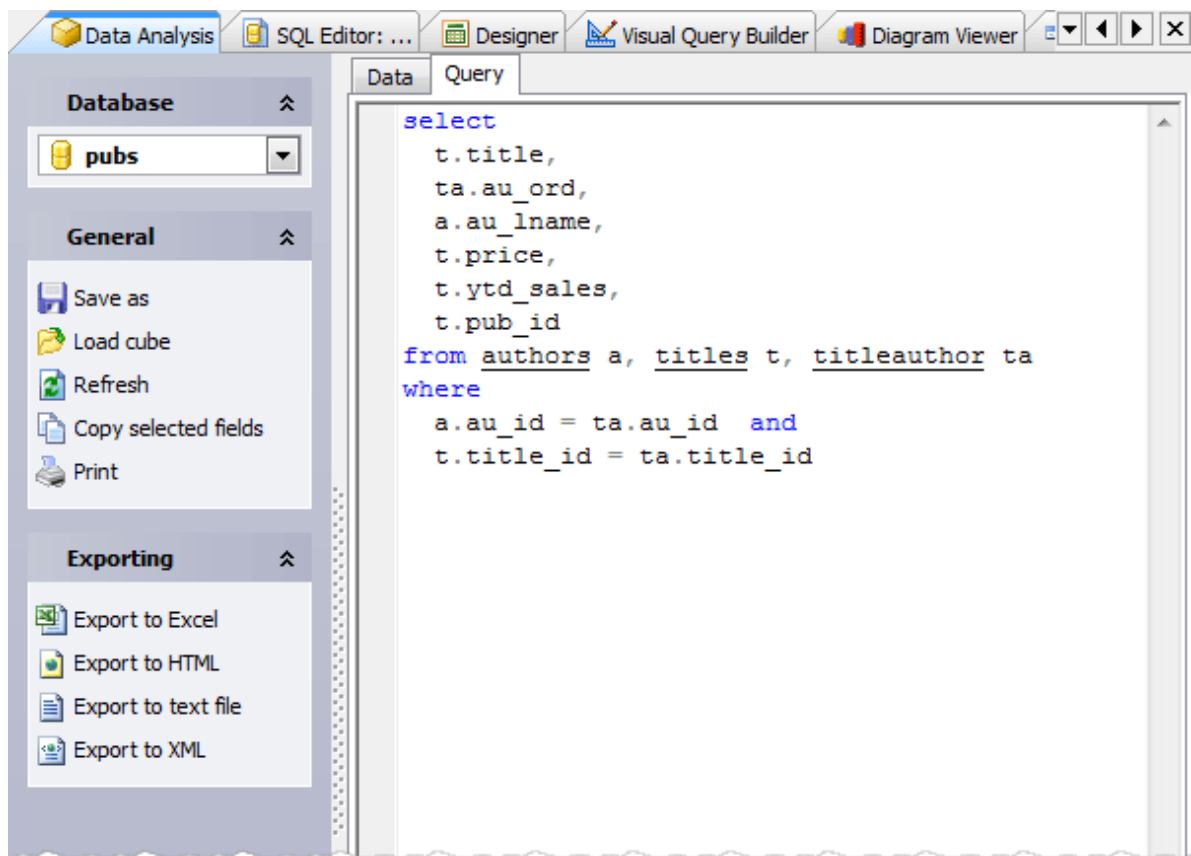
8.6.2   Managing report data

The Data tab allows you to manipulate the created OLAP cube appearance. At the beginning all the query 224 columns are arranged at the top of the tab. Put them according to your business rules: drag numeric columns to be filtered and summarized corresponding to the chosen columns and rows to the Data Fields area; place necessary columns to Column Fields / Row Fields areas respectively.

Note: Use for the Data Fields area only numerical columns.

To set the aggregates calculated on the numeric columns, use the Customize cub window opened with the corresponding link at the Navigation bar. The window provides you also with an ability to specify columns the summary to be sorted by, the sort order and the max number of records represented in grid.
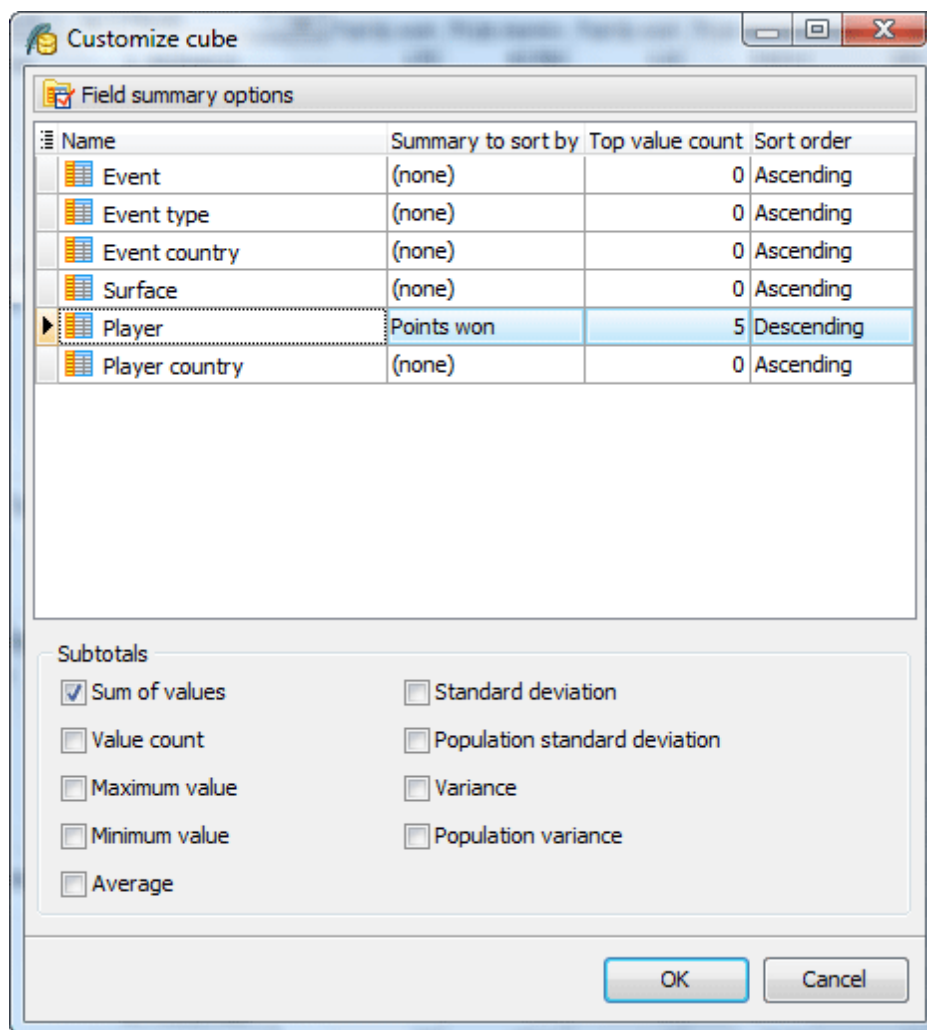
8.7   Report Designer

Report Designer allows you to create database reports, define reports appearance in your own style, equip it with master-detail data views, aggregate functions, and images and control the result with the ability of simultaneous previewing. To run Report Designer, choose Tools | Report Designer main menu item.

To create a report, you need to:

- specify data sources 230 for the data to be used in the report;
- add all necessary objects 230 to the report template;
- set the objects' format within the Inspector window 232.

The prepared report pages are available immediately at the Preview window where you can browse it, save to it an .smr file, or print.

Report Designer in Action
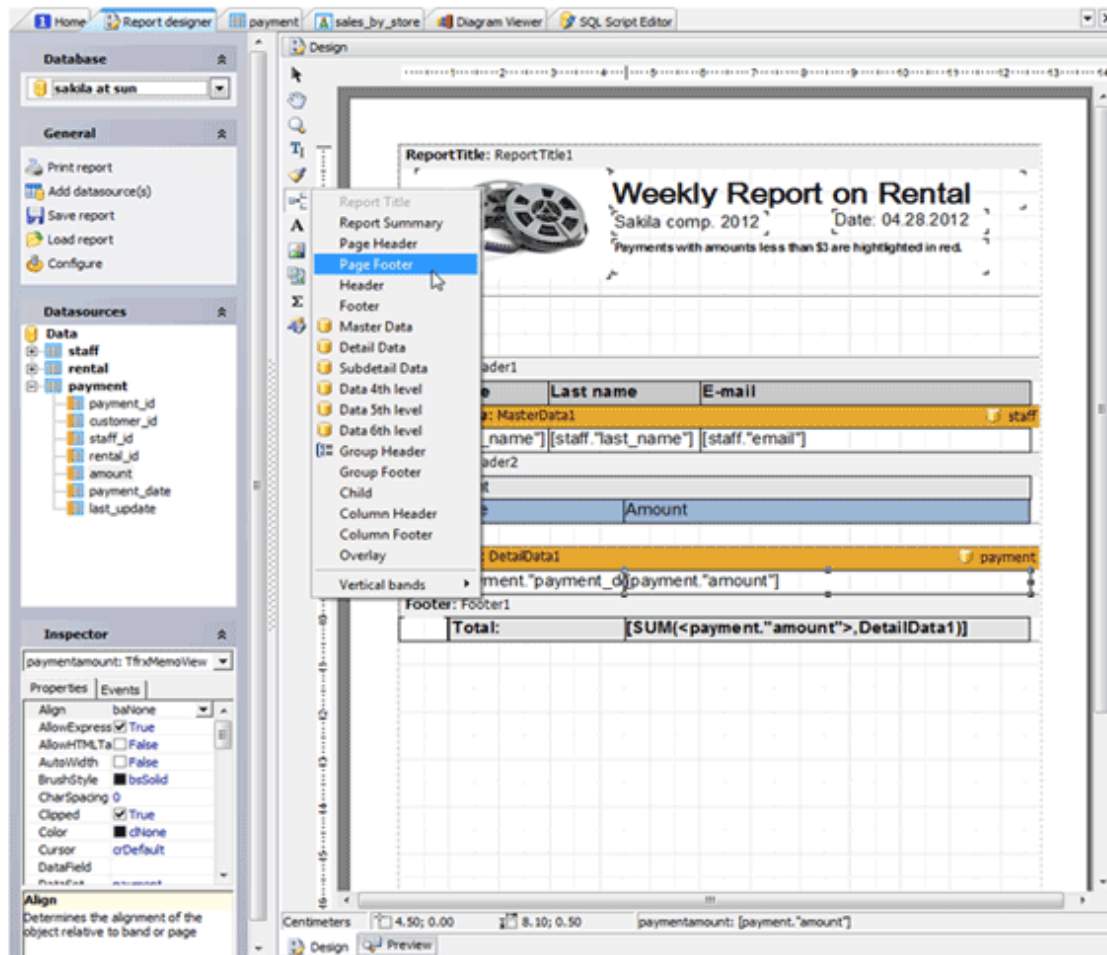
Report Preview
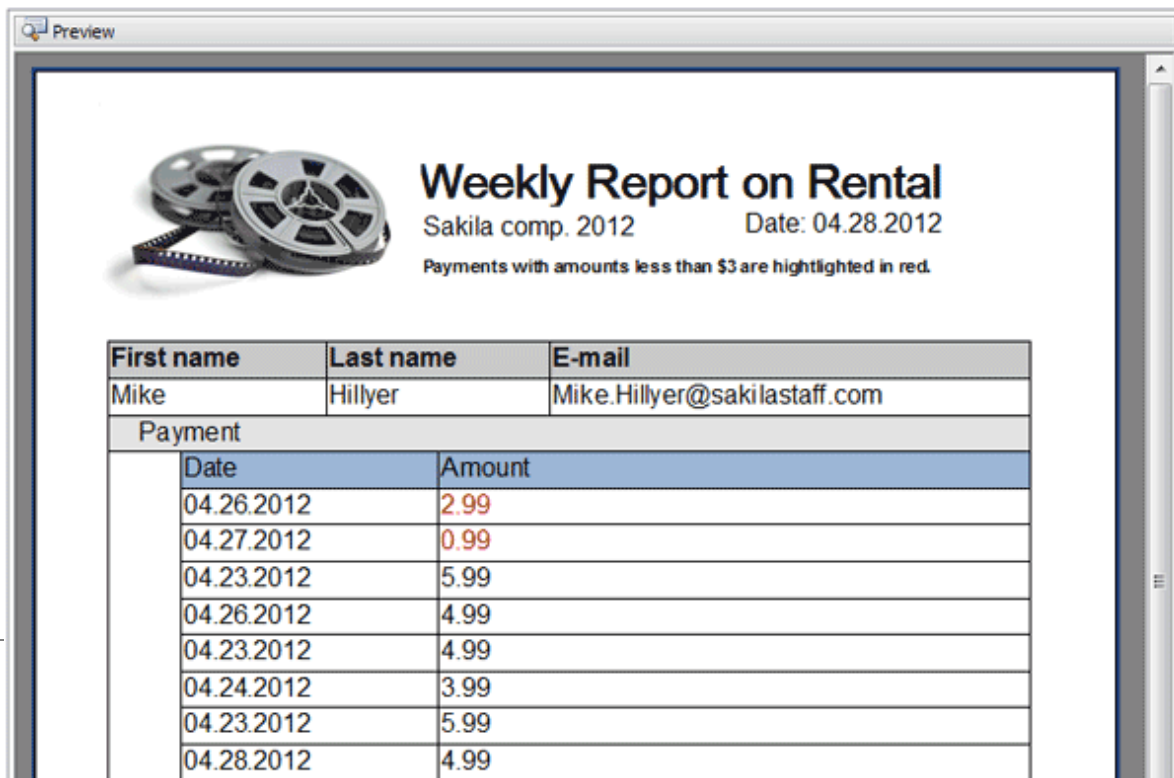
8.7.1 Designer Tools and Objects

A blank report is presented as a paper page. At any place on the page, a user is able to add objects, which can display different information (such as text and/or graphics), as well as to define report's appearance. There is a possibility to use rulers and a grid with a specified size in the Design tab. To enable/disable these options, follow the Configure link at the Navigation Bar and check the corresponding boxes.

Datasources
To use content of a table (view) column data in a report,
- check the necessary database is selected as Database at the Navigation Bar;
- drag the table which data to be used in the report to the Datasources pane at the Navigation Bar;
- drag the necessary column from this pane and drop it to the necessary location on a report page.

Designer tools:
Select tool
The standard tool to select objects, modify their sizes, etc.

Hand tool
The tool allows dragging a report page.

Zoom tool
When the button is pressed, clicking on the left button doubles the zoom (adds 100%), while clicking the right one zooms out by 100%. When holding the left mouse button while dragging,the selected area would be zoomed.

Edit text tool
Clicking on the text object allows editing its contents right on the report page. If you hold the left mouse button when moving the cursor, the text object appears in the selected place, and then its editor launches.

Copy format tool
The button becomes enabled when the text object is selected. When clicking on the text object with the left button, it copies formatting, which has the previously selected text object, into the object.

Available objects:
Band objects allow to specify where, when, and how to display data and information in reports. Bands are used for logically placing the objects it contains at a location on the output page. Insert Band adds an area with definite behaviour according to it's type such basic bands as Header, Footer, Title, and Summary, and databands whose allow to print data from database tables such as Master Data, Detail Data, etc.

Text object displays one or several text lines within the rectangular area.

Picture object displays a graphic file in BMP, JPEG, ICO, WMF, or EMF format.
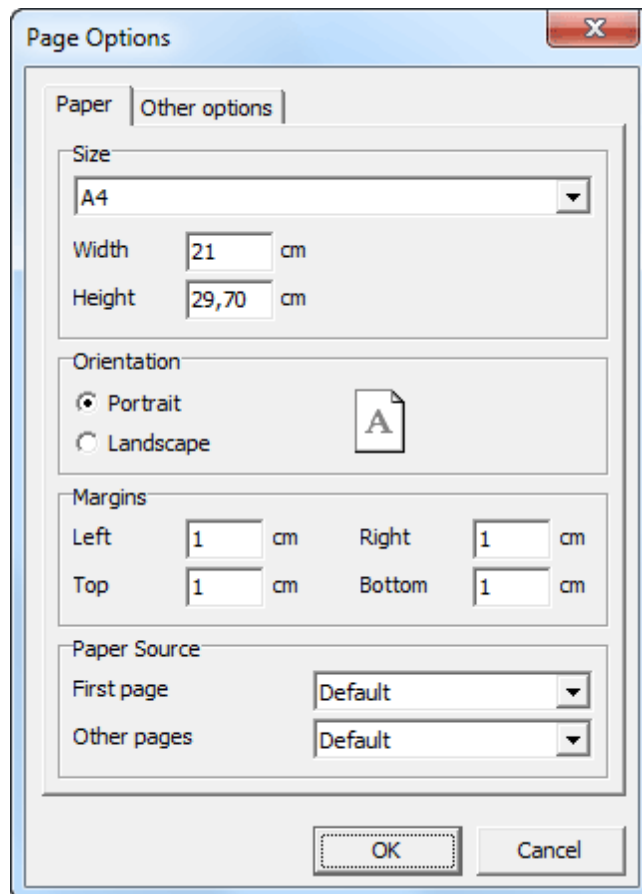
Subreport object allows inserting an additional report design page inside the basic one.

System text displays service information (date, time, page number, etc), as well as aggregate values.

Draw object represents different geometrical figures (diagonal line, rectangle, rounded rectangle, ellipse, triangle, and diamond).

Page options

This dialogue allows you to set the page settings of the prepared. To invoke the window, use the Edit... link of the page blank space popup menu. The dialogue has two pages: Paper and Other options. On the Paper page, you can select size and alignment of paper, as well as set margins. In Paper source drop-down lists you can select a printer tray for the first page and the rest of the report pages.

On Other Options you can set the number of columns for multi-column reports' printing. The current settings are displayed in the designer.
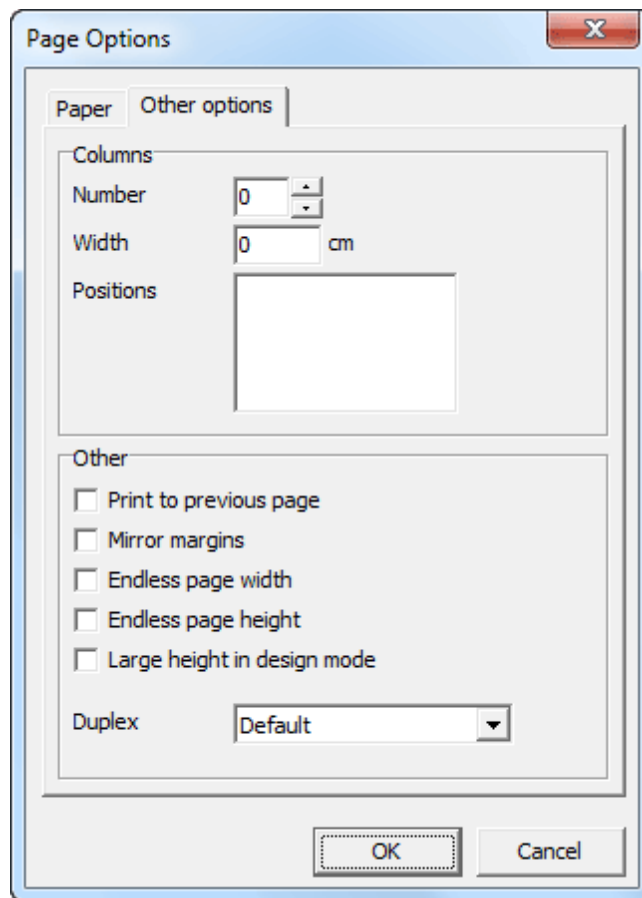
The Print to previous page flag allows you to print pages, beginning from blank space of the previous page. This option can be used in case when a report template consists of several pages or when printing batch (composite) reports.

The Mirror margins option switches right and left margins of page for even pages during previewing or printing a report.

The Endless page width & height option increases page's sizes depending on number of data records on the page (when running a report). In this case you will see one big page in the preview window instead of several standard size pages.

The Large height in design mode option increases page's height several times more. This feature can be useful if many bands are located in the page, and must be used when working with the overlay band. This only effects the page height in design mode.

8.7.2   Object Inspector

Object Inspector pane allows you to specify the appearance of each report object in detail. To setup object properties, select it at the Design area or select it from the popup menu at the top of the pane. Now all the properties of the object are available for editing. The most of properties are provided by a set of available values. The description of the selected option is displayed at the bottom of the pane.
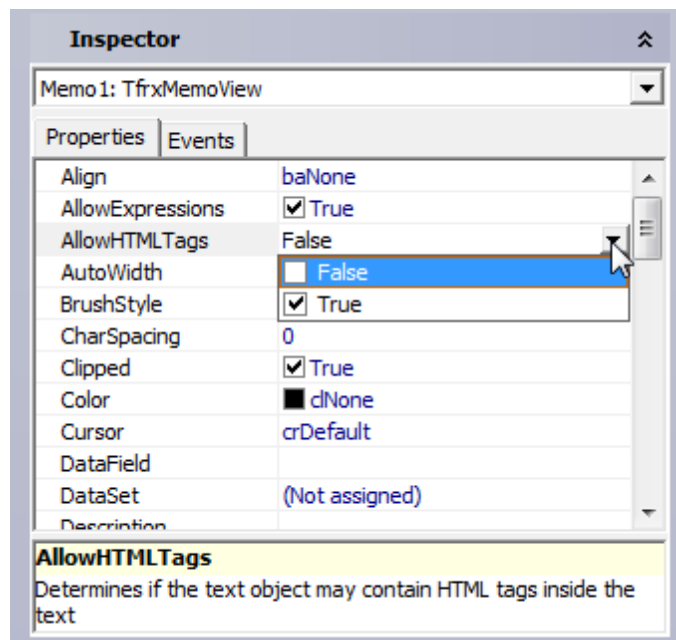
Below you can find a brief description of several options.

Align - set here the align option of the object according to the list.

AllowExpressions - enables the ability to display not only a static text, but expressions as well.

AllowHTMLTags - Enables using some simple HTML tags inside the text of an object. This option is disabled by default. Here is the list of supported tags:

    <b> - bold text;
    <i> - text in italic;
    <u> - underlined text;
    <sub> - subscript;
    <sup> - superscript;
    <font color> - font color;
    <nowrap> - text which does not get broken up when using WordWrap, but gets transported wholly.

Font: there are abilities to specify the charset, font color, font name, and font size, and also set the bold, italic, underline, strike out attributes.

Frame: You can set as the color, the style and the shadow for all the frame, as well as for each frame line.

BrushStyle – type of object filling.

CharSpacing – space between symbols in pixels.

GapX, GapY – text indents from object's left and top boundaries (in pixels).

LineSpacing – space between lines (in pixels).

ParagraphGap – the first paragraph line indent (in pixels).

Rotation - specify the angle of the text rotation in the field.

WordWrap - if it is disabled, the long lines will be simply cut off.

8.8   Schema Designer

Schema Designer allows you to create physical Entity Relationship Diagram that will represent objects in your Sybase SQL Anywhere database. A diagram represents the tables of your database and the relationships between them. The tool is intended for reverse engineering and database modification in an easy and powerful way. It helps you to simplify database maintenance.

A diagram of your database can help you define operational aspects of your application logic that you might otherwise overlook. Also, a well-defined data diagram that accurately represents your tasks can be helpful in orienting employees to goals and operations. The data diagram can also serve as an invaluable communications tool for both internal and external constituents.
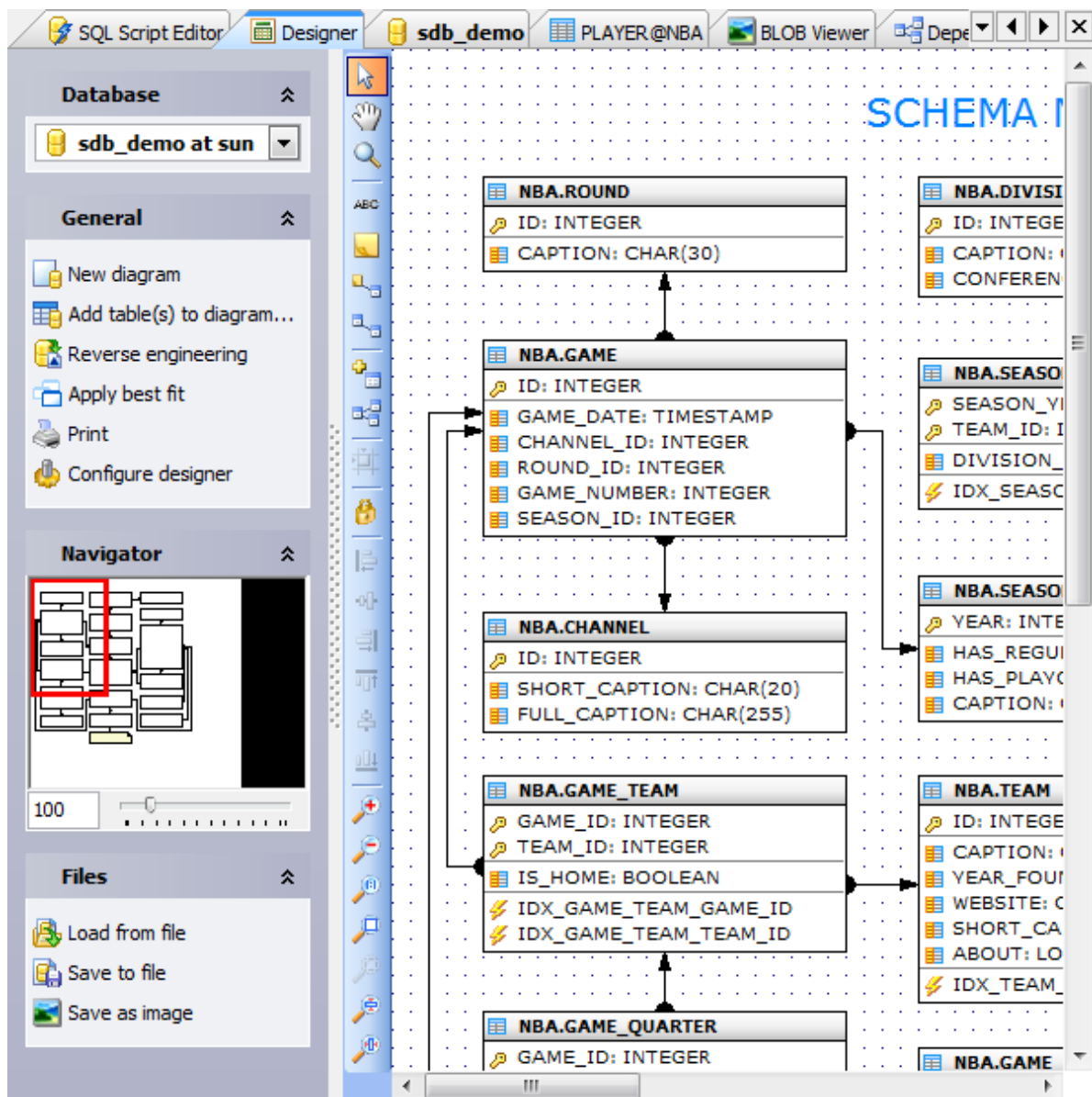
Below you can find answers for the following questions:
- How can I add a table to a diagram? [236]
- How can I add a relationship between tables? [236]
- How can I delete a diagram object? [236]
- How can I work with diagram objects? [237]

See also: Designer Navigation bar [237], Schema Designer Toolbox [238].

Adding a table
You can add an existing Sybase SQL Anywhere table to the diagram using popup menu in the working area, or with the corresponding link on the Navigation bar [237].

To create a new table, use the appropriate item of the popup menu in the working area. The table will be created in the current database.

Tables also may be dragged on the diagram from Explorer and the similar to Explorer tools like Object Manager and Object Browser.

Moreover, Designer provides you with a possibility to represent all the tables and relationships existing in the database automatically (the Reverse engineering link of the Navigation bar). At that the database contents will be represented on a diagram in the most compact and vivid manner.

All the diagram objects are available for editing. Just double click the object (table or relationship) to view/edit its properties within the corresponding editor.

Adding a relationship between tables
At adding to a diagram tables that reference on each other, the relationships between tables are represented automatically. The Schema Designer tool also allows you to add new foreign keys to the diagram tables. Thereto you can do the following.

Select a table (child table)
- Use the Create new... item of the popup menu to launch Foreign Key Properties [75] window.
- Specify there properties of the relationship been created.

Moreover you can add a reference graphically:

- Choose the Create relation tool on the Toolbox [238]. Your mouse cursor will change its appearance.
- Then click on the table (child table) that will have foreign key and then click on the second table (parent table) whose primary key will be referred by the new foreign key.
- Specify properties of the relationship been created in the Foreign Key Properties [75] window.

With the Create new… item of the popup menu you can also add a new field, an index, a trigger, etc. to the selected table. For more information about object properties see: Field Editor [70], Index Editor [72], Create Trigger Wizard [81].

Deleting of the diagram objects
To hide a table (several tables) or a relationship between tables, select the objects and click Remove selection link of the popup menu or Navigation bar. You can also use the **Del**

key for this purpose.

It's also possible to physically delete a table/foreign key from the database: just select the object to delete and use the appropriate item of the popup menu.

Editing of a diagram appearance
Movement of a table/several tables along the diagram is realized with dragging or pressing **Ctrl**+arrows. You can use **Shift**+arrows to change width/height of table/several tables representation.

Designer also allows you to edit shape of the line representing foreign key relations/ logical relations. In order to break the line you should
- Select the relationship.
- Press **Ctrl** and click on the necessary line section to create a new node.
- Position the node by dragging.

You can also delete a node on the line. Thereto

- Select the relationship.
- Press **Alt** and click the node to delete. In that case the near nodes will be united by a straight line.

8.8.1 Designer Navigation Bar

The Navigation Bar of Schema Designer provides you the following opportunities:

Use the Database drop-down list to move around your Sybase SQL Anywhere databases.

There are also links for adding a New diagram or an existing table to diagram quickly.

Reverse engineering
The link provides you to create a new diagram with all the database tables and

Apply best fit
Use the link to dispose tables on the diagram in the most clear manner.

Remove selection
The link cancels current object selection.

Use Print to see the print preview of the diagram.

Certainly, it's possible to customize Schema Designer with Configure designer. For more information see Schema Designer Customization 266.

The Navigator part allows you to adjust the scale of the diagram and the position of the visible part.

Besides the Navigation bar allows you to Load a diagram from file, Save to file, and Save as image (Bitmap, GIF and JPEG formats are supported).

8.8.2   Schema Designer Toolbox

The toolbox is located on the left side of the Schema Designer's working area.

Move

The tool is intended for selection of diagram objects. Use the tool then click anywhere inside of the object. Double click opens the corresponding Object Editor.

To select multiple objects, use the tool then click and drag a selection rubber-band so that the rubber-band box encompasses the objects you want to select, and then release the mouse button.
To add objects to the list of already selected objects again, use the Move tool then click anywhere inside of the object holding the **Shift** button. To quick launch of the tool, use **M** shortcut.

Use Create text box to add title and comments on your diagram. Click on the necessary place and double-click on the appeared box to enter a text. You can also tune up the text font, color and size with Text options of the box popup menu. To quick launch of the tool, use **XX** shortcut.
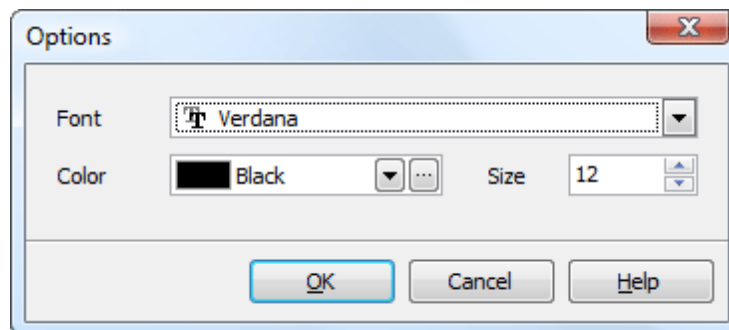
Moreover you can add notes and also links between them and diagram elements using Create note and Create link to note links. To quick launch of the tools, use **N** and **L** shortcuts accordingly.

Lock

The tool to locking/unlocking diagram objects. This feature prevents your diagram from unforeseen changes: when the diagram is locked, you can neither move/resize/delete existing objects nor add new ones.

Hand tool moves a diagram within its window. To quick launch of the tool, use **H** shortcut.

Zoom magnifies and reduces the view of a diagram. To zoom out, hold the Alt key. To quick launch of the tool, use **Z** shortcut.

There are also tools allowing to Create table and Create relation directly from the Designer. To quick launch of the tool, use **T** and **R** shortcut.

Below you can find toolset for aligning the selected objects by left and right edges, by horizontal and vertical centers, tops and bottoms.

Click the Zoom in button in the options bar to magnify to the next preset percentage. When the image has reached its maximum magnification level, the command is dimmed.

Click the Zoom out button in the options bar to reduce to the previous preset percentage. When the image has reached its maximum reduction level, the command is dimmed.

Click the Zoom 1:1 button to display a diagram at 100%.

Pay attention to the Fit diagram function, that pick-up properly scaling factor to display your diagram fully. For your convenience the Fit selected, Fit height, and Fit width were added.

8.9   Dependency tracker

Dependency tracker is a tool to browse all-level dependencies of a schema object (table, view, function, etc). To display dependencies of an object, drag and drop it from the Explorer tree (or Object Manager, Object Browser) to the tracker's working area.

This tool allows you to see the way any database object is involved in the net of scheme dependencies. The selected object is displayed in a highlighted rectangle in the center of the working area. The right side of this area represents objects depending on the selected one. The left side represents objects on which the selected object depends.

To highlight all occurrences of an object in the diagram, click the appropriate rectangle. Double click an object to change the tracker focus to this object. Right click a rectangle to display a popup menu with common operations related to the appropriate object.
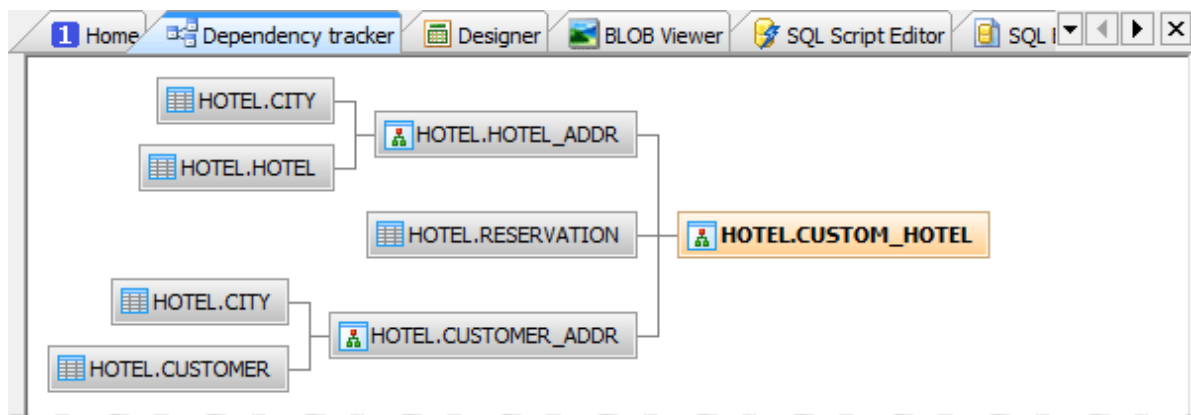
The recursive dependencies are marked with a semicircle. This means marked object depends on itself directly or via other objects.

Example
Suppose we have two procedures A and B calling each other. The tracker displays these dependencies in the following way:
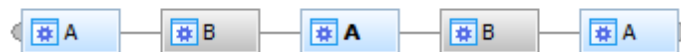
8.10   SQL Generator

Among other features ASA Maestro provides you with SQL Generator, a tool to create simple SQL statements. Just choose a database object, select statement type (Definition, Select, Insert, Update, or Delete) and the destination device (Clipboard, File, SQL Editor, SQL Script Editor).

The SQL Generator window can be invoked from the Explorer tree.
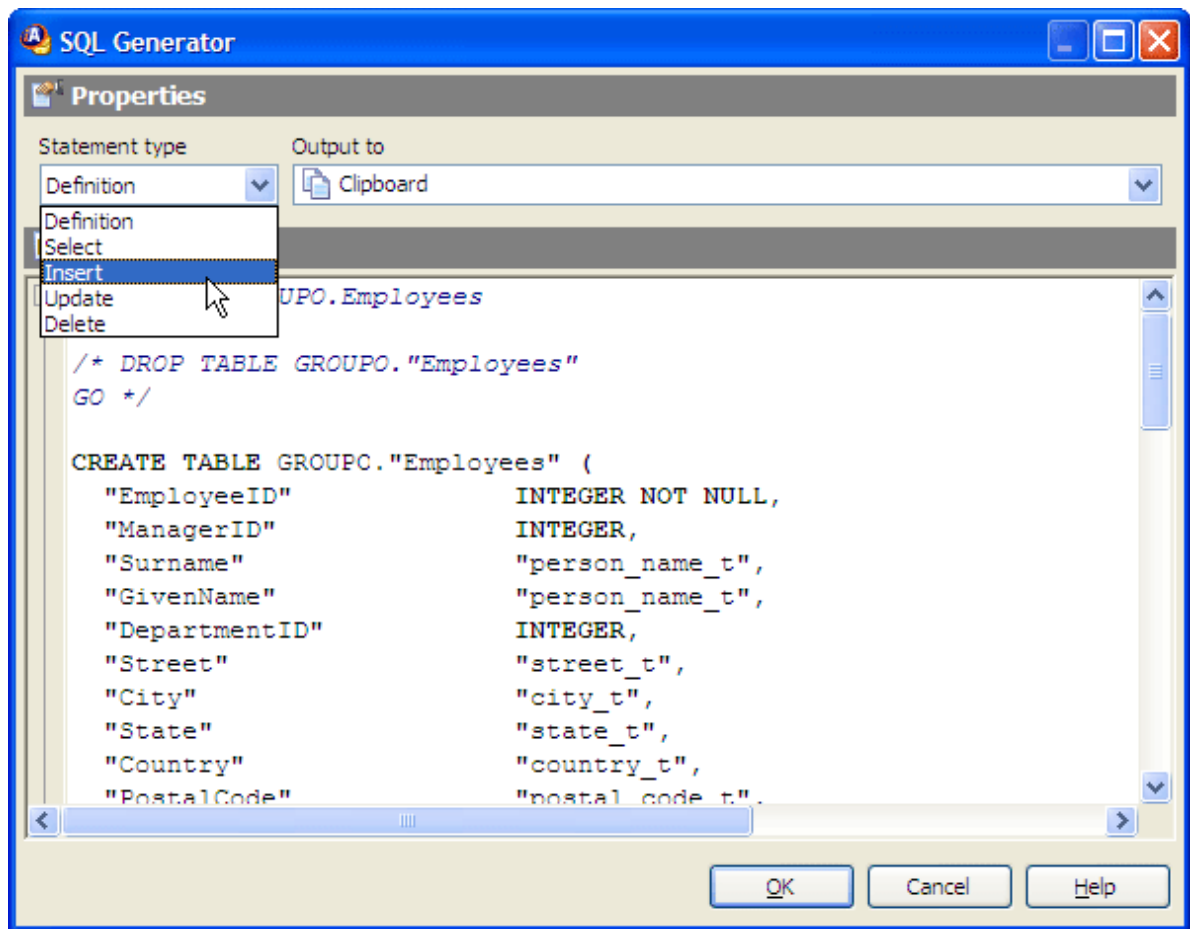
8.11 DML procedures generation

ASA Maestro allows you to create DML (also known as CRUD) procedures automatically.
CRUD is an acronym for the four essential database operations: Create, Read, Update,
and Delete. The application designer has many choices for accomplishing the CRUD
operations but the most efficient choice in terms of Sybase SQL Anywhere performance
is to create a set of stored procedures to perform the operations.

**The reasons for using DML Procedures instead of allowing ad hoc SQL statements
are:**
• The best possible performance
After the first use of each stored procedure, the plan for executing the procedure is
cached in the server's procedure cache. For subsequent invocations of the stored
procedure, the plan is reused. This avoids the parsing and optimization steps with their
overhead.

• Removing of the SQL code from the other layers of the application
By removing the SQL statements from the application code, all the SQL can be kept in
the database.

• Preventing of SQL injection attacks
Anytime a client application uses string concatenation to create SQL statements, there
is a possibility of a SQL injection attack. In short, these attacks involve clever entry of
SQL in the data entry fields of an application in such a way that the SQL statements
executed are different from the ones intended by the programmer. They require that the
application developer is careless about not cleaning any user input to prevent the
attack.

• Preventing of casual table browsing and modifications
If an application uses ad hoc SQL statements, the users of the application must have
the required permissions on the database tables. Once they are given permission on the
tables, they can work with them in any application that can read and manipulate the
data such as Excel, Word and various report writers. Casual examination of the data and
even updates that bypass the application's business rules become possible. Stored
procedures have long been used to prevent casual browsing and updates. This is
implemented by granting permission to execute the CRUD stored procedures to the users
and revoking permission to access the tables directly.

To generate DML procedure,
• select the Object | Generate DML procedures... main menu item (to create procedures
  for several tables) or use the corresponding popup menu item of the table's node at
  the Explorer tree (to create procedures for one table).
• Specify tables the procedures will be created for (in case of several tables).
• Uncheck the operations the procedures will not be created for. By default the
  procedures are generated for inserting, reading, updating, and deleting of table data.
• Adjust templates of procedures names.
• Select the action to perform after the generation. The created definitions can be
  copied to Clipboard, saved to a file, sent to SQL Script Editor or executed immediately.

## 8.12 Generation of updatable views

To generate updatable view,

- select the Object | Generate updatable views... main menu item (to create views for several tables) or use the corresponding popup menu item of the table's node at the Explorer tree (to create a view for one table).
- Specify tables the views will be created for (in case of several tables).
- Specify the abilities to be available on working with the view data. By default the views are generated for inserting, updating, and deleting of table data.
- Adjust the name templates of views and corresponding triggers.
- Select the action to perform after the generation. The created definitions can be copied to Clipboard, saved to a file, sent to SQL Script Editor or executed immediately.

8.13 Split table

It's not an uncommon situation when new requirements arise, or when you need to enforce referential integrity on a set of columns, and the best decision is to split a table into two separate tables. ASA Maestro provides you with Split Table Wizard, a simple tool to generate a bunch of SQL scripts to modify the primary table, to create a secondary table with a primary key, and to transfer data from the primary table to the secondary one without duplicating of data. To invoke the wizard, follow the corresponding link of the Generate SQL section of popup menu of the selected table at the Explorer tree.
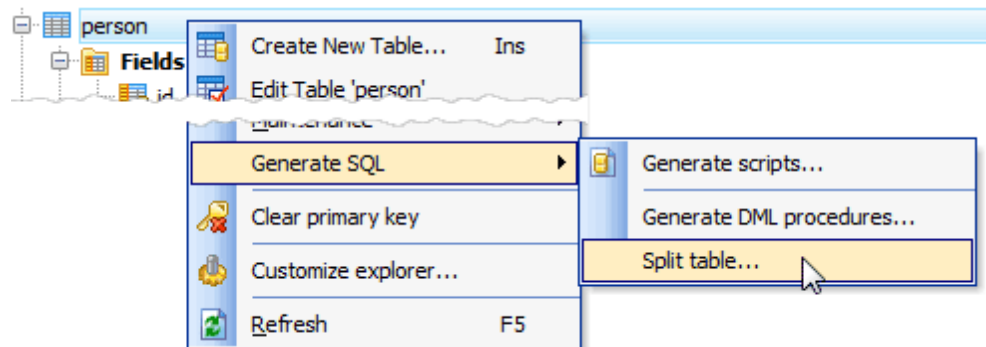
Let's see the wizard in action on the example of a table with the following SQL definition:

```
CREATE TABLE person (
  id         integer NOT NULL,
  city       varchar(30) NOT NULL,
  full_name  varchar(30) NOT NULL,
  /* Keys */
  CONSTRAINT person_pkey
    PRIMARY KEY (id)
);
```

The table stores sample data:

To enforce the referential integrity, we specify 'city' as secondary table:

The primary table must contain now only 'id' and' full_name' columns. The field 'city_id' will be added to the table automatically.

Now we have to specify what kind of primary key to be created for the secondary table: surrogate or natural. We create create the 'city' table with a surrogate primary key.

Then click Ready and get the following tables:

8.14 Nullable Column Checker

Nullable Column Checker allows you to refactor your database schema by enforcing NOT NULL constraints to all necessary table columns. It suggests candidates for NOT NULL columns among columns of the selected table and generates SQL script to replace all NULL values of selected columns with specified default values and to add the NOT NULL constraint to these columns. To invoke the wizard, follow the corresponding link of the Generate SQL section of popup menu of the selected table at the Explorer tree.
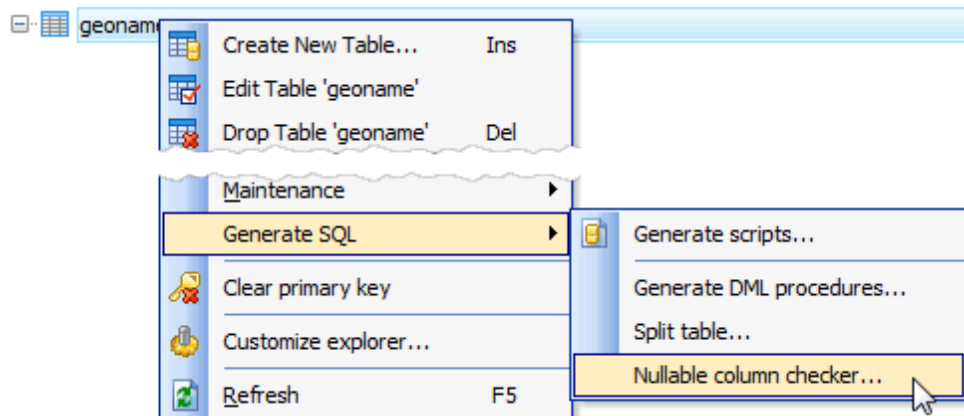
To get SQL scripts enforcing NOT NULL constraints to columns of an existing table, select the necessary columns, specify the default values to be used instead of existing columns NULLs and select the action to perform after the generation. The created scripts can be copied to Clipboard, saved to a file, sent to SQL Script Editor 209 or executed immediately.

Nullable column checker   x

Nullable column checker

Select columns you want to add a NOT NULL constraint for and specify a default value if necessary

		Name	Nulls	Default value	Selected
1		name	0		☑
2		asciiname	2	'Unknown'	☐
3		alternatenames	148557		☐
4		latitude	0		☑
5		longitude	0		☑
6		fclass	0		☑
7		fcode	0		☑
8		country	0		☑
9		cc2	211781		☐

▶ Execute immediately   ▼

Help   < Back   Next >   Ready   Cancel
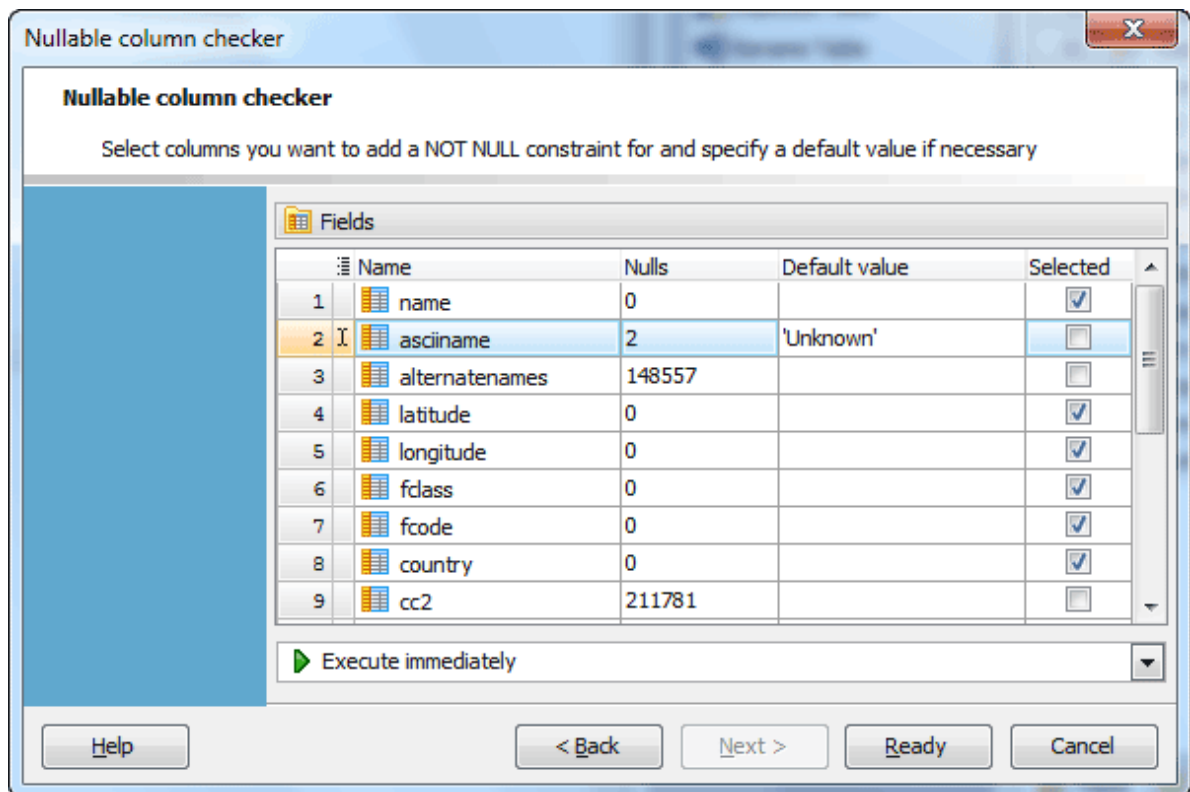
8.15   Dialogs

ASA Maestro provides two dialogs for searching and replacing text in the editor areas of the database tools. Both of them are available through the popup menu of the editor area.
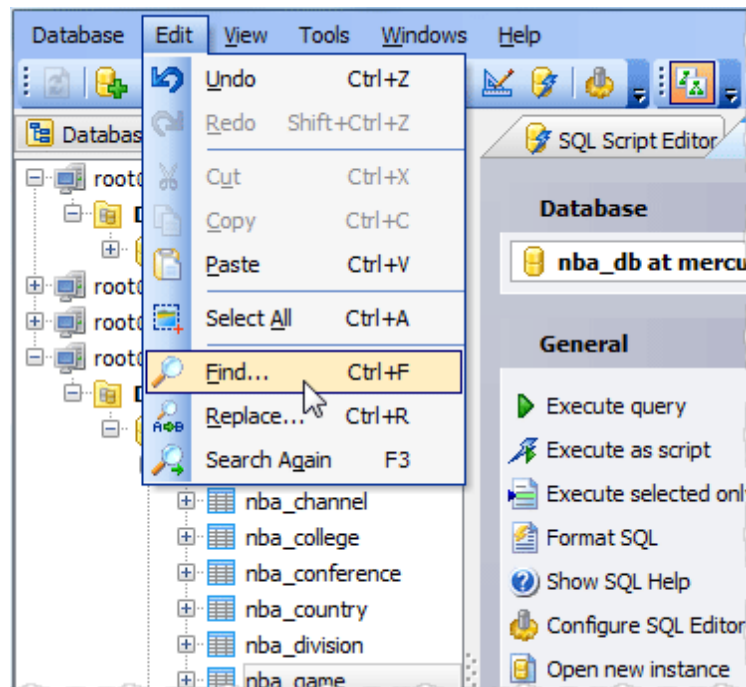
8.15.1   Find Text dialog

The Find Text dialog is provided for quick search for certain text.
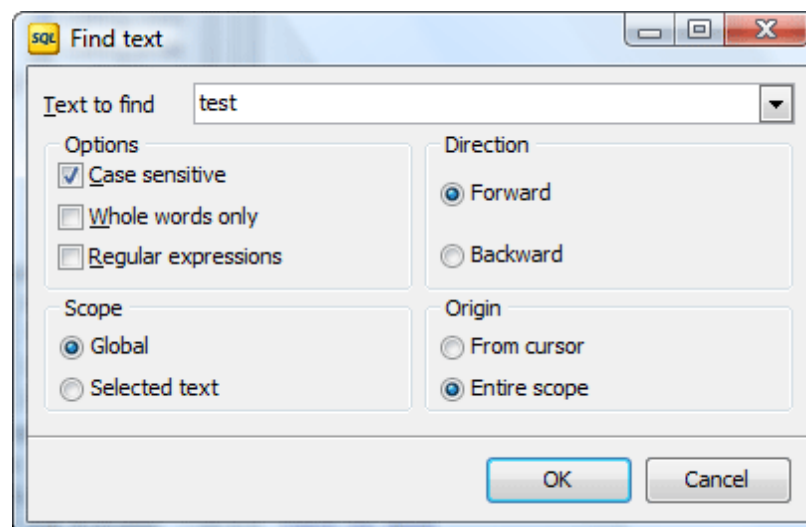
Text to find

Enter a search string or click the down arrow next to the input box to select from a list of previously entered search strings.

☑ **Case sensitive**

Differentiates uppercase from lowercase when performing a search.

☑ **Whole words only**

Searches for words only. (With this option off, the search string might be found within longer words.)

☑ **Regular expressions**

Recognizes regular expressions in the search string.

Forward

Searches from the current position to the end of the file. Forward is the default.

Backward

Searches from the current position to the beginning of the file.

Global

Searches the entire file, in the direction specified by the Direction setting. Global is the default scope.

Selected text

Searches within the selected text only, in the direction specified by the Direction setting. You can use the mouse or block commands to select a block of text.

From cursor

The search starts at the cursor's current position, and then proceeds either forward to the end of the scope, or backward to the beginning of the scope depending on the Direction setting. From Cursor is the default setting.

Entire scope

The search covers either the entire block of selected text or the entire file (no matter where the cursor is), depending upon the Scope options.

8.15.2 Replace Text dialog

The Replace Text dialog is provided for searching and replacing text in the editor window.
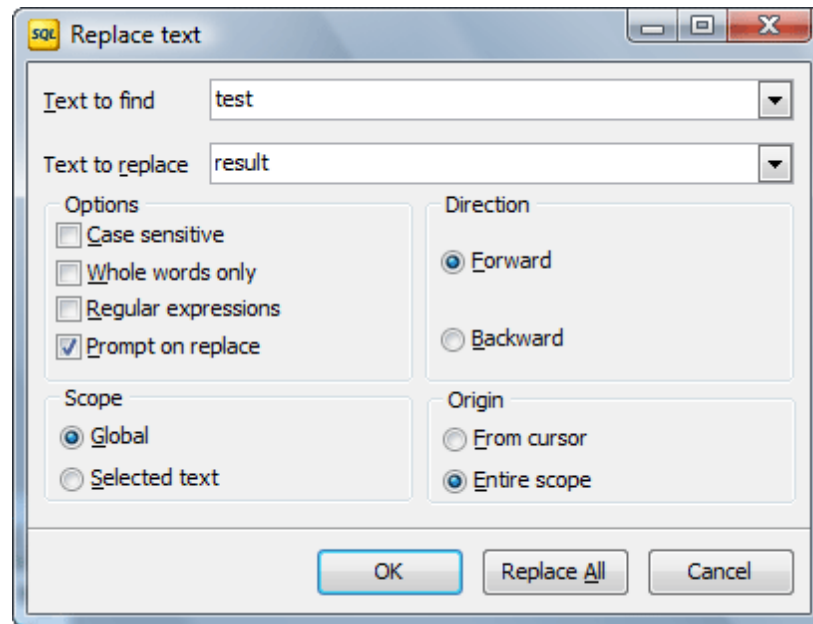
Text to find

Enter a search string. To select from a list of previously entered search strings, click the down arrow next to the input box.

Text to replace

Enter the replacement string. To select from a list of previously entered search strings, click the down arrow next to the input box. To replace the text with nothing, leave this input box blank.

☑ Case sensitive

Differentiates uppercase from lowercase when performing a search.

☑ Whole words only

Searches for words only. (With this option off, the search string might be found within longer words.)

☑ Regular expressions

Recognizes specific regular expressions in the search string.

☑ Prompt on replace

Prompts you before replacing each occurrence of the search string. When Prompt on replace is off, the editor automatically replaces the search string.

Forward

Searches from the current cursor position, to the end of the file. Forward is the default Direction setting.

Backward

Searches from the current cursor position, to the beginning of the file.

Global

Searches the entire file, in the direction specified by the Direction setting. Global is the

default scope.

From cursor

The search starts at the cursor's current position, and proceeds either forward to the end of the scope, or backward to the beginning of the scope depending on the Direction setting. From cursor is the default Origin setting.

Entire scope

The search covers either the entire block of selected text or the entire file (no matter where the cursor is in the file), depending upon the Scope options.

Replace All

Click Replace all to replace every occurrence of the search string. If you check Prompt on replace, the Confirm dialog box appears on each occurrence of the search string.

9   Options

ASA Maestro allows you to customize the way it works within the Options dialog. To open the dialog, select the Tools | Options main menu item.

The window allows you to customize the options grouped by the following sections:

- **Application** 254
  General ASA Maestro options: environment style, confirmations, window restrictions, explorer tree, SQL Editor, Visual Query Builder, etc.

- **Editors & Viewers** 276
  Customizing of all the SQL editors - SQL Editor, SQL Script Editor, etc.

- **Appearance** 284
  Customizing program interface - bars, trees, menus, etc.

Besides, the Options dialog allows you to export all program settings to a *.reg* file for future use, e.g. on another PC (see Export Settings 293 for details).

It is a good idea to check through these settings before you start working with ASA Maestro. You may be surprised at all the things you can adjust and configure!

9.1 Application

The Application section allows you to customize common rules of ASA Maestro behavior. The section consists of several tab; follow the links to find out more about each of them.

9.1.1 Preferences

User interface area allow you to select your favorite UI style according to your preferences.

☑ Display splash screen at startup
Displays the splash screen on ASA Maestro startup.

☑ Save desktop on disconnect
Saves all the database windows and their positions on disconnecting from the database.

☑ Disable multiple instances
Prohibits running multiple instances of ASA Maestro.

☑ Open Object Manager after connect
Opens the Object Manager window after connection is established.

☑ Clear filter expression on filter panel close
Clears the filter applied to the explorer tree and all the instances of Object Manager

after the filter panel is closed.
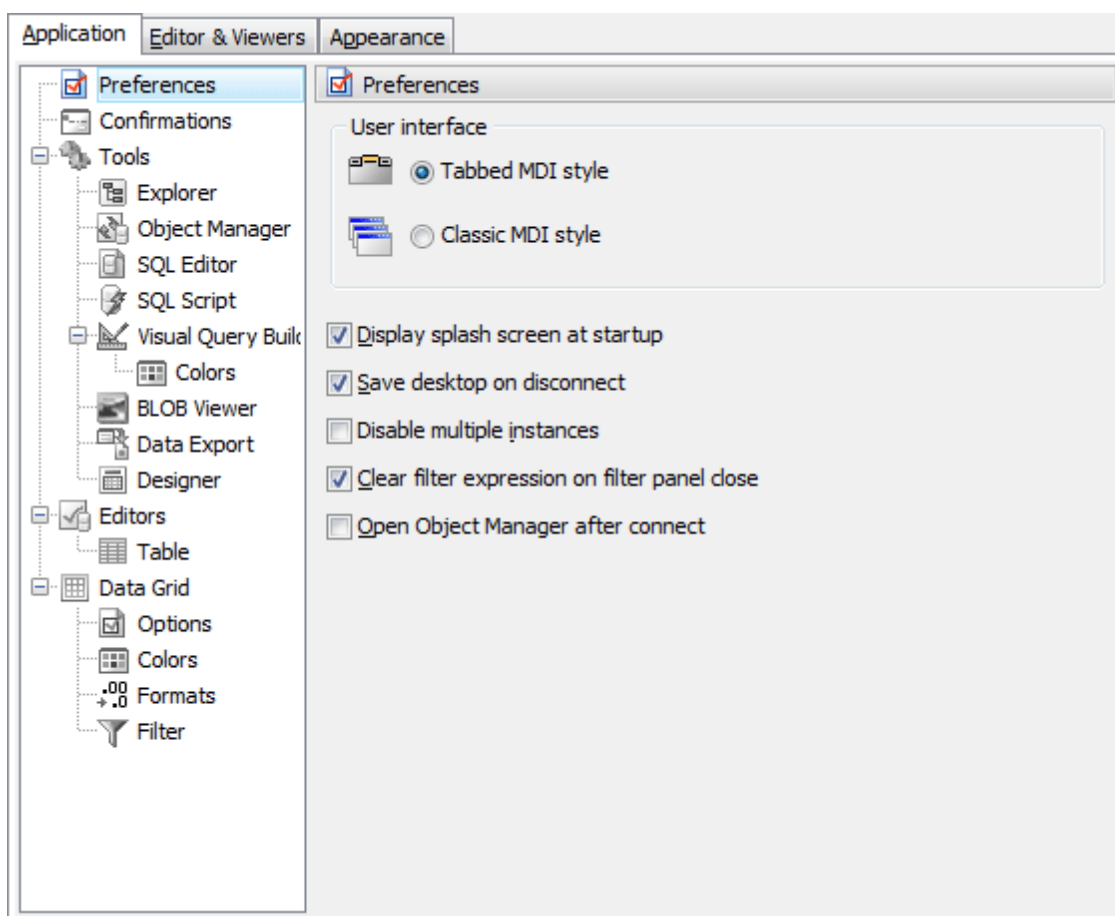
9.1.2 Confirmations

Use this tab to manage application confirmations.
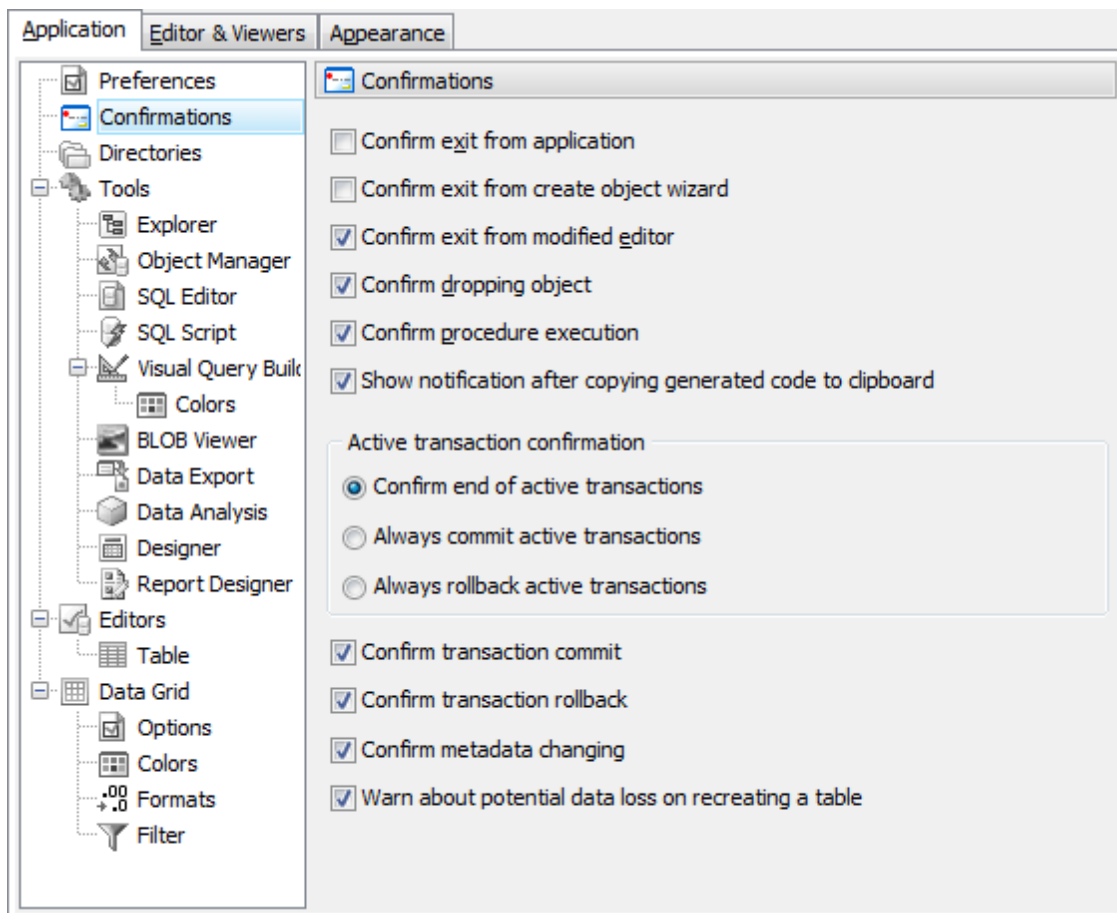
☑   Confirm exit from Create Object Wizard
If this option is checked, the program requires confirmation each time you want to exit the Create Object Wizard.

☑   Confirm exit from modified editor
If this option is checked, the program asks you to confirm exit from the editor, if you have made any changes.

☑   Confirm dropping object
If this option is checked, the program requires confirmation for dropping database object.

☑   Confirm exit from application
If this option is checked, the program requires confirmation when you want to exit <% PRODUCT_NAME%>.

☑   Transaction confirmation
Select whether you will be prompted to commit or rollback active transaction or ASA Maestro will commit or rollback transactions without asking.

☑   Confirm metadata changing
If this option is checked, the program requires confirmation for changing metadata.

9.1.3   Directories

The tab allows you to specify default directories to be used on database profiles creating. You can use such variables as %database_name%, %database_alias%, and %user_name%.

Example:
To store all SQL scripts in folders sorted by databases in the "C:\SQL Scripts\" directory, specify the default directory for SQL scripts as follows:

C:\SQL Scripts\%database_name%
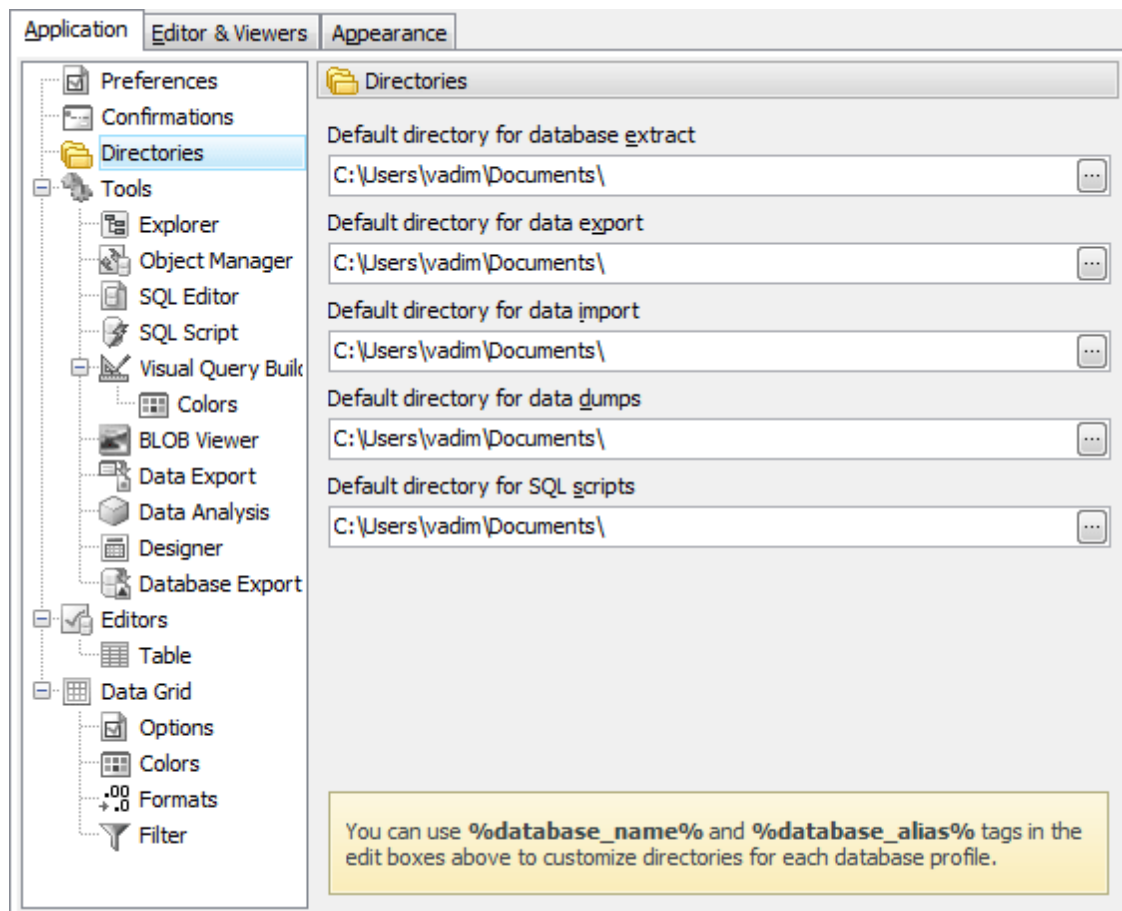
9.1.4   Tools

Below you will find a detailed decryption of the following tools options.
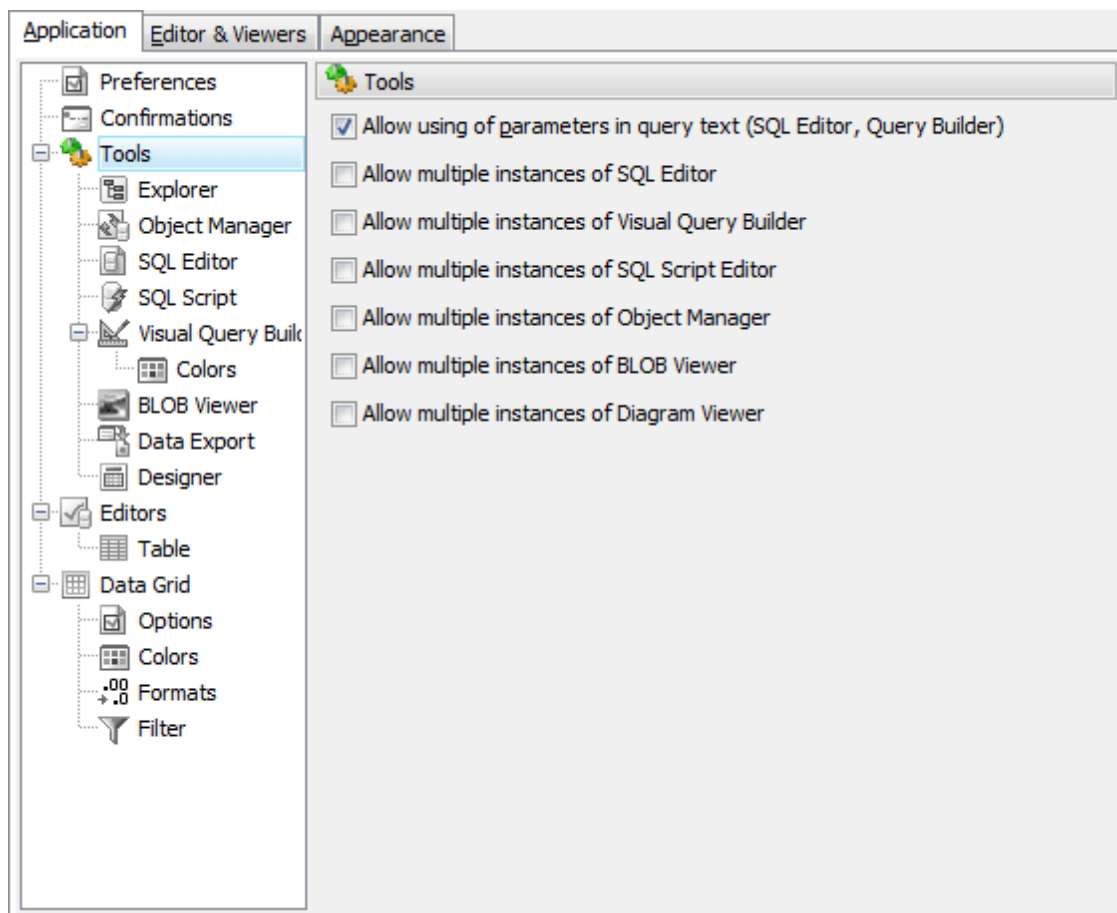
☑ **Allow using of parameters in query text**
Check this option to be able to use query parameters in SQL Editor [158] and Visual Query Builder [163].

☑ **Allow multiple instances of SQL Editor**
Check this option to be able to use multiple instances of SQL Editor [158] simultaneously.

☑ **Allow multiple instances of Visual Query Builder**
Check this option to be able to use multiple instances of Visual Query Builder [163] simultaneously.

☑ **Allow multiple instances of SQL Script Editor**
Check this option to be able to use multiple instances of SQL Script Editor [209] simultaneously.

☑ **Allow multiple instances of Object Manager**
Check this option to be able to use multiple instances of Object Manager simultaneously.

☑ **Allow multiple instances of BLOB Viewer**
Check this option to be able to use multiple instances of BLOB Viewer [213] simultaneously.

☑ **Allow multiple instances of Diagram Viewer**
Check this option to be able to use multiple instances of Diagram Viewer [219]

simultaneously.

9.1.4.1 Explorer

Below you will find a detailed decryption of the following explorer options.
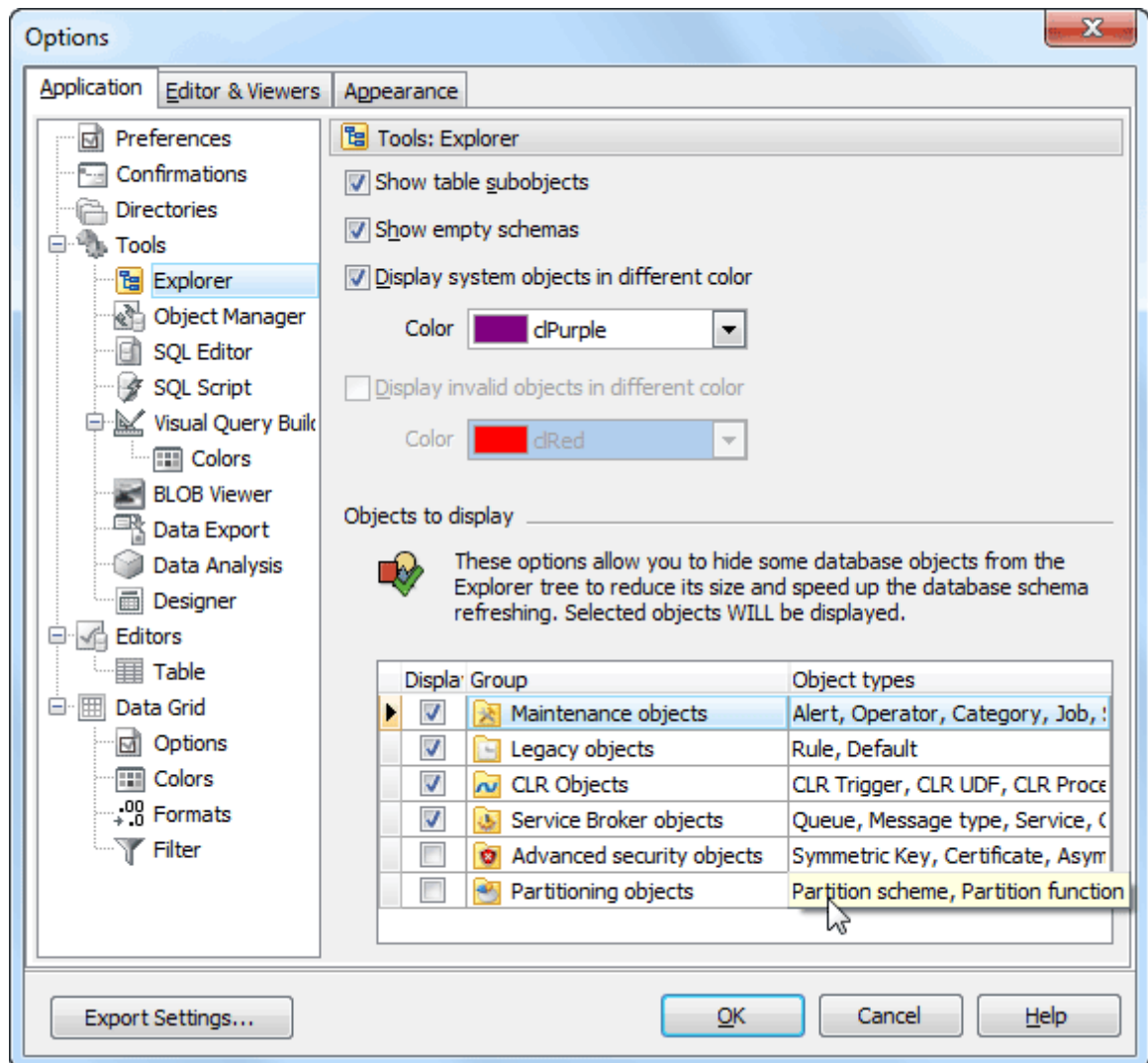
☑ **Show table subobjects**
Shows/hides table subobjects (fields and indexes) in the explorer tree.

☑ **Sort profiles by aliases**
Sorts profile aliases alphabetically in the explorer tree.

☑ **Expand the "Tables" node after connection**
Shows all database tables in the explorer tree after connecting to the database.

☑ **Expand the "Queries" node after connection**
Shows all database queries in the explorer tree after connecting to the database.

☑ **Display system objects in different color**
Represents all system objects in selected color.

You can also exclude/include rarely used objects from/to the Explorer tree. Manage object groups to be displayed at Explorer with corresponding checkboxes.

9.1.4.2 Object Manager

Below you will find a detailed decryption of the following Object Manager options.
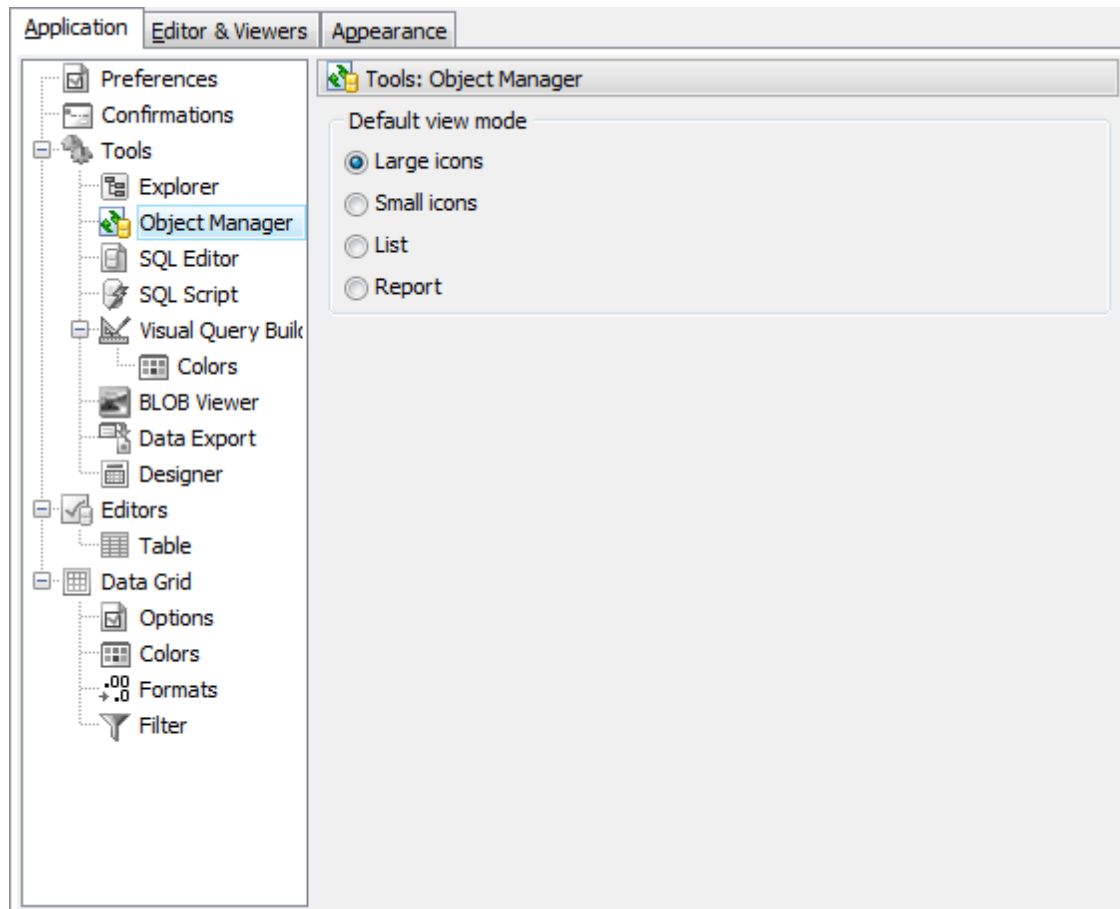
Default view mode
Defines which view mode (*large icons*, *small icons*, *list* or *report*) is applied to Object Manager by default.

9.1.4.3 SQL Editor

Below you will find a detailed decryption of the following SQL Editor options.
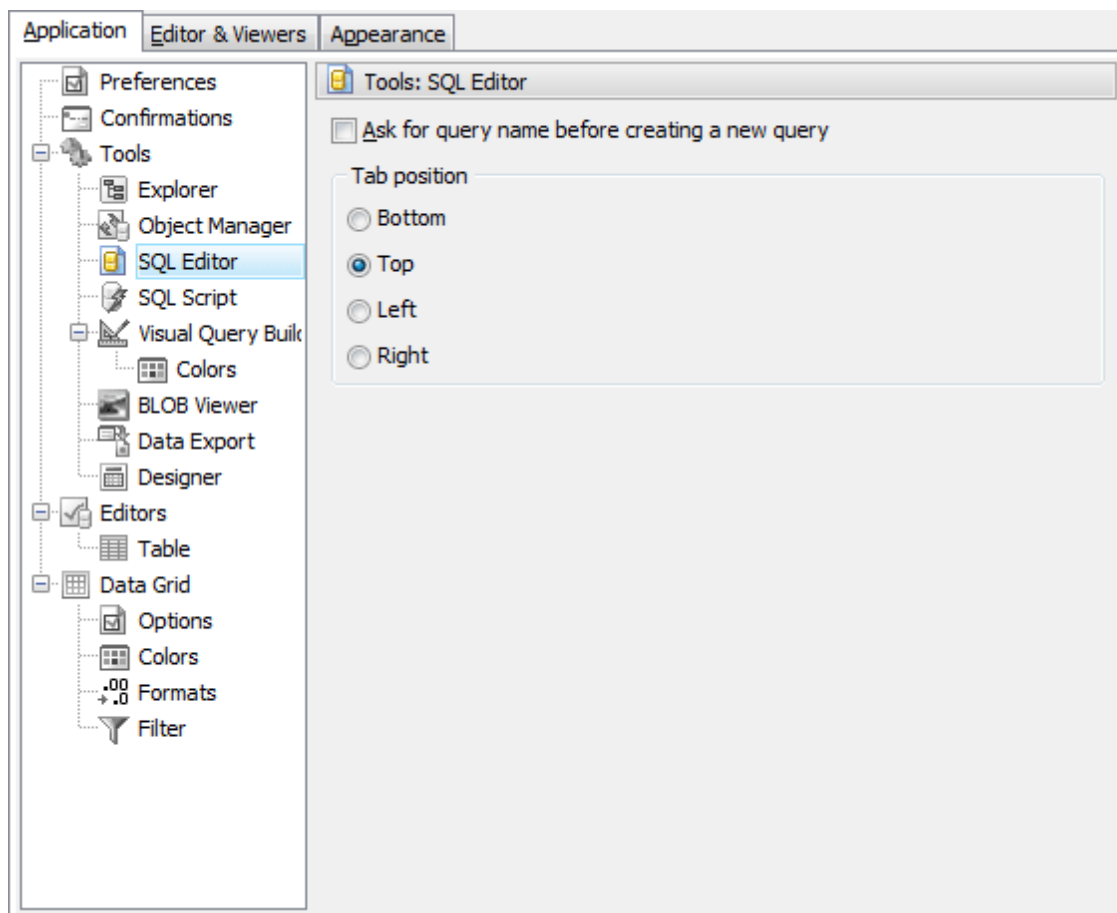
☑ Ask for query name before creating a new query
If this option is checked, SQL Editor 158 asks for a query name each time you create a new query.

☑ Auto commit
Check the option to execute queries in autocommit mode (default value) or leave it blank to manage transactions manually.

You can also select position of query tabs.

9.1.4.4   SQL Script Editor

Below you will find a detailed decryption of the following SQL Script Editor options.
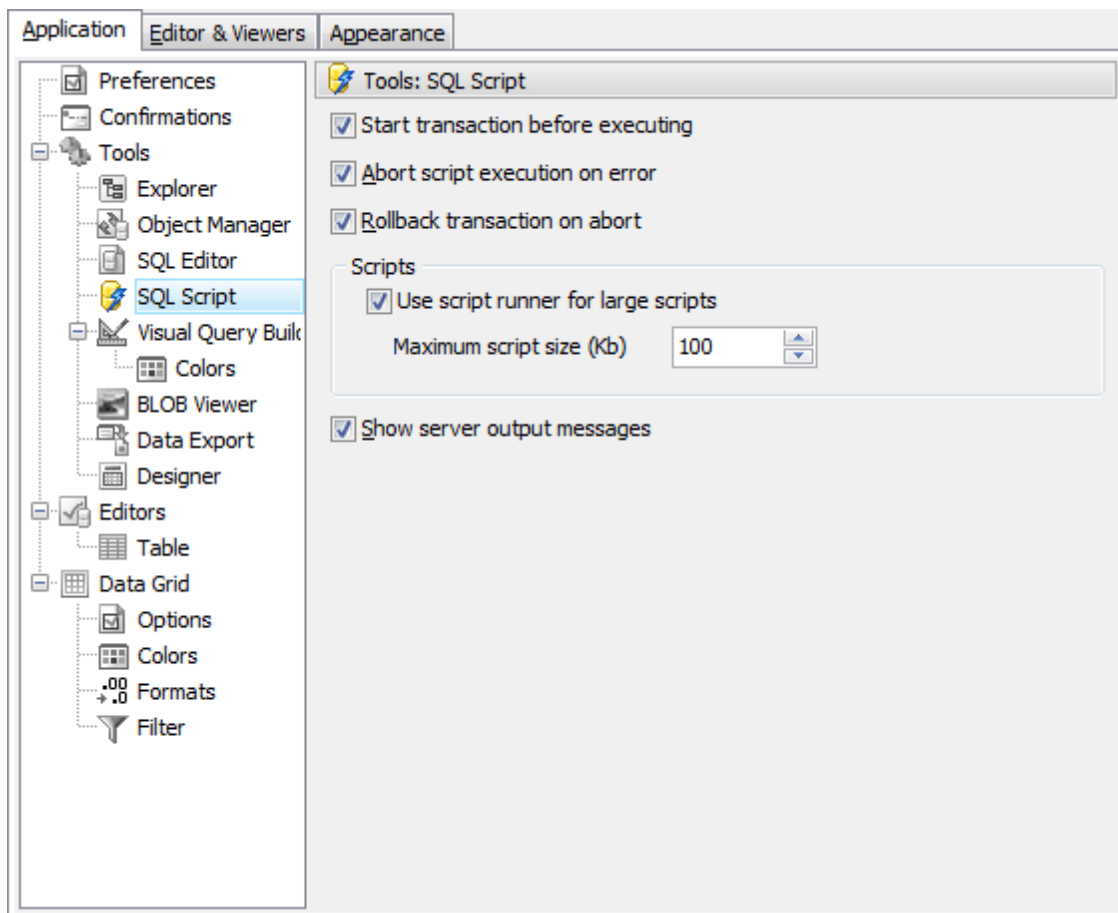
☑ **Abort script execution on error**
If this option is checked, script execution aborts when an error occurs.

☑ **Rollback transaction on abort**
This option evokes automatic rollback on script execution abort.

☑ **Use script runner for large scripts**
Check the box to execute large script in the fastest way. You can change the maximum size of a script to execute without script runner.

☑ **Show server output messages**
Turn the option ON to see warning messages generated by the server.

9.1.4.5 Query Builder

Below you will find a detailed decryption of the following Query Builder options.
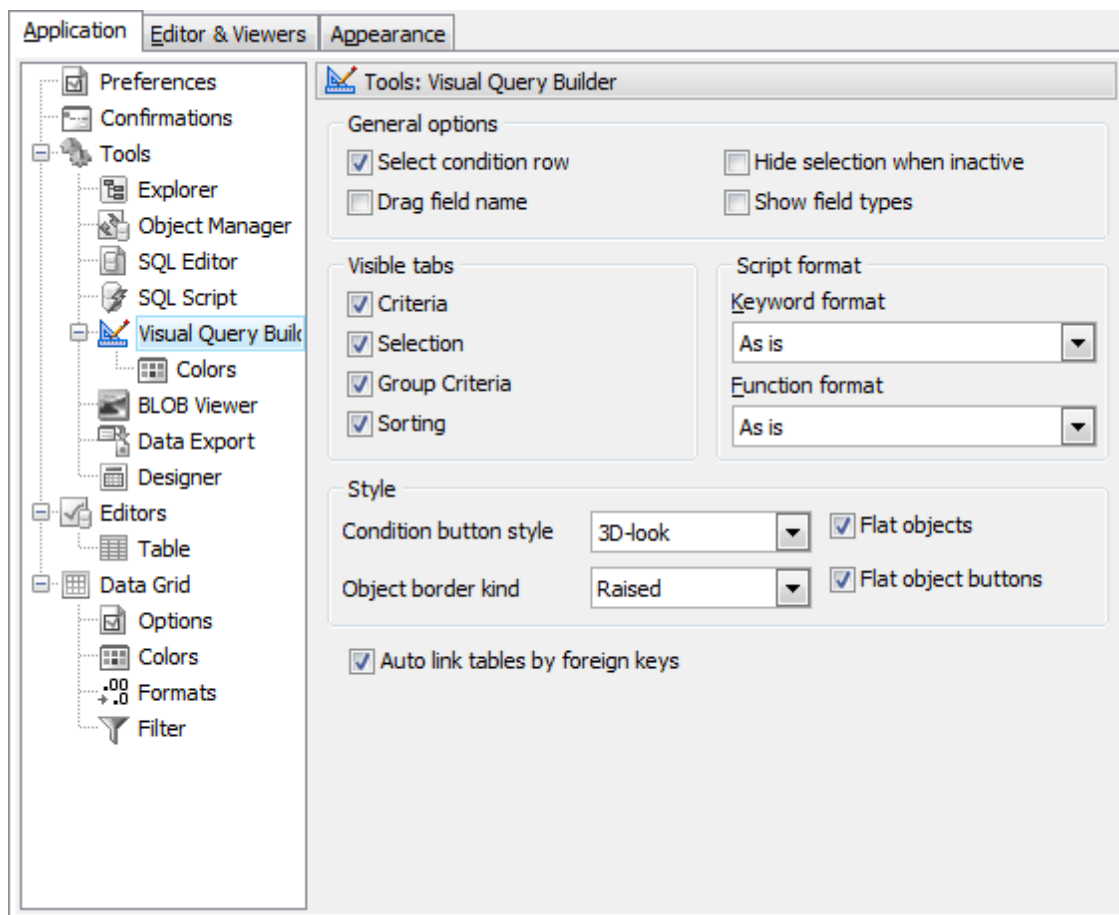
☑ **Select condition row**
Displays the selected condition in different row on the Criteria and Grouping Criteria tabs of Visual Query Builder [163].

☑ **Drag field name**
Displays the dragged field name in the Builder area.

☑ **Hide selection when inactive**
Hides the selection when the query builder is inactive.

☑ **Show field types**
Displays the field type next to the field in the table box.

Visible tabs
These options specify which the query builder tabs are available and which are not. Check them to make the appropriate tabs visible.

Script format
These options specify the case formatting of keywords and functions in query text on the Edit tab. As is saves the original case, Uppercase sets all the keywords/functions to upper case, Lowercase sets all the keywords/functions to lower case, and First upper sets the first letters of all keywords/functions to upper case.

Style

These options specify how different the Query Builder objects look like - 3D, flat, etc.

☑ Auto link tables by foreign keys

If tables that have foreign key reference are placed in Query Builder, in diagram they will be auto linked.END

Colors

These options define colors of the different Query Builder elements: condition row, active caption, table client area, etc. Click an item to select a color for the appropriate Query Builder element.

9.1.4.5.1 Colors

The tab is provided to editing of the Query Builder color schema. Customize colors for all editor element according to your preferences.
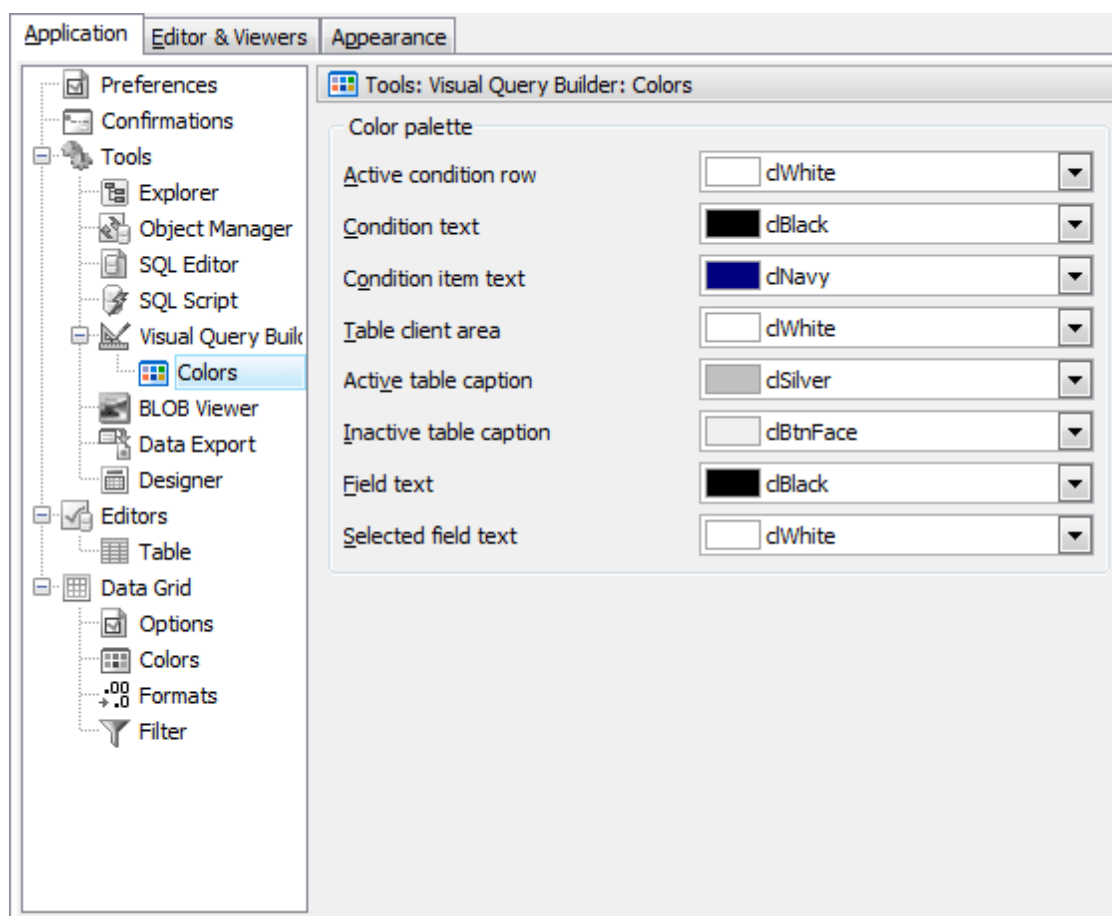
9.1.4.6 BLOB Viewer

Below you will find a detailed decryption of the following BLOB Viewer 213 options.
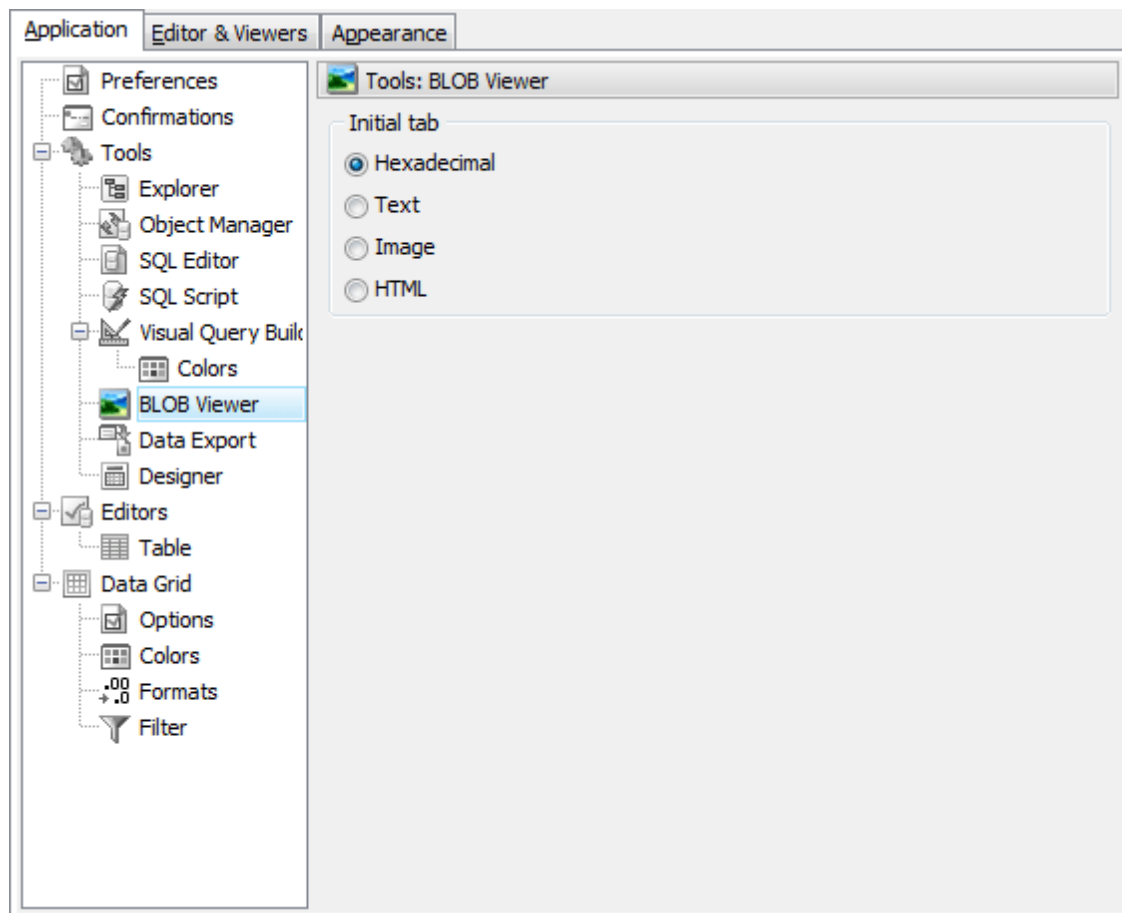
Initial tab

Specifies which tab of BLOB Viewer should be active when it is initially opened.

9.1.4.7   Data Export

This window allows you to customize formats applied to exported data. Edit the format masks to adjust the result format in the way you need.

In *numeric* formats using digit placeholder (# or 0) you can specify the format of number. For example, integer 1234567890 with # ### ##0 integer format is represented like 1 234 567 890. The locations of the leftmost '0' before the decimal point in the format string and the rightmost '0' after the decimal point in the format string determine the range of digits that are always present in the output string.

Conversion and their description for *date*, *time* and *date time* format:

dd	day of the month, represented by 1 or 2 symbols. For example, the first day of month is 1
DD	day of the month, represented only by 2 symbols. For example, the first day of month is 01
mm	minutes

MM	month
yy	year, represented by 2 symbols. For example, 2006 year will be 06
yyyy	year, represented by 4 symbols. For example, 2006
h	hour, represented by 1 or 2 symbols. For example, 2
hh	hour, represented only by 2 symbols. For example, 02

".", ",", ":" symbols can be placed as separators in format masks for *integer, float, date, time, date time, currency* types.

☑ Auto save format strings
Auto saves format strings when they are changed (e.g. at the Adjusting data formats step in Export Data Wizard 189).

Using Set defaults button, you can set default values of data formats.

9.1.4.8   Database Designer

The following topic provides a shot Database Designer 235 retrofitting's description.

The Set table height option determines what the table attributes will be represented at the diagram (Caption only, Key fields, All fields or All fields and indexes).

Frequently it is necessary to line up some tables and objects on the diagram in a column. One of the ways that you may find convenient to do this is to take advantage of the grid. You can enable showing of the grid by checking the Show grid clause at the Marking options. Then diagram will be covered by points disposed on the same interval between.

If you enable snap to grid function by using the Snap to grid checkbox, when you move the table or other object, its upper left corner "snaps" to the nearest grid point. This feature will assist you to line up objects both horizontally and vertically. Diagram objects moved on a diagram can be automatically snapped to the grid points even if the grid is not displayed on the diagram.

Interval between grid points can be changed as grid size.

The Colors options are to attune the Designer appearance to your taste. Here you change diagrams and tables background colors, the colors of page delimiter and Navigator view box.
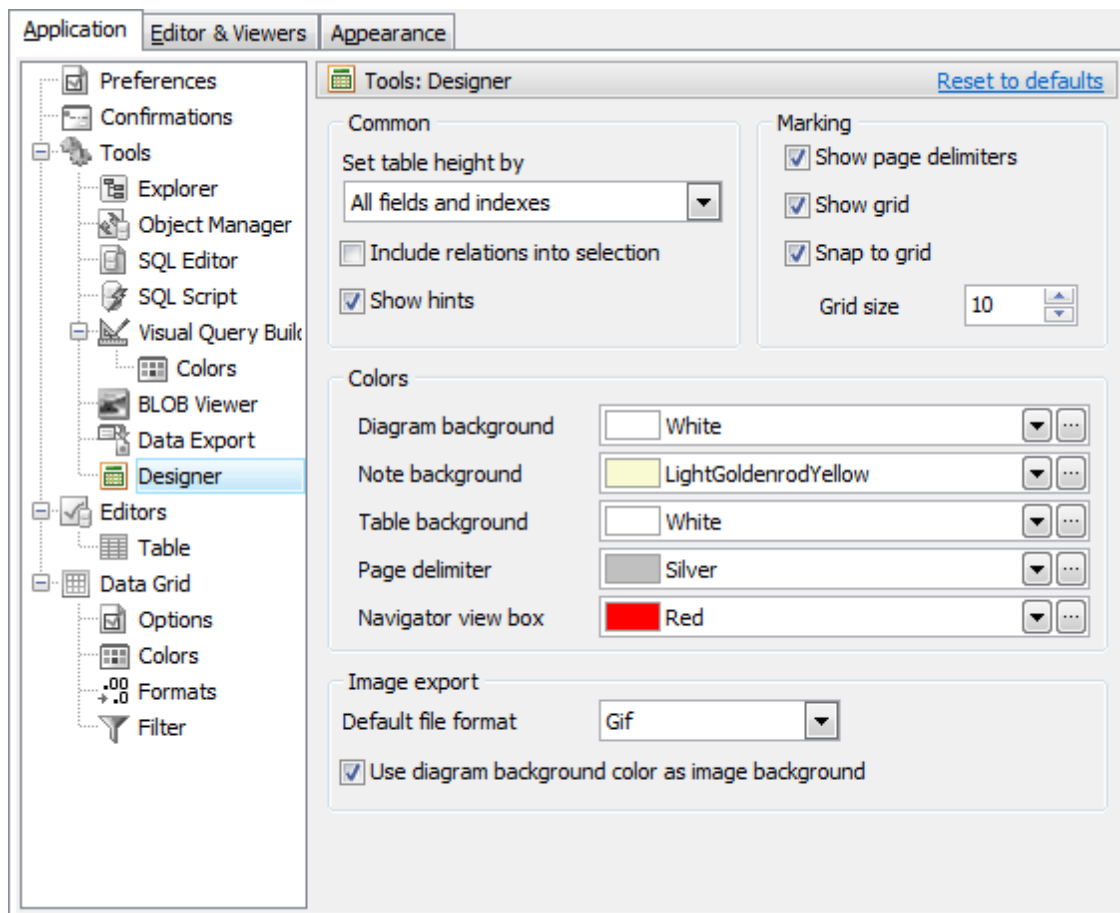
9.1.5   Object Editors

Below you will find a detailed description of the following object editors options.
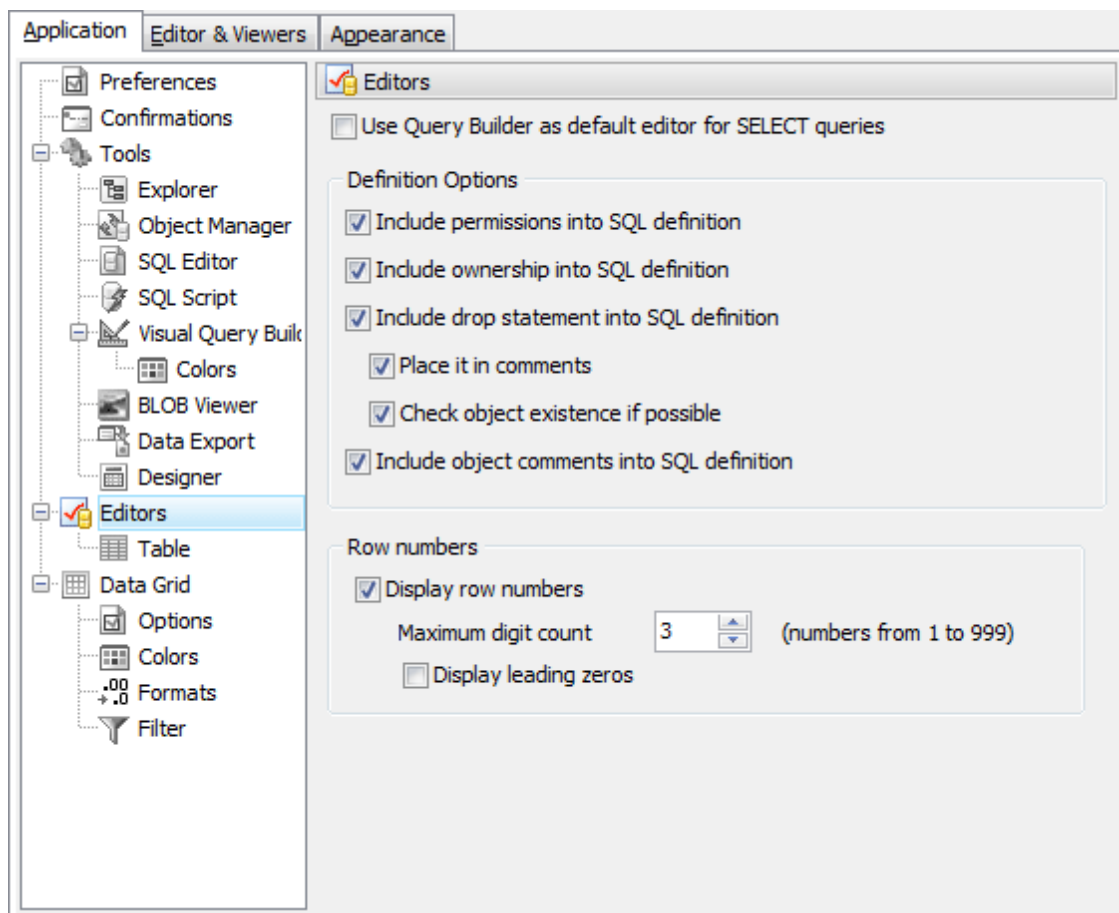
☑ **Open each object editor in a new window**
With this option checked a new child window opens each time you open an object for editing, otherwise the edited object is being changed in the existing object editor (except the existing object editor is in modified state).

☑ **Use Query Builder as default editor for SELECT queries**
With this option enabled all the SELECT queries will be opened in Visual Query Builder [163] instead of SQL Editor [158].

☑ **Include drop statement**
If checked, the SQL definition includes the drop statement.

☑ **Place it in comments**
With this option drop statement will be placed in comments of the SQL definition.

☑ **Include object comments into SQL definition**
With this option enabled comments that are specified for the object and object subitems are placed in SQL definition.

Row numbers
This options group allows you to manage the row numbering of the subobjects lists such as fileds, indexes, parameters and so on.
To enable/disable the numbering, use Display row numbers checkbox. You can set the

number columns width with Maximum digit count. (I.e. for the value '3' the max column number will be 999).

For uniformity you can use the Display leading zeros option. With this option enabled and maximum digit count '3' you numbering column will be of the form: '001, 002, 003, ...'.

9.1.5.1 Table

Initial tab
Specifies which tab of Table Editor ⌐66⌐ should be active when it is initially opened.

☑ Retrieve record count before loading data in the data grid
With this option enabled all the SELECT COUNT(*)... query is executed before loading data in the data grid.

Default field type
Specifies the field type appearing in Field Editor ⌐70⌐ by default.

9.1.6 Data Grid

Below you will find a detailed description of the following data grid options.
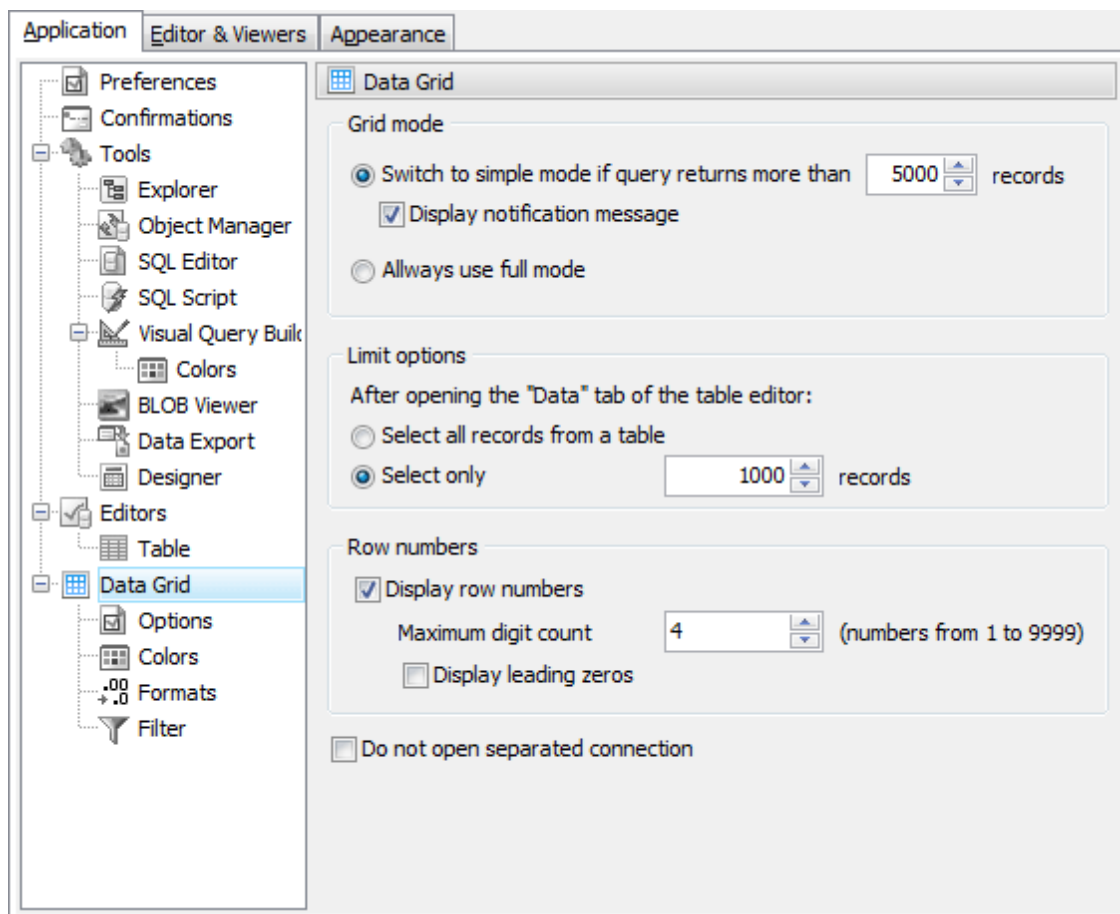
ASA Maestro provides you with two grid modes ⌐174⌐ of viewing data:
 - Fool grid mode allows you to group, filter and sort data in a usual way.
 - Simple mode is provided for working with large records number. For data fetching speed-up, filtering, sorting, and grouping features are not enabled in this mode.

You can use notification message to indicate simple mode.

Set the number of records to switch to simple mode automatically or select Always use full mode.

Limit options
Allows you either to select all records from table after opening the Data tab, or select only specified number of rows on one page with an ability to rotate pages and view all data.

Row numbers
This options group allows you to manage grid rows numbering.
To enable/disable the numbering, use Display row numbers checkbox. You can set the number columns width with Maximum digit count. (I.e. for the value '3' the max column number will be 999).
For uniformity you can use the Display leading zeros option. With this option enabled and maximum digit count '3' you numbering column will be of the form: '001, 002, 003, ...'.

☑ Do not open separated connection
With this option enabled a new connections for fetching data is not opened. This gives you an ability to work with data a little bit faster, because time for opening a new connections is not demanded.

9.1.6.1 Options

Below you will find a detailed decryption of the data grid options.
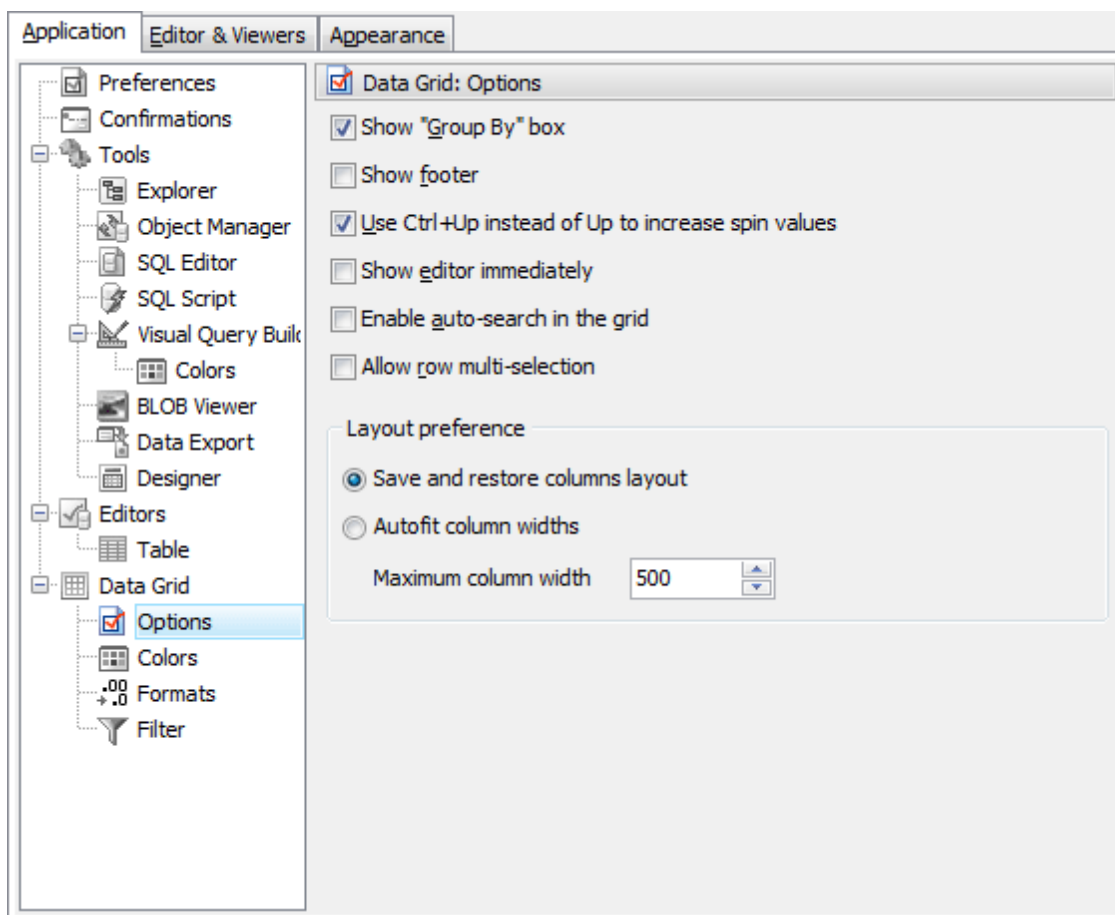
☑   Show "Group By" box
Shows the box on the top of the grid view for grouping data by fields.

☑   Show footer
Shows the footer on the bottom of the grid view.

☑   Use Ctrl+Up instead of Up to increase spin values
Allows you to use Ctrl+Up and Ctrl+Down key combinations for editing the spin for numeric fields.

☑   Show editor immediately
Allows editing the cell value right after the cell is clicked.

☑   Enable auto-search in the grid
Allows you to search records in the grid by the first letters.

☑   Allow row multi-selection
Allows you to select multiple records using the Ctrl and Shift keys.

Layout preference
Select whether ASA Maestro should remember the column positions for the grids or fit them automatically.

9.1.6.2   **Colors**

Below you will find a detailed decryption of the following colors options.
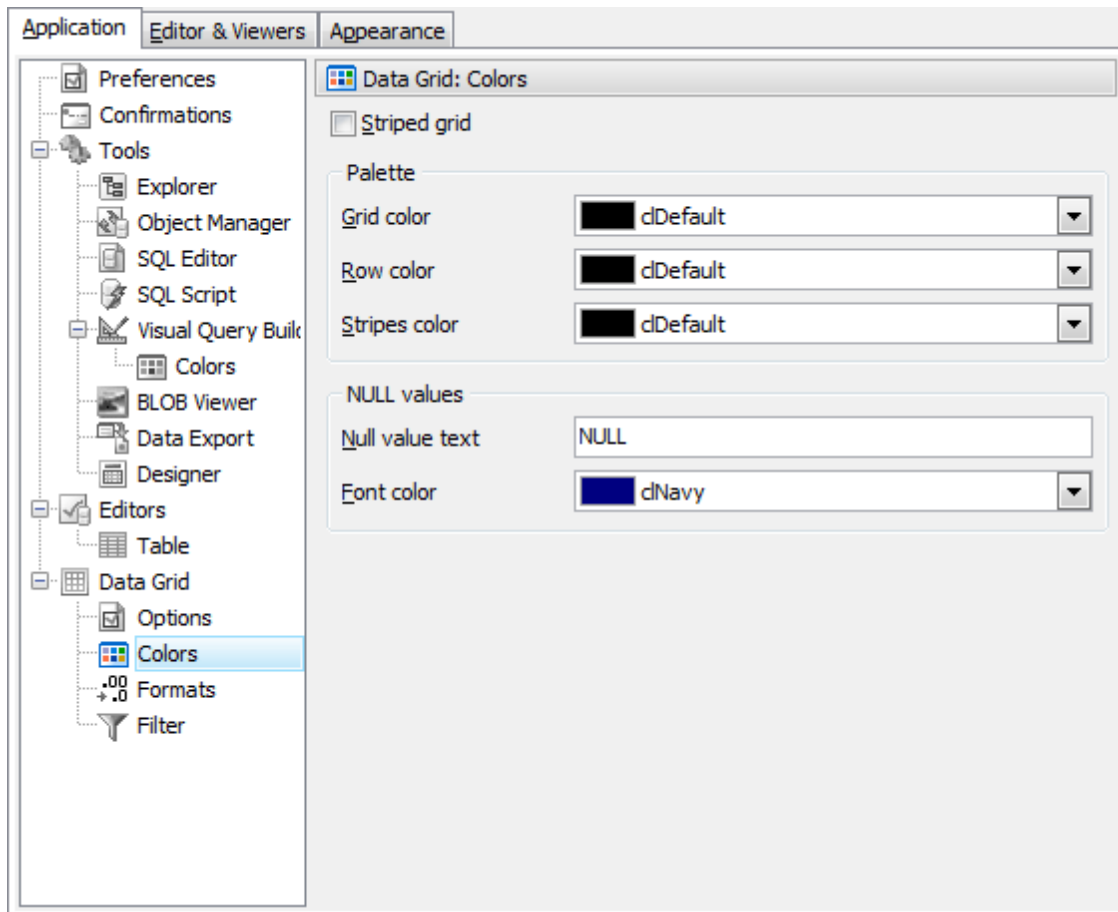
☑   Striped grid
Displays the odd grid rows in a different color defined by the Stripes color option.

Grid color
Defines the background color of the data grid.

Row color
Defines the color of the selected row in the data grid.

Stripes color
Defines the color of the odd rows if the Striped Grid option is on.

Null values
Use Null value text to define the text that stand for the NULL value and use Font color to set the color for displaying this text.

9.1.6.3   **Formats**

Below you will find a detailed decryption of the following formats options.
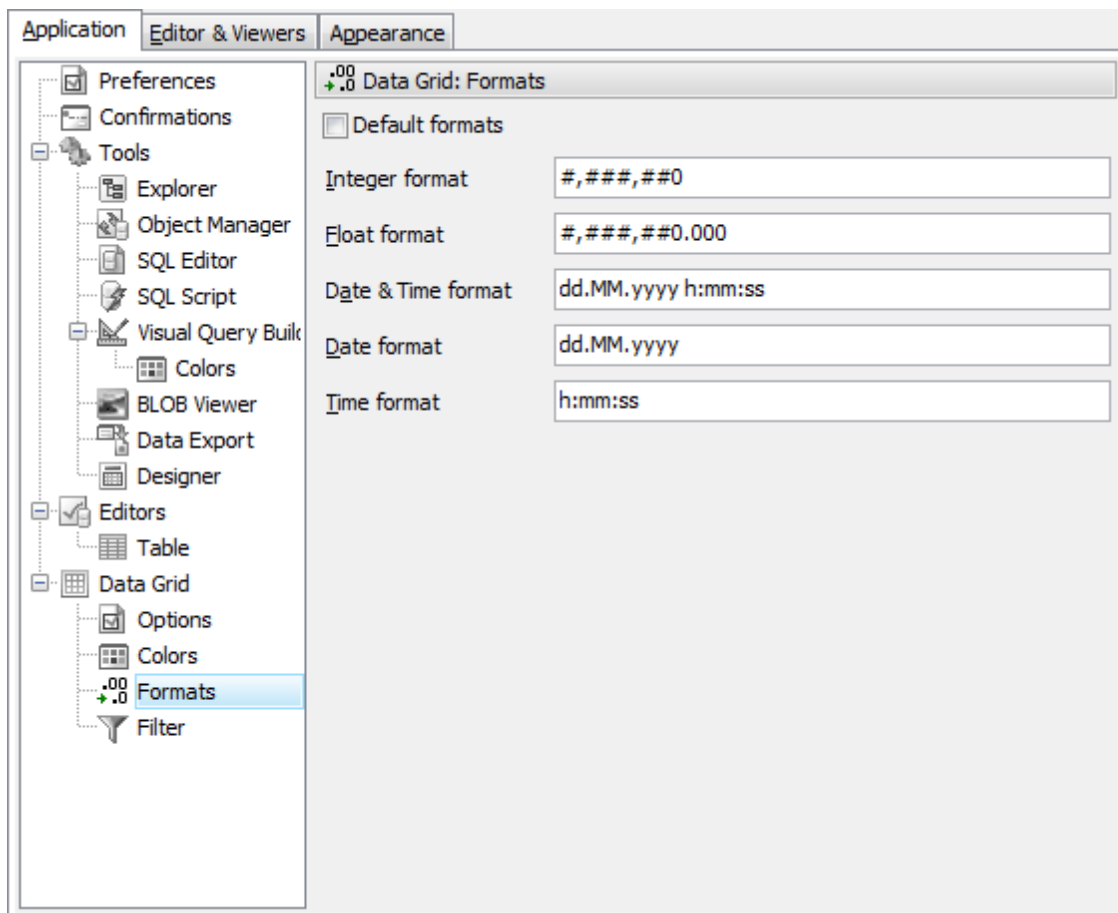
This window allows you to customize formats applied to data in grid. Edit the format masks to adjust the result format in the way you need.

In *numeric* formats using digit placeholder (# or 0) you can specify the format of number. For example, integer 1234567890 with # ### ##0 integer format is represented like 1 234 567 890. The locations of the leftmost '0' before the decimal point in the format string and the rightmost '0' after the decimal point in the format string determine the range of digits that are always present in the output string.

Conversion and their description for *date*, *time* and *date time* format:

dd	day of the month, represented by 1 or 2 symbols. For example, the first day of month is 1
DD	day of the month, represented only by 2 symbols. For example, the first day of month is 01
mm	minutes
MM	month
yy	year, represented by 2 symbols. For example, 2006 year will be 06

yyyy	year, represented by 4 symbols. For example, 2006
h	hour, represented by 1 or 2 symbols. For example, 2
hh	hour, represented only by 2 symbols. For example, 02

"**.**", "**,**", "**:**" symbols can be placed as separators in format masks for *integer, float, date, time, date time, currency* types.

9.1.6.4 Filter

These options allows you to customize data filtering in grids.
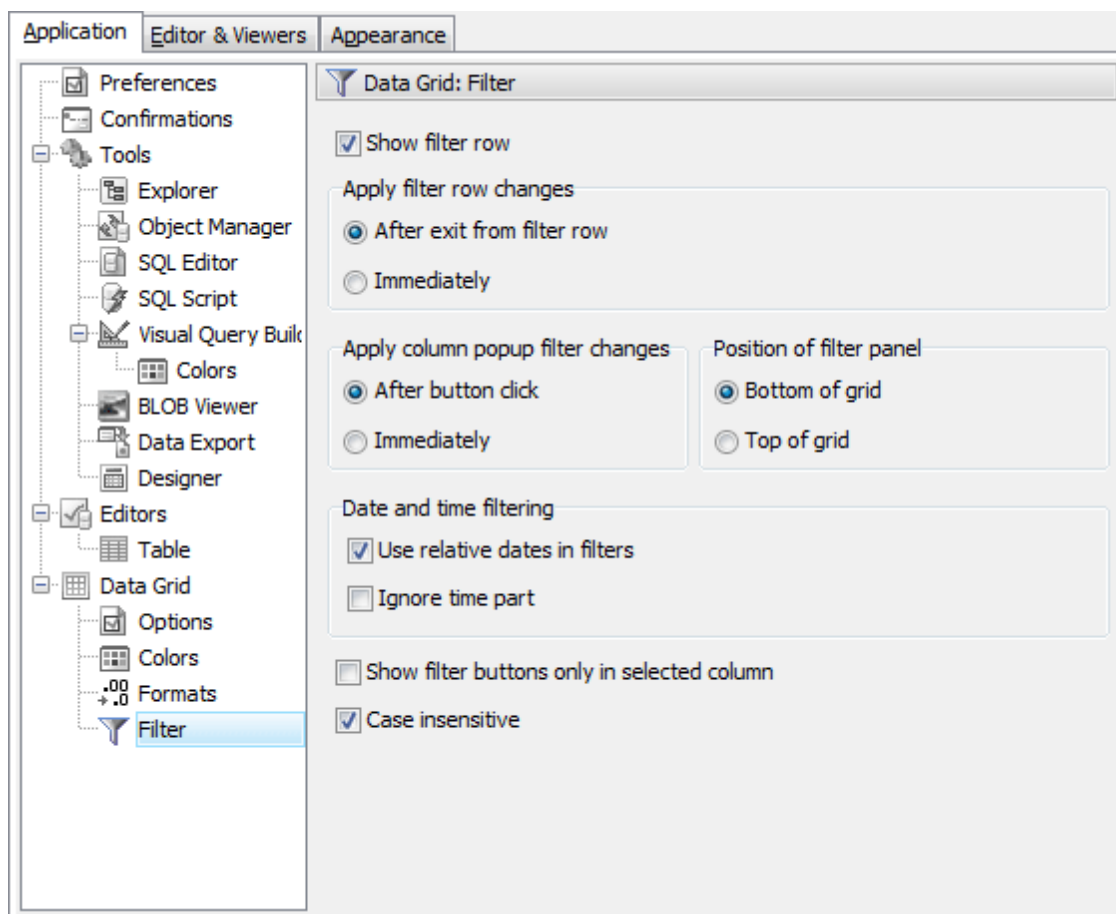
☑   **Show filter row**
When checked the filter row is always represented in the data grid as an additional row.

Apply filter row changes and Apply column popup filter changes allows you to manage the speed of the data filtering. To speed-up the process select Immediately as the time the filter you are set will be applied.

Change the Position of filter panel and customize timestamp data filtering: check the Use relative dates in filters box to include in column popup filter such options as "Yesterday",

"Today", "Tomorrow", "Last 30 day", "Last week", "Next week", and others; check the Ignore time part box to neglect time part of timestamp data under the filtering.

By default filter buttons are shown at all columns header, to show filter button only in selected column, check the corresponding option.

You can specify the case sensitivity of the grid filter with the Case insensitive checkbox (ON by default).

9.2   Editors & Viewers

The Editors & Viewers section allows you to set the parameters of viewing and editing the SQL statements within ASA Maestro.

- General 276
- Display 277
- SQL highlight 278
- PHP highlight 280
- XML highlight 279
- Code Insight 281
- Code Folding 282

See also: SQL Editor 158, SQL Script Editor 209, Visual Query Builder 163, Table Editor 66.

9.2.1   General

If the Auto indent option is checked, each new indention is the same as the previous when editing SQL text.

☑ Insert mode
If this option is checked, insert symbols mode is default on.

☑ Use syntax highlight
Enables syntax highlight in the object editor window.

☑ Always show links
If this option is checked, hyperlinks are displayed in the editor window. To open a link click it with the **Ctrl** button pressed.

☑ Show line numbers
If this option is checked, line numbers are displayed in the editor window.

☑ Show special chars
If this option is checked, special chars (like line breaks) are displayed in the editor window.

☑ Use smart tabs
With this option on the number of tab stops is calculated automatically, depending on the previous line tab.

☑   Convert tabs to spaces
If this option is checked, each time you press the Tab key, the appropriate number of spaces will be added to the edited text.

Tab Stops
Defines the tab length, used when editing text.

Undo Limit

Defines the maximum number of changes possible to be undone.
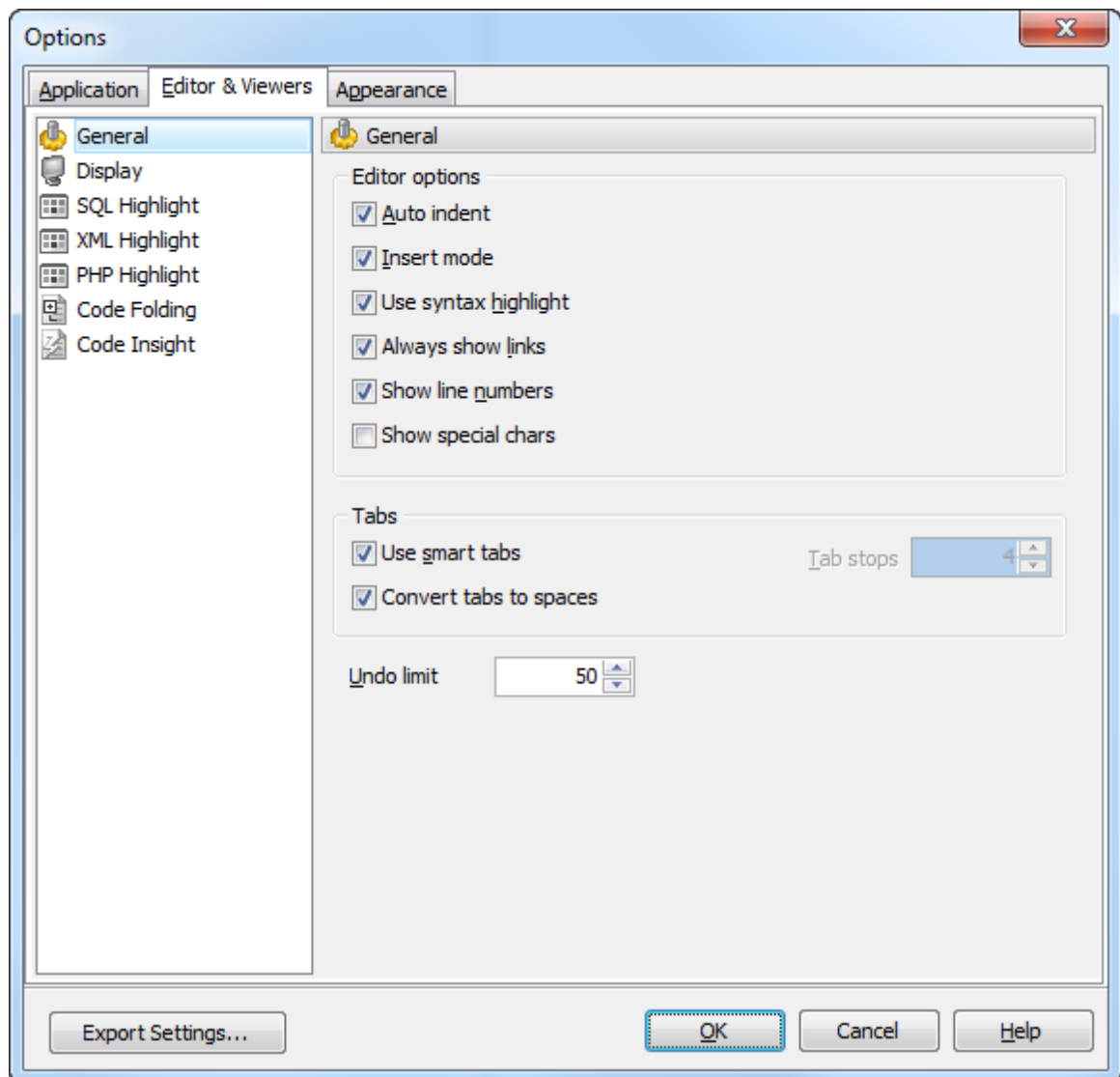
9.2.2 Display

You can disable/enable the right text margin and the gutter of the editor area, set the position of the right text margin as Right margin, and the Gutter width.

Use the Editor font and Font size to define the font used in all program editors and viewers. The panel below displays the sample of the selected font.
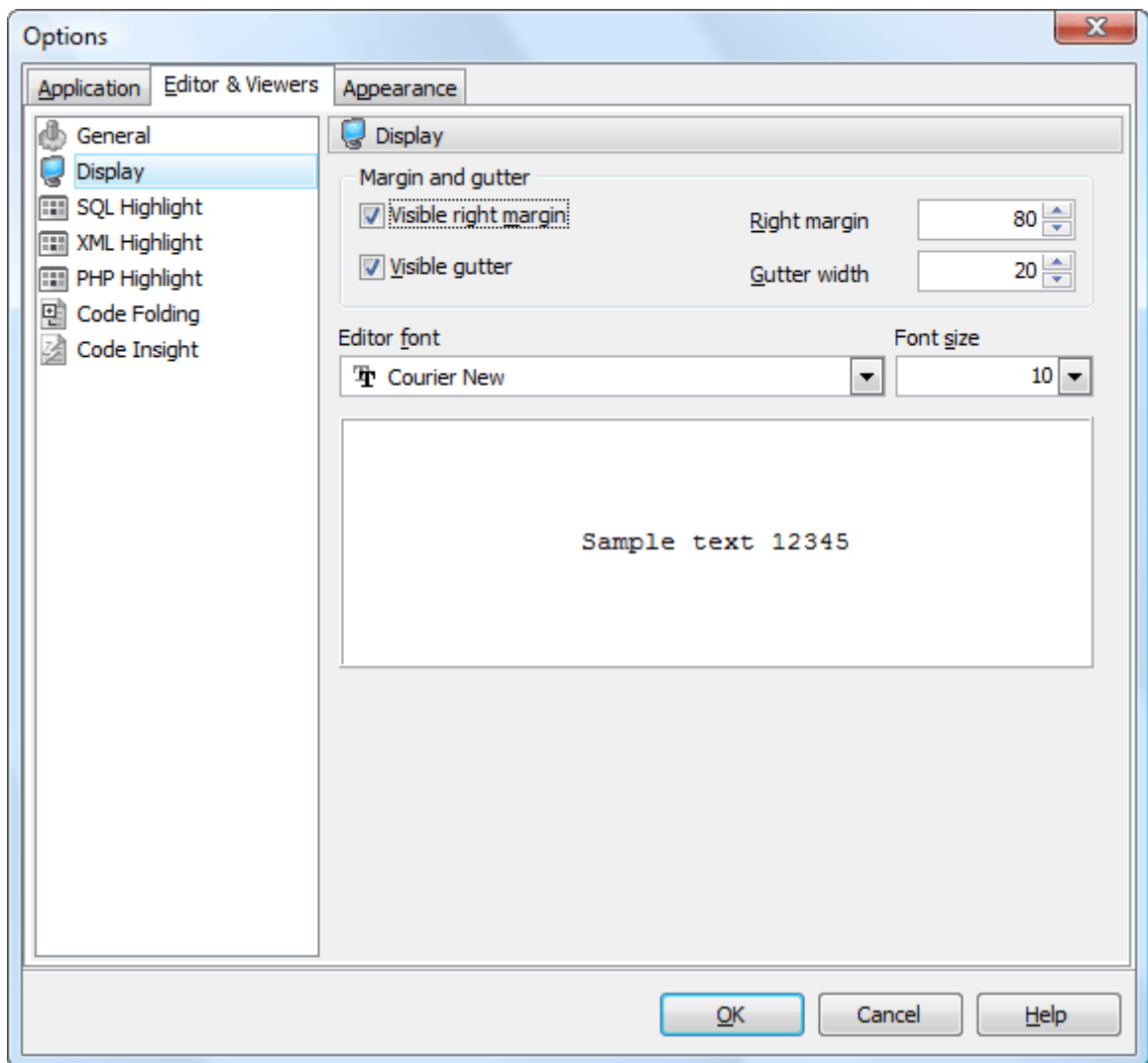
9.2.3 SQL highlight

Use the SQL highlight item to customize syntax highlight in all SQL editors and viewers, e.g. in SQL Editor, Query Builder, Table Editor and others. Select the text element from the list, e.g. *comment* or *SQL keyword* and adjust its foreground color, background color and text attributes according to your preferences.
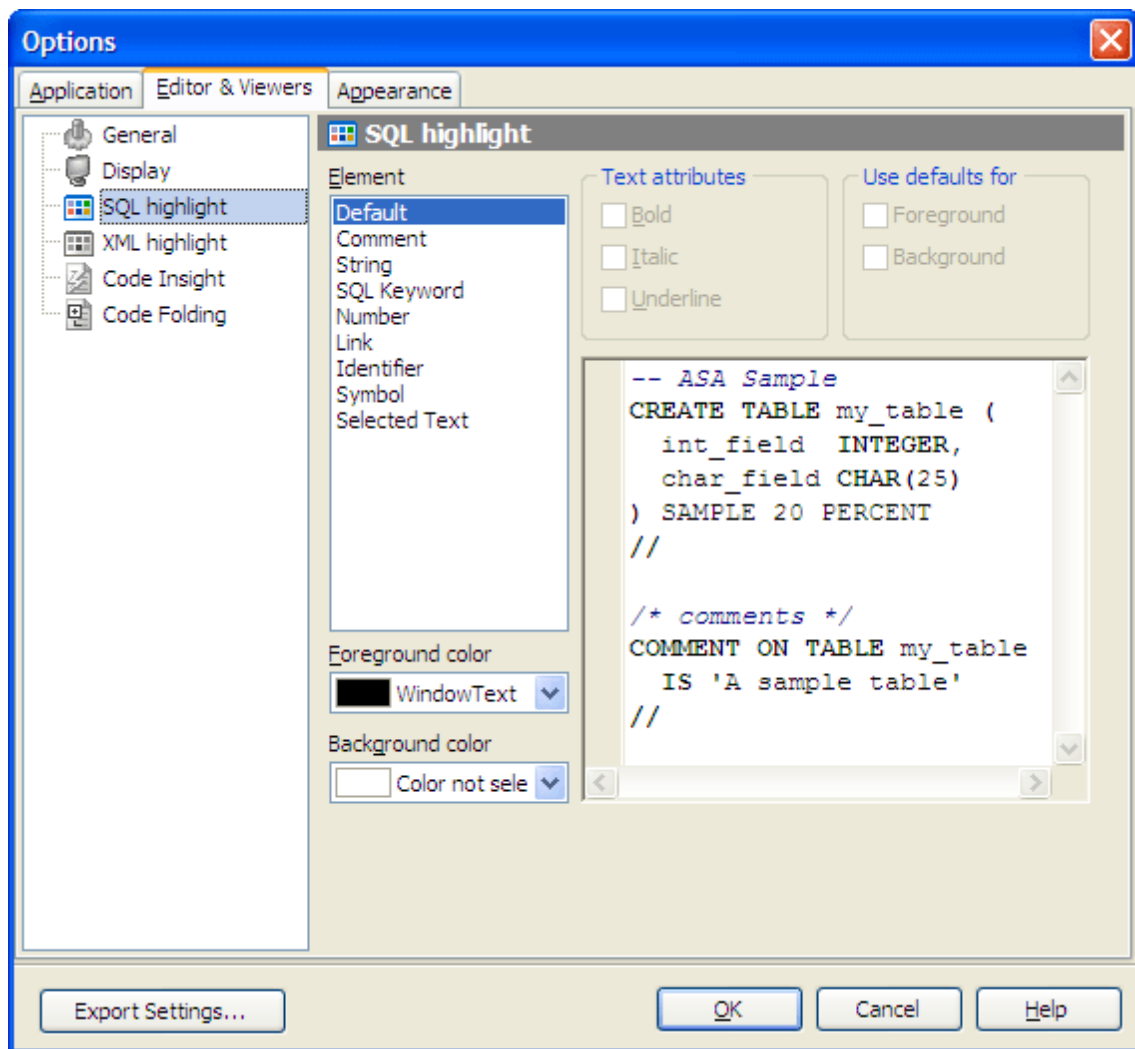
9.2.4 XML highlight

Use the XML highlight item to customize XML syntax highlight for the text representation of BLOBs in BLOB Viewer/Editor. Select the text element from the list, e.g. attribute or attribute value and adjust its foreground color, background color and text attributes according to your wishes.
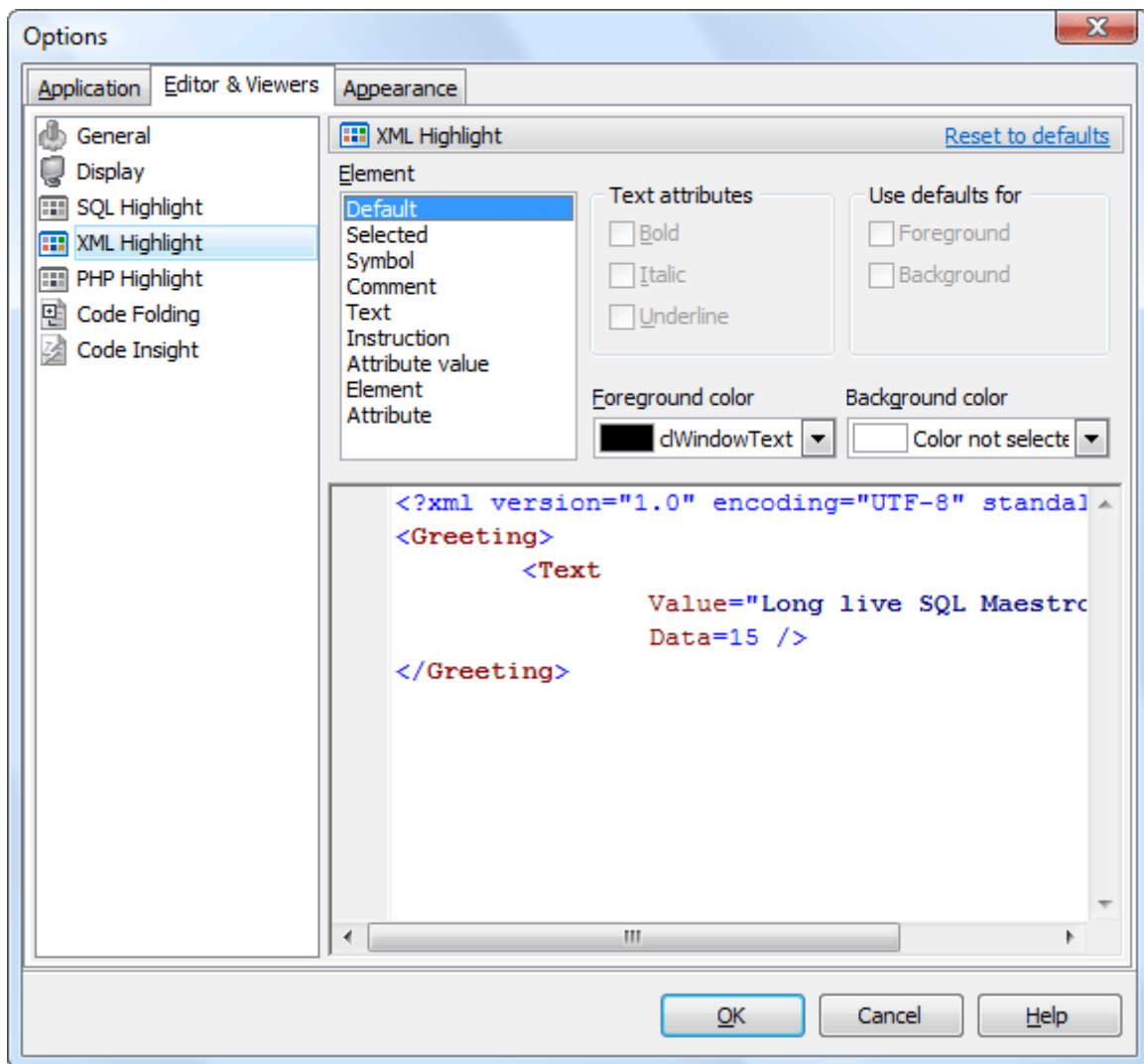
9.2.5 PHP highlight

Use the PHP highlight item to customize PHP syntax highlight for the text representation of BLOBs in BLOB Viewer/Editor. Select the text element from the list (e.g. Keyword, Comment, Identifier), and adjust its foreground color, background color and text attributes according to your wishes.
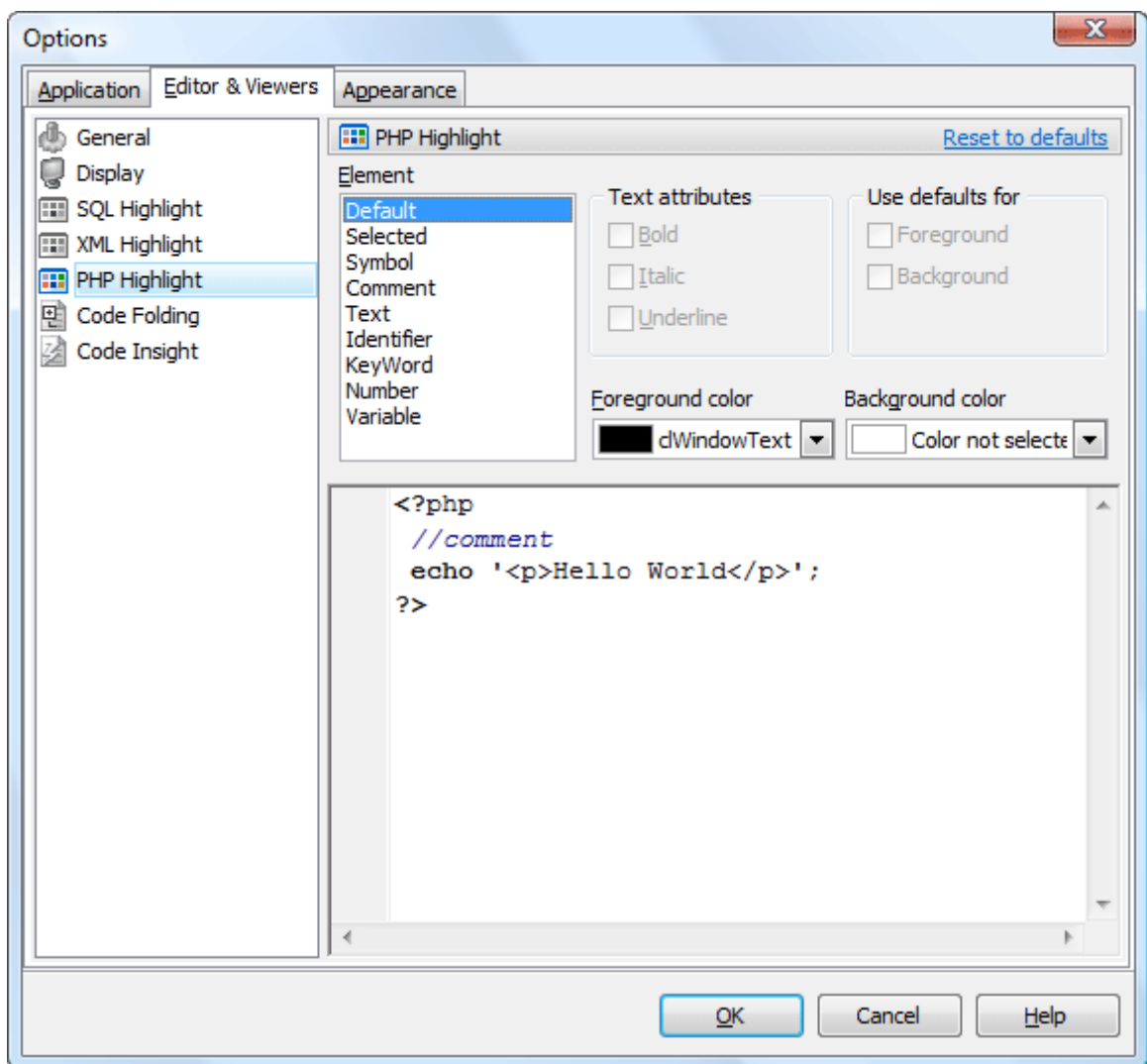
9.2.6 Code Insight

You can disable/enable the code completion with the corresponding option and also set the time is appears as Delay, and case of words inserted automatically.
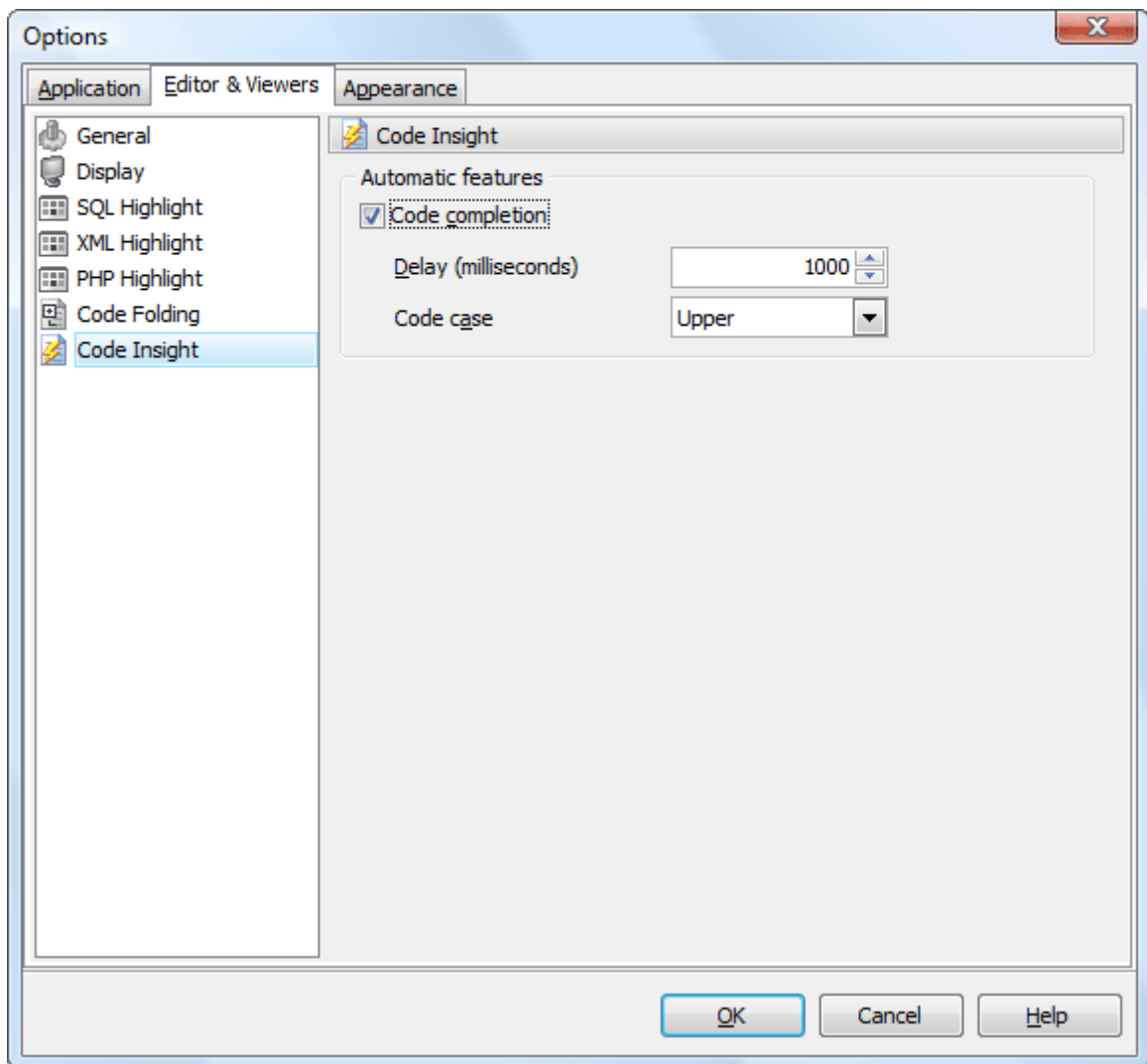
9.2.7 Code Folding

The Code Folding item group makes it possible both to view the whole text and to divide it into logical parts (regions). Each part can be collapsed and extended. In extended mode the whole text is displayed (set by default), in collapsed mode the text is hidden behind one text line denoting the first line of the collapsed region.
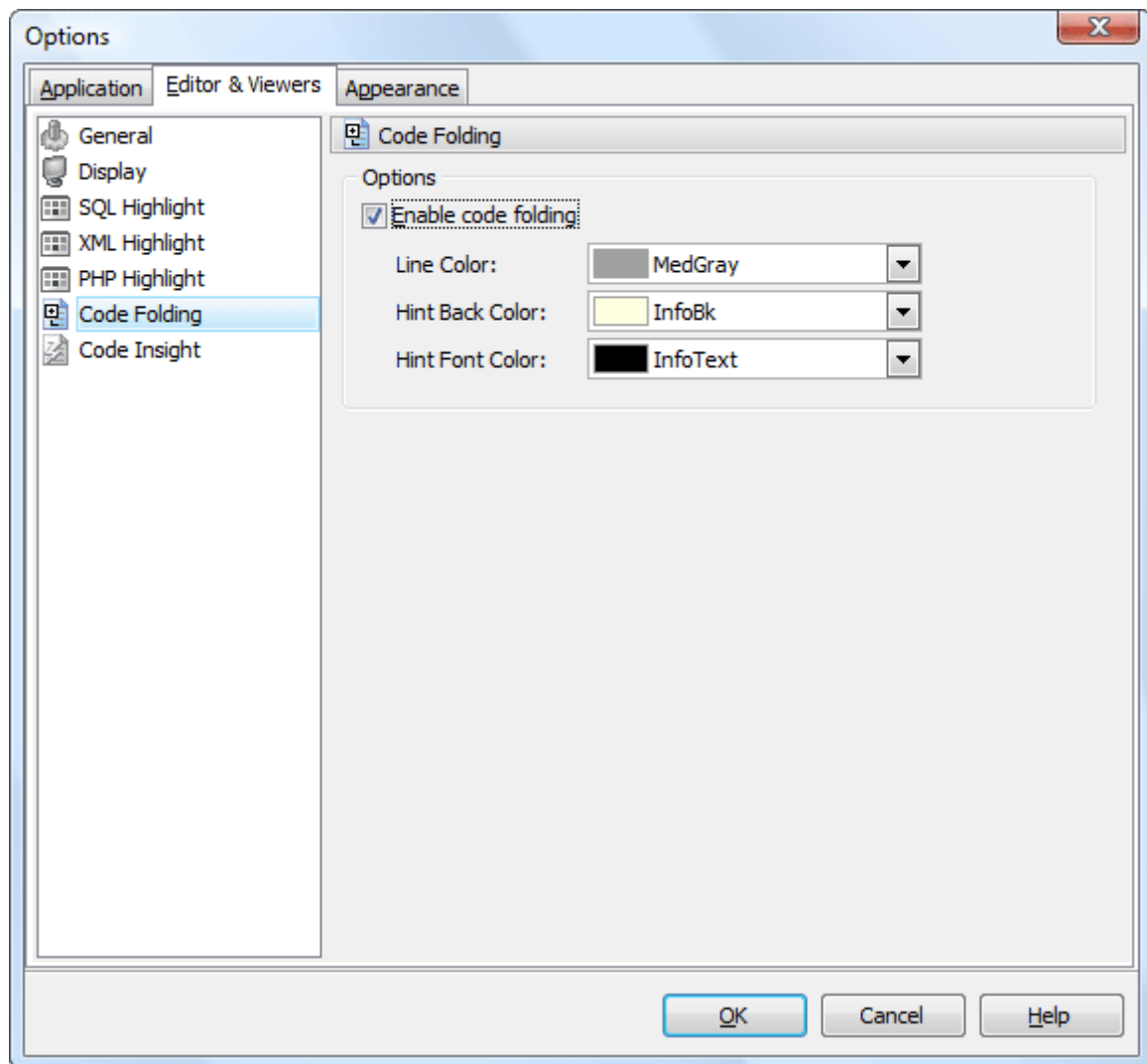
You can enable/disable code folding in SQL editors and viewers and customize the colors of its items.

9.3 Appearance

The Appearance section allows you to customize the application interface style to your preferences.

Use the Scheme name box to select the interface scheme you prefer: *Office XP style*, *Windows XP native style*, etc. You can create your own interface schemes by customizing any visual options (Bars and menus, Trees and lists, Edit controls, Check boxes, Buttons, etc.) and clicking the Save As button. All the customized options are displayed on the sample panel.

9.3.1 Bars and menus

Use the Bars and menus item to customize ASA Maestro toolbars style and menus animation.

The item allows you to select Bar style and menu animation from the corresponding drop-down lists and to enable or disable such options as sunken border, F10 key for opening menu, viewing full menus after delay, flat close buttons, gray-scale images.
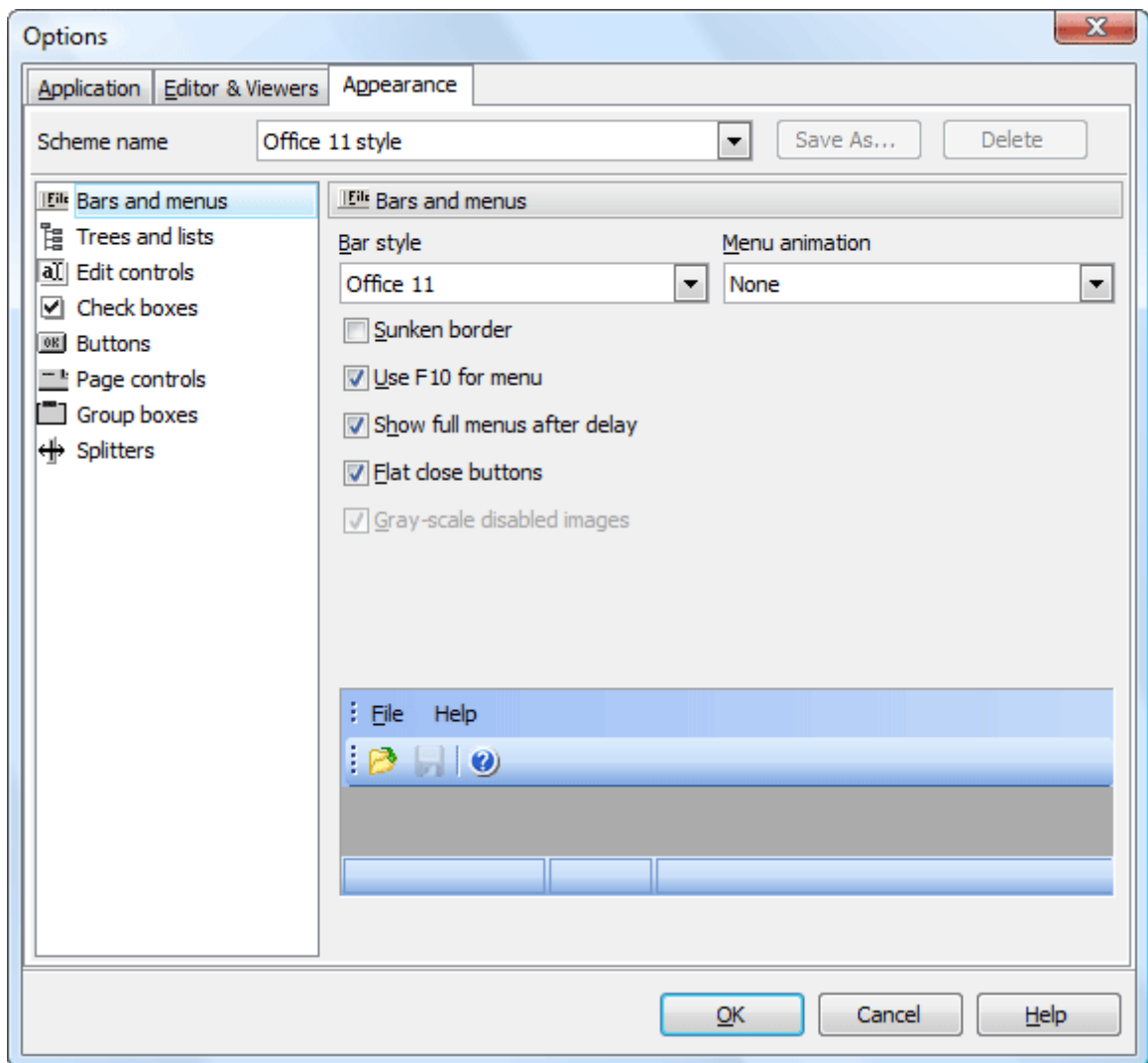
9.3.2 Trees and lists

Use the Trees and lists item to select various tree view options. Use the item to select *standard*, *flat* or *ultraflat* styles, check or uncheck the *hide selection*, *hide focus rectangle* and *native style* options.
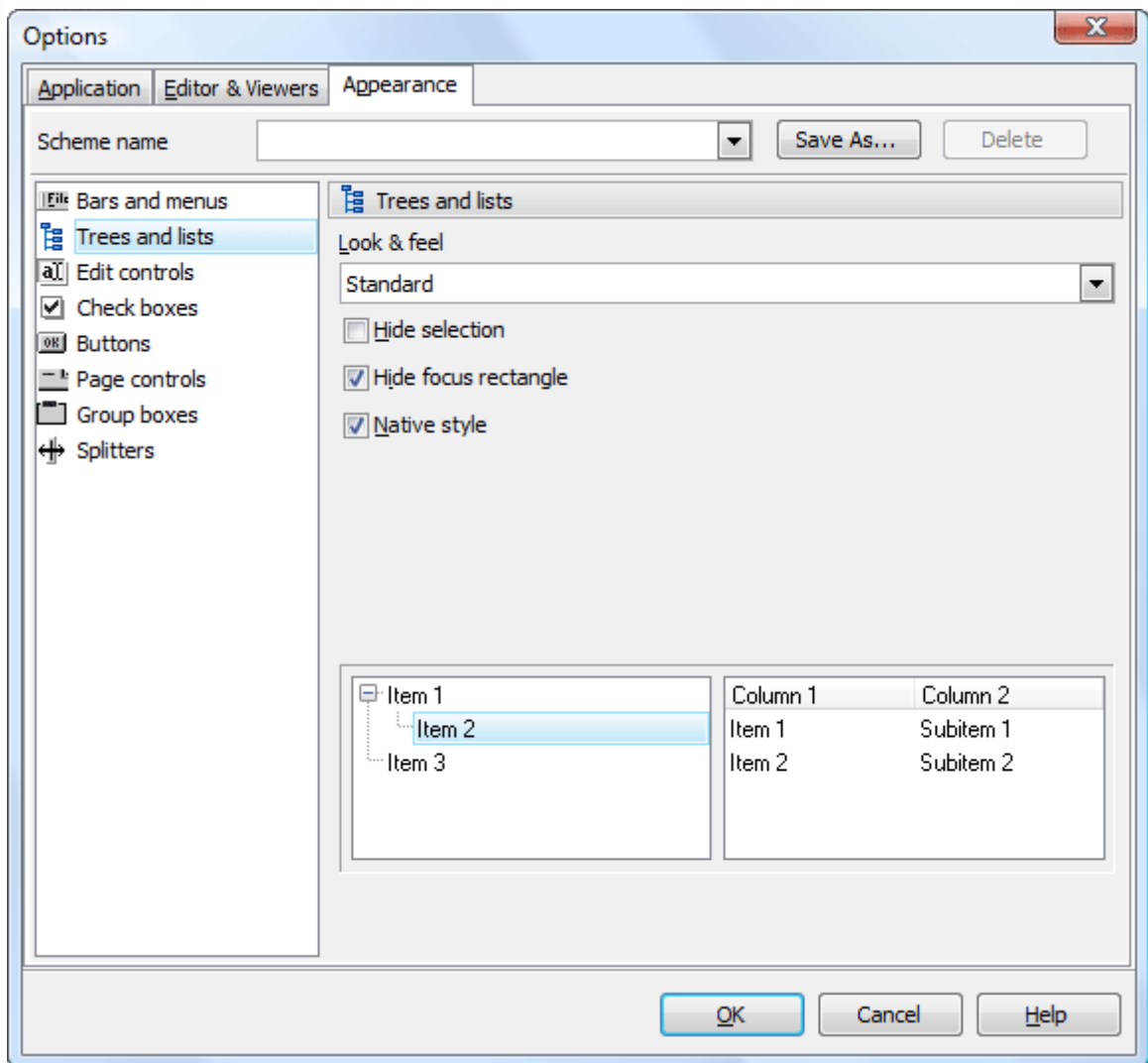
9.3.3 Edit controls

Use the Edit controls item to customize the appearance of different ASA Maestro edit controls. The tab allows you to select the edit controls border style, button style and transparency, enable/disable hot tracks, shadows, native style and customize edges. It is also possible to define samples for the text edit, button edit and combo box controls.
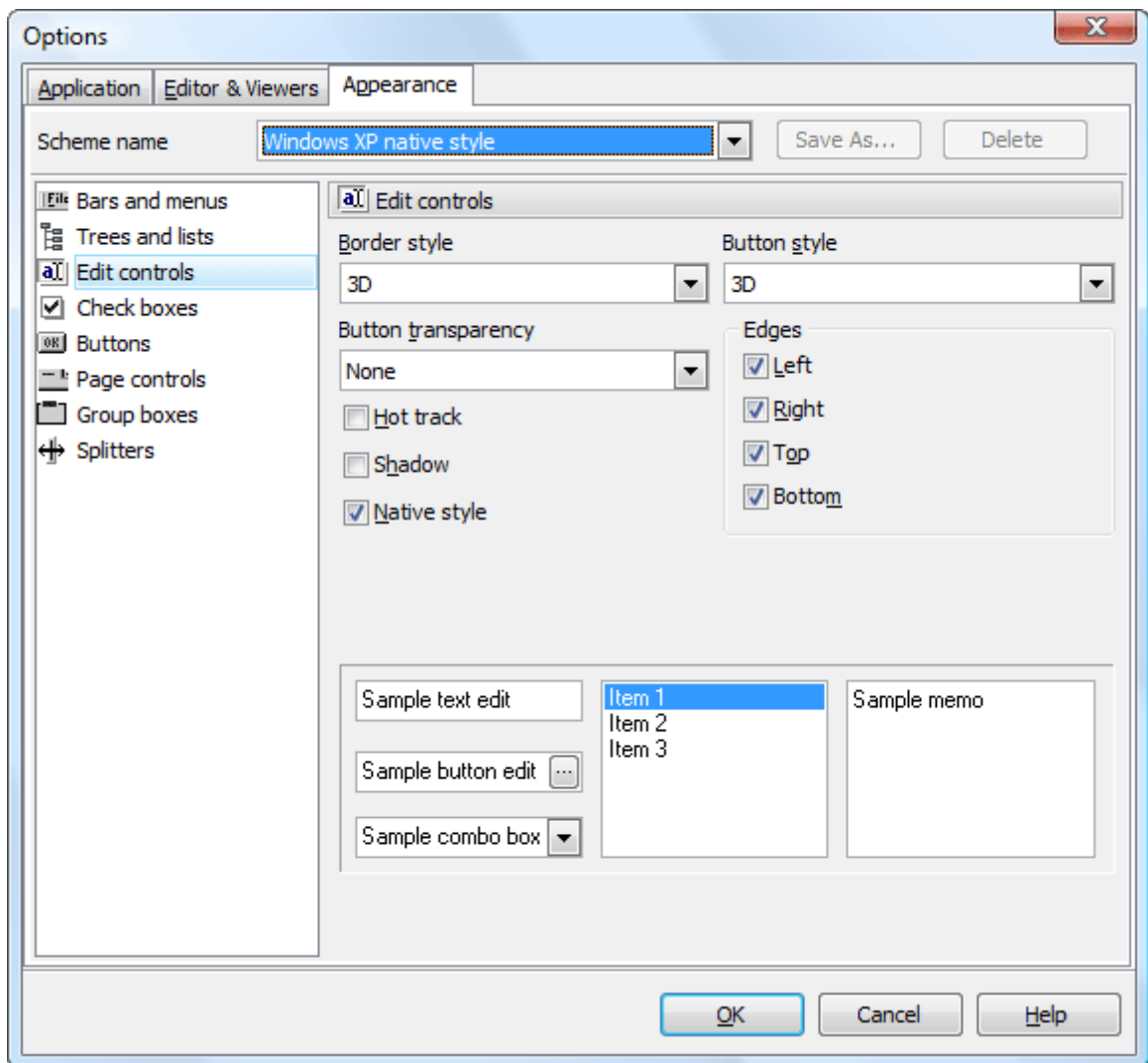
9.3.4 Check boxes

The Check boxes item allows you to customize the appearance of check boxes and radio buttons. The tab allows you to customize the appearance of check boxes: set border style, enable/disable hot tracks, shadows, native style. It is also possible to define samples for check boxes and radio buttons.
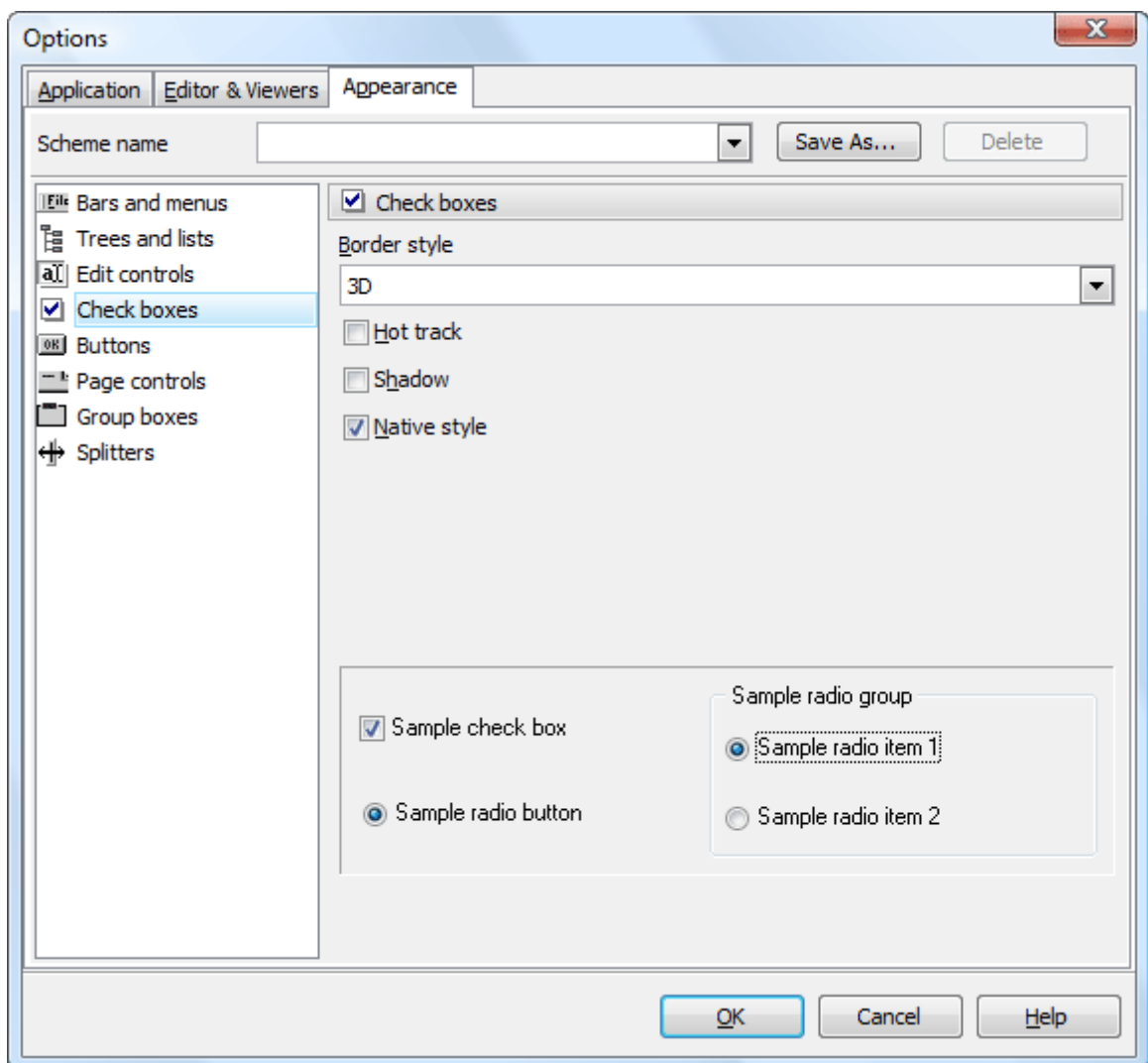
9.3.5 Buttons

Use the Buttons item to customize ASA Maestro buttons. The tab allows you to adjust the appearance of buttons and define sample buttons as well.
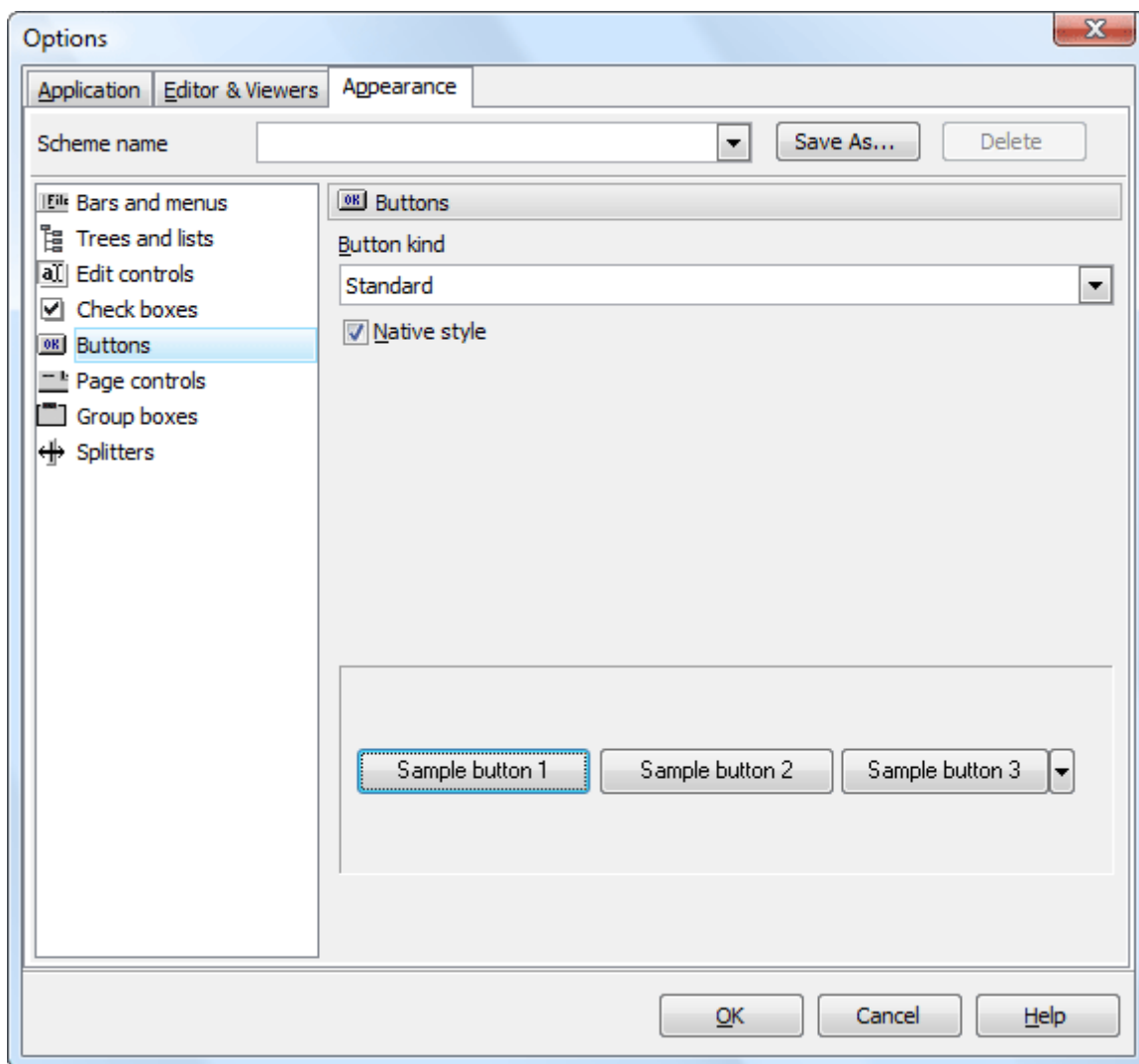
9.3.6   Page controls

The Page controls item allows you to customize the style of all ASA Maestro page controls. The tab allows you to select tab styles, enable/disable hot track, multi-line pages and native style.
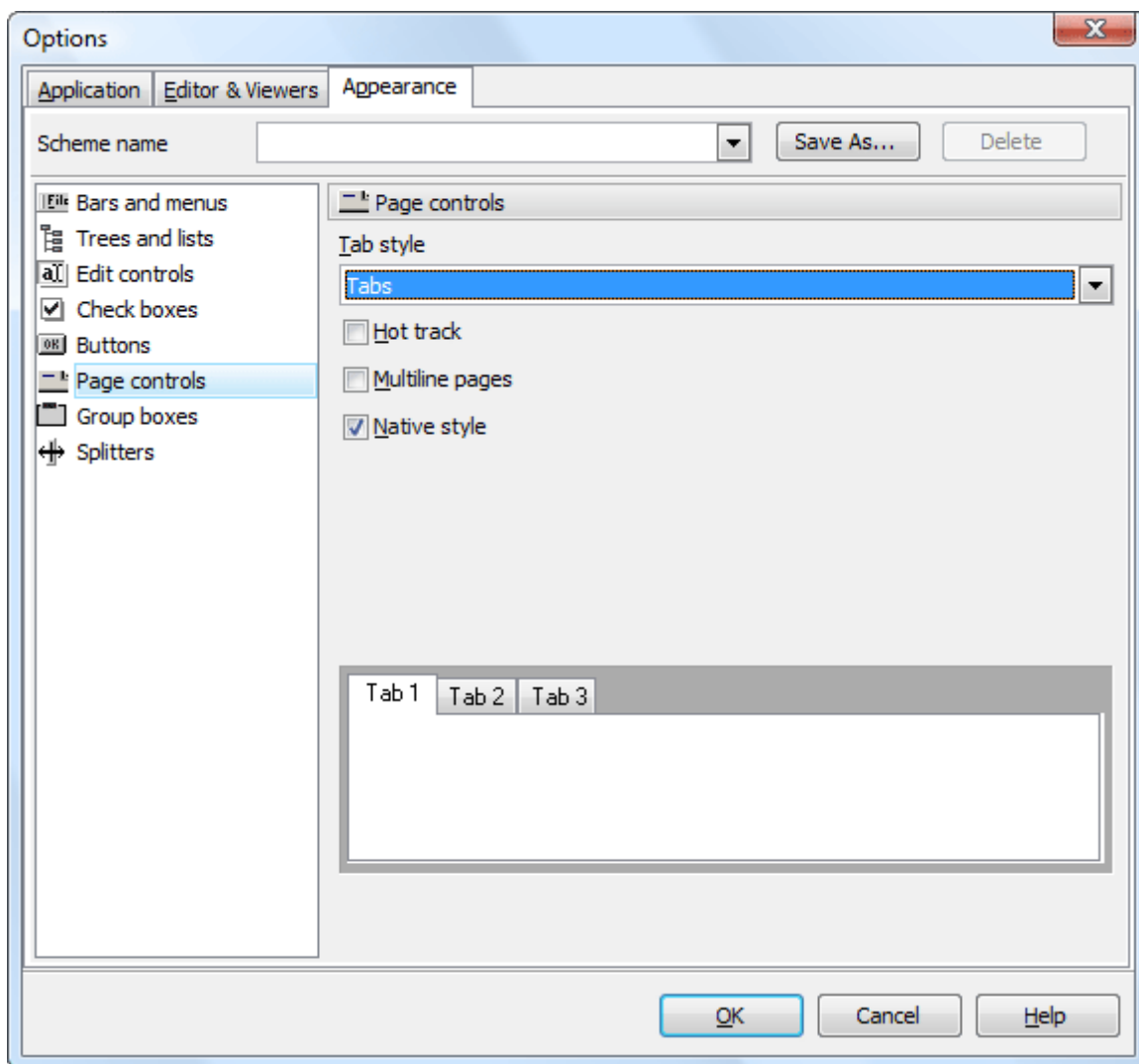
9.3.7   Group boxes

Use the Group boxes item to customize all ASA Maestro group boxes according to your preferences. Use tab to apply styles for group boxes, enable/disable native style and define samples.
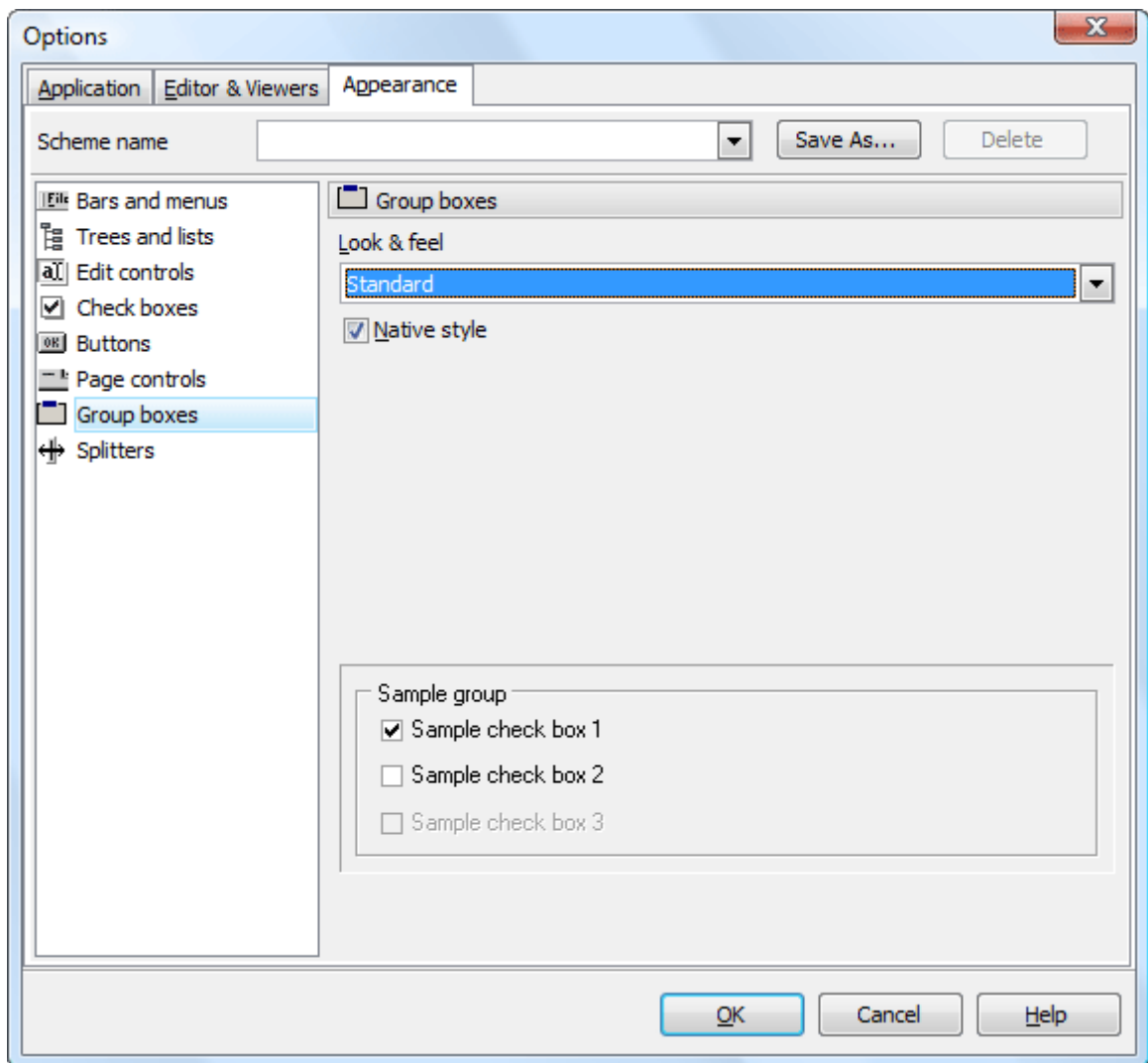
9.3.8   Splitters

Use the Splitters item to customize all ASA Maestro splitters according to your preferences. Use the tab to select hot zone style (*Windows XP task bar*, *Media Player 8*, *Media Player 9*, *Simple* or *none*) and specify the Hot zone drags a splitter option.

Options

Application | Editor & Viewers | Appearance

Scheme name [   ] [▼] [Save As...] [Delete]

Splitters

- Bars and menus
- Trees and lists
- Edit controls
- Check boxes
- Buttons
- Page controls
- Group boxes
- **Splitters**

Hot zone style

Windows XP task bar [▼]

☑ Hot zone drags a splitter

[OK] [Cancel] [Help]
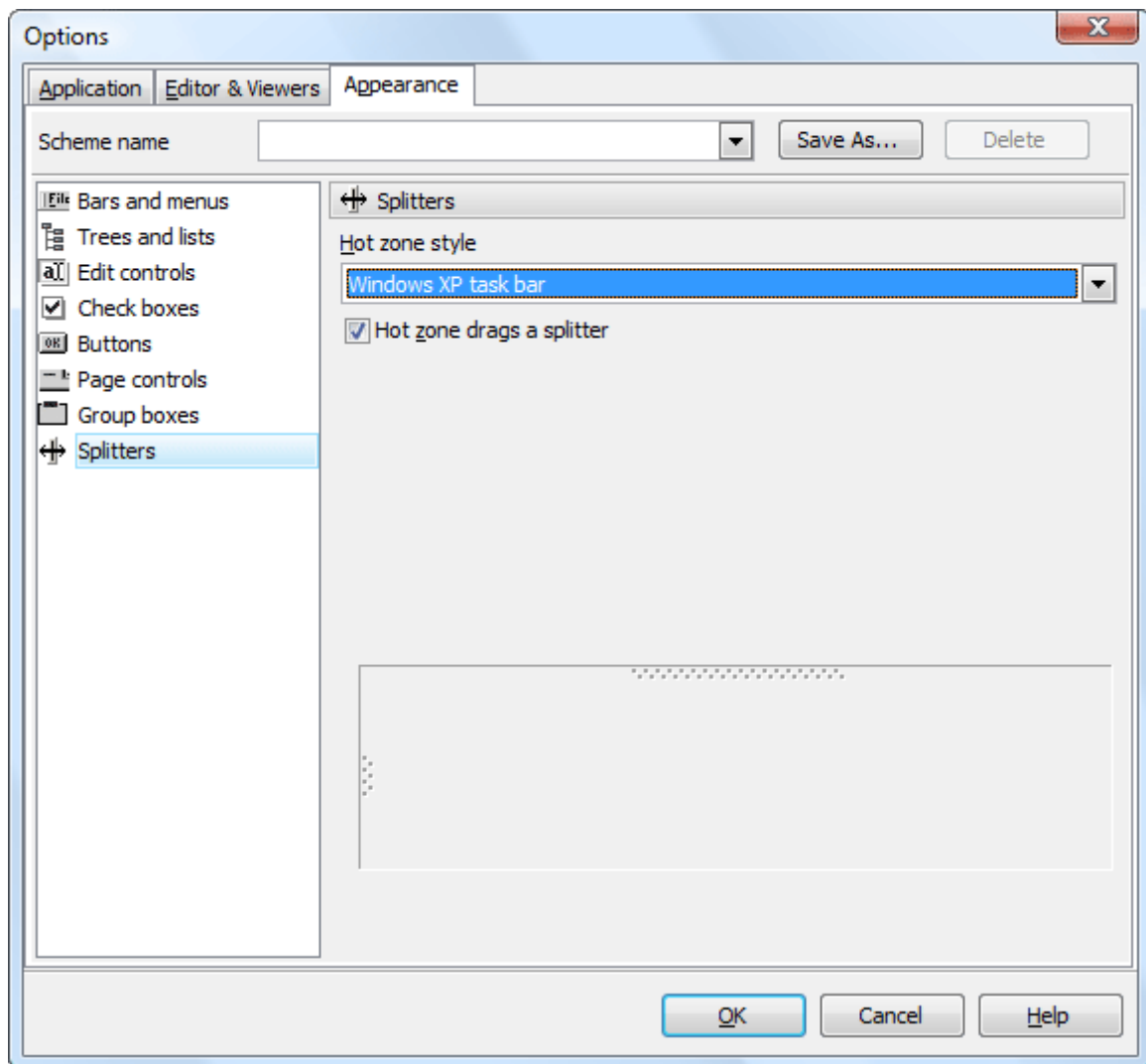
9.4 Export Settings

Export Settings Wizard allows you to export all or partial ASA Maestro settings to single *.reg* file which can be applied to the application of ASA Maestro installed on another machine or used to backup previous settings. To run the wizard, select the Tools | Options main menu item and click Export Settings in the Options[253] dialog.

- Specifying destination file to save settings to[293]
- Specifying settings categories to save[293]
- Select database profiles to save[294]
- Saving settings[294]

☑ Database profiles

☑ Application options

☑ Editor options

☑ Appearance options

☑ Form placements

☑ MRU lists
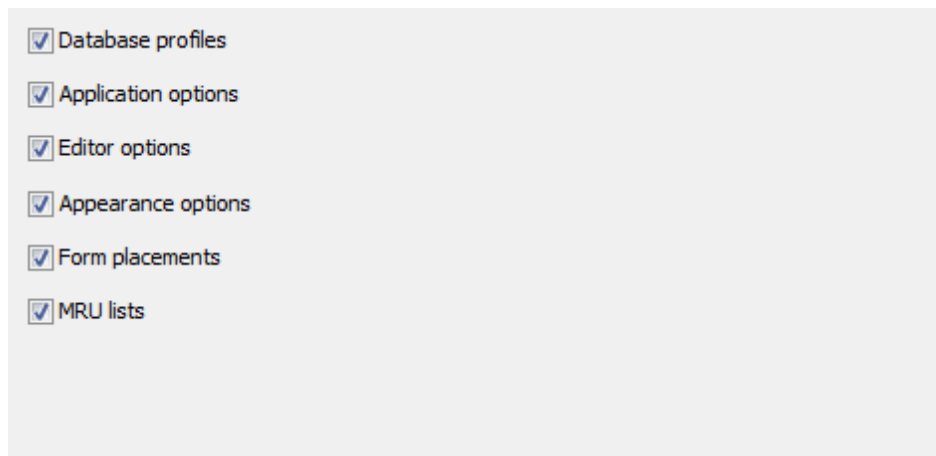
9.4.1 Specifying destination file

Specify a *.reg* file to extract ASA Maestro setting to.

Welcome to the Export Settings Wizard!
This wizard allows you to export current settings in a whole or partially to a single *.reg file.

This wizard will guide you through the process of selecting program options and database profiles for exporting into the file.

Destination file name

C:\Program Files\SQL Maestro Group\Code Factory for MySQL\MyCodeFactory.reg   ...
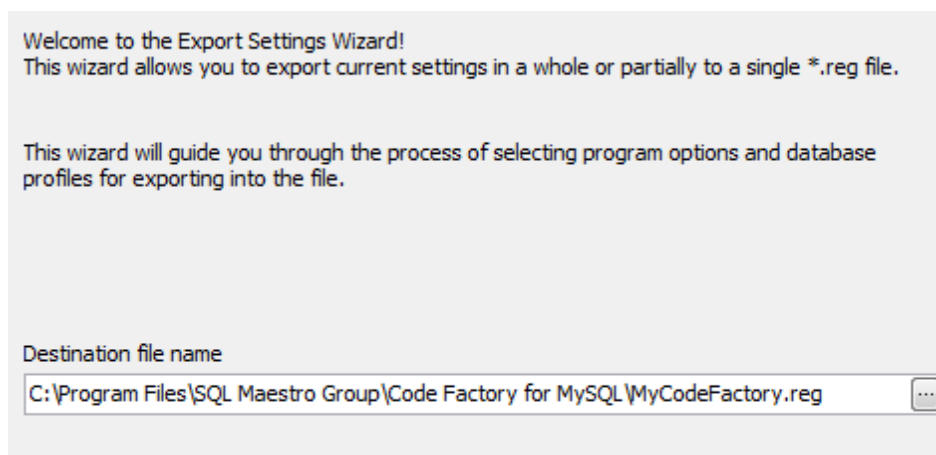
9.4.2 Selecting setting categories

The options of this step specify the information saved to the result file, e.g. Database profiles, Application options[254], etc.
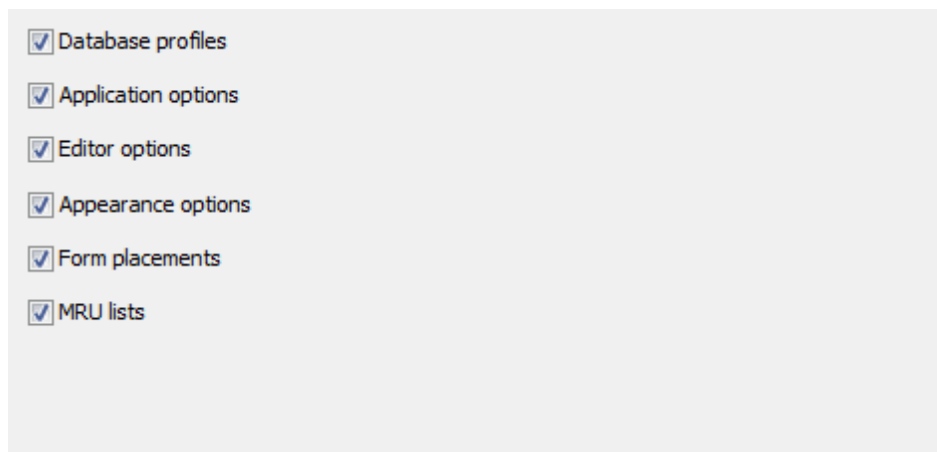
9.4.3   Selecting database profiles

Select database profiles to save their settings by moving them from the Available Databases list to the Selected Databases one.
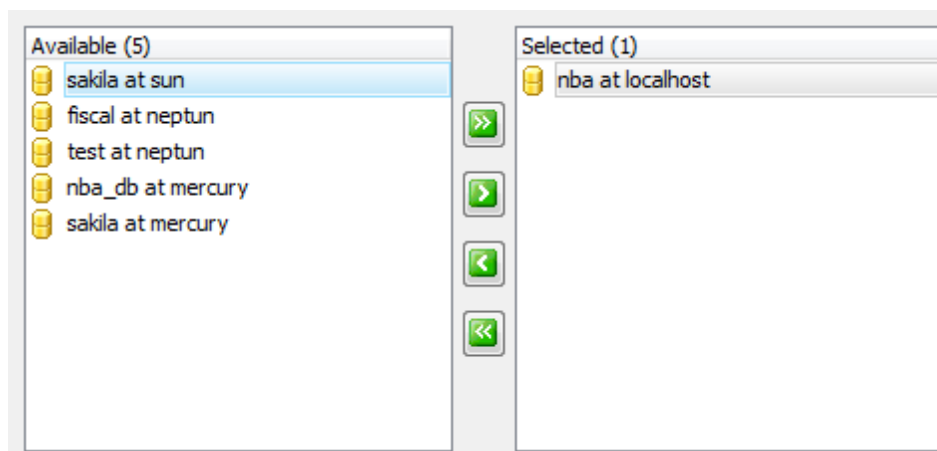
9.4.4   Saving settings

Click the Ready button to start the extracting. The process log is displayed in the Export log box.

Export log

The command(s) completed successfully.
Exporting editor options...
The command(s) completed successfully.
Exporting appearance options...
The command(s) completed successfully.
Exporting form placements...
The command(s) completed successfully.
Exporting MRU lists...
The command(s) completed successfully.

Click "Ready" to export settings.

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