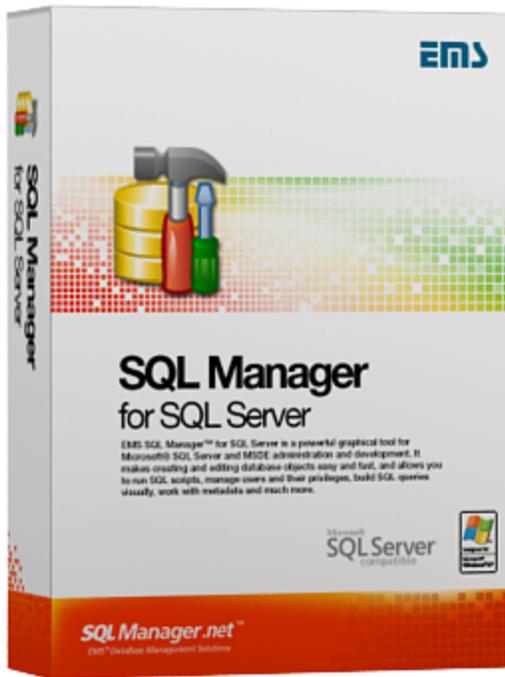


SQL Manager.net™

EMS® Software Development



SQL Manager for SQL Server User's Manual

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SQL Manager for SQL Server User's Manual

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Part



1 Welcome to SQL Manager for SQL Server!

EMS SQL Manager for SQL Server is a powerful tool for SQL Server administration and development. SQL Manager for SQL Server works with all SQL Server versions from 2000 to the newest one and supports all the latest SQL Server features including memory-optimized tables, backup encryption, FileTables, columnstore indices and other. It offers plenty of powerful SQL tools such as Visual Database Designer that allows designing SQL Server database in few clicks, Design Query and advanced SQL editor to build complicated SQL Server queries and many more useful features for efficient SQL Server development and administration. SQL Manager has a new state-of-the-art graphical user interface with well-described wizard system, so clear in use that even a newbie will not be confused with it.

Visit our web-site for details: <https://www.sqlmanager.net/>

Key features

- Support of SQL Server versions up to 2022 and Azure SQL Database
- Easy management of all SQL Server objects
- Excellent visual and text tools for query building
- Visual Database Designer to handle database structure in a few clicks
- Powerful Transact-SQL debugger to trace procedures, functions, SQL scripts
- Comparison and synchronization of database structure
- Simple getting your database under source control
- Rapid database management and navigation
- Impressive data export and import capabilities
- Advanced data manipulation tools
- Effective security management
- Easy-to-use wizards performing SQL Server administrative tasks
- Report designer with clear in use report construction wizard

Product information

Homepage: <https://www.sqlmanager.net/products/mssql/manager>

Support Ticket System: <https://www.sqlmanager.net/support>

Register on-line at: <https://www.sqlmanager.net/products/mssql/manager/buy>

1.1 What's new

Version**SQL Manager for SQL Server 5.2.1****Release date**

December 26, 2024

What's new in SQL Manager for SQL Server 5.2.1?

- Added support for user-defined table type indexes.
- The 'Show data types' option has been improved.
- The error occurred on switching 'Sort by aliases' option with connected databases. Fixed now.
- The error occurred on executing procedures with VARCHAR parameter. Fixed now.
- In some cases sorting of data worked inconsistently. Fixed now.
- On selecting OLE DB provider connection, the OLE DB 19 version is used, if installed.
- The parsing of parameters in SQL editor has been improved.
- The issues of reordering columns have been fixed.
- Some DBs were missing on switching to the Lite version. Fixed now.
- Other fixes and improvements.

1.2 System requirements

System requirements for SQL Manager for SQL Server

- Microsoft Windows XP, Microsoft Windows Server 2003, Microsoft Windows Server 2008, Microsoft Windows Server 2008 R2, Microsoft Windows Server 2012, Microsoft Windows Server 2012 R2, Microsoft Windows Server 2016, Microsoft Windows Server 2019, Microsoft Windows Vista, Microsoft Windows 7, Microsoft Windows 8/8.1, Microsoft Windows 10, Microsoft Windows 11, Microsoft Windows 11 ARM
- 512MB RAM or more; 1024MB or more recommended
- 100MB of available HD space for program installation
- Microsoft® Data Access Components (MDAC) or SQL Server Native Client
- Possibility to connect to any local or remote Microsoft® SQL Server™
- Supported Microsoft SQL Server versions: from 2000 up to 2022 (We do not support SQL Server Compact Edition), Azure SQL Databases and Amazon RDS for Microsoft SQL Server

1.3 Feature Matrix

The **FREE** *Lite version* of SQL Manager for SQL Server does not include all features of the *Full version* and has some limitations concerning the number of the databases that can be registered and the set of data manipulation and server maintenance tools. The detailed feature matrix is given below.

Note that when using the **FREE** *Lite version* of SQL Manager for SQL Server you can [activate](#)^[82] a 30-day period of fully-functional usage. After the period expires, you will be able to continue using the **Lite** version.

For more information on activating the **Full** version features see [Full Mode activation](#)^[82].

To browse the **Feature Matrix**, visit the following page: <https://www.sqlmanager.net/products/mssql/manager/matrix>

1.4 Installation

If you are **installing SQL Manager for SQL Server for the first time** on your PC:

- download the SQL Manager for SQL Server distribution package from the [download page](#) available at our site;
- unzip the downloaded file to any local directory, e.g. *C:\unzipped*;
- run *MSManagerFull.msi* (**Full** version) or *MSManagerLite.msi* (**Lite** version) from the local directory and follow the instructions of the installation wizard;
- after the installation process is complete, find the SQL Manager shortcut in the corresponding group of Windows Start menu.

If you want to **upgrade an installed copy of SQL Manager for SQL Server** to the latest version:

- download the SQL Manager for SQL Server distribution package from the [download page](#) available at our site;
- unzip the downloaded file to any local directory, e.g. *C:\unzipped*;
- close SQL Manager application if it is running;
- run *MSManagerFull.msi* (**Full** version) or *MSManagerLite.msi* (**Lite** version) from the local directory and follow the instructions of the installation wizard.

See also:

[SQL Manager FAQ](#)²⁹

1.5 Registration

All purchases are provided by **PayPro Global** registration service. The **PayPro Global** order process is protected via a secure connection and makes on-line ordering by credit/debit card quick and safe.

PayPro Global is a global e-commerce provider for software and shareware sales via the Internet. It accepts payments in US Dollars, Euros, Pounds Sterling, Japanese Yen, Australian Dollars, Canadian Dollars or Swiss Franks by Credit Card (Visa, MasterCard/EuroCard, American Express, Diners Club), Bank/Wire Transfer.

If you want to review your order information, or you have questions about ordering or payments please visit our [PayPro Global Shopper Support](#), provided by **PayPro Global**.

Please note that all of our products are delivered via ESD (Electronic Software Delivery) only. After purchase you will be able to immediately download the registration keys. Also you will receive a copy of registration keys by email. Please make sure to enter a valid email address in your order. If you have not received the keys within 2 hours, please, contact us at sales@sqlmanager.net.

Product distribution	PayPro Global
EMS SQL Manager for SQL Server (Business license) + 1-Year Maintenance*	Register Now!
EMS SQL Manager for SQL Server (Business license) + 2-Year Maintenance*	
EMS SQL Manager for SQL Server (Business license) + 3-Year Maintenance*	
EMS SQL Manager for SQL Server (Non-commercial license) + 1-Year Maintenance*	
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EMS SQL Manager for SQL Server (Non-commercial license) + 3-Year Maintenance*	
EMS SQL Manager for SQL Server (Trial version)	Download Now!
EMS SQL Manager for SQL Server Freeware	Download Now!

* **EMS Maintenance Program** provides the following benefits:

- Free software bug fixes, enhancements, updates and upgrades during the maintenance period
- Free unlimited communications with technical staff for the purpose of reporting Software failures
- Free reasonable number of communications for the purpose of consultation on operational aspects of the software

After your maintenance expires you will not be able to update your software or get technical support. To protect your investments and have your software up-to-date, you need to renew your maintenance.

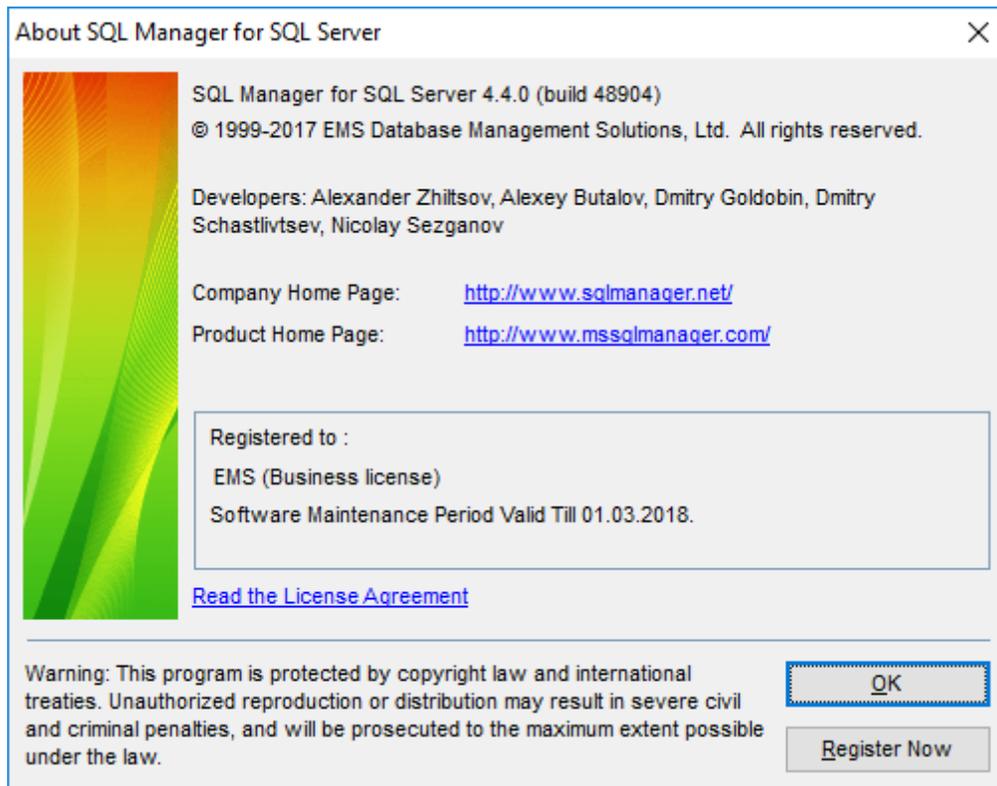
You can easily reinitiate/renew your maintenance with our on-line, speed-through Maintenance Reinstatement/Renewal Interface. After reinitiating/renewal you will receive a confirmation e-mail with all the necessary information.

See also:

[How to register SQL Manager](#)^[27]

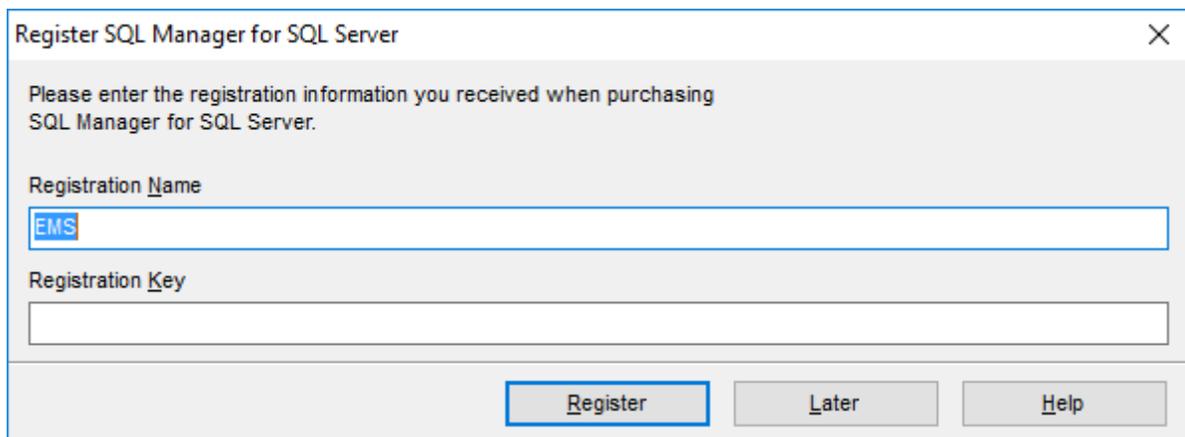
1.6 How to register SQL Manager

If you have not registered your copy of SQL Manager for SQL Server yet, you can do it by pressing the **Register Now** button and entering your registration information in the **Register SQL Manager for SQL Server** dialog.



To register your newly purchased copy of EMS SQL Manager for SQL Server, perform the following steps:

- receive the notification letter from **Digital River** with the registration info;
- enter the **Registration Name** and the **Registration Key** from this letter;
- make sure that the registration process has been completed successfully – check the registration information in the **About SQL Manager for SQL Server** dialog (use the **Help | About** menu item to open this dialog).



Register SQL Manager for SQL Server

Please enter the registration information you received when purchasing SQL Manager for SQL Server.

Registration Name

Registration Key

See also:

[Registration](#) ²⁵

1.7 EMS SQL Manager FAQ

Please read this page attentively if you have questions about EMS SQL Manager for SQL Server.

Table of contents

- [1. What is EMS SQL Manager for SQL Server?](#)^[29]
- [2. What is the difference between Full and Freeware editions of EMS SQL Manager for SQL Server?](#)^[29]
- [3. What do I need to start working with EMS SQL Manager for SQL Server?](#)^[30]
- [4. Why cannot I connect to SQL Server?](#)^[30]
- [5. How can I customize data formats in a grid?](#)^[30]
- [6. How can I speed up my work with large tables?](#)^[30]
- [7. I need to perform some changes in database objects of my test database and then make the same changes on master database. Are there any tools for this purpose in EMS SQL Manager for SQL Server?](#)^[31]
- [8. How to connect to a named instance of SQL Server 2000 in EMS SQL Manager for SQL Server?](#)^[31]
- [9. I can access my server via an alternative port. I have searched for a setting in EMS SQL Manager for SQL Server to alter the connection port, but have not yet been able to locate this. How would I go about altering this port?](#)^[31]
- [10. What is the difference between the Export/Import functions in EMS SQL Manager for SQL Server tool and EMS Data Export/Import for SQL Server utilities?](#)^[32]
- [11. What is the difference between the Design Query module in EMS SQL Manager for SQL Server tool and EMS SQL Query for SQL Server utility?](#)^[32]
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- [18. I get an error 'Timeout expired' when I try to execute a query in Query Data or when I perform some operations with database objects.](#)^[33]
- [19. I get the error "Debugger interface not registered on client" when trying to run the T-SQL Debugger.](#)^[33]

Question/answer list

Q:

What is EMS SQL Manager for SQL Server?

A:

EMS SQL Manager for SQL Server is a powerful graphical tool for Microsoft SQL Server development and administration. It makes creating and editing MS SQL Server database objects easy and fast, and allows you to run SQL scripts, manage users and their privileges, build SQL queries visually, extract, print and search metadata, export data to 14 available formats and import them from most popular formats, view and edit BLOB fields, and much more.

Q:

What is the difference between Full and Freeware editions of EMS SQL Manager for SQL Server?**A:**

These editions of SQL Manager for SQL Server differ in their functionality. Being a light edition, SQL Manager Freeware has certain restrictions, for example, it can handle not more than 5 databases, and some others. You can view the list of all functional differences between full and freeware versions at our [Feature Matrix Page](#).

Q:**What do I need to start working with EMS SQL Manager for SQL Server?****A:**

First of all you must have an opportunity to connect to some local or remote SQL Server from 2000 up to the latest one (We do not support SQL Server Compact Edition), Azure SQL Databases or Amazon RDS for Microsoft SQL Server. Besides you need your computer to satisfy the system requirements of SQL Manager for SQL Server.

Q:**Why cannot I connect to SQL Server?****A:**

1. If your server is installed as named instance, use server name in form . SQL Server 2005 Express Editor has by default SQLEXPRESS instance name.
2. If you connect to the remote server, make sure that the connection is not blocked by firewall. Ask your system administrator to correctly open appropriate ports.
3. Make sure that SQL Server is started and you have correct login to access it.
4. Make sure that client protocols are correctly tuned. Use SQL Server Configuration Manager on connection to SQL Server 2005 (it is installed with Native Client) or SQL Server Client Network Utility (system32 cliconfg.exe) on connection to earlier versions.
5. Make sure that remote connection is enabled on server and server protocols are correctly tuned. Use SQL Server Surface Area Configuration on SQL Server 2005 and SQL Server Network Utility (Program FilesMicrosoft SQL Server80ToolsBinnsvrnetcn.exe) on earlier server versions.
6. If you use named instance of server with dynamic TCP/IP port, make sure that SQL Browser service is running.
7. If you connect remotely, try using server IP address instead of its name to ensure that DNS works well.

Q:**How can I customize data formats in a grid?****A:**

You can customize all display formats: integer, float, date, time and date/time in the Environment Options window on the Grid | Color & Formats tab.

Q:**How can I speed up my work with large tables?****A:**

For your convenience and to speed up your work Data Grid allows customizing many data display parameters. Here are the most important of them (accessible through Database Registration Info dialog):

- Limit options in table and view editors. The "Select all records of a table" option will enable you to see all table records without extra references to the server, yet in case of large tables or low speed connection channel the data may be fetched with huge delays and the incoming traffic might grow considerably. This mode is recommended when working with local databases or in a private network.

- The "Select only" mode restricts the maximum number of records returned after the query. Man can't process a massive amount of information at once. Hence, we came up with this mode. This mode speeds up table data viewing considerably, prevents hanging and connection timeout. It is recommended to work with large tables, in case of low speed connection channels and when the traffic volume is of importance. This is a default mode.
- Default Grid Mode. This option defines whether the requested rows will be loaded in the Grid all at once ("Load all rows"), or in parts ("Load visible rows") as the user scrolls down table data. The first mode increases the query opening time but speeds up scrolling. In the second mode the query opens very fast but there might be delays when navigating the grid.

We recommend that you set the following option values to achieve maximum efficiency when working with large tables:

- Select only - On
- Load visible rows - On

Q:

I need to perform some changes in database objects of my test database and then make the same changes on master database. Are there any tools for this purpose in EMS SQL Manager for SQL Server?

A:

Database Registration Info dialog contains Log tab where you can enable logging metadata changes that are performed on a database and SQL statements that are executed in Query Data.

Q:

How to connect to a named instance of SQL Server 2000 in EMS SQL Manager for SQL Server?

A:

If you have troubles in connection to a named instances of SQL Server 2000 please try the following:

- Run SQL Server Client Network Utility (system32cliconfg.exe) on client computer where EMS SQL Manager for SQL Server runs.
- Go to the second (Alias) tab of the Utility.
- Add a new server alias with Server Name in form and TCP/IP as Network library.
- Use the server alias name as host name on Database Registration Info dialog of EMS SQL Manager for SQL Server.

Q:

I can access my server via an alternative port. I have searched for a setting in EMS SQL Manager for SQL Server to alter the connection port, but have not yet been able to locate this. How would I go about altering this port?

A:

To connect to SQL Server 2005 on alternative port, do the following:

- Run SQL Server Configuration Manager (it is installed with Native Client) on client computer where SQL Manager runs.
- Select SQL Native Client Configuration | Aliases node.
- Add a new server alias and set port number, TCP/IP as protocol and server name.
- Use the server alias name as host name on Database Registration Info dialog of SQL Manager.

To connect to SQL Server 2000 or earlier on alternative port, do the following:

- Run SQL Server Client Network Utility (system32cliconfg.exe) on client computer where SQL Manager runs.

- Go to the second (Alias) tab of the Utility.
- Add a new server alias and set server name, port number and TCP/IP as Network library.
- Use the server alias name as host name on Database Registration Info dialog of SQL Manager.

Q:

What is the difference between the Export/Import functions in EMS SQL Manager for SQL Server tool and EMS Data Export/Import for SQL Server utilities?

A:

EMS Data Export/Import for SQL Server includes some additional features, which are not available in SQL Manager for SQL Server such as:
export/import data from/to several tables at once;
export/import data from/to tables selected from different databases on one host;
command line utility to export/import data using the configuration file with all the export/import options.

Q:

What is the difference between the Design Query module in EMS SQL Manager for SQL Server tool and EMS SQL Query for SQL Server utility?

A:

First of all, EMS SQL Query for SQL Server works faster as it is a much lighter product. Besides it provides additional features for query building, e.g.:
keeping query history, which allows you to rollback to any edited query;
various interface improvements for more productive and easy work.

Q:

I can't modify DDL. Why?

A:

The 'DDL' tabs of the Table Editor, View Editor, etc. are read-only. They display the definition of tables. To modify this text you can copy it to the clipboard and modify it using Query Data.

Q:

When I create database objects, their names are always converted to lower case. How can I prevent it?

A:

You need to switch off the "Convert created object's names to lower case" option in Environment Options dialog on the Tools | Object Editors tab.

Q:

I have a table with ~ 1000 records only and a large number of columns. Opening this table on Data tab takes too much time.

A:

You need to set Grid Mode for the table to 'Load Visible Rows'. Please right click on the table's grid and select Grid Mode | Load Visible Rows.

Q:

What is the difference between the Extract Database and Export As SQL Script functions?

A:

Export As SQL Script is intended to export table data that will be inserted into a database system other than MS SQL Server. Use Extract Database to copy data to a table on MS SQL Server.

Q:**I'm trying to export table, but TEXT columns are not exported.****A:**

Columns of types TEXT, BINARY, IMAGE, etc. are not exported by default. You should select these columns manually on the columns tab.

Q:**How do I change the default directory where exported data will be saved?****A:**

Follow the steps below to change directory.

- Right click on the database you need in DB Explorer and click on "Database Registration Info..." item in popup menu (you can also find this item in main menu "Database"). The Database Properties form will be opened.
- Click on the "Save Options" tab.
- In the "Default Directory for Export Data" section you can choose the default directory for export file.

Q:**I get an error 'Timeout expired' when I try to execute a query in Query Data or when I perform some operations with database objects.****A:**

You need to increase timeout values on Tools | Timeouts tab of Environment Options dialog, or set them to 0 - unlimited.

Q:**I get the error "Debugger interface not registered on client" when trying to run the T-SQL Debugger.****A:**

In order to debug code on the remote host the client machine must be configured as follows <http://msdn.microsoft.com/en-us/library/cc646024.aspx>.

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If you still have any questions, contact us at our [Support Center](#).

1.8 Other EMS Products

Quick navigation



MySQL

- 
[SQL Management Studio for MySQL](#)
 EMS SQL Management Studio for MySQL is a complete solution for database administration and development. SQL Studio unites the must-have tools in one powerful and easy-to-use environment that will make you more productive than ever before!
- 
[SQL Manager for MySQL](#)
 Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.
- 
[Data Export for MySQL](#)
 Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more.
- 
[Data Import for MySQL](#)
 Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.
- 
[Data Pump for MySQL](#)
 Migrate from most popular databases (MySQL, PostgreSQL, Oracle, DB2, InterBase/Firebird, etc.) to MySQL.
- 
[Data Generator for MySQL](#)
 Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.
- 
[DB Comparer for MySQL](#)
 Compare and synchronize the structure of your databases. Move changes on your development database to production with ease.
- 
[DB Extract for MySQL](#)
 Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.
- 
[SQL Query for MySQL](#)
 Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.
- 
[Data Comparer for MySQL](#)
 Compare and synchronize the contents of your databases. Automate your data migrations from development to production database.

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Microsoft SQL Server



[SQL Management Studio for SQL Server](#)

EMS SQL Management Studio for SQL Server is a complete solution for database administration and development. SQL Studio unites the must-have tools in one powerful and easy-to-use environment that will make you more productive than ever before!



[EMS SQL Backup for SQL Server](#)

Perform backup and restore, log shipping and many other regular maintenance tasks on the whole set of SQL Servers in your company.



[SQL Administrator for SQL Server](#)

Perform administrative tasks in the fastest, easiest and most efficient way. Manage maintenance tasks, monitor their performance schedule, frequency and the last execution result.



[SQL Manager for SQL Server](#)

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.



[Data Export for SQL Server](#)

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more



[Data Import for SQL Server](#)

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.



[Data Pump for SQL Server](#)

Migrate from most popular databases (MySQL, PostgreSQL, Oracle, DB2, InterBase/Firebird, etc.) to Microsoft® SQL Server™.



[Data Generator for SQL Server](#)

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.



[DB Comparer for SQL Server](#)

Compare and synchronize the structure of your databases. Move changes on your development database to production with ease.



[DB Extract for SQL Server](#)

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.



[SQL Query for SQL Server](#)

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.



[Data Comparer for SQL Server](#)

Compare and synchronize the contents of your databases. Automate your data migrations from development to production database.

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PostgreSQL



[SQL Management Studio for PostgreSQL](#)

EMS SQL Management Studio for PostgreSQL is a complete solution for database administration and development. SQL Studio unites the must-have tools in one powerful and easy-to-use environment that will make you more productive than ever before!



[EMS SQL Backup for PostgreSQL](#)

Creates backups for multiple PostgreSQL servers from a single console. You can use automatic backup tasks with advanced schedules and store them in local or remote folders or cloud storages



[SQL Manager for PostgreSQL](#)

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.



[Data Export for PostgreSQL](#)

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more



[Data Import for PostgreSQL](#)

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.



[Data Pump for PostgreSQL](#)

Migrate from most popular databases (MySQL, SQL Server, Oracle, DB2, InterBase/Firebird, etc.) to PostgreSQL.



[Data Generator for PostgreSQL](#)

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.



[DB Comparer for PostgreSQL](#)

Compare and synchronize the structure of your databases. Move changes on your development database to production with ease.



[DB Extract for PostgreSQL](#)

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.



[SQL Query for PostgreSQL](#)

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.



[Data Comparer for PostgreSQL](#)

Compare and synchronize the contents of your databases. Automate your data migrations from development to production database.

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InterBase / Firebird



[SQL Management Studio for InterBase/Firebird](#)

EMS SQL Management Studio for InterBase and Firebird is a complete solution for database administration and development. SQL Studio unites the must-have tools in one powerful and easy-to-use environment that will make you more productive than ever before!



[SQL Manager for InterBase/Firebird](#)

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.



[Data Export for InterBase/Firebird](#)

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more



[Data Import for InterBase/Firebird](#)

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.



[Data Pump for InterBase/Firebird](#)

Migrate from most popular databases (MySQL, SQL Server, Oracle, DB2, PostgreSQL, etc.) to InterBase/Firebird.



[Data Generator for InterBase/Firebird](#)

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.



[DB Comparer for InterBase/Firebird](#)

Compare and synchronize the structure of your databases. Move changes on your development database to production with ease.



[DB Extract for InterBase/Firebird](#)

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.



[SQL Query for InterBase/Firebird](#)

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.



[Data Comparer for InterBase/Firebird](#)

Compare and synchronize the contents of your databases. Automate your data migrations from development to production database.

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Oracle



[SQL Management Studio for Oracle](#)

EMS SQL Management Studio for Oracle is a complete solution for database administration and development. SQL Studio unites the must-have tools in one powerful and easy-to-use environment that will make you more productive than ever before!



[SQL Manager for Oracle](#)

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.



[Data Export for Oracle](#)

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more.

[Data Import for Oracle](#)

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.

[Data Pump for Oracle](#)

Migrate from most popular databases (MySQL, PostgreSQL, MySQL, DB2, InterBase/Firebird, etc.) to Oracle

[Data Generator for Oracle](#)

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.

[DB Comparer for Oracle](#)

Compare and synchronize the structure of your databases. Move changes on your development database to production with ease.

[DB Extract for Oracle](#)

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.

[SQL Query for Oracle](#)

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.

[Data Comparer for Oracle](#)

Compare and synchronize the contents of your databases. Automate your data migrations from development to production database.

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IBM DB2

[SQL Manager for DB2](#)

Simplify and automate your database development process, design, explore and maintain existing databases, build compound SQL query statements, manage database user rights and manipulate data in different ways.

[Data Export for DB2](#)

Export your data to any of 20 most popular data formats, including MS Access, MS Excel, MS Word, PDF, HTML and more.

[Data Import for DB2](#)

Import your data from MS Access, MS Excel and other popular formats to database tables via user-friendly wizard interface.

[Data Pump for DB2](#)

Migrate from most popular databases (MySQL, PostgreSQL, Oracle, MySQL, InterBase/Firebird, etc.) to DB2

[Data Generator for DB2](#)

Generate test data for database testing purposes in a simple and direct way. Wide range of data generation parameters.

[DB Extract for DB2](#)

Create database backups in the form of SQL scripts, save your database structure and table data as a whole or partially.



[SQL Query for DB2](#)

Analyze and retrieve your data, build your queries visually, work with query plans, build charts based on retrieved data quickly and more.

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Tools & components



[Advanced Data Export for RAD Studio VCL](#)

Advanced Data Export for RAD Studio VCL allows you to save your data in the most popular office programs formats.



[Advanced Data Export .NET](#)

Advanced Data Export .NET is a component for Microsoft Visual Studio .NET that will allow you to save your data in the most popular data formats for the future viewing, modification, printing or web publication. You can export data into MS Access, MS Excel, MS Word (RTF), PDF, TXT, DBF, CSV and more! There will be no need to waste your time on tiresome data conversion - Advanced Data Export will do the task quickly and will give the result in the desired format.



[Advanced Data Import for RAD Studio VCL](#)

Advanced Data Import for RAD Studio VCL will allow you to import your data to the database from files in the most popular data formats.



[Advanced PDF Generator for RAD Studio](#)

Advanced PDF Generator for RAD Studio gives you an opportunity to create PDF documents with your applications written on Delphi or C++ Builder.



[Advanced Query Builder for RAD Studio VCL](#)

Advanced Query Builder for RAD Studio VCL is a powerful component for Delphi and C++ Builder intended for visual building SQL statements for the SELECT, INSERT, UPDATE and DELETE clauses.



[Advanced Excel Report for RAD Studio](#)

Advanced Excel Report for RAD Studio is a powerful band-oriented generator of template-based reports in MS Excel.



[Advanced Localizer for RAD Studio VCL](#)

Advanced Localizer for RAD Studio VCL is an indispensable component for Delphi for adding multilingual support to your applications.

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Part



2 Getting Started

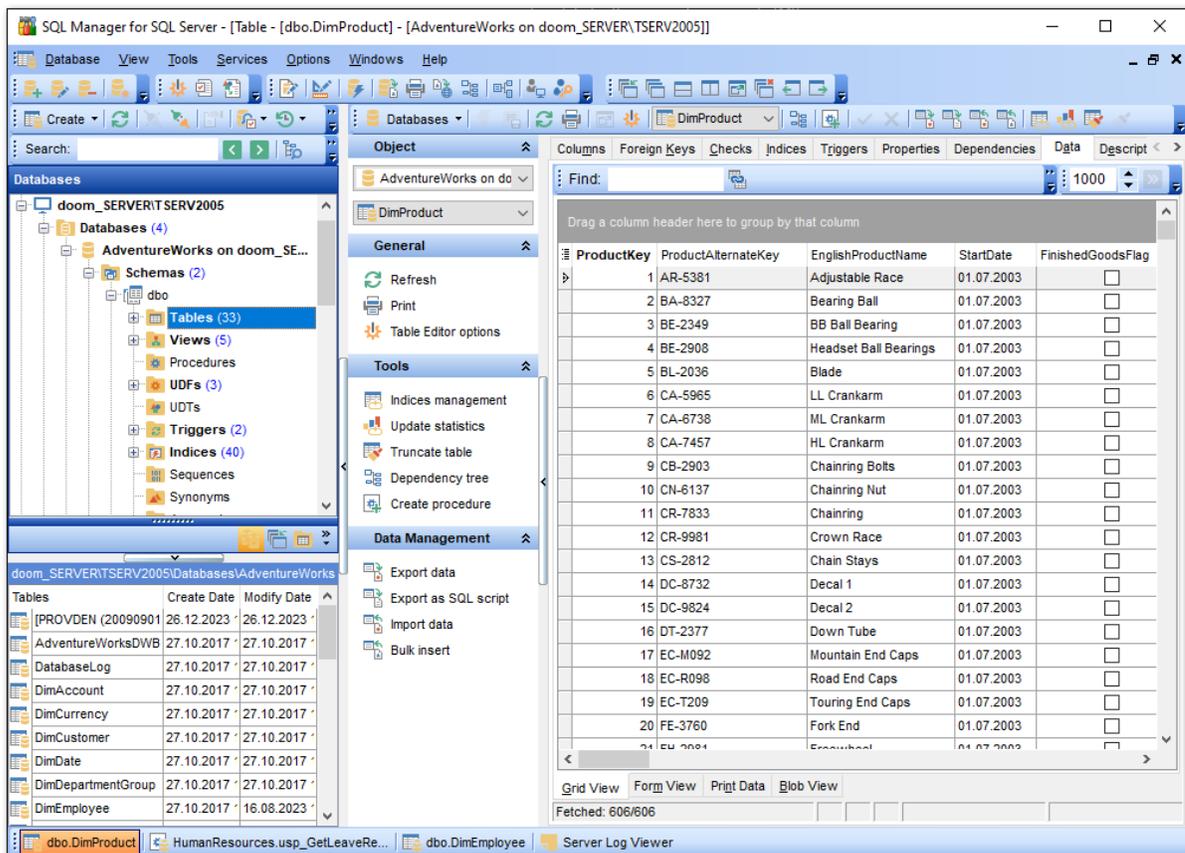
SQL Manager for SQL Server provides you with an ability to contribute to efficient SQL Server administration and development using a variety of available tools easily and quickly.

The succeeding chapters of this document are intended to inform you about the tools implemented in SQL Manager for SQL Server. Please see the instructions below to learn how to perform various operations in the easiest way.

- [Selecting style and language](#)^[43]
- [How the application looks when you start it for the first time](#)^[45]
- [Using Desktop Panel](#)^[47]
- [Database navigation](#)^[49]
- [Working with database objects](#)^[51]
- [Using context menus](#)^[53]
- [Working with child windows](#)^[58]

See the [How to...](#)^[95] chapter to view brief instructions on how to perform some operations on databases, database objects, etc.

Enjoy your work with EMS SQL Manager for SQL Server!



See also:[Database Explorer](#)^[63][Database Management](#)^[94][Database Objects Management](#)^[178][Query Management Tools](#)^[424][Data Management](#)^[462][Import/Export Tools](#)^[530][Database Tools](#)^[611][Server Tools](#)^[715][Personalization](#)^[824][External Tools](#)^[909][How To...](#)^[957]

2.1 Selecting style and language

Before you start SQL Manager for the first time, you have to choose the environment style and the interface language. You can change these settings any time using the [Environment Options](#)^[825] dialog (**Options | Environment Options...**) to configure the environment style and the [Select Language](#)^[892] dialog (**Options | Select Program Language...**) to change the program language.

Environment style

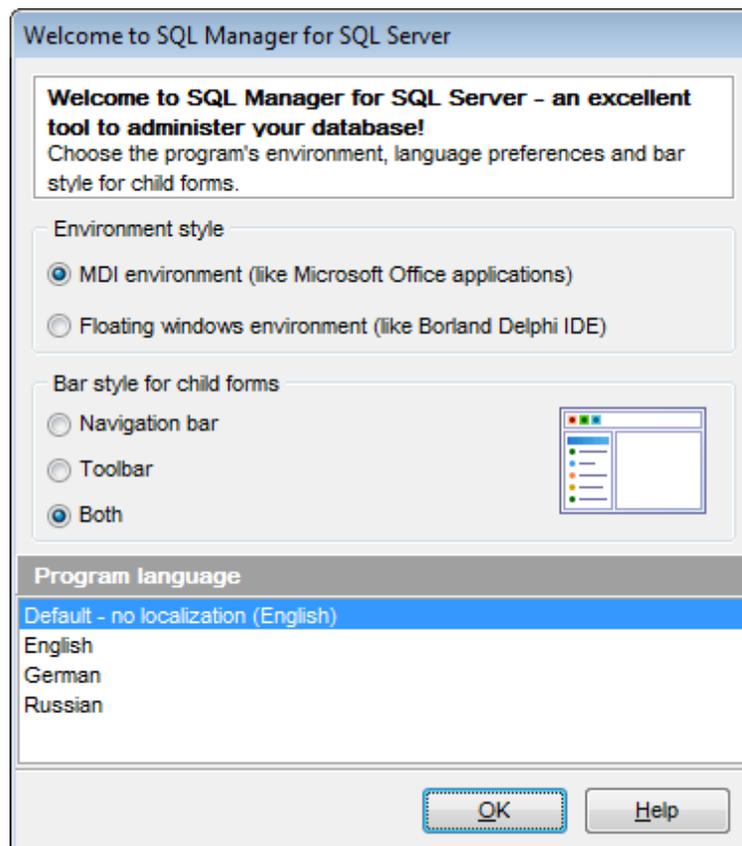
This switch allows you to define the main window behavior style - *MDI* (like in MS Office applications) or *Floating windows* (like Borland Delphi IDE).

Bar style for child forms

Here you can define the location of action buttons: within the *Navigation bar* (on the left) and/or on the *Toolbar*.

Program Language

Select the interface language from the list of available languages.



See also:

[First time started](#)^[45]

[Using Desktop Panel](#)^[47]

[Database navigation](#)^[49]

[Working with database objects](#) ⁵¹

[Using context menus](#) ⁵³

[Working with windows](#) ⁵⁸

2.2 First time started

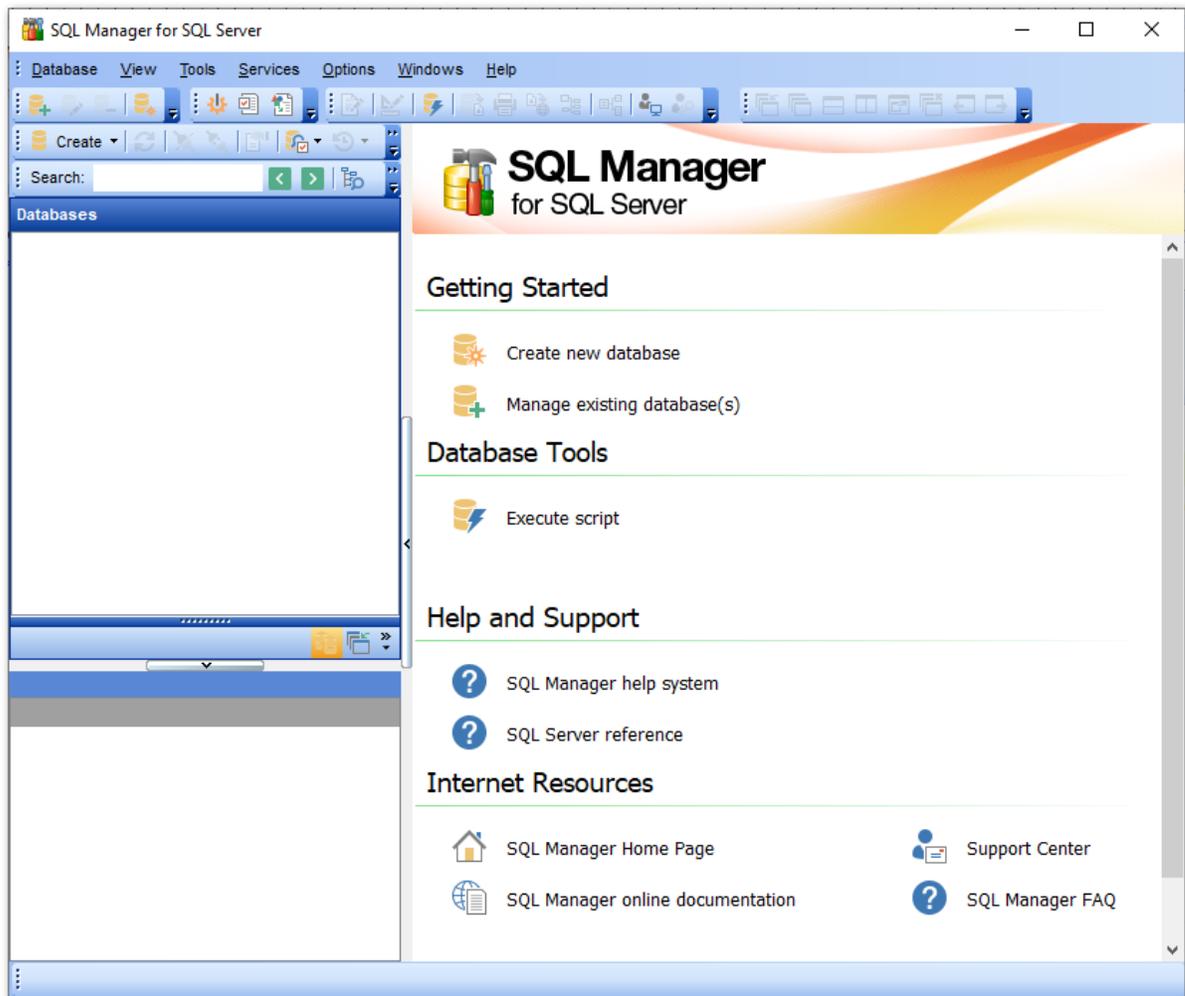
This is how SQL Manager for SQL Server looks when you start it for the first time. Use the [Desktop panel](#)^[47] to fulfill any of common tasks: [Create a new database](#)^[97], [Manage existing database\(s\)](#)^[111], and several tasks that do not require database registration, i.e. [Execute Script](#)^[619], accessing the **reference system** or using available **Internet resources**.

The [main menu](#)^[915] allows you to perform various **Database** operations, open [To-Do List](#)^[937] and activate/deactivate [Database Explorer](#)^[63], [SQL Assistant](#)^[85] and various [toolbars](#)^[917] within the **View** menu, manage your databases using items of the **Tools** and **Services** menus, [customize](#)^[824] the application using the **Options** menu, manage SQL Manager **Windows** using [Window List](#)^[939] and other tools, view the Tip of the Day and access [Registration](#)^[25] information and product documentation, [update](#)^[944] the product to the latest version using the corresponding items available within the **Help** menu.

To start working with your SQL Server, you should first register one or several databases using [Register Database Wizard](#)^[111].

By default the corresponding  **Register Host**,  **Register Database** buttons are available on the [toolbar](#)^[917] and within the **Database** menu.

When the database connection settings are specified, you can set connection to your database and proceed to [Database navigation](#)^[49], [Database Objects management](#)^[178], [working with SQL queries](#)^[424] and other tools of SQL Manager.

**See also:**

[Selecting style and language](#)^[43]

[Using Desktop Panel](#)^[47]

[Database navigation](#)^[49]

[Working with database objects](#)^[51]

[Using context menus](#)^[53]

[Working with windows](#)^[58]

2.3 Using Desktop Panel

Desktop Panel is the area that is visible when no child windows are open in SQL Manager for SQL Server. The working area of **Desktop Panel** is divided into four sections: *Getting Started*, *Database Tools*, *Help and Support*, *Internet Resources*.

Getting Started



Create new database



Create new table



Manage existing database(s)



Create new database object

Database Tools



Execute script



Execute query



Manage permissions

Help and Support



SQL Manager help system



SQL Server reference

Internet Resources



SQL Manager Home Page



Support Center



SQL Manager online documentation



SQL Manager FAQ

Using the **Desktop Panel** items you can:

Getting Started



[create](#)^[97] a new SQL Server database



[register](#)^[117] existing database(s) to operate them afterwards in SQL Manager



create a new table within the current database using the [New Table](#)^[193] window (this item is available if there is at least one active database connection)



[create a new database object](#)^[180] within the current database (this item is available if there is at least one active database connection)

Database Tools



execute a script using [Execute Script](#)^[619] editor

 execute a SQL query using [Query Data](#)^[42] editor (this item is available if there is at least one active database connection)

 grant permissions on database objects to SQL Server users using [Grant Manager](#)^[63] (this item is available if there is at least one active database connection)

Help and Support

 show this help file

 use SQL Server reference

Internet Resources

 visit **SQL Manager** Home Page

 browse **SQL Manager** on-line documentation

 go to [Technical Support Center](#)

 look through the [Frequently Asked Questions](#)^[29] page

See also:

[Selecting style and language](#)^[43]

[First time started](#)^[45]

[Database navigation](#)^[49]

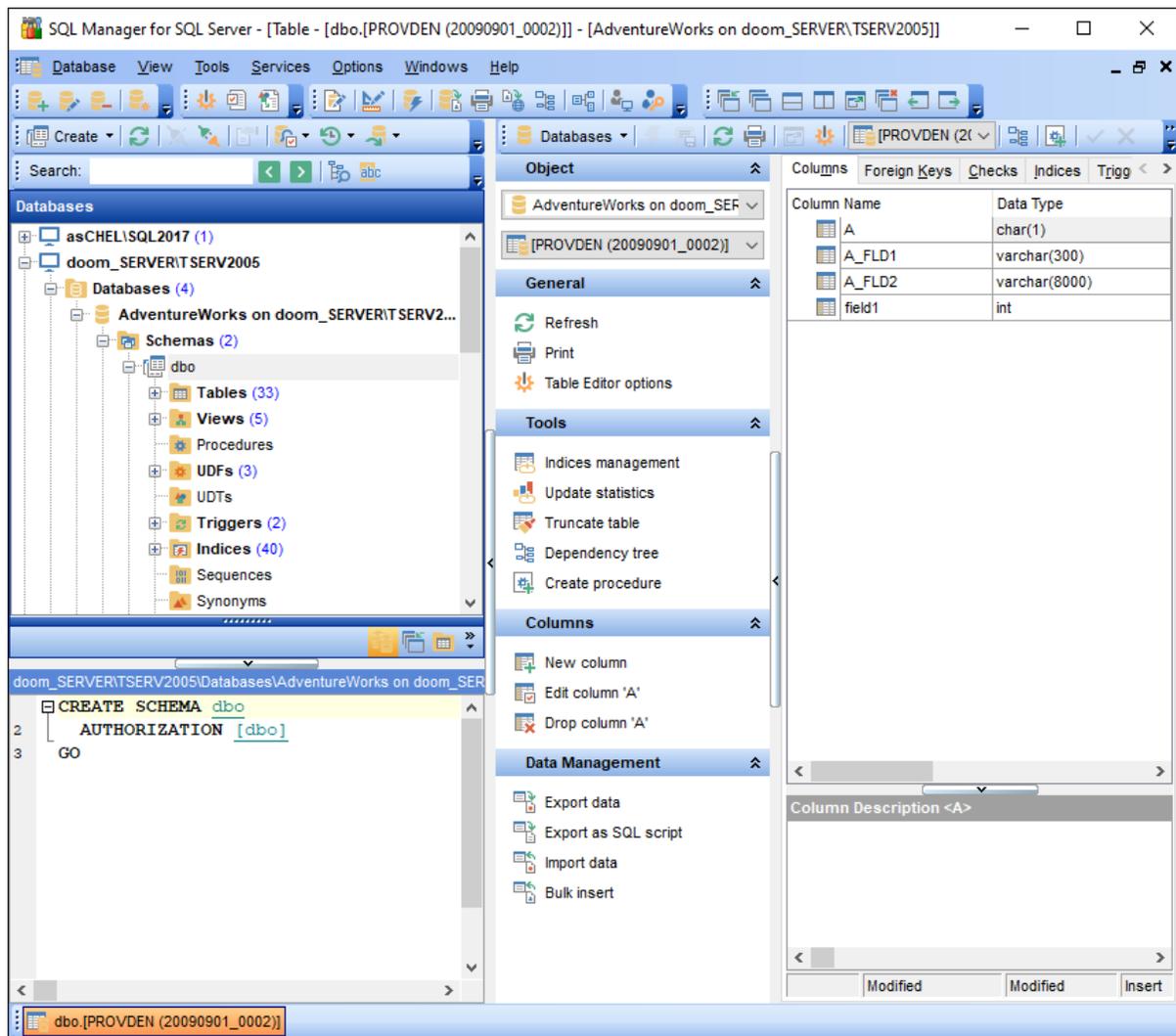
[Working with database objects](#)^[51]

[Using context menus](#)^[53]

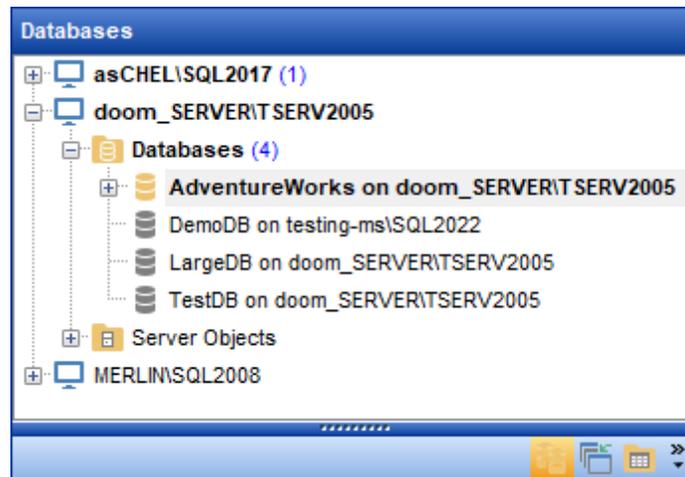
[Working with windows](#)^[58]

2.4 Database navigation

After you have registered the required database(s), the corresponding alias(es) appear in the [DB Explorer](#)^[63] tree on the left. If the **Show Hosts** option is checked on the [Environment Options](#)^[825] | [DB Explorer](#)^[832] page, the host nodes are also displayed in the tree (alternatively, you can use the **Show Hosts** item of the [Database context menu](#)^[54], or the drop-down menu of the  **View Mode toolbar**^[88] button for the same purpose). If necessary, you can also specify that empty schemas should be hidden in the tree: use the corresponding option available on the [DB Explorer](#)^[832] page of the [Environment Options](#)^[825] dialog.



[DB Explorer](#)^[63] displays all registered databases. Connected/disconnected databases can be easily distinguished in the tree: aliases of disconnected databases are grayed out.



To [connect](#)^[68] to a database, simply double-click its alias (or select the database alias in [DB Explorer](#)^[63] and press **Enter**). If the connection is successful, the database node expands into a tree of objects. To select the types of objects to be expanded upon successful database connection, you can use the **Expand on connection** group of the [Environment Options](#)^[825] | [DB Explorer](#)^[832] page.

Now you can navigate within the database objects. Use [SQL Assistant](#)^[85] to get extended information about the currently selected object.

For your convenience objects having different status (e.g. enabled/disabled) are displayed with different icons in [Database Explorer](#)^[63].

See also:

[Selecting style and language](#)^[43]

[First time started](#)^[45]

[Using Desktop Panel](#)^[47]

[Working with database objects](#)^[51]

[Using context menus](#)^[53]

[Working with windows](#)^[58]

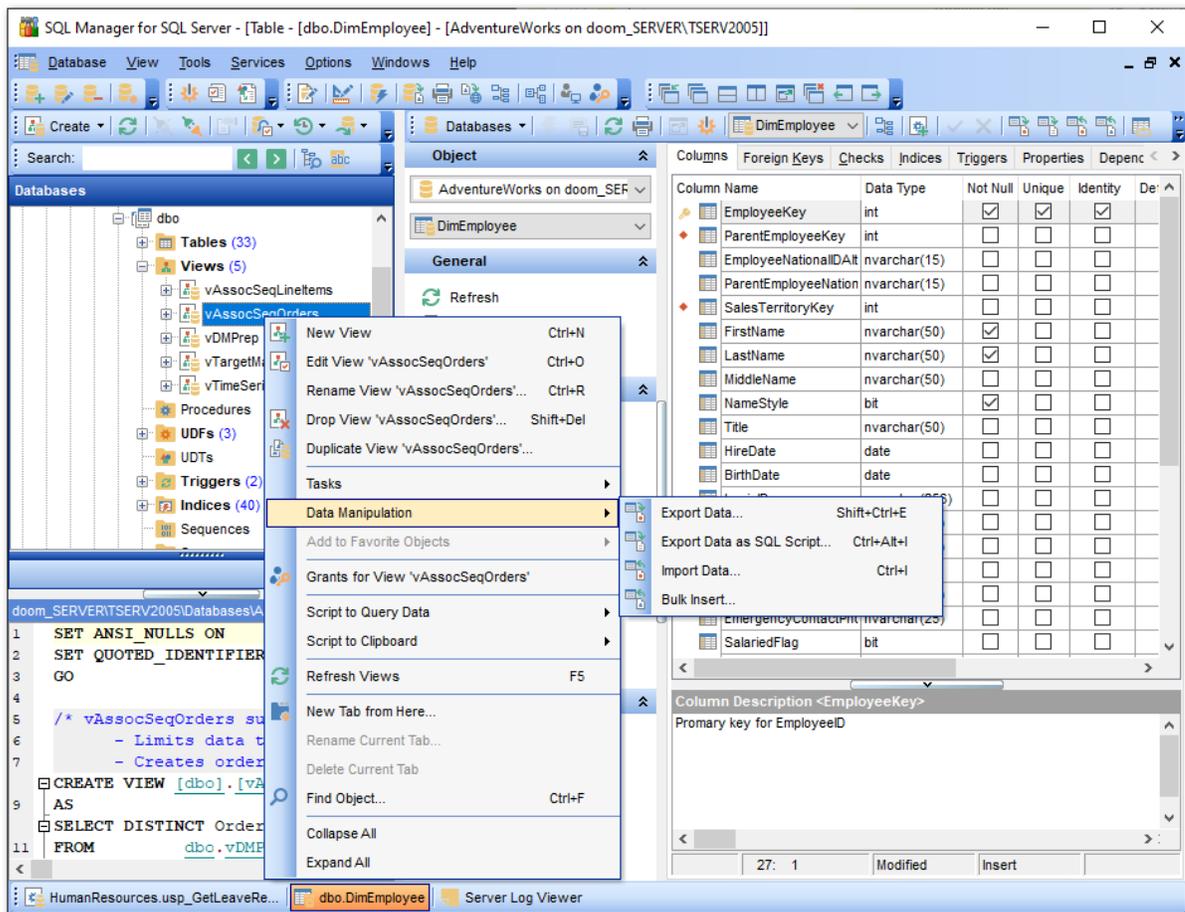
2.5 Working with database objects

The nodes of the [DB Explorer](#)^[63] tree allow you to access [server objects](#)^[353] and [objects of the selected database](#)^[178] respectively. If SQL Server you are connected to supports certain types of objects, their nodes will appear in the tree.

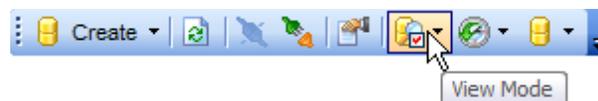
Double-click an object group *to expand/collapse the corresponding tree node.*

Double-click an object *to open it in the corresponding editor.*

Right-click an object to display its [context menu](#)^[56] which allows you to perform various operations over the selected object or database.



If you want to use the [DB Explorer](#)^[63] tree for working with **table subobjects** (columns, indexes, Foreign keys, etc.), check the **Show table subobjects** option which is available within the **General options** group of the [Environment Options](#)^[825] | [DB Explorer](#)^[832] page (you can also use the **Show Table Subobjects** menu item in the drop-down menu of the [View Mode toolbar](#)^[88] button for the same purpose.)



See also:[Selecting style and language](#)^[43][First time started](#)^[45][Using Desktop Panel](#)^[47][Database navigation](#)^[49][Using context menus](#)^[53][Working with windows](#)^[58]

2.6 Using context menus

The **context menus** are aimed at facilitating your work with SQL Manager for SQL Server: you can perform a variety of operations using context menu items.

Select an object in [DB Explorer](#)^[63] and right-click its alias to open the context menu.

- [Host context menu](#)^[53]
- [Database context menu](#)^[54]
- [Object context menu](#)^[56]

See also:

[Selecting style and language](#)^[43]

[First time started](#)^[45]

[Using Desktop Panel](#)^[47]

[Database navigation](#)^[49]

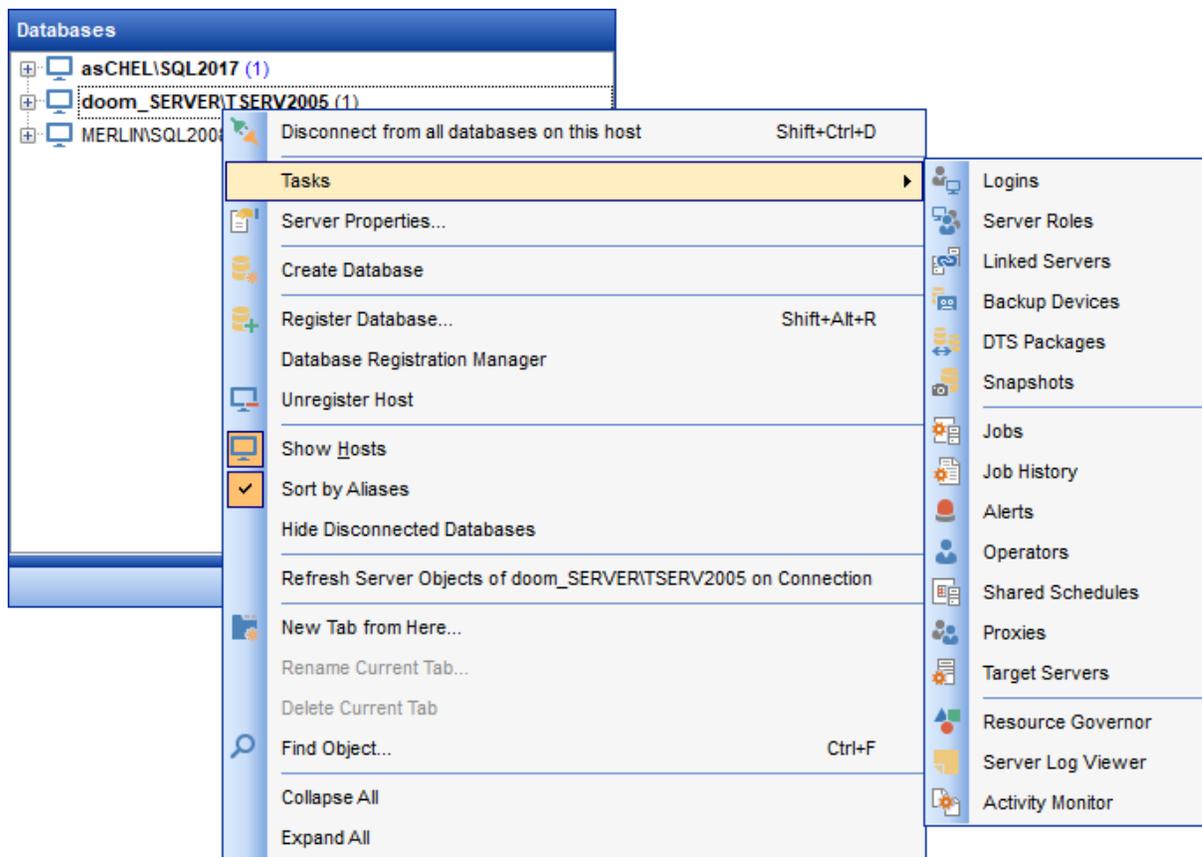
[Working with database objects](#)^[51]

[Working with windows](#)^[58]

2.6.1 Host context menu

The **context menu of a host** in the [DB Explorer](#)^[63] tree allows you to:

- access [server objects](#)^[353] and some common [services](#)^[715] available in the **Tasks** submenu;
- view/edit the selected host properties within the [Server Properties](#)^[161] dialog;
-  [create a new database](#)^[97] on the selected host;
- register a new database using  [Register Database Wizard](#)^[111];
-  [unregister](#)^[94] the selected host;
- configure representation of hosts and databases in [Database Explorer](#)^[63];
- create a new tab for the selected host [to access it through this tab quickly](#)^[77] and/or manage the existing tab;
-  [search](#)^[83] for an object within the tree.



See also:

[Database context menu](#)^[54]

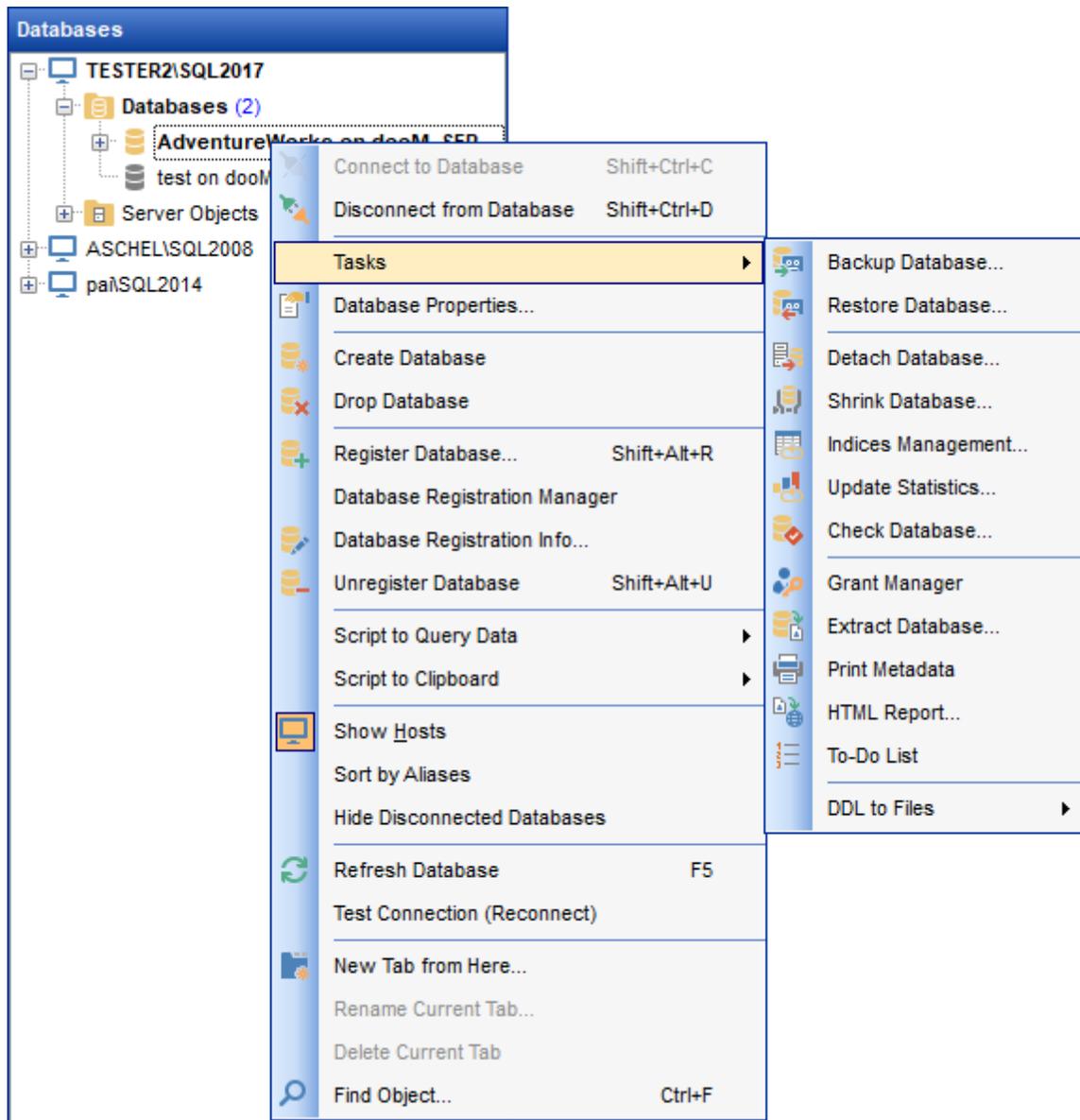
[Object context menu](#)^[56]

2.6.2 Database context menu

The **context menu of a registered database** in the [DB Explorer](#)^[63] tree allows you to:

- [connect](#)^[68] to the selected database (if connection to the database is not active yet);
- [disconnect](#)^[95] from the selected database (if connection to the database has been already set);
- access [database tools](#)^[61] available in the **Tasks** submenu;
- view/edit the [Database properties](#)^[133];
- [create a new database](#)^[97] on the host where the selected database resides;
- [drop](#)^[94] the selected database;
- register a new database using [Register Database Wizard](#)^[111];
- view/edit the selected database registration information within the [Database Registration Info](#)^[116] dialog;
- [unregister](#)^[94] the selected database;
- [unregister](#)^[94] the host where the selected database resides;
- generate the script and open it in [Query Data](#)^[426];

- generate the script and copy its text to Windows clipboard;
- configure representation of hosts and databases in [Database Explorer](#)^[63];
-  refresh the selected database;
- test connection to the database (or reconnect if connection has been already established);
-  create a new tab for the selected database [to access it through this tab quickly](#)^[77] and/or manage the existing tab;
-  [search](#)^[83] for an object within the tree.



Tasks submenu allows you to:

 [backup database](#)^[718]

 [restore database](#)^[732]

 [detach database](#)^[751]

-  [shrink database](#) ^[75]
-  [manage indices](#) ^[76]
-  [update statistics](#) ^[76]
-  [check database](#) ^[77]
-  [manage privileges](#) ^[68]
-  [extract database](#) ^[62] objects and/or data to an SQL script
-  [print metadata](#) ^[64]
-  generate [html report](#) ^[65] of the selected objects
-  create [to-do list](#) ^[93]

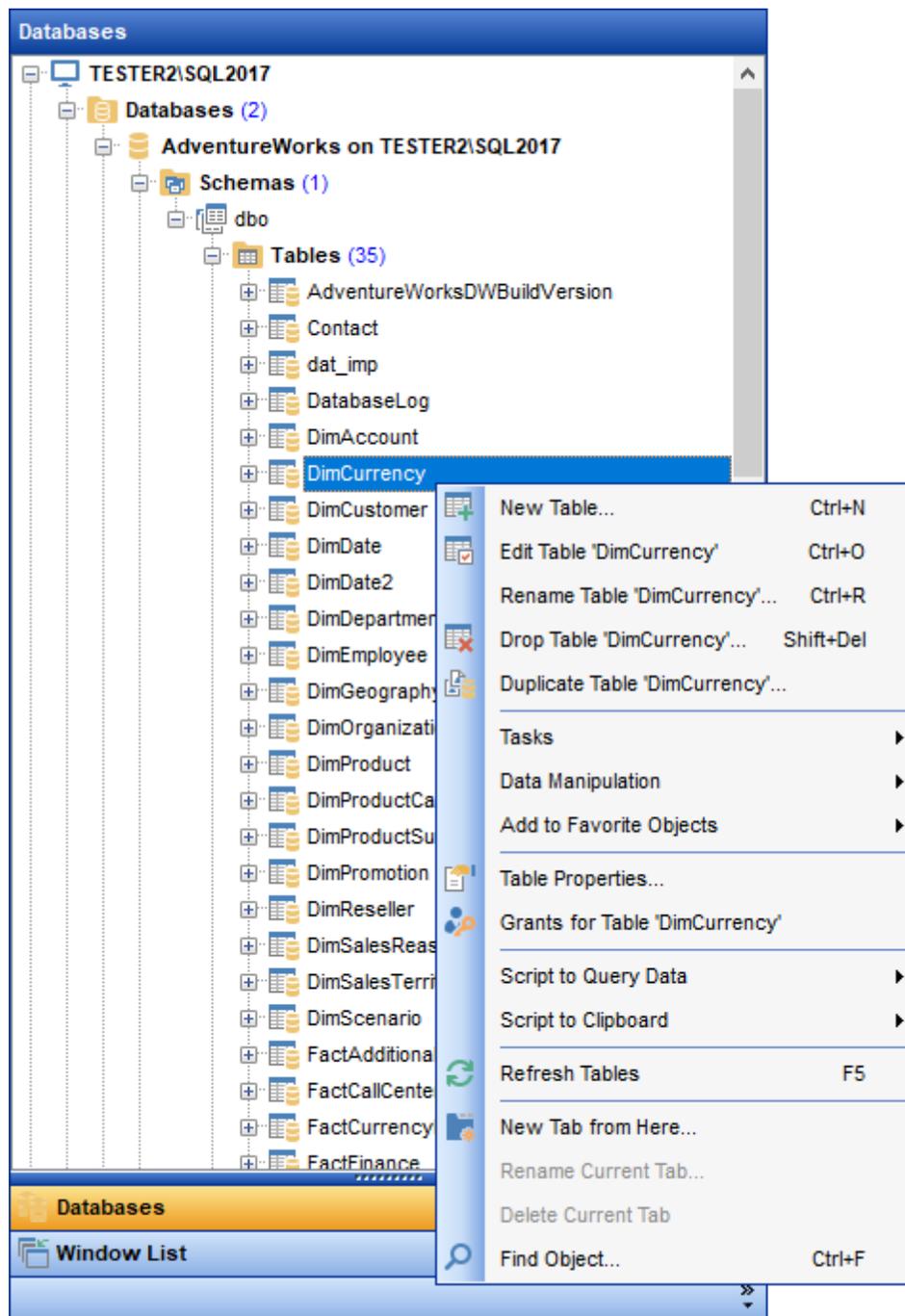
See also:

- [Host context menu](#) ^[53]
- [Object context menu](#) ^[56]

2.6.3 Object context menu

The **context menu of an object** (e.g. *table* or *view*) in the [DB Explorer](#) ^[63] tree allows you to:

- [create](#) ^[18] a new database object of the same type;
- [edit](#) ^[17] the selected object in its editor;
- [rename](#) ^[17] the selected object;
- [drop](#) ^[17] the selected object from the database;
-  [duplicate](#) ^[18] the selected object (create a new object with the same [DDL](#) ^[9] structure and properties as the selected object has);
- access common **Tasks** applied to this object;
- perform [data manipulation](#) ^[53] operations (for [tables](#) ^[19] and [views](#) ^[24]);
- add object to [favorite objects](#) ^[8]
-  [table properties](#) ^[21];
- define  [grants](#) ^[68] for the selected object;
- generate the object script and open it in [Query Data](#) ^[42];
- generate the object script and copy its text to Windows clipboard;
-  refresh all objects of the selected object type;
- view/edit the database registration information within the  [Database Registration Info](#) ^[11] dialog (for [database objects](#) ^[17]);
-  create a new tab for the selected object [to access it through this tab quickly](#) ^[77] and/or manage the existing tab;
-  [search](#) ^[83] for an object within the tree.

**See also:**

[Host context menu](#) ⁵³

[Database context menu](#) ⁵⁴

2.7 Working with windows

The **Windows Toolbar** of SQL Manager allows you to switch between child windows easily, like in Windows Task Bar.

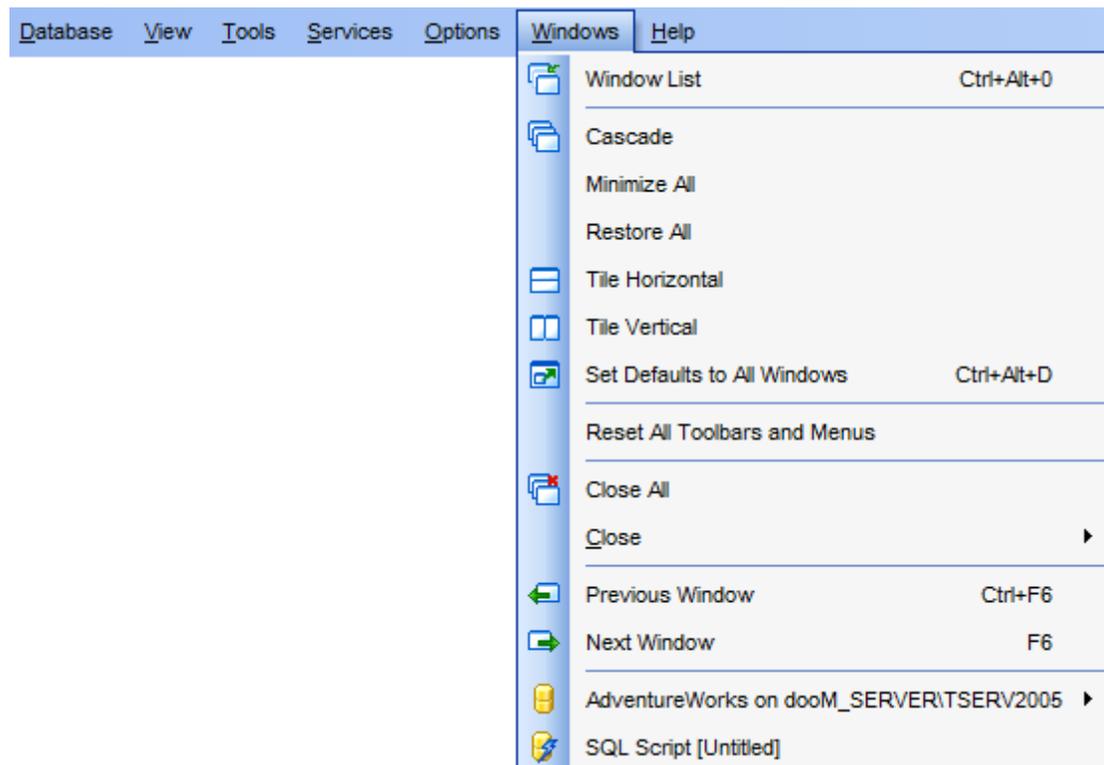
To activate the window you need, simply click one of the window buttons. To perform some additional actions with the window, right-click its tab and select the corresponding menu item from the popup menu.



If you have multiple windows opened, you can also switch between them using the *Ctrl+Tab* [shortcut](#)^[952].

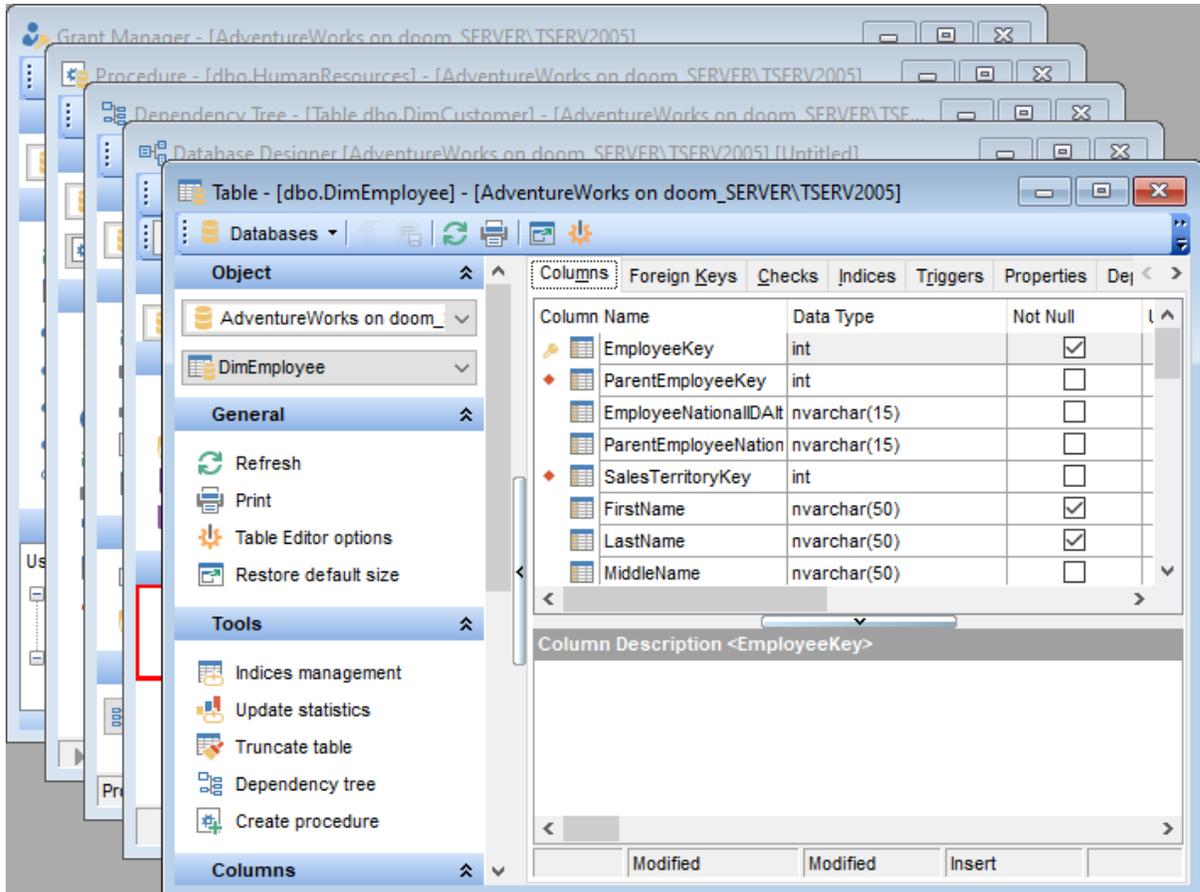
The **Number of open editors is restricted** option available in the [Windows](#)^[829] section of the [Environment Options](#)^[825] options dialog allows you to set the maximum number of editors that may be opened simultaneously. When the number of editors exceeds the specified value, the previously opened editors will be closed automatically.

The **Windows** menu facilitates your work with SQL Manager windows.

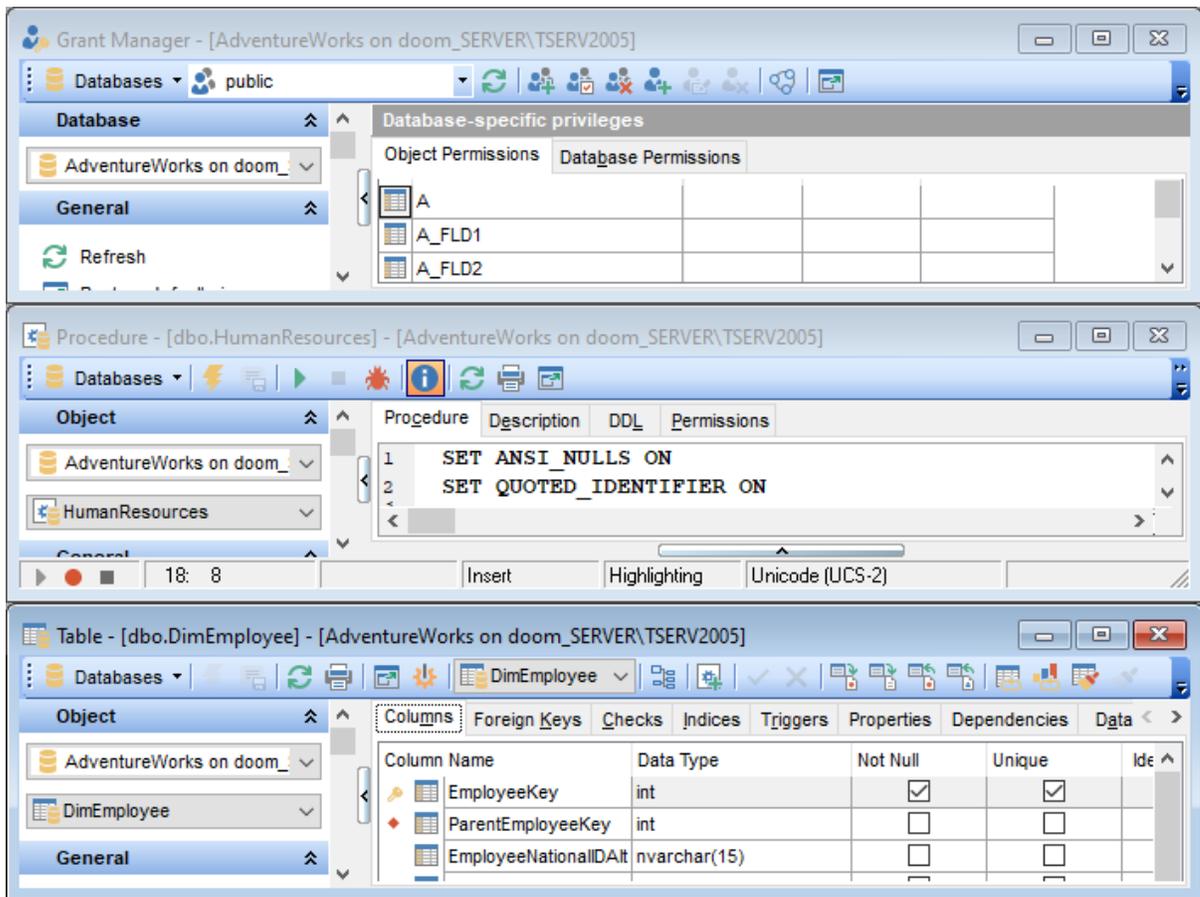


The **Windows** menu allows you to:

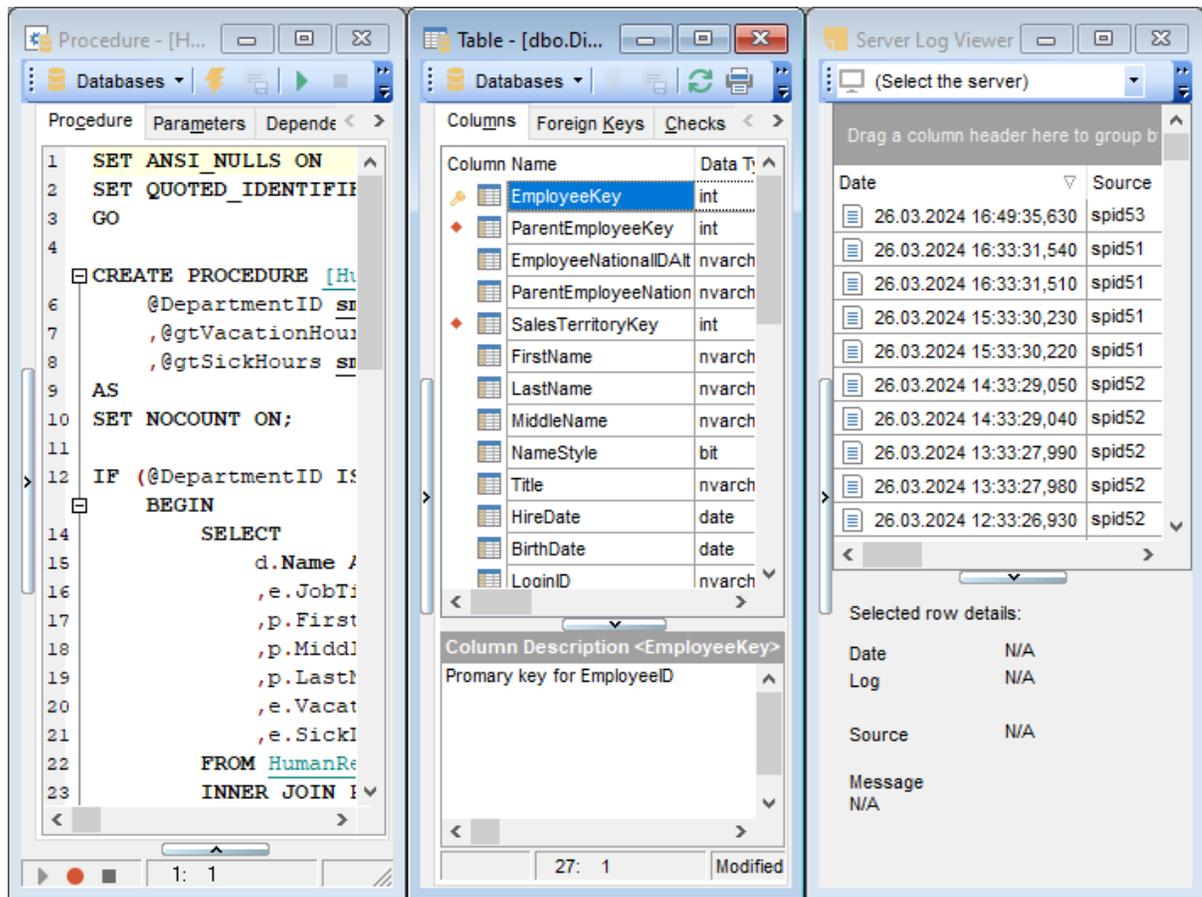
- view the [Windows List](#)^[939] within the corresponding [tab](#)^[77] of DB Explorer;
- set all current windows *cascade*:



- minimize all windows;
- restore all windows;
- tile all current windows *horizontally*:



- tile all current windows *vertically*:



- set defaults to all windows;
- reset all [toolbars and menus](#)^[940];
- close all windows;
- close all editors of the specified object type (can be selected from the submenu);
- switch to the previous window;
- switch to the next window;
- activate one of currently opened windows.

See also:

[Selecting style and language](#)^[43]

[First time started](#)^[45]

[Using Desktop Pane](#)^[47]

[Database navigation](#)^[49]

[Working with database objects](#)^[51]

[Using context menus](#)^[53]

Part



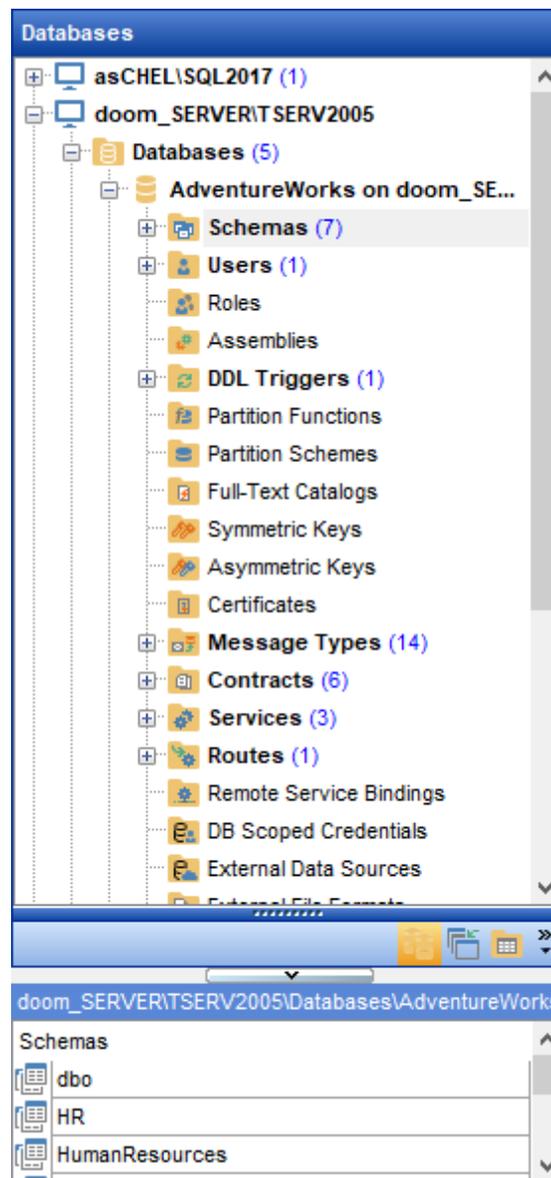
3 Database Explorer

Database Explorer (or **DB Explorer**) is the basic window of SQL Manager for SQL Server for [navigation](#)^[49] within databases and working with database and server objects. The tree-like structure of DB Explorer allows you to manage the databases, database and server objects and perform other everyday operations quickly and easily.

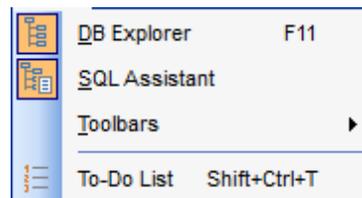
The following list contains the most frequently used features provided by Database Explorer.

- [Managing database registration info](#)^[66]
- [Connecting to databases and hosts](#)^[68]
- [Performing basic operations upon database objects](#)^[71]
- [Selecting multiple objects](#)^[74]
- [Navigating database objects using multiple tabs](#)^[77]
- [Easy access to recently opened objects](#)^[80]
- [Managing favorite objects](#)^[81]
- [Searching within the tree](#)^[83]
- [Viewing extended information about database objects](#)^[85]
- [Configuring Database Explorer](#)^[87]
- [Managing Favorite queries](#)^[90]
- [Managing scripts](#)^[91]

All objects are structured by their types and are available within the corresponding nodes of the tree. The number of objects of each type is displayed in brackets after the node name denoting the object type. To expand/collapse a node, you can double-click it or use the +/- icons. Alternatively, you can use "Right"/"Left" buttons: when pressing "Left", first the subnodes of the current node are collapsed, after pressing again the parent node is focused and so on; when pressing "Right" the current node expands.



To view/hide the Database Explorer window, use the **View | DB Explorer** [main menu](#)⁹¹⁵ item or press the **F11** key.



Use the **Ctrl+Shift+C** [shortcut](#)⁹⁵² to collapse current **DB Explorer** tree branch and switch to the parent node.

Note that you can change host and database aliases order by dragging them within the

DB Explorer tree.

See also:

[Getting Started](#) ^[41]

[Database Management](#) ^[94]

[Database Objects Management](#) ^[178]

[Query Management Tools](#) ^[424]

[Data Management](#) ^[462]

[Import/Export Tools](#) ^[530]

[Database Tools](#) ^[611]

[Server Tools](#) ^[715]

[Personalization](#) ^[824]

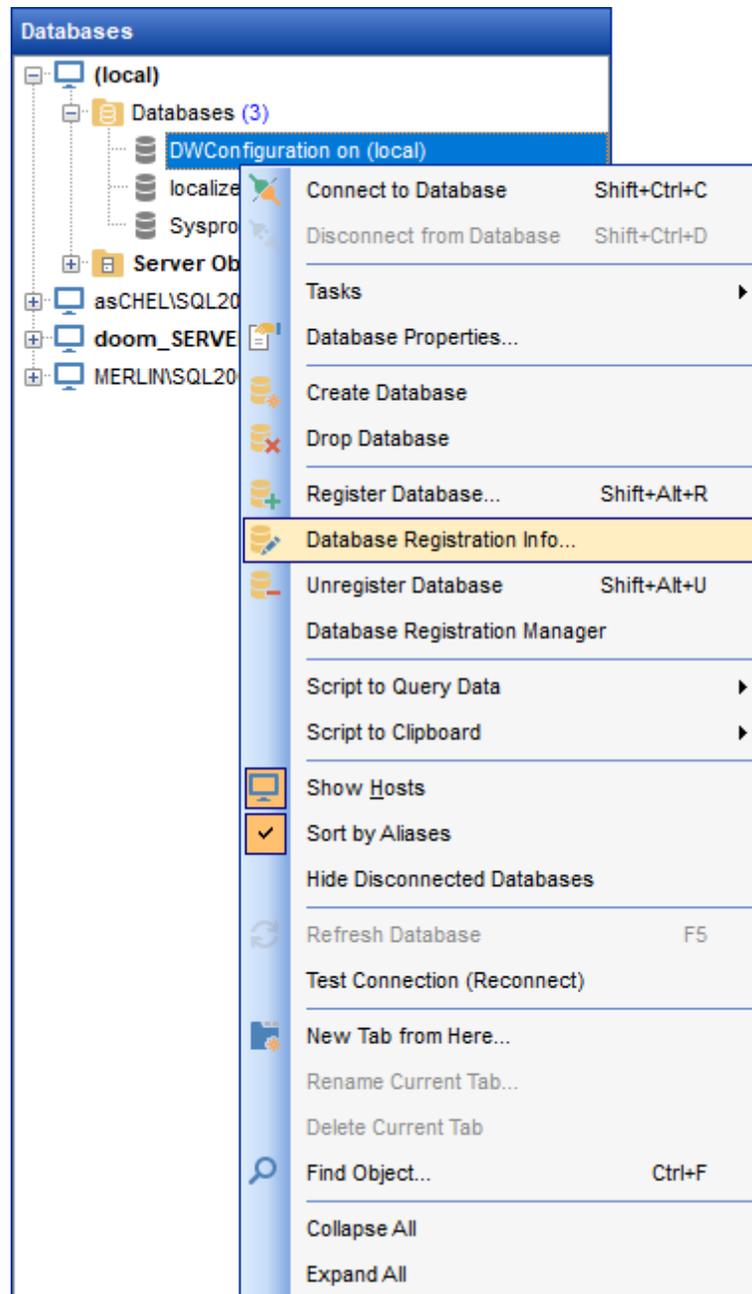
[External Tools](#) ^[909]

[How To...](#) ^[957]

3.1 Managing database registration info

After you have created and/or registered your database in SQL Manager for SQL Server, you can perform a number of operations with the database using the [context menu](#)^[54].

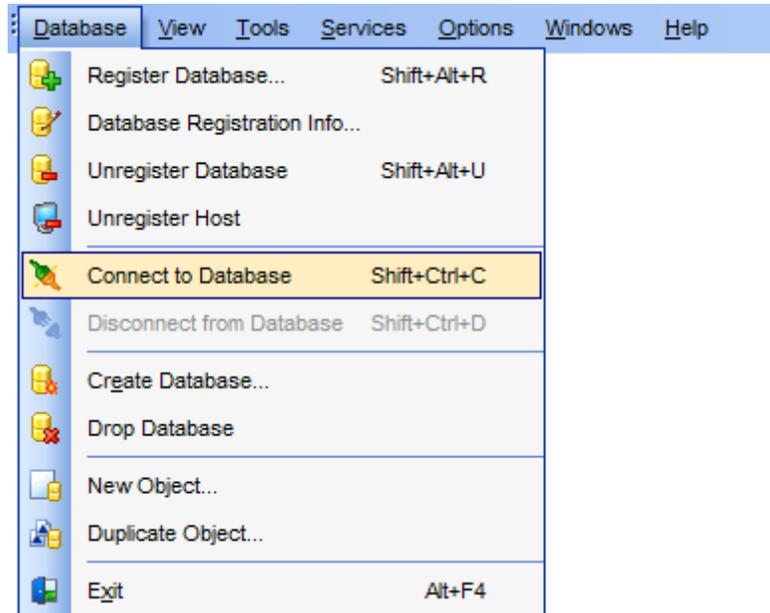
If you need to view/edit the registration information of a database, right-click the database alias in DB Explorer and select the **Database Registration Info...** context menu item to open the [Database Registration Info](#)^[116] dialog.



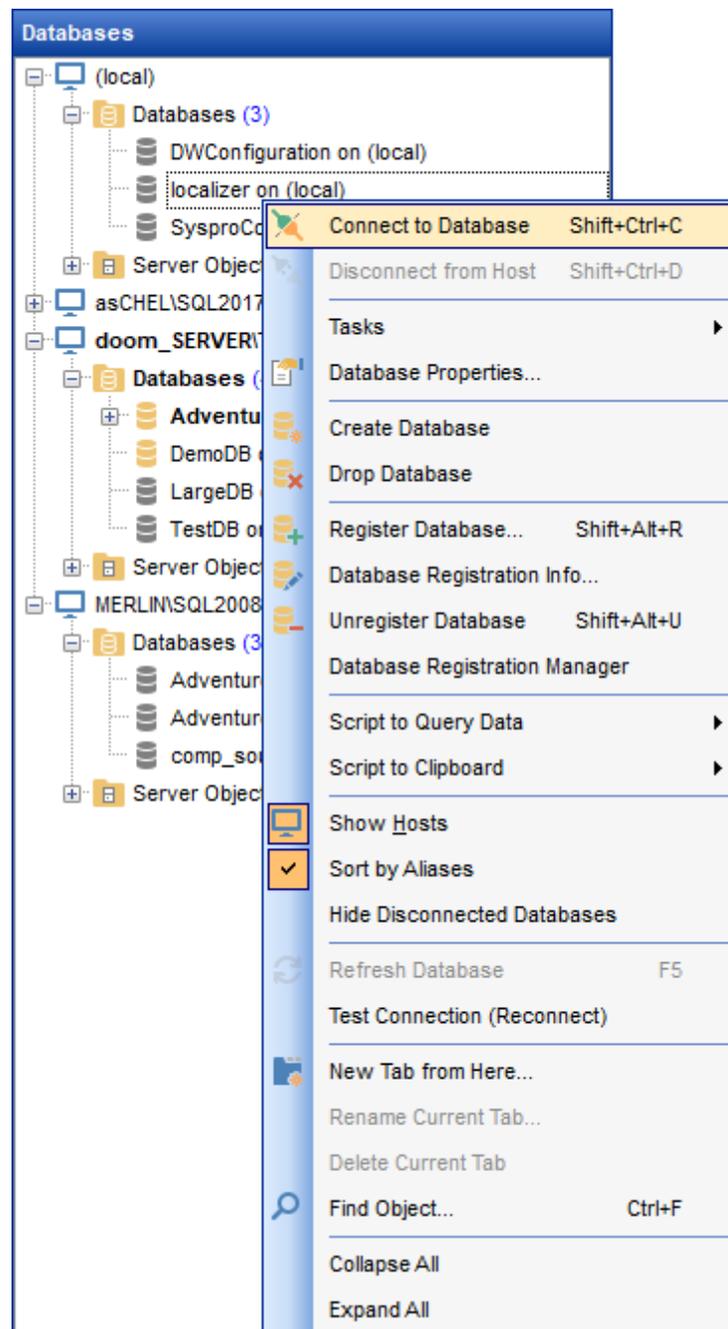
See also:[Register Database](#)^[111][Database Registration Info](#)^[116][Database Properties](#)^[133]

3.2 Connecting to databases

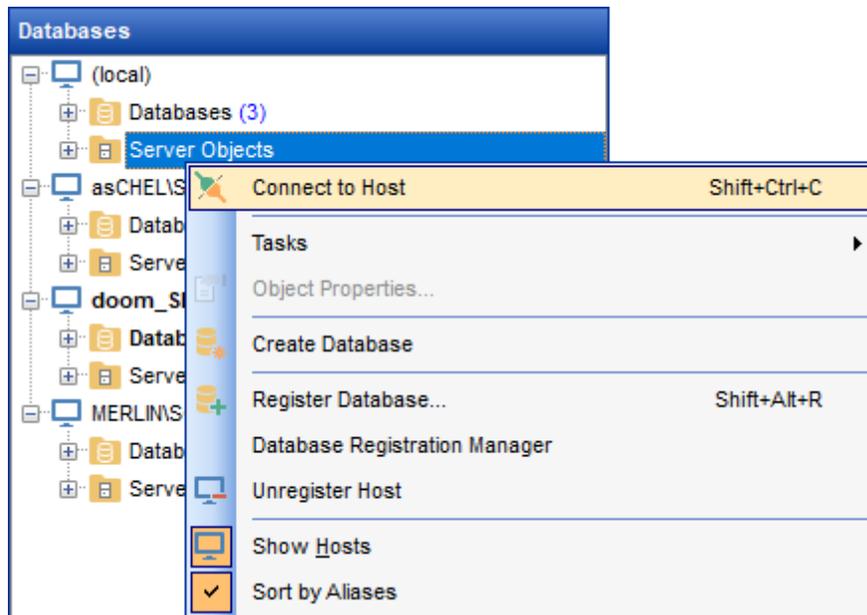
When the [database registration](#)^[11] is complete, you can establish connection to your database.



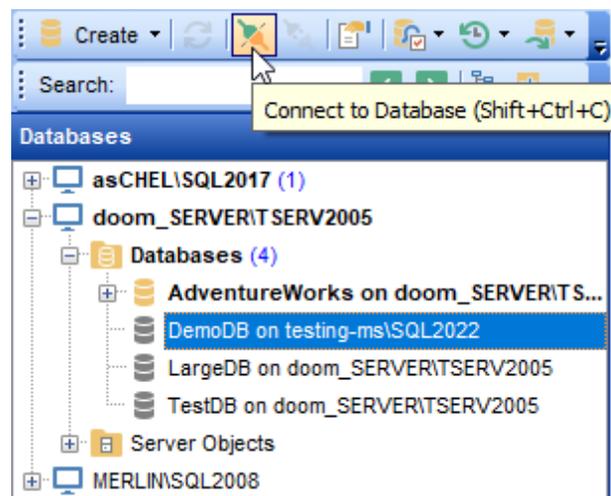
The simplest way to connect to a database is to double-click its alias in the [Database Explorer](#)^[63] tree. The same operation can be performed by selecting the **Connect to Database** item of the database alias [context menu](#)^[54], or by using the **Database | Connect to Database** [main menu](#)^[915] item.



Before working with server-scoped objects and services, a host connection must be established by selecting the **Connect to Host** item of the **Server Objects** node context menu, or by using the **Database | Connect to Host** [main menu](#) ^[915] item.



Alternatively, you can use the *Shift+Ctrl+C* [shortcut](#)^[95] or the  **Connect to Database** ( **Connect to Host**) [toolbar](#)^[87] buttons.



See also:

[Register Database](#)^[11]

[Database Registration Info](#)^[16]

3.3 Operations with database and server objects

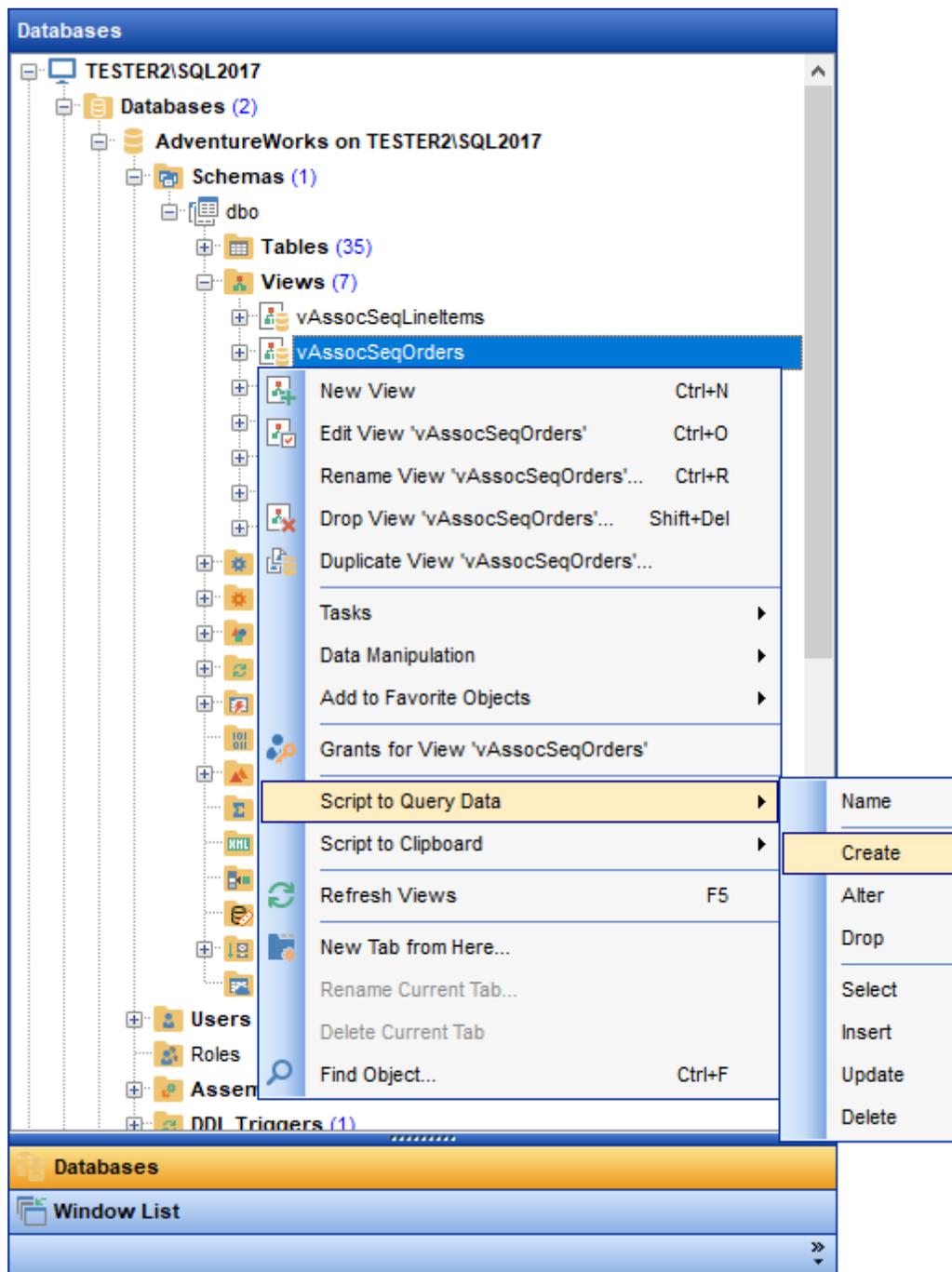
Database Explorer allows you to perform various operations with [database objects](#)^[178] and [server objects](#)^[353].

To open an object in its editor, you can double-click the object in the **DB Explorer** tree.

You can also right-click an object within the **DB Explorer** tree and use its [context menu](#)^[56] to perform a number of operations:

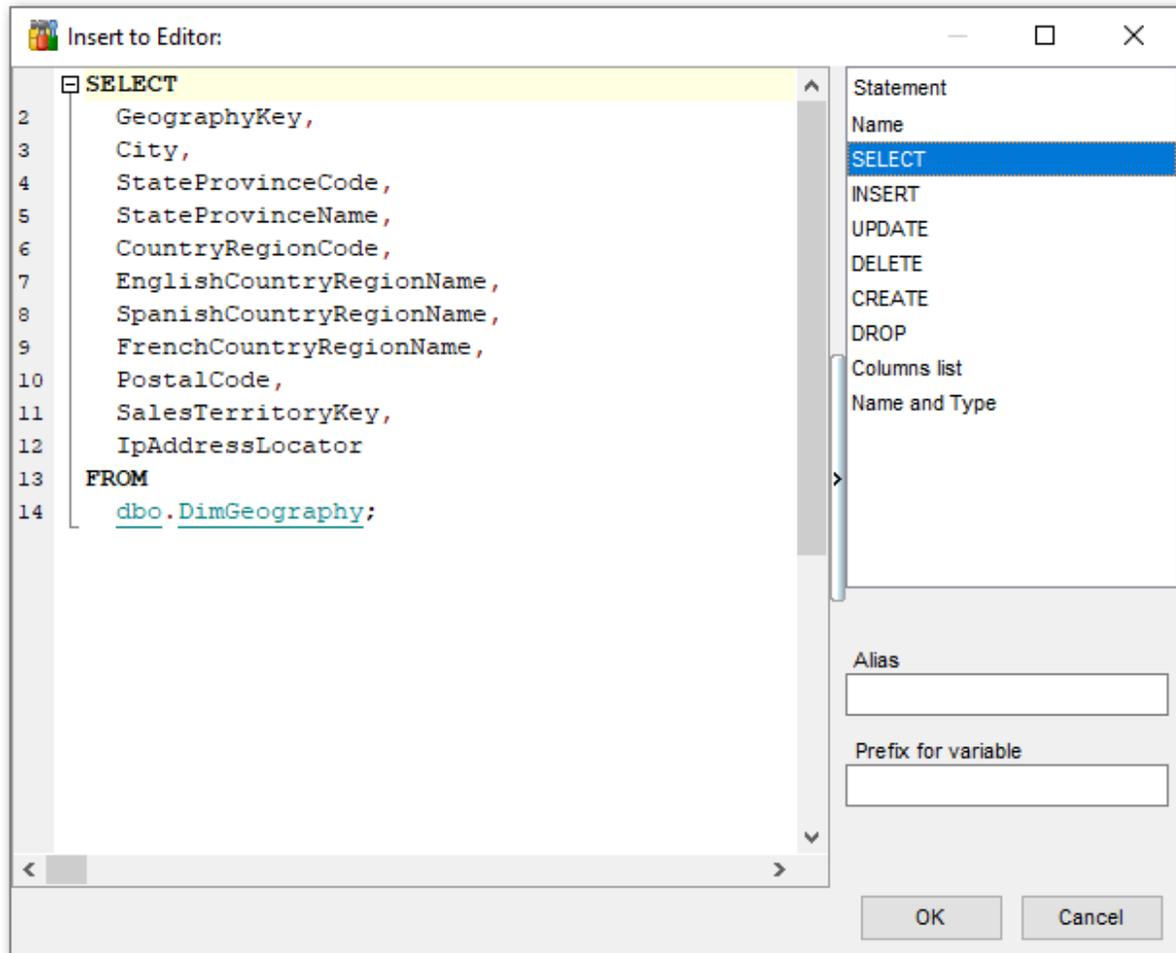
- create a new object (the **New <object>...** item);
- edit currently selected object (the **Edit <object_name>...** item);
- rename currently selected object (the **Rename <object_name>...** item);
- drop the selected object from the database (the **Drop <object_name>...** item);
- duplicate the selected object (the **Duplicate <object_name>...** item);
- define grants for the selected object (the **Grants for <object_name>...** item).

Note that the context menu contains object-specific items only when the object is currently selected in **DB Explorer**.



Using drag-and-drop operations you can add objects to [Query Data](#)^[426], [Design Query](#)^[442] or [Execute Script](#)^[619] editor. For your convenience the **Insert to editor** dialog is implemented. The dialog allows you to specify the **statement** to be inserted into the editor: *Name*, *SELECT*, *INSERT*, *UPDATE*, *DELETE*, *CREATE*, *DROP*, *Columns list*, *Name and Type*. If necessary, set the **Alias** and **Prefix for variable**.

If more convenient, you can edit the generated statement manually (see [Working with Query Data area](#)^[429]).

**See also:**

[Database and Server Objects Management](#) ^[178]

[Query Data](#) ^[426]

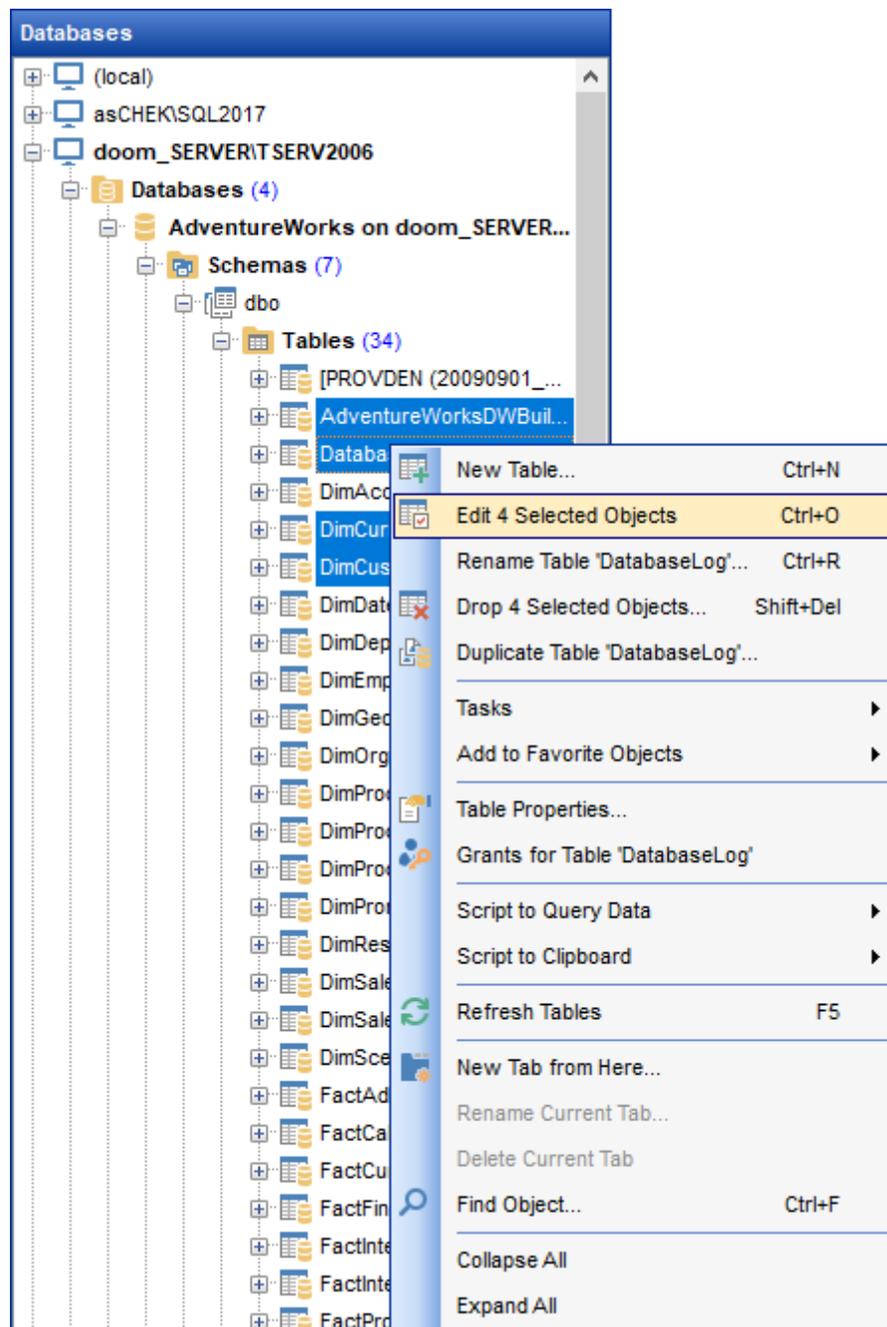
[Selecting multiple objects](#) ^[74]

3.4 Selecting multiple objects

You can select more than one object in **Database Explorer** by pressing the *Ctrl* or the *Shift* key and selecting multiple objects one by one.

The **context menu** of several selected objects allows you to:

- [create](#)^[178] a new database object of the same type;
- edit the selected objects;
- drop the selected objects;
- perform other operations with the first of the selected objects (see [Operations with database objects](#)^[71]).



Hint: You can move several objects to your [projects](#)^[81]: just drag and drop the selected objects to the previously created subfolder within the **Projects** node of **DB Explorer**.

See also:

[Operations with database and server objects](#)^[71]

[Database and Server Objects Management](#)^[178]

[Managing favorite objects](#)^[81]

3.5 Using tabs for database navigation

To make your work with **Database Explorer** even more convenient, the capability of **working with several tabs** is implemented.

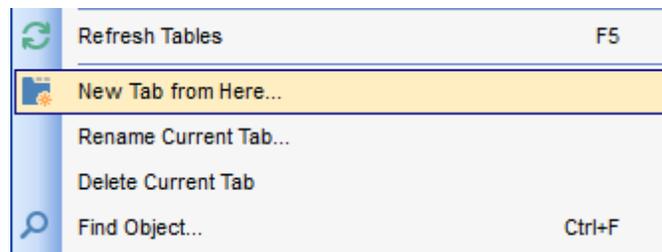
You can use tabs when you wish to work with a particular node of the DB Explorer tree only: with one specific schema, or with tables of some schema, or with a specific database [project](#)^[81]. Creating such tabs will minimize scrolling within large trees, you only need to switch between them with a single click on the corresponding tab.

Creating tabs

In order to create a new tab:

- right-click the node (e.g. the **Tables** node) for which you wish to create a tab and select the **New Tab from Here...** context menu item.

Note: A tab can be created only on the basis of a tree node. For example, if the **Show Table Subobjects** option is disabled in the [View Mode](#)^[88] menu, the **New Tab from Here...** item will not be available for tables, since none of them will be a tree node anymore.

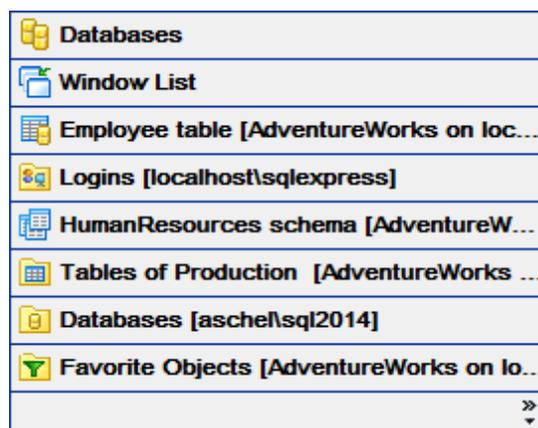


The specified tabs can be displayed in either of the two views:

- as *icons* on the lower pane of DB Explorer:



- as *tabs* with captions:

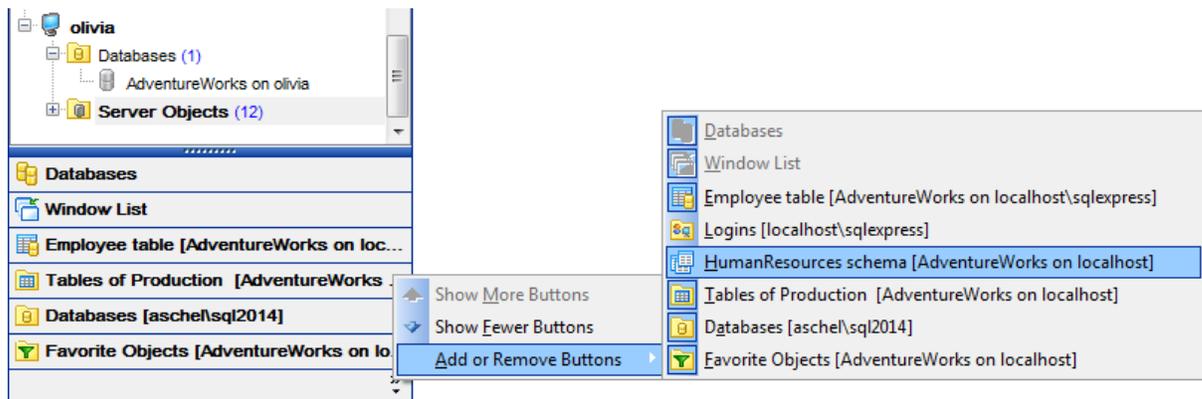


Hint: You can reorder items in the *tabs* view by dragging their captions up and down.

To add/remove items to/from the *tabs* view, you can drag the horizontal [splitter](#)^[917] up/down:



or click the **Configure buttons** icon available in the bottom right corner of the **DB Explorer** window, and select **Show More Buttons** / **Show Fewer Buttons** / **Add or Remove Buttons** items from the popup menu.



Note: Navigation through the tabs is also possible with the help of the following [shortcuts](#)^[955]:

- *Ctrl+Shift+N* - move to the next tab;
- *Ctrl+Shift+P* - move to the previous tab.

Renaming tabs

In order to rename a tab:

- switch to the tab by clicking its caption or icon (there can be only one active tab, and it is highlighted with a different color);
- right-click within the DB Explorer area and select the **Rename Current Tab...** context menu item.

Removing tabs

In order to remove a tab:

- switch to the tab by clicking its caption or icon (there can be only one active tab, and it is highlighted with a different color);
- right-click within the DB Explorer area and select the **Delete Current Tab** context menu item.

See also:

[Managing favorite objects](#)^[817]

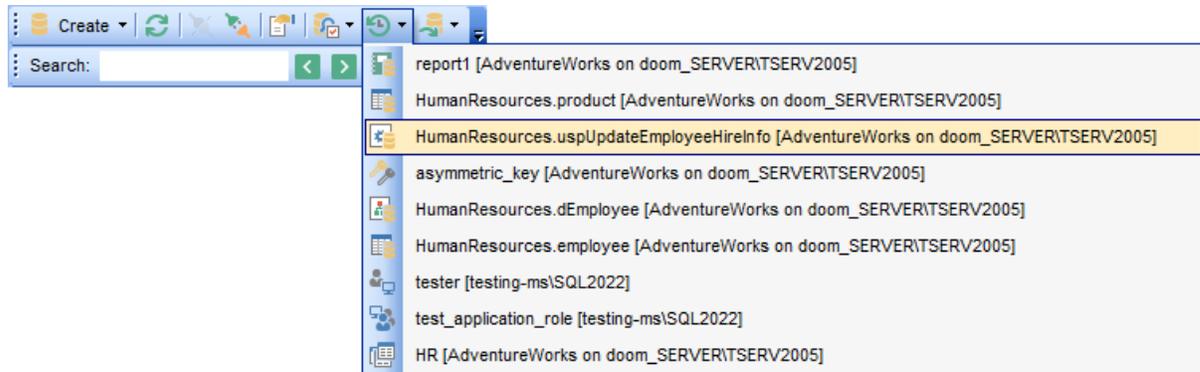
[Windows List](#)^[939]

[Database and Server Objects Management](#) ¹⁷⁸

3.6 Recently opened objects

Use the **Recent Objects**  button available on the DB Explorer [toolbar](#)^[87] to access the list of recently opened database objects (during the current session).

This list is common for all registered databases. Next to the object name the database name and the host/address are displayed. Select an object from this list to open it using its editor.



To change the number of objects that are considered 'recent', select the **Options | Environment Options** [main menu](#)^[915] item, proceed to the **Tools | DB Explorer** section within the **Environment Options** dialog, and set the **Recent objects count** option value (see [Environment Options](#)^[825] for details).

See also:

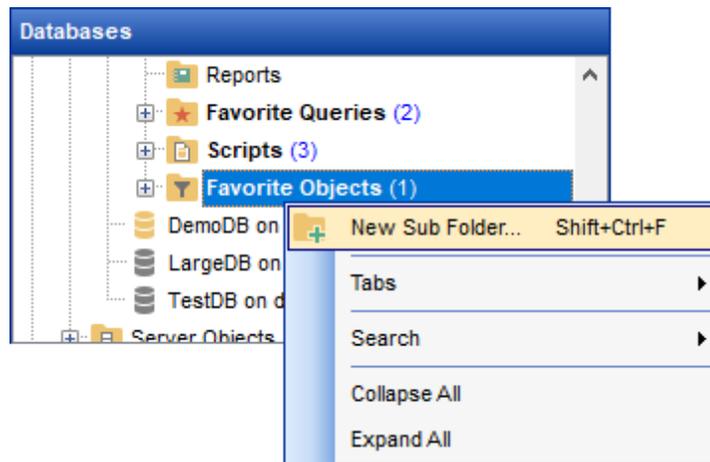
[Database and Server Objects Management](#)^[178]

[Environment Options](#)^[825]

3.7 Managing favorite objects

Use the **Favorite Objects** node for each database to work with the selected objects of this database only. You can place any object from the database tree here.

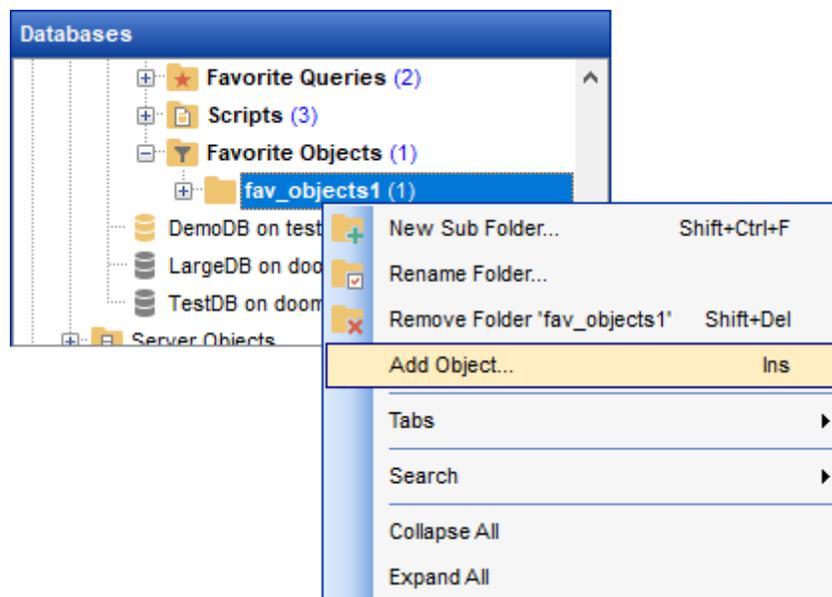
You can also create a separate tab for your favorite object folder. See [Using tabs for database navigation](#) section for details.



Creating favorite objects folders

In order to create a new folder:

- create a folder (if necessary, you can create subfolders inside the favorite objects folder) by right-clicking the **Favorite Objects** node and selecting the **New Sub Folder...** context menu item;
- enter the folder name within the **New Folder** dialog.



Adding objects

In order to add a new object to the favorite objects folder:

- extent the **Favorite Objects** node in DB Explorer;
- drag an object (or multiple objects) from the database tree to the favorite objects folder

or

- right-click the favorite objects folder and select the **Add Object...** context menu item, or use the *Ins* key;
- use the [Select Object](#)^[951] dialog to specify objects to be added to the favorite objects folder.

Removing objects from the favorite objects

In order to remove an object from the favorite objects:

- right-click the object and select the **Remove <object_name> from Favorite Objects** context menu item, or use the *Shift+Ctrl+Del* [shortcut](#)^[952];
- confirm removing in the dialog window.

Note: This operation does not drop the object from the database, but only removes its alias from the favorite objects tree.

See also:

[Using tabs for database navigation](#)^[77]

[Select Object dialog](#)^[951]

[Database and Server Objects Management](#)^[178]

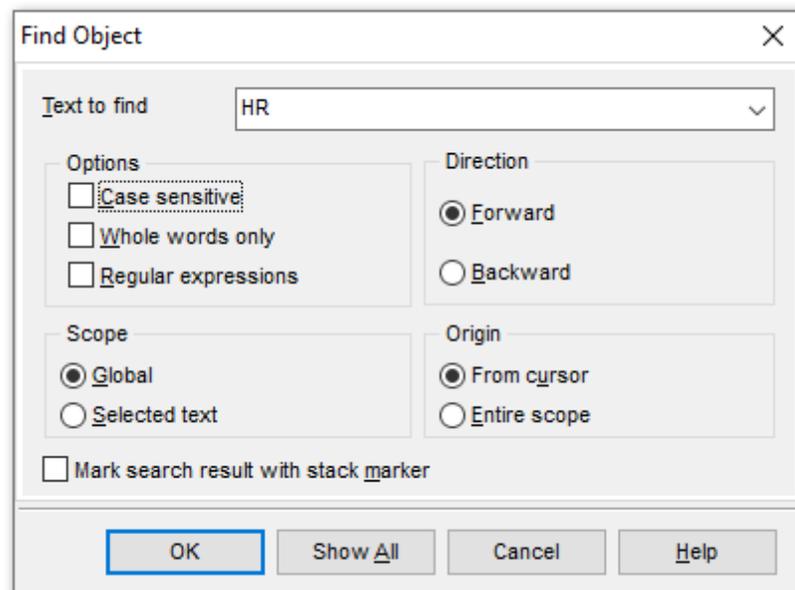
3.8 Searching within the tree

SQL Manager for SQL Server provides an ability to search for items within the **DB Explorer** tree. Searching for items may be useful if you have a lot of database objects, and it may be sometimes hard to find the one you need.

There are two search facilities implemented in SQL Manager for your convenience. You can search for objects within the **DB Explorer** tree in either of the following ways:

- using the **Find Object** dialog

To call the **Find Object** dialog, right-click the **Database** alias, any database object group nodes or objects in the **DB Explorer** tree and select the **Find Object...** [context menu](#)^[53] item, or use the *Ctrl+F* [shortcut](#)^[952].

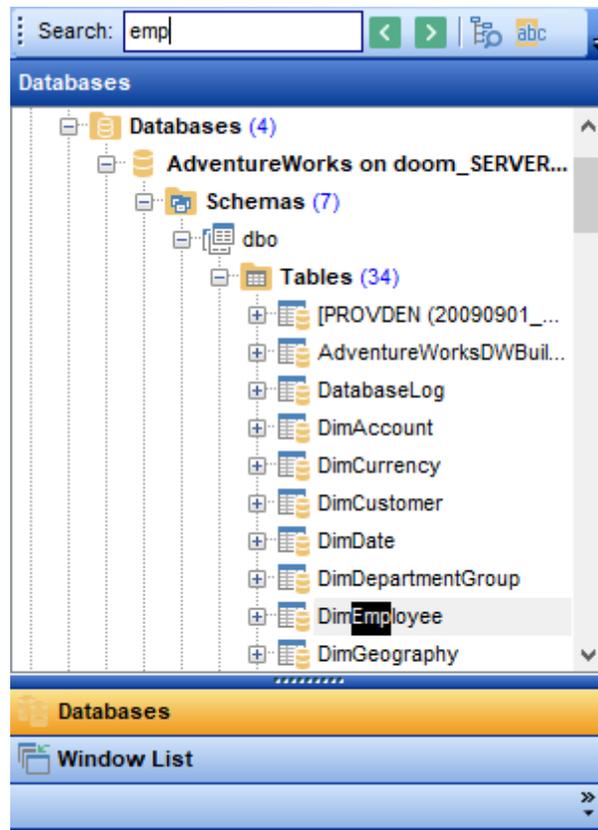


Available search options are similar to those provided by the **Find Text** dialog. For detailed description of the search options refer to the [Find Text dialog](#)^[925] page.

Note: You can specify whether the search will be performed within the entire tree or within the currently selected node only: toggle search mode using the  **Search by categories** button on the [Search Panel](#)^[87], or use the corresponding option available in the [Tools | DB Explorer](#)^[832] section of the [Environment Options](#)^[825] dialog.

- using the **Search Panel**

Type in the first letters in the edit-box, and the corresponding object will be highlighted in the tree, as displayed in the picture below. The   buttons allow you to define the search direction.



By default, the **Search Panel** is activated in the upper area of DB Explorer. To disable the panel, right-click within the panel and deselect the checkbox at the corresponding popup menu item.



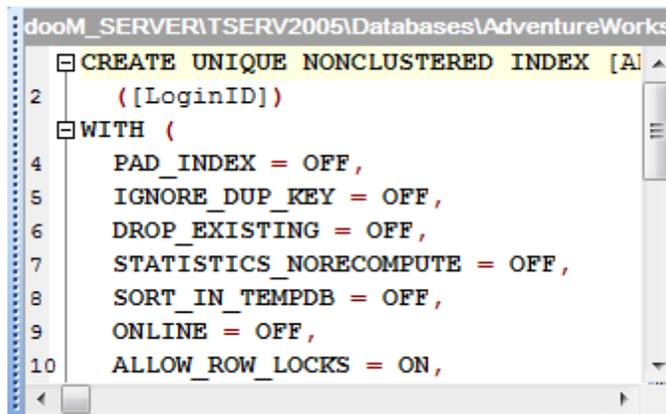
Hint: The **Search Panel** is dockable, i.e. you can drag it to any location within the **DB Explorer** form.

See also:

[Find Text dialog](#)^[925]

3.9 SQL Assistant

SQL Assistant which is located at the bottom of the **Database Explorer** window helps you to work with your [database objects](#)^[178]. Depending on the current selection in DB Explorer, the SQL Assistant area displays additional information pertaining to the selected object.



If you select a **host** in DB Explorer, SQL Assistant displays the list of registered *databases* that reside on this host.

If you select a **database** in DB Explorer, SQL Assistant displays the list of the database *object groups* and *the number of objects* in each group.

If you select a **schema** in DB Explorer, SQL Assistant displays the schema *definition* (by default).

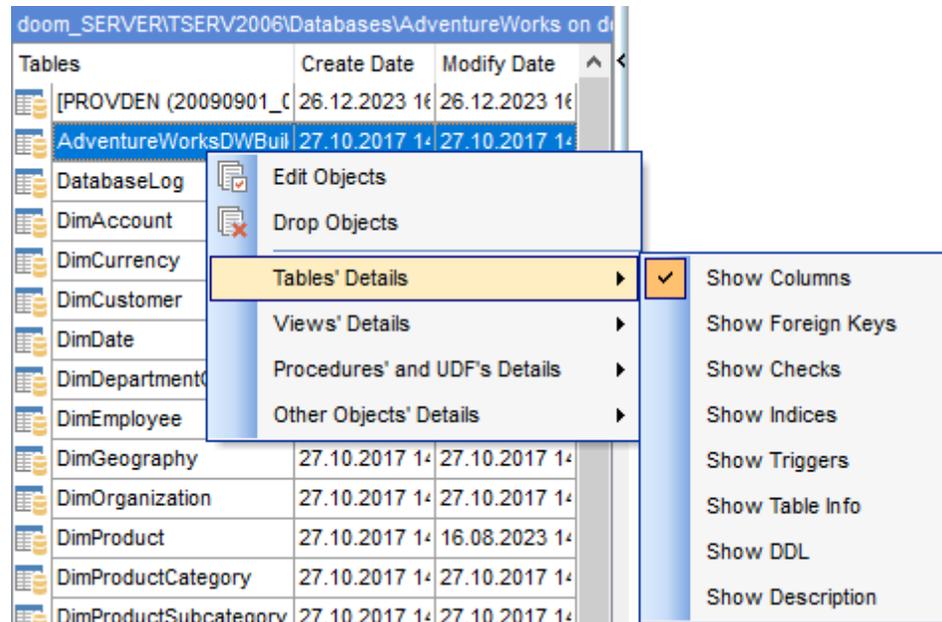
Selecting an **object group** in DB Explorer displays the list of the *objects* in SQL Assistant. Double-clicking the object name in **SQL Assistant** makes the object available for editing in the appropriate editor. The context menu of the object or group of objects (selected with the *Ctrl* or *Shift* keys pressed) allows you to edit or drop the selected objects.

If you select a **table** or a **view** in DB Explorer, SQL Assistant displays the list of the table subobjects (e.g. columns and their *types*) by default. What is displayed in **SQL Assistant** when a table or a view is selected in DB Explorer depends on the **Table Details / View Details** selection. Click the  **View Mode toolbar**^[88] button and select the **Table Details | Show...** (or **View Details | Show...**) drop-down menu item, or use the context menu of SQL Assistant. Possible values are: *Show Columns*, *Show Foreign Keys*, *Show Checks*, *Show Indexes*, *Show Triggers*, *Show Table Info*, *Show DDL*, *Show Description (for tables)*; *Show Columns*, *Show Indexes*, *Show Triggers*, *Show DDL*, *Show Description (for views)*.

If you select a **procedure** or a **user-defined function** in DB Explorer, SQL Assistant lists its parameters by default. Use the **Procedure and UDF Details | Show...** context menu item within the SQL Assistant area to define the content of SQL Assistant when a procedure or a user-defined function is selected in DB Explorer. Possible values are: *Show Parameters*, *Show DDL*, *Show Description*.

Selecting other objects in **DB Explorer** displays the definition in **SQL Assistant** by

default. Use the **Other Objects' Details | Show...** context menu item within the SQL Assistant area to define the content of SQL Assistant when an object is selected in DB Explorer. Possible values are: *Show DDL*, *Show Description*.



You can also use **SQL Assistant** to work with your [queries](#)^[424] quickly. You can drag-and-drop object aliases to the [Query Data](#)^[426], [Design Query](#)^[442] or [Execute Script](#)^[619] editor working area, in the same way as [this operation](#)^[71] is performed in **Database Explorer**.

See also:

[Database and Server Objects Management](#)^[178]

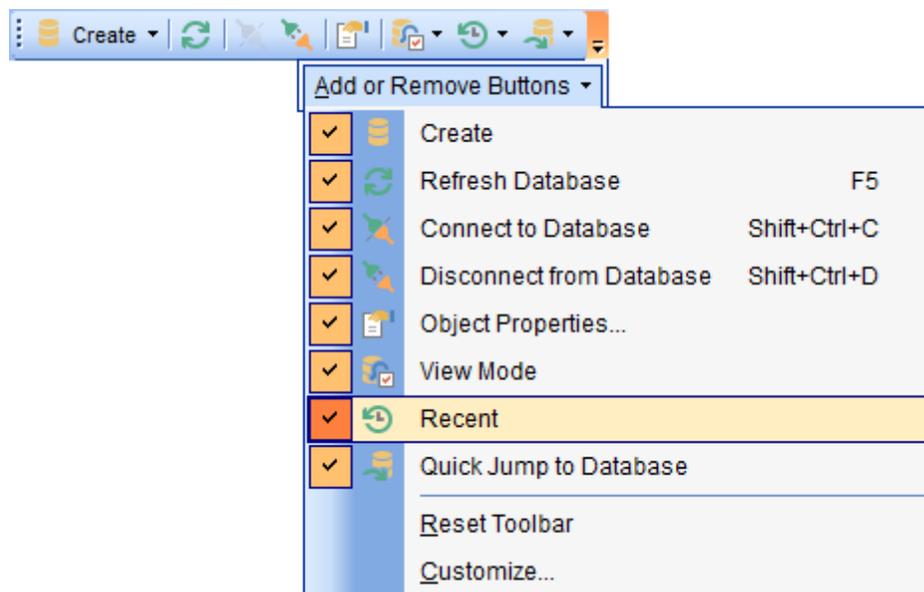
3.10 Configuring Database Explorer

Configuring DB Explorer toolbar

The [toolbar](#)^[917] of Database Explorer contains most frequently used tools for working with databases and database objects, and a tool for configuring DB Explorer. The following actions are available in the toolbar by default:

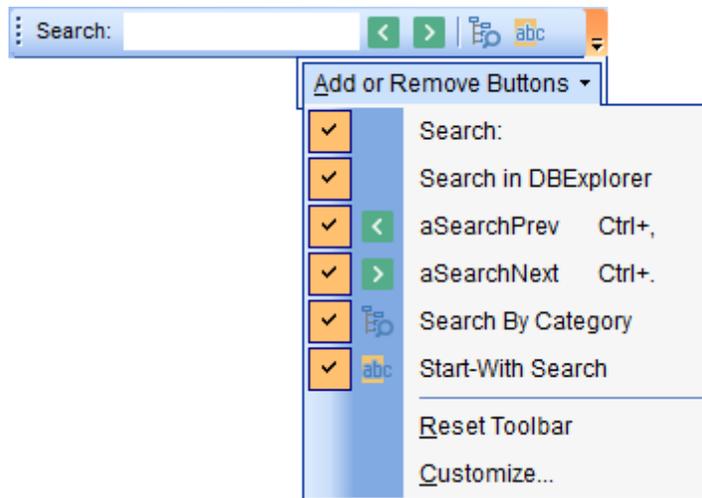
- [create](#)^[178] a new object;
- refresh the current tree branch;
- [connect](#)^[68] to a database;
- [disconnect](#)^[95] from a database;
- view the selected object properties;
- configure Database Explorer using the [View Mode](#)^[88] menu;
- view the list of [recently opened objects](#)^[80];
- jump to any of registered databases quickly.

Click **More buttons...**  on the right side of the toolbar and use the **Add or Remove Buttons** popup menu items to define the set of actions available in the toolbar. To [customize](#)^[940] the toolbar, select the **Add or Remove Buttons | Customize...** item from the popup menu.



Configuring the Search Panel

Click **More buttons...**  on the right side of the [Search Panel](#)^[83] and use the **Add or Remove Buttons** popup menu items to define the set of the panel elements. To [customize](#)^[940] the panel, select the **Add or Remove Buttons | Customize...** item from the popup menu.

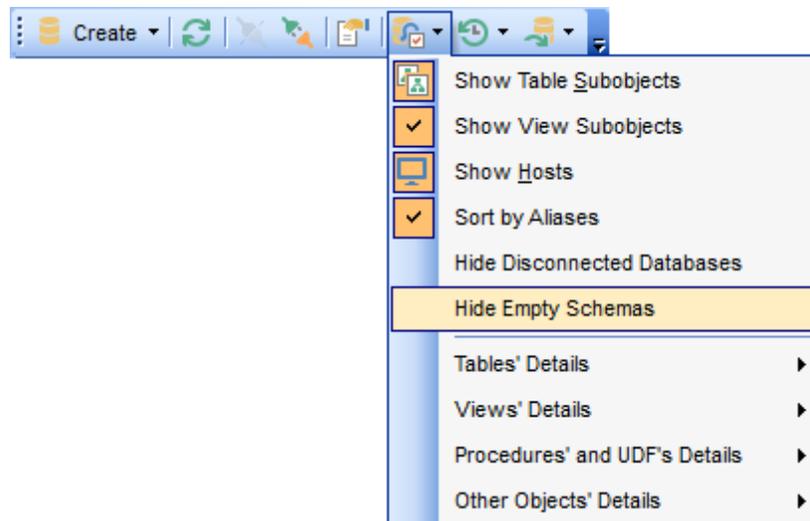


Using View Mode menu

Use the **View Mode**  toolbar^[87] button to configure **Database Explorer** according to your needs.

The drop-down menu called upon clicking this button allows you to:

- show/hide table subobjects as child nodes of [tables](#)^[192];
- show/hide view subobjects as child nodes of [views](#)^[246];
- show/hide host nodes for [registered databases](#)^[111];
- sort the list of databases by their aliases in the DB Explorer tree;
- show/hide [disconnected databases](#)^[68];
- show/hide empty [schemas](#)^[189];
- configure table/view/procedure/UDF/other objects' details for the [SQL Assistant](#)^[85] area.



Use the [DB Explorer](#)^[832] section of the [Environment Options](#)^[825] dialog (**Options | Environment Options...**) to see more options to configure **Database Explorer**.

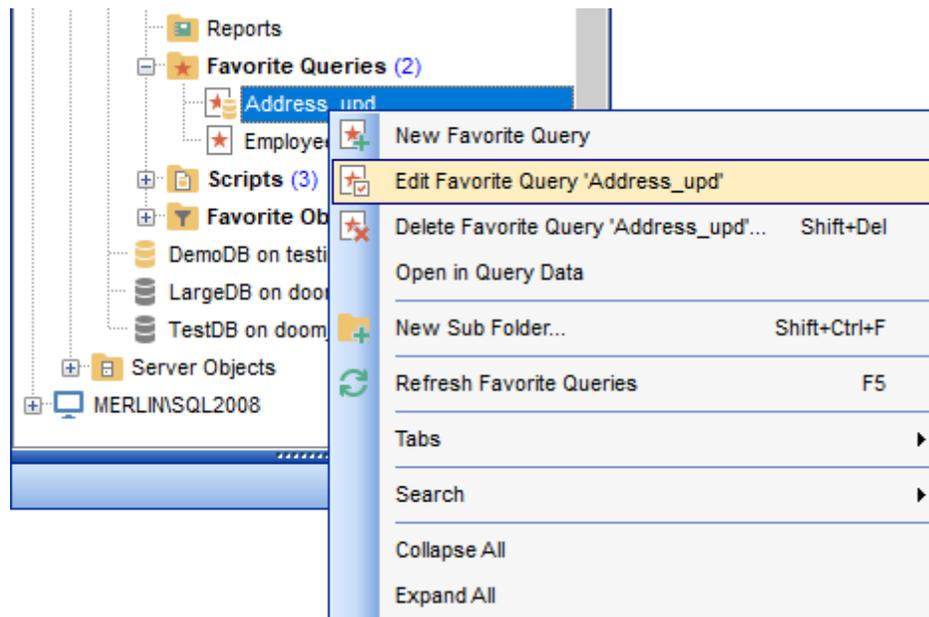
See also:[Customize toolbars and menus](#)^[940][DB Explorer options](#)^[832]

3.11 Managing Favorite queries

Favorite Queries is a new feature of SQL Manager. Now you are provided with an opportunity to save the most frequently used SQL queries as Favorite Queries.

Use the **Favorite Queries** node of DB Explorer to access the list of your Favorite queries quickly. Queries stored in the database and those stored in Windows registry can be easily distinguished by their icons.

Using the context menu you can create a new Favorite query or edit an existing one using [Favorites editor](#)^[439], open any of the existing queries in [Query Data](#)^[426] or remove a query if you don't need it any longer.



You can also create a separate tab for your Favorite queries. See [Using tabs for database navigation](#)^[77] section for details.

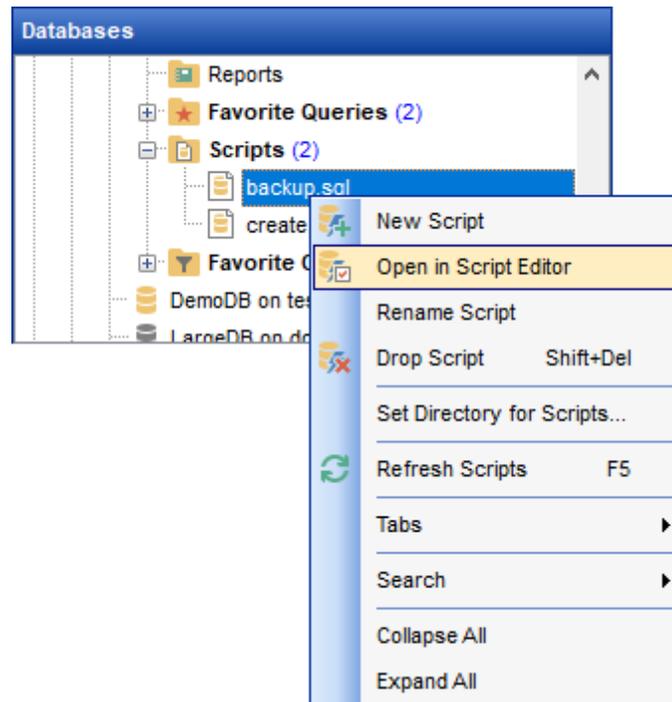
See also:

[Using tabs for database navigation](#)^[77]

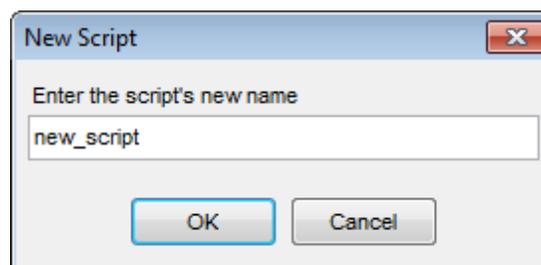
[Favorites editor](#)^[439]

3.12 Managing scripts

[Script](#)^[619] files stored locally on the server can be easily accessed from the [DB Explorer](#)^[63] within the **Scripts** branch.



To create new script right-click the appropriate branch in the DB Explorer tree and select the **New Script** item. You will be asked for the script name. When the name is assigned the script appears in the DB Explorer tree and the [Execute Script](#)^[619] editor is opened.



If a script is created in Execute Script editor and saved to the [default folder](#)^[121], it will appear in the DB Explorer tree automatically.

It is also possible to create subfolders in the **Scripts** branch by selecting the **New script folder** context menu item. Folders created there are created physically as subfolders to the folder assigned as default for local scripts in the **DB Registration info | Directories**.

To change directory where local scripts to be stored use the **Select Directory** item of the **Scripts** context menu, or use the respective column of the **DB Registration info | Directories** dialog. If specified folder already contains scripts, these scripts will be added to the [DBExplorer](#)^[63] tree.

Using the context menu of a script you can:

-  - open the script in the [Execute Script](#)^[619] editor, rename the script,
-  - drop the script.

See also:

[Execute Script](#)^[619]

[Database Explorer](#)^[63]

[Database Registration Info](#)^[116]

Part



4 Database Management

SQL Manager for SQL Server provides a number of tools you may need to manage your SQL Server databases.

Find the list of common database management operations for working in SQL Manager below.

Unregistering Hosts

In order to unregister a host in SQL Manager for SQL Server:

- select the host to unregister in the [DB Explorer](#)^[63] tree;
- select the **Database | Unregister Host** [main menu](#)^[915] item or use the corresponding  **Unregister Host** [toolbar](#)^[917] button

or

- right-click the host alias and select the **Unregister Host** [context menu](#)^[53] item in the [DB Explorer](#)^[63] tree;
- confirm unregistering in the corresponding dialog window.

Creating Databases

In order to create a database in SQL Manager for SQL Server:

- select the **Database | Create Database** [main menu](#)^[915] item or use the corresponding  **Create Database** [toolbar](#)^[917] button;
- set all the necessary options using [Create Database wizard](#)^[97] which guides you through the entire process of creating a new database.

Dropping Databases

In order to drop a database in SQL Manager for SQL Server:

- select the database to drop in the [DB Explorer](#)^[63] tree;
- select the **Database | Drop Database** [main menu](#)^[915] item;
- confirm dropping in the corresponding dialog window.

Registering Databases

In order to register a single database in SQL Manager for SQL Server:

- select the **Database | Register Database...** [main menu](#)^[915] item or use the corresponding  **Register Database** [toolbar](#)^[917] button

or

- right-click any database alias and select the **Register Database...** [context menu](#)^[54] item in the [DB Explorer](#)^[63] tree;
- set all the necessary options using [Register Database wizard](#)^[111] which guides you through the entire process of database registration.

Unregistering Databases

In order to unregister a database in SQL Manager for SQL Server:

- select the database to unregister in the [DB Explorer](#)^[63] tree;
- select the **Database | Unregister Database** [main menu](#)^[915] item or use the corresponding  **Unregister Database** [toolbar](#)^[917] button

or

- right-click the database alias and select the **Unregister Database** [context menu](#)^[54] item in the [DB Explorer](#)^[63] tree;
- confirm unregistering in the corresponding dialog window.

Connecting to Databases

In order to connect to a database in SQL Manager for SQL Server:

- select the database to connect to in the [DB Explorer](#)^[63] tree;
- select the **Database | Connect to Database** [main menu](#)^[915] item or use the corresponding  **Connect to Database** [toolbar](#)^[87] button

or

- right-click the database alias and select the **Connect to Database** [context menu](#)^[54] item in the [DB Explorer](#)^[63] tree.

Disconnecting from Databases

In order to disconnect from a database in SQL Manager for SQL Server:

- select the database to disconnect from in the [DB Explorer](#)^[63] tree;
- select the **Database | Disconnect from Database** [main menu](#)^[915] item or use the corresponding  **Disconnect from Database** [toolbar](#)^[87] button

or

- right-click the database alias and select the **Disconnect from Database** [context menu](#)^[54] item in the [DB Explorer](#)^[63] tree.

Viewing and Editing Database Registration Info

In order to view/edit database registration info in SQL Manager for SQL Server:

- select the database or any of its objects in the [DB Explorer](#)^[63] tree;
- select the **Database | Database Registration Info...** [main menu](#)^[915] item

or

- right-click the database alias or any of its objects and select the **Database Registration Info...** [context menu](#)^[54] item in the [DB Explorer](#)^[63] tree.

Viewing and Editing Database Properties

In order to view/edit database properties in SQL Manager for SQL Server:

- select the database in the [DB Explorer](#)^[63] tree;
- right-click the database alias and select the **Database Properties...** [context menu](#)^[54] item or use the corresponding  **Properties** [toolbar](#)^[87] button.

Viewing and editing Server Properties

In order to view/edit server properties in SQL Manager for SQL Server:

- select the host or a database that resides on this host in the [DB Explorer](#)^[63] tree;
- right-click the host or the database alias and select the **Server Properties** [context menu](#)^[53] item.

See also:

[Getting Started](#)^[41]

[Database Explorer](#)^[63]

[Database Objects Management](#)^[178]

[Query Management Tools](#)^[424]

[Data Management](#)^[462]

[Import/Export Tools](#)^[530]

[Database Tools](#)^[611]

[Server Tools](#)^[715]

[Personalization](#)^[824]

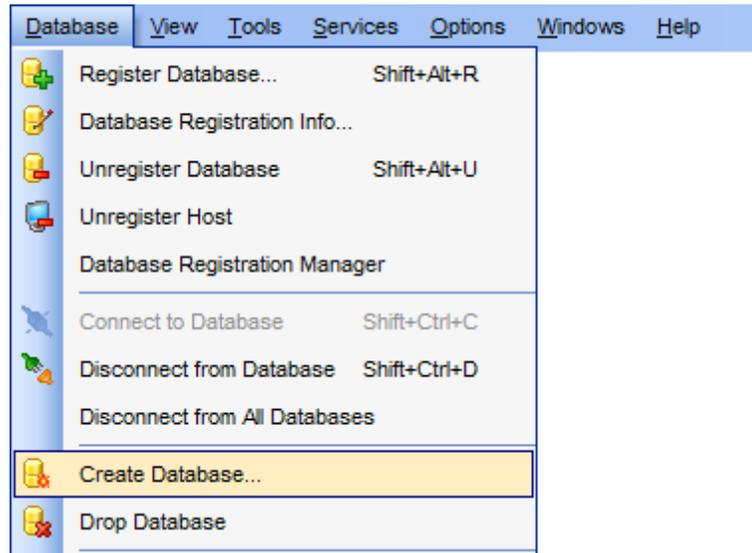
[External Tools](#)^[909]

[How To...](#)^[957]

4.1 Create Database wizard

Create Database wizard allows you to create a new database on your SQL Server host.

To start the wizard, select the **Database | Create Database...** [main menu](#)^[915] item, or use the  **Create Database** button on the main [toolbar](#)^[917].



- [Setting database name](#)^[97]
- [Setting connection properties](#)^[98]
- [Defining database files](#)^[100]
- [Defining transaction log files](#)^[101]
- [Defining filestream files and filegroups](#)^[104]
- [Setting recovery model and collation](#)^[106]
- [Viewing result SQL statement](#)^[109]

See also:

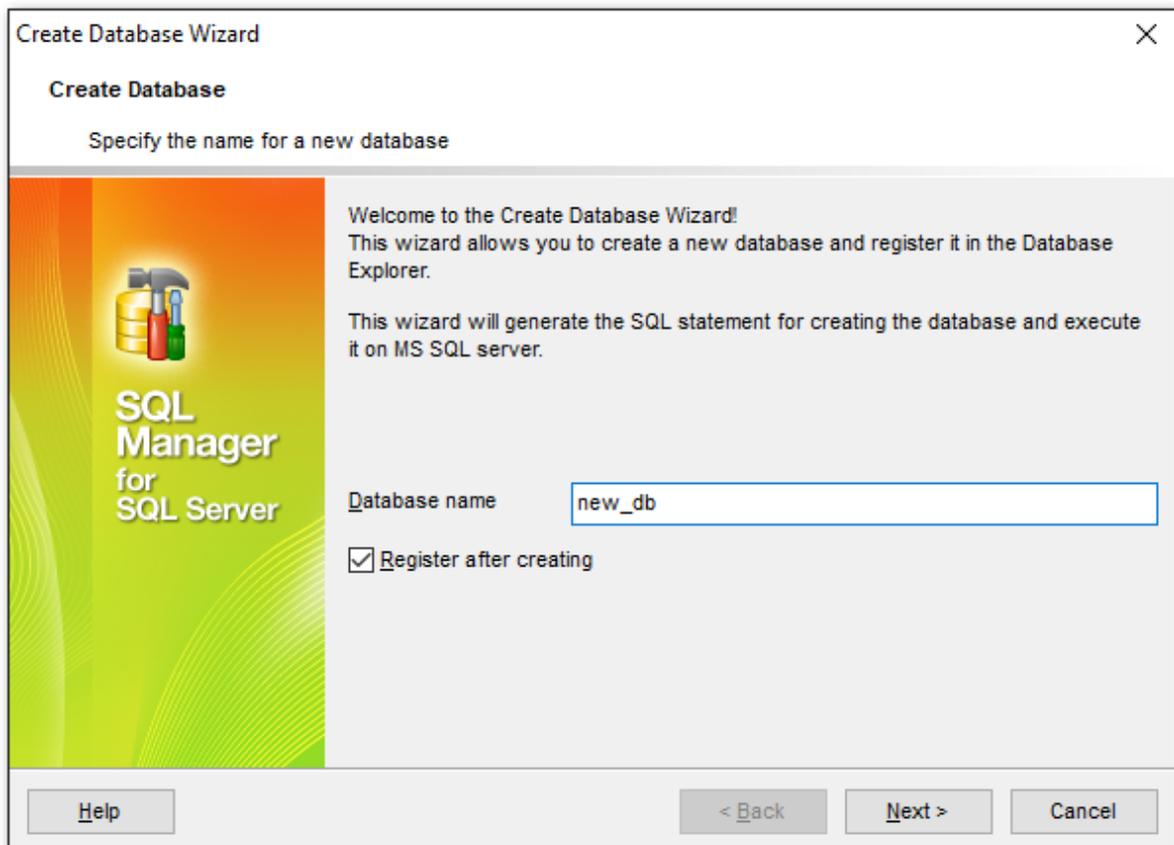
[Register Database wizard](#)^[111]

[Database Registration Info](#)^[116]

[Database Properties](#)^[133]

4.1.1 Setting database name

Use this step of the wizard to enter a **name** for the database being created.



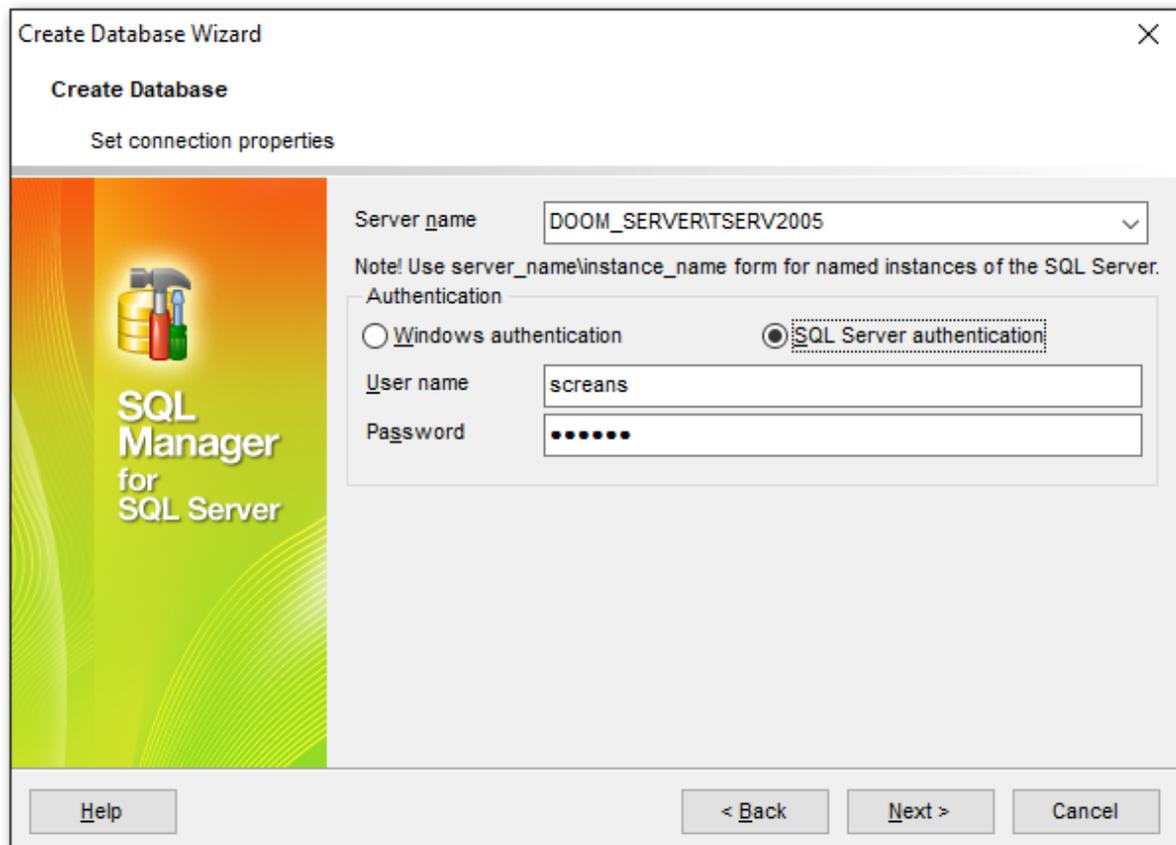
Register after creating

Check this option to [register](#)^[117] the newly created database in SQL Manager (the [Database Registration Info](#)^[116] dialog will be opened after database creation).

Click the **Next** button to proceed to the [Setting connection properties](#)^[98] step of the wizard.

4.1.2 Setting connection properties

Use this step of the wizard to set the necessary **connection parameters** for the database being created. Use the corresponding boxes and options: *Server name*, *Authentication*, *User name* and *Password*.



Specify the host where the database being created will reside: type in the host name in the **Server name** field or select one in the drop-down list.

Please note that if Microsoft® SQL Server™ is installed as a named instance, you should enter the name of your machine and the instance name in the **Server name** field in the following format: *computer_name\sqlserver_instance_name* (e.g. "MYCOMPUTER\SQLEXPRESS").

Authentication type

Specify the type of Microsoft® SQL Server™ authentication to be used for the connection: *Windows authentication* or *SQL Server authentication*. It is strongly recommended to avoid using SQL Server authentication with "sa" as the login.

If 'SQL Server' has been selected as the *authentication type*, you should also provide *authorization* settings: **User name** and **Password**.

Click the **Next** button to proceed to the [Defining database files](#)^[100] step of the wizard.

4.1.3 SQL Server Database

4.1.3.1 Defining database files

This step of the wizard allows you to define **database files** for the new database.

Here you can specify that the disk files used to store the data portions of the database (data files) are defined explicitly, and fill the list of file items defining the data files for the primary file group.

To add a data file, right-click in the main working area and select the **+ Add File** popup menu item.

To remove a data file, right-click the file in the list and select the **- Delete File** popup menu item.

Name	File Name and Path	Size, MB	Filegroup
TestDB	C:\Program Files\Microsoft SQL Server\MS:	3	PRIMARY

File size, MB: 3

Enable automatic file growth

File growth: 10 Megabytes Percent

Maximum file size: 2 Unlimited

The **Name** is a logical name used to refer to the physical file in all Transact-SQL statements. The logical file name must conform to the rules for SQL Server identifiers and must be unique within the database.

The **File Name and Path** is the name of the physical file including the directory path. The path must follow the rules for operating system file names.

File Group

The *Primary* file group contains the primary data file and any other files not specifically

assigned to another file group. All pages for the system tables are allocated in the primary file group. *User-defined* file groups are any other file groups specified by the user.

Note: You can manage file groups for an existing database using the [Filegroups](#)^[153] section of the [Database Properties](#)^[133] dialog.

File size

Use the spinner control to specify the original size of the selected database file (in megabytes).

SQL Server 2005 (and higher) database files can grow automatically from their originally specified size. When you define a file, you can specify a **file growth** increment (in *megabytes* or in *percent*). Each time the file fills, it increases its size by the growth increment. If there are multiple files in a file group, they do not autogrow until all the files are full. Growth then occurs using a round-robin algorithm.

Each file can also have **maximum file size** specified. If **Unlimited** is specified, the file can continue to grow until it has used all available space on the disk.

Note: After the database is created, you can manage database files using the [Data files](#)^[148] section of the [Database Properties](#)^[133] dialog.

Click the **Next** button to proceed to the [Defining transaction log files](#)^[101] step of the wizard.

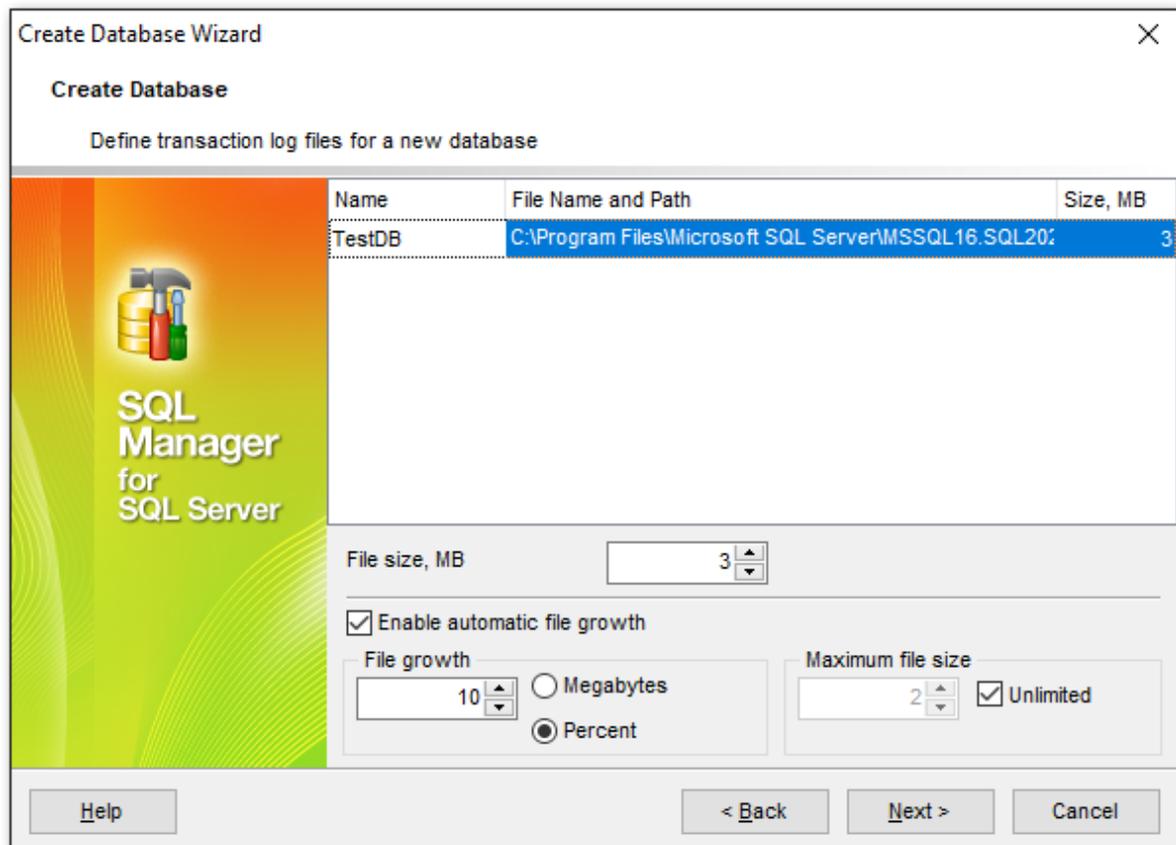
4.1.3.2 Defining transaction log files

This step of the wizard allows you to define **transaction log files** for the new database.

Log files hold all of the log information used to recover the database. There must be at least one log file for each database, although there can be more than one. The recommended file name extension for log files is **.ldf*.

To add a log file, right-click in the main working area and select the **+ Add File** popup menu item.

To remove a log file, right-click the file in the list and select the **- Delete File** popup menu item.



The **Name** is a logical name used to refer to the physical file in all Transact-SQL statements. The logical file name must conform to the rules for SQL Server identifiers and must be unique within the database.

The **File Name and Path** is the name of the physical file including the directory path. The path must follow the rules for operating system file names.

File size

Use the spinner control to specify the original size of the selected transaction log file (in megabytes).

SQL Server 2005 (and higher) transaction log files can grow automatically from their originally specified size. When you define a file, you can specify a **file growth** increment. Each time the file fills, it increases its size by the growth increment. If there are multiple files in a file group, they do not autogrow until all the files are full. Growth then occurs using a round-robin algorithm.

Each file can also have **maximum file size** specified. If **Unlimited** is specified, the file can continue to grow until it has used all available space on the disk.

Note: After the database is created, you can manage transaction log files using the [Log files](#) ^[150] section of the [Database Properties](#) ^[133] dialog.

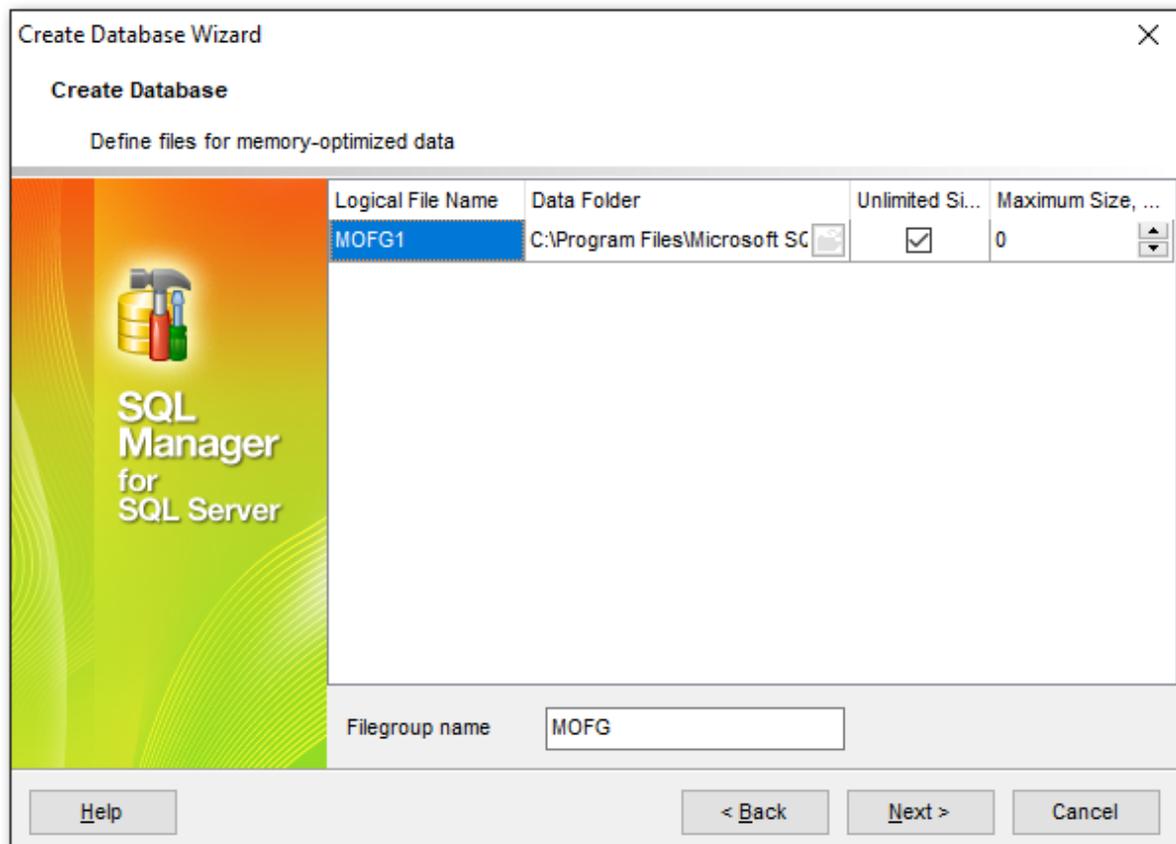
Click the **Next** button to proceed to the [Defining filestream files and filegroups](#)^[104] step (for SQL Server 2008) or to the [Setting recovery model and collation](#)^[106] step of the wizard.

4.1.3.3 Defining files for memory-optimized data

This step of the wizard allows you to define filegroup and files for memory-optimized data tables of the new database.

Note: This step is available for SQL Server 2014.

Creating a memory-optimized filegroup is necessary for creating memory-optimized tables. The memory-optimized filegroup holds one or more containers. Use the **Memory-optimized data files** grid to add containers to the memory-optimized filegroup.



To add a memory-optimized data file, right-click in the main working area and select the **New Memory-Optimized Data File** popup menu item.

To remove a memory-optimized data file, right-click the file in the list and select the **Delete Memory-Optimized Data File** popup menu item.

The **Logical File Name** is the name of the logical file storing the data used to refer to the physical file in all Transact-SQL statements.

Data Folder

The physical location of the data. The directory must be located on the server where the database resides. Use the  button to open the [SQL Server Folders](#) 950 dialog to select the preferable directory.

Each file can also have **Maximum size** specified. Use the spinner control to specify the original size of the selected database file (in megabytes).

If **Unlimited Size** is specified, the file can continue to grow until it has used all available space on the disk.

Name of filegroup for memory-optimized data

Specify the name of the memory-optimized filegroup on the database.

4.1.3.4 Defining filestream files and filegroups

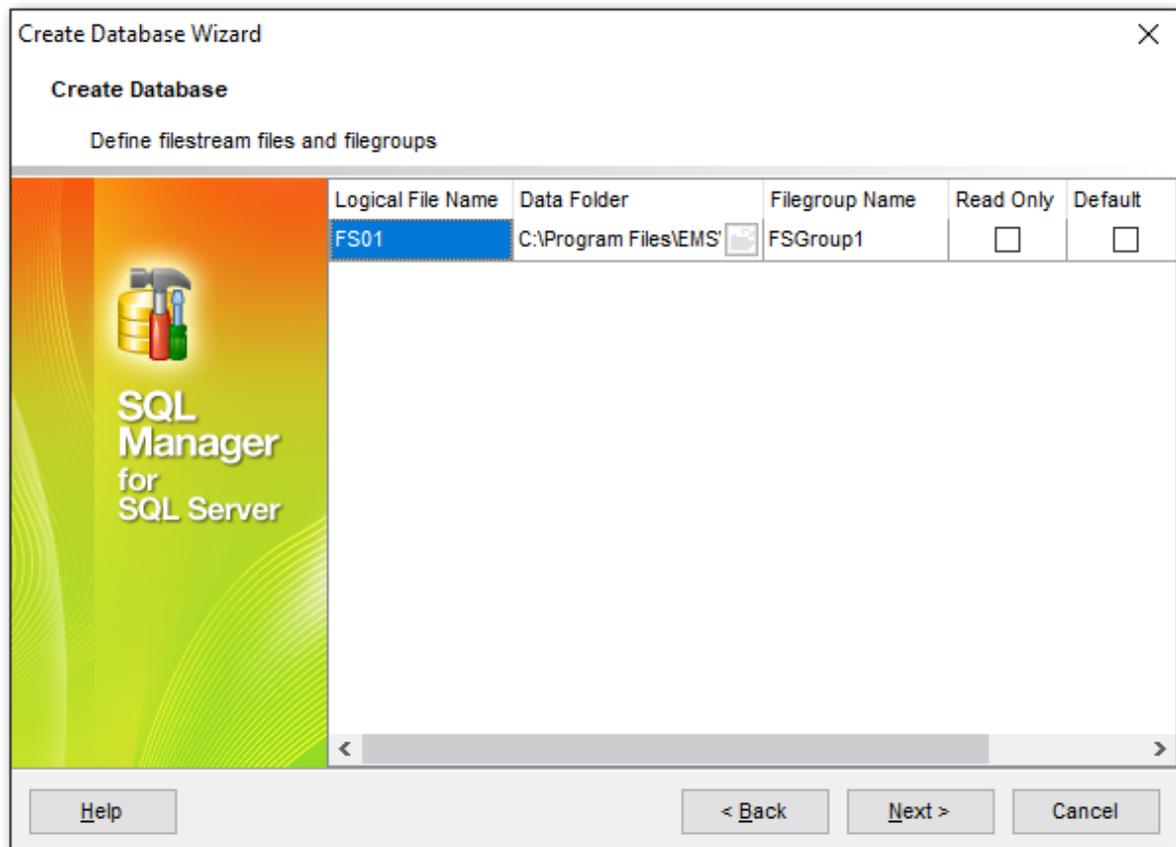
This step of the wizard allows you to define **filestream files and filegroups** for the new database.

Note: This step is available for SQL Server 2008 (and higher).

In SQL Server 2008, FILESTREAM enables the application to store unstructured data (such as text documents, images, videos, etc.) on the file system. FILESTREAM integrates the SQL Server Database Engine with an NTFS file system by storing varbinary (max) binary large object (BLOB) data as files on the file system. Transact-SQL statements can insert, update, query, search, and back up FILESTREAM data. Win32 file system interfaces provide streaming access to the data.

To add a filestream file, right-click in the main working area and select the  **Add Filestream File** popup menu item.

To remove a filestream file, right-click the file in the list and select the  **Delete Filestream File** popup menu item.



The **Logical File Name** is the name of the logical file storing the data used to refer to the physical file in all Transact-SQL statements.

Directory

The physical location of the data. The directory must be located on the server where the database resides.

Filegroup Name

Specify the name of the filestream filegroup.

Read Only

Specifies that the filestream filegroup is read-only. Updates to objects that reside in this filestream filegroup are not allowed. The default filestream filegroup cannot be read-only.

Default

The filestream fields data will be stored in this filestream filegroup if none was specified for the table.

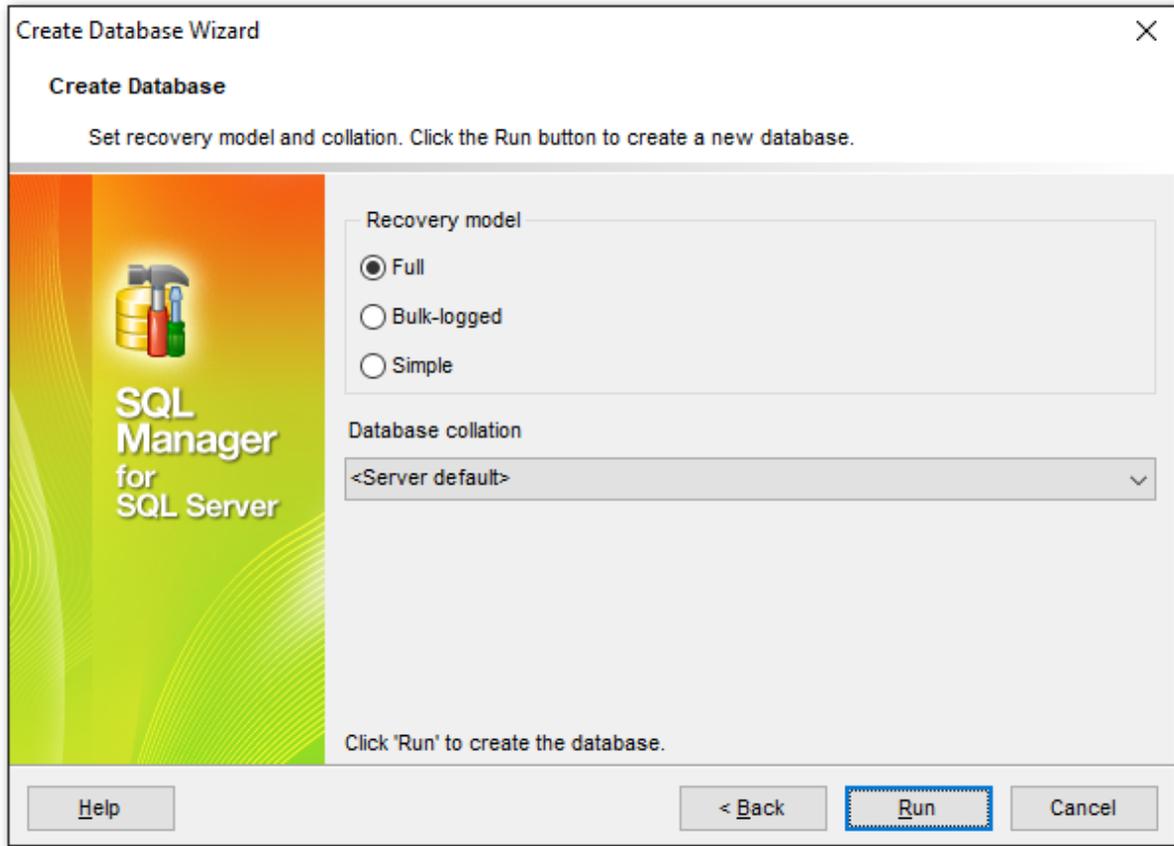
Note: After the database is created, you can manage filestream files using the [Filestream files and filegroups](#)^[154] section of the [Database Properties](#)^[133] dialog.

Click the **Next** button to proceed to the [Setting recovery model and collation](#)^[106] step of

the wizard.

4.1.3.5 Setting recovery model and collation

This step of the wizard allows you to set **recovery model** and **collation** for the new database.



Recovery model

SQL Server recovery models are used for backup and restore operations. A *recovery model* is a database property that controls the basic behavior of backup and restore operations for a database: how transactions are logged, whether the transaction log requires backup, what kinds of restore operations are available, etc.

Full

When this recovery model is set, all transactions are fully logged and all the transaction log records are retained until after they are backed up. In the Enterprise Edition of SQL Server, the full recovery model allows a database to be recovered to the point of failure, assuming that the tail of the log has been backed up after the failure.

Bulk-logged

When this recovery model is set, most bulk operations are minimally logged (e.g. index creation and bulk loads), and other transactions are fully logged.

Simple

When this recovery model is set, most transactions are minimally logged: only the information required to ensure database consistency after a system crash or after restoring a data backup.

For detailed information concerning recovery models refer to SQL Server documentation.

Database collation

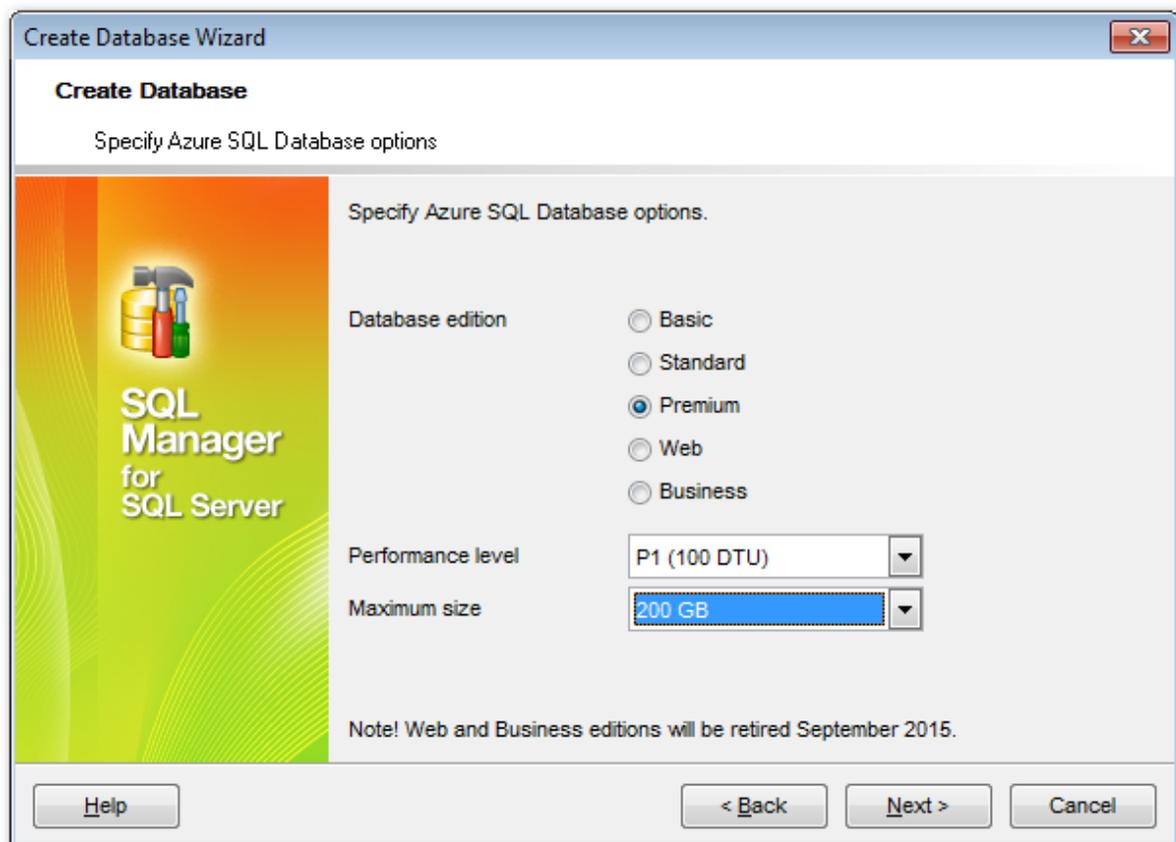
Use the drop-down list to specify collation for the database being created. By default, the server collation is used.

When you are done, click the **Run** button to view the [result SQL statement](#)^[109].

4.1.4 SQL Azure Database

4.1.4.1 Setting SQL Azure Database options

On this step of the wizard you can set options specific for Azure SQL Database.



Database Edition

Here you can set the edition of the SQL Azure database.

Basic

Small databases with a single operation at a given point in time.

Standard

Workgroup and cloud applications with multiple concurrent transactions.

Premium

Mission-critical, high transactional volume with many concurrent users.

Web

Web apps, workgroup, dept. apps, and other lightweight database workloads.

Business

Lightweight database workloads that require larger sizes than supported with Web.

Note: Web and Business editions will be retired September 2015.

Performance Level

Use the drop-down list to select the Performance Level for the database. Performance levels are specific for the selected database edition.

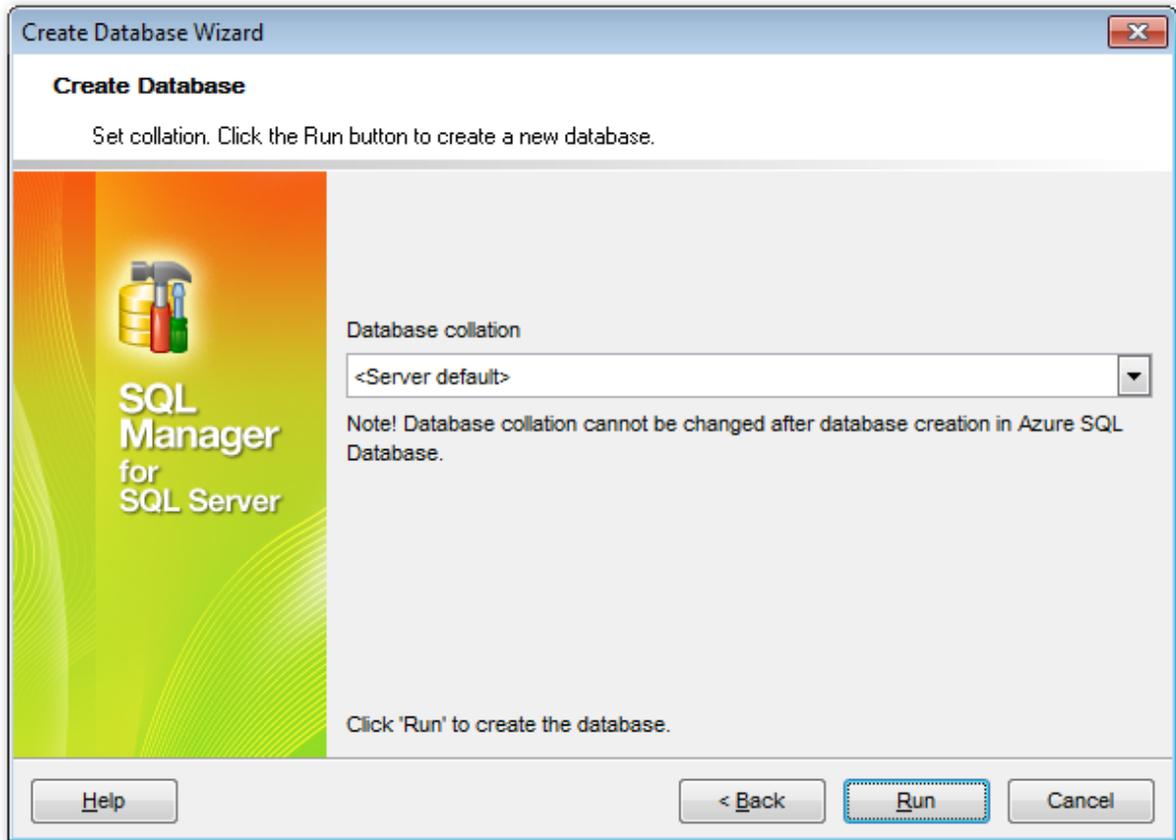
Maximum size

Specifies the maximum size of the database. This value must be valid for the specified Edition.

Click the **Next** button to proceed to the [Setting database collation](#)^[108] step of the wizard.

4.1.4.2 Setting database collation

This step of the wizard allows you to set the **collation** for the new database.



Database collation

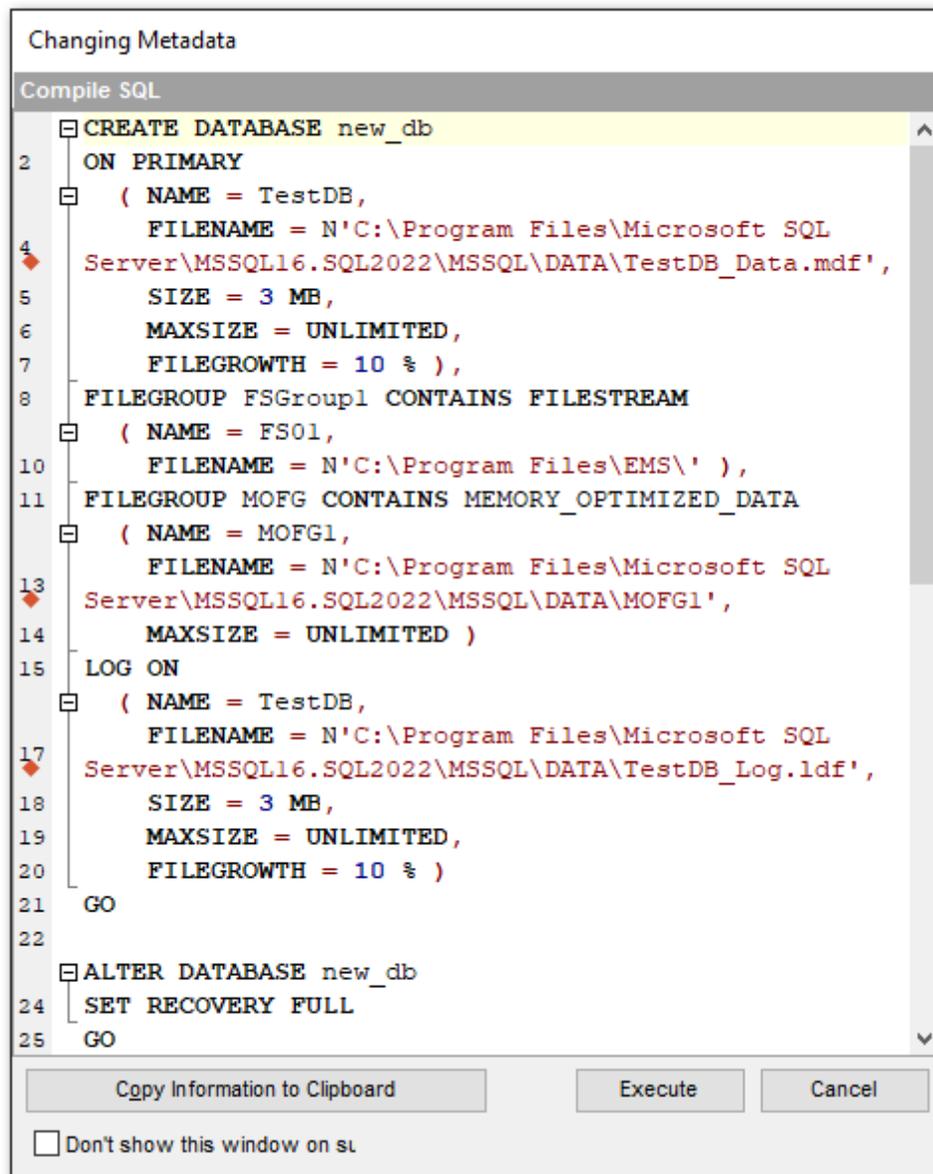
Use the drop-down list to specify collation for the database being created. By default, the server collation is used.

Note: SQL Azure Database collation cannot be changed after the database is created.

When you are done, click the **Run** button to view the [result SQL statement](#)^[109].

4.1.5 Viewing result SQL statement

View the result `CREATE DATABASE` statement issued for the new database creation. You can alter the script manually, if necessary. For more information see [Changing Metadata window](#)^[923].

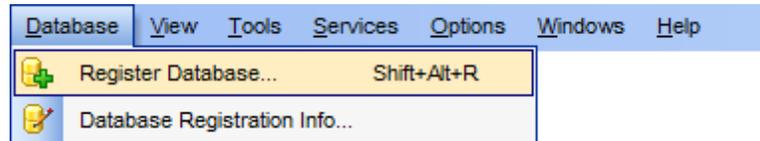


If the **Register after creating** option was checked at the [Setting database name](#)^[97] step of the wizard, the [Database Registration Info](#)^[116] dialog will appear.

4.2 Register Database wizard

Register Database Wizard allows you to register a single database.

To start the wizard, select the **Database | Register Database...** [main menu](#)^[915] item, or use the  **Register Database** button on the main [toolbar](#)^[917]. You can also use the *Shift+Alt+R* [shortcut](#)^[952] for the same purpose.



- [Setting connection parameters](#)^[111]
- [Setting specific options](#)^[113]

See also:

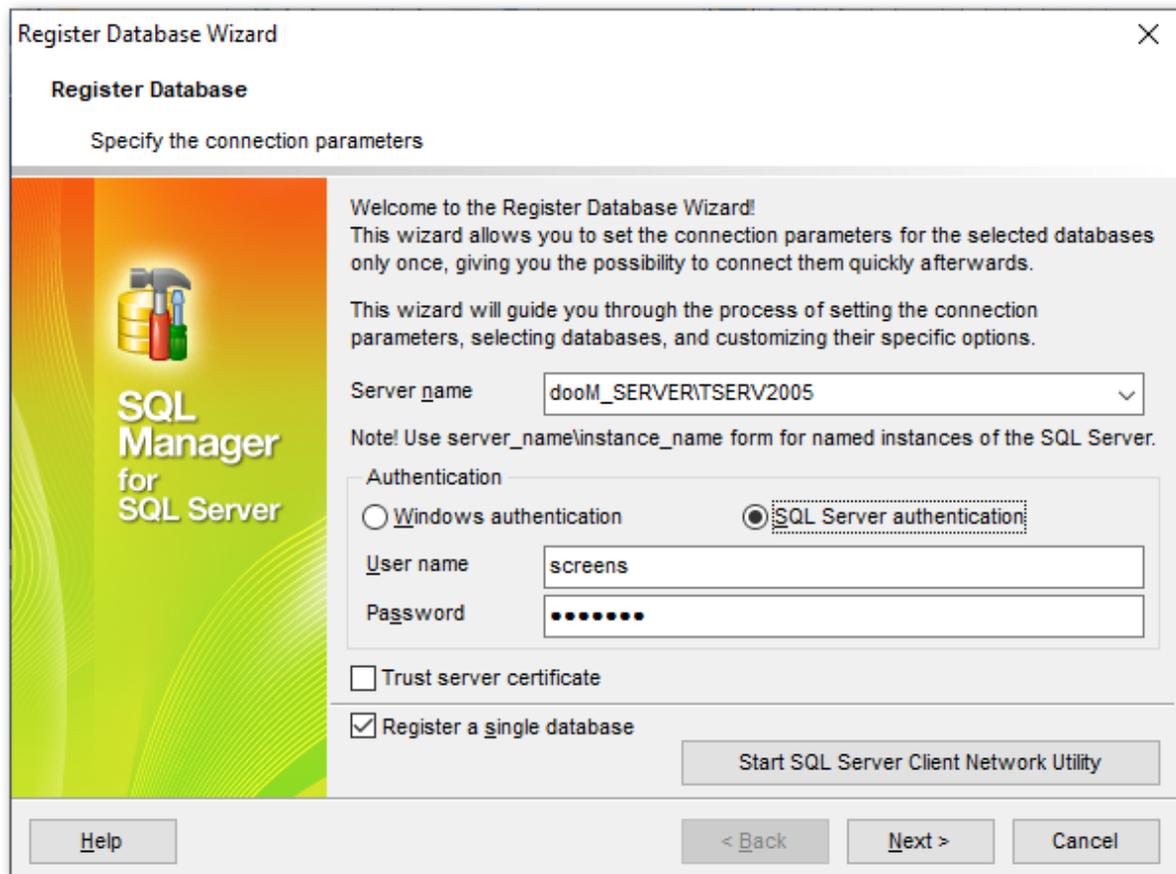
[Create Database wizard](#)^[97]

[Database Registration Info](#)^[116]

[Database Properties](#)^[133]

4.2.1 Setting connection parameters

Use this step of the wizard to set the necessary **connection parameters** for the new database using the corresponding boxes and options: *Host name*, *Authentication*, *User name* and *Password*.



Specify the host where the database being registered resides: type in the host name in the **Server name** field or select one in the drop-down list. Please note that if Microsoft® SQL Server™ is installed as a named instance, you should enter the name of your machine and the instance name in the **Host name** field in the following format: *computer_name\sqlserver_instance_name* (e.g. "MYCOMPUTER\SQLEXPRESS").

Authentication type

Specify the type of Microsoft® SQL Server™ authentication to be used for the connection: *Windows authentication* or *SQL Server authentication*. It is strongly recommended to avoid using SQL Server authentication with "sa" as the login.

If 'SQL Server' has been selected as the *authentication type*, you should also provide *authorization* settings: **User name** and **Password**.

Trust server certificate

If you use this option, the connection process skips the trust chain validation. In this case, the application connects even if the certificate can't be verified.

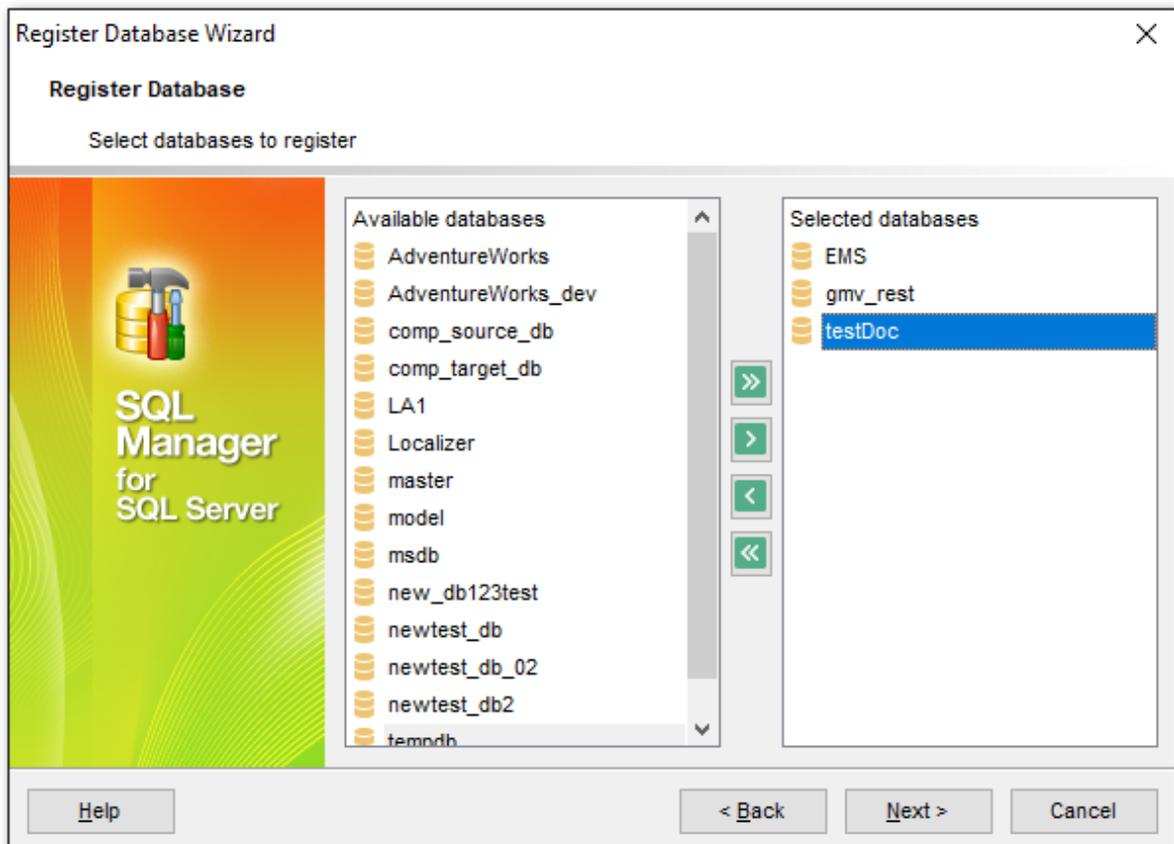
If necessary, you can **start SQL Server Configuration Manager** which is provided by Microsoft® for configuration management of SQL Server services, server/client protocols and client aliases.

Click the **Next** button to proceed to the [Setting specific options](#)^[113] step or to the [Selecting databases](#)^[113] step of the wizard, depending on whether the **Register a single database** option has been selected or not.

4.2.2 Selecting databases

This step of the wizard allows you to select the database(s) that reside on the host for registration in SQL Manager.

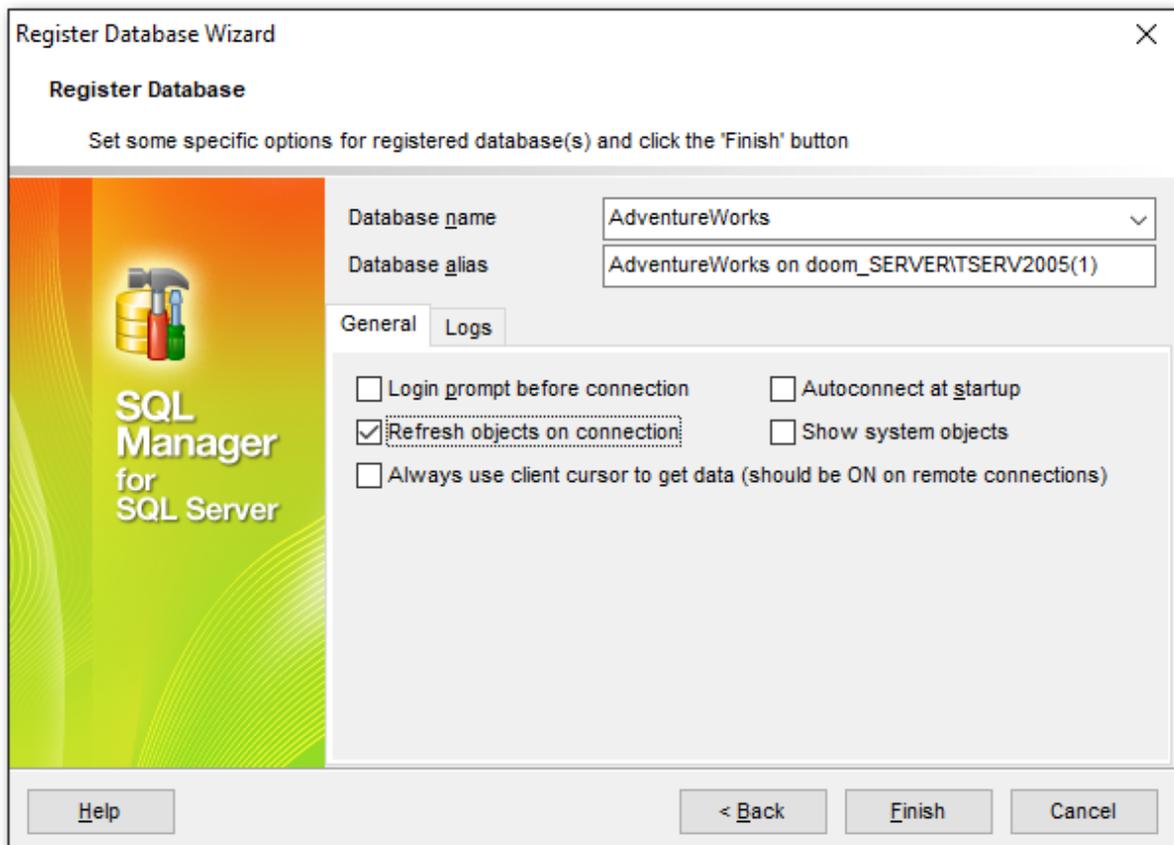
To select a database, you need to move it from the **Available databases** list to the **Selected databases** list. Use the     buttons or drag-and-drop operations to move the databases from one list to another.



Click the **Next** button to proceed to the [Setting specific options](#)^[113] step of the wizard.

4.2.3 Setting specific options

This step of the wizard allows you to set the **database name**, **database alias**, and **registration options** (using the *General* and *Logs* tabs).



The **General** tab allows you to set common database registration options:

Database name

Type in or use the drop-down list to select the database to be registered.

Database alias

Enter the alias to be used to display the database in [DB Explorer](#)^[63] and SQL Manager tools. By default, a database alias generated by the application has the following format:
`<database_name> on <host_name[\instance_name]>`

Login prompt before connection

Enables SQL Manager for SQL Server to [prompt](#)^[947] for user name and password each time you [connect](#)^[68] to the database.

Autoconnect at startup

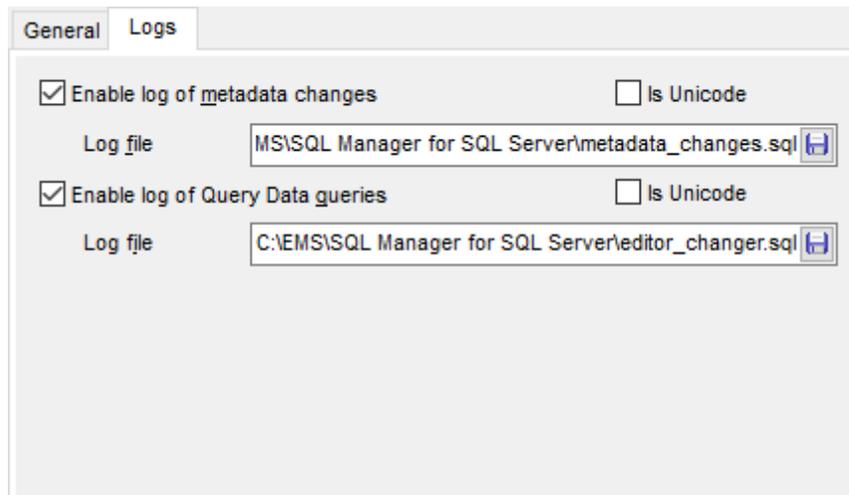
With this option set, [connection](#)^[68] to the registered database is established automatically at application startup.

Refresh objects on connection

This option allows you to enable/disable refreshing objects on connection to the database. It is highly recommended to uncheck this option if your database contains many objects or if connection to the database is slow.

Show system objects

If this option is checked, SQL Server system objects will be displayed in [DB Explorer](#)^[63].



The **Logs** tab allows you to set log options for the database:

Enable log of metadata changes

Check this option if you wish to log metadata changes of your database in a file.

Log file

This field is enabled if the **Enable log of metadata changes** option is selected. Type in or use the  **Save as** button to specify the path to the *.sql file to store the metadata logs.

Enable log of Query Data queries

Check this option if you wish to log your [Query Data](#)^[428] queries in a file.

Log file

This field is enabled if the **Enable log of Query Data queries** option is selected. Type in or use the  **Save as** button to specify the path to the *.sql file to store the logs of SQL queries.

Is Unicode

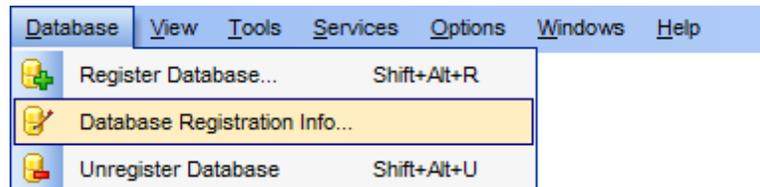
Enable this option to save logs in Unicode. If the option is disabled, ANSI will be used.

Click the **Finish** button when done to start working with the newly registered database in SQL Manager for SQL Server.

4.3 Database Registration Info

Use the **Database Registration Info** dialog to view and edit the registration properties of the database.

To open the dialog, select the database or any of its objects in the [DB Explorer](#)^[63] tree, then select the **Database | Database Registration Info...** [main menu](#)^[91] item, or right-click the database alias in [DB Explorer](#)^[63] and use the **Database Registration Info...** [context menu](#)^[54] item. You can also use the  **Database Registration Info...** button on the main [toolbar](#)^[91].



- [Editing connection properties](#)^[116]
- [Setting database options](#)^[118]
- [Setting display options](#)^[120]
- [Setting default directories](#)^[121]
- [Setting log options](#)^[121]
- [Setting data options](#)^[123]
- [Find Option](#)^[131]

See also:

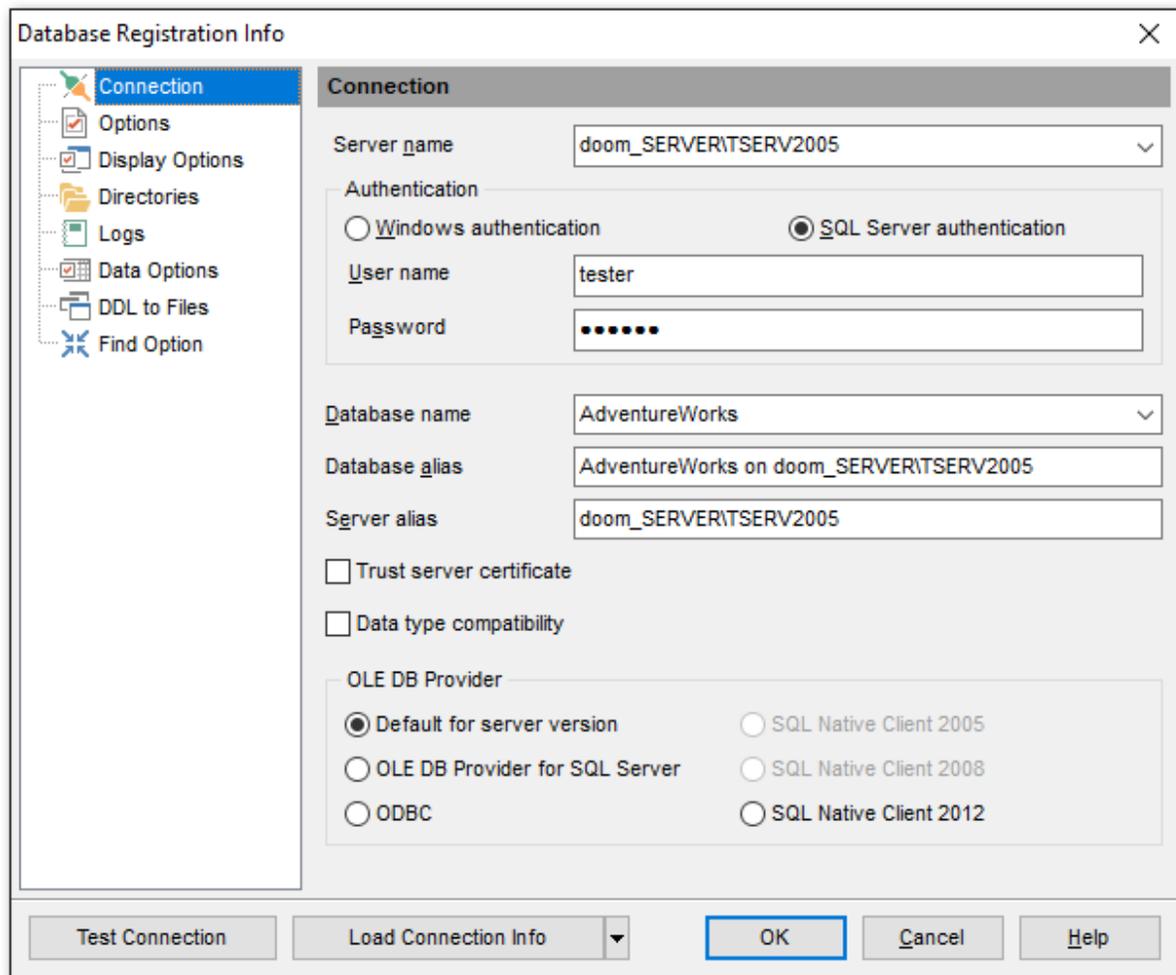
[Register Database wizard](#)^[111]

[Create Database wizard](#)^[97]

[Database Properties](#)^[133]

4.3.1 Connection

The **Connection** section of the **Database Registration Info** dialog allows you to view and/or edit the connection properties in the corresponding boxes: *Host name*, *Authentication*, *User name*, *Password*, *Database name*, *Database alias*, *Font charset*, *OLE DB Provider*.



Server name

Stores the name of the Host where the database resides.

Authentication

Specifies the type of Microsoft® SQL Server™ authentication used for the connection:

Windows authentication

Select this type if you wish to use Windows Integrated Security for the login.

SQL Server authentication

Select this type if you wish to use SQL Server Authentication for the login. SQL Server Authentication stores logins and passwords in SQL Server and does not depend upon Windows. You can select SQL Server Authentication only if SQL Server Authentication has been enabled on the server.

User name

If necessary, edit the User name used to access the database (SQL Server authentication).

Password

If necessary, edit the Password used to access the database (SQL Server authentication).

Trust server certificate

If you use this option, the connection process skips the trust chain validation. In this case, the application connects even if the certificate can't be verified.

Data type compatibility

Use this option to apply date time custom mask to query results specified at [Color & Formats](#)^[860].

Database name

Stores the name of the database.

Database alias

Stores the database alias which is displayed in the [DB Explorer](#)^[63] tree and SQL Manager tools. By default, a database alias generated by the application has the following format:
<database_name> on <host_name[\instance_name]>

Font charset

Stores the character set used to display data in the [grid](#)^[465].

OLE DB Provider

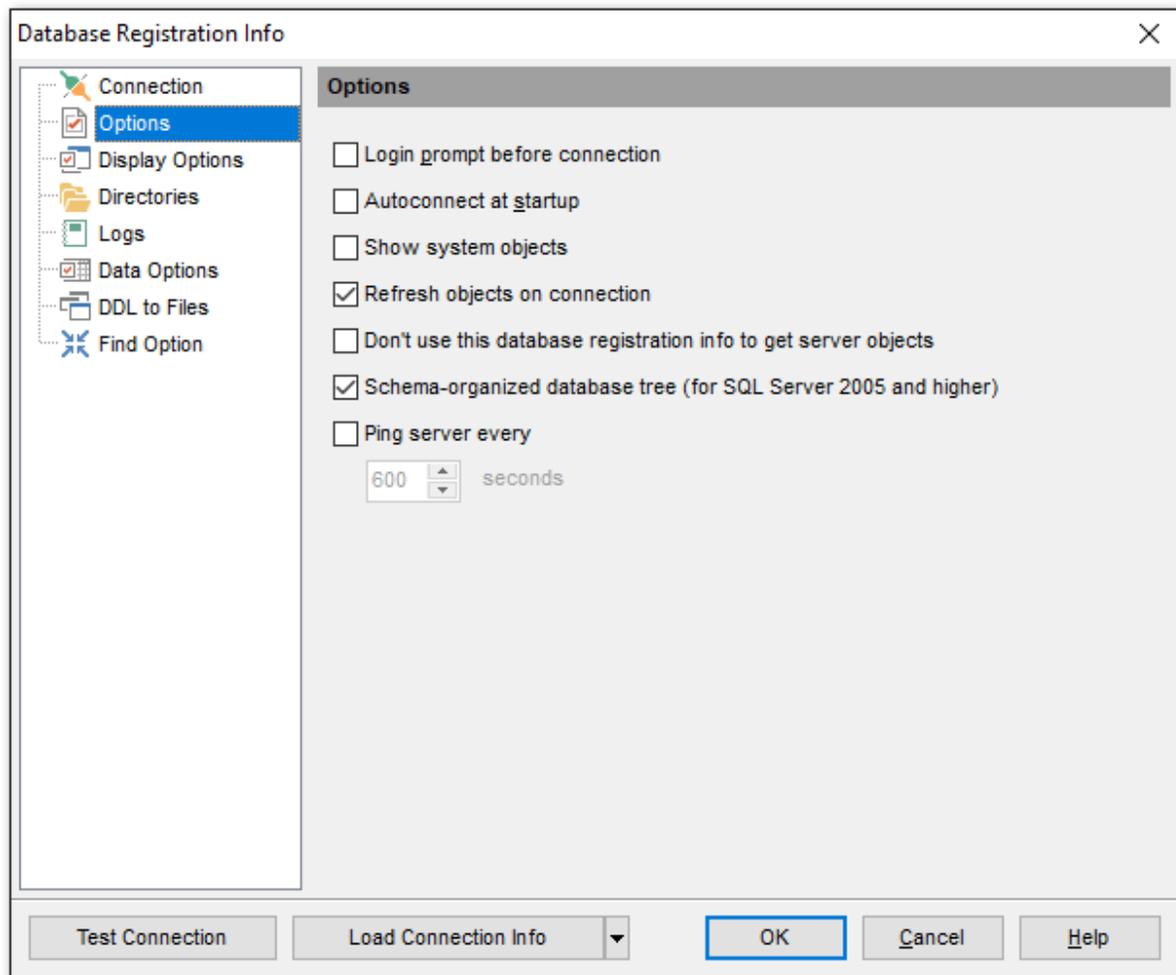
The list of drivers is based on the ones available in the system. Select the preferable OLE DB Provider to be used for the connection; it affects the program behaviour on processing some specific data types, such as XML and TIME, and on performing T-SQL statements.

Once you have specified the connection properties, you can check whether it is possible to establish connection to the database: click the **Test Connect** button for this purpose. If connection is successful, you will get the 'Connected!' message; otherwise an error message will be returned.

The **Copy Alias from...** menu allows you to select the alias of a previously registered database and use it for the newly created/configured database.

4.3.2 Options

The **Options** section of the **Database Registration Info** dialog allows you to set various options for the database.



Customize common database options according to your needs. The detailed description is given below.

Login prompt before connection

Enables SQL Manager for SQL Server to [prompt](#)^[947] for user name and password each time you [connect](#)^[68] to the database.

Autoconnect at startup

Check this option to specify that SQL Manager for SQL Server automatically establishes connection to the registered database at application startup.

Show system objects

This option determines whether SQL Server system objects are displayed in the [DB Explorer](#)^[63] tree.

Refresh objects on connection

This option allows you to enable/disable refreshing objects on connection to the database. It is highly recommended to uncheck this option if your database contains many objects or if connection to the database is slow.

Don't use this database registration info to get server objects

If this option is enabled, the registration info of this database will not be used to establish server connection and get server objects (when expanding the **Server Objects** node in [DB Explorer](#)^[63]).

Schema-organized database tree

If this option is disabled, the object tree is built without grouping into [schemas](#)^[189] (for SQL Server 2005 and higher).

Ping server every ... seconds

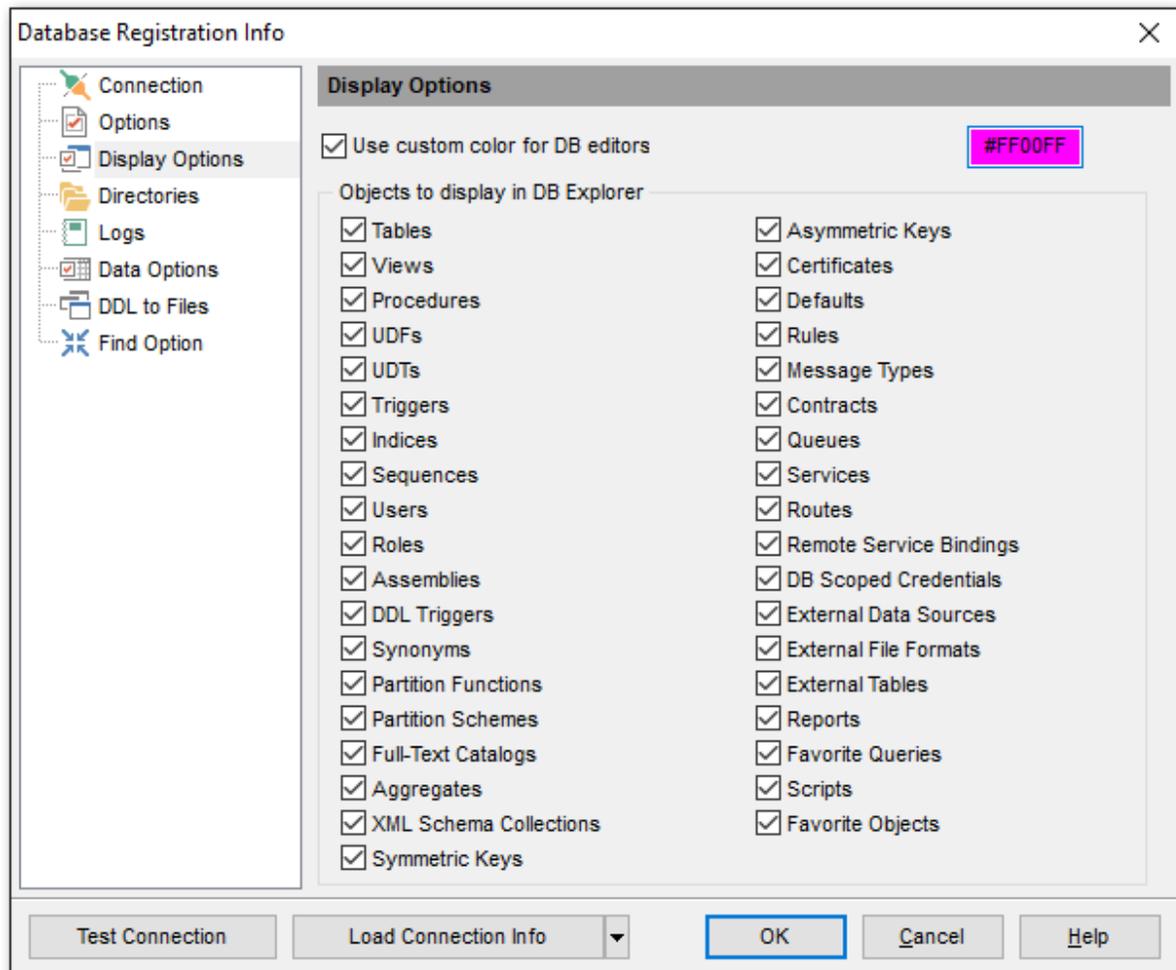
If this option is ON, the program sends 'SELECT 1' statement every period specified to keep active connection to the server.

4.3.3 Display options

The **Display Options** section of the **Database Registration Info** dialog allows you to specify which [objects](#)^[178] will be displayed in the [Database Explorer](#)^[63] tree.

Use custom color for DB editors

With this option unchecked the text color for editor tabs is black. To apply user font color check the option and select the color.



For your convenience the *Select All* and *Deselect All* functions are implemented in the **context menu** of the objects list area.

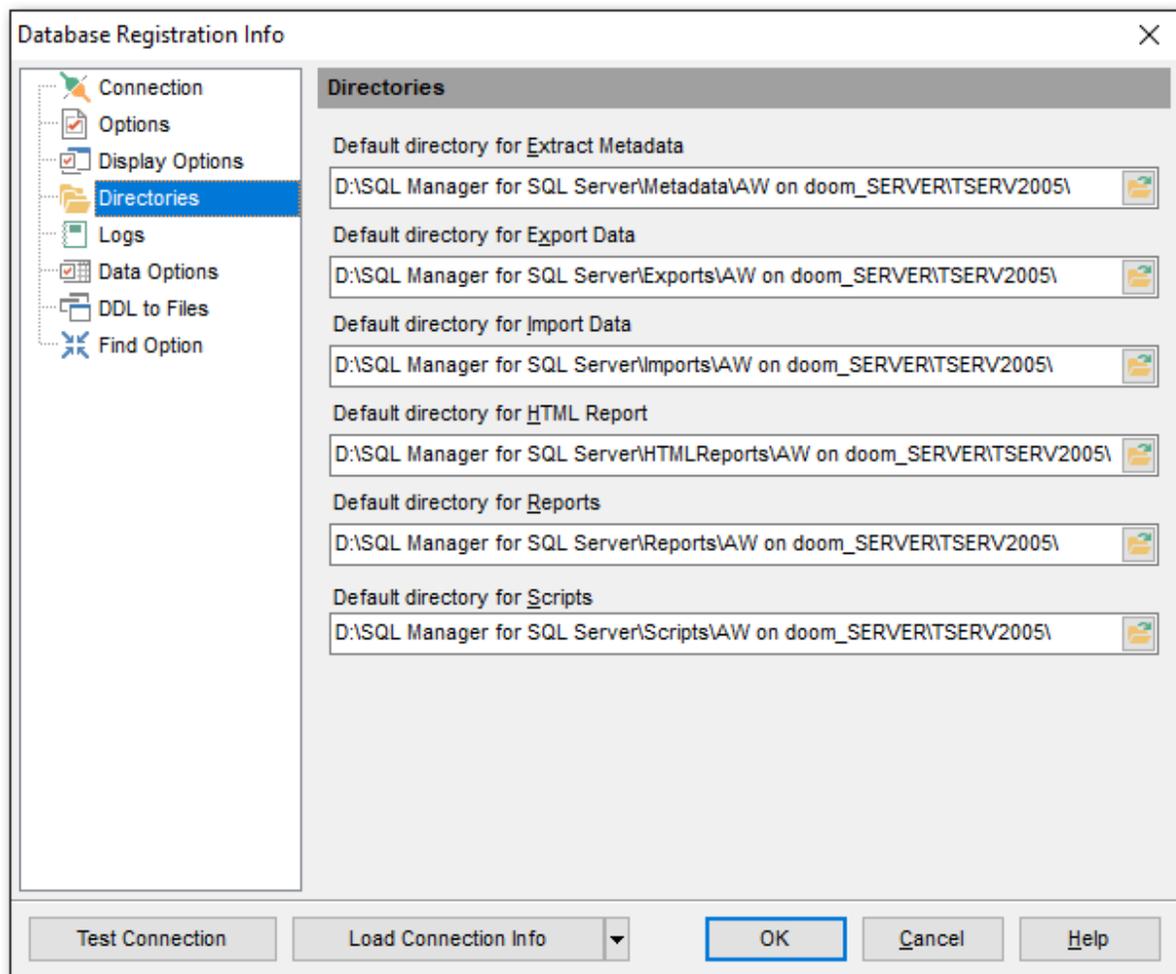
See also:

[Database and Server Objects Management](#)

[178](#)

4.3.4 Default directories

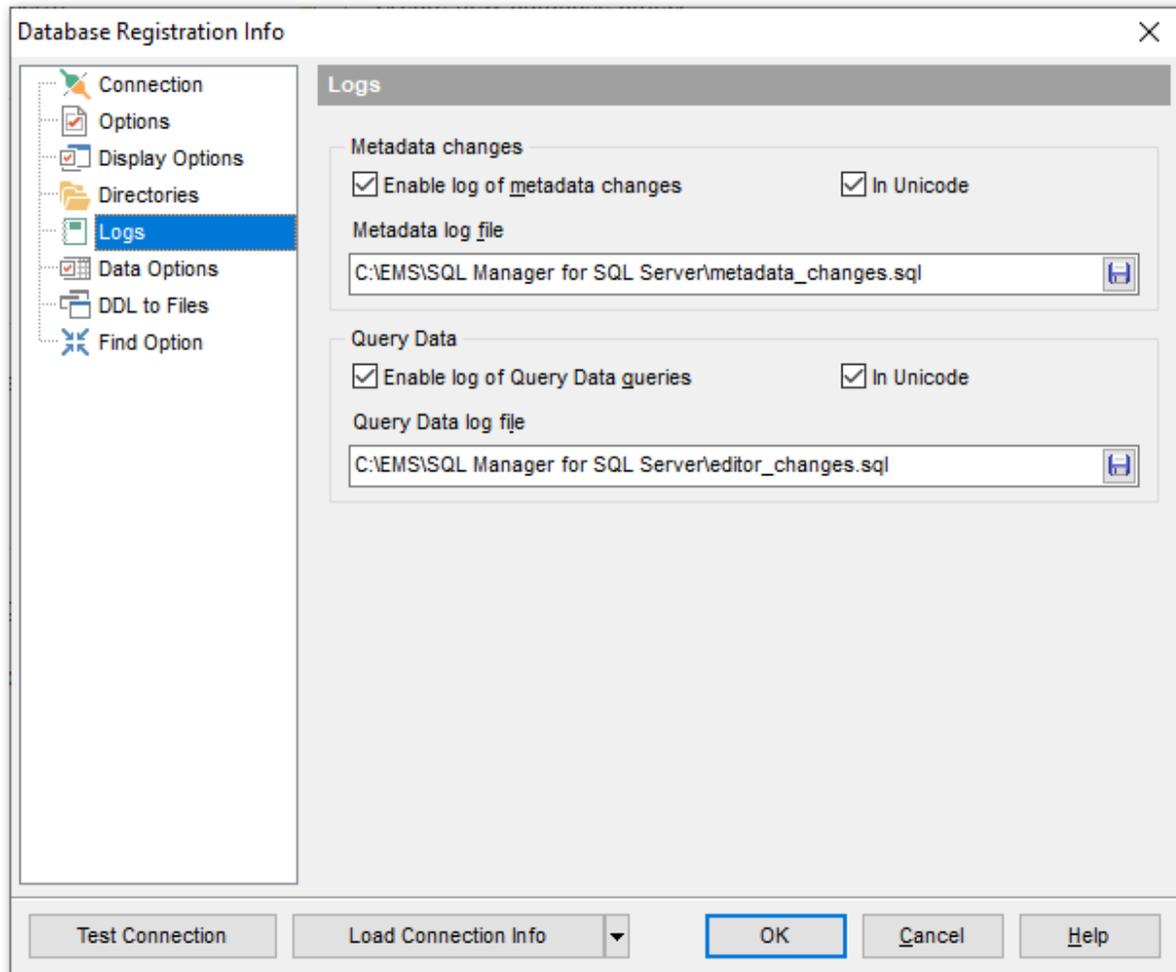
The **Directories** section of the **Database Registration Info** dialog allows you to set the directories to be used by default for [database extract](#)^[626], [data export](#)^[531], [data import](#)^[571], [saving HTML reports](#)^[651], [creating reports](#)^[659], saving [scripts](#)^[619] operations.



4.3.5 Logs

The **Logs** section of the **Database Registration Info** dialog allows you to specify log file names for metadata changes logging and SQL query logging, if necessary.

Logging can be useful when you are going to move the changes made in the development database to the production database.



Metadata changes

Enable log of metadata changes

Check this option if you wish to log metadata changes of your database in a file.

Metadata log file

This field is enabled if the **Enable log of metadata changes** option is selected. Type in or use the **Save as**  button to specify the path to the *.sql file to store the metadata logs.

Query Data

Enable log of Query Data queries

Check this option if you wish to log your [Query Data](#)^[426] queries in a file.

Query Data log file

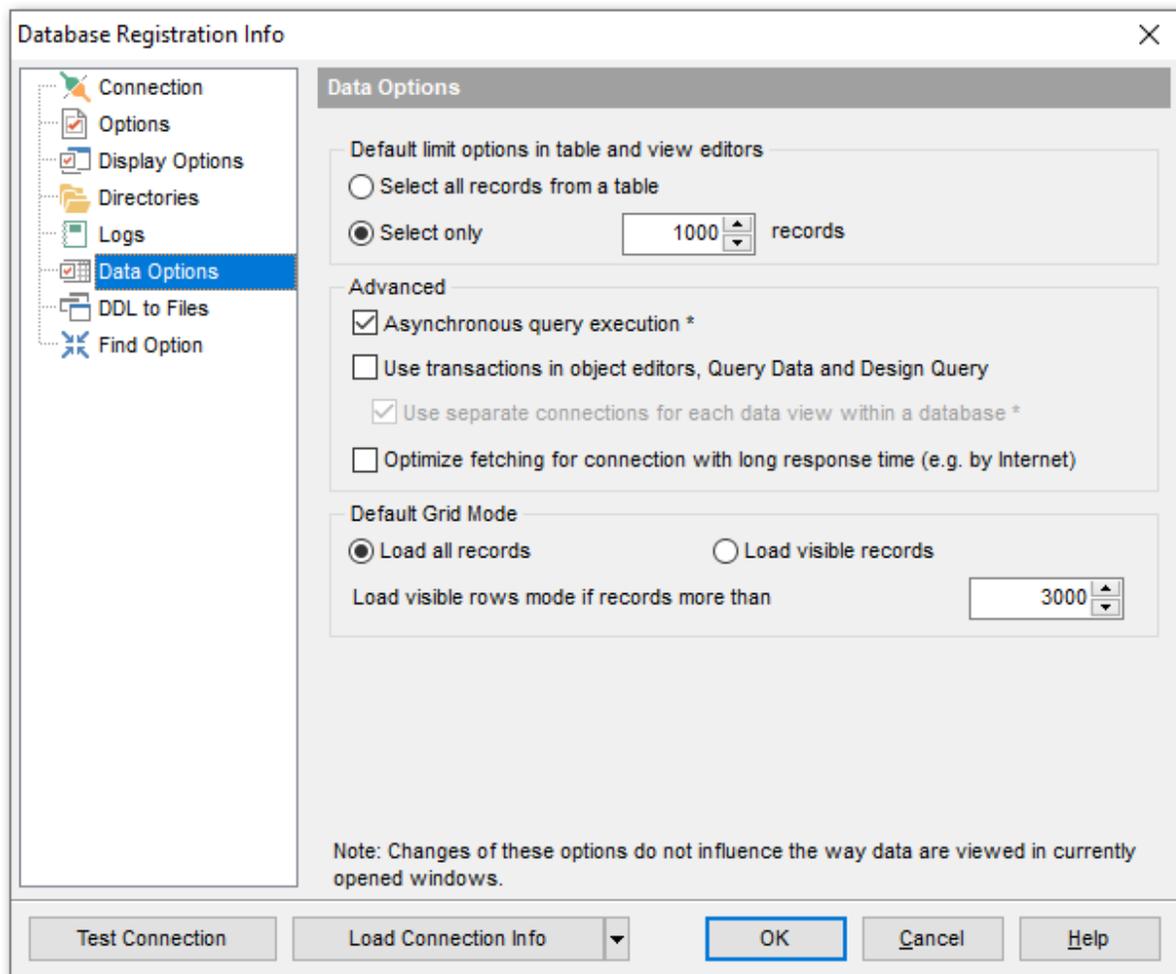
This field is enabled if the **Enable log of Query Data queries** option is selected. Type in or use the **Save as**  button to specify the path to the *.sql file to store the logs of SQL queries: date/time of query execution, SQL text, execution result or errors (if any).

In Unicode

Enable this option to save logs in Unicode. If the option is disabled, ANSI will be used.

4.3.6 Data options

The **Data Options** section of the **Database Registration Info** dialog allows you to define options for [data view](#)^[463]. These options will be applied only to this database. Default settings for newly registered databases can be defined on the [Grid | Data Options](#)^[857] page of the [Environment Options](#)^[825] dialog.



Default limit options in table and view editors

Define the number of records to be selected on opening the **Data** tab of [Table Editor](#)^[200]

and [View Editor](#)^[246]:

- Select all records from a table
- Select only ... records (you should set the number of records using the corresponding spinner control)

Advanced

Asynchronous query execution

Check this option to allow executing queries in background mode (asynchronously).

Use transactions in object editors, Query Data and Design Query

If this option is enabled, a transaction is active until the 'Data' tab is closed or the 'Commit' button is pressed; all edited records are blocked until the transaction is committed. If this option is disabled, the transaction starts and is immediately committed (autocommit) on saving each record which is blocked only for a short period of time.

Use separate connections for each data view within a database

Select this option to use a separate connection for each [data view](#)^[463] within a database. Disabling this option is recommended if maximum allowed number of connections is too low. Note that this option is only available when the *Use transactions in Data tab of object editors, Query Data and Design Query* option is enabled.

Optimize fetching for connection with long response time

Select this option to use optimized methods of fetching data from the database if the response time for the connection is long (e.g. the database resides on a server in Internet).

Default Grid Mode

Load visible rows

The grid loads only a fixed number of dataset records into memory. This option minimizes dataset loading time. The automatic sorting, filtering, summary calculations are not supported in this mode.

Load all rows

The grid loads all records from a dataset. This option increases the grid performance by reloading only changed dataset records when updating. In this mode all features (automatic sorting, filtering and summary calculations) are available.

Default Grid Mode defines grid mode which will be used by default.

With the **Load all rows** option enabled, when loading data, all the records are loaded into grid buffers. In this mode opening the tables with many records may take a very long time. But in this case you have some advantages: e.g. in the filter drop-down list the column headers are displayed with the values for quick filter; it is possible to open several sublevels at the same time when viewing data in master-detail view, etc.

Because opening and other operations with an object consisting of many records takes sufficient time the **Load visible rows** mode should be used instead. It can be set individually for each table and is saved between sessions (can be set through the [context menu](#)^[472] of the grid).

Load visible rows mode if records more than...

Set this option to switch to the **Load visible rows** mode when the number of records in the dataset exceeds the specified value.

See also:

[Grid View](#)^[465]

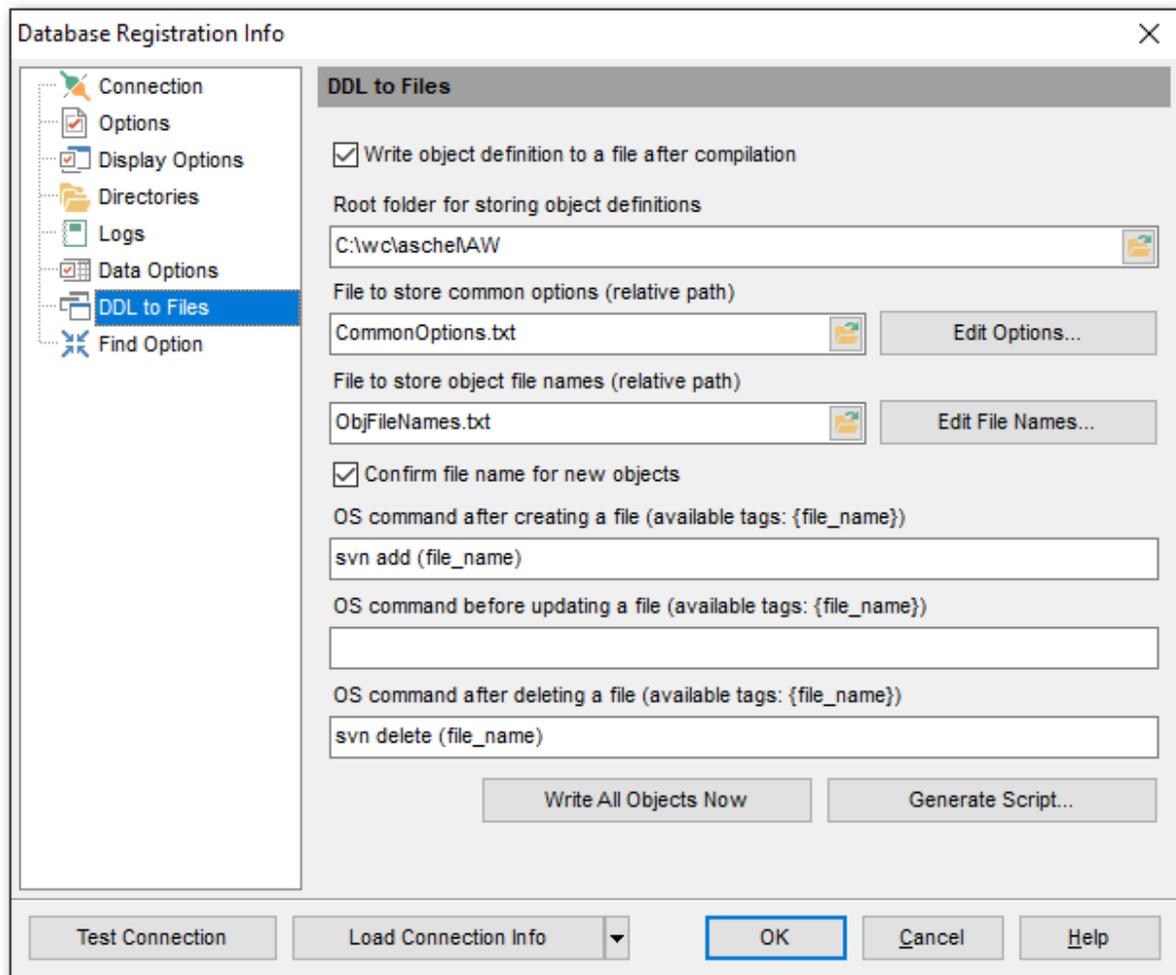
[Grid options](#)^[855]

4.3.7 DDL to Files

The **DDL to Files** section of the **Database Registration Info** dialog allows you to set options for saving database objects definitions to files.

Saving objects definitions to files allows using external tools for processing database scripts or using version control systems for their storage.

To launch the **Database Registration Info** dialog with **DDL to Files** tab opened use the **Tools | DDL to Files |  Options** main menu item, or right-click the database alias in the [DB Explorer](#)^[63] tree and select the **Tasks | DDL to Files |  Options** item of the [context menu](#)^[54].



Write object definition to a file after compilation

Check this option if you want to save objects DDL after changing their definition and subsequent compilation.

Root folder for storing object definitions

Use the  button to select the directory for storing files with objects DDL. In order to make this data be under version control this directory must be a working copy.

File to store common options (relative path)

Enter the name of *.xml file that will contain the list of types of objects which definitions should be stored in files. This file contains templates of object file names as well.

Note: If you do not provide the full path to the file it is stored in the directory defined in the **Root folder for storing object definitions** field. To select another location use the  button.

Click the **Edit File** button to select object types and set templates for file names in the [Options for Storing Object Definitions](#)^[128] dialog.

File to store object file names (relative path)

Enter the name of *.txt file that will contain object names and file names respective to

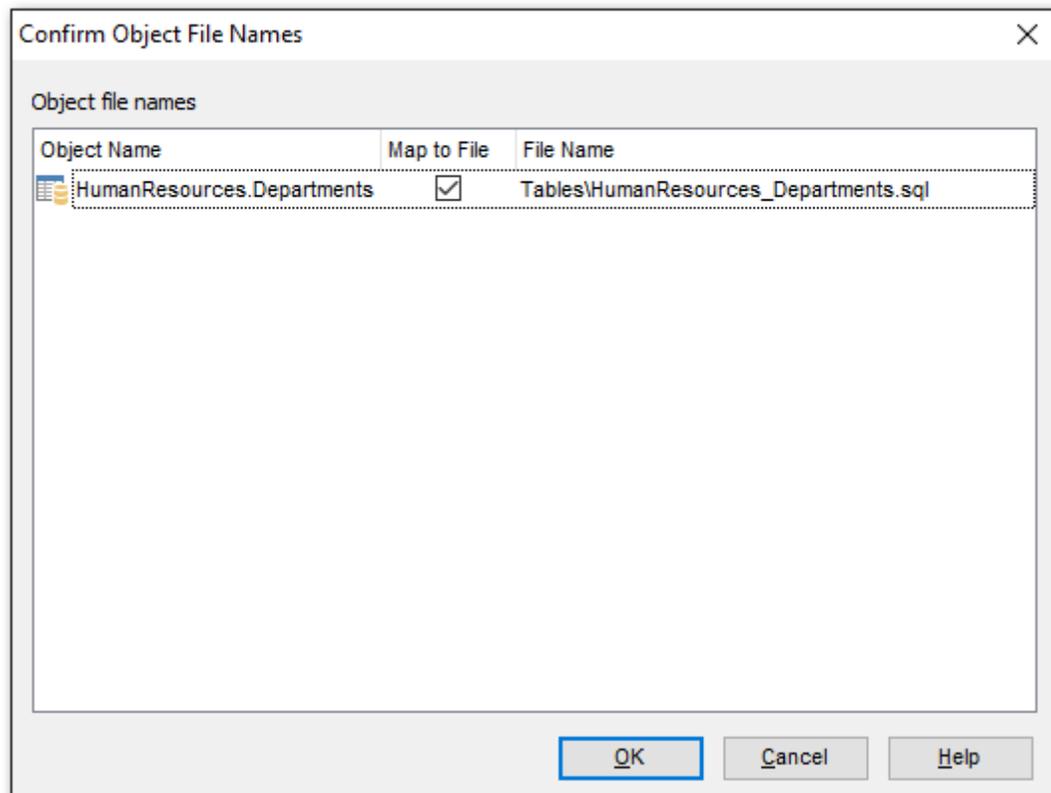
those objects.

Note: If you do not provide the full path to the file it is stored in the directory defined in the **Root folder for storing object definitions** field. To select another location use the  button.

Click the **Edit File** button to set file names in the [Object File Names](#)^[129] dialog.

Confirm file name for new object

If this option is checked then you will be asked to set a file name for a newly created object in the **Confirm Object File Names** dialog. The file name for a new object is generated automatically based on defined [templates](#)^[129] but you can change it if needed.



The following fields can be used for working with version control systems.

OS command after creating a file

Enter any command that will be executed after a file with object definition is created. If you are using version control system then, for example, the following command can be entered: `svn add {file_name}` (for Subversion revision control system) where `{file_name}` stands for the respective newly created name of a file with object definition.

OS command before updating a file

Enter any command that will be executed before a file with object definition is updated. If you are using version control system then, for example, the following command can be entered: `ss checkout {file_name} -C-` (for Visual Source Safe revision control system) where `{file_name}` stands for the respective name of a file with object definition being updated.

OS command after deleting a file

Enter any command that will be executed after a file with object definition is deleted. If you are using version control system then, for example, the following command can be entered: `svn del {file_name}` (for Subversion revision control system) where `{file_name}` stands for the respective name of a file with object definition being deleted.

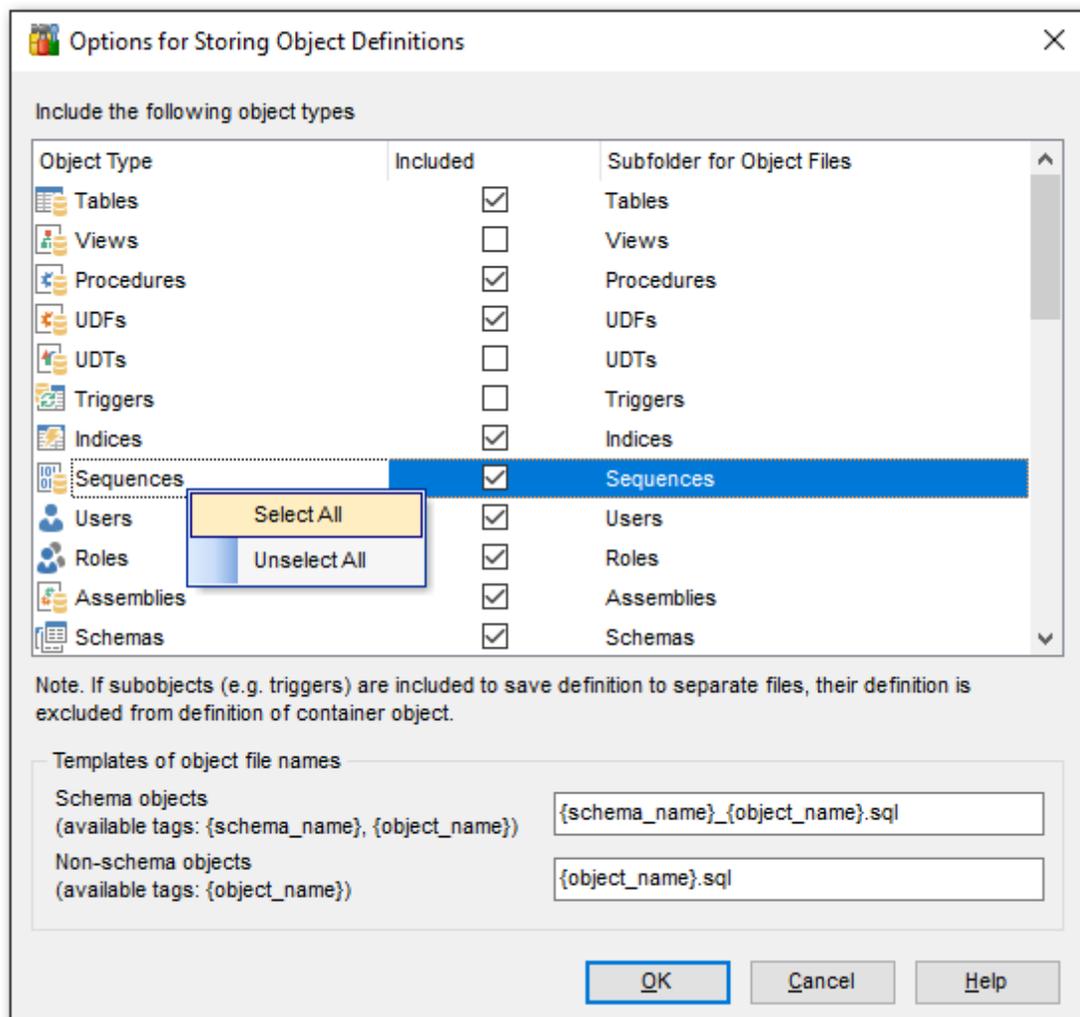
Click the **Write All Objects Now** button to save immediately all selected objects definitions to respective files set in the [Object file names](#)^[129] dialog. The content of already existing files will be updated.

Click the **Generate Script...** button to create an `*.sql` file containing definitions of all objects. The order of objects definitions is the same as in the [Object file names](#)^[129] dialog.

4.3.7.1 Options for storing object definitions

This dialog is used for selecting object types to be saved and setting templates for file names.

For objects of non-selected types definition is saved.



Include the following object types

This grid contains the list of object types presented in a database. To select an object type check the corresponding checkbox in the *Included* column. For your convenience the *Select All* and *Unselect All* functions are implemented in the **context menu** of the list area.

Note: If subobjects (e.g. triggers) are included to save definition to separate files, their definition is excluded from definition of container object.

If you create or edit an object of the selected object type its definition is written to its corresponding *.sql file. Existing objects of the selected types can be chosen in the [Object file names](#)^[129] dialog.

The directory for storing same type objects is defined in the *Subfolder for Object Files* column. By default all folders have the same names as the corresponding object types.

Note: If you do not provide the full path to the folder it is stored in the directory defined in the **Root folder for storing object definitions** field. To select another location use the  button. This button appears on clicking the corresponding cell.

Templates of object file names

Use this group of options to define templates for file names that are used for storing objects definitions.

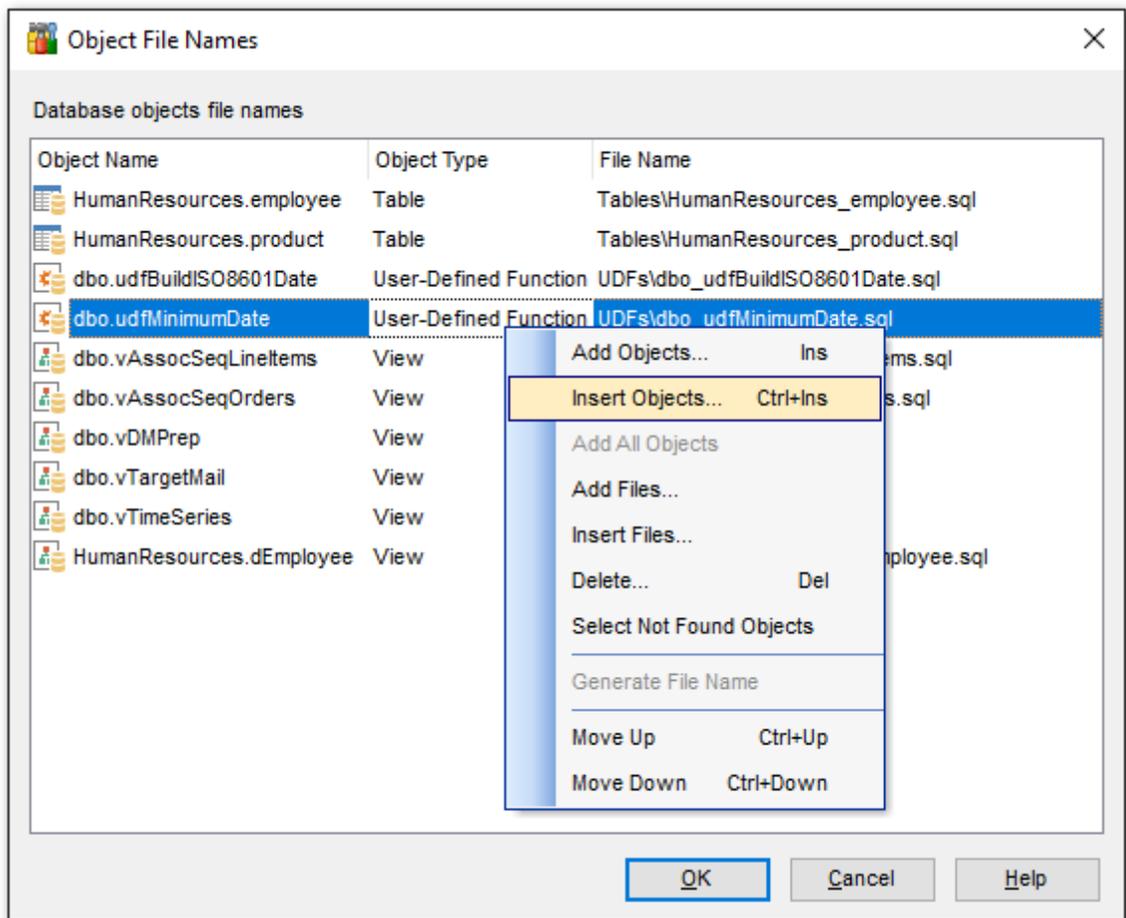
For your convenience tags are provided. You can use *{object_name}* tag both for **schema** and **non-schema objects** files templates. For schema objects a *{schema_name}* tag is available as well.

Files extension is optional.

4.3.7.2 Object file names

This dialog is used for managing objects that should be written to files and respective file names.

The order of objects definitions in the general script that is created on clicking the **Generate Script...** button coincides with the objects order in this list.



If a database object is not added to this list its definition is not saved to file. To manage this list use the grid context menu.

To add all already existing database objects of [selected types](#)^[128] use the **Add All Objects** context menu item.

To add separate objects use the **Add Objects...** or **Insert Objects...** context menu item. Pick up needed object(s) in the opened [Select Object dialog](#)^[95].

File names are generated automatically according to templates defined in the [Options for storing object definitions](#)^[128] dialog. You can change the file name and its path if needed by pressing the  button. For your convenience the **Generate File Name** option is available. If the **File Name** field is empty due to some reasons you can use this option to set the default file name based on corresponding [templates](#)^[128].

You can add any *.sql files to this list that are not associated with objects definitions. For example, you can add a file with a script for filling up a table with data. Use the **Add Files...** or **Insert Files...** commands for this purpose. After the file is added to the list select the *SQL* as the *Object Type* for it and define the *Object Name*.

To remove files from the list use the **Delete...** context menu item. The multiple select is

available.

Use the **Select Not Found Objects** context menu item to reveal objects that are presented in the list but do not exist in the database.

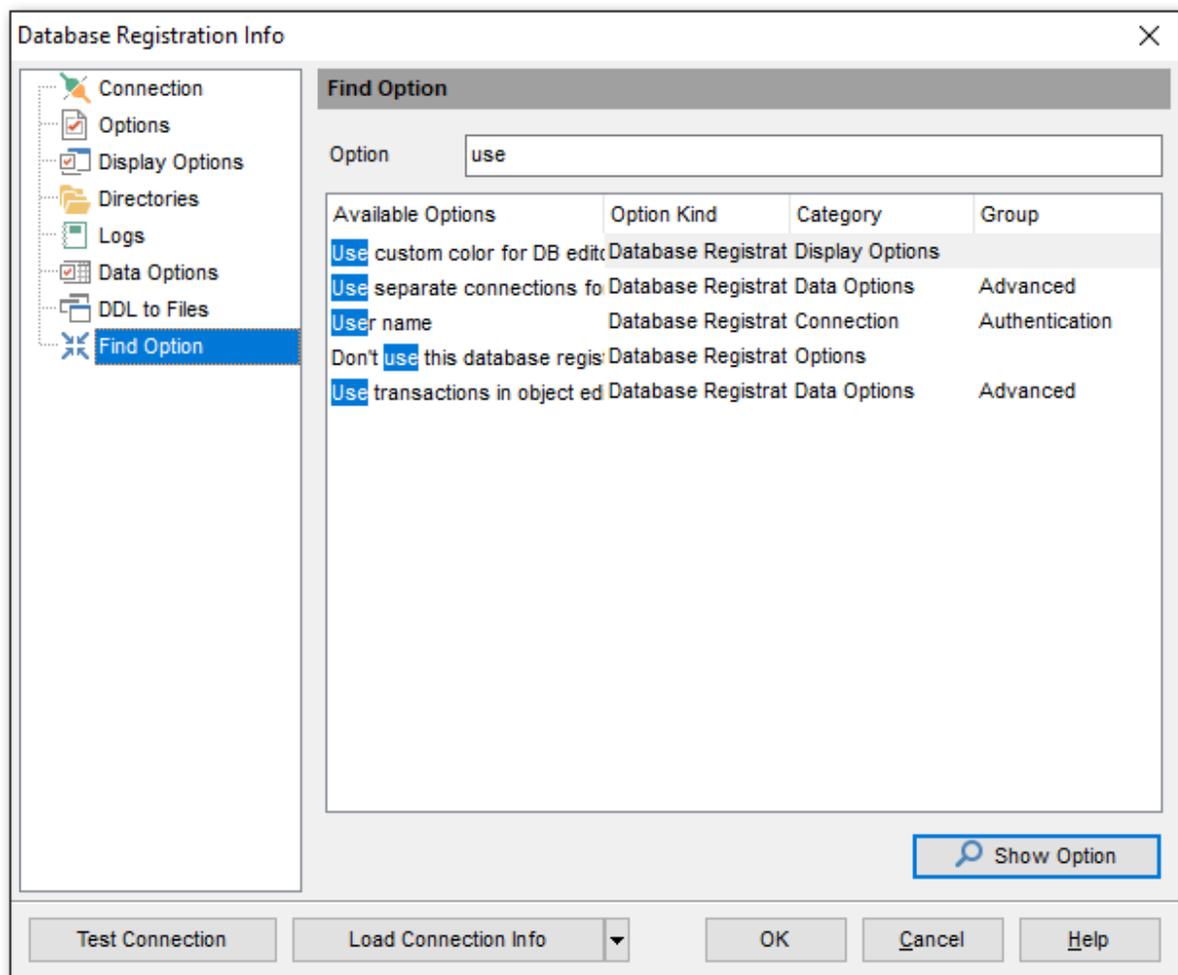
Use the **Move up** and the **Move down** context menu items to reorder the objects.

4.3.8 Find Option

The **Find Option** section allows you to search for options available within the **Database Registration Info** dialog easily and quickly.

Option

In this field you can enter the name of the option to search for within the database registration options.



The **Available options** area lists all options of the Database Registration category according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location.

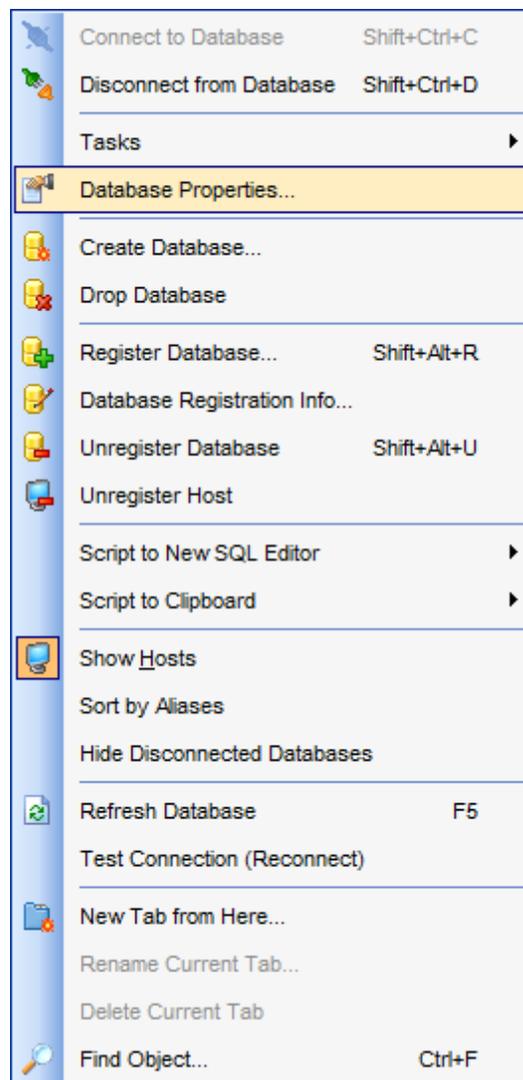
Select the required option in the list and click  **Show Option** to open the corresponding section where you can view/edit the value of this option. For your convenience the required option is marked with an animated  icon.

4.4 Database Properties

The **Database Properties** dialog allows you to view/edit a number of properties which can be changed to optimize database performance.

To open the dialog, right-click the database alias in [DB Explorer](#)^[63] and select the **Database Properties...** [context menu](#)^[54] item, or use the  **Properties** button on the DB Explorer [toolbar](#)^[87].

A number of database-level options that determine the characteristics of the database can be set for each database. Only the system administrator, database owner, members of the **sysadmin** and **dbcreator** fixed [server roles](#)^[69] and **db_owner** fixed [database roles](#)^[30] can modify these options. These options are unique to each database and do not affect other databases.



- [Information](#)^[134]
- [Options](#)^[135]

- ✓ [Recovery options](#)^[138]
- ✓ [ANSI options](#)^[139]
- ✓ [SQL options](#)^[141]
- ✓ [Automation options](#)^[142]
- ✓ [Cursor options](#)^[144]
- ✓ [Advanced database options](#)^[146]
- [Data files](#)^[148]
- [Transaction log files](#)^[150]
- [Filegroups](#)^[153]
- [Filestream files and filegroups](#)^[154]
- [Find Option](#)^[156]

See also:

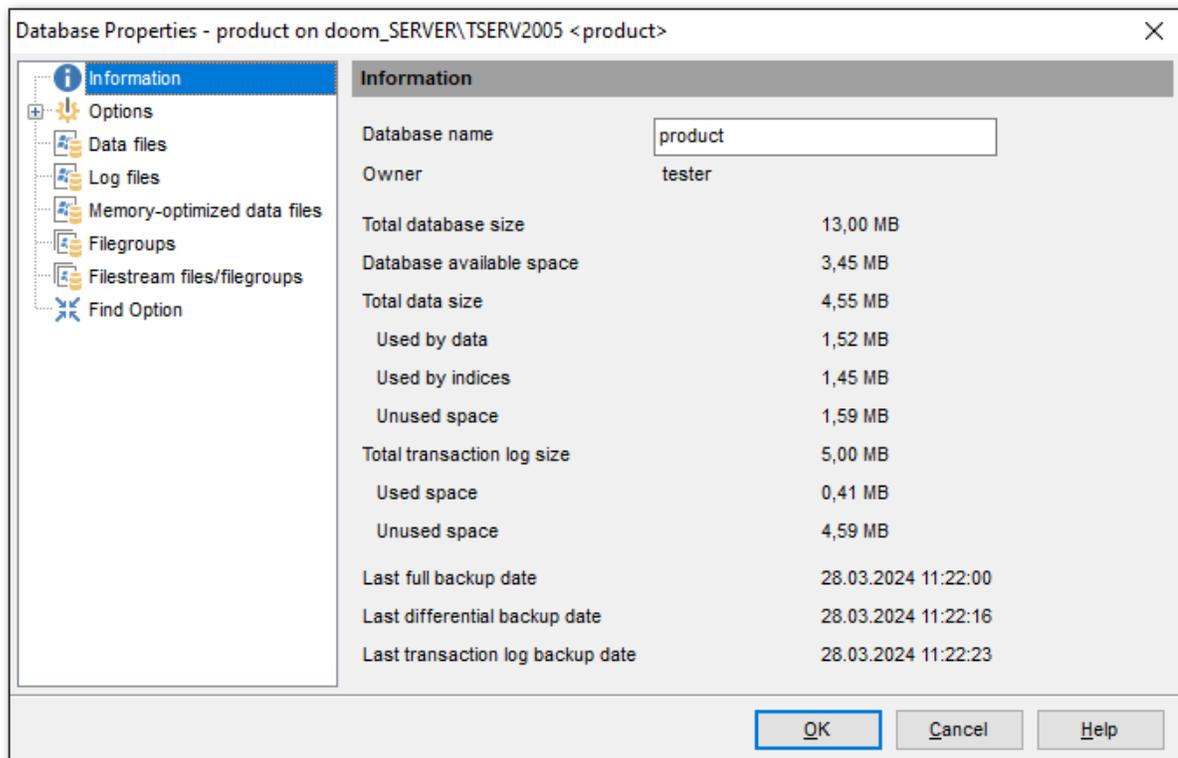
[Register Database wizard](#)^[111]

[Create Database wizard](#)^[97]

[Database Registration Info](#)^[116]

4.4.1 Information

The **Information** section of the **Database Properties** dialog allows you to view the database summary: *Database name, Database owner, Total database size, Database available space, Total data size (used by data, used by indices, unused space), Total transaction log size (used space, unused space), Last full/differential/transaction log backup dates.*

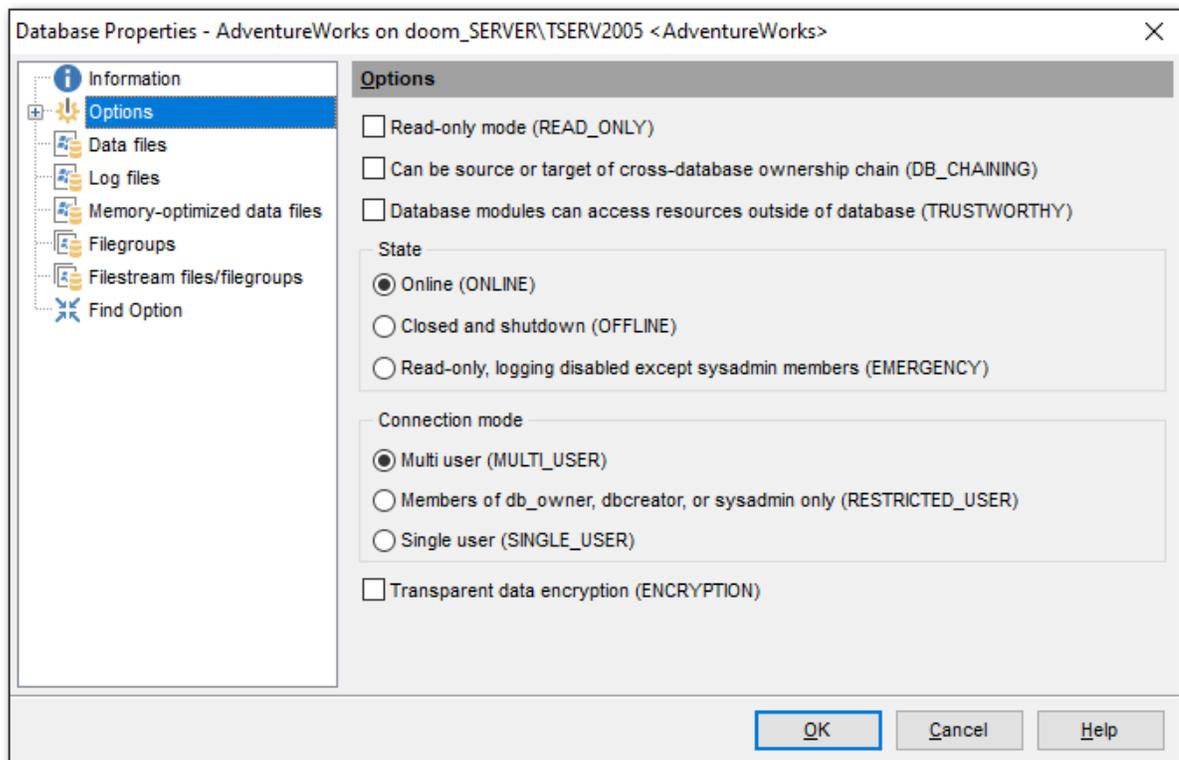


See also:[Options](#)^[135][Data files](#)^[148][Log files](#)^[150][Filegroups](#)^[153][Filestream files and filegroups](#)^[154][Find Option](#)^[156]

4.4.2 Options

The **Options** section of the **Database Properties** dialog allows you to view/edit options pertaining to the SQL Server database in groups: *General*, *Recovery*, *ANSI*, *SQL*, *Auto*, *Cursor*, *FileTable*, *Advanced*.

- [Recovery options](#)^[138]
- [ANSI options](#)^[139]
- [SQL options](#)^[141]
- [Automation options](#)^[142]
- [Cursor options](#)^[144]
- FileTable options
- [Advanced](#)^[146]



Options

Read-only mode (READ_ONLY)

When this option is enabled, the database is in read-only mode. Users can retrieve data from the database, but cannot modify the data, because a read-only database does not allow data modifications:

- a. Automatic [recovery](#)^[138] is skipped at system startup.
- b. [Shrinking](#)^[75] the database is not possible.
- c. No locking takes place in read-only databases, which can result in faster [query](#)^[42] performance.

 Can be source or target of cross-database ownership chain (DB_CHAINING)

When this option is checked, *DB_CHAINING* is enabled and the database can be the source or target of a cross-database ownership chain. When the option is unchecked, the database cannot participate in cross-database ownership chaining. You can change this option for user databases, but not for system databases.

 Database modules can access resources outside of database (TRUSTWORTHY)

When this option is on, database modules (for example, [views](#)^[246], [user-defined functions](#)^[259], or [stored procedures](#)^[253]) that use an impersonation context are allowed to access resources outside of the database.

State *ONLINE*

The database is open and available for use (enabled by default).

 OFFLINE

The database is closed and shutdown, and marked offline. The database cannot be modified while it is in the offline state.

 EMERGENCY

The database is marked *READ_ONLY*, logging is disabled, and only members of the **sysadmin** fixed server role can access the database.

Connection mode *MULTI_USER*

Allows all users with the appropriate permissions to connect to the database (enabled by default).

 RESTRICTED_USER

Allows only members of the **db_owner** fixed database role and **dbcreator** and **sysadmin** fixed server roles to connect to the database, but it does not limit their number.

 SINGLE_USER

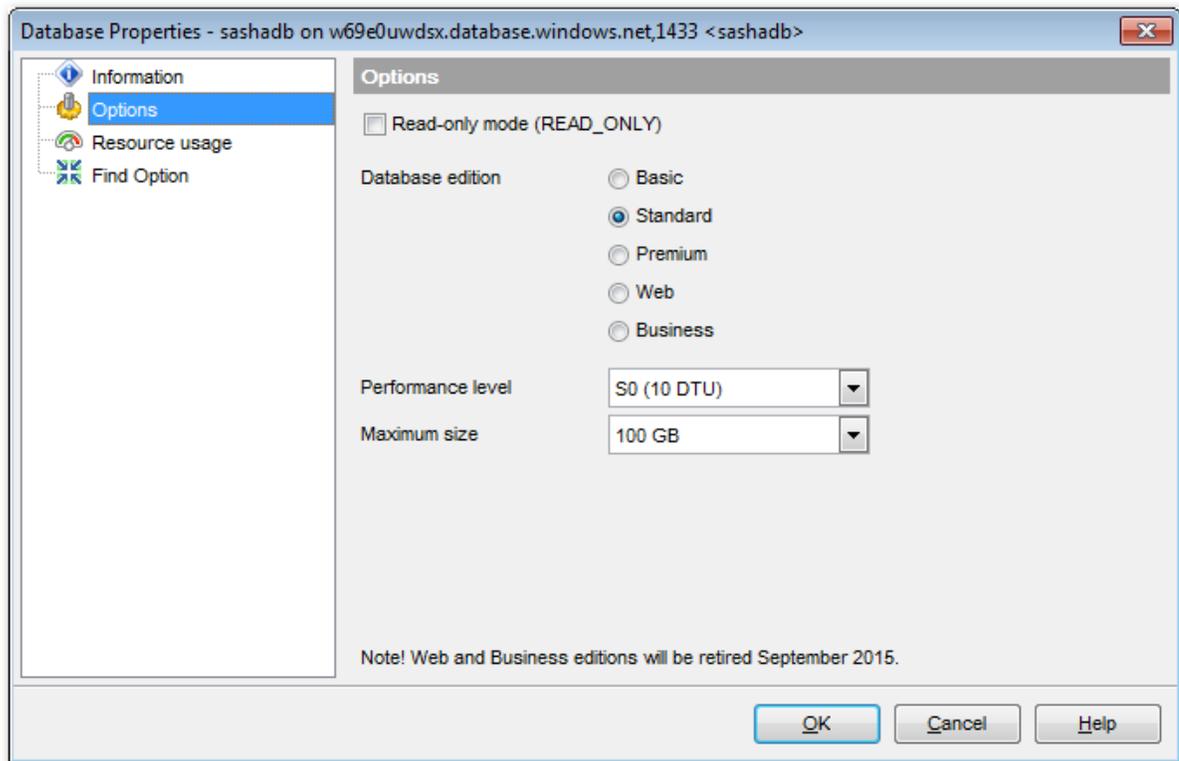
Allows one user at a time to connect to the database. All other user connections are broken.

 Transparent data encryption (ENCRYPTION)

Enable the option to use encryption. Encryption of the database file is performed at the page level. The pages in an encrypted database are encrypted before they are written to disk and decrypted when read into memory.

Note: This option is available only for SQL Server 2008 databases and higher.

For SQL Azure databases the Options tab looks the following way:



Database Edition

Here you can view the current edition of the SQL Azure database and change it, if necessary.

Basic

Small databases with a single operation at a given point in time.

Standard

Workgroup and cloud applications with multiple concurrent transactions.

Premium

Mission-critical, high transactional volume with many concurrent users.

Web

Web apps, workgroup, dept. apps, and other lightweight database workloads.

Business

Lightweight database workloads that require larger sizes than supported with Web.

Note: Web and Business editions will be retired September 2015.

Performance Level

Use the drop-down list to select the Performance Level for the database. Performance levels are specific for the selected database edition.

Maximum size

Specifies the maximum size of the database. This value must be valid for the specified Edition.

See also:[Information](#)^[134][Data files](#)^[148][Log files](#)^[150][Filegroups](#)^[153][Filestream files and filegroups](#)^[154][Find Option](#)^[156]**4.4.2.1 Recovery options****Recovery model** **FULL**

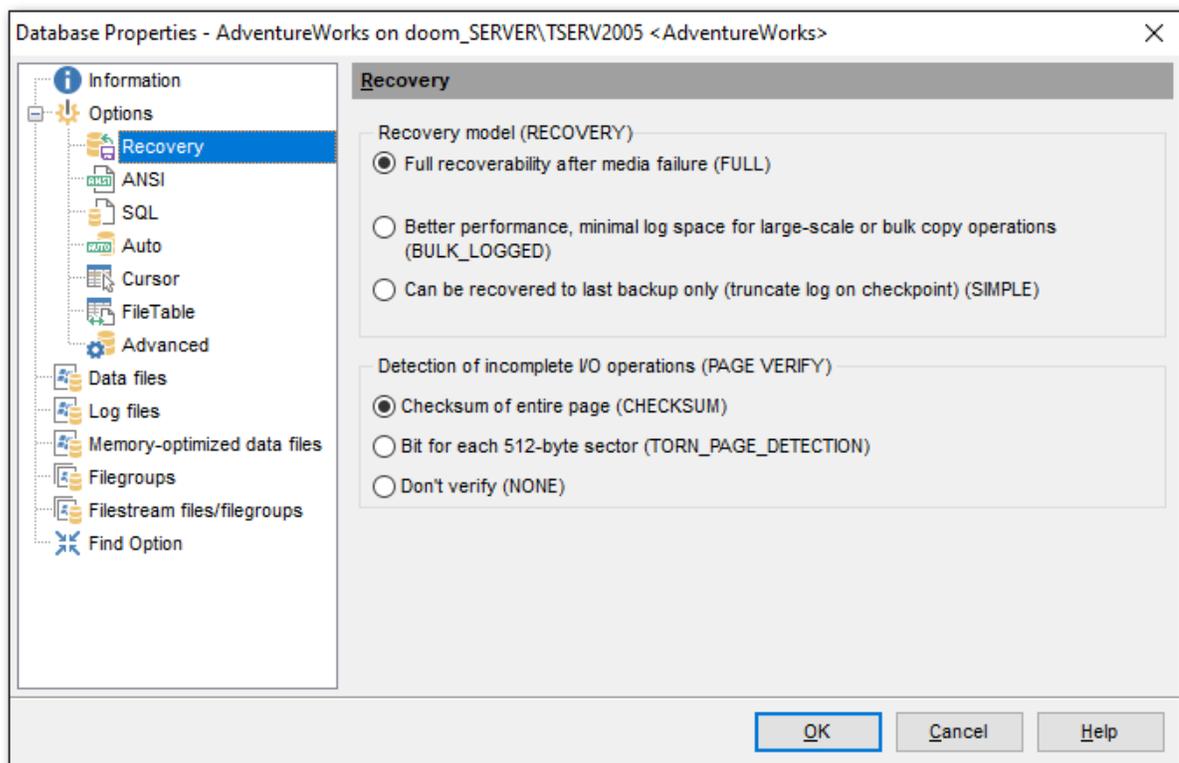
Database [backups](#)^[718] and transaction log [backups](#)^[718] are used to provide full recoverability from media failure. All operations, including bulk operations such as *SELECT INTO*, *CREATE INDEX*, and [bulk loading](#)^[602] data, are fully logged.

 BULK_LOGGED

Logging for all *SELECT INTO*, *CREATE INDEX*, and [bulk loading](#)^[602] data operations is minimal and therefore requires less log space.

 SIMPLE

The database can be recovered only to the last full database backup or last differential backup.



Detection of Incomplete I/O Operations

This group can be used to specify three options to discover incomplete I/O transactions caused by disk I/O errors:

CHECKSUM

A checksum is taken over the contents of the entire page and stored in the page header when a page is written to disk. When a page is read from disk, the checksum is recomputed and compared to the checksum value stored in the page header.

TORN_PAGE_DETECTION

A bit is reversed for each 512-byte sector in the 8-kilobyte (KB) database page when the page is written to disk. If a bit is in the wrong state when the page is later read, the page was written incorrectly; a torn page is detected.

NONE

`PAGE_VERIFY` is set to OFF and future data page writes will not contain a `CHECKSUM` or `TORN_PAGE_DETECTION` bit and the page will not be verified at read time.

See also:

[ANSI options](#)^[139]

[SQL options](#)^[141]

[Automation options](#)^[142]

[Cursor options](#)^[144]

FileTable options

[Advanced](#)^[146]

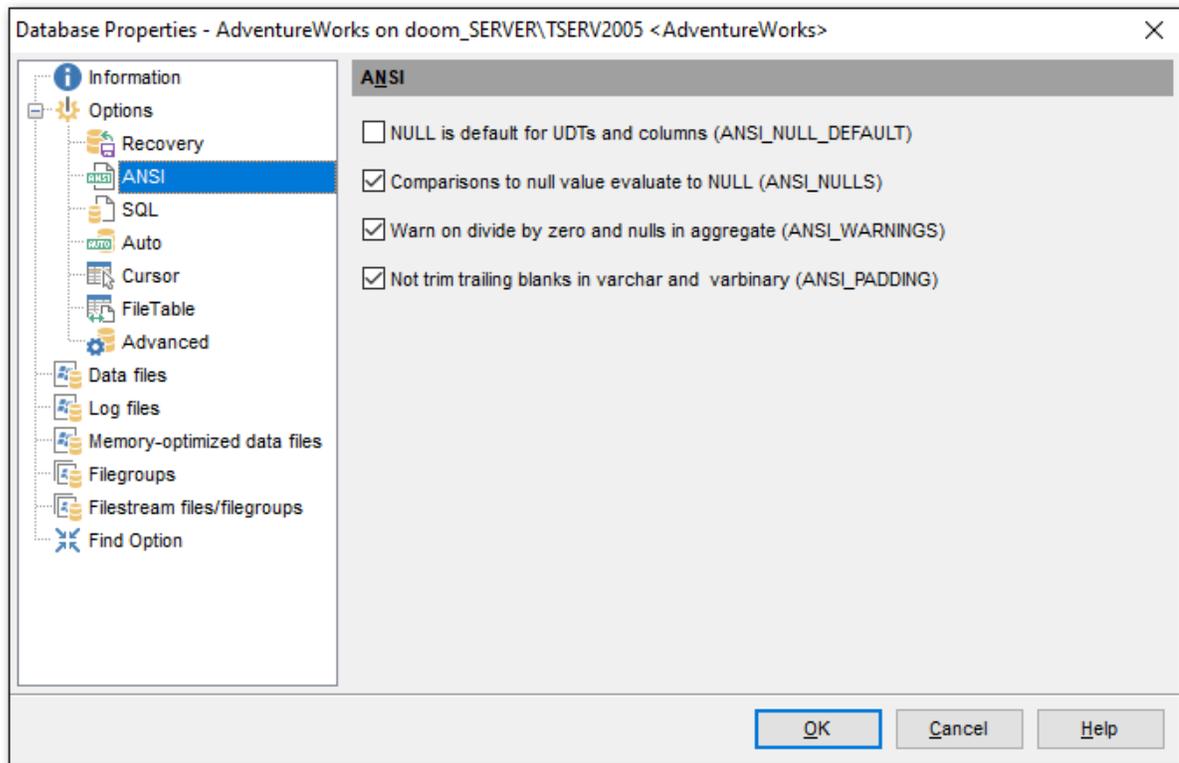
4.4.2.2 ANSI options

NULL is default for UDTs and columns (ANSI_NULL_DEFAULT)

When this option is enabled, all [user-defined data types](#)^[263] or [columns](#)^[213] that are not explicitly defined as `NOT NULL` during a `CREATE TABLE` or `ALTER TABLE` statement default to allowing null values. Columns that are defined with constraints follow constraint rules regardless of this option.

Comparisons to null value evaluate to NULL (ANSI_NULLS)

When this option is enabled, all comparisons to a null value evaluate to `NULL` (unknown). When disabled, comparisons of non-Unicode values to a null value evaluate to `TRUE` if both values are `NULL`.



Warn on divide by zero and nulls in aggregate (ANSI_WARNINGS)

When this option is enabled, errors or warnings are issued when conditions such as "divide by zero" occur or null values appear in [aggregate functions](#)^[278]. When disabled, no warnings are raised when null values appear in aggregate functions, and null values are returned when conditions such as "divide by zero" occur.

Not trim trailing blanks in varchar and varbinary (ANSI_PADDING)

When this option is enabled, trailing blanks in character values inserted into *varchar* or *nvarchar* columns and trailing zeros in binary values inserted into *varbinary* columns are not trimmed. Values are not padded to the length of the column. When disabled, the trailing blanks (for *varchar* or *nvarchar*) and zeros (for *varbinary*) are trimmed. This option affects only the definition of [new columns](#)^[213].

See also:

[Recovery options](#)^[138]

[SQL options](#)^[141]

[Automation options](#)^[142]

[Cursor options](#)^[144]

FileTable options

[Advanced](#)^[146]

4.4.2.3 SQL options

Concatenation is NULL if operand NULL (CONCAT_NULL_YIELDS_NULL)

When this option is enabled, if one of the operands in a concatenation operation is *NULL*, the result of the operation is *NULL*.

When disabled, concatenating a null value with a character string yields the character string as the result; the null value is treated as an empty character string.

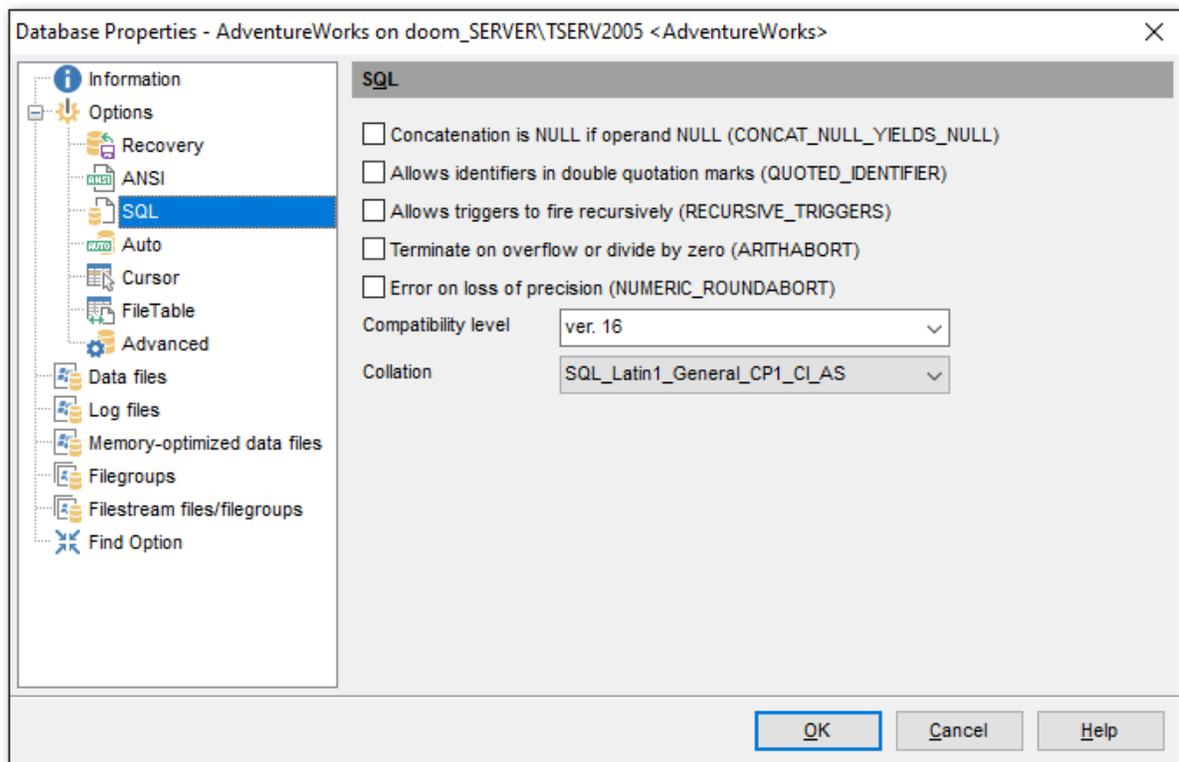
Allows identifiers in double quotation marks (QUOTED_IDENTIFIER)

When this option is enabled, identifiers can be delimited by double quotation marks and literals must be delimited by single quotation marks.

When disabled, identifiers cannot be in quotation marks and must follow all Transact-SQL rules for identifiers. Literals can be delimited by either single or double quotation marks.

Allow triggers to fire recursively (RECURSIVE_TRIGGERS)

When this option is enabled, triggers are allowed to fire recursively. When disabled, triggers cannot be fired recursively.



Terminate on overflow or divide by zero (ARITHABORT)

When this option is enabled, an overflow or divide-by-zero error causes the query or batch to terminate. If the error occurs in a transaction, the transaction is rolled back. When disabled, a warning message is displayed if one of these errors occurs, but the query, batch, or transaction continues to process as if no error occurred.

Error on loss of precision (NUMERIC_ROUNDABORT)

If this option is enabled, an error is generated when loss of precision occurs in an expression. When disabled, losses of precision do not generate error messages and the result is rounded to the precision of the column or variable storing the result.

The **Compatibility Level** option group controls the behavior of an instance of Microsoft® SQL Server™, setting behavior to match a specified version of SQL Server.

Collation can be either a Windows collation name or a SQL collation name. By default, the server collation is used.

See also:

[Recovery options](#)^[138]

[ANSI options](#)^[139]

[Automation options](#)^[142]

[Cursor options](#)^[144]

FileTable options

[Advanced](#)^[146]

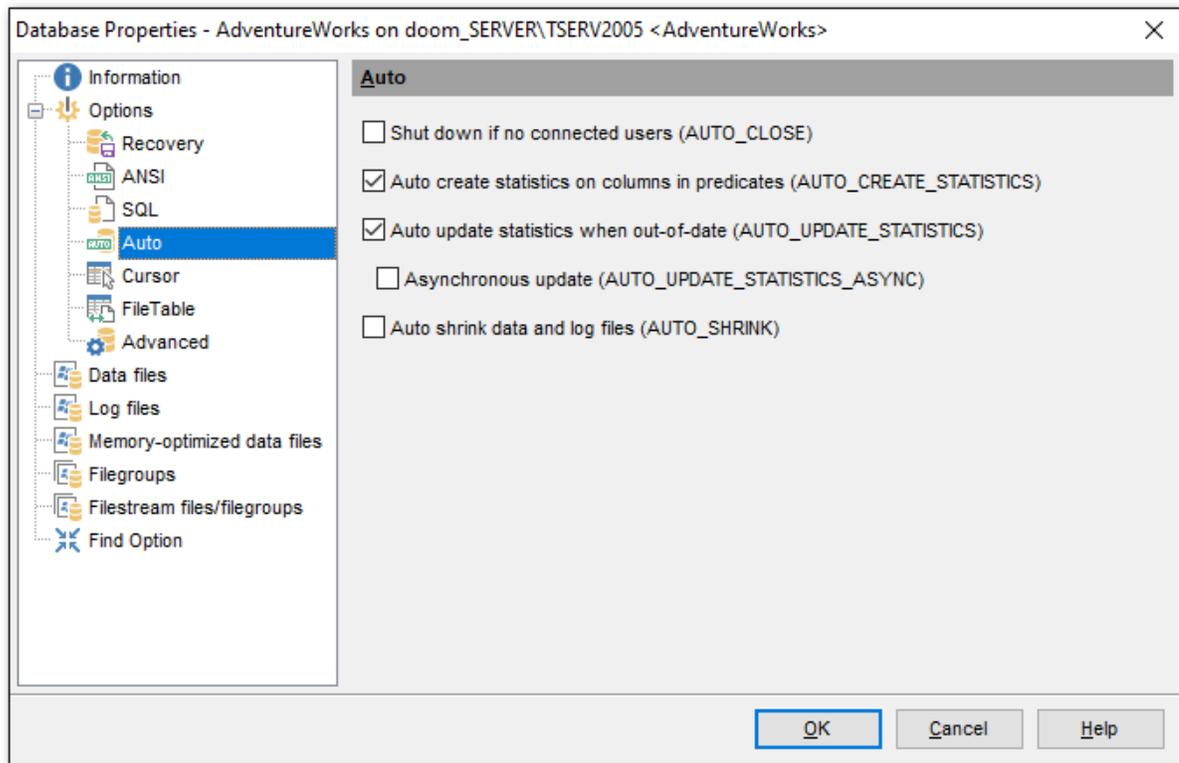
4.4.2.4 Automation options

Shut down if no connected users (AUTO_CLOSE)

When this option is enabled, the database is closed and shut down when the last user of the database exits and all processes in the database complete, thereby freeing any resources. The database reopens automatically when a user tries to use the database again. When disabled, the database remains open even if no users are currently using the database.

Auto create statistics on columns in predicates (AUTO_CREATE_STATISTICS)

When this option is enabled, statistics are automatically created on columns used in a predicate. Adding statistics improves query performance because the SQL Server query optimizer can better determine how to evaluate a query. If the statistics are not used, SQL Server automatically deletes them. When disabled, statistics are not automatically created; instead, statistics can be manually created.



Auto update statistics when out-of-date (AUTO_UPDATE_STATISTICS)

When this option is enabled, existing statistics are automatically [updated](#)^[766] when the statistics become out-of-date because the data in the tables have been changed. When disabled, existing statistics are not automatically updated; instead, statistics can be manually updated.

Asynchronous update (AUTO_UPDATE_STATISTICS_ASYNC)

When this option is enabled, queries do not wait for the statistics to be [updated](#)^[766] before compiling. Instead, the out-of-date statistics are put on a queue for updating by a worker thread in a background process. The query and any other concurrent queries compile immediately by using the existing out-of-date statistics.

Auto shrink data and log files (AUTO_SHRINK)

When this option is enabled, the database files are candidates for periodic [shrinking](#)^[759]. Both [data files](#)^[148] and [log files](#)^[150] can be shrunk automatically by SQL Server. *AUTO_SHRINK* reduces the size of the transaction log only if the database is set to *SIMPLE recovery model*^[138] or if the log is backed up. When disabled, the database files are not automatically shrunk during periodic checks for unused space.

See also:

[Recovery options](#)^[138]

[ANSI options](#)^[139]

[SQL options](#)^[141]

[Cursor options](#)^[144]

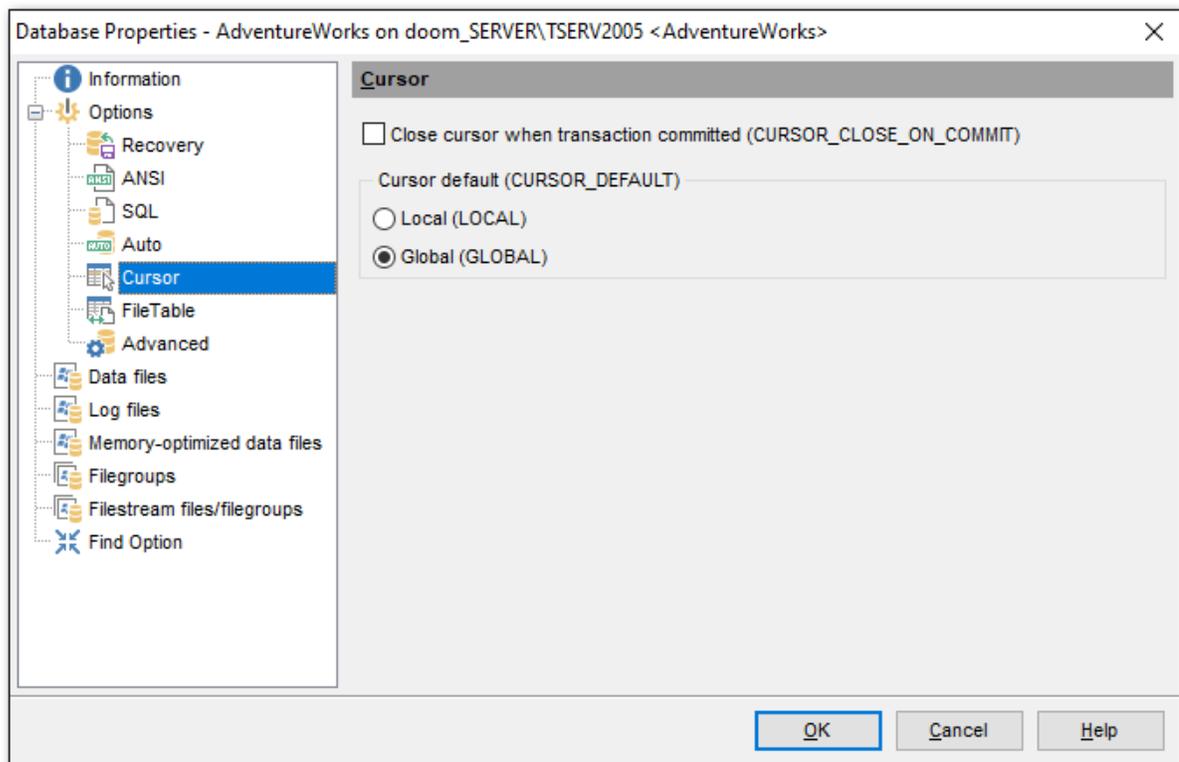
FileTable options

[Advanced](#)^[146]

4.4.2.5 Cursor options

Close cursor when transaction committed (CURSOR_CLOSE_ON_COMMIT)

When this option is enabled, any open cursors are closed automatically (in compliance with SQL-92) when a transaction is committed. When disabled, cursors remain open across transaction boundaries, closing only when the connection is closed or when they are explicitly closed.



Cursor default (CURSOR_DEFAULT)

LOCAL

The scope of the cursor is local to the batch, [stored procedure](#)^[253], or [trigger](#)^[236] in which the cursor was created. The cursor name is valid only within this scope. The cursor can be referenced by local cursor variables in the batch, [stored procedure](#)^[253], or [trigger](#)^[236], or a [stored procedure](#)^[253] OUTPUT parameter.

GLOBAL

The scope of the cursor is global to the connection. The cursor name can be referenced in any [stored procedure](#)^[253] or batch executed by the connection.

See also:

[Recovery options](#)^[138]

[ANSI options](#)^[139]

[SQL options](#)^[141]

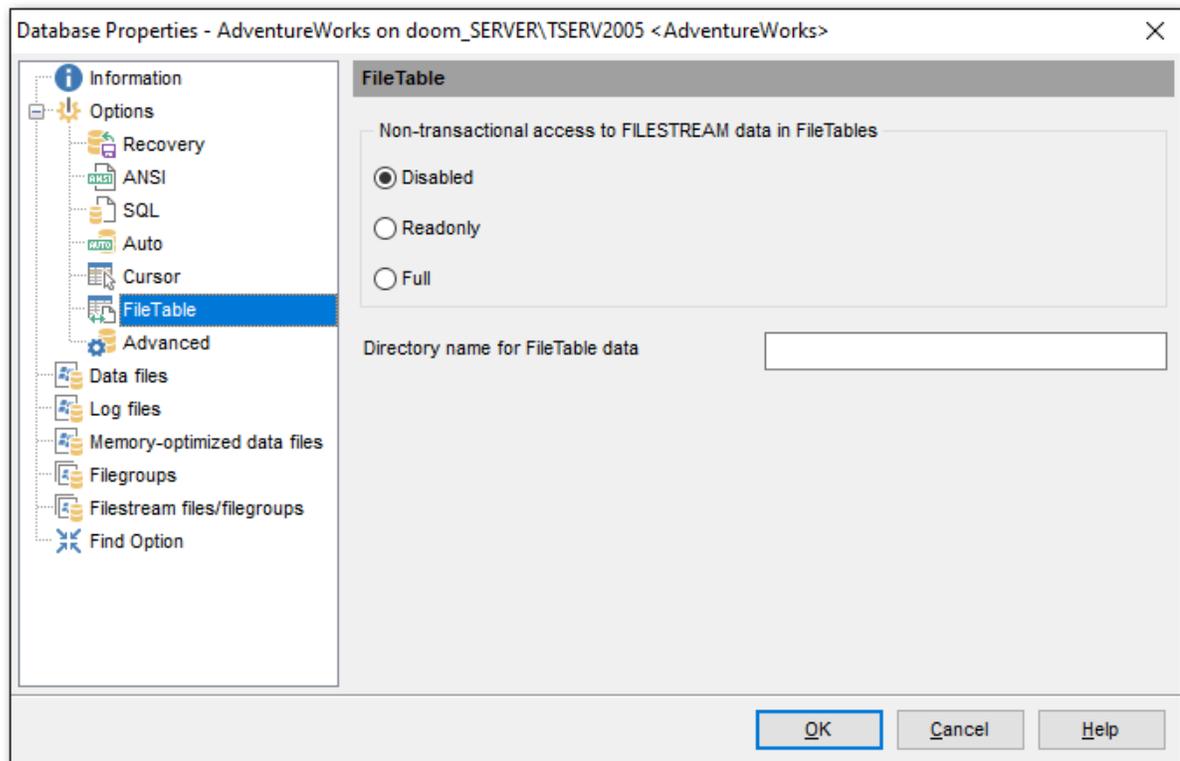
[Automation options](#)^[142]

FileTable options

[Advanced](#)^[146]

4.4.2.6 FileTable options

These options are available for SQL Server 2012 only.



Non-transactional access to FILESTREAM data in FileTables

Disabled

Check this option to disable non-transactional access. All the FileTable directories and their contents are no longer accessible or visible.

Readonly

If this option is checked then all the FileTable directories and their contents are read-only

Full

Check this option to enable full non-transactional access to FILESTREAM FileTables.

Directory name for FileTable data

Define the directory name to store in the FileTable.

4.4.2.7 Advanced

Allow snapshot transaction isolation level (ALLOW_SNAPSHOT_ISOLATION)

If this option is enabled, SQL Server will execute [snapshot](#)^[804] transactions against the specified database when transactions are explicitly set to the *SNAPSHOT* transaction isolation level.

Row versioning in Read Comitted level (READ_COMMITTED_SNAPSHOT)

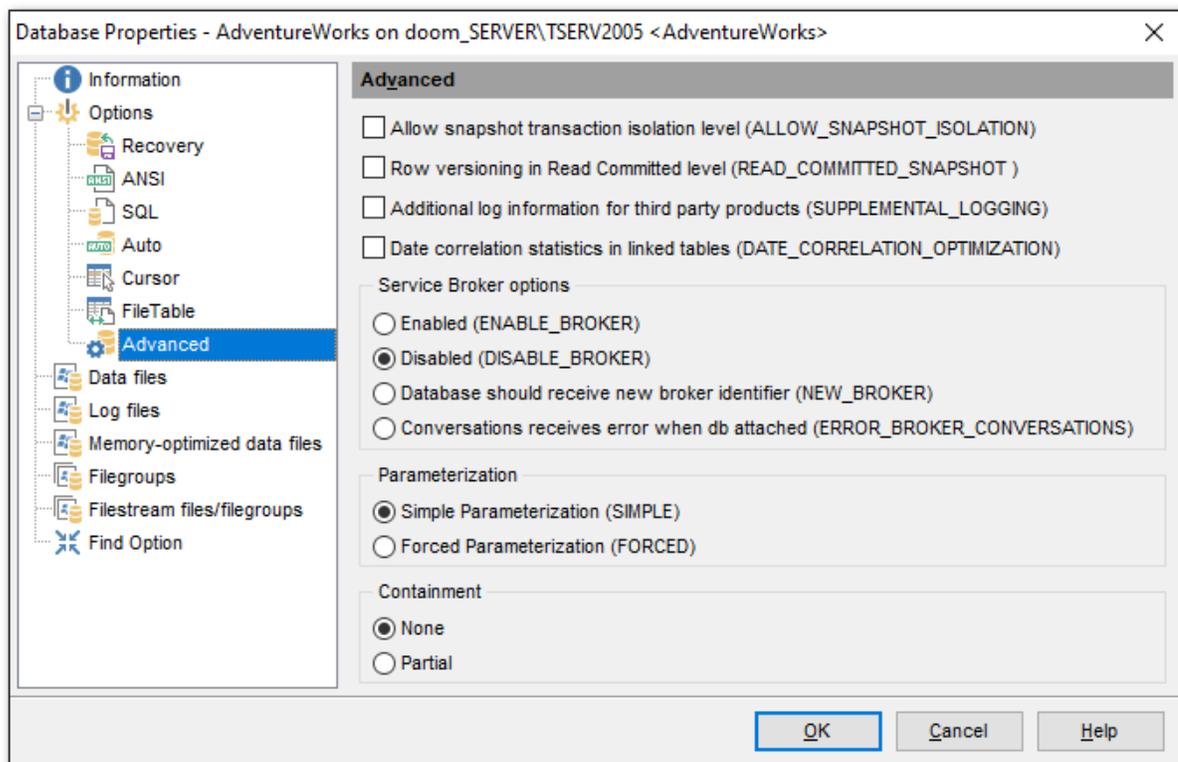
If this option is enabled, transactions setting the read-committed isolation level use row versioning instead of locking.

Additional log information for third party products (SUPPLEMENTAL_LOGGING)

When this option is enabled, additional information is added to the log for third-party products. Setting this option on will increase log space usage and may impact performance.

Date correlation statistics in linked tables (DATE_CORRELATION_OPTIMIZATION)

If this option is enabled, SQL Server maintains correlation statistics between any two tables in the database that have *DATETIME* columns and are linked by a one-column [foreign key](#)^[221] constraint.



Service Broker options

ENABLE_BROKER

Specifies that Service Broker is enabled for the specified database. The *IS_BROKER_ENABLED* flag is set to TRUE in the sys.databases catalog view and message delivery is started.

DISABLE_BROKER

Specifies that Service Broker is disabled for the specified database. The *IS_BROKER_ENABLED* flag is set to FALSE in the sys.databases catalog view and message delivery is stopped.

NEW_BROKER

Specifies that the database should receive a new broker identifier. Because the database is considered to be a completely new service broker, all existing conversations in the database are immediately removed without producing end dialog messages.

ERROR_BROKER_CONVERSATIONS

Specifies that conversations in the database should receive an error message when the database is attached. This allows your applications to perform normal clean up for existing conversations.

Parametrization

Simple Parametrization (SIMPLE)

[Queries](#)^[424] are parameterized on the basis of the default behavior of the database.

Forced Parametrization (FORCED)

SQL Server parameterizes all [queries](#)^[424] in the database.

Containment

Contained Database is independent of the SQL Server Instance. All the database metadata and user information is stored inside the database itself.

None

Check this option to make a non-contained database.

Partial

Check this option to make a database partially contained. A partially contained database is a contained database that can allow some features that cross the database boundary (The boundary between a database and the instance of SQL Server or between a database and other databases). SQL Server includes the ability to determine when the containment boundary is crossed. The partially contained database can store important information in the database so the database still has the information after it is moved.

See also:

[Recovery options](#)^[138]

[ANSI options](#)^[139]

[SQL options](#)^[141]

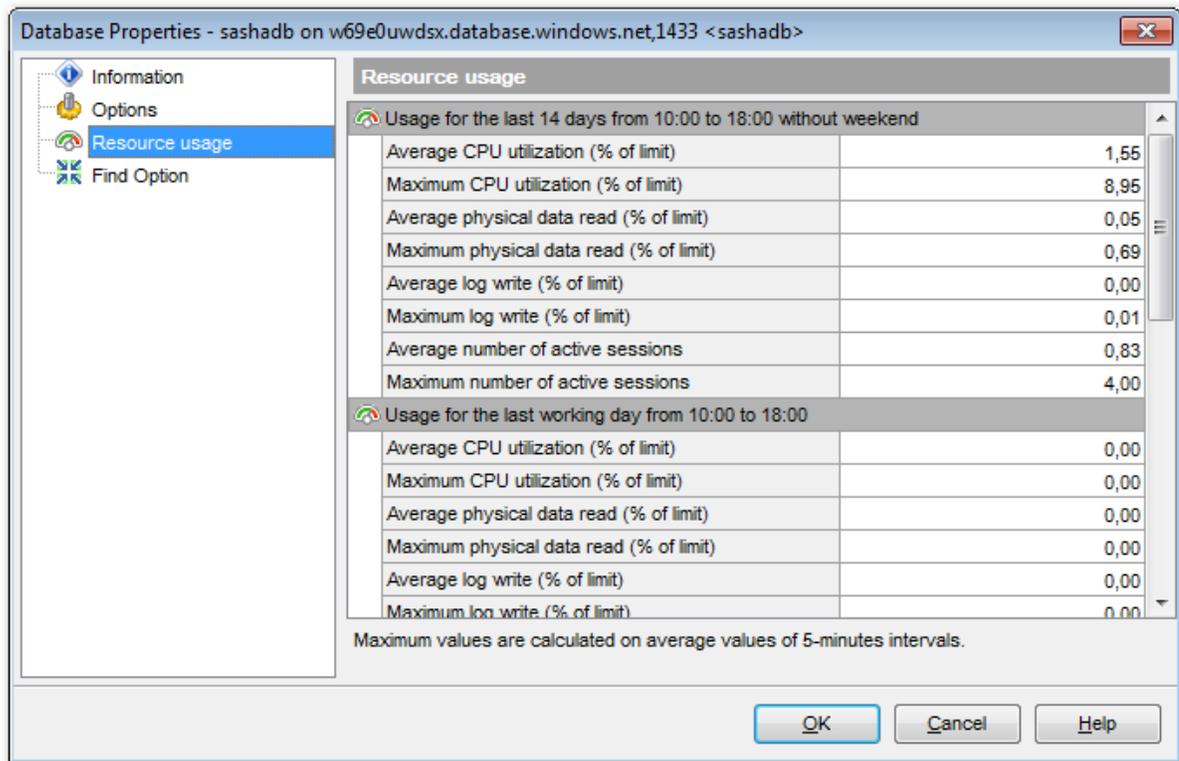
[Automation options](#)^[142]

[Cursor options](#)^[144]

FileTable options

4.4.3 Resource usage

On this tab the results of the *sys.resource_stats* command are displayed. It returns CPU usage and storage data for an Azure SQL Database.

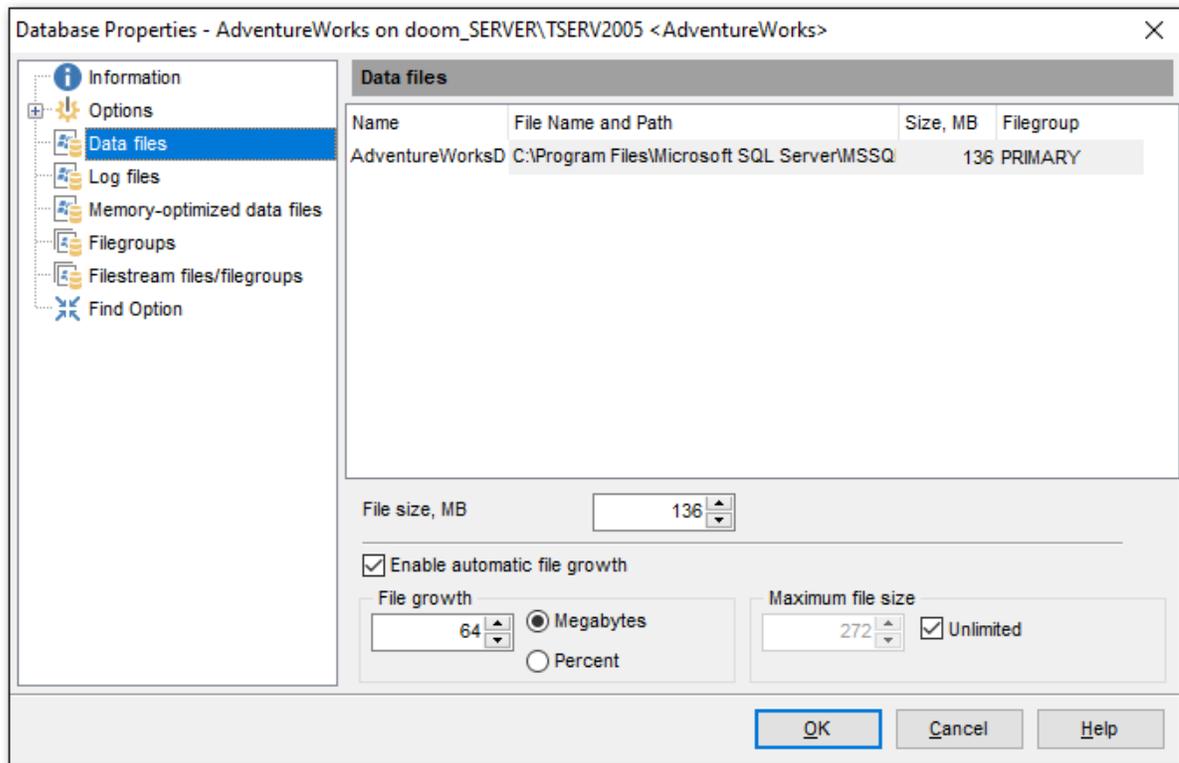


4.4.4 Data files

The **Data files** section of the **Database Properties** dialog allows you to specify that the disk files used to store the data portions of the database (data files) are defined explicitly, and fill the list of file items defining the data files for the primary file group.

To add a data file, right-click in the main working area and select the **+ Add file** popup menu item.

To remove a data file, right-click the file in the list and select the **- Delete file** popup menu item.



The **Name** is a logical name used to refer to the physical file in all Transact-SQL statements. The logical file name must conform to the rules for SQL Server identifiers and must be unique within the database.

The **File Name and Path** is the name of the physical file including the directory path. The path must follow the rules for operating system file names.

File Group

The *Primary* file group contains the primary data file and any other files not specifically assigned to another file group. All pages for the system tables are allocated in the primary file group. *User-defined* file groups are any other file groups specified by the user.

Note: You can manage file groups for an existing database using the [Filegroups](#)^[153] section of the [Database Properties](#)^[133] dialog.

File size

Use the spinner control to specify the original size of the selected database file (in megabytes).

SQL Server 2005 (and higher) database files can grow automatically from their originally specified size. When you define a file, you can specify a **file growth** increment (in *megabytes* or in *percent*). Each time the file fills, it increases its size by the growth increment. If there are multiple files in a file group, they do not autogrow until all the files are full. Growth then occurs using a round-robin algorithm.

Each file can also have **maximum file size** specified. If **Unlimited** is specified, the file can continue to grow until it has used all available space on the disk.

See also:[Information](#)^[134][Options](#)^[135][Log files](#)^[150][Filegroups](#)^[153][Filestream files and filegroups](#)^[154][Find Option](#)^[156]

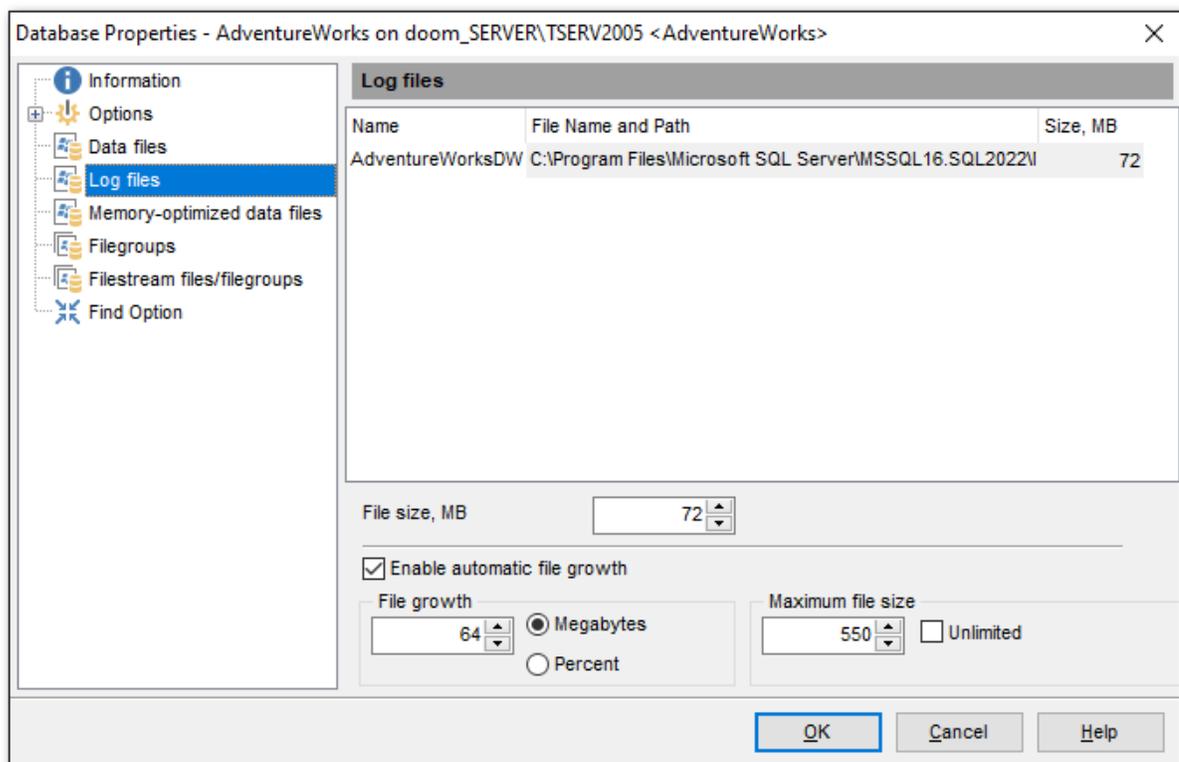
4.4.5 Log files

The **Log files** section of the **Database Properties** dialog allows you to manage **transaction log files** for the database.

Log files hold all of the log information used to recover the database. There must be at least one log file for each database, although there can be more than one. The recommended file name extension for log files is **.ldf*.

To add a log file, right-click in the main working area and select the **+ Add file** popup menu item.

To remove a log file, right-click the file in the list and select the **- Delete file** popup menu item.



The **Name** is a logical name used to refer to the physical file in all Transact-SQL

statements. The logical file name must conform to the rules for SQL Server identifiers and must be unique within the database.

The **File Name and Path** is the name of the physical file including the directory path. The path must follow the rules for operating system file names.

File size

Use the spinner control to specify the original size of the selected transaction log file (in megabytes).

SQL Server 2005 (and higher) transaction log files can grow automatically from their originally specified size. When you define a file, you can specify a **file growth** increment. Each time the file fills, it increases its size by the growth increment. If there are multiple files in a file group, they do not autogrow until all the files are full. Growth then occurs using a round-robin algorithm.

Each file can also have **maximum file size** specified. If **Unlimited** is specified, the file can continue to grow until it has used all available space on the disk.

See also:

[Information](#)^[134]

[Options](#)^[135]

[Data files](#)^[148]

[Filegroups](#)^[153]

[Filestream files and filegroups](#)^[154]

[Find Option](#)^[155]

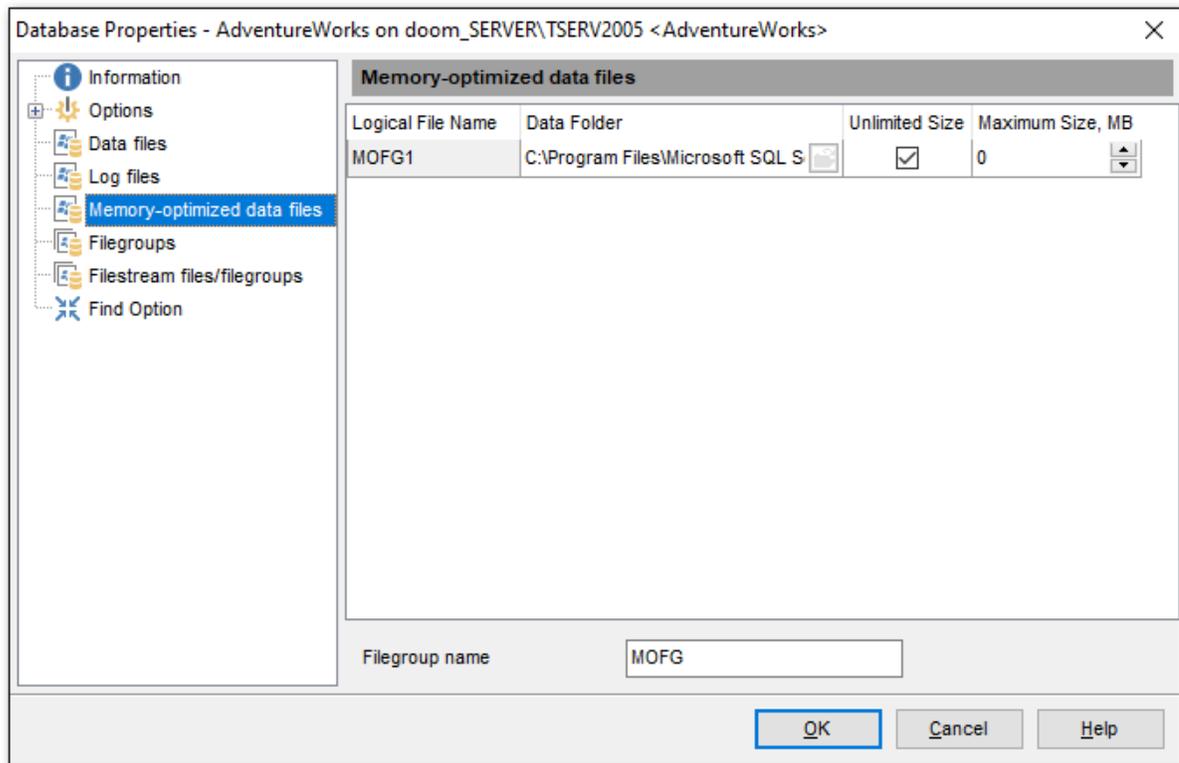
4.4.6 Memory-optimized data files

The **Memory-optimized data files** section of the **Database Properties** dialog allows you to manage containers of the **memory-optimized filegroup** for the database.

Note: This section is only available for SQL Server 2014.

Creating a memory-optimized filegroup is necessary for creating memory-optimized tables. The memory-optimized filegroup holds one or more containers.

Use the **Memory-optimized data files** grid to add containers to the memory-optimized filegroup.



To add a memory-optimized data file, right-click in the main working area and select the **New Memory-Optimized Data File** popup menu item.

To remove a memory-optimized data file, right-click the file in the list and select the **Delete Memory-Optimized Data File** popup menu item.

The **Logical File Name** is the name of the logical file storing the data used to refer to the physical file in all Transact-SQL statements.

Data folder

The physical location of the data. The directory must be located on the server where the database resides. Use the  button to open the [SQL Server Folders](#) dialog to select the preferable directory.

Each file can also have **Maximum size** specified. Use the spinner control to specify the original size of the selected database file (in megabytes).

If **Unlimited** is specified, the file can continue to grow until it has used all available space on the disk.

Name of filegroup for memory-optimized data

Specify the name of the memory-optimized filegroup on the database.

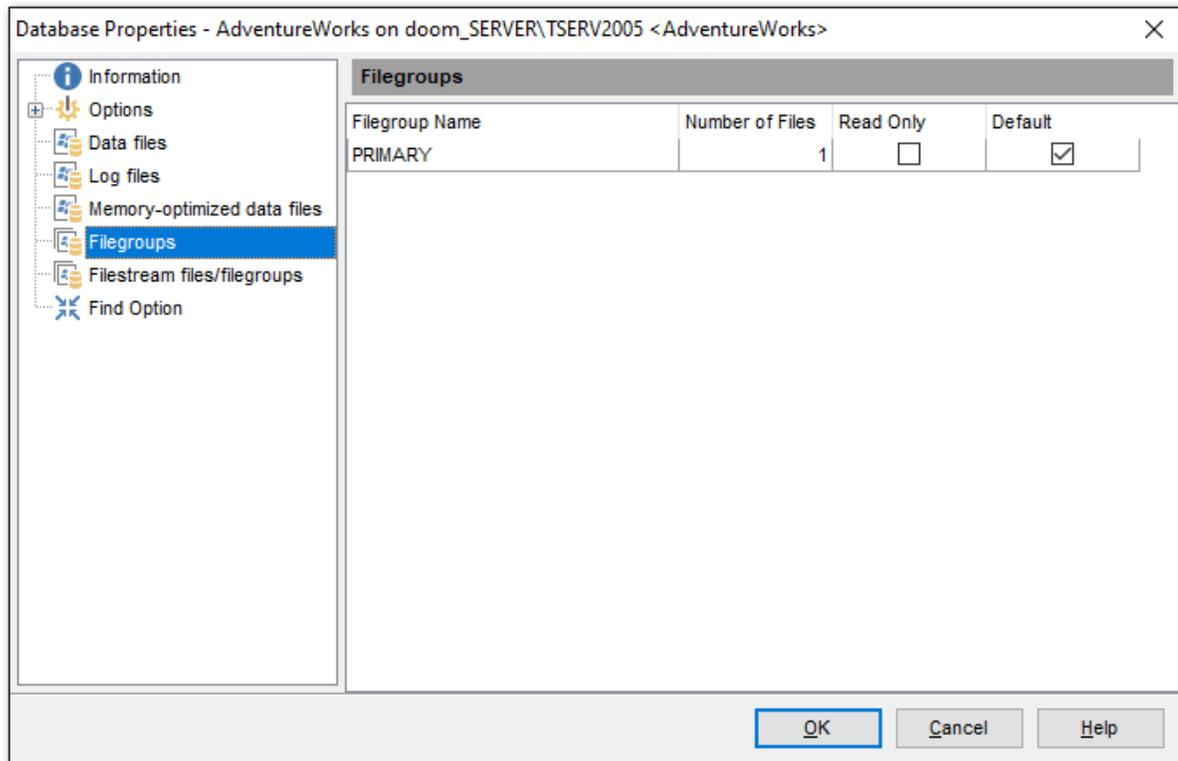
Drop the filegroup

If the memory-optimized filegroup is no longer needed enable this checkbox. Note that the filegroup can be deleted only in case it is empty.

4.4.7 Filegroups

The **Filegroups** section of the **Database Properties** dialog allows you to manage **filegroups** for the database.

Each database has a *PRIMARY* filegroup which contains the primary data file and any secondary files that are not put into other filegroups. User-defined filegroups can be created to group data files together for administrative and data allocation/placement purposes.



All data files are stored in filegroups:

- *PRIMARY*: the filegroup that contains the primary file. All system tables are allocated to the primary filegroup.
- *User-defined*: any filegroup that is specifically created by the user when first creating or later altering the database.

Read Only

Specifies that the filegroup is read-only. Updates to objects that reside in this filegroup are not allowed. The *PRIMARY* filegroup cannot be marked read-only.

Default

When objects are created in the database without specifying to which filegroup they belong, they are assigned to the default filegroup. At any time, exactly one filegroup is designated as the default filegroup. The files in the default filegroup must be large enough to hold any new objects not allocated to other filegroups. Initially, the *PRIMARY* filegroup is the default filegroup.

See also:[Information](#)^[134][Options](#)^[135][Data files](#)^[148][Log files](#)^[150][Filestream files and filegroups](#)^[154][Find Option](#)^[156]

4.4.8 Filestream files and filegroups

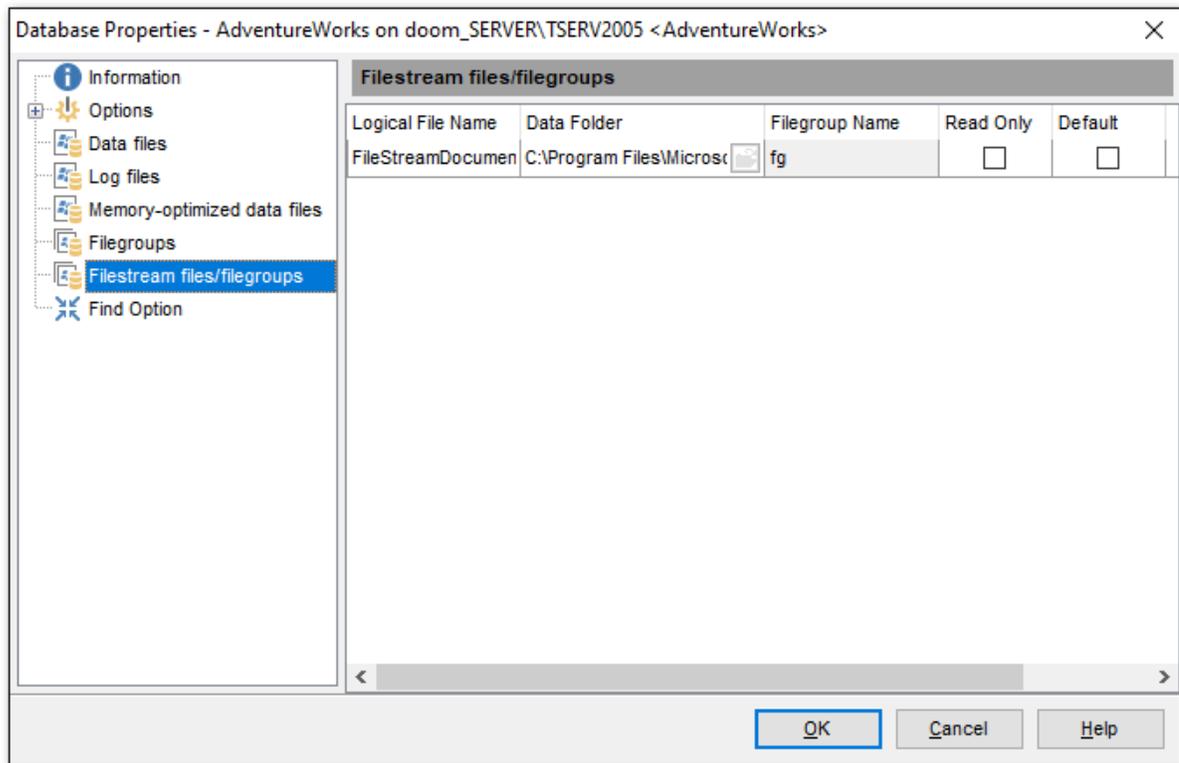
The **Filestream files and filegroups** section of the **Database Properties** dialog allows you to manage **filestream filegroups** for the database.

Note: This section is only available for SQL Server 2008 and higher.

In SQL Server 2008, FILESTREAM enables the application to store unstructured data (such as text documents, images, videos, etc.) on the file system. FILESTREAM integrates the SQL Server Database Engine with an NTFS file system by storing varbinary (max) binary large object (BLOB) data as files on the file system. Transact-SQL statements can insert, update, query, search, and back up FILESTREAM data. Win32 file system interfaces provide streaming access to the data.

To add a filestream file, right-click in the main working area and select the **Add Filestream File** popup menu item.

To remove a filestream file, right-click the file in the list and select the **Delete Filestream File** popup menu item.



The **Logical File Name** is the name of the logical file storing the data used to refer to the physical file in all Transact-SQL statements.

Data folder

The physical location of the data. The directory must be located on the server where the database resides. Use the  button to open the [SQL Server Folders](#) ^[950] dialog to select the preferable directory.

Filegroup Name

Specify the name of the filestream filegroup.

Read Only

Specifies that the filestream filegroup is read-only. Updates to objects that reside in this filestream filegroup are not allowed. The default filestream filegroup cannot be read-only.

Default

The filestream fields data will be stored in this filestream filegroup if none was specified for the table.

See also:

[Information](#) ^[134]

[Options](#) ^[135]

[Data files](#) ^[148]

[Log files](#) ^[150]

[Filegroups](#)^[153]

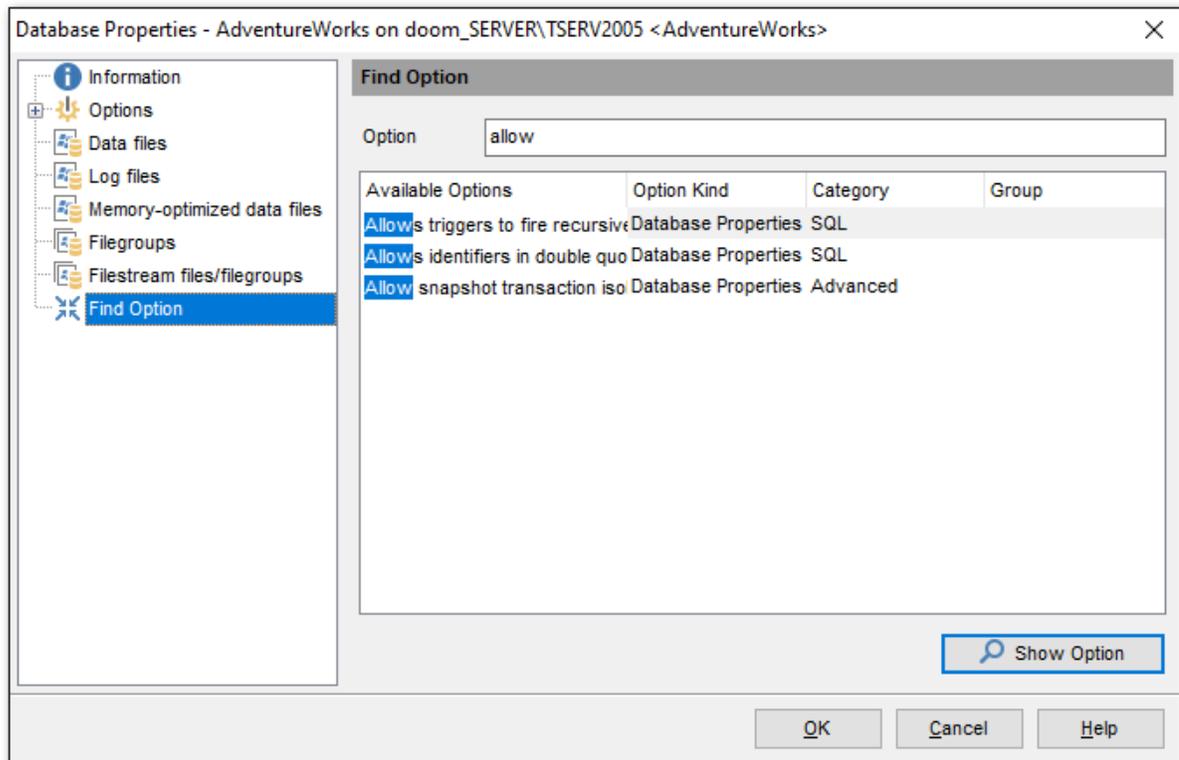
[Find Option](#)^[156]

4.4.9 Find Option

The **Find Option** section allows you to search for options available within the **Database Properties** dialog easily and quickly.

Option

In this field you can enter the name of the option to search for within the database properties.



The **Available options** area lists all options of the Database Properties category according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location.

Select the required option in the list and click  **Show Option** to open the corresponding section where you can view/edit the value of this option. For your convenience the required option is marked with an animated  icon.

See also:

[Information](#)^[134]

[Options](#)^[135]

[Data files](#)^[148]

[Log files](#)^[150]

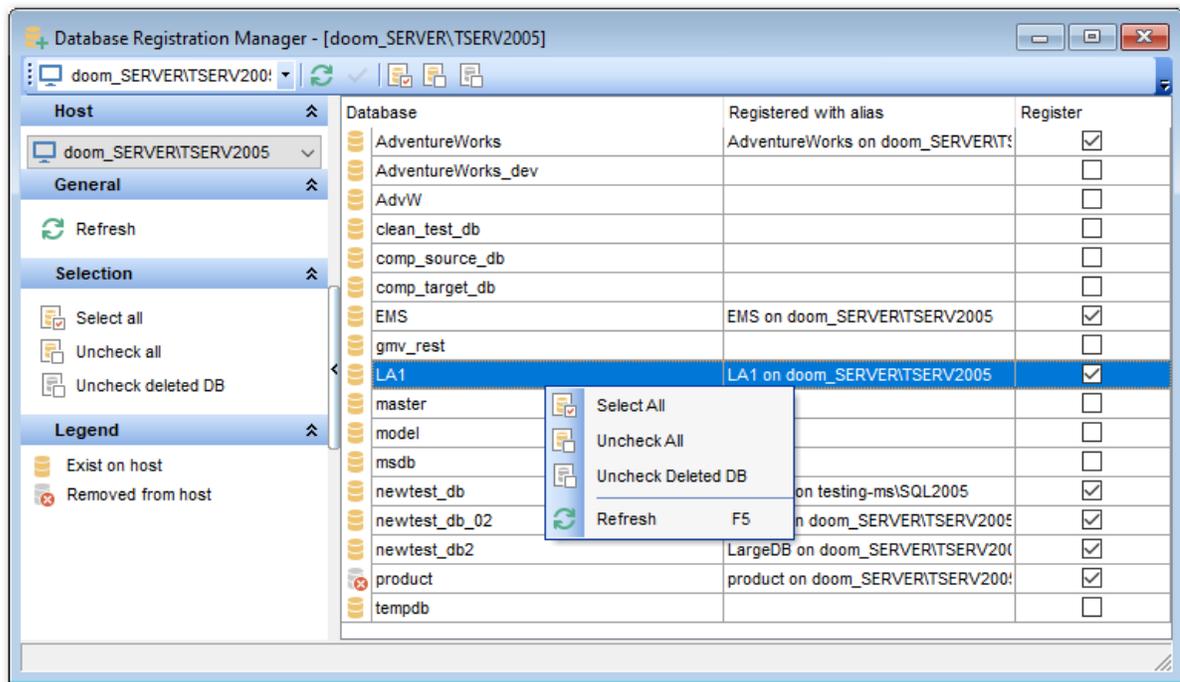
[Filegroups](#)^[153]

[Filestream files and filegroups](#)^[154]

4.5 Database Registration Manager

Database Registration Manager allows you to register new databases and delete the registration of no longer needed databases, including non-existing ones.

To open **Database Registration Manager** use the corresponding item of the [database context menu](#)^[54] or the [host context menu](#)^[53].



The grid contains all databases located on the selected host. You can change **Host** selection using the appropriate drop-down list in the [navigation bar](#)^[159]. Check databases you want to be registered.

Using the context menu you can:

- select all databases,
- uncheck all databases,
- uncheck deleted databases,
- refresh the list.

After the selection is made click the  **Apply changes button** to register selected databases.

Availability:

Full version (for Windows) **Yes**

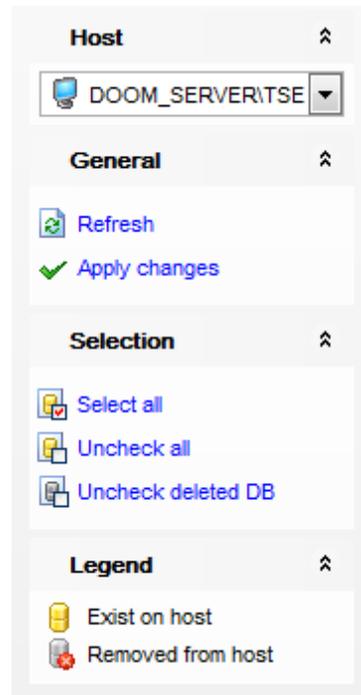
Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:[Register Database wizard](#)^[111][Database Registration Info](#)^[116]

4.5.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Database Registration Manager**.



The **Navigation bar** of **Database Registration Manager** allows you to:

Host

 select a host

General

 refresh the list of databases
 apply changes - register selected databases

Selection

 select all databases located on the host
 uncheck all databases in the list
 uncheck databases deleted from the host

Legend

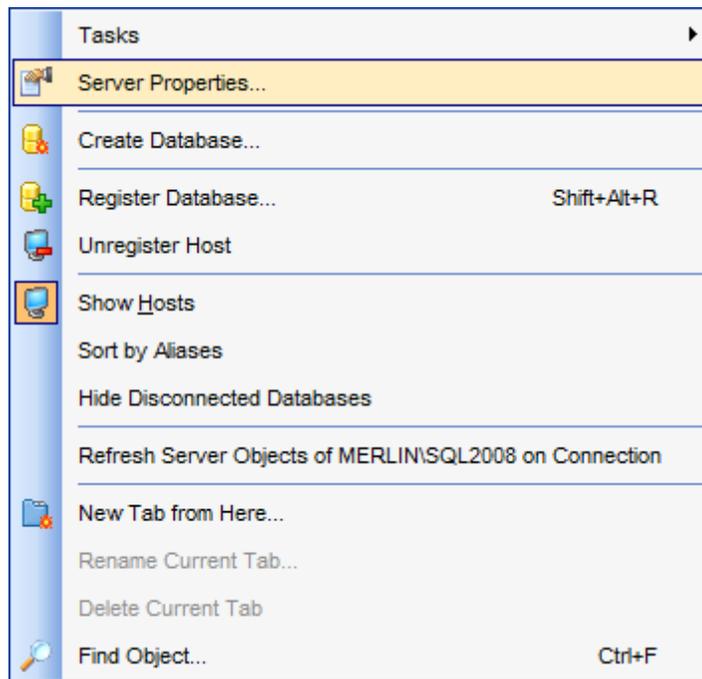
 database existing on the host
 database removed from the host

Items of the **Navigation bar** are also available on the **ToolBar** of **Schema Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

4.6 Server Properties

The **Server Properties** dialog allows you to view/edit a number of server options which can be changed to optimize Microsoft® SQL Server performance.

To open the dialog, right-click the database or host alias in [DB Explorer](#)^[63] and select the **Server Properties...** context menu item.



- [General options](#)^[162]
- [Memory options](#)^[163]
- [Processor options](#)^[164]
- [Security options](#)^[166]
- [Active Directory](#)^[168]
- [Connection settings](#)^[169]
- [Database Settings](#)^[171]
- [Misc Server Settings](#)^[173]
- [Advanced settings](#)^[174]
- [Find Option](#)^[176]

Configured values

This option displays the configured values for options on this page. If you change these values, select **Running Values** to see whether the changes have taken effect. If they have not, the instance of SQL Server must be restarted first.

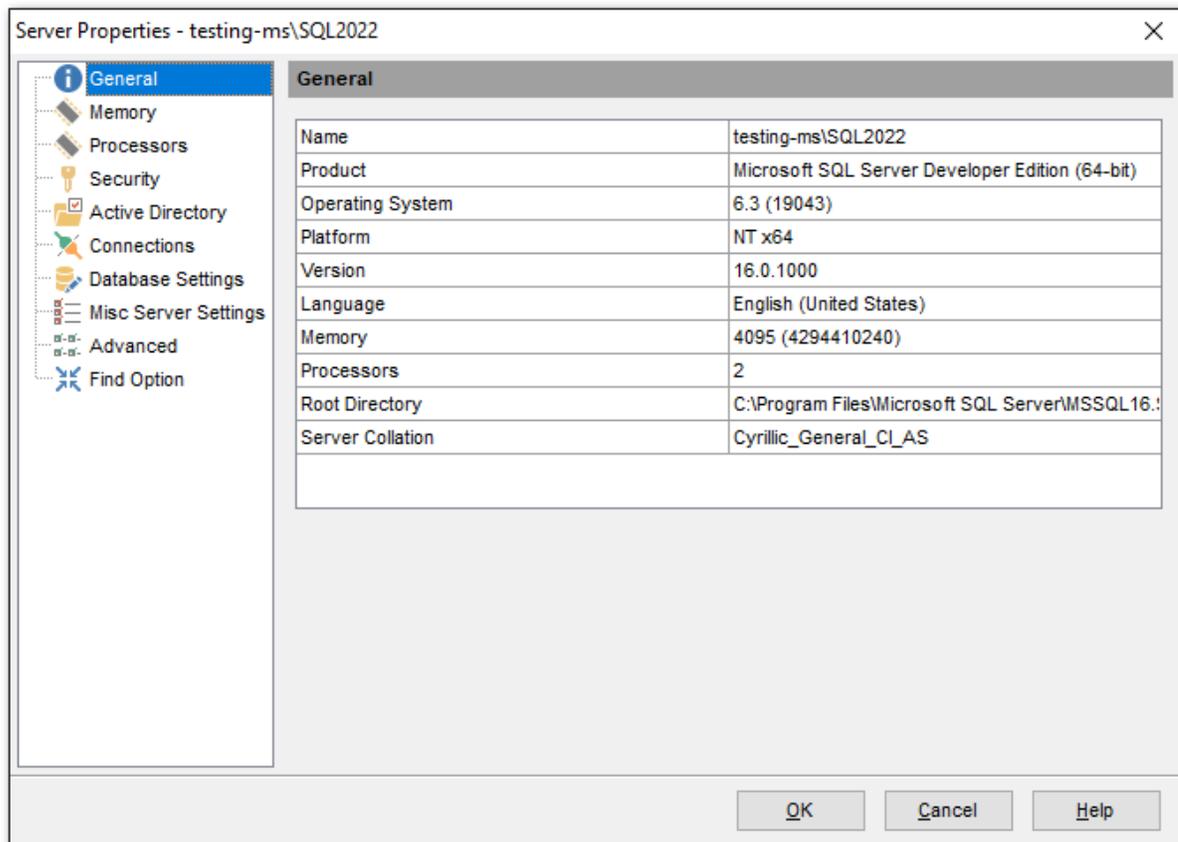
Running values

This option displays the currently running values for options on this page. These values are read-only.

4.6.1 General options

The **General** section of the **Server Properties** dialog allows you to take a brief look at the general server configuration properties: *Name*, *Product*, *Operating System*, *Platform*, *Version*, *Language*, *Memory*, *Processors*, *Root Directory*, *Server Collation*.

Note: These properties are read-only.



Name

Indicates the name of the instance of SQL Server in the following format:
computer_name\sqlserver_instance_name

Product

Indicates the full product name of SQL Server.

Operating System

Indicates the OS version and its build.

Platform

Indicates the OS and hardware configuration used on the server.

Version

Indicates SQL Server version.

Language

Indicates SQL Server language.

Memory

Indicates the amount of memory available on the machine where SQL Server is running.

Processors

Indicates the quantity of CPUs on the server machine.

Root Directory

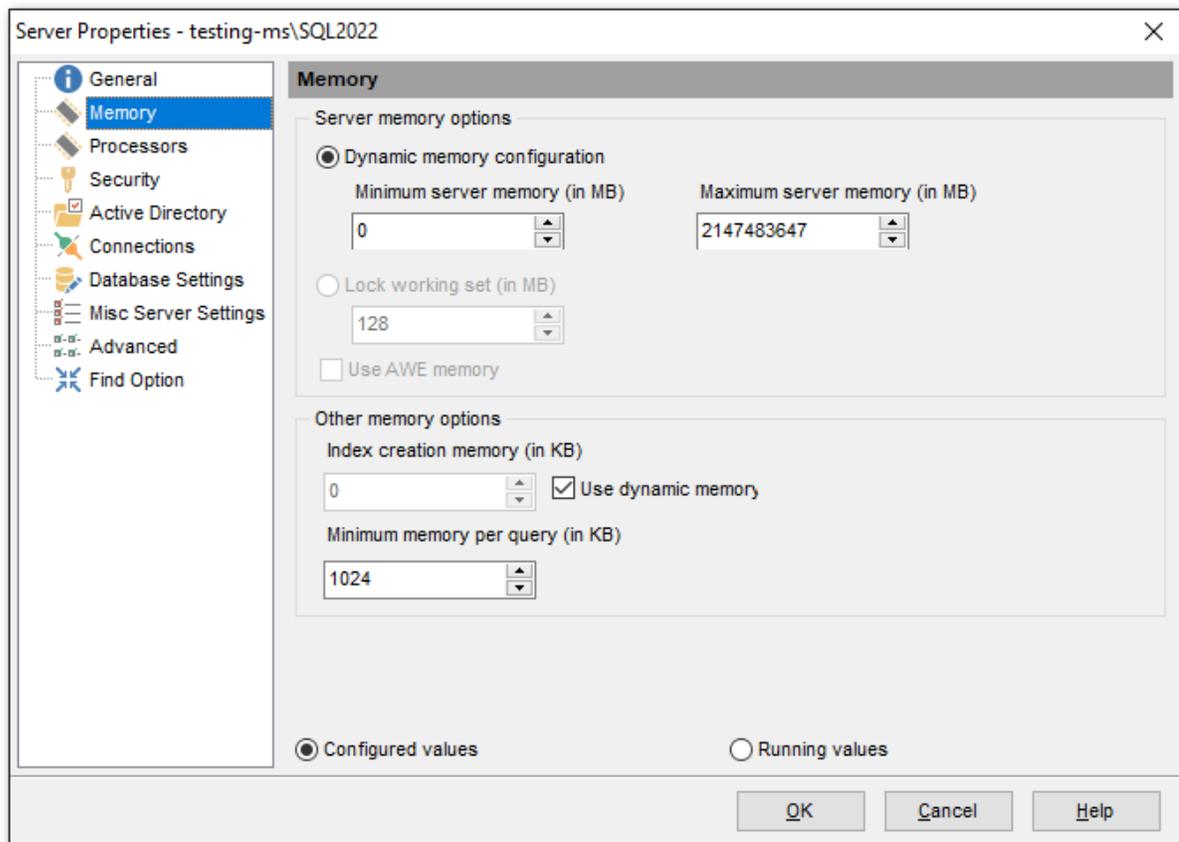
Indicates the installation directory of SQL Server instance

Server Collation

Indicates the collation used on the server.

4.6.2 Memory options

The **Memory** section of the **Server Properties** dialog allows you to configure the instance of Microsoft® SQL Server by setting options pertaining to memory usage in groups: *Server memory options*, *Other memory options*.



Server memory options

- Dynamic memory configuration**

Use the two server memory options, *Minimum server memory* and *Maximum server memory*, to reconfigure the amount of memory (in megabytes) in the buffer pool used by the instance of SQL Server.

By default, SQL Server can change its memory requirements dynamically on the basis of available system resources. The default setting for *Minimum server memory* is 0, and the default setting for *Maximum server memory* is 2147483647. The minimum amount of memory that can be specified for *Maximum server memory* is 16 MB.

Locking working set

Allowing SQL Server to use memory dynamically is recommended; however, you can set the memory options manually and restrict the amount of memory that SQL Server can access.

Use AWE memory

Under Windows Server 2003, SQL Server 2005 (and higher) can use Address Windowing Extensions (AWE) memory to further assist in balancing its own memory requirements with those of the operating system. This balancing between SQL Server and the operating system is subject to the constraints of the *Minimum server memory* and *Maximum server memory* options.

Other memory options

In SQL Server 2000/2005/2008 the **Index creation memory** option controls the maximum initial amount of memory allocated for index creation. If additional amount of memory is required for index creation operation, and it is available, the server will use additional memory thus exceeding the setting of this option. If additional memory is not available, the memory that has been already allocated will be used for index creation.

Use the **Minimum memory per query** option to specify the minimum amount of memory (in kilobytes) that will be allocated for execution of a query. For example, if **Minimum memory per query** is set to 2,048 KB, the query is guaranteed to get at least that much total memory. You can set **Minimum memory per query** to any value from 512 up to 2,147,483,647 KB (appr. 2 GB). The default value is 1,024 KB.

4.6.3 Processor options

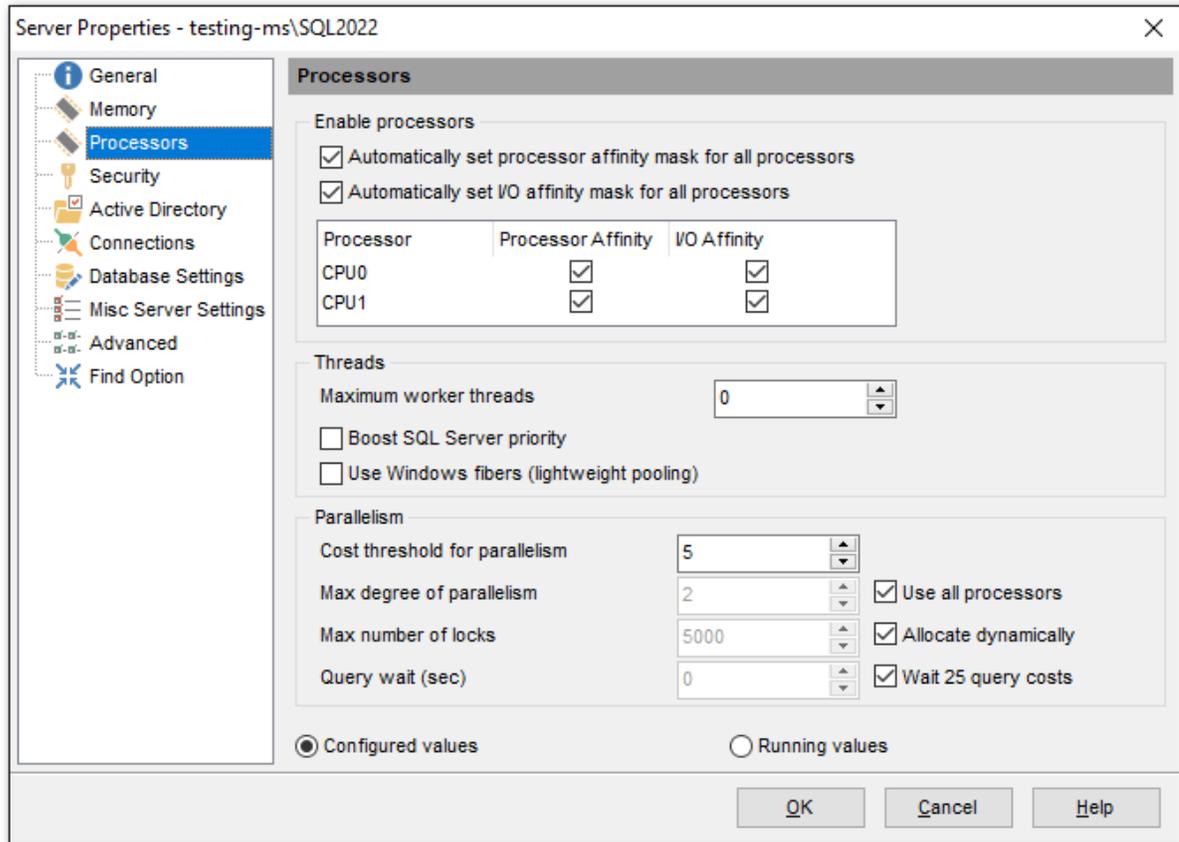
The **Processors** section of the **Server Properties** dialog allows you to configure the instance of Microsoft® SQL Server by setting options pertaining to processors usage in groups: *Enable processors*, *Threads*, *Parallelism*.

Enable processors

To carry out multitasking, it is possible to distribute process threads among different processors. Although efficient from an operating system point of view, this activity can reduce SQL Server performance under heavy system loads, as each processor cache is repeatedly reloaded with data. Assigning processors to specific threads can improve performance under these conditions by eliminating processor reloads and reducing thread migration across processors (thereby reducing context switching); such an association between a thread and a processor is called *processor affinity*.

You can enable any or both two affinity mask options supported by SQL Server 2005 (and higher): **Automatically set processor affinity mask** (also known as **CPU affinity**

mask) and **Automatically set I/O affinity mask for all processors.**



Threads

Use the **Maximum worker threads** option to configure the number of working threads available to Microsoft® SQL Server processes. SQL Server uses the native thread services of the Microsoft® Windows 2000 and Windows Server 2003 operating systems so that one or more threads support each network that SQL Server supports simultaneously, another thread handles database checkpoints, and a pool of threads handles all users.

Use the **Boost SQL Server priority** option to specify whether SQL Server should run at a higher Windows 2000 or Windows 2003 scheduling priority than other processes on the same computer. If you set this option to 1, SQL Server runs at a priority base of 13 in the Windows 2000 or Windows Server 2003 scheduler. The default is 0, which is a priority base of 7.

Select the **Use Windows fibers (lightweight pooling)** option to provide a means of reducing the system overhead associated with the excessive context switching sometimes seen in symmetric multiprocessing (SMP) environments. When excessive context switching is present, lightweight pooling can provide better throughput by performing the context switching inline, thus helping to reduce user/kernel ring transitions.

Parallelism

Use the **Cost threshold for parallelism** option to specify the threshold at which SQL Server creates and runs parallel plans for queries. SQL Server creates and runs a parallel plan for a query only when the estimated cost to run a serial plan for the same query is higher than the value set in **Cost threshold for parallelism**. The cost refers to an estimated elapsed time in seconds required to run the serial plan on a specific hardware configuration. Only set **Cost threshold for parallelism** on symmetric multiprocessors.

Use the **Max number of locks** option to set the maximum number of available locks, thereby limiting the amount of memory the Database Engine uses for them. The default setting is 0, which allows the Database Engine to allocate and deallocate lock structures dynamically, based on changing system requirements. When the server is started with locks set to 0, the lock manager acquires sufficient memory from the Database Engine for an initial pool of 2,500 lock structures. As the lock pool is exhausted, additional memory is acquired for the pool. Allowing SQL Server to use locks dynamically is the recommended configuration.

Use the **Query wait** option to specify the time in seconds (from 0 through 2147483647) that a query waits for resources before timing out. If the default value of -1 is used, or if -1 is specified, then the time-out is calculated as 25 times of the estimated query cost. In Microsoft SQL Server, memory-intensive queries (such as those involving sorting and hashing) are queued when there is not enough memory available to run the query. The query times out after a set time calculated by SQL Server (25 times the estimated cost of the query) or the time specified by the nonnegative value of the query wait.

When SQL Server 2005 (and higher) runs on a computer with more than one CPU, it detects the best degree of parallelism for each instance of a parallel query execution. You can use the **Max degree of parallelism** option to limit the number of processors to use in parallel plan execution. The default value of 0 indicates that all available processors are used. Set **Max degree of parallelism** to 1 to suppress parallel plan generation. Set the value to a number greater than 1 (up to a maximum of 64) to restrict the maximum number of processors used by a single query execution. If a value greater than the number of available processors is specified, or in case the **Use all processors** option is selected, the actual number of available processors is used. If the computer has only one processor, the **max degree of parallelism** value is ignored.

4.6.4 Security options

The **Security** section of the **Server Properties** dialog allows you to configure the instance of Microsoft® SQL Server by setting options pertaining to server security in groups: *Server Authentication, Login auditing, Server Proxy Account, Other security options*.

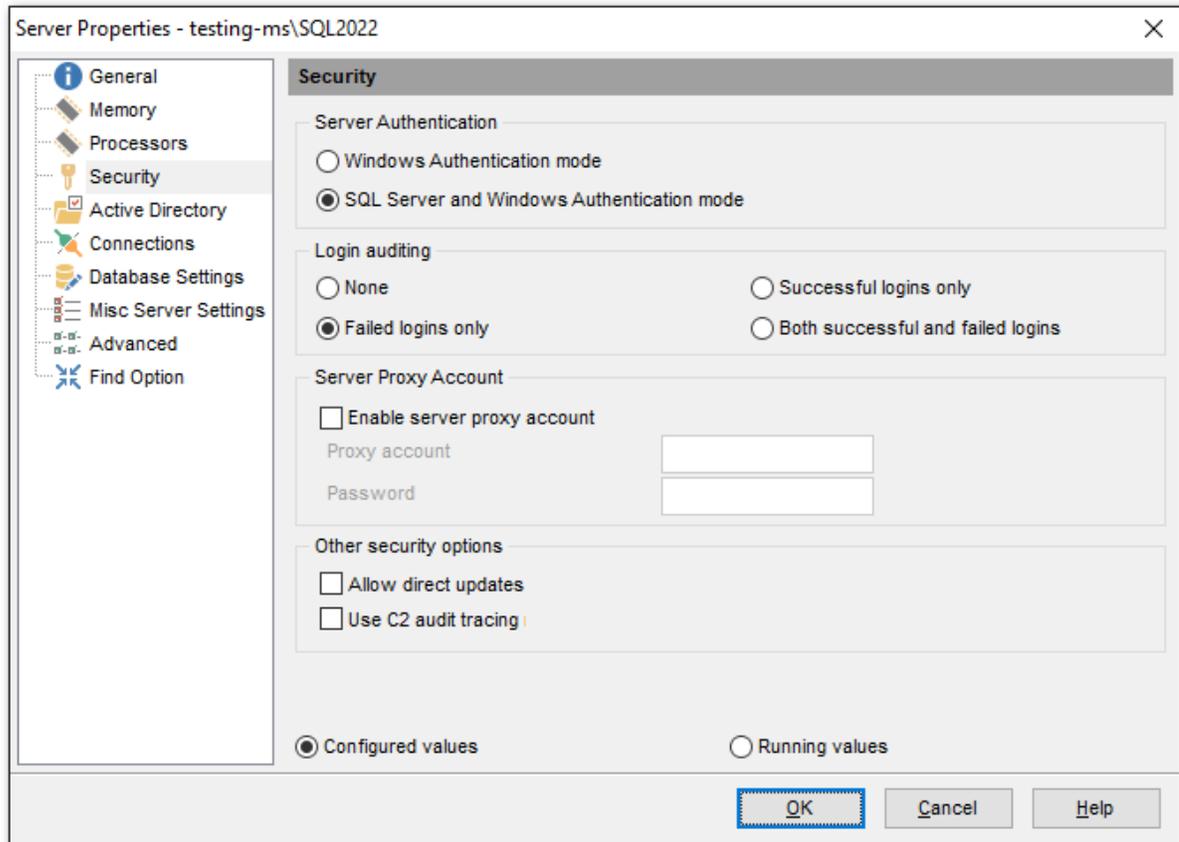
Server Authentication

Windows Authentication mode

When a user connects through a Microsoft® Windows user account, SQL Server validates the account name and password using information in the Windows operating system. This is the default authentication mode, and is much more secure than the mixed mode. Windows Authentication utilizes Kerberos security protocol, provides password policy enforcement in terms of complexity validation for strong passwords, provides support for account lockout, and supports password expiration.

SQL Server and Windows Authentication mode

This option enables the mixed mode and allows users to connect using either Windows Authentication or SQL Server Authentication. Users who connect through a Windows user account can make use of trusted connections that are validated by Windows.



The **Login auditing** property exposes SQL Server Authentication logging behavior:

- None* (does not log authentication attempts)
- Successful logins only* (logs successful authentication)
- Failed logins only* (logs failed authentication)
- Both successful and failed logins* (logs all authentication attempts regardless of success or failure)

Server Proxy account

This option allows SQL Server users that do not belong to the *sysadmin* fixed server role to execute *xp_cmdshell* commands and to own SQL Server jobs. To get access to this feature, you must enter **Proxy account** name and **Password**.

Note that this option is only available when you use SQL Server 2005 (and higher). The login used by the server proxy account should have the least privileges required to perform the intended work. Excessive privileges for the proxy account could be used by a malicious user to compromise your system security.

Other security options

Allow direct updates system tables

Turn this option on to modify system tables directly.

Note: System tables should not be changed directly by any user. It is not recommended to modify system tables with *DELETE*, *UPDATE*, *INSERT* statements or user-defined triggers.

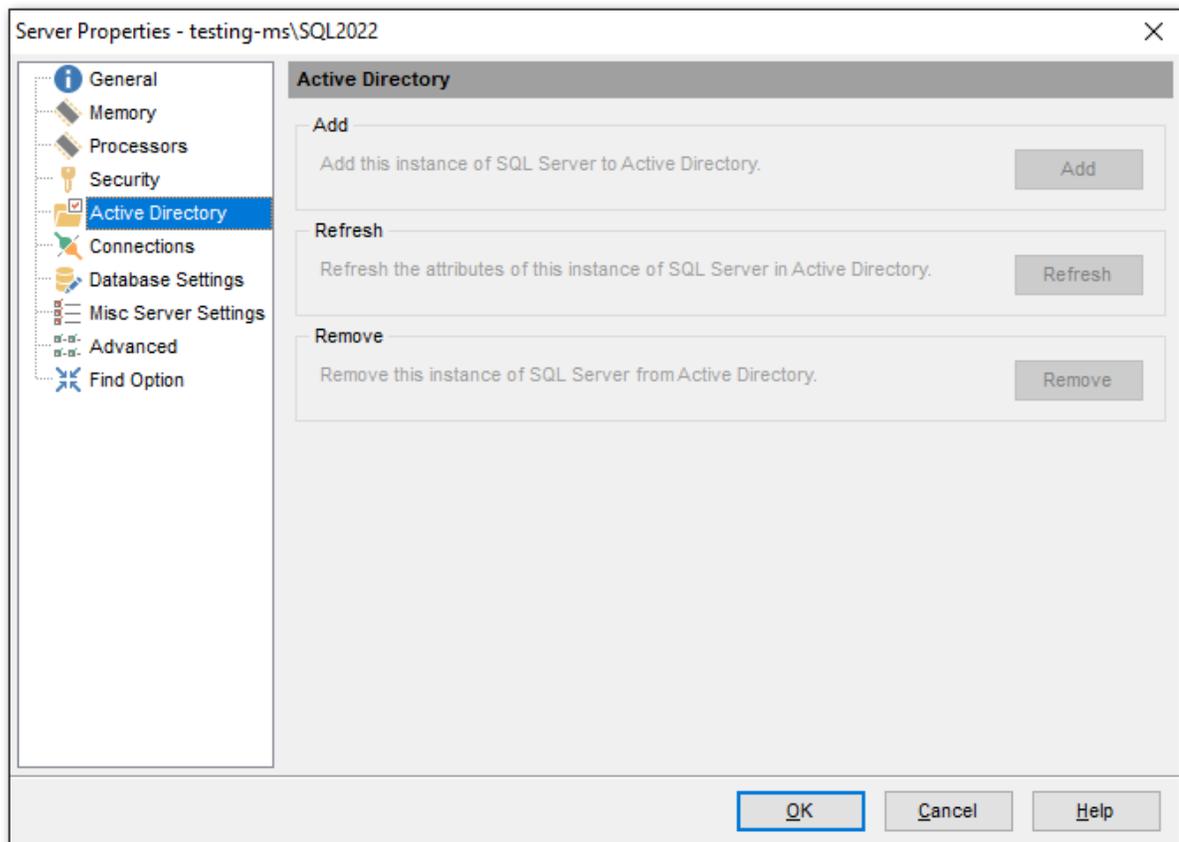
Use C2 audit tracing mode

Selecting this option will configure the server to record both failed and successful attempts to access statements and objects. This information can help you profile system activity and track possible security policy violations.

4.6.5 Active Directory

The **Active Directory** section of the **Server Properties** dialog allows you to configure the instance of Microsoft® SQL Server by managing its Active Directory: *Add*, *Refresh*, *Remove*.

Add SQL Server to Microsoft Active Directory when you want users to be able to use Active Directory to find this instance of SQL Server. This may be useful in large organizations with many instances of SQL Server.



Add

Add this instance of SQL Server to Active Directory.

Connects to Active Directory and registers the instance of Microsoft® SQL Server in the Active directory.

Refresh

Refresh the attributes of this instance in Active Directory.

Updates Active Directory with the current Microsoft® SQL Server properties.

Remove

Remove this instance of SQL Server from Active Directory.

Unregisters the instance of Microsoft® SQL Server from the Active Directory.

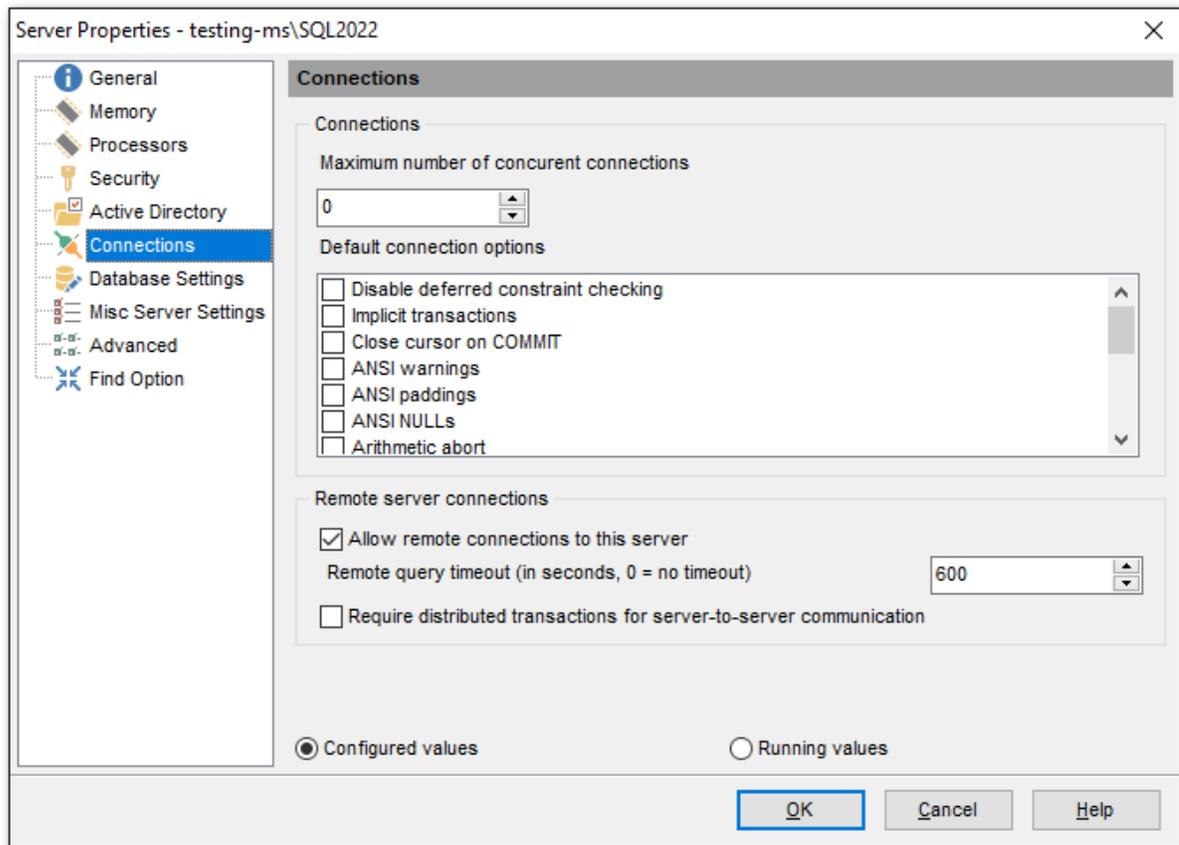
4.6.6 Connection settings

The **Connections** section of the **Server Properties** dialog allows you to configure the instance of Microsoft® SQL Server by setting options pertaining to connection in groups: *Connections*, *Remote server connections*.

Connections

Maximum number of concurrent connections

If this option is set to a value other than zero, the number of connections that SQL Server will allow is limited. The default value is 0 (unlimited).



Default connection options

Specifies the default connection options as described in the table below:

Configuration option	Description
<input checked="" type="checkbox"/> <i>Disable deferred constraint checking</i>	Controls interim or deferred constraint checking.
<input checked="" type="checkbox"/> <i>Implicit transactions</i>	Controls whether a transaction is started implicitly when a statement is run.
<input checked="" type="checkbox"/> <i>Cursor close on COMMIT</i>	Controls behavior of cursors after a commit operation has been performed.
<input checked="" type="checkbox"/> <i>ANSI warnings</i>	Controls truncation and NULL in aggregate warnings.
<input checked="" type="checkbox"/> <i>ANSI padding</i>	Controls padding of fixed-length variables.
<input checked="" type="checkbox"/> <i>ANSI NULLs</i>	Controls NULL handling when using equality operators.
<input checked="" type="checkbox"/> <i>Arithmetic abort</i>	Terminates a query when an overflow or divide-by-zero error occurs during query execution.
<input checked="" type="checkbox"/> <i>Arithmetic ignore</i>	Returns NULL when an overflow or divide-by-zero error occurs during a query.
<input checked="" type="checkbox"/> <i>Quoted identifier</i>	Differentiates between single and double quotation marks when evaluating an expression.

- No count* Turns off the message returned at the end of each statement that states how many rows were affected.
- ANSI NULL default on* Alters the session's behavior to use ANSI compatibility for nullability. New columns defined without explicit nullability are defined to allow nulls.
- ANSI NULL default off* Alters the session's behavior not to use ANSI compatibility for nullability. New columns defined without explicit nullability are defined not to allow nulls.
- Concat NULL yields NULL* Returns NULL when concatenating a NULL value with a string.
- Numeric round abort* Generates an error when a loss of precision occurs in an expression.
- Xact abort* Rolls back a transaction if a Transact-SQL statement raises a run-time error.

Remote Server Connections

Allow remote connections to this server

Controls the execution of stored procedures from remote servers running instances of SQL Server. Selecting this check box has the same effect as setting the *sp_configureremote access* option to 1. Clearing it prevents execution of stored procedures from a remote server.

Remote query timeout (in seconds, 0 = no timeout)

Specifies how long (in seconds) a remote operation may take before SQL Server times out. The default is 600 seconds, or a 10-minute wait.

Require distributed transactions for server-to-server communication

Protects the actions of a server-to-server procedure through a Microsoft® Distributed Transaction Coordinator (MS DTC) transaction.

4.6.7 Database Settings

The **Database Settings** section of the **Server Properties** dialog allows you to configure the instance of Microsoft® SQL Server by setting options pertaining to database in groups: *Default index fill factor*, *Backup and restore*, *Recovery*, *Database default locations*.

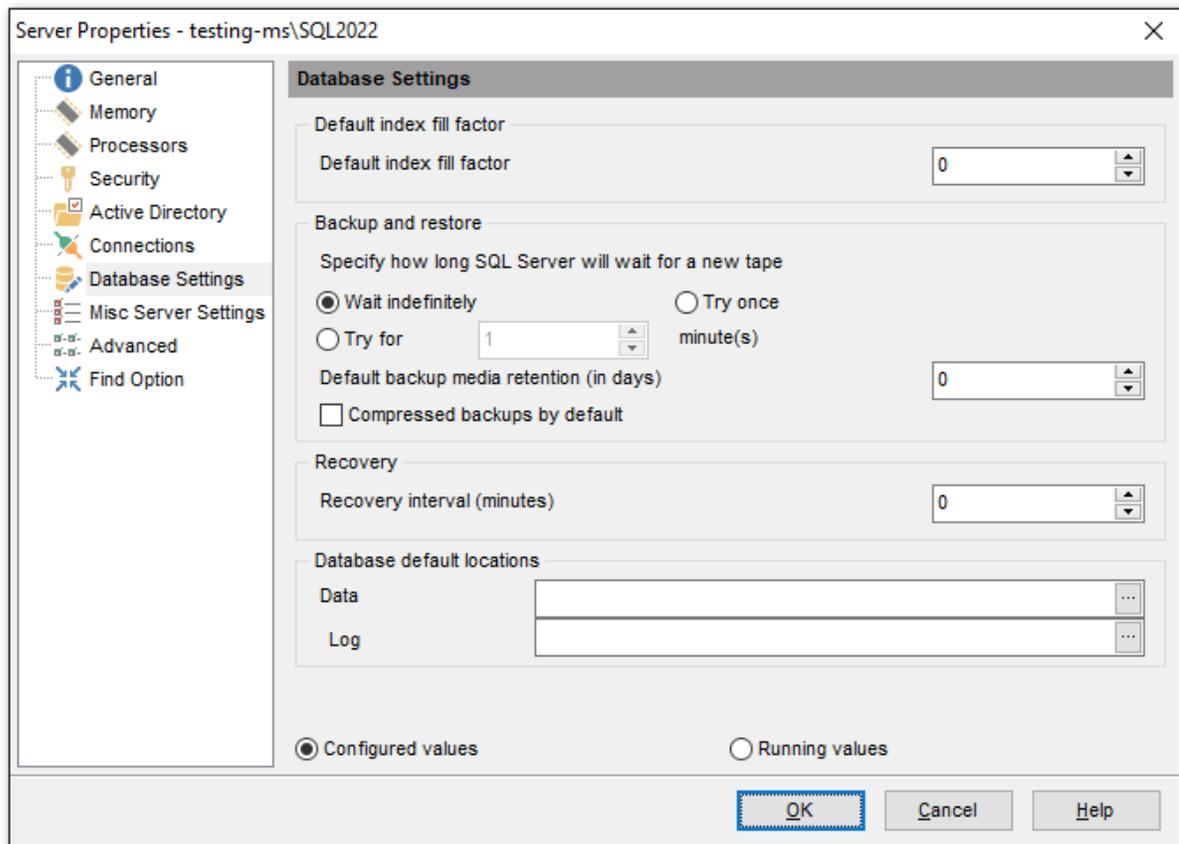
Default index fill factor

This value specifies how full SQL Server should make each page when it creates a new index using existing data. The fill factor affects performance because SQL Server takes time to split pages when they fill up.

The default value is 0; valid values range from 0 to 100. A fill factor of 0 or 100 creates clustered indexes with full data pages and nonclustered indexes with full leaf pages, but it leaves some space within the upper level of the index tree. Fill factor values 0 and 100 are identical in all respects.

With low fill factor values specified, SQL Server creates indexes with pages that are not

full. Each index takes more storage space, but there is more room for subsequent insertions without requiring page splits.



Backup and restore

Wait indefinitely

Specifies that SQL Server will never time out while waiting for a new backup tape.

Try once

Specifies that SQL Server will time out if a backup tape is not available when needed.

Try for ... minute(s)

Specifies that SQL Server will time out if a backup tape is not available within the defined period of time.

Default backup media retention (in days)

Provides a system-wide default for the length of time to retain each backup medium after it has been used for a database or transaction log backup. This option helps protect backups from being overwritten until the specified number of days has elapsed.

Compressed backups by default

Check this option to enable default compression of backups.

Recovery

Recovery interval (minutes)

Sets the maximum period of time to recover a database. The default is 0, it stands for automatic configuration by SQL Server. In practice, this means a recovery time of less than one minute and a checkpoint approximately every one minute for active databases.

Database default locations**Data**

Specify the default location for data files: type in the path in the **Data** field or use the ellipsis  button to browse for directory using the [SQL Server Folders](#)  dialog.

Log

Specify the default location for log files: type in the path in the **Log** field or use the ellipsis  button to browse for directory using the **SQL Server Folders** dialog.

4.6.8 Misc Server Settings

The **Misc Server Settings** section of the **Server Properties** dialog allows you to configure the instance of Microsoft® SQL Server by setting miscellaneous server options in groups: *General settings, Two-digit year support, Network settings.*

General settings

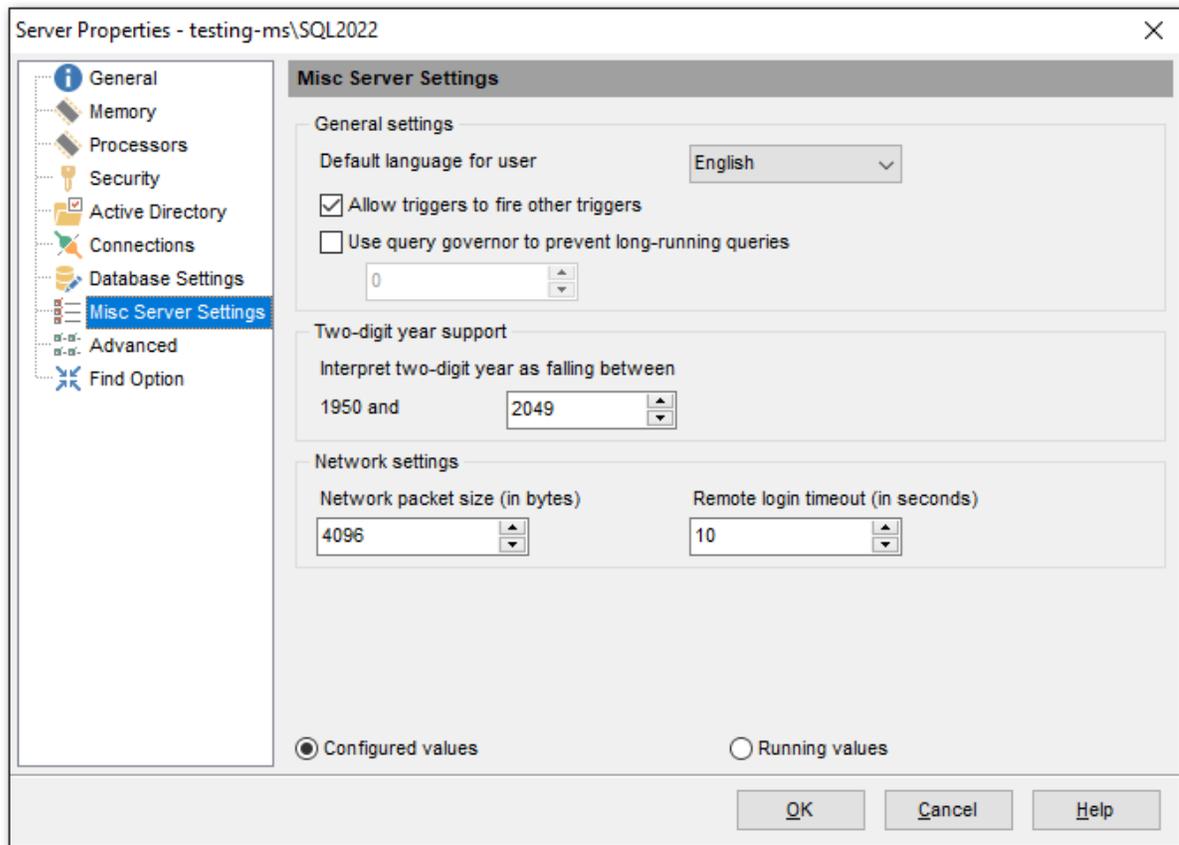
Use the **Default language for user** drop-down list to select the default language for all newly created user logins.

 Allow triggers to fire other triggers

Use this option to specify whether server-level triggers can be fired recursively.

 Use query governor to prevent long-running queries

This option allows you to specify a limit on the time period in which a query can run. The query governor disallows execution of any query that has an estimated cost exceeding that value.



Two-digit year support

Interpret two-digit year as falling between 1950 and ...

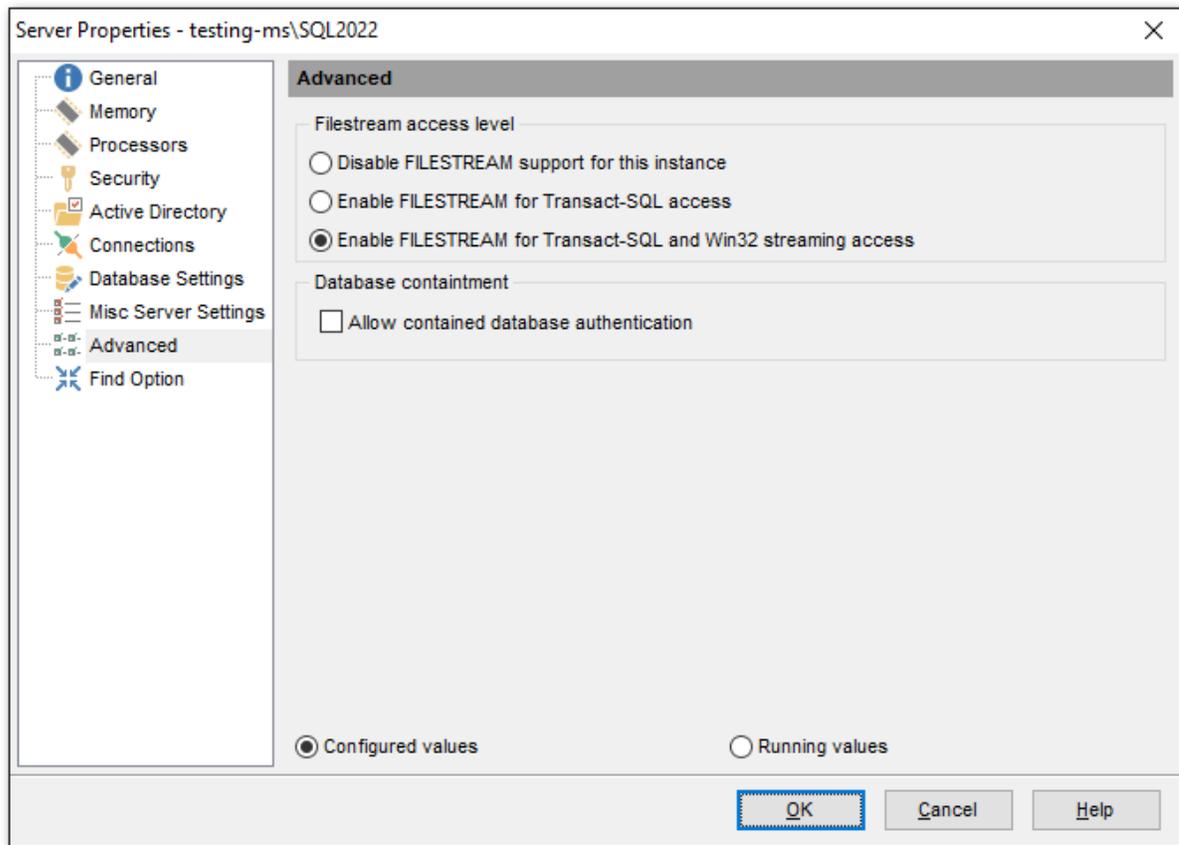
Use this option to specify an integer from 1950 to 9999 that represents the cutoff year for interpreting two-digit years as four-digit years.

Use the **Network packet size** option to set the packet size (in bytes) used across the entire network.

Use the **Remote login timeout** option to specify the time interval (in seconds) to wait before returning from a failed attempt to log in to a remote server.

4.6.9 Advanced settings

The **Advanced** section of the **Server Properties** dialog allows you to configure the instance of Microsoft® SQL Server by setting advanced server options in groups: *Filestream access level, Database containment.*



Filestream access level

FILESTREAM enables SQL Server-based applications to store unstructured data, such as documents and images, on the file system. Applications can leverage the rich streaming APIs and performance of the file system and at the same time maintain transactional consistency between the unstructured data and corresponding structured data.

- **Disable FILESTREAM support for this instance**

Check this option to disable FILESTREAM feature for handling unstructured data.

- **Enable FILESTREAM for Transact-SQL access**

Enable this option to manage FILESTREAM data with Transact-SQL statements (*insert*, *update*, *query*, *search*, and *back up*).

- **Enable FILESTREAM for Transact-SQL and Win32 streaming access**

Win32 file system interfaces provide I/O streaming access to the data. You can use Win32 to read and write data to a FILESTREAM BLOB.

Database containment

Contained Database is independent of the SQL Server Instance. All the database metadata and user information is stored inside the database itself.

- **Allow contained database authentication**

If this option is checked then contained databases can be created, or attached to the

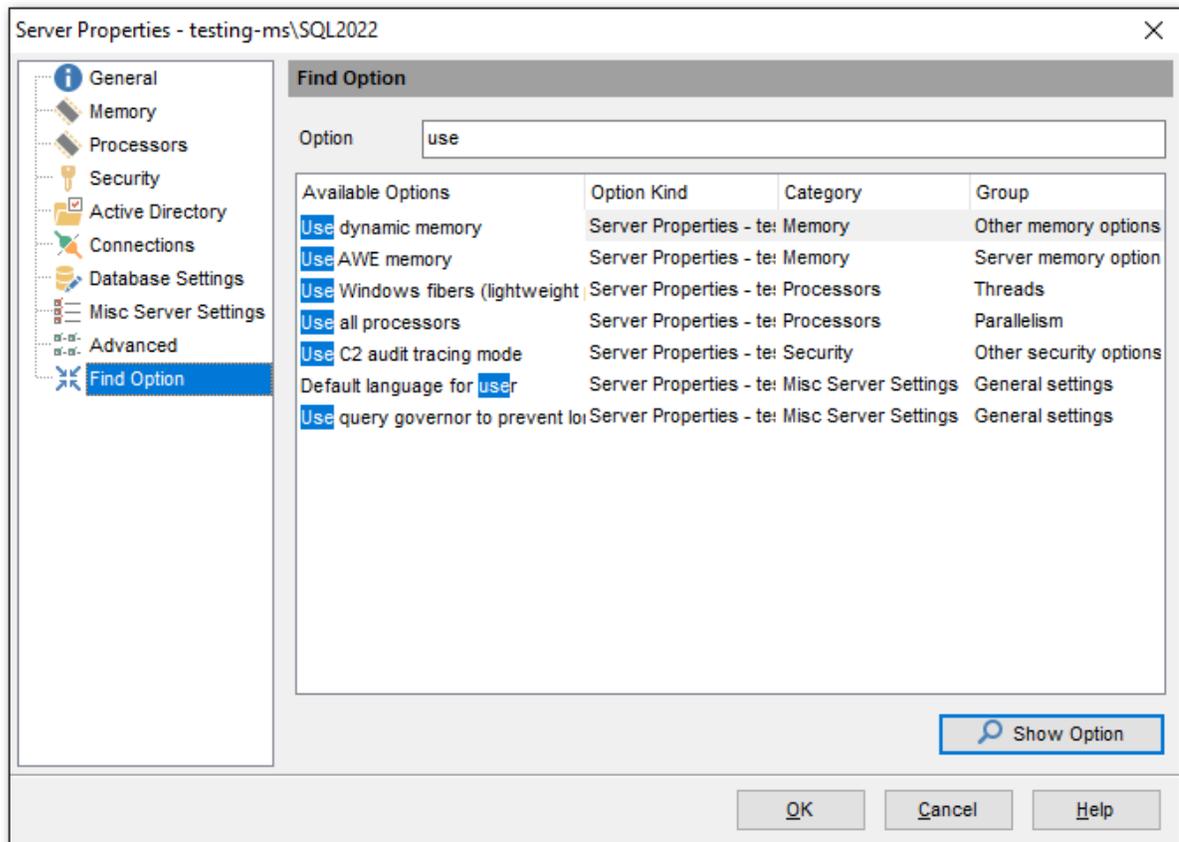
Database Engine.

4.6.10 Find Option

The **Find Option** section allows you to search for options available within the **Server Properties** dialog easily and quickly.

Option

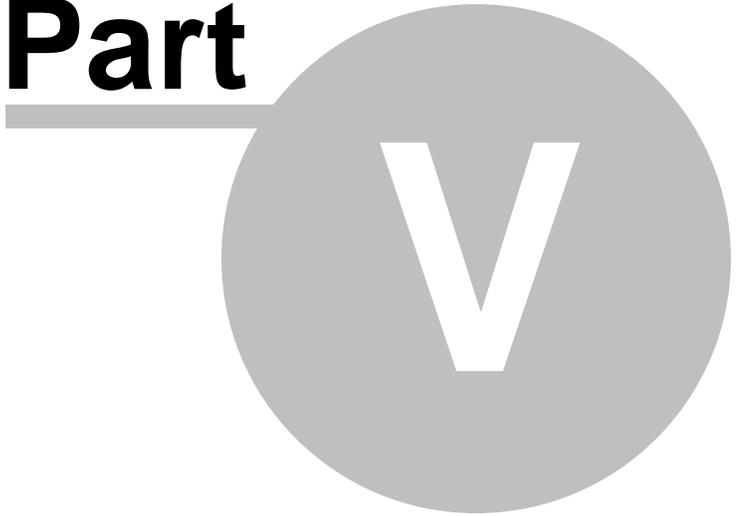
In this field you can enter the name of the option to search for within the server properties.



The **Available options** area lists all options of the Server Properties category according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location.

Select the required option in the list and click  **Show Option** to open the corresponding section where you can view/edit the value of this option. For your convenience the required option is marked with an animated  icon.

Part



5 Database and Server Objects Management

SQL Manager for SQL Server provides powerful tools to manage **database** and **server objects**.

To obtain detailed information concerning SQL Server database and objects, refer to the official Microsoft® SQL Server™ documentation.

Note: Before working with database and objects in SQL Manager for SQL Server you should [connect to the database](#)^[68] first.

Creating Database and Server Objects

To create a database or server objects:

- select the **Database | New Object...** [main menu](#)^[915] item;
- define whether to **Create Database Object** or **Create Server Object**;
- select the type of object within the [New Object](#)^[180] dialog;
- follow the steps of the wizard which guides you through the entire process of creating the object, or set the object properties using its editor - depending on the selected object type.

Note that you can also create a database object by selecting the appropriate [context menu](#)^[53] item of the [DB Explorer](#)^[71] tree or using the *Ctrl+N* [shortcut](#)^[952].

Editing Database and Server Objects

To edit a database or server object:

- select the database object in the [DB Explorer](#)^[63] tree;
- right-click the object to call its [context menu](#)^[56] and select the **Edit <object type> <object name>** context menu item, or double-click the object to open it in its editor.

Renaming Database and Server Objects

To rename a database or server object:

- select the object to rename in the [DB Explorer](#)^[63] tree;
- right-click the object and select the **Rename <object type> <object name>...** item from the [context menu](#)^[56];
- edit the object name using the **Rename Object...** dialog.

Note: This operation is possible for all objects except for [schemas](#)^[189], [XML Schema Collections](#)^[287], [Assemblies](#)^[304], [Certificates](#)^[329], [Asymmetric Keys](#)^[325], [Symmetric Keys](#)^[322], [Full-Text Catalogs](#)^[317].

Dropping Database and Server Objects

To drop a database or server object:

- select the database or server object in the [DB Explorer](#)^[71] tree;
- right-click the object to call its [context menu](#)^[56] and select the **Drop <object type> <object name>** context menu item;
- confirm dropping in the dialog window.

When using an object editor, you can benefit from **tabs**. To switch between tab views, click on their respective tabs at the top of the main editor window. You can do it at any time, since the tab views are absolutely independent.

To compile a newly created or edited object, you can use the  **Compile** item available within the [Navigation bar](#)^[915] or [Toolbar](#)^[917] of the object editor.

See also:

[Getting Started](#)^[41]

[Database Explorer](#)^[63]

[Database Management](#)^[94]

[Query Management Tools](#)^[424]

[Data Management](#)^[462]

[Import/Export Tools](#)^[530]

[Database Tools](#)^[617]

[Server Tools](#)^[715]

[Personalization](#)^[824]

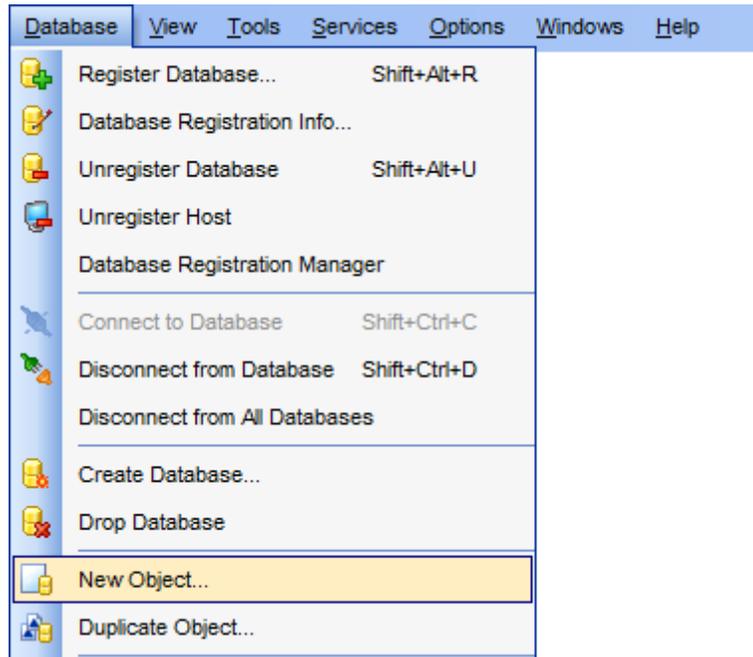
[External Tools](#)^[909]

[How To...](#)^[957]

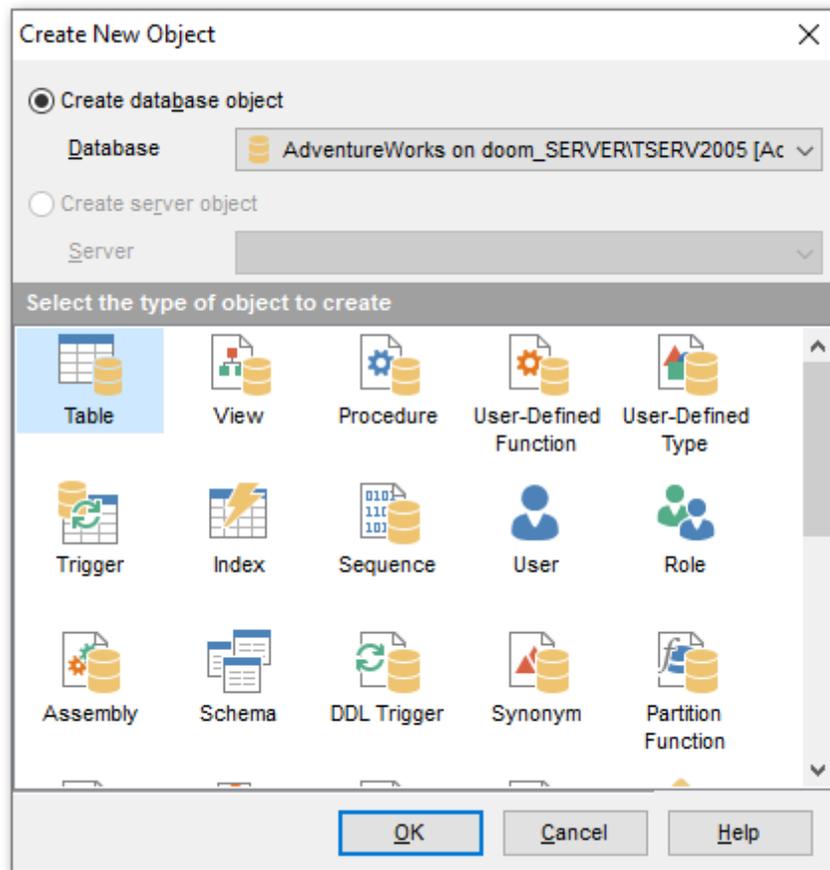
5.1 New Object

The **Create New Object** dialog allows you to select the type of the object to be created and run the appropriate wizard or editor.

To open the dialog, select the **Database | New Object...** [main menu](#)  item.



Specify whether object of the *database* or *server level* is to be created. Use the **Database** or **Server** drop-down list to select the alias of the database or server where the new object should be created. Pick an object type icon and click **OK** to invoke the corresponding wizard or dialog.



Note: The **Create server object** option is available only if you are [connected to the host](#)^[68].

See also:

[Operations with database and server objects](#)^[71]

[Duplicate Object Wizard](#)^[182]

[Database objects](#)^[187]

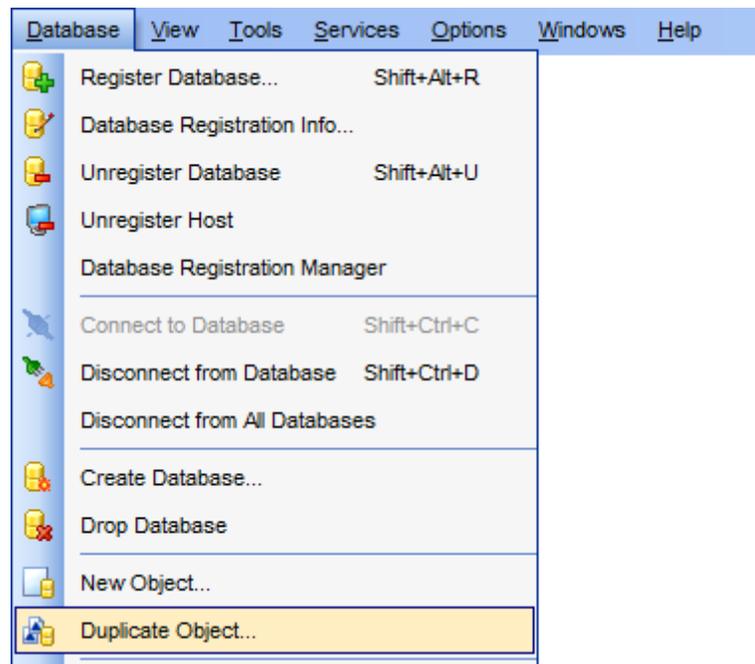
[Server Objects](#)^[353]

5.2 Duplicate Object Wizard

Use the **Duplicate Object Wizard** to create a new database or server object of the same type and having the same properties as one of the existing ones.

To run the wizard, select the **Database | Duplicate Object...** [main menu](#)^[915] item, or right-click an object of the desired type in the [DB Explorer](#)^[63] tree and use the **Duplicate <object type> <object name>...** [context menu](#)^[56] item.

Note: **Duplicate Object Wizard** can be launched on drag-and-drop operation, when you drag an object from one server in the [DB Explorer](#)^[63] to another.



- [Selecting the source database](#)^[182]
- [Selecting object to duplicate](#)^[183]
- [Selecting destination database](#)^[184]
- [Modifying the new object's definition](#)^[185]

See also:

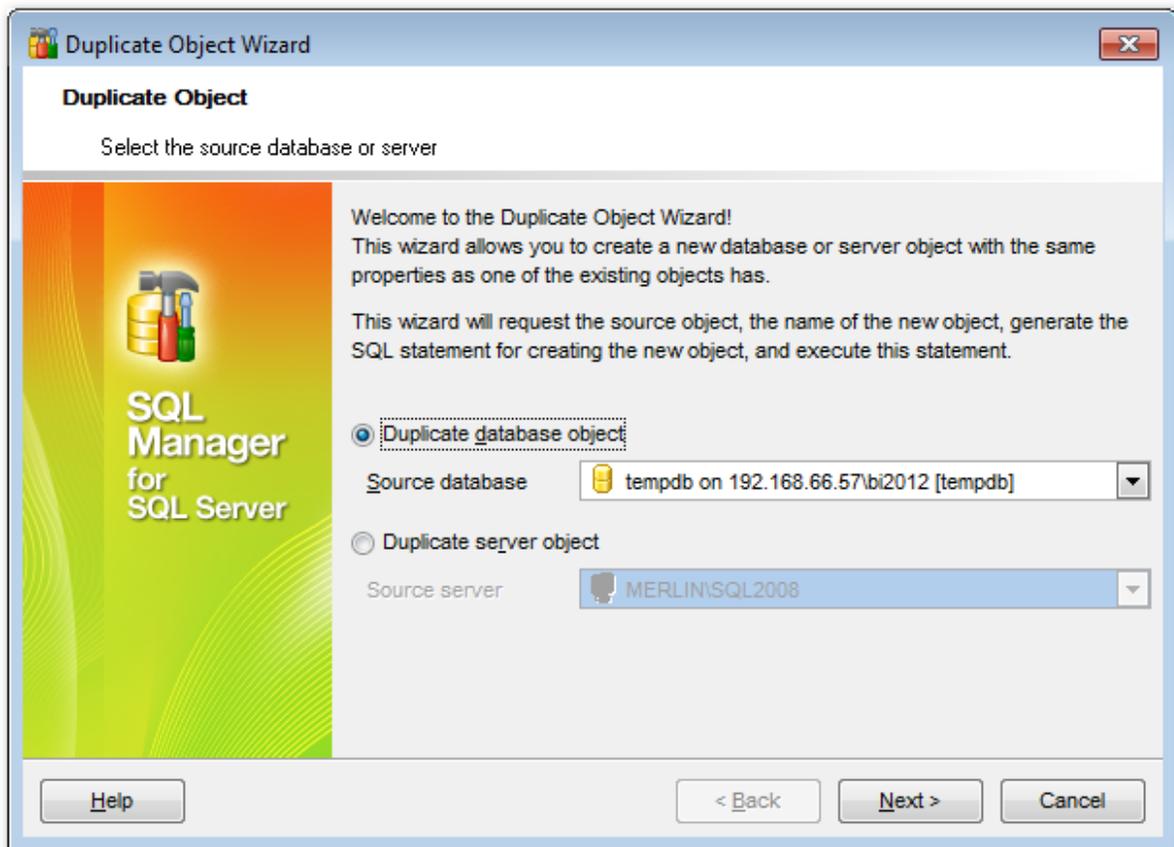
[New Object dialog](#)^[180]

[Database objects](#)^[187]

[Server Objects](#)^[353]

5.2.1 Selecting the source database

This step of the wizard allows you to specify whether object of the database or server level is to be duplicated, and to select the **source database** / **server** containing the source object for duplication.



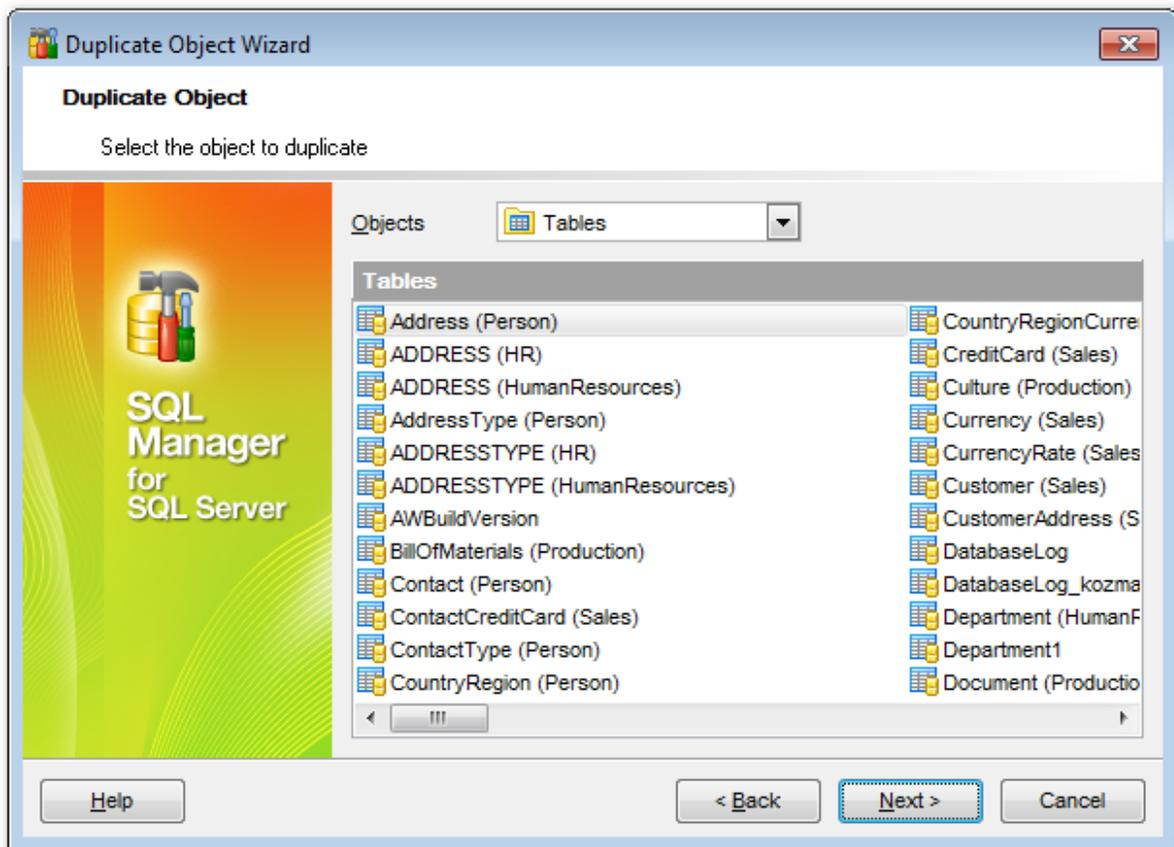
Click the **Next** button to proceed to the [Selecting object to duplicate](#)¹⁸³ step of the wizard.

5.2.2 Selecting object to duplicate

Use the **Objects** drop-down menu to select the type of object you intend to duplicate.

Select a database/server object to copy its properties to the new object.

Hint: The **context menu** of the objects list area allows you to specify whether objects of the specified type should be displayed as *icons* or as *list*.

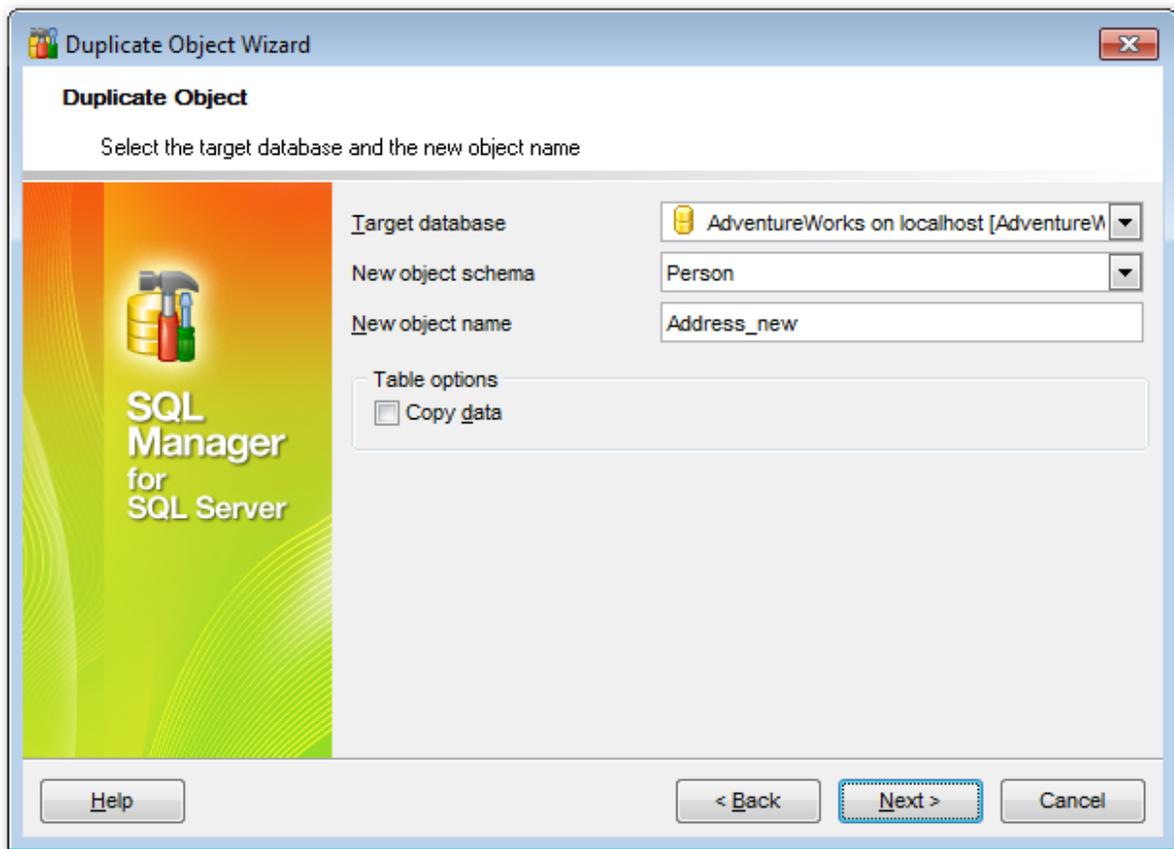


Click the **Next** button to proceed to the [Selecting destination database](#) ¹⁸⁴ step of the wizard.

5.2.3 Selecting destination database or server

Select the **target database / server** and **schema** (for a database object) to create the new object in, set the **name** of the new database/server object.

Check the **Copy data** option to copy data from the source table to the new one.

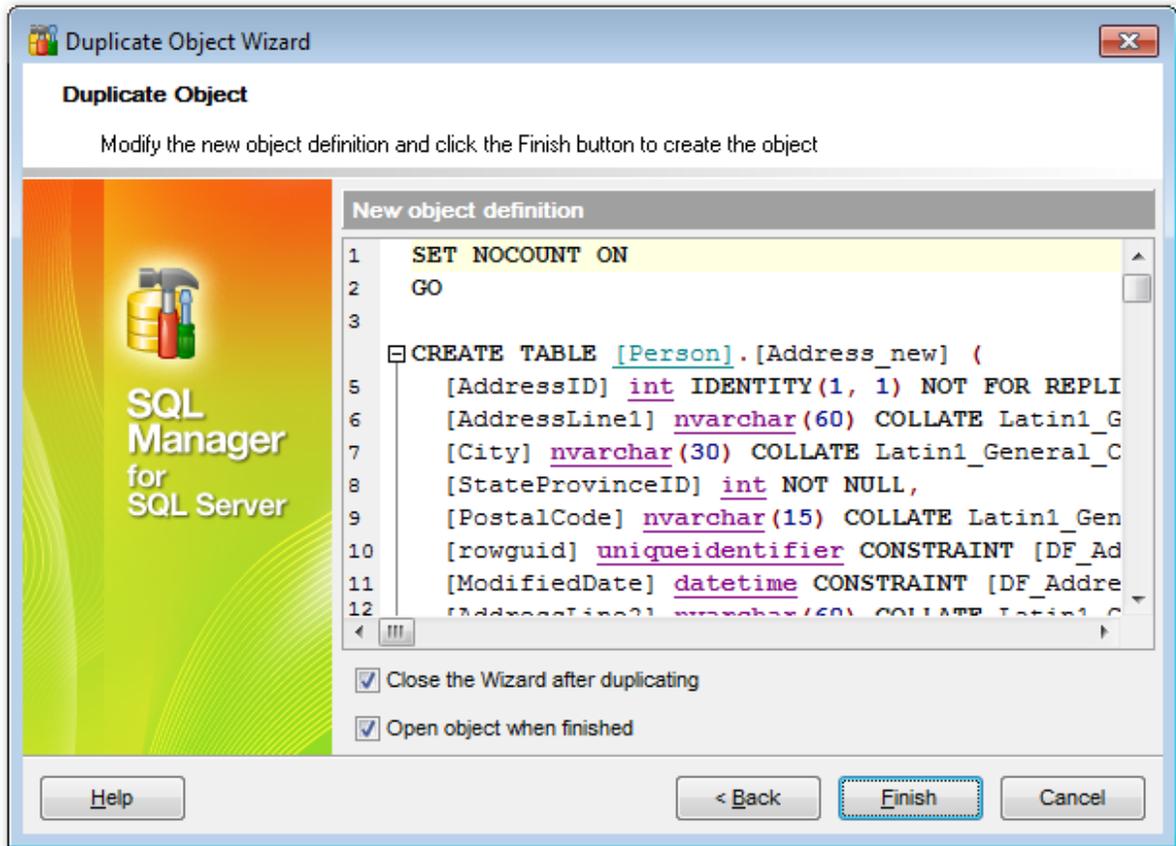


Click the **Next** button to proceed to the [Modifying the new object's definition](#)^[185] step of the wizard.

5.2.4 Modifying the new object's definition

This step of the wizard allows you to browse **the result SQL statement**.

If necessary, you can edit the definition of the new object.



Close the wizard after duplicating

If this option is selected, the wizard is closed automatically when the new object is created.

Open object when finished

Select this option to open the newly created object in its editor.

Click the **Finish** button to create the object.

5.3 Database objects

SQL Manager for SQL Server provides all necessary facilities for working with database objects.

Note: To start working with database objects you need to [connect to database](#)^[68].

Database Objects:

[Schemas](#)^[189]

Schema Objects:

[Tables](#)^[192]

[Views](#)^[246]

[Procedures](#)^[253]

[UDTs](#)^[263]

[UDFs](#)^[259]

[Synonyms](#)^[275]

[Aggregates](#)^[278]

[XML Schema Collections](#)^[281]

[Defaults](#)^[284]

[Rules](#)^[287]

[Queues](#)^[289]

Non-schema Objects:

[Assemblies](#)^[304]

[DDL Triggers](#)^[307]

[Partition Functions](#)^[310]

[Partition Schemes](#)^[314]

[Full-Text Catalogs](#)^[317]

[Symmetric Keys](#)^[322]

[Asymmetric Keys](#)^[325]

[Certificates](#)^[329]

[Message Types](#)^[334]

[Contracts](#)^[337]

[Services](#)^[340]

[Routes](#)^[343]

[Remote Service Bindings](#)^[346]

Creating Database Objects

To create a database object:

- select the **Database | New Object...** [main menu](#)^[915] item;
- select the type of object within the [New Object](#)^[180] dialog;
- follow the steps of the wizard which guides you through the entire process of creating the object, or set the object properties using its editor - depending on the selected object type.

Note that you can also create a database object by selecting the appropriate [context menu](#)^[53] item of the [DB Explorer](#)^[71] tree or using the *Ctrl+N* [shortcut](#)^[952].

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

- select the **Database | Duplicate Object...** [main menu](#)^[915] item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click an object in the [DB Explorer](#)^[63] tree and select the **Duplicate Object <object_name>...** context menu item.

Editing Database Objects

To edit a database object:

- select the database object in the [DB Explorer](#)^[63] tree;
- right-click the object to call its [context menu](#)^[56] and select the **Edit <object type> <object name>** context menu item, or double-click the object to open it in its editor;

Renaming Database Objects

To rename a database object:

- select the object to rename in the [DB Explorer](#)^[63] tree;
- right-click the object and select the **Rename <object type> <object name>...** item from the [context menu](#)^[56];
- edit the object name using the **Rename Object...** dialog.

Note: This operation is possible for all objects except for [schemas](#)^[189], [XML Schema Collections](#)^[281], [Assemblies](#)^[304], [Certificates](#)^[329], [Asymmetric Keys](#)^[325], [Symmetric Keys](#)^[322], [Full-Text Catalogs](#)^[317].

Dropping Database Objects

To drop a database object:

- select the database object in the [DB Explorer](#)^[71] tree;
- right-click the object to call its [context menu](#)^[56] and select the **Drop <object type> <object name>** context menu item;
- confirm dropping in the dialog window.

Note: If more convenient, you can also use the following [shortcuts](#)^[952]:

Ctrl+N to create a new object;

Ctrl+O to edit the selected object;

Ctrl+R to rename the object;

Shift+Del to drop the object from the database.

When using an object editor, you can benefit from **tabs**. To switch between tab views, click on their respective tabs at the top of the main editor window. You can do it at any time, since the tab views are absolutely independent.

To compile a newly created or edited object, you can use the  **Compile** item available within the [Navigation bar](#)^[915] or [Toolbar](#)^[917] of the object editor.

See also:

[Operations with database and server objects](#)^[71]

[New Object](#)^[180]

[Duplicate Object Wizard](#)^[182]

[Server Objects](#)^[353]

5.3.1 Schemas

A **Schema** is essentially a namespace: it can be defined as a collection of database [objects](#)^[192] that form a single namespace. A namespace is a set in which each element has a unique name.

Creating Schemas

To create a new schema:

- select the **Database | New Object...** [main menu](#)^[915] item;
- select **Schema** in the [Create New Object](#)^[180] dialog;
- define schema properties using the appropriate tabs of [Schema Editor](#)^[190].

Hint: To create a new schema, you can also right-click the **Schemas** node or any object within this node in the [DB Explorer](#)^[63] tree and select the **New Schema** item from the [context menu](#)^[56].

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

- select the **Database | Duplicate Object...** [main menu](#)^[915] item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click a schema in the [DB Explorer](#)^[63] tree and select the **Duplicate Schema <schema_name>...** context menu item.

[Duplicate Object Wizard](#)^[182] allows you to select the database to create a new schema in, and to edit the result SQL statement for creating the schema.

Editing Schemas

To edit an existing schema:

- select the schema for editing in the [DB Explorer](#)^[63] tree (type the first letters of the schema name for quick [search](#)^[83]);
- right-click the object and select the **Edit Schema <schema_name>...** context menu item, or simply double-click the schema;
- edit schema properties using the appropriate tabs of [Schema Editor](#)^[190].

Dropping Schemas

To drop a schema:

- select the schema to drop in the [DB Explorer](#)^[63] tree;
- right-click the object and select the **Drop Schema <schema_name>...** context menu item;
- confirm dropping in the dialog window.

Note: If more convenient, you can also use the following [shortcuts](#)^[952]:

Ctrl+N to create a new schema;

Ctrl+O to edit the selected schema;

Shift+Del to drop the object from the database.

See also:

[Schema Objects](#)^[192]

5.3.1.1 Schema Editor

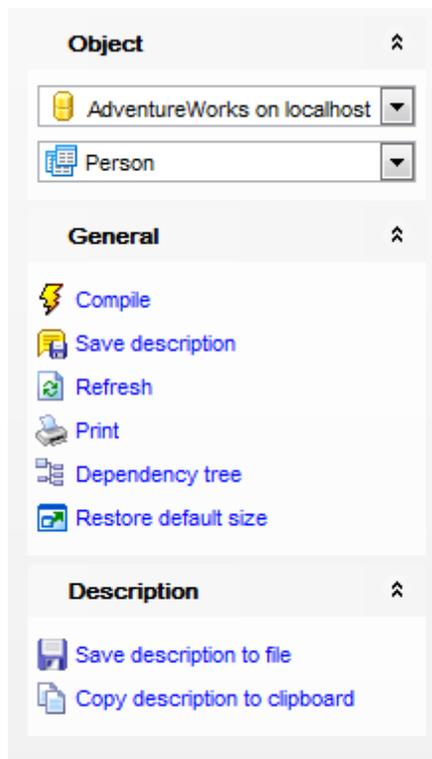
Schema Editor allows you to manage SQL Server schemas efficiently. It opens automatically when you create a new schema and is available on editing an existing one (see [Create schema](#)^[189] and [Edit schema](#)^[189] for details).

To open a schema in **Schema Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[190]
- [Creating/editing schema](#)^[191]
- [Browsing object dependencies](#)^[921]
- [Editing schema description](#)^[920]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.1.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Schema Editor**.



The **Navigation bar** of **Schema Editor** allows you to:

Object

- select a database
- select a schema for editing

General

-  [compile](#)^[923] the schema (if it is being created/modified)
-  save the schema [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the schema
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the schema:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

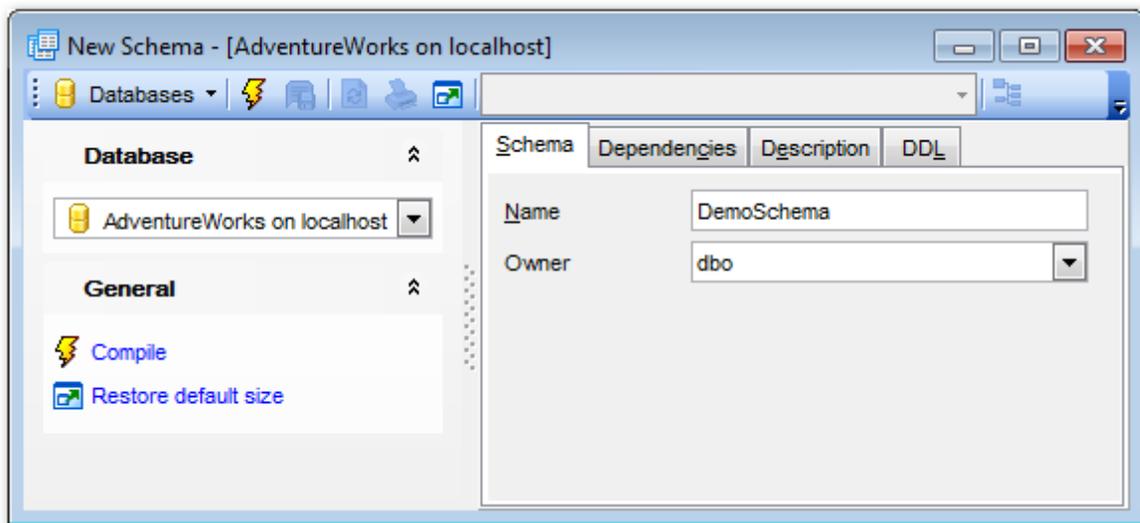
DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Schema Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.1.1.2 Creating/editing schema

Use the **Schema** tab of **Schema Editor** to create/edit a schema and specify its properties.



Name

Specify the name by which the schema is identified within the database.

Owner

Specify the name of the database-level principal ([user](#)^[295] or [role](#)^[301]) that will own the schema. This principal may own other schemas, and may not use the current schema as its default schema.

5.3.2 Schema Objects

A **schema** is a collection of logical structures of data, or **schema objects**. A schema is owned by a database user. Each user can own a single schema. Schema objects can be created and manipulated with SQL and include the following types of objects:

- [Tables](#)^[192]
- [Views](#)^[246]
- [Procedures](#)^[253]
- [User-defined types](#)^[263]
- [User-defined functions](#)^[259]
- [Synonyms](#)^[275]
- [Aggregates](#)^[278]
- [XML Schema Collections](#)^[281]
- [Defaults](#)^[284]
- [Rules](#)^[287]
- [Queues](#)^[289]
- [External Tables](#)^[293]

Use the [DB Explorer](#)^[63] tree to [navigate](#)^[49] within the existing schemas and their objects.

See also:

[New Object dialog](#)^[180]

[Duplicate Object Wizard](#)^[182]

5.3.2.1 Tables

Relational databases store all their data in **Tables**. A table is a data structure consisting of an unordered set of horizontal rows, each containing the same number of vertical columns. The intersection of an individual row and column is a field that contains a specific piece of information. Much of the power of relational databases comes from defining the relations among the tables.

Creating Tables

To create a new table:

- select the **Database | New Object...** [main menu](#)^[915] item;
- select **Table** in the [Create New Object](#)^[180] dialog;
- define table properties and columns using the appropriate tabs of [Table Editor](#)^[193].

Hint: To create a new table, you can also right-click the **Tables** node or any object within this node in the [DB Explorer](#)^[63] tree and select the **New Table...** item from the [context menu](#)^[56].

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

- select the **Database | Duplicate Object...** [main menu](#)^[915] item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click a table in the [DB Explorer](#)^[63] tree and select the **Duplicate Table <table_name>...** context menu item.

[Duplicate Object Wizard](#)^[182] allows you to select the database to create a new table in, and to edit the result SQL statement for creating the table.

Editing Tables

To edit an existing table (manage its [columns](#)^[204], [indexes](#)^[208], [data](#)^[210], etc.):

- select the table for editing in the [DB Explorer](#)^[63] tree (type the first letters of the table name for quick [search](#)^[83]);
- right-click the object and select the **Edit Table <table_name>** context menu item, or simply double-click the table;
- edit table subobjects and data using the appropriate tabs of [Table Editor](#)^[200].

To change the name of a table:

- select the table to rename in the [DB Explorer](#)^[63] tree;
- right-click the table alias and select the **Rename Table <table_name>...** item from the [context menu](#)^[56];
- edit the table name using the **Rename Object...** dialog.

Dropping Tables

To drop a table:

- select the table to drop in the [DB Explorer](#)^[63] tree;
- right-click the object and select the **Drop Table <table_name>...** context menu item;
- confirm dropping in the dialog window.

Note: If more convenient, you can also use the following [shortcuts](#)^[952]:

Ctrl+N to create a new table;

Ctrl+O to edit the selected table;

Ctrl+R to rename the table;

Shift+Del to drop the object from the database.

5.3.2.1.1 New table

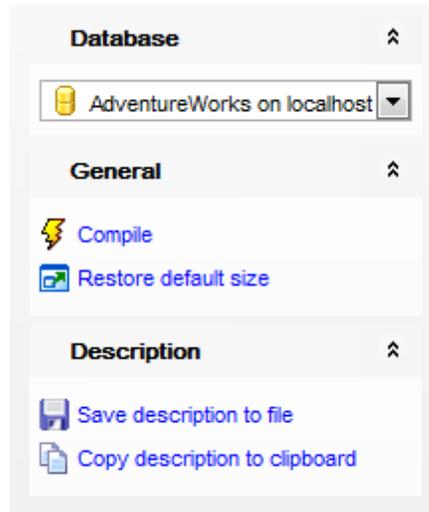
The **New Table** window is a mode of [Table Editor](#)^[200] that opens automatically when you create a new table (see [Create table](#)^[192] for details) and allows you to create a new table, set table [properties](#)^[195], specify table [columns](#)^[196] and edit table description.

To call **Table Editor** for creating a new table, you can right-click the **Tables** node or any object within this node in the [DB Explorer](#)^[63] tree and use the *Ctrl+N* [shortcut](#)^[952].

- [Using Navigation bar and Toolbar](#)^[193]
- [Setting table properties](#)^[195]
- [Specifying table columns](#)^[196]

5.3.2.1.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Table Editor**.



The **Navigation bar** of **Table Editor** (in the *New table* mode) allows you to:

Database

 select a database to create a new table in

General

 [compile](#)^[923] the newly created table
 restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the table:

Columns

 [add](#)^[213] a new column
 [edit](#)^[213] selected column
 [drop](#)^[213] selected column(s)

Description

 save object [description](#)^[920] to file
 copy [description](#)^[920] to clipboard

DDL

 save [DDL](#)^[919] to file
 open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Table Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.2.1.1.2 Setting table properties

Use the **Table** tab of **Table Editor** to create a table and specify its properties.

Table name

Enter a name for the new table. Note that table names must comply with the rules for identifiers and must be unique within the [schema](#)^[189]. A table name can contain a maximum of 128 characters.

Schema

Use the drop-down list to select the [schema](#)^[189] to which the table belongs. The default selection is the default schema for the current [user](#)^[295].

The screenshot shows the 'Table' tab of the Table Editor. It includes the following fields and options:

- Table name:** text input field containing 'table1'.
- Schema:** dropdown menu showing 'dbo'.
- Data space:** dropdown menu showing '< Default >'.
- Partitioning column:** dropdown menu (disabled).
- Text and image file group:** dropdown menu showing '< Default >'.
- Filestream dataspace:** dropdown menu showing '< Default >'.
- Compression (by partitions):** section with a table:

#	Filegroup	Compression
1	< Default >	<input checked="" type="radio"/> None <input type="radio"/> Row <input type="radio"/> Page
- FileTable:** checkbox.
- As Node:** checkbox.
- As Edge:** checkbox.
- Memory-optimized table:** checkbox.
- Durability:**
 - Schema and data
 - Schema only

 File table

Check this option to enable file and directory storage in the database. A FileTable is a specialized user table with a pre-defined schema that stores FILESTREAM data, as well as file and directory hierarchy information and file attributes.

 As Node

Check this option to create a node table for SQL Graph.

 As Edge

Check this option to create an edge table for SQL Graph.

Memory-optimized table

Check this option to enable memory-optimized table creation. Memory-optimized tables are in memory user tables, the schema of which is persisted on disk similar to other user tables.

If you have selected to create a memory-optimized table, you must specify [memory-optimized table indices](#)^[198].

Durability

Schema and data

This value indicates that the table is a durable memory-optimized table. This option provides durability of both schema and data.

Schema only

This value indicates that the table is non-durable. This option ensures durability of the table schema, including indexes.

Such tables are not logged and their data is not persisted on disk.

Data space

Use the drop-down list to specify the new table data storage (a file group or a [partition scheme](#)^[314]).

Partitioning column

This drop-down list is only available if a [partition scheme](#)^[314] is specified for **Data space**. Select a [column](#)^[196] that will be used as the partitioning column for the table.

Text and image file group

Use the drop-down list to select the file group where data of the *text* and *image* types will be stored.

If necessary, you can also use the **Description** area to supply a *description* for the table being created.

For SQL Server 2008 and higher, **Table Editor** provides some additional table properties to define:

Filestream dataspaces

Select the needed [Filestream filegroup](#)^[154] from the drop-down list.

Compression (by partitions)

Use this area to set compression options for the table. Compression type can be different for each table partition. Set the partition compression to *Row* or *Page*. Set *None* to leave a partition uncompressed.

To compile the table, use the  **Compile** item available within the [Navigation bar](#)^[193].

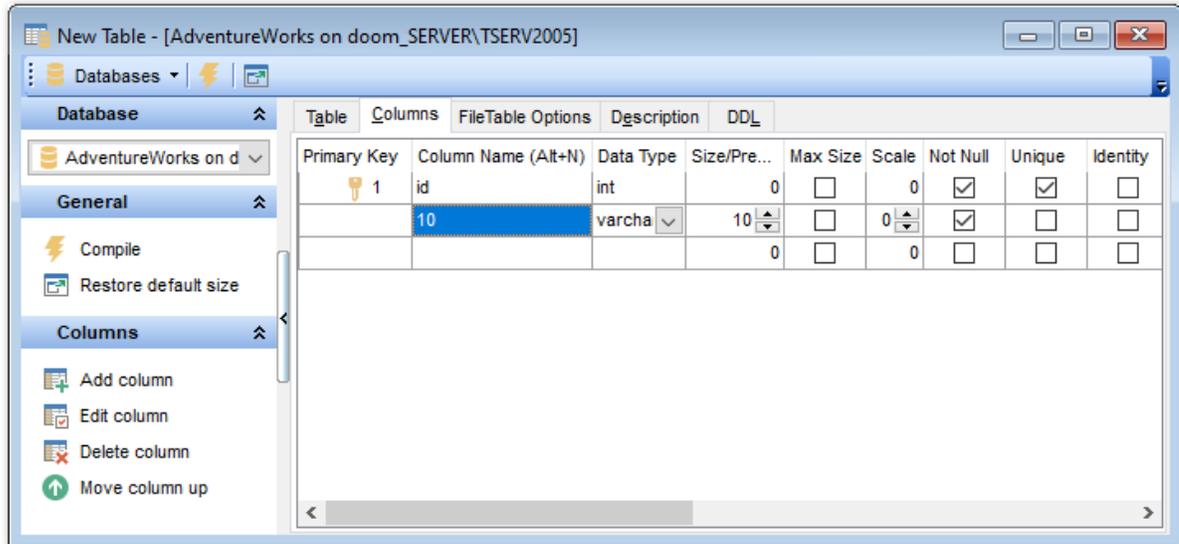
5.3.2.1.1.3 Specifying columns

The **Columns** tab is intended for setting up table [column](#)^[213]. Double-click a row to open [Column Editor](#)^[214] for editing the column.

Right-click within the **Table Columns** area to display the context menu allowing you to

add, insert, edit or delete columns.

Columns management tools are also available through the [Navigation bar](#)^[193] of **Table Editor**.



The **Table Columns** list provides the following attributes of each field of the new table:

Primary Key
Column Name
Data Type
Size
Max Size
Precision
Not Null
Unique
Identity
Default Value
Default Object
Comment

For details see [Columns](#)^[213].

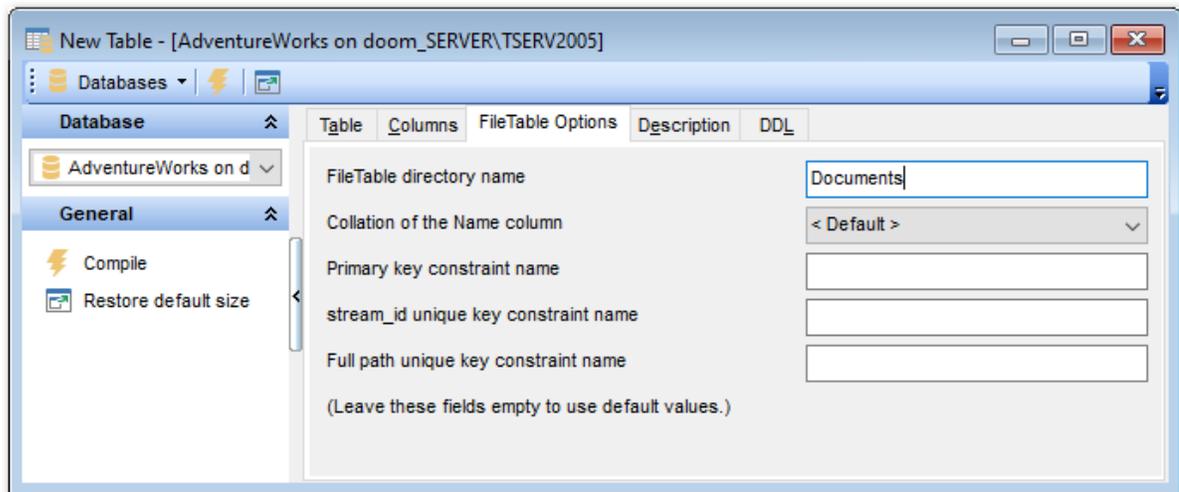
To compile the table, use the **Compile** item available within the [Navigation bar](#)^[193].

5.3.2.1.1.4 Specifying FileTable options

Use the **FileTable Options** tab to configure settings for the FileTable being created.

This tab is available only for SQL Server 2012.

The fields on this tab are enabled only if the **File table** option is checked on the [Table](#)^[195] tab.



FileTable directory name

Specifies the windows-compatible FileTable directory name. This name should be unique among all the FileTable directory names in the database. If this value is not specified, the name of the filetable is used.

Collation of the Name column

Select the name of the collation to be applied to the *Name* column in the FileTable. If this value is not specified, the database default collation is used.

Primary key constraint name

Set the name to be used for the primary key constraint that is automatically created on the FileTable. If this value is not specified, the system generates a name for the constraint.

stream_id unique key constraint name

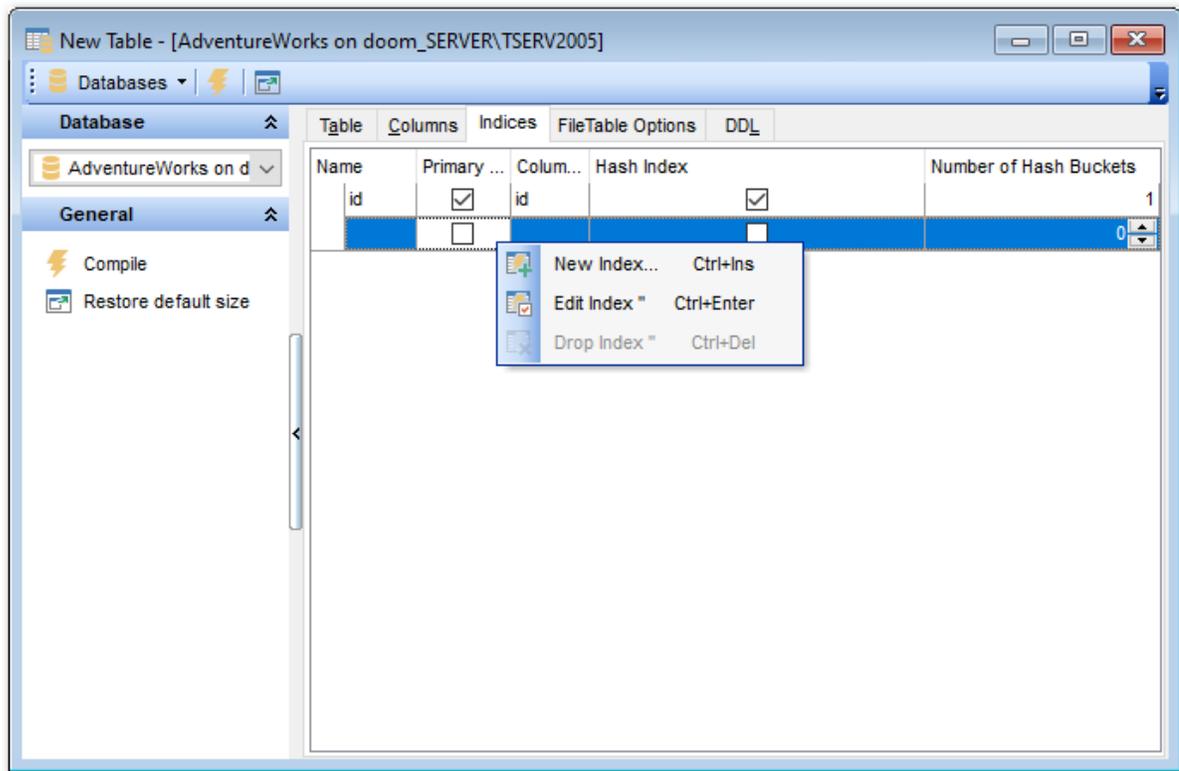
Define the name to be used for the unique constraint that is automatically created on the *stream_id* column in the FileTable. If this value is not specified, the system generates a name for the constraint.

Full path unique key constraint name

Specify the name to be used for the unique constraint that is automatically created on the *parent_path_locator* and *name* columns in the FileTable. If this value is not specified, the system generates a name for the constraint.

5.3.2.1.1.5 Specifying memory-optimized table indices

Use the **Indices** tab to specify indices for the newly created memory- optimized table.



The **Indexes** list provides the following attributes of each index of the table:

Name

Primary Key

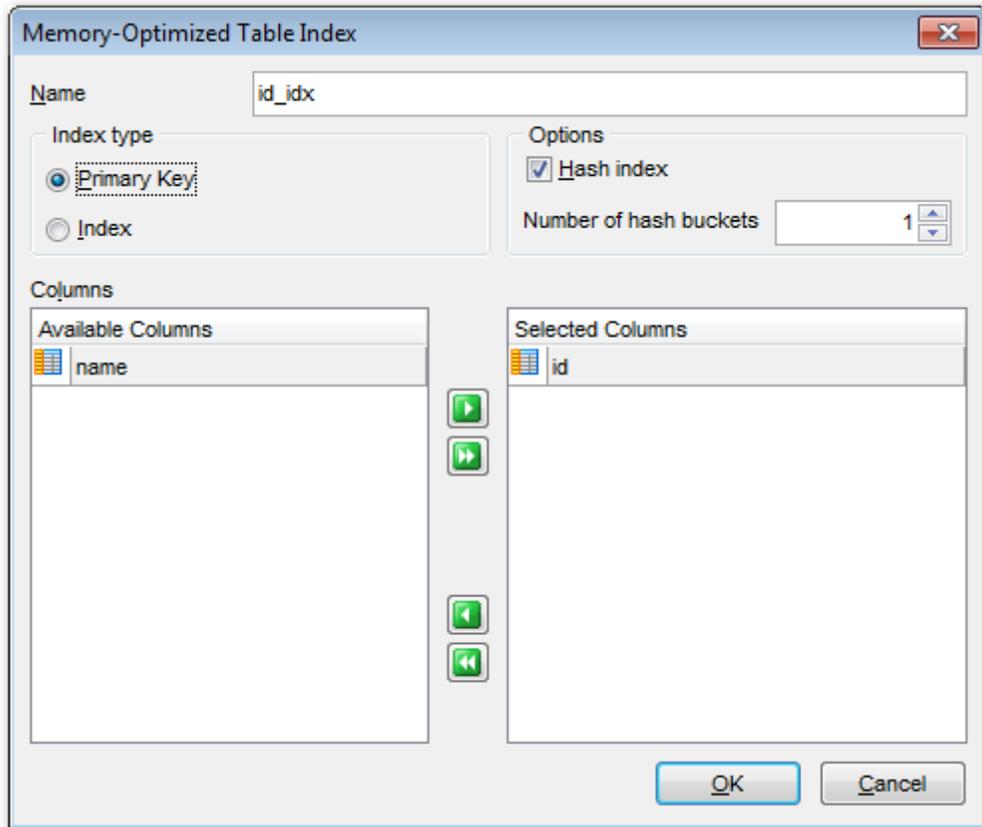
Columns

Hash index

Number of Hash Bucket

Right-click an index to display the context menu allowing you to *create new*, *edit* or *drop* an index.

Double-click an index or use the *New/Edit Index* context menu item to open Memory-optimized table index editor for editing the index.



Index type

Primary Key

This selection indicates that the primary key index is created.

Index

This selection specifies a regular, non-unique index.

Options

Hash index

Checking this option indicates that a HASH index is created. A hash index consists of a collection of buckets organized in an array.

Number of hash buckets

Define the number of buckets that should be created in the hash index.

Columns

To include column(s) in the index, you need to move it from the **Available Columns** list to the **Selected Columns** list. Use the     buttons or drag-and-drop operations to move the columns from one list to another.

5.3.2.1.2 Table Editor

Table Editor is the basic SQL Manager tool for working with [tables](#)^[192]. It opens automatically in the [New table](#)^[193] mode when you create a new table and is available on

editing an existing one (see [Create table](#)^[192] and [Edit table](#)^[193] for details).

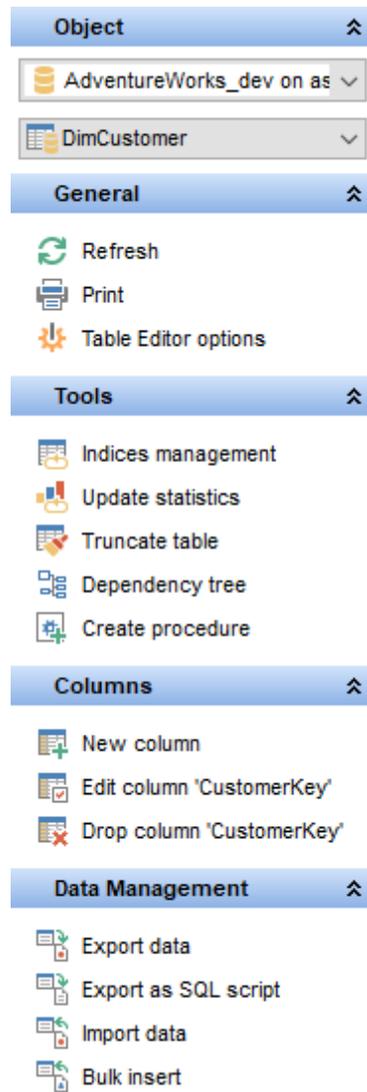
Table Editor allows you to create, edit and drop table's [columns](#)^[213], [indexes](#)^[228], [foreign keys](#)^[221] and other table subobjects, manage table [data](#)^[210], [properties](#)^[211] and much more.

To open a table in **Table Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[201]
- [Managing table columns](#)^[204]
- [Changing columns order](#)^[205]
- [Managing table foreign keys](#)^[206]
- [Managing table checks](#)^[207]
- [Managing table indexes](#)^[208]
- [Managing table triggers](#)^[209]
- [Browsing object dependencies](#)^[921]
- [Working with table data](#)^[210]
- [Editing table description](#)^[920]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]
- [Table properties](#)^[211]

5.3.2.1.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Table Editor**.



The **Navigation bar** of **Table Editor** (in the *Edit table* mode) allows you to:

Object

-  select a database
-  select a table for editing

General

-  [compile](#)^[923] the table (if it is being modified)
-  save the table [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the table
-  adjust [Table Editor options](#)^[835]
-  restore the default size and position of the editor window

Tools

-  manage table indexes using [Indices Management Wizard](#)^[760]
-  update table statistics using [Statistics Update Wizard](#)^[766]
-  truncate data of the table (with the `TRUNCATE TABLE` statement used)
-  rebuild the dependent objects (for views only)
-  view the [dependency tree](#)^[612] for the table
-  [create](#)^[240] a [procedure](#)^[253] based on the table

Explorer

-  browse the table subobjects using the Explorer tree

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the table:

Columns

-  [add](#)^[213] a new column
-  [edit](#)^[213] selected column
-  [drop](#)^[213] selected column(s)

Foreign keys

-  [add](#)^[221] a new foreign key
-  [edit](#)^[221] selected foreign key
-  [drop](#)^[222] selected foreign key(s)

Checks

-  [add](#)^[225] a new check
-  [edit](#)^[225] selected check
-  [drop](#)^[226] selected check(s)

Indices

-  [add](#)^[228] a new index
-  [edit](#)^[228] selected index
-  [drop](#)^[228] selected index(-es)

Triggers

-  [add](#)^[237] a new trigger
-  [edit](#)^[237] selected trigger
-  [drop](#)^[237] selected trigger(s)

Data Management

-  commit transaction
-  rollback transaction
-  export data from the table using [Export Data Wizard](#)^[531]
-  export data from the table as SQL script using [Export as SQL Script Wizard](#)^[593]
-  import data into the table using [Import Data Wizard](#)^[571]
-  load data into the table using [Bulk Insert Wizard](#)^[602]

Description

-  save object [description](#)^[920] to file

 copy [description](#) to clipboard

DDL

 save [DDL](#) to file

 open [DDL](#) in [Query Data](#)

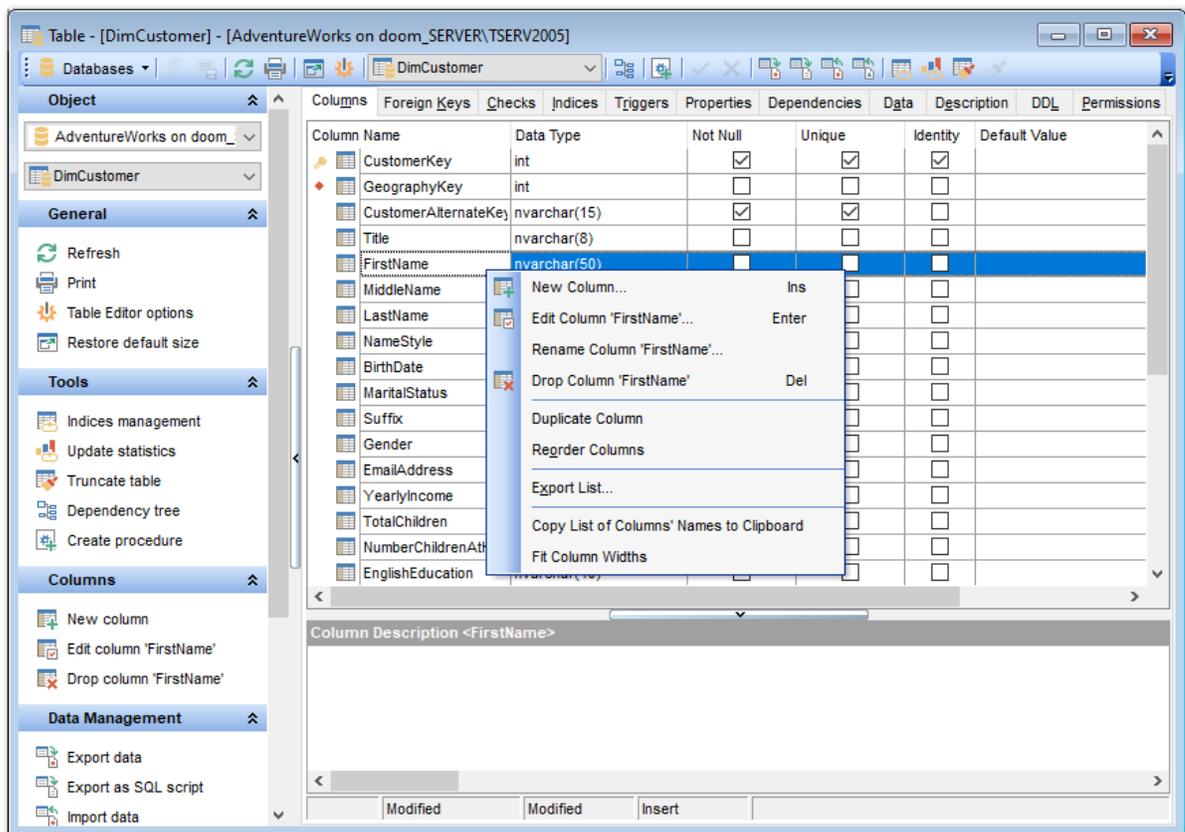
Items of the **Navigation bar** are also available on the **ToolBar** of **Table Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.3.2.1.2.2 Managing columns

The **Columns** tab is intended for managing table [columns](#). Double-click a row to open [Column Editor](#) for editing the column.

Right-click a row to display the context menu allowing you to *create new, edit, drop, rename, duplicate* the selected column, or [reorder](#) columns of the table. Using the menu you can also [export](#) the list of the table columns to any of supported [formats](#).

Columns management tools are also available through the [Navigation bar](#) of **Table Editor**.



The **Columns** list provides the following attributes of each column of the table:

Column Name

Data Type

Not Null

Unique

Identity

Default Value

For details see [Columns](#)^[213].

If necessary, you can also use the **Column Description** area to supply a *description* for each column.

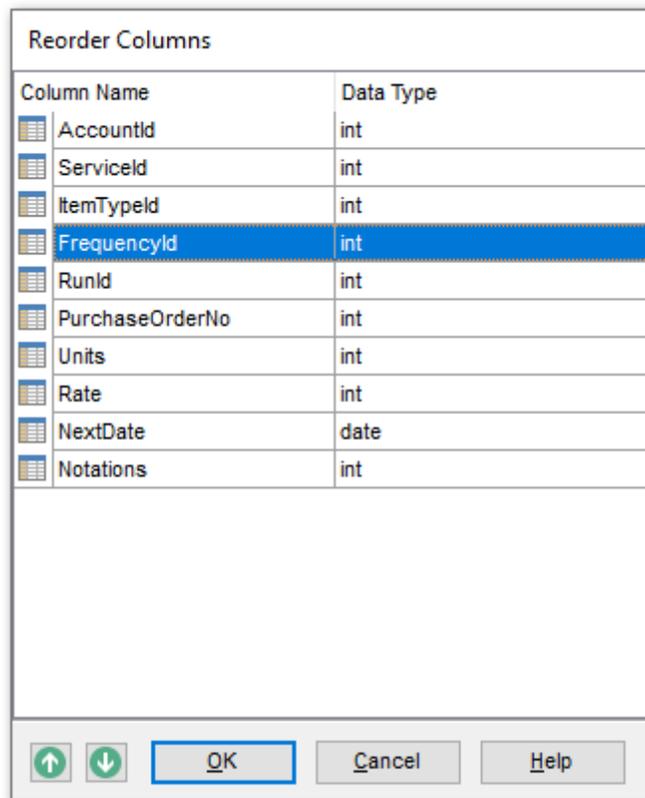
5.3.2.1.2.3 Changing columns order

The **Reorder Columns** dialog allows you to change the columns order in the table.

To open this dialog, open the table in **Table Editor**, proceed to the [Columns](#)^[204] tab there, right-click within the **Columns** list and select the **Reorder Columns** item from the context menu.

The columns are displayed in the **Column name** list in the current order.

To change the columns order, use the   buttons or drag-and-drop operations within the list. Click the **OK** button to view the modification script in the [Changing Metadata](#)^[923] window and apply changes.



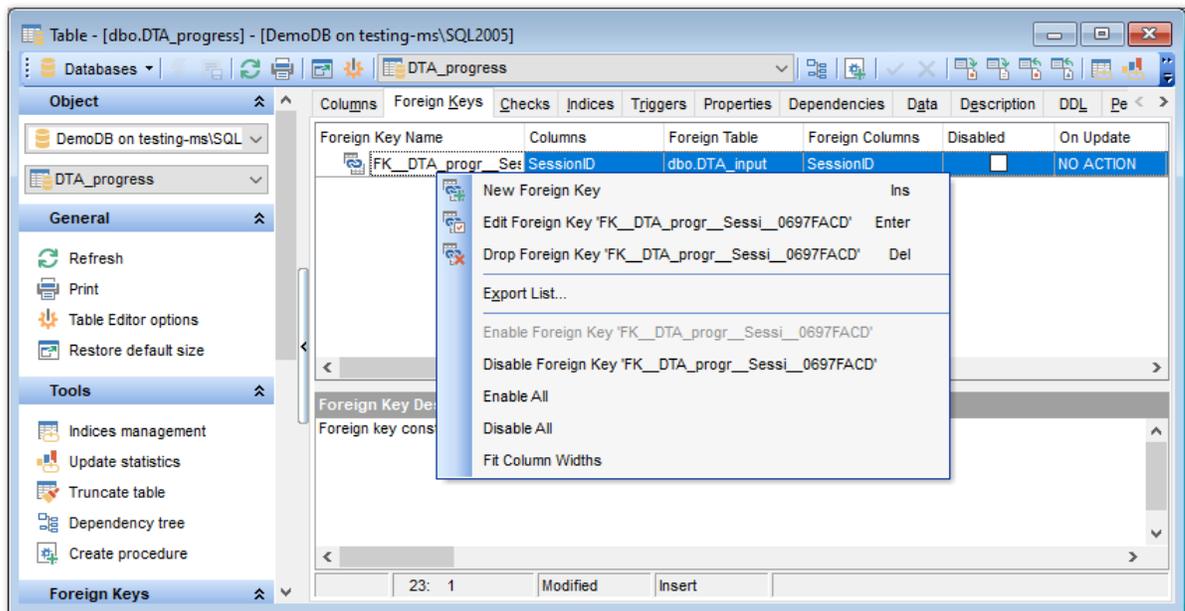
Note: This operation is performed by dropping/recreating the table.

5.3.2.1.2.4 Managing foreign keys

The **Foreign Keys** tab is provided for managing table [foreign keys](#)^[227]. Double-click a foreign key to open [Foreign Key Editor](#)^[222] for editing the foreign key.

Right-click a foreign key to display the context menu allowing you to *create new*, *edit*, *drop*, *enable/disable* the selected foreign key, or *enable/disable* all foreign keys. Using the menu you can also [export](#)^[537] the list of the table foreign keys to any of supported [formats](#)^[935].

Foreign keys management tools are also available through the [Navigation bar](#)^[207] of **Table Editor**.



The **Foreign Keys** list provides the following attributes of each foreign key of the table:

Foreign Key Name

Columns

Foreign Table

Foreign Columns

Disabled

On Update

On Delete

For details see [Foreign Keys](#)^[221].

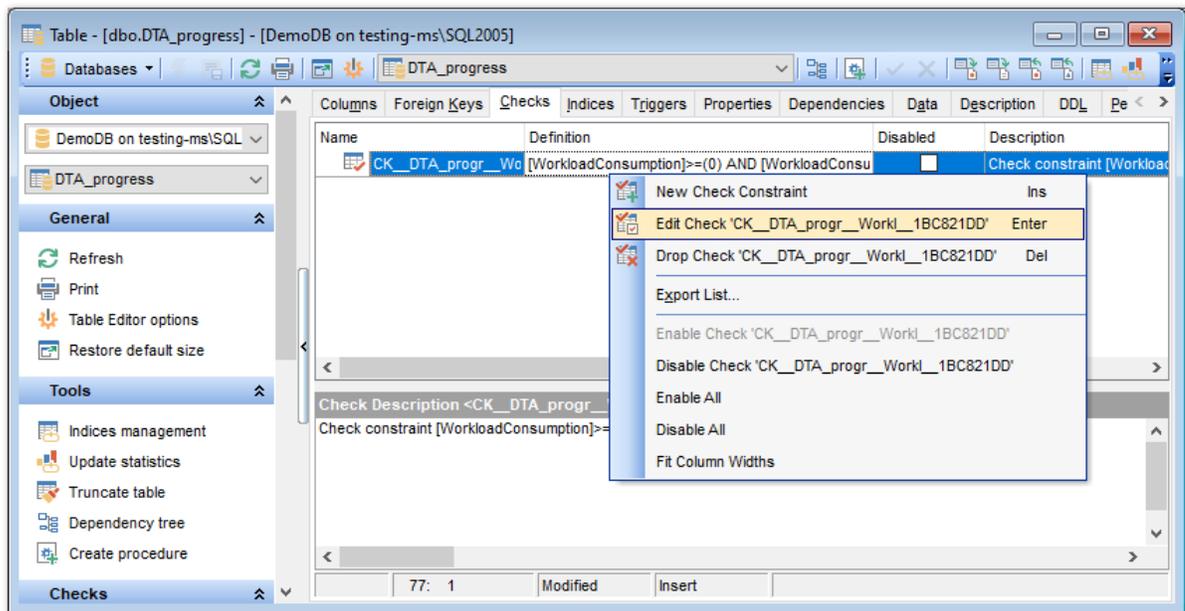
If necessary, you can also use the **Foreign Key Description** area to supply a *description* for each foreign key.

5.3.2.1.2.5 Managing checks

The **Checks** tab is provided for managing table [check constraints](#)^[225]. Double-click a check to open [Check Editor](#)^[226] for editing the check.

Right-click a check to display the context menu allowing you to *create new*, *edit*, *drop*, *enable/disable* the selected check, or *enable/disable* all checks. Using the menu you can also [export](#)^[531] the list of the table checks to any of supported [formats](#)^[935].

Check constraints management tools are also available through the [Navigation bar](#)^[201] of **Table Editor**.



The **Checks** list provides the following attributes of each check constraint of the table:

Name
Definition
Disabled
Description

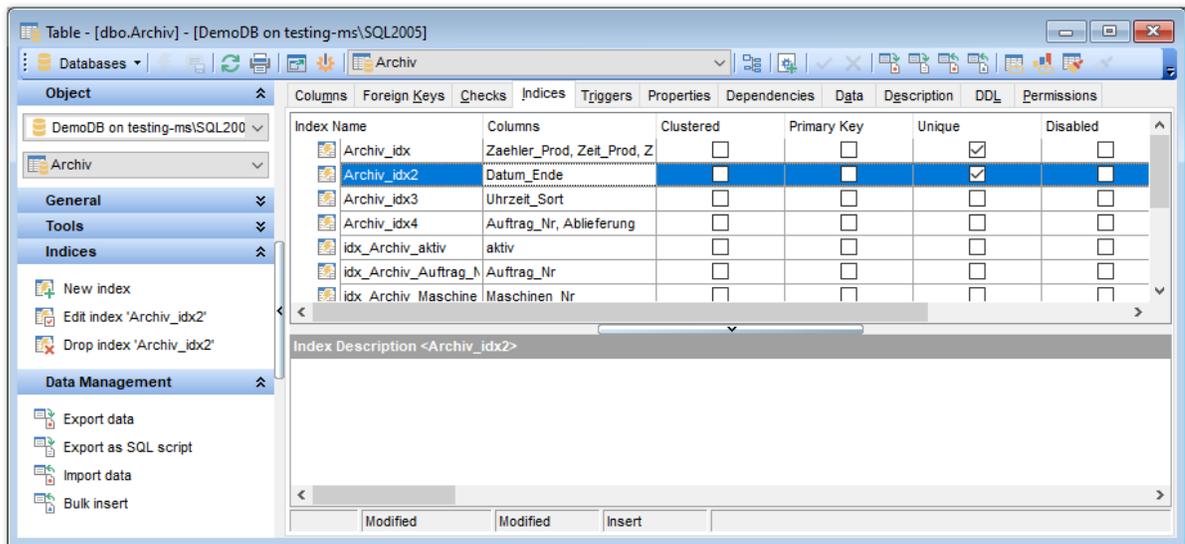
If necessary, you can also use the **Check Description** area to supply a *description* for each check constraint.

5.3.2.1.2.6 Managing indices

The **Indices** tab is provided for managing table [indexes](#)^[228]. Double-click an index to open [Index Editor](#)^[228] for editing the index.

Right-click an index to display the context menu allowing you to *create* new, *edit*, *drop*, *enable/disable* the selected index, or *enable/disable* all indexes. Using the menu you can also [export](#)^[53] the list of the table indexes to any of supported [formats](#)^[935].

Indexes management tools are also available through the [Navigation bar](#)^[207] of **Table Editor**.



The **Indexes** list provides the following attributes of each index of the table:

Index Name
Columns
Clustered
Primary Key
Unique
Disabled

For details see [Indexes](#)^[228].

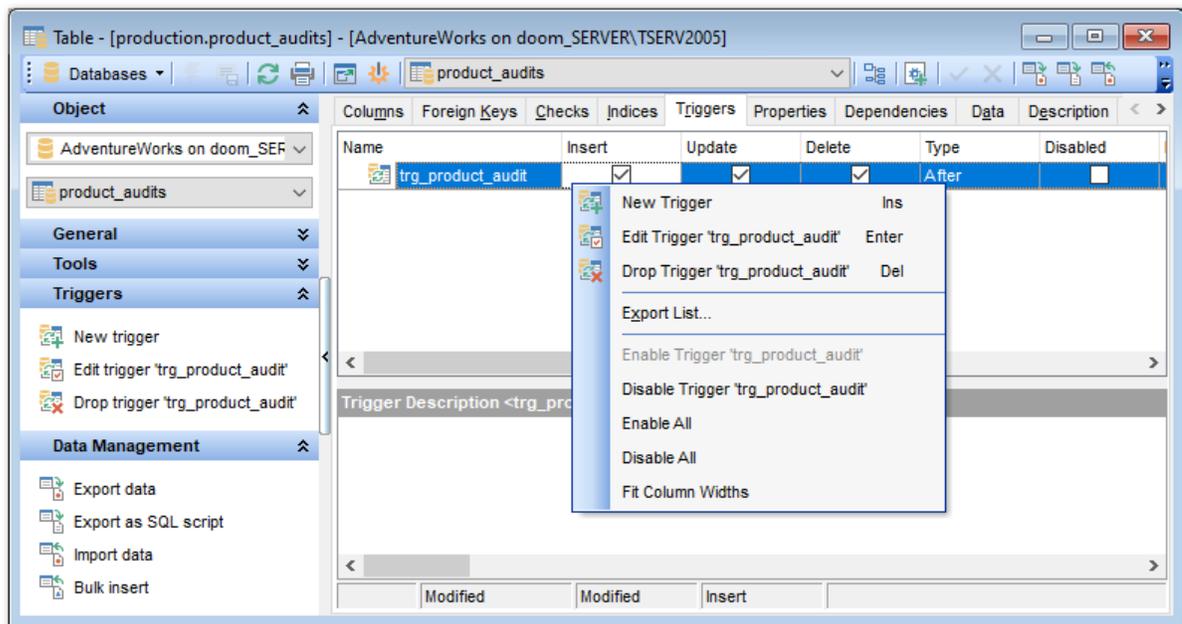
If necessary, you can also use the **Index Description** area to supply a *description* for each index.

5.3.2.1.2.7 Managing triggers

The **Triggers** tab is provided for managing table [triggers](#)^[236]. Double-click a trigger to open [Trigger Editor](#)^[237] for editing the trigger.

Right-click the area to display the context menu allowing you to *create new*, *edit*, *drop*, *enable/disable* the selected trigger, or *enable/disable* all triggers. Using the menu you can also [export](#)^[531] the list of the table triggers to any of supported [formats](#)^[935].

Triggers management tools are also available through the [Navigation bar](#)^[201] of **Table Editor**.



The **Triggers** list provides the following attributes of each trigger of the table:

Name
Insert
Update
Delete
Type
Disabled

For details see [Triggers](#)^[236].

If necessary, you can also use the **Trigger Description** area to supply a *description* for each trigger.

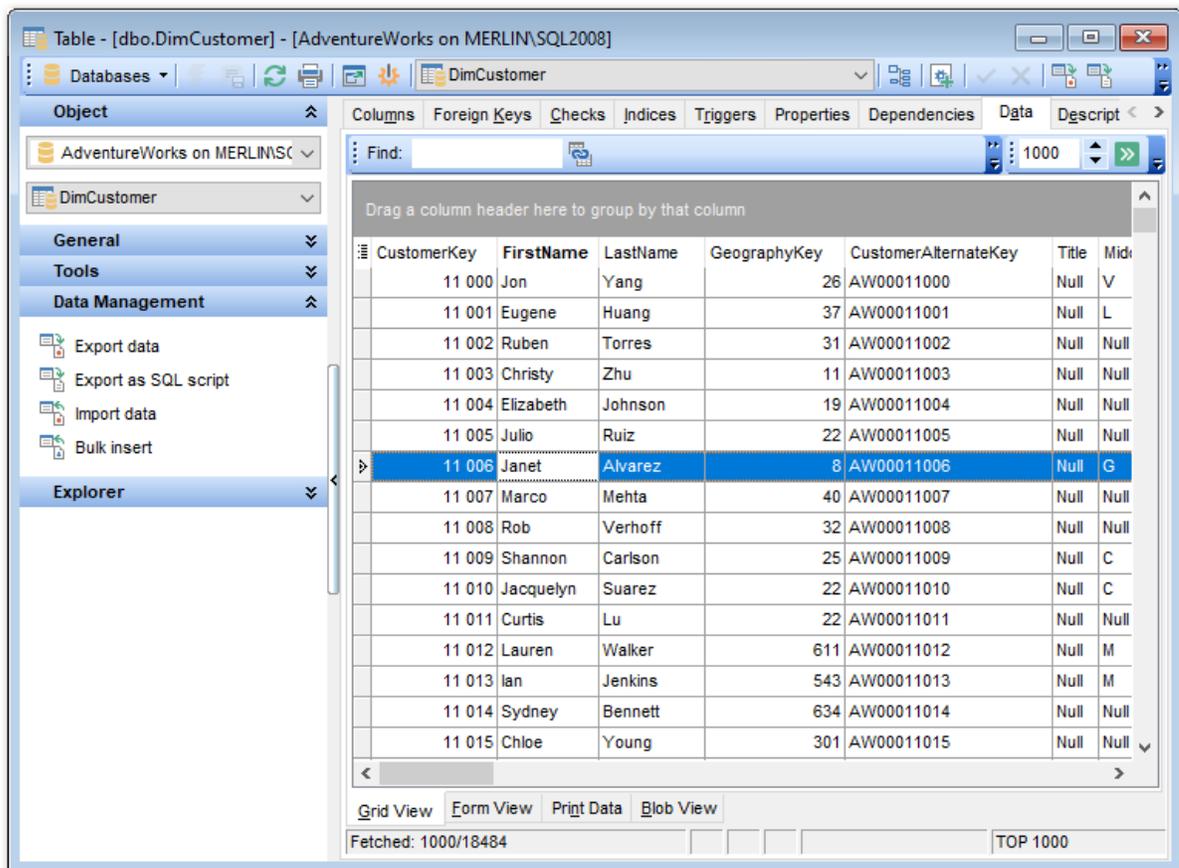
5.3.2.1.2.8 Working with table data

The **Data** tab displays the table data as a grid by default (see [Data View](#)^[463] for details). The context menu of this tab allows you to [Export Data](#)^[531], [Import Data](#)^[571], [Export as SQL Script](#)^[593], [Bulk Insert](#)^[602].

Data management tools are also available through the [Navigation bar](#)^[201] of **Table Editor**.

While working with data, you are provided with a number of [filtering](#)^[469] and [grouping](#)^[467] facilities.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray "**Group by**" box area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.



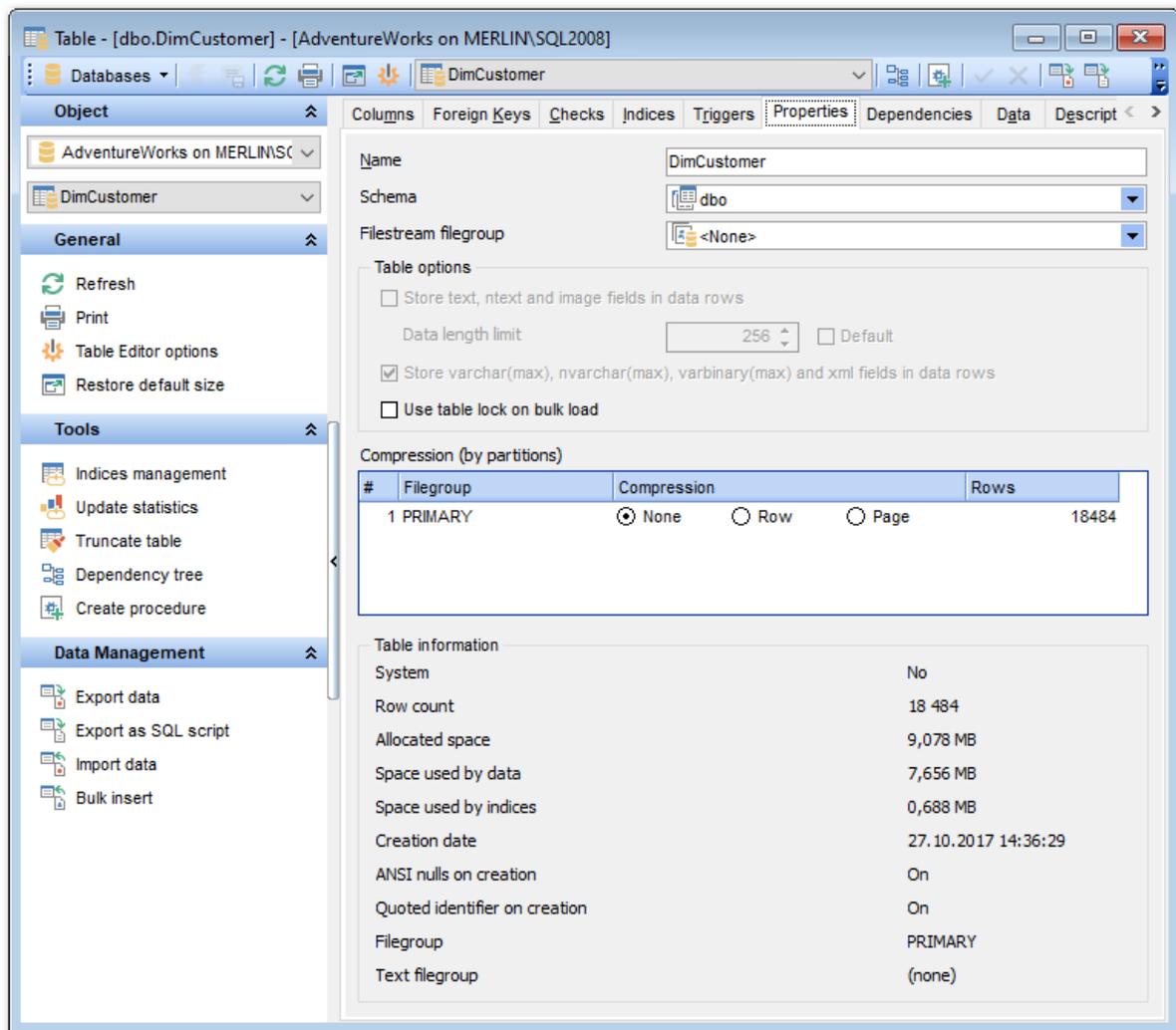
See also:

[Data View](#)^[463]

5.3.2.1.2.9 Table properties

The **Properties** tab allows you to view/edit common properties of the table: *Table name*, *Schema name*, *Table options* (*Storage attributes*, *Table lock usage*, etc.), *Table information*.

Hint: These properties are also available within a modal dialog which is called through the **Table Properties...** context menu item of the table alias in [DB Explorer](#)^[63].



Name

Edit the name of the table. Note that table names must comply with the rules for identifiers. The name of the table must be unique within the schema. A table name can contain a maximum of 128 characters.

Schema

Use the drop-down list to select a [schema](#)^[189] for the table.

Filestream dataspace

Select the needed [Filestream filegroup](#)^[154] from the drop-down list. This option is available only for SQL Server 2008 and higher.

Table options

This group allows you to specify to **Store text, ntext and image fields in data rows**, set the **Data length limit**, specify to **Store varchar(max), nvarchar(max), varbinary(max) and xml fields in data rows**, and select whether to **Use table lock on bulk load** or not.

Compression (by partitions)

Use this area to set compression options for the table. Compression type can be different for each table partition. Set the partition compression to *Row* or *Page*. Set *None* to leave a partition uncompressed.

The **Table information** group allows you to view the table summary: *System (Yes/No)*, *Row count*, *Space used by data*, *Space used by indices*, *Creation date*, *ANSI nulls on creation (On/Off)*, *Quoted identifier on creation (On/Off)*, *File group*, *Text file group*.

Durability

This group of options is available for memory-optimized tables only.

Schema and data

This value indicates that the table is a durable memory-optimized table. This option provides durability of both schema and data.

Schema only

This value indicates that the table is non-durable. This option ensures durability of the table schema, including indexes.

Such tables are not logged and their data is not persisted on disk.

5.3.2.1.3 Columns

Table columns are managed within the **Columns** tab of [Table Editor](#)^[200].

Creating Columns

To create a new table column:

- open the table in [Table Editor](#)^[200];
- proceed to the **Columns** tab there;
- right-click the tab area and select the **New Column** context menu item, or press the *Ins* key;
- define the column properties using the [Column Editor](#)^[214] dialog.

Editing Columns

To edit an existing table column:

- open the table in [Table Editor](#)^[200];
- proceed to the **Columns** tab there;
- right-click the row and select the **Edit Column <column_name>** context menu item, or simply double-click the column;
- edit the column properties using the [Column Editor](#)^[214] dialog.

To change the order of table columns:

- open the table in [Table Editor](#)^[200];
- proceed to the **Columns** tab there;
- right-click the row and select the **Reorder Columns <column_name>** context menu item;
- edit columns' order using the [Reorder Columns](#)^[205] dialog.

Dropping Columns

To drop a table column:

- open the table in [Table Editor](#)^[200];
- proceed to the **Columns** tab there;
- right-click the row and select the **Drop Column <column_name>** context menu item;
- confirm dropping in the dialog window.

5.3.2.1.3.1 Column Editor

Column Editor allows you to specify column definition and set column properties. It opens automatically when you create a new column and is available on editing an existing one (see [Create column](#)^[213] and [Edit column](#)^[213] for details).

To open a column in **Column Editor**, double-click it in the [DB Explorer](#)^[63] tree, or use the **Edit Column...** item of the context menu within the [Columns](#)^[204] tab of [Table Editor](#)^[200].

- [Setting column name and type](#)^[214]
- [Setting column identity](#)^[217]
- [Setting column defaults](#)^[219]
- [Setting column description](#)^[220]

Column name

Enter a name for the new column, or modify the name of the column being edited. Note that the name of a column must be unique among all the column names in the table.

The **Data type** tab defines the type of the column.

Column type kind

This group allows you to select whether the column being created/edited is based on a standard data type, a [user-defined type](#)^[263], or is a computed column.

Standard data type

Specifies that the column is based upon a built-in SQL Server data type.

Type

Here you can set the column type by selecting it from the drop-down list of the standard SQL Server data types.

Size

Specify the size value (for certain types). Check the **Maximum size** option to use the maximum values set by SQL Server.

Scale

Defines the maximum number of decimal digits that can be stored to the right of the decimal point of the value (for numeric and decimal data types).

Collation

Use the drop-down list to specify the collation for text and char columns. By default, the column is assigned the default collation of the database.

Not NULL

Check this option to specify that the values for the column should never contain a null value. *NOT NULL* affects all INSERT and UPDATE operations on a column.

RowGuid

This option specifies that the *ROWGUIDCOL* property is added to the column. *ROWGUIDCOL* indicates that the column is a row GUID column.

Primary key

Check this option to include the column into the primary key. Note that if you include a column to a primary key, you should also make it *Not Null*.

A table typically has a column or combination of columns that contain values that uniquely identify each row in the table. This column, or columns, is called the primary key (PK) of the table and enforces integrity of the table.

Unique key

Check this option to create a unique key on the column that provides entity integrity for a particular column or columns using a unique index.

Sparse

Check this option to make the column a Sparse column. Sparse columns are ordinary columns that have an optimized storage for null values. Sparse columns reduce the space requirements for null values at the cost of more overhead to retrieve non-null values.

Filestream

Check this option to store the data from this column in the [Filestream filegroup](#)^[154]. This option is available if any filestream file group is specified for the table.

Online

Check this option to enable ONLINE mode on column modification.

User-defined data type

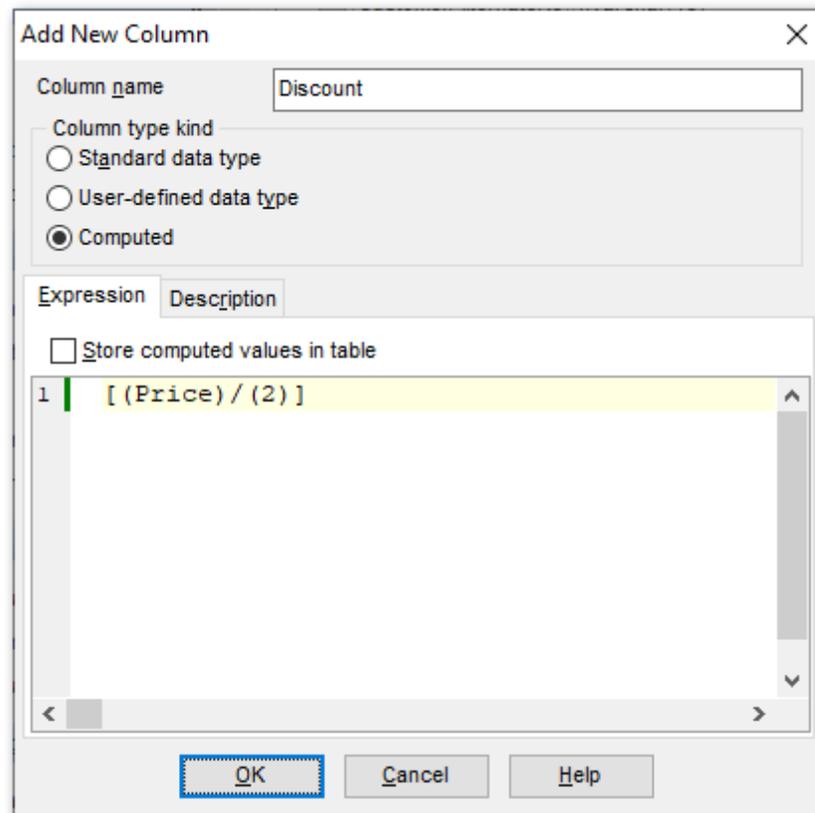
Specifies that the column is based upon a user-defined data type.

Type

Use the drop-down list to select the [user-defined type](#)^[263] for the column being created/edited.

Computed

Specifies that the column is computed from an expression that can use other columns in the same table.



Store computed values in table

This option determines whether computed values are stored in the table or the column is not physically stored in the table.

Specify an expression that defines the value of the computed column. For example, a computed column can have the following definition:

*cost AS price * qty.*

The expression can be a noncomputed column name, constant, function, variable, and any combination of these connected by one or more operators. The expression cannot be a subquery or include an alias data type.

The **Identity** tab is only available for integer column types and for [user-defined types](#)^[263] based on integer types. Using this tab you can create an identity column.

Identity

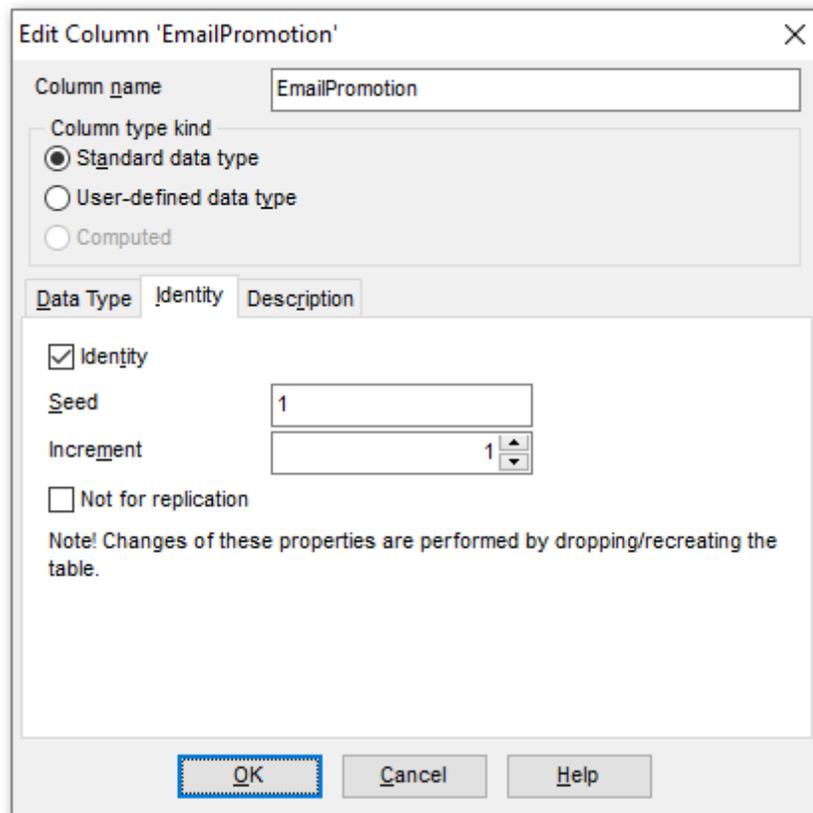
This option specifies that the new column is an identity column.

Seed

Specify the value used for the first row that is loaded into the table.

Increment

Specify the value added to the identity value of the previous row that is loaded.



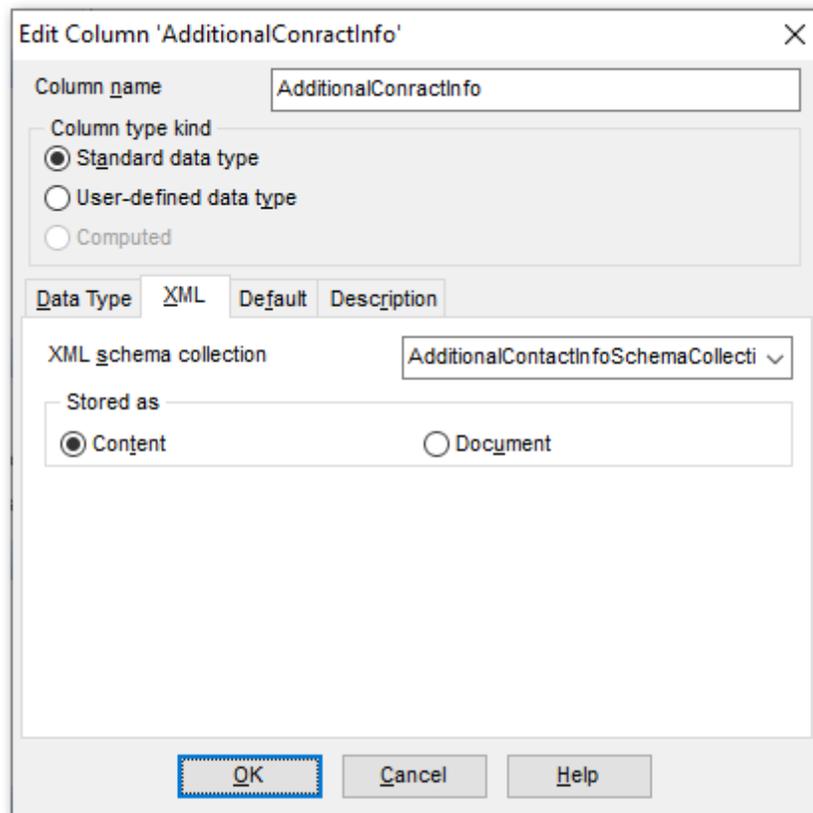
Not for replication

This option allows you to specify that the Identity property should not be enabled when a replication agent modifies the table that contains the identity column.

NB: This operation is performed by dropping/recreating the table.

The **XML** tab is only available for XML column type and for [user-defined types](#)^[263] based on XML type.

The **xml** data type is a built-in data type in SQL Server and is somewhat similar to other built-in types such as *int* and *varchar*. As with other built-in types, you can use the **xml** data type as a column type when you create a table as a variable type, a parameter type, a function-return type, or in CAST and CONVERT.



XML schema collection

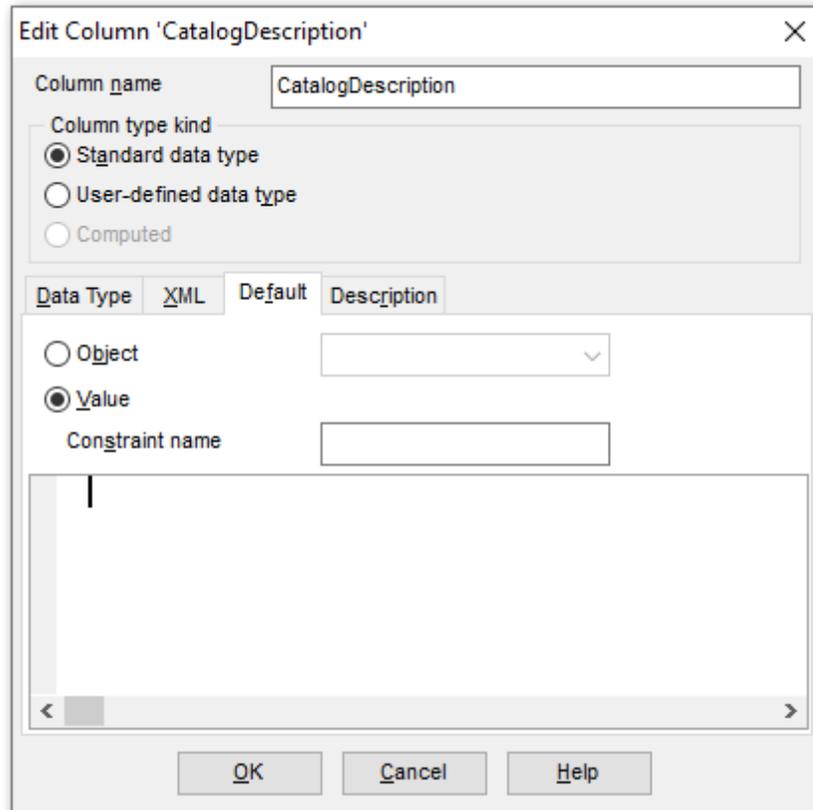
Use the drop-down list to select an [XML Schema Collection](#)^[281] to be used by this column.

The **XML schema collection** stores the imported XML schemas.

The schemas in the collection are used to validate the XML instances. By default, instances stored in the typed xml column are stored as XML content. For typed xml columns, you can constrain the column to allow only single, top-level elements for each instance stored in it. You can do this by selecting the **Document** option.

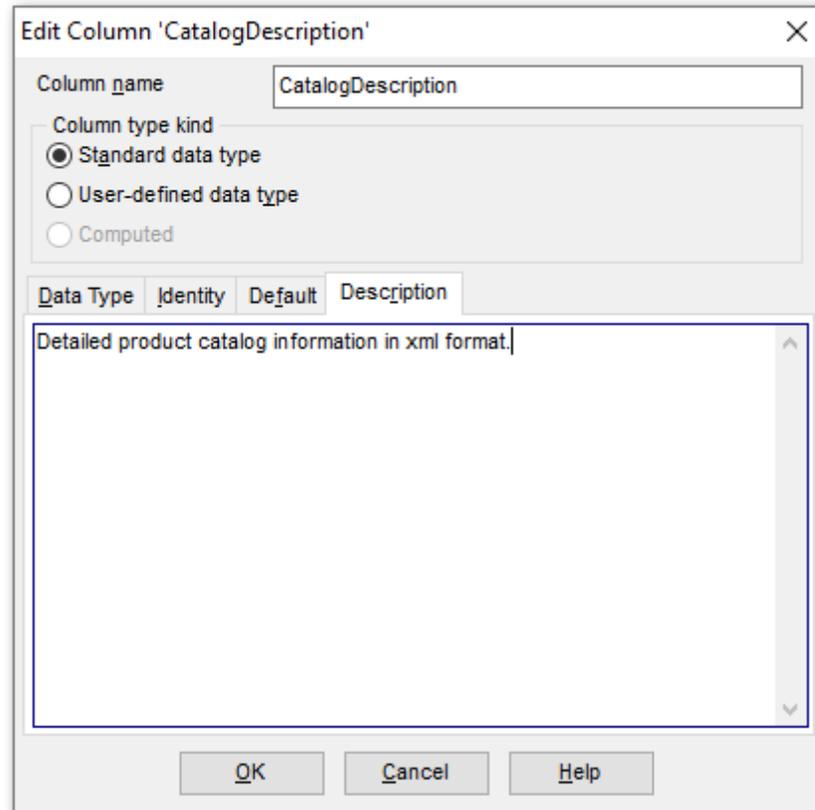
The **Stored as** group allows you to select the way your xml data will be stored: as **Content** or as a **Document**.

The **Default** tab allows you to define the default value for the column. You can either select the default object from the list of database [defaults](#)^[284] or define a default value for the column. The second option is not available for the **Computed** column type.

**Constraint name**

This box allows you to set a name for the constraint which is automatically created when you set a default value for the data column. If you leave this field empty, the constraint will be named by the server.

The **Description** tab allows you to enter optional text as a description for the column.



Note: Changing object description is performed by means of `sp_updateextendedproperty 'MS_Description'`.

5.3.2.1.4 Foreign Keys

A **Foreign key** constraint (also called a *referential integrity constraint*) designates a column as the Foreign key and establishes a relationship between that foreign key and a specified *Primary* or *Unique* key called the *referenced key*. A composite Foreign key designates a combination of columns as the foreign key.

Table Foreign keys are managed within the **Foreign Keys** tab of [Table Editor](#)^[200].

Creating Foreign Keys

To create a new Foreign key:

- open the table in [Table Editor](#)^[200];
- proceed to the **Foreign Keys** tab there;
- right-click the tab area and select the **New Foreign Key** context menu item, or press the *Ins* key;
- define the Foreign key properties using the [Foreign Key Editor](#)^[222] dialog.

Editing Foreign Keys

To view/edit an existing Foreign key:

- open the table in [Table Editor](#)^[200];
- proceed to the **Foreign Keys** tab there;
- right-click the Foreign key to edit and select the **Edit Foreign Key <foreign_key_name>** context menu item, or simply double-click the Foreign key;
- edit the Foreign key properties using the [Foreign Key Editor](#)^[222] dialog.

Dropping Foreign Keys

To drop a Foreign key:

- open the table in [Table Editor](#)^[200];
- proceed to the **Foreign Keys** tab there;
- right-click the Foreign key and select the **Drop Foreign Key <foreign_key_name>** context menu item;
- confirm dropping in the dialog window.

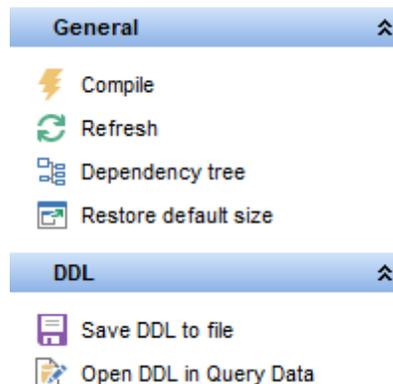
5.3.2.1.4.1 Foreign Key Editor

Foreign Key Editor allows you to specify foreign key definition and set foreign key properties. It opens when you create a new foreign key or edit an existing one (see [Create Foreign Key](#)^[221] and [Edit Foreign Key](#)^[221] for details).

To open a foreign key in **Foreign Key Editor**, double-click it in the [DB Explorer](#)^[63] tree, or use the **Edit Foreign Key...** item of the context menu within the [Foreign Keys](#)^[206] tab of [Table Editor](#)^[200].

- [Using Navigation bar and Toolbar](#)^[221]
- [Creating/editing foreign key](#)^[223]
- [Browsing object dependencies](#)^[921]
- [Editing foreign key description](#)^[920]
- [Viewing DDL definition](#)^[919]

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Foreign Key Editor**.



The **Navigation bar** of **Foreign Key Editor** allows you to:

General

-  [compile](#)^[923] the foreign key (if it is being created/modified)
-  save the foreign key [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  view the [dependency tree](#)^[612] for the foreign key
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the foreign key:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Foreign Key Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

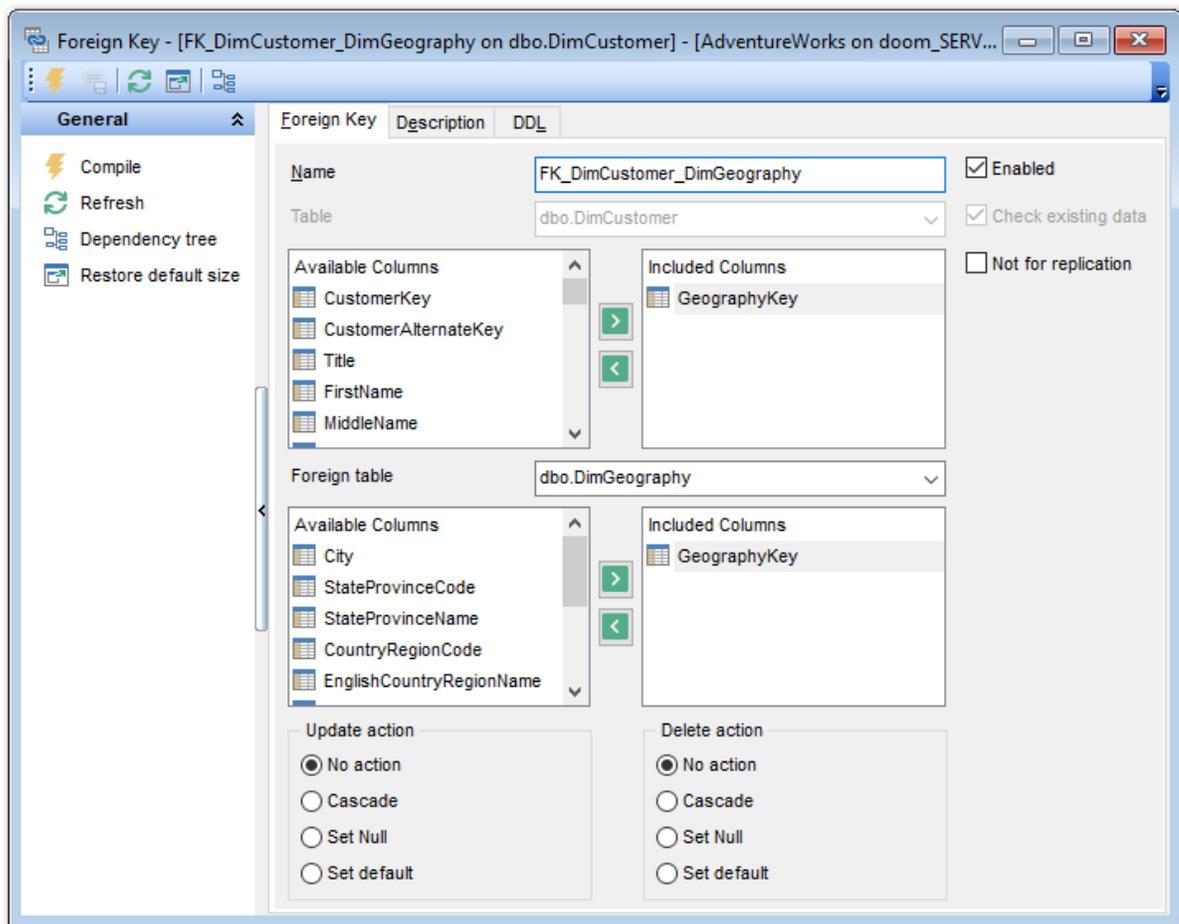
Use the **Foreign Key** tab of **Foreign Key Editor** to create/edit a foreign key constraint and specify its properties.

Name

Enter a name for the new foreign key, or modify the name of the foreign key being edited.

Table

The drop-down list of [tables](#)^[192] allows you to select the table for which the foreign key is created.



The **Table Columns** area allows you to select Foreign key column(s). To select a column, you need to move it from the **Available Columns** list to the **Included Columns** list. Use the   buttons or drag-and-drop operations to move the columns from one list to another.

Foreign table

Use the drop-down list to select the foreign table.

The **Foreign Table Columns** area allows you to select the column(s) of the Foreign table.

To select a column, you need to move it from the **Available Columns** list to the **Included Columns** list. Use the   buttons or drag-and-drop operations to move the columns from one list to another.

If the referenced column(s) are changed frequently, it may be wise to add an index to the foreign key column so that referential actions associated with the foreign key column were performed more efficiently. See [Indexes](#)^[228] for details.

Update action / Delete action

- *No action*

Produce an error indicating that the deletion or update would create a foreign key constraint violation. If the constraint is deferred, this error will be produced at constraint check time if there still exist any referencing rows. This is the default action.

- *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.

Enabled

Enables/disables the foreign key immediately after it is created.

Check existing data

This option specifies whether the data in the table is or is not validated against a newly added or re-enabled foreign key.

Not for replication

This option allows you to specify that the foreign key should not be enabled when a replication agent modifies the table that is involved in the foreign key.

5.3.2.1.5 Checks

A **Check** specifies 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. Should 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. A check constraint specified as a column constraint should reference that column's value only, while an expression appearing in a table constraint may reference multiple columns.

Table checks are managed within the **Checks** tab of [Table Editor](#)^[200].

Creating Checks

To create a new check:

- open the table in [Table Editor](#)^[200];
- proceed to the **Checks** tab there;
- right-click the tab area and select the **New Check Constraint** context menu item, or press the *Ins* key;
- define the check properties using the [Check Editor](#)^[226] dialog.

Editing Checks

To view an existing check:

- open the table in [Table Editor](#)^[200];
- proceed to the **Checks** tab there;
- right-click the check and select the **Edit Check <check_name>** context menu item, or simply double-click the check;
- edit the check properties using the [Check Editor](#)^[226] dialog.

Dropping Checks

To drop a check:

- open the table in [Table Editor](#)^[200];
- proceed to the **Checks** tab there;
- right-click the check and select the **Drop Check <check_name>** context menu item;
- confirm dropping in the dialog window.

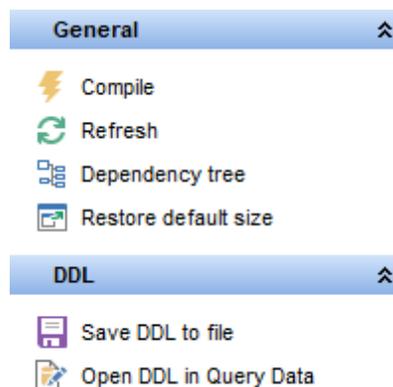
5.3.2.1.5.1 Check Editor

Check Editor allows you to specify check definition and set check properties. It opens automatically when you create a new check and is available on editing an existing one (see [Create check](#)^[225] and [Edit check](#)^[225] for details).

To open a check constraint in **Check Editor**, double-click it in the [DB Explorer](#)^[63] tree, or use the **Edit Check...** item of the context menu within the [Checks](#)^[207] tab of [Table Editor](#)^[200].

- [Using Navigation bar and Toolbar](#)^[226]
- [Creating/editing check](#)^[227]
- [Browsing object dependencies](#)^[921]
- [Editing check description](#)^[920]
- [Viewing DDL definition](#)^[919]

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Check Editor**.



The **Navigation bar** of **Check Editor** allows you to:

General

- [compile](#)^[923] the check (if it is being created/modified)
- save the check [description](#)^[920] (if it has been modified)
- refresh the content of the active tab
- view the [dependency tree](#)^[612] for the check
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the check:

Description

 save object [description](#) to file

 copy [description](#) to clipboard

DDL

 save [DDL](#) to file

 open [DDL](#) in [Query Data](#)

Items of the **Navigation bar** are also available on the **ToolBar** of **Check Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

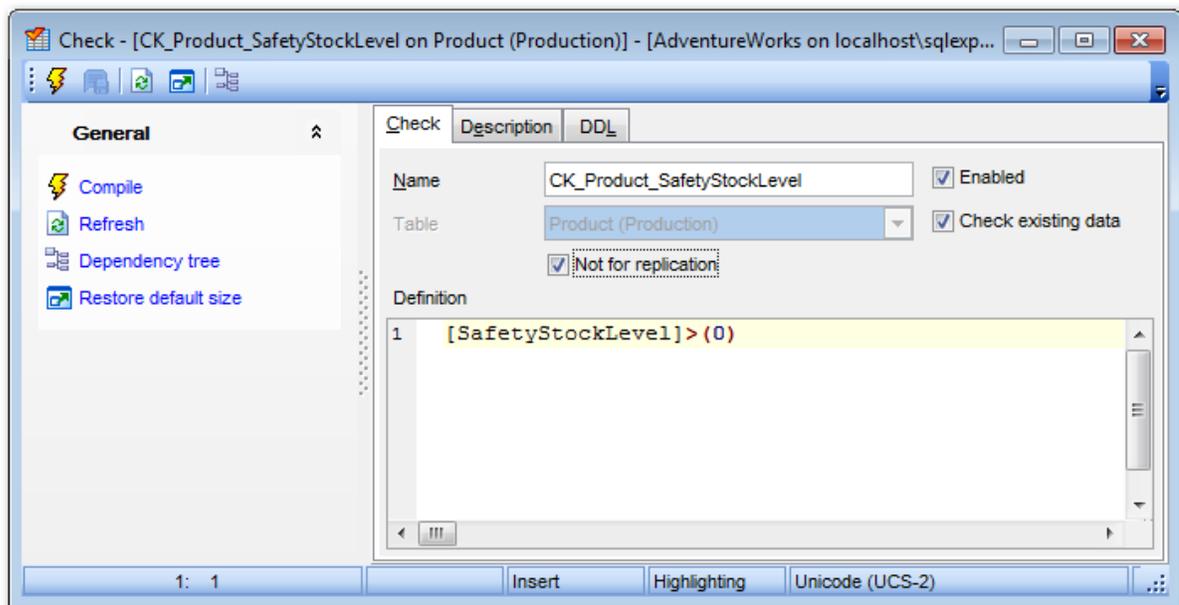
Use the **Check** tab of **Check Editor** to create/edit a check constraint and specify its properties.

Name

Enter a name for the new check, or modify the name of the check being edited.

Table

The drop-down list of [tables](#) allows you to select the table for which the check is created.



Enabled

Enables/disables the check immediately after it is created.

☑ Check existing data

This option specifies whether the data in the table is or is not validated against a newly added or re-enabled check.

☑ Not for replication

This option allows you to specify that the check should not be enabled when a replication agent modifies the table that is involved in the check.

Definition

This area represents the condition implied by the check constraint.

You can specify any logical (Boolean) expression that returns *TRUE* or *FALSE* based on the logical operators. For example, *salary >= 15000 AND salary <= 100000*.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#)^[429] and [Using the context menu](#)^[430].

5.3.2.1.6 Indices

Table indexes are managed within the **Indices** tab of [Table Editor](#)^[200].

Creating Indices

To create a new table index:

- open the table in [Table Editor](#)^[200];
- proceed to the **Indices** tab there;
- right-click the tab area and select the **New Index** context menu item, or press the *Ins* key;
- define the index properties using the [Index Editor](#)^[228] dialog.

Editing Indices

To edit an existing table index:

- open the table in [Table Editor](#)^[200];
- proceed to the **Indices** tab there;
- right-click the index and select the **Edit Index** context menu item, or simply double-click the index;
- edit the index properties using the [Index Editor](#)^[228] dialog.

Dropping Indices

To drop a table index:

- open the table in [Table Editor](#)^[200];
- proceed to the **Indices** tab there;
- right-click the index and select the **Drop Index** context menu item;
- confirm dropping in the dialog window.

5.3.2.1.6.1 Index Editor

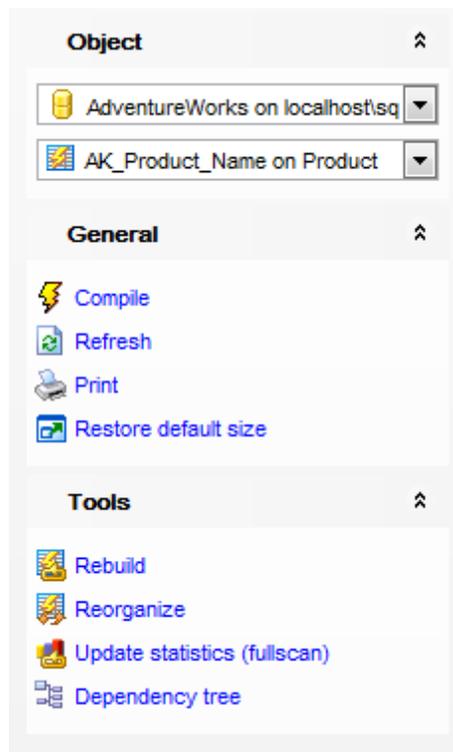
Index Editor allows you to specify index definition and set index properties. It opens automatically when you create a new index and is available on editing an existing one

(see [Create Index](#)^[228] and [Edit Index](#)^[228] for details).

To open an index in **Index Editor**, double-click it in the [DB Explorer](#)^[63] tree, or use the **Edit Index...** item of the context menu within the [Indices](#)^[208] tab of [Table Editor](#)^[200].

- [Using Navigation bar and Toolbar](#)^[229]
- [Creating/editing index](#)^[230]
- [Defining index storage](#)^[233]
- [Viewing index info](#)^[236]
- [Editing index description](#)^[920]
- [Viewing DDL definition](#)^[919]

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Index Editor**.



The **Navigation bar** of **Index Editor** allows you to:

Object

- select a database
- select an index for editing

General

- [compile](#)^[923] the index (if it is being created/modified)
- save the index [description](#)^[920] (if it has been modified)
- refresh the content of the active tab
- [print metadata](#)^[643] of the index
- restore the default size and position of the editor window

Tools

-  rebuild the index using the *ALTER INDEX ... REBUILD* statement
-  reorganize the index using the *ALTER INDEX ... REORGANIZE* statement
-  update statistics using the *UPDATE STATISTICS* statement
-  view the [dependency tree](#)^[612] for the index

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the index:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Index Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

Use the **Index** tab of **Index Editor** to create/edit an index on a specified [table](#)^[192] or [view](#)^[246], or an XML index on a specified [table](#)^[192], and specify index properties.

Name

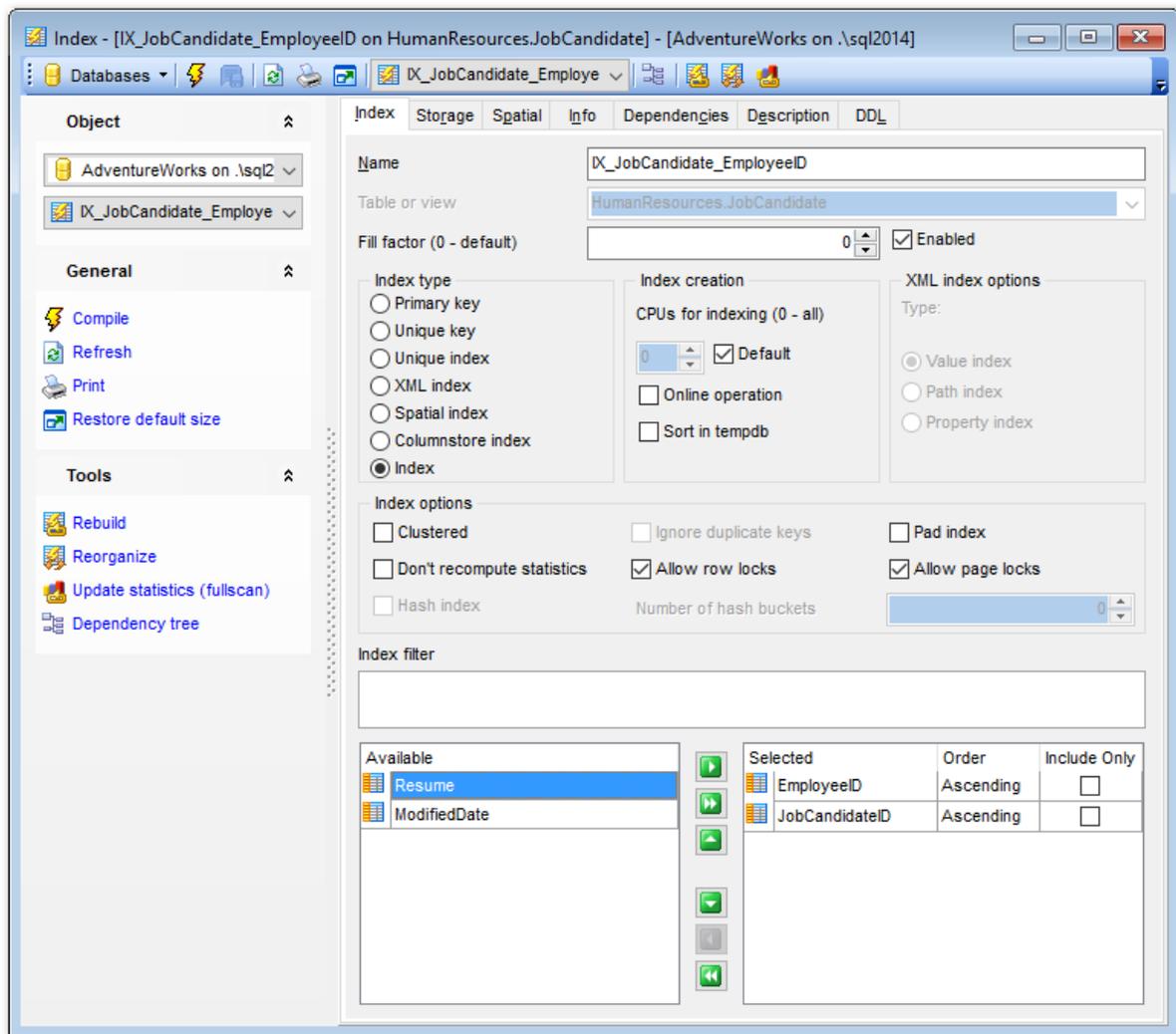
Enter a name for the new index, or modify the name of the index being edited.

Table or view

The drop-down list of [tables](#)^[192] and [views](#)^[246] allows you to select the table or view to be indexed.

Fill factor

Specify a percentage that indicates how full the Database Engine should make the leaf level of each index page during index creation or rebuild.



Index type

Primary Key

This selection indicates that the primary key index is created.

Unique key

This selection indicates that the unique key index is created (no two rows are permitted to have the same index value). A clustered index on a view must be unique.

Unique index

This selection indicates that the unique index is created (ensures that the index key contains no duplicate values and therefore each row in the table or view is in some way unique). Both clustered and nonclustered indexes can be unique.

XML index

This selection indicates that the XML index on the specified XML column is created.

Spatial index

This selection indicates that the spatial index is created. These indexes are used by

spatial databases (databases which store information related to objects in space).

Columnstore index

This selection indicates that the columnstore index is created. These indices group and store data for each column and then join all the columns to complete the whole index.

Index

This selection specifies a regular, non-unique index.

Index creation

CPUs for indexing

This option allows you to limit the number of processors used in a parallel plan execution. Set a value to restrict the maximum number of processors used in a parallel index operation to the specified number or fewer based on the current system workload. If 0 is specified, the actual number of processors is used.

Default

If this option is checked, the default setting for the number of processors is applied.

Online operation

This option specifies whether underlying tables and associated indexes are available for queries and data modification during the index operation.

Sort in tempdb

This option specifies whether temporary sort results should be stored in **tempdb**.

XML Index options

Select the XML index type:

Value index

This selection indicates creation of a secondary XML index on columns where key columns are (node value and path) of the primary XML index. If your workload involves querying for values from XML instances without knowing the element or attribute names that contain the values, VALUE index may be useful.

Path index

This selection indicates creation of a secondary XML index on columns built on path values and node values in the primary XML index. If your queries generally specify path expressions on xml type columns, a PATH secondary index may be able to speed up the search.

Property index

This selection indicates creation of a secondary XML index on columns (PK, path and node value) of the primary XML index where PK is the primary key of the base table. Queries that retrieve one or more values from individual XML instances may benefit from a PROPERTY index.

Index options

Clustered

Use this option to create an index in which the logical order of the key values determines the physical order of the corresponding rows in a table. The bottom, or leaf, level of the clustered index contains the actual data rows of the table. A [table](#)^[192] or [view](#)^[246] is allowed one clustered index at a time.

Ignore duplicate keys

This option is available if the Unique option is checked. This option specifies the error response to duplicate key values in a multiple-row insert operation on a unique clustered or unique nonclustered index.

 Pad index

This option determines whether the percentage of free space that is specified by fillfactor is applied to the intermediate-level pages of the index.

 Do not recompute statistics

This option specifies that out-of-date index statistics are not automatically recomputed.

In cases when access patterns are well understood and consistent, limiting the locking levels available for an index can be beneficial. Disallowing a locking level can affect the concurrency for a [table](#)^[192] or index.

 Allow row locks

This option specifies whether row locks are allowed when accessing the index.

 Allow page locks

This option specifies whether page locks are allowed when accessing the index.

 Hash index (for memory-optimized tables)

Checking this option indicates that a HASH index is created. A hash index consists of a collection of buckets organized in an array.

Number of hash buckets (for memory-optimized tables)

Define the number of buckets that should be created in the hash index.

Index filter

Use this field to set the filter for the data from the column(s) included in this index. Available for SQL Server 2008 and higher.

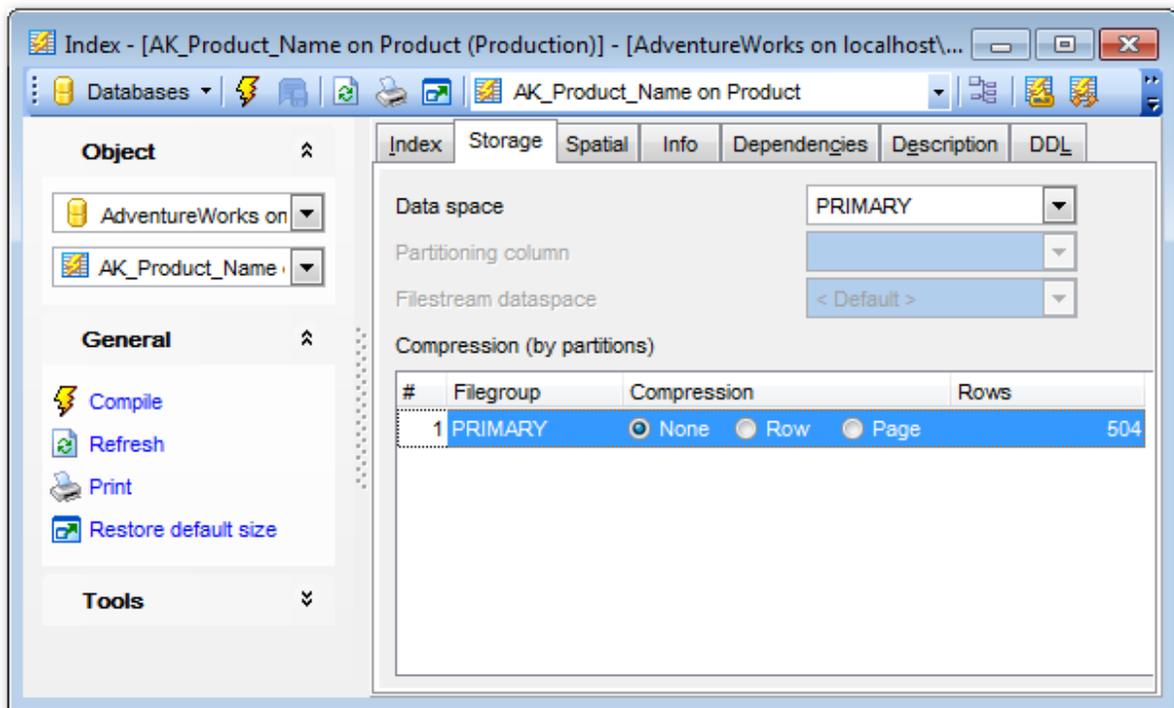
Columns for index

To include column(s) in the index, you need to move it from the **Available** list to the **Selected** list. Use the     buttons or drag-and-drop operations to move the columns from one list to another.

To change the sorting order for a column, select the column in the **Selected** list and change the **Order** value (*ascending/descending*).

Set the **Include Only** flag to specify that the non-key column is added to the leaf level of the nonclustered index.

At the **Storage** tab of the **Index Editor** you need to define the storage for the index.



Data space

Use the drop-down list to specify the new index data storage (a file group or a [partition scheme](#)^[314] that defines the filegroups onto which the partitions of a partitioned index will be mapped).

Note: When creating an index you need not specify the data space; the data space of the [table](#)^[195] is used by default.

Partitioning column

This drop-down list is only available if a [partition scheme](#)^[314] is specified for **Data space**. Select a [column](#)^[196] that will be used as the partitioning column for the table.

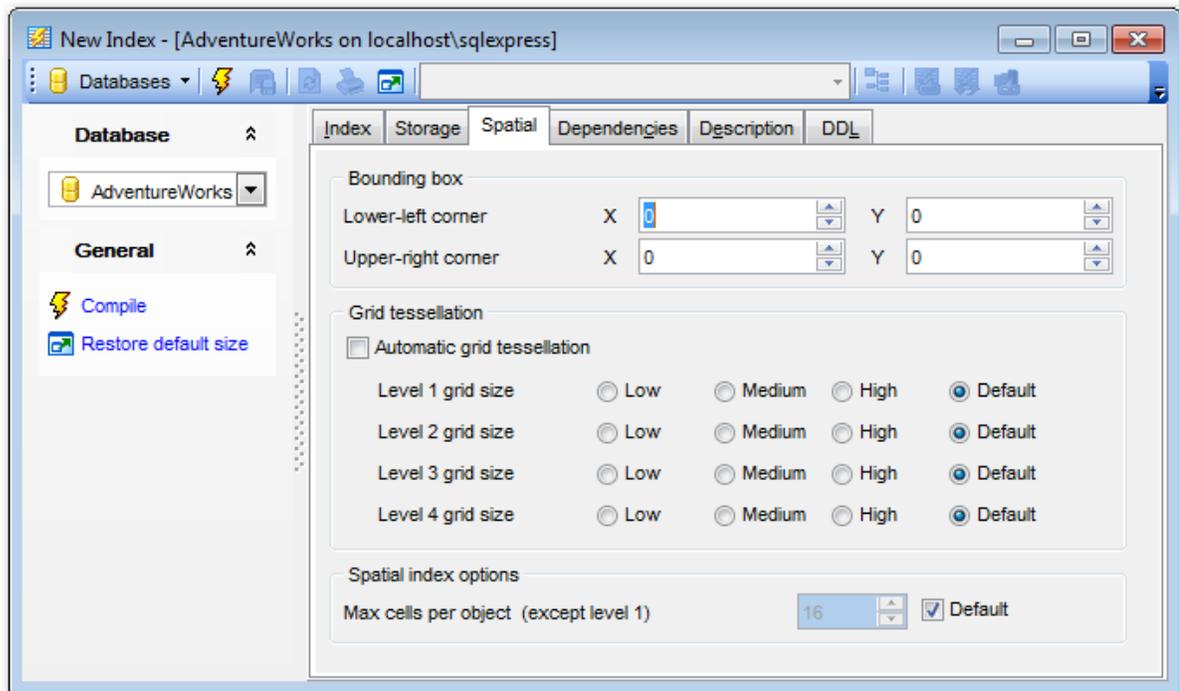
Filestream dataspace

Select the needed [Filestream filegroup](#)^[154] from the drop-down list. This option is available only in SQL Server 2008 and higher.

Compression (by partitions)

Use this section to set the compression options for the index. Compression type can be different for each partition. Set the index compression to *Row* or *Page*. Set *None* to leave a partition uncompressed.

Use the **Spatial** tab to set spatial index options. The settings on this tab are available only if the **Spatial index** was selected on the [Index](#)^[230] tab. Spatial indices are enabled in SQL Server 2008 and higher.



Bounding box

Specifies a numeric four-tuple that defines the four coordinates of the bounding box: the x-min and y-min coordinates of the **Lower-left corner**, and the x-max and y-max coordinates of the **Upper-right corner**.

Grid tessellation

Define the density of the grid at each level of a tessellation scheme.

Automatic grid tessellation

Check this option to set default values for this data type.

Level n grid size

Low

Specifies the lowest possible density for the grid at a given level. LOW equates to 16 cells (a 4x4 grid).

Medium

Specifies the medium density for the grid at a given level. MEDIUM equates to 64 cells (an 8x8 grid).

High

Specifies the highest possible density for the grid at a given level. HIGH equates to 256 cells (a 16x16 grid).

Default

If the database compatibility level is set to 100 or lower, then the default is MEDIUM on all levels. When the database compatibility level is set to 110 or higher, then the default

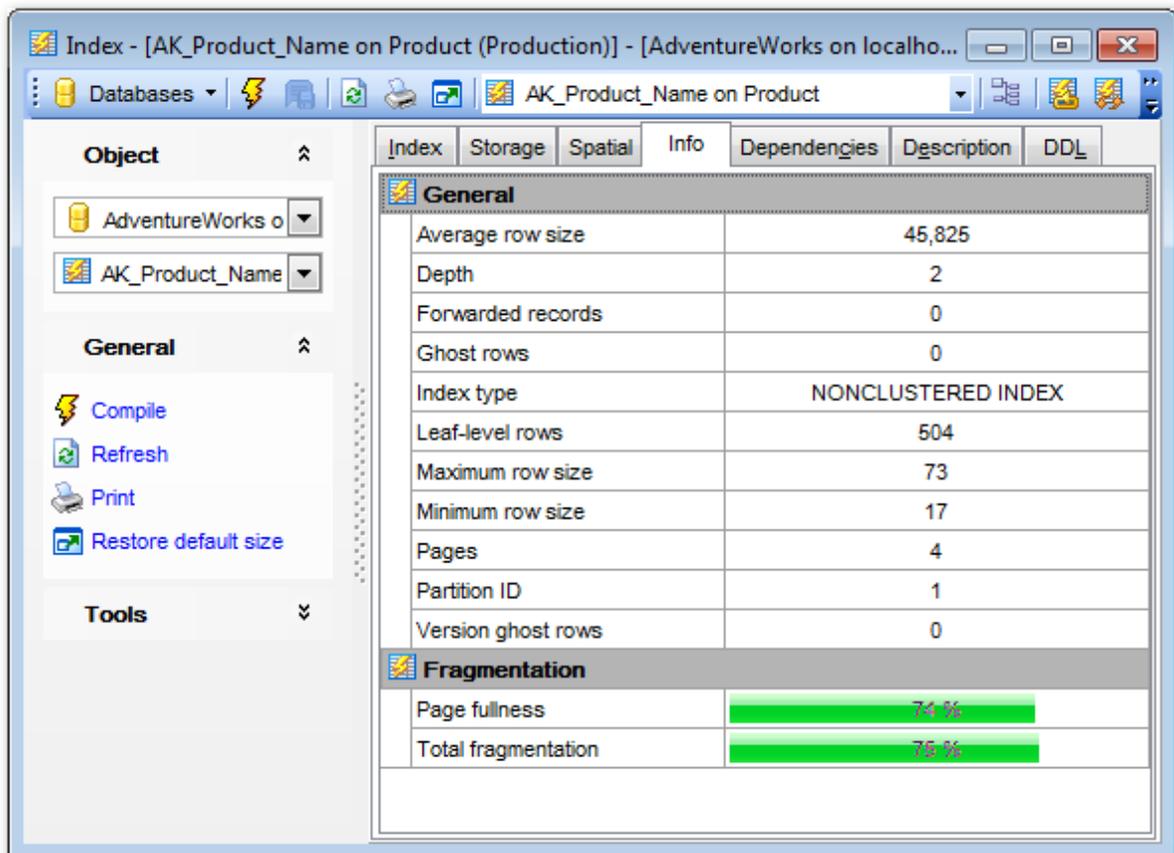
is an auto grid scheme.

Spatial index options

Max cells per object (except level 1)

Set the number of tessellation cells per object that can be used for a single spatial object in the index by the tessellation process. If the **Default** option is checked then the default value is used for the specified tessellation.

The **Info** tab of **Index Editor** allows you to view the index summary:



General: Average row size, Depth, Forwarded records, Ghost rows, Index type, Leaf-level rows, Maximum row size, Minimum row size, Pages, Partition ID, Version ghost rows;
Fragmentation: Page fullness, Total fragmentation.

5.3.2.1.7 Triggers

A **Trigger** is a special kind of [stored procedure](#)^[253] that automatically executes when an event occurs in the database server.

DML Triggers execute when a user tries to modify data through a data manipulation language (DML) event. DML events are *INSERT*, *UPDATE*, or *DELETE* statements on a [table](#)

[\[192\]](#) or [view](#) [\[246\]](#).

Table triggers are managed within the **Triggers** tab of [Table Editor](#) [\[200\]](#).

Creating Triggers

To create a new trigger:

- open the table in [Table Editor](#) [\[200\]](#);
- proceed to the **Triggers** tab there;
- right-click the tab area and select the **New Trigger** context menu item, or press the *Ins* key;
- define the trigger properties using the [Trigger Editor](#) [\[237\]](#) dialog.

Editing Triggers

To edit an existing trigger:

- open the table in [Table Editor](#) [\[200\]](#);
- proceed to the **Triggers** tab there;
- right-click the trigger and select the **Edit Trigger <trigger_name>** context menu item, or simply double-click the trigger;
- edit the trigger properties using the [Trigger Editor](#) [\[237\]](#) dialog.

Dropping Triggers

To drop a trigger:

- open the table in [Table Editor](#) [\[200\]](#);
- proceed to the **Triggers** tab there;
- right-click the trigger and select the **Drop Trigger <trigger_name>** context menu item;
- confirm dropping in the dialog window.

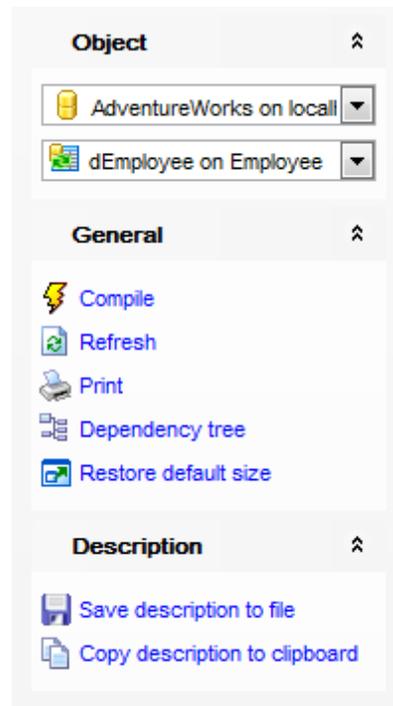
5.3.2.1.7.1 Trigger Editor

Trigger Editor allows you to specify trigger definition and set trigger properties. It opens automatically when you create a new trigger and is available on editing an existing one (see [Create Trigger](#) [\[237\]](#) and [Edit Trigger](#) [\[237\]](#) for details).

To open a trigger in **Trigger Editor**, double-click it in the [DB Explorer](#) [\[63\]](#) tree, or use the **Edit Trigger...** item of the context menu within the [Triggers](#) [\[209\]](#) tab of [Table Editor](#) [\[200\]](#).

- [Using Navigation bar and Toolbar](#) [\[237\]](#)
- [Creating/editing trigger](#) [\[239\]](#)
- [Browsing object dependencies](#) [\[921\]](#)
- [Editing trigger description](#) [\[920\]](#)
- [Viewing DDL definition](#) [\[919\]](#)

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Trigger Editor**.



The **Navigation bar** of **Trigger Editor** allows you to:

Object

-  select a database
-  select a trigger for editing

General

-  [compile](#)^[923] the trigger (if it is being created/modified)
-  save the trigger [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the trigger
-  view the [dependency tree](#)^[612] for the trigger
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the trigger:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Datar](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Trigger Editor**. To

enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

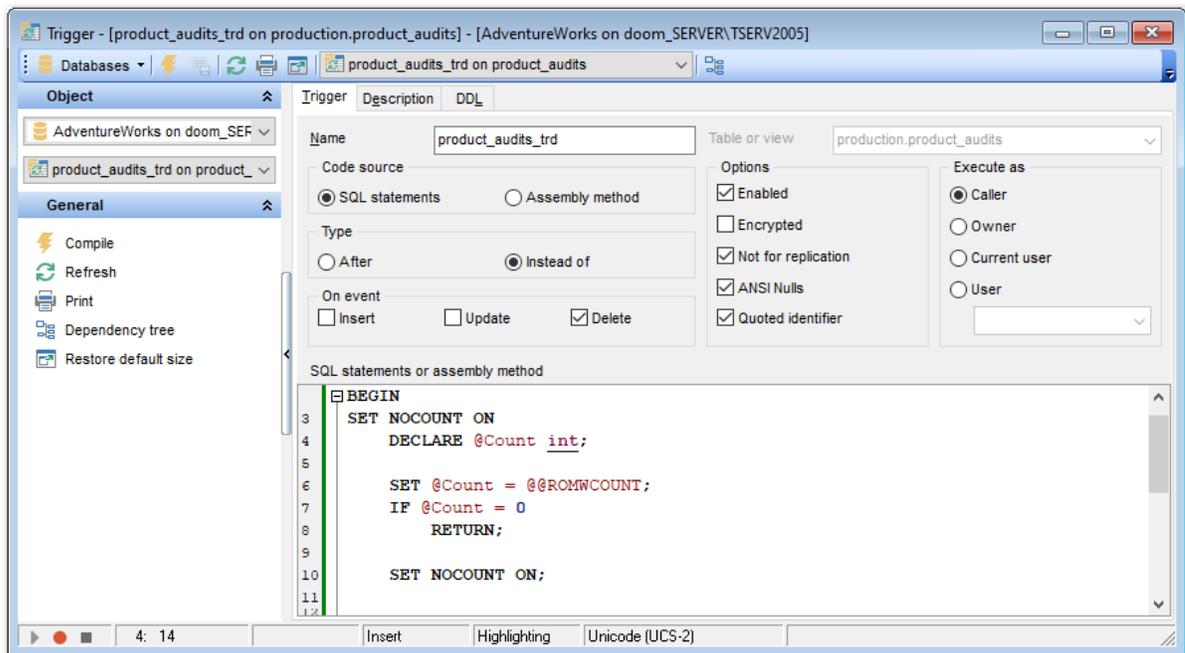
Use the **Trigger** tab of **Trigger Editor** to create/edit a DML trigger and specify its properties.

Name

Enter a name for the new trigger, or modify the name of the trigger being edited.

Table or view

The drop-down list of [tables](#)^[192] and [views](#)^[246] allows you to select the table or view on which the trigger is executed.



Type

Select the trigger behavior type:

- After*

This selection specifies that the trigger is fired only when all operations specified in the triggering SQL statement have executed successfully.

- Instead of*

This selection specifies that the trigger is executed instead of the triggering SQL statement.

On event

Specify the data modification statements that activate the trigger when it is tried against this table or view: *Insert*, *Update* or *Delete*. At least one option must be specified.

Options

Enabled

Enables/disables the trigger immediately after it is created. Enabling a trigger causes it to fire when any Transact-SQL statements on which it was originally programmed are executed. A disabled trigger still exists as an object in the current database, but does not fire.

Not for replication

This option allows you to specify that the trigger should not be executed when a replication agent modifies the table that is involved in the trigger.

Encrypted

You can check this option to encrypt the text of the *CREATE TRIGGER* statement if you want to ensure that other [users](#)^[295] cannot view the trigger definition.

ANSI Nulls

This option specifies ISO compliant behavior of the Equals (=) and Not Equal To (<>) comparison operators when they are used with null values. When this option is switched on, a *SELECT* statement that uses *WHERE column_name = NULL* returns zero rows even if there are null values in *column_name*. A *SELECT* statement that uses *WHERE column_name <> NULL* returns zero rows even if there are nonnull values in *column_name*.

Quoted identifier

This option causes SQL Server to follow the ISO rules regarding quotation mark delimiting identifiers and literal strings. When this option is switched on, identifiers can be delimited by double quotation marks, and literals must be delimited by single quotation marks. When it is switched off, identifiers cannot be quoted and must follow all Transact-SQL rules for identifiers.

Execute as

Specify the security context under which the trigger is to be executed: *Caller*, *Owner*, *Current user* or *User* (select which [user](#)^[295] account should be used to validate permissions on the objects that are referenced by the trigger).

Code Source

Select the trigger code source: it can be a direct set of SQL statements or an external procedure call from a .NET assembly or DLL.

SQL statements or assembly method

This area allows you to set the trigger conditions and actions. Trigger conditions specify additional criteria that determine whether the tried DML statements cause the trigger actions to be performed.

The trigger actions take effect when the DML operation is performed.

5.3.2.1.8 Creating procedures from table

SQL Manager for SQL Server provides you with an ability to create *SELECT/INSERT/UPDATE/DELETE* procedures from a table and set their properties using the **Create Procedures** dialog.

To open the dialog, right-click the table in DB Explorer and select the **Tasks | Create SIUD Procedures...** [context menu](#)^[56] item, or open the table in [Table Editor](#)^[200] and use the **Create Procedure** item of the [Navigation bar](#)^[201].

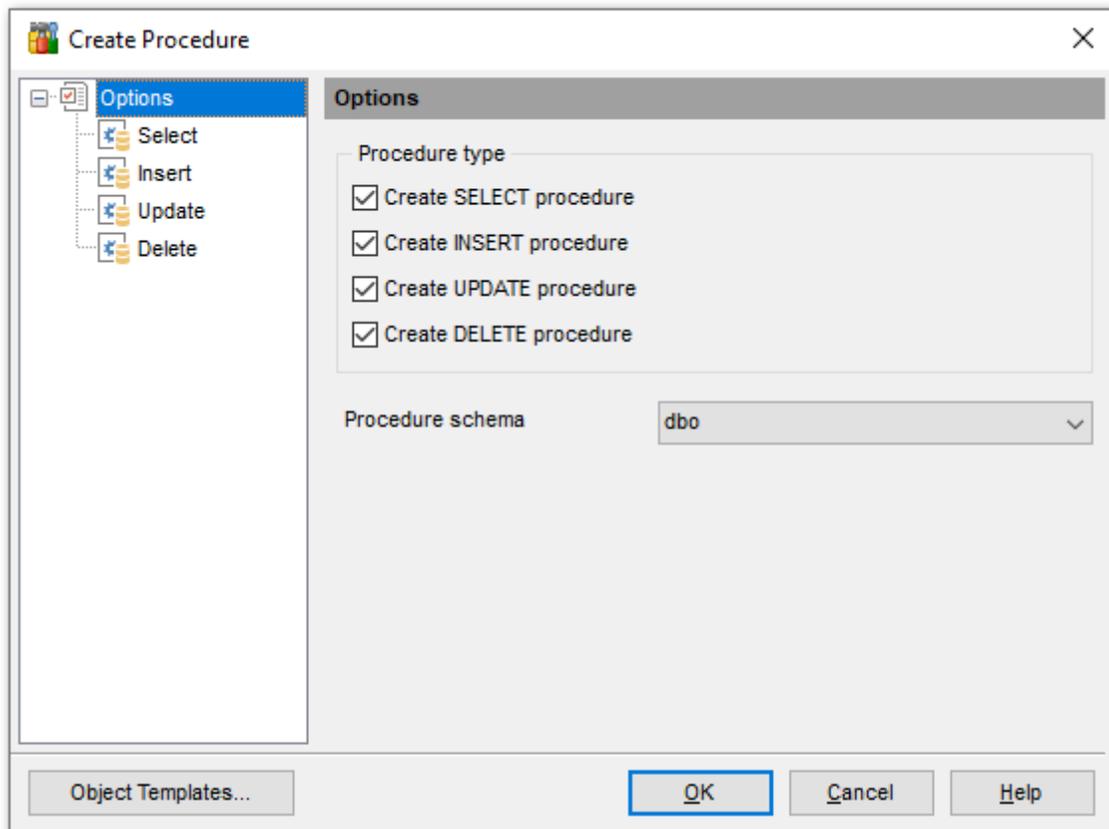
- [Options](#)^[241]
- [SELECT procedure](#)^[242]
- [INSERT procedure](#)^[244]
- [UPDATE procedure](#)^[243]
- [DELETE procedure](#)^[245]

See also:

[Procedures](#)^[253]

5.3.2.1.8.1 Options

The **Options** section of the **Create Procedures** dialog allows you to specify common options for the procedures being created.



Procedure type

Select [procedure](#)^[254] type(s) to be created with the help of the corresponding flags:

- Create SELECT procedure*
- Create INSERT procedure*
- Create UPDATE procedure*

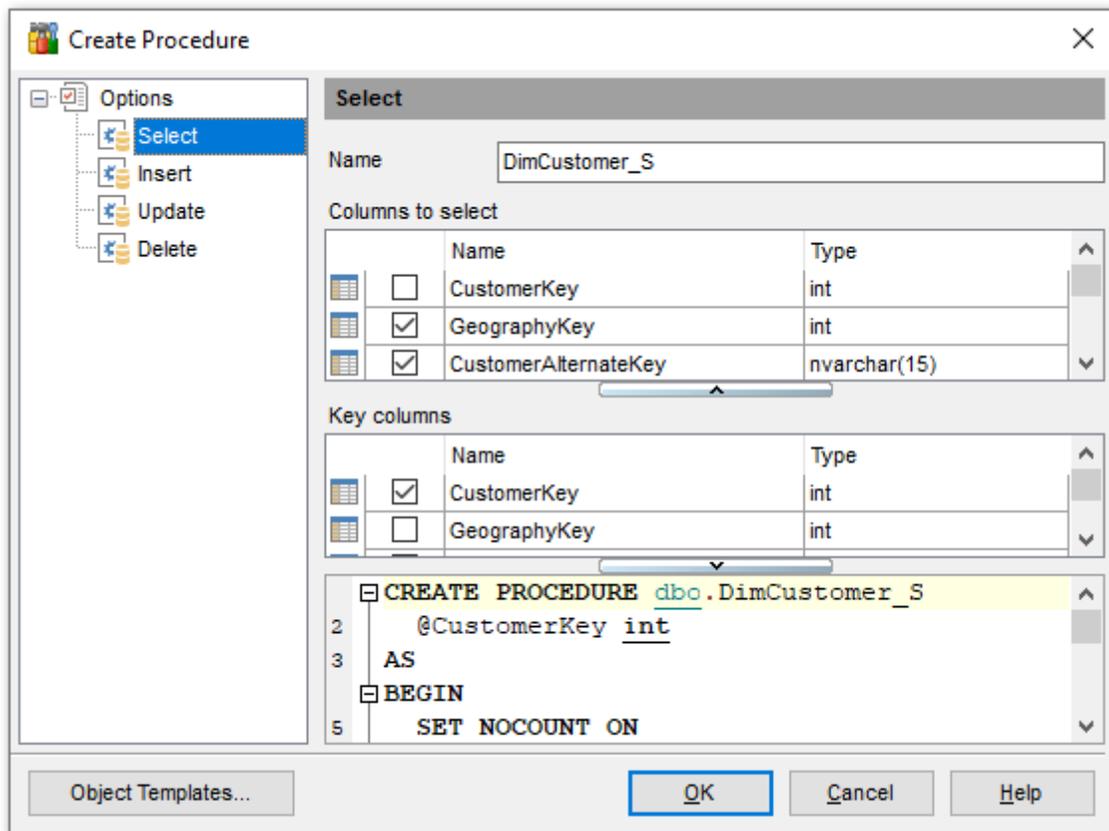
Create DELETE procedure

Procedure schema

Select the [schema](#)^[189] where the procedure should be created.

5.3.2.1.8.2 SELECT Procedure

The **Select** section of the **Create Procedures** dialog provides the definition of the SELECT procedure generated from the table.



Name

Specifies procedure name (if necessary, you can edit the one assigned by default).

The **Columns** list displays columns as specified in the *columns clause* of the procedure definition.

The list provides the following attributes of each column:

Name

Type

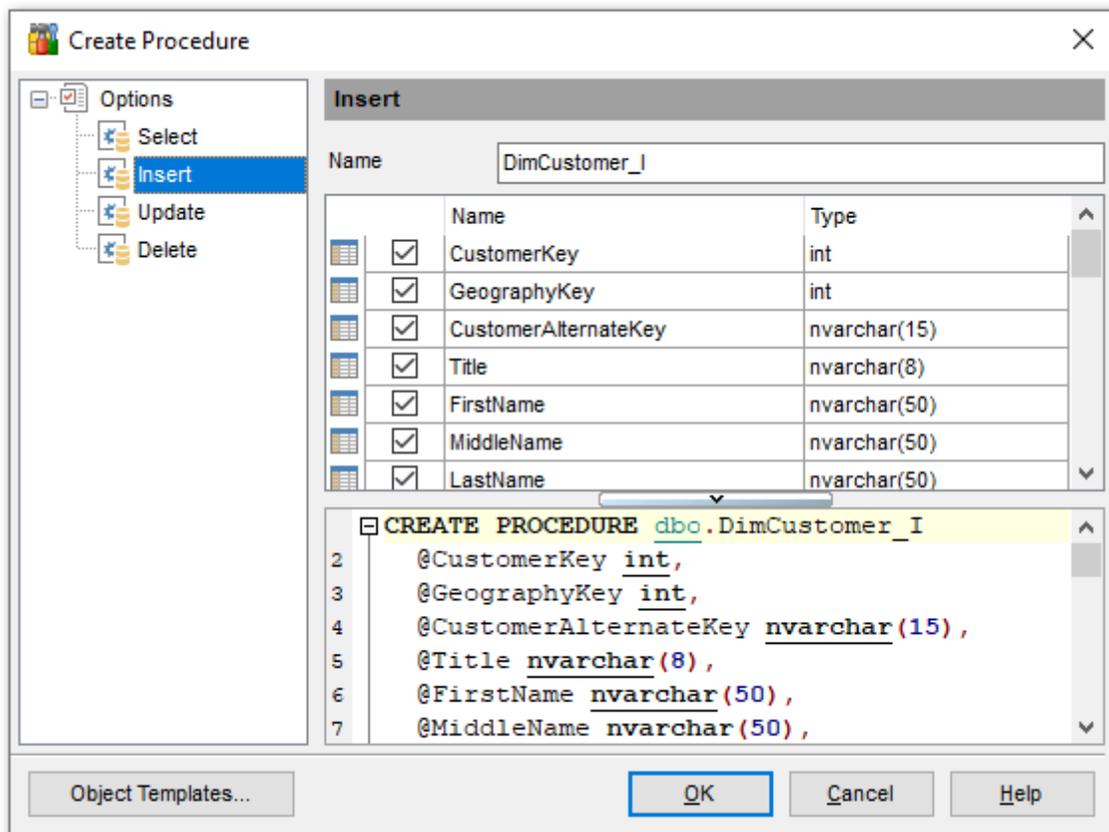
To add/remove columns to/from the construction, check/uncheck flags available in the first column of the **Columns** list.

For your convenience the *Select All*, *Deselect All* and *Invert Selection* functions are implemented in the **context menu** of the columns list area.

The lower area represents the SELECT procedure definition as SQL statement. It is possible to edit the definition directly using the editor area to make appropriate changes. Edit the block of statements within the BEGIN / END pair according to your needs. For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#)^[429] and [Using the context menu](#)^[430].

5.3.2.1.8.3 INSERT Procedure

The **Insert** section of the **Create Procedures** dialog provides the definition of the INSERT procedure generated from the table.



Name

Specifies procedure name (if necessary, you can edit the one assigned by default).

The **Columns** list displays columns as specified in the *columns clause* of the procedure definition.

The list provides the following attributes of each column:

Name

Type

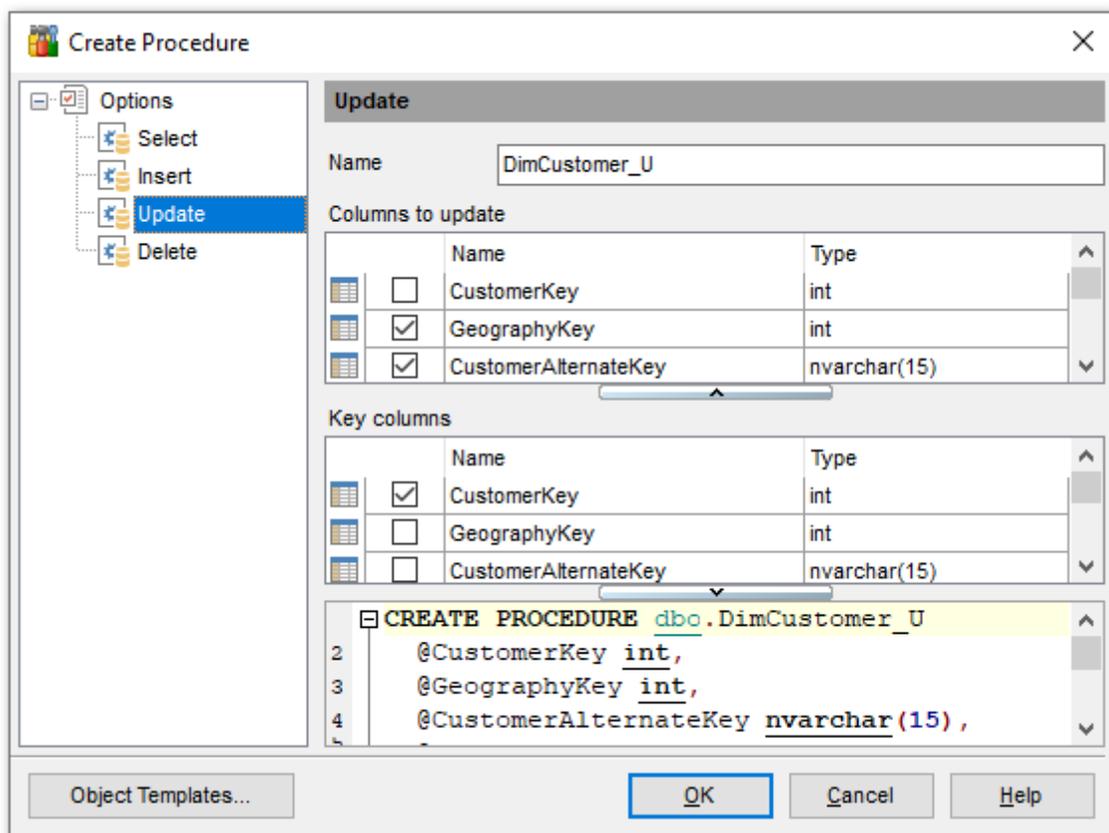
To add/remove columns to/from the construction, check/uncheck flags available in the first column of the **Columns** list.

For your convenience the *Select All*, *Deselect All* and *Invert Selection* functions are implemented in the **context menu** of the fields list area.

The lower area represents the INSERT procedure definition as SQL statement. It is possible to edit the definition directly using the editor area to make appropriate changes. Edit the block of statements within the BEGIN / END pair according to your needs. For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#)^[429] and [Using the context menu](#)^[430].

5.3.2.1.8.4 UPDATE procedure

The **Update** section of the **Create Procedures** dialog provides the definition of the UPDATE procedure generated from the table.



Name

Specifies procedure name (if necessary, you can edit the one assigned by default).

The **Columns** list displays columns as specified in the *columns clause* of the procedure definition.

The list provides the following attributes of each column:

Name

Type

To add/remove columns to/from the construction, check/uncheck flags available in the first column of the **Columns** list.

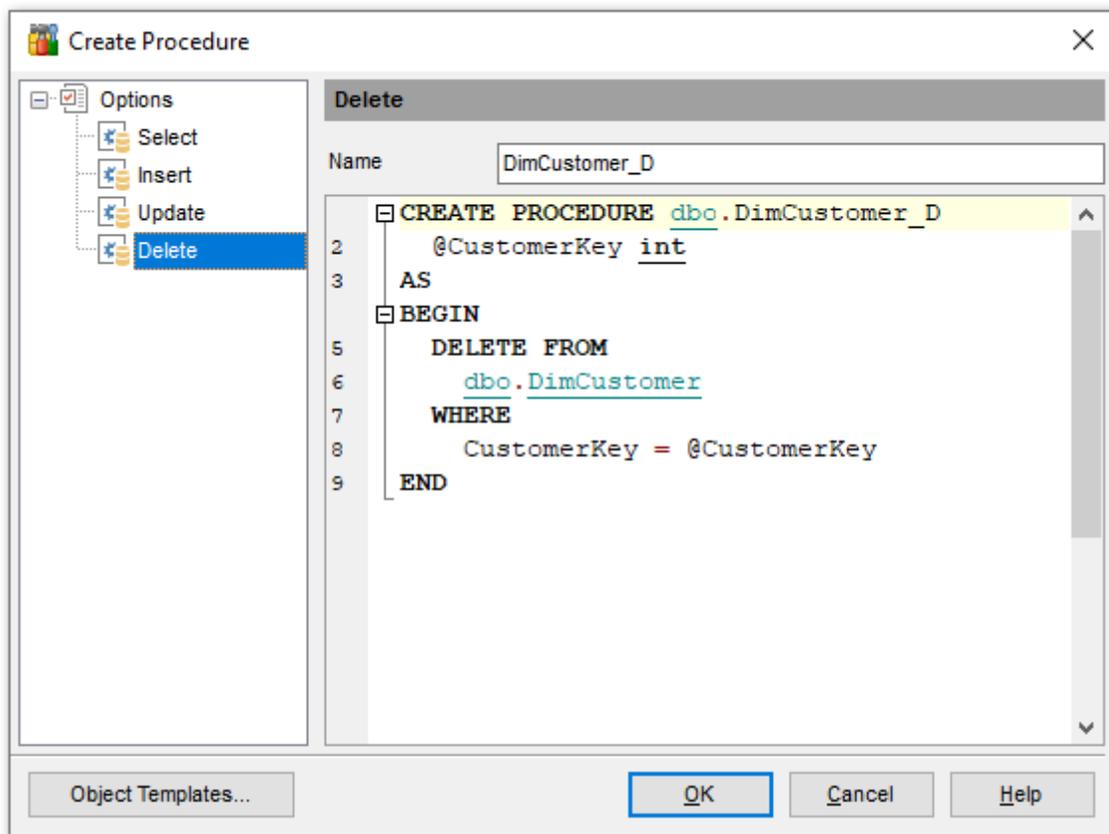
For your convenience the *Select All*, *Deselect All* and *Invert Selection* functions are

implemented in the **context menu** of the columns list area.

The lower area represents the UPDATE procedure definition as SQL statement. It is possible to edit the definition directly using the editor area to make appropriate changes. Edit the block of statements within the BEGIN / END pair according to your needs. For your convenience the **syntax highlight, code completion** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#)^[429] and [Using the context menu](#)^[430].

5.3.2.1.8.5 DELETE Procedure

The **Delete** section of the **Create Procedures** dialog provides the definition of the DELETE procedure generated from the table.



Name

Specifies procedure name (if necessary, you can edit the one assigned by default).

The lower area represents the DELETE procedure definition as SQL statement. It is possible to edit the definition directly using the editor area to make appropriate changes. Edit the block of statements within the BEGIN / END pair according to your needs. For your convenience the **syntax highlight, code completion** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#)^[429] and [Using the context menu](#)^[430].

5.3.2.2 Views

A **View** is a logical table based on one or more [tables](#)^[192] or views. A view contains no data itself. The tables upon which a view is based are called *base tables*.

Views are useful for allowing users to access a set of relations ([tables](#)^[192]) 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).

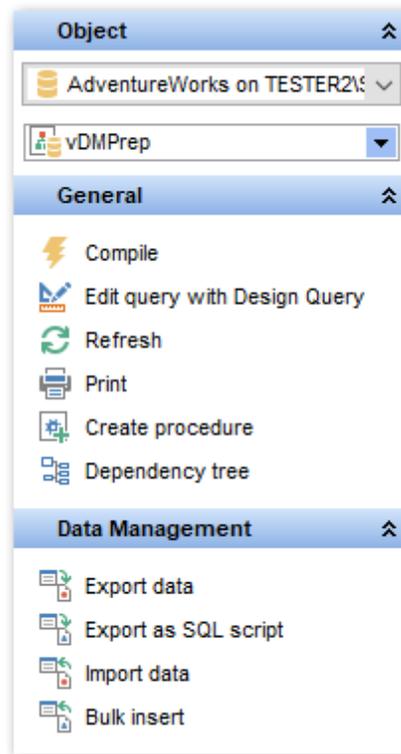
View Editor allows you to create new views and define their properties (view name and the SELECT statement it implements). It opens automatically when you create a new view and is available on editing an existing one.

To open a view in **View Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[246]
- [Creating/editing view](#)^[248]
- [Managing columns](#)^[249]
- [Managing indexes](#)^[250]
- [Managing triggers](#)^[251]
- [Browsing object dependencies](#)^[921]
- [Working with data](#)^[252]
- [Editing view description](#)^[920]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.2.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **View Editor**.



The **Navigation bar** of **View Editor** allows you to:

Object

- select a database
- select a view for editing

General

- [compile](#)^[923] the view (if it is being created/modified)
- save the view [description](#)^[920] (if it has been modified)
- edit the view query using [Design Query](#)^[442]
- refresh the content of the active tab
- [print metadata](#)^[643] of the view
- [create](#)^[240] a [procedure](#)^[253] based on the view
- view the [dependency tree](#)^[612] for the view
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the view:

Indices

- [add](#)^[228] a new index
- [edit](#)^[228] selected index
- [drop](#)^[228] selected index(-es)

Triggers

-  [add](#)^[237] a new trigger
-  [edit](#)^[237] selected trigger
-  [drop](#)^[237] selected trigger(s)

Data Management

-  commit transaction
-  rollback transaction
-  export data from the view using [Export Data Wizard](#)^[537]
-  export data from the view as SQL script using [Export as SQL Script Wizard](#)^[593]
-  [import data](#)^[577]
-  [bulk insert](#)^[602]

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

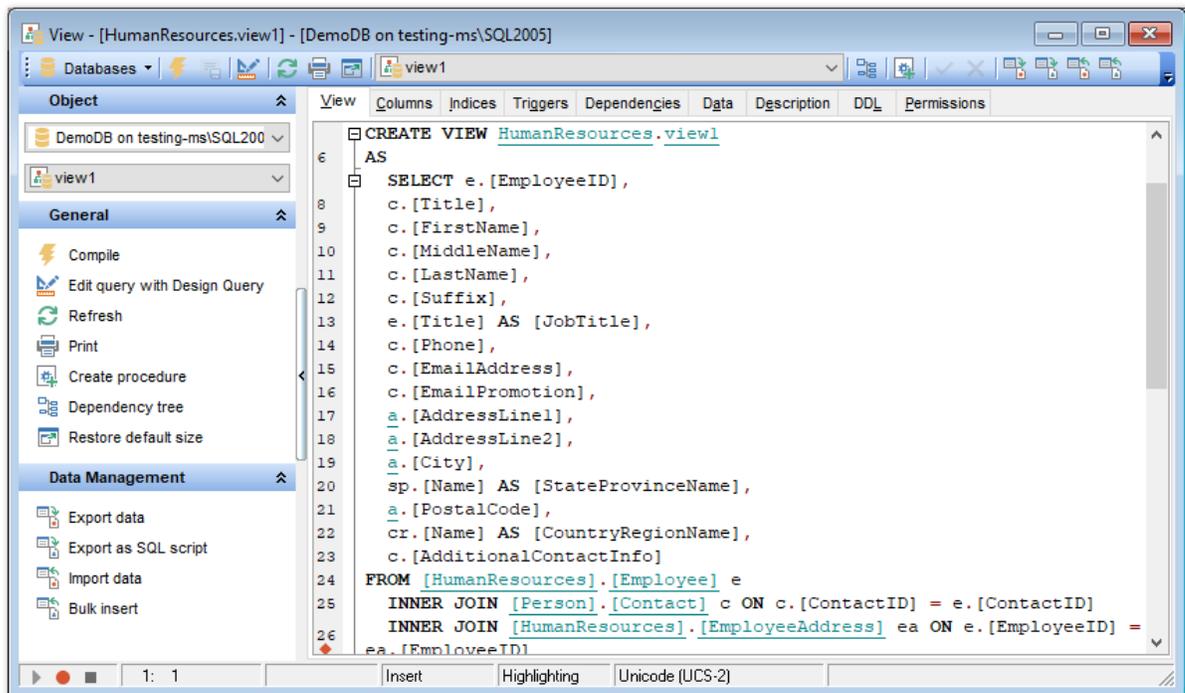
Items of the **Navigation bar** are also available on the **ToolBar** of **View Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.2.2.2 Creating/editing view

Use the **View** tab of **View Editor** to create/edit a view and specify its definition.

This tab represents the view definition as SQL statement, hence it is enough to simply edit the whole definition using the editor area to make appropriate changes, and recompile the view.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#)^[429] and [Using the context menu](#)^[430].

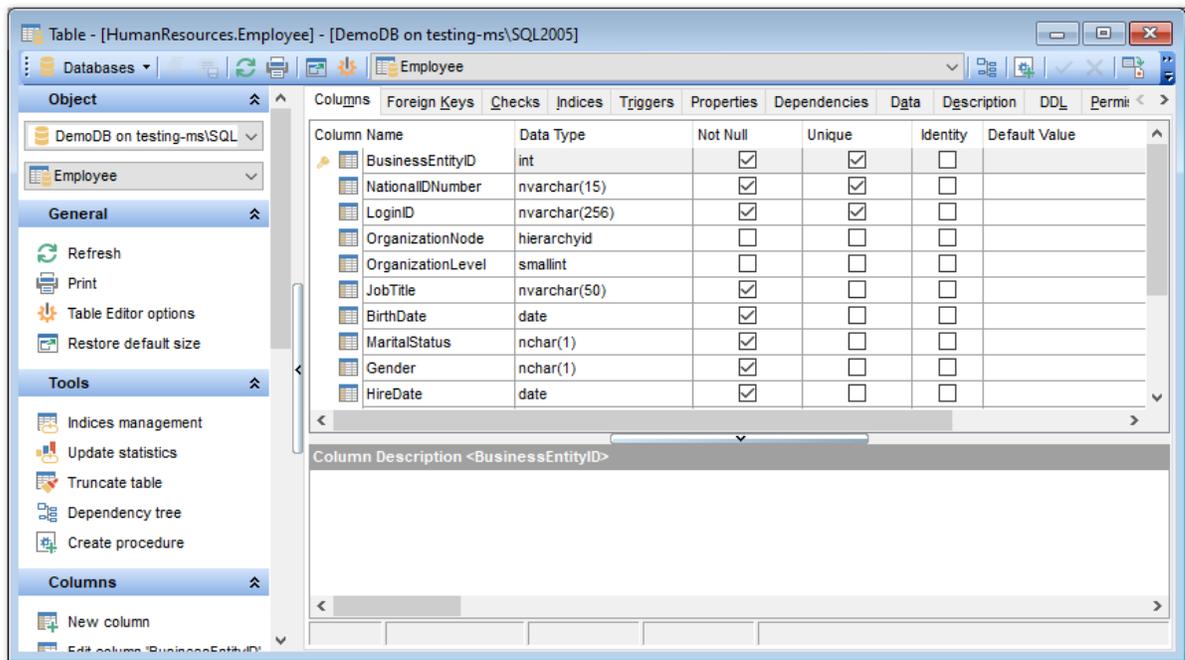


To compile a view, you can use the  **Compile** item available within the [Navigation bar](#) [\[246\]](#).

5.3.2.2.3 Managing columns

The **Columns** tab is provided for viewing columns represented in the view.

Right-click a row to display the context menu allowing you to [export](#) [\[537\]](#) column name list or copy it to clipboard.



The **Columns** list provides the following attributes of each column of the view:

Column Name
Data Type
Not Null
Unique
Identity
Default Value
Description

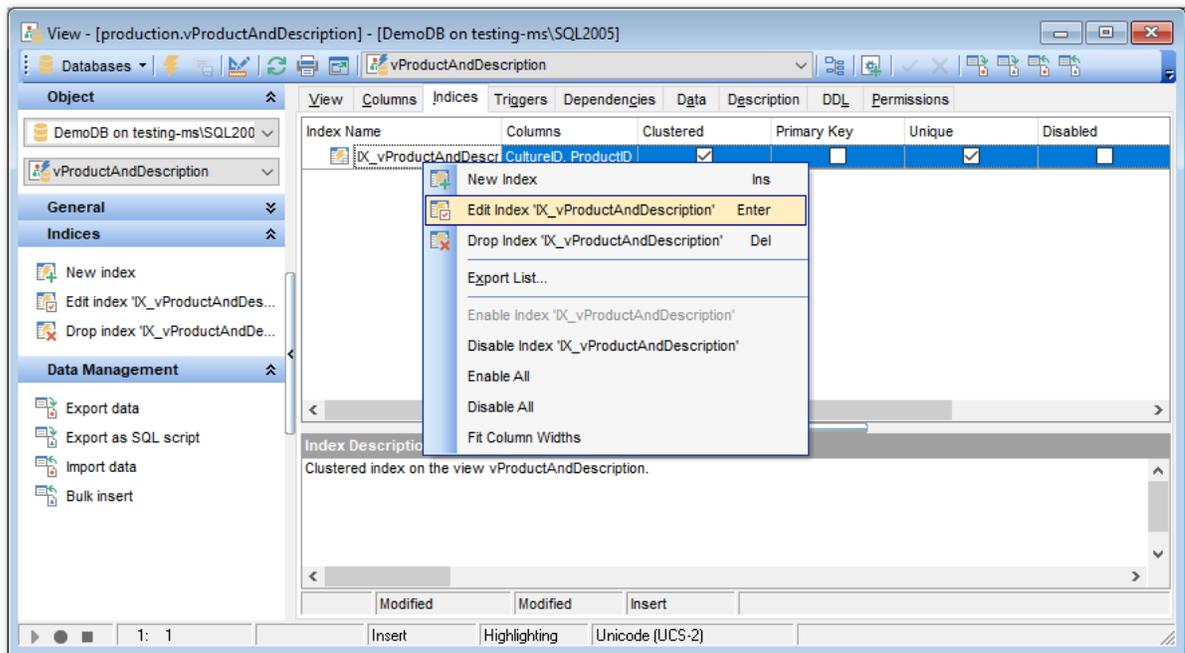
For details see [Columns](#)^[213].

If necessary, you can also use the **Column Description** area to supply a *description* for each column.

5.3.2.2.4 Managing indexes

The **Indices** tab is provided for viewing indexes represented in the view. Double-click an index to open [Index Editor](#)^[228] for editing the index.

Right-click an index to display the context menu allowing you to *create* new, *edit*, *drop*, *enable/disable* the selected index, or *enable/disable* all indexes. Using the menu you can also [export](#)^[53] the list of the view indexes to any of supported [formats](#)^[935].



The **Indexes** list provides the following attributes of each index of the view:

Index Name
Columns
Clustered
Primary Key
Unique
Disabled

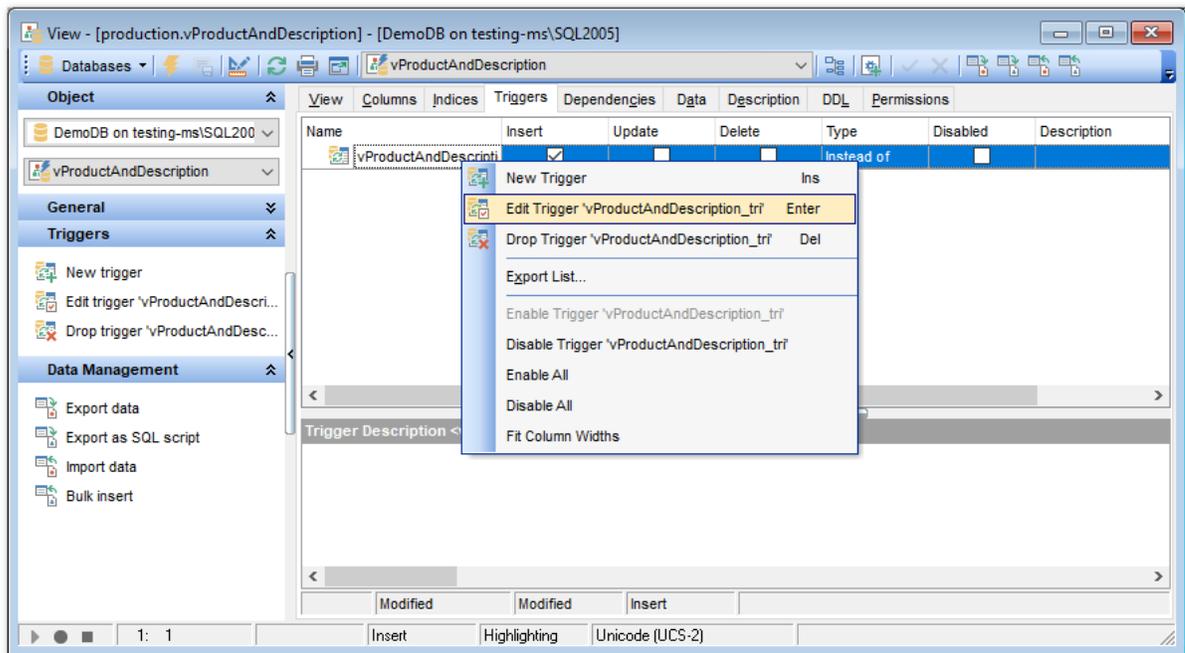
For details see [Indexes](#)^[228].

If necessary, you can also use the **Index Description** area to supply a *description* for each index.

5.3.2.2.5 Managing triggers

The **Triggers** tab is provided for managing triggers represented in the view. Double-click a trigger to open [Trigger Editor](#)^[237] for editing the trigger.

Right-click the area to display the context menu allowing you to *create new*, *edit*, *drop*, *enable/disable* the selected trigger, or *enable/disable* all triggers. Using the menu you can also [export](#)^[53] the list of the view triggers to any of supported [formats](#)^[935].



The **Triggers** list provides the following attributes of each trigger of the view:

Name
Insert
Update
Delete
Type
Disabled

For details see [Triggers](#)^[236].

If necessary, you can also use the **Trigger Description** area to supply a *description* for each trigger.

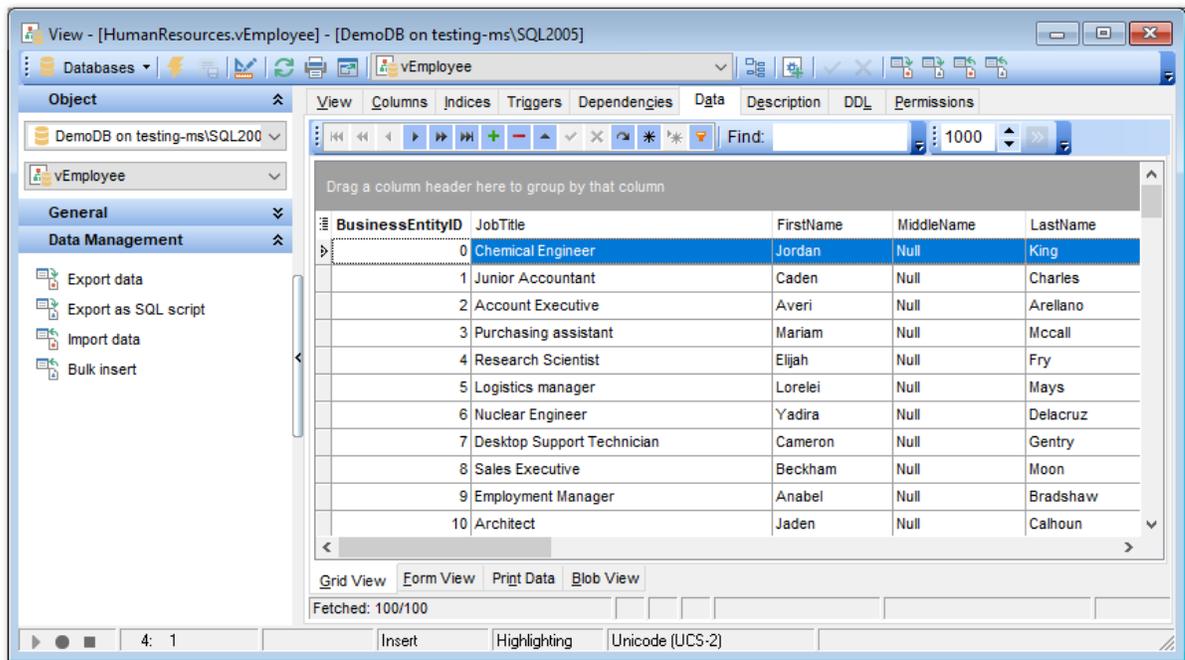
5.3.2.2.6 Working with data

The **Data** tab displays the view data as a grid by default (see [Data View](#)^[463] for details). The context menu of this tab and the [Navigation bar](#)^[246] allow you to [Export Data](#)^[531], [Import Data](#)^[571], [Export as SQL Script](#)^[593], [Bulk Insert](#)^[602].

While working with view data, you are provided with a number of [filtering](#)^[469] and [grouping](#)^[467] facilities.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray "**Group by**" box area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

[Data management](#)^[462] tools are also available through the [Navigation bar](#)^[246] and [toolbar](#)^[248] of **View Editor**.



See also:

[Data View](#) ⁴⁶³

5.3.2.3 Procedures

A **Procedure** is a set of procedural constructs and embedded SQL statements that is stored in the database and can be called by name.

When you create an application with Microsoft SQL Server 2005 (and higher), the Transact-SQL programming language is the primary programming interface between your applications and the Microsoft SQL Server database. When you use Transact-SQL programs, two methods are available for storing and executing the programs. You can store the programs locally and create applications that send the commands to SQL Server and process the results, or you can store the programs as stored procedures in SQL Server and create applications that execute the stored procedures and process the results.

A **stored procedure** is a saved collection of Transact-SQL statements or a reference to a Microsoft .NET Framework common language runtime (CLR) method that can take and return user-supplied parameters. Procedures can be created for permanent use or for temporary use within a session, local temporary procedure, or for temporary use within all sessions, global temporary procedure.

Procedure Editor allows you to create new procedure, execute the existing procedure or edit its definition. It opens automatically when you create a new procedure and is available on editing an existing one.

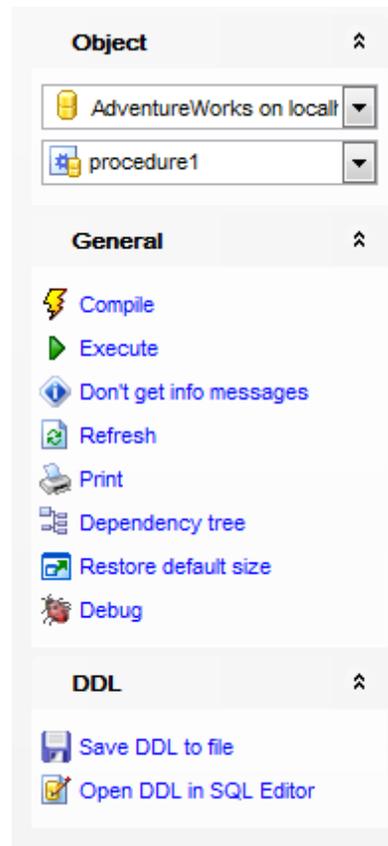
To open a stored procedure in **Procedure Editor**, double-click it in the [DB Explorer](#) ⁶³

tree.

- [Using Navigation bar and Toolbar](#)^[254]
- [Creating/editing procedure](#)^[255]
- [Browsing procedure parameters](#)^[256]
- [Browsing object dependencies](#)^[921]
- [Editing procedure description](#)^[920]
- [Specifying input parameters](#)^[257]
- [Executing procedure](#)^[258]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.2.3.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Procedure Editor**.



The **Navigation bar** of **Procedure Editor** allows you to:

Object

- select a database
- select a procedure for editing

General

-  [compile](#) the procedure (if it is being created/modified)
-  save the procedure [description](#) (if it has been modified)
-  [execute](#) the procedure
-  enable/disable information messages
-  refresh the content of the active tab
-  [print metadata](#) of the procedure
-  view the [dependency tree](#) for the procedure
-  restore the default size and position of the editor window
-  [debug](#) the procedure

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the procedure:

Description

-  save object [description](#) to file
-  copy [description](#) to clipboard

DDL

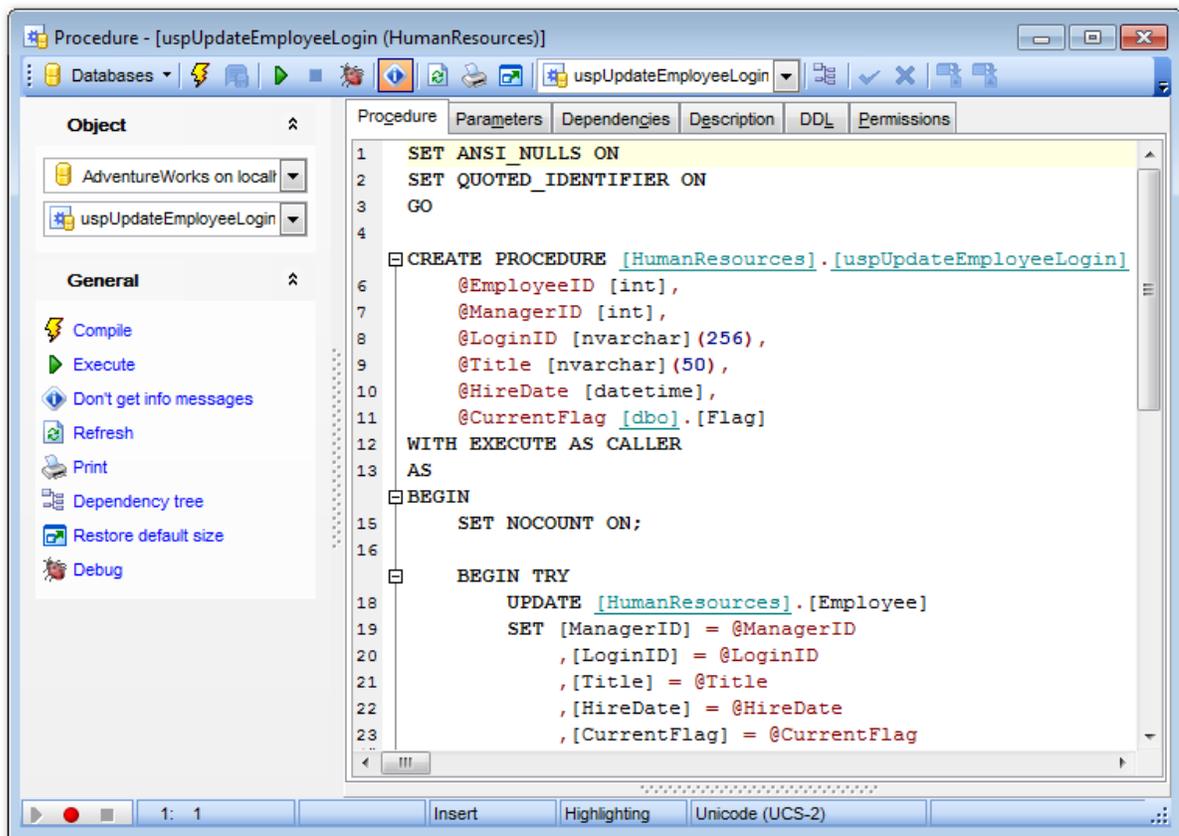
-  save [DDL](#) to file
-  open [DDL](#) in [Query Data](#)

Items of the **Navigation bar** are also available on the **ToolBar** of **Procedure Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.3.2.3.2 Creating/editing procedure

Use the **Procedure** tab of **Procedure Editor** to create/edit a stored procedure and specify its definition.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#) and [Using the context menu](#).

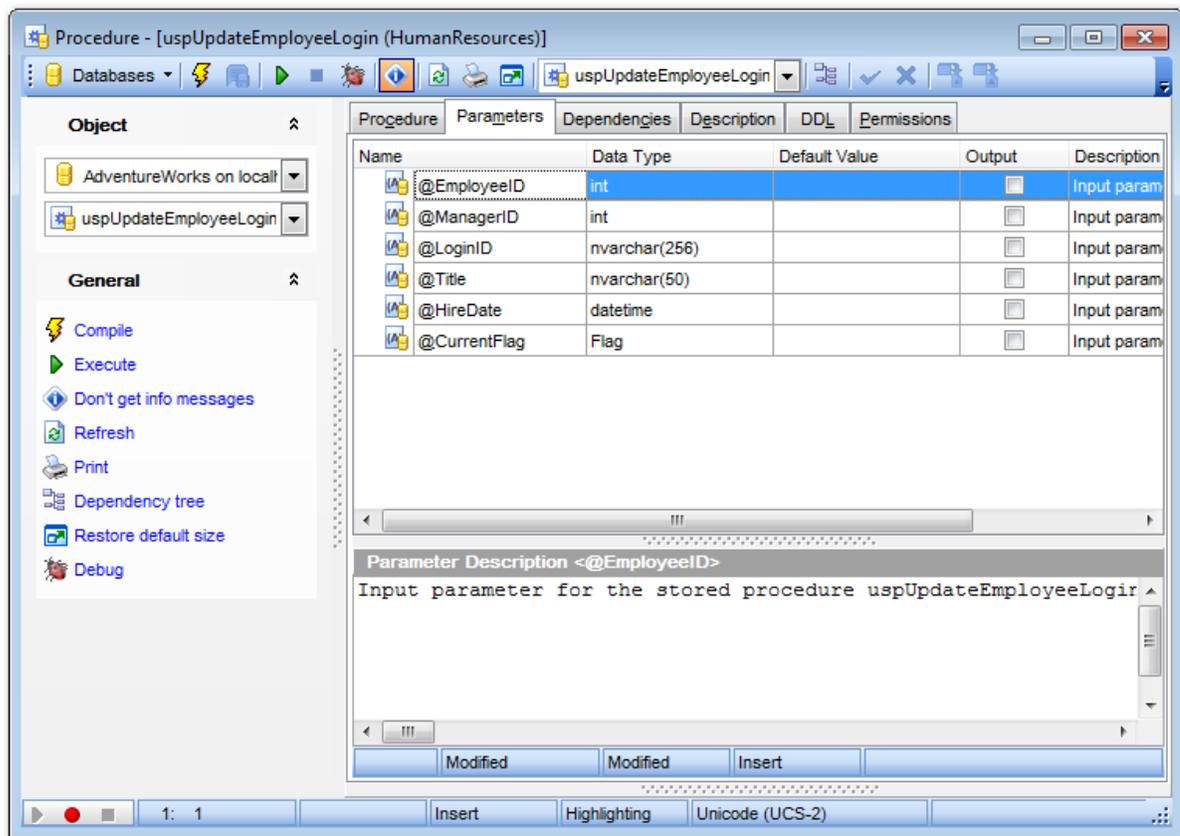


To [execute](#)^[253] a procedure, you can use the **Execute** item available within the [Navigation bar](#)^[254].

5.3.2.3.3 Browsing procedure parameters

The **Parameters** tab is provided for browsing the list of parameters of the stored procedure.

Right-click the list to display the popup menu allowing you to [export](#)^[531] this list to any of supported [formats](#)^[935].



The parameter list provides the following attributes of each parameter used in the procedure:

Name (parameter name specified by using an at (@) sign as the first character)

Data Type (the parameter data type)

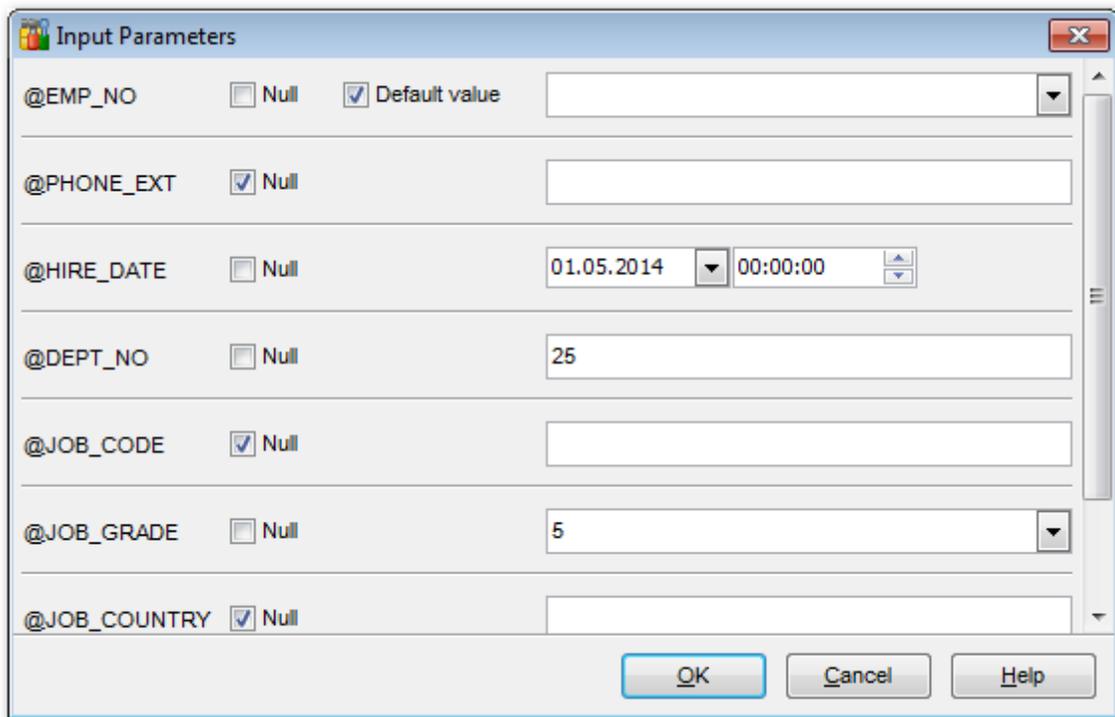
Default Value (a default value for the parameter)

Output (indicates that the parameter is an output parameter)

If necessary, you can also use the **Parameter Description** area to supply a *description* for each parameter.

5.3.2.3.4 Specifying input parameters

If the stored procedure (or user-defined function) has parameters, the **Input Parameter dialog** appears before the procedure execution. It allows you to specify the values for all procedure parameters. After changes are done, click the **OK** button to execute the stored procedure, or the **Cancel** button to abort the execution.



Check the **Default** option to apply specified default input parameters.

See also:

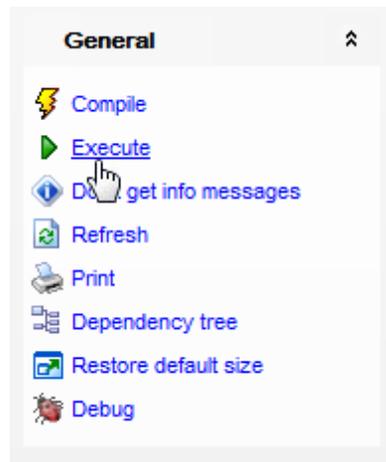
[Executing procedure/function](#)^[258]

5.3.2.3.5 Executing procedure/function

Procedure Editor / UDF Editor provide an ability to execute procedures and user-defined functions. Click the ► **Execute** item of the [Navigation bar](#)^[915] or use the corresponding [toolbar](#)^[917] button to execute the procedure/UDF.

If the procedure/UDF has input parameters, SQL Manager allows you to specify the values for these parameters in the [Input Parameters](#)^[257] dialog which appears just before execution.

The result of the successfully executed procedure/UDF, as well as the error message in case of execution failure, appears in the message panel at the bottom of the **Procedure Editor / UDF Editor** window.



Note: If any unsaved changes are applied to the stored procedure/UDF being currently edited, the execution of the procedure/UDF is impossible unless changes are saved through the **Compile** item of the **Navigation bar**.

See also:

[Specifying input parameters](#)^[257]

[Procedure Editor](#)^[253]

[UDF Editor](#)^[259]

5.3.2.4 UDFs

A **Function** is a mapping embodied as a program (the function *body*) that can be invoked by using zero or more input values (*arguments*) to a single value (the *result*). A **User-Defined Function** is stored as a database object providing reusable code.

The Transact-SQL programming language provides the following types of functions:

Rowset functions (can be used like table references in an SQL statement)

Aggregate functions (operate on a collection of values but return a single, summarizing value)

Ranking functions (return a ranking value for each row in a partition)

Scalar functions (operate on a single value and then return a single value; scalar functions can be used wherever an expression is valid)

UDF Editor allows you to define user-defined function properties. It opens automatically when you create a new user-defined function and is available on editing an existing one.

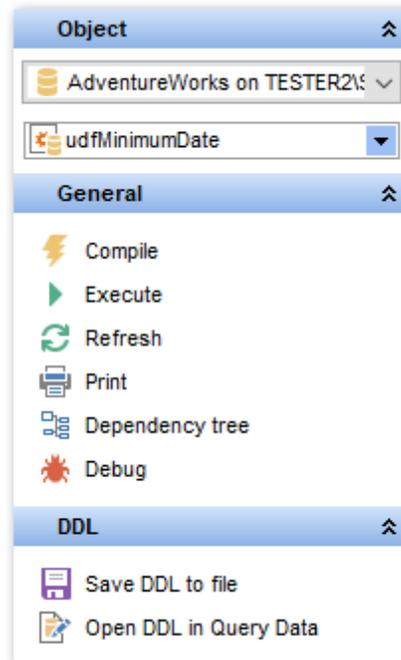
To open a user-defined function in **UDF Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[260]
- [Creating/editing user-defined function](#)^[261]
- [Browsing user-defined function parameters](#)^[262]
- [Browsing object dependencies](#)^[921]
- [Editing user-defined function description](#)^[920]
- [Specifying input parameters](#)^[257]

- [Executing function](#)^[258]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.2.4.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **UDF Editor**.



The **Navigation bar** of **UDF Editor** allows you to:

Object

- select a database
- select a user-defined function for editing

General

- [compile](#)^[923] the UDF (if it is being created/modified)
- save the UDF [description](#)^[920] (if it has been modified)
- [execute](#)^[258] the UDF
- refresh the content of the active tab
- [print metadata](#)^[643] of the UDF
- view the [dependency tree](#)^[612] for the UDF
- restore the default size and position of the editor window
- [debug](#)^[437] the procedure

Depending on the current tab selection, the **Navigation bar** expands to one or more

additional panes with tab-specific actions that can be useful for working with the UDF:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

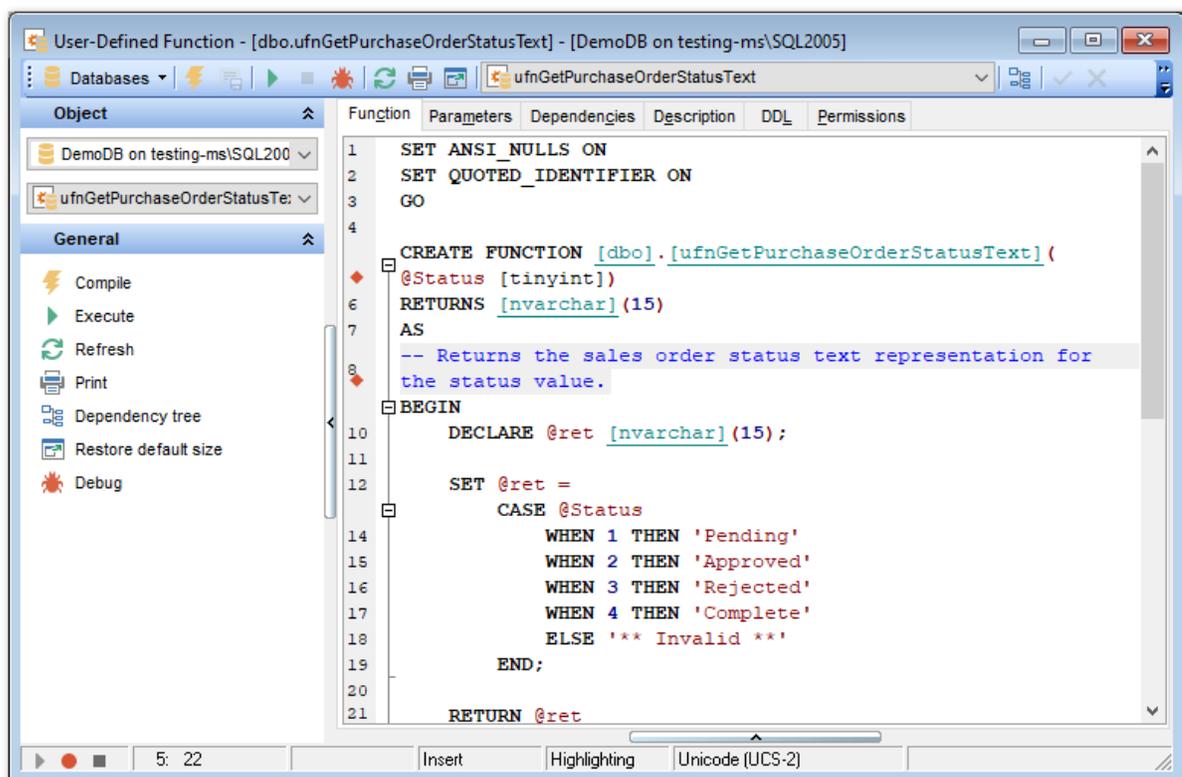
-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **UDF Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.2.4.2 Creating/editing UDF

Use the **Function** tab of **UDF Editor** to create/edit a user-defined function and specify its definition.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#)^[429] and [Using the context menu](#)^[430].



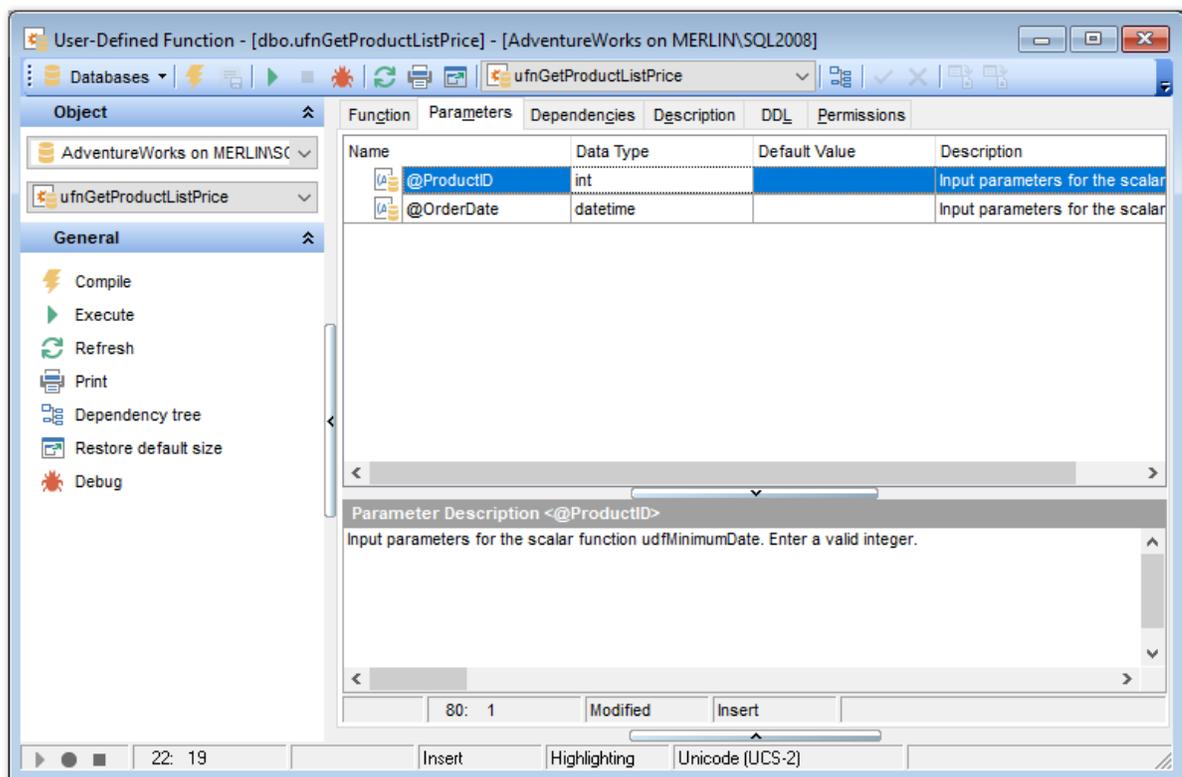
Note: A UDF is a Transact-SQL or common language runtime (CLR) routine that returns a value. User-defined functions, like system functions, can be invoked from a [query](#) [424]. Scalar functions can be executed by using an *EXECUTE* statement like [stored procedures](#) [253].

To [execute](#) [258] a UDF, you can use the **Execute** item available within the [Navigation bar](#) [260].

5.3.2.4.3 Browsing UDF parameters

The **Parameters** tab is provided for browsing the list of parameters of the user-defined function.

Right-click the list to display the popup menu allowing you to [export](#) [531] this list to any of supported [formats](#) [935].



The parameter list provides the following attributes of each parameter used in the UDF:
Name (parameter name specified by using an 'at' (@) sign as the first character)
Data Type (the parameter data type)
Default Value (a default value for the parameter)

If necessary, you can also use the **Parameter Description** area to supply a *description* for each parameter.

5.3.2.5 UDTs

A **User-Defined Data Type** is internally represented as an existing type, but is considered to be a separate data type. In fact, this is an *alias data type* in an instance of SQL Server, a *CLR data type*, or a *table data type* (for SQL Server 2008). An alias data type's implementation is based on a SQL Server native system type. A user-defined type is implemented through a class of an assembly in the Microsoft .NET Framework common language runtime (CLR).

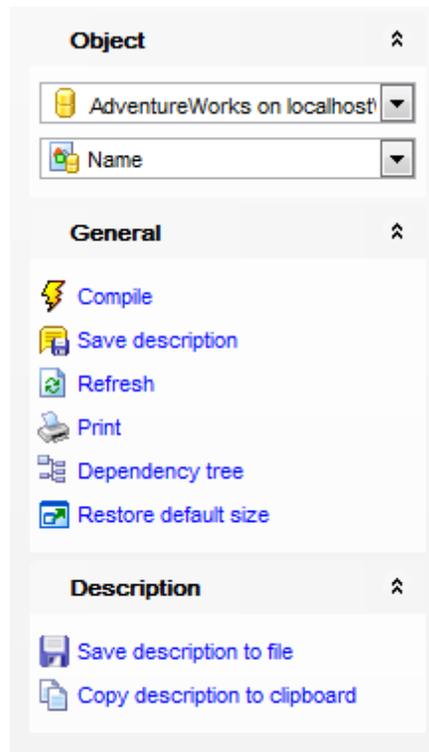
UDT Editor allows you to define user-defined type properties. It opens automatically when you create a new type and is available on editing an existing one.

To open a user-defined type in **UDT Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[263]
- [Creating/editing user-defined type](#)^[265]
- [Managing UDT checks](#)^[268]
- [Managing UDT Primary/Unique Keys](#)^[270]
- [Browsing object dependencies](#)^[921]
- [Editing user-defined type description](#)^[920]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.2.5.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **UDT Editor**.



The **Navigation bar** of **UDT Editor** allows you to:

Object

-  select a database
-  select a user-defined type for editing

General

-  [compile](#)^[923] the user-defined type (if it is being created/modified)
-  save the UDT [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the UDT
-  view the [dependency tree](#)^[612] for the UDT
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the user-defined type:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

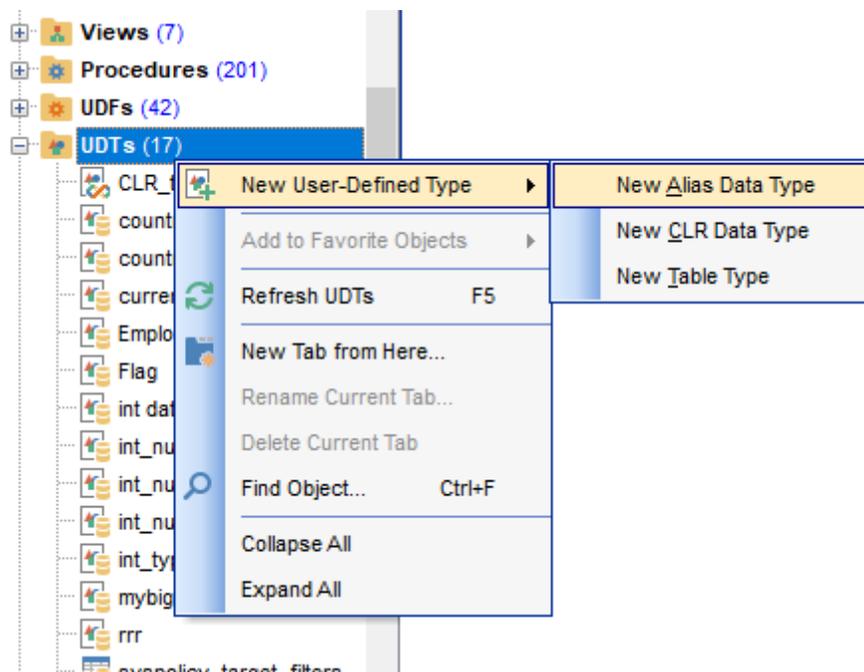
-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **UDT Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.2.5.2 Creating/editing UDT

Use the **Type** tab of **UDT Editor** to create/edit a user-defined data type and specify its properties.

If you create a new user-defined type, you should first specify its implementation kind.



Alias data type

This selection specifies that an alias data type will be created on the basis of an existing SQL Server data type.

CLR data type

This selection specifies that the user-defined will be taken from an [assembly](#)^[304].

Table data type

This selection specifies that a new user-defined table type will be created.

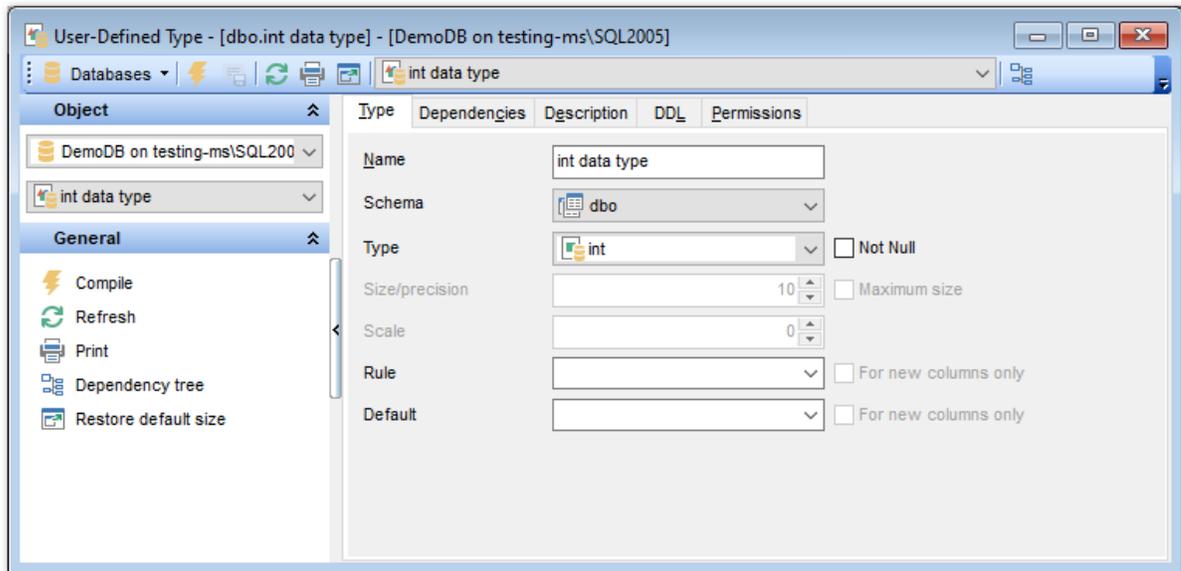
Name

Enter a name for the new user-defined type, or modify the name of the user-defined type being edited.

Schema

Use the drop-down list to select the [schema](#)^[189] to which the user-defined type belongs. The default selection is the default schema for the current user. For Microsoft® SQL Server 2000 or SQL Server 7.0, specify the owner of the UDT (the default value is the current [user](#)^[295]).

Alias Data Type Properties



Type

Use the drop-down list to select SQL Server supplied data type on which the alias data type is based (*base_type*). The base type of an existing UDT is not editable.

Not Null

Specify whether the UDT can accept NULL values. The nullability of an existing UDT is not editable.

Size

Specify the size value (for certain types). Check **Maximum size** to use the maximum values set by SQL Server.

Scale

Defines the maximum number of decimal digits that can be stored to the right of the decimal point of the value (for numeric and decimal data types).

Rule

Use the drop-down list to select a [rule](#)^[287] to bind to the user-defined data type (optional). Check **For new columns only** to apply the selected rule only to newly added columns.

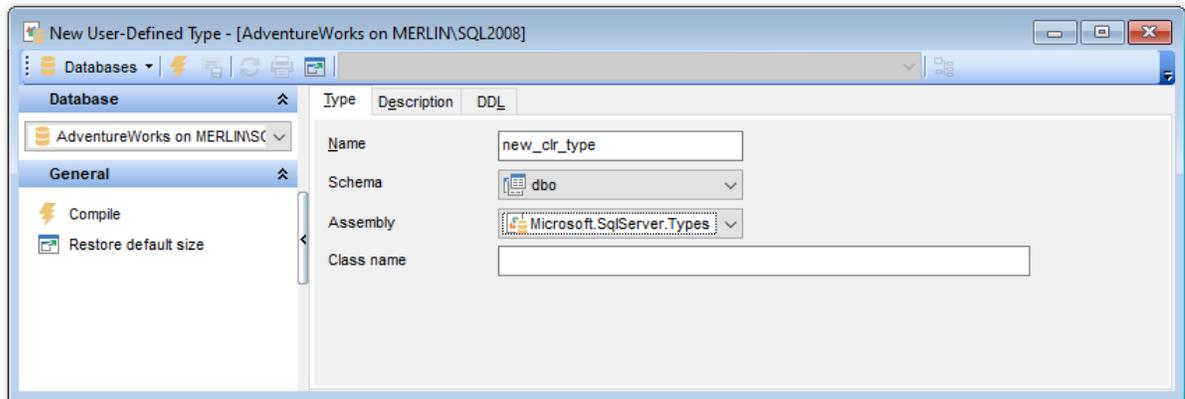
Default

Use the drop-down list to select a [default](#)^[284] to bind to the user-defined data type (optional). Check **For new columns only** to apply the selected default only to newly

added columns.

Note: Some properties cannot be modified because of dependent objects. Open the [Dependencies](#)^[921] tab to browse the list of dependent objects, or view the [dependency tree](#)^[612] for the user-defined type.

CLR Data Type Properties



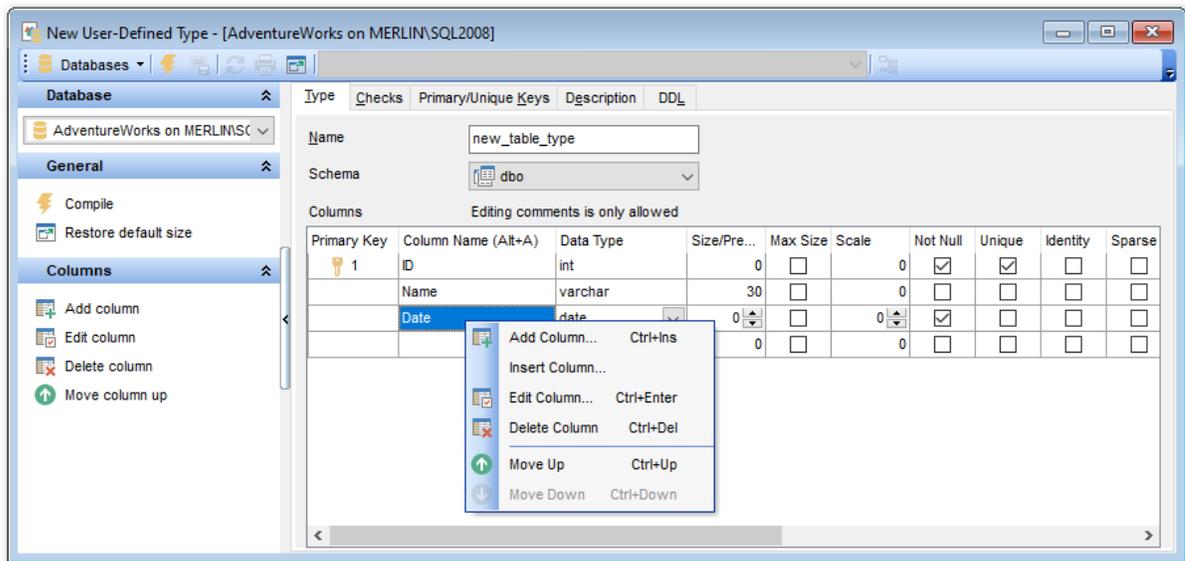
Assembly

Use the drop-down list to select the SQL Server [assembly](#)^[304] that references the implementation of the user-defined type in the common language runtime (CLR). The assembly must have been already created in the database.

Class name

Specifies the class within the assembly that implements the user-defined type. The class name can be a namespace-qualified name (if the programming language that is used to write the class uses the concept of namespaces, such as C#).

Table Data Type Properties



Columns

This area lists the columns of the user-defined type as a grid.

Double-click a row to open [Column Editor](#)^[214] for editing the column.

Right-click within the **Columns** area to display the context menu allowing you to *add* new, *insert*, *edit* using [Column Editor](#)^[214], *delete* the selected column, or move it up/down within the list.

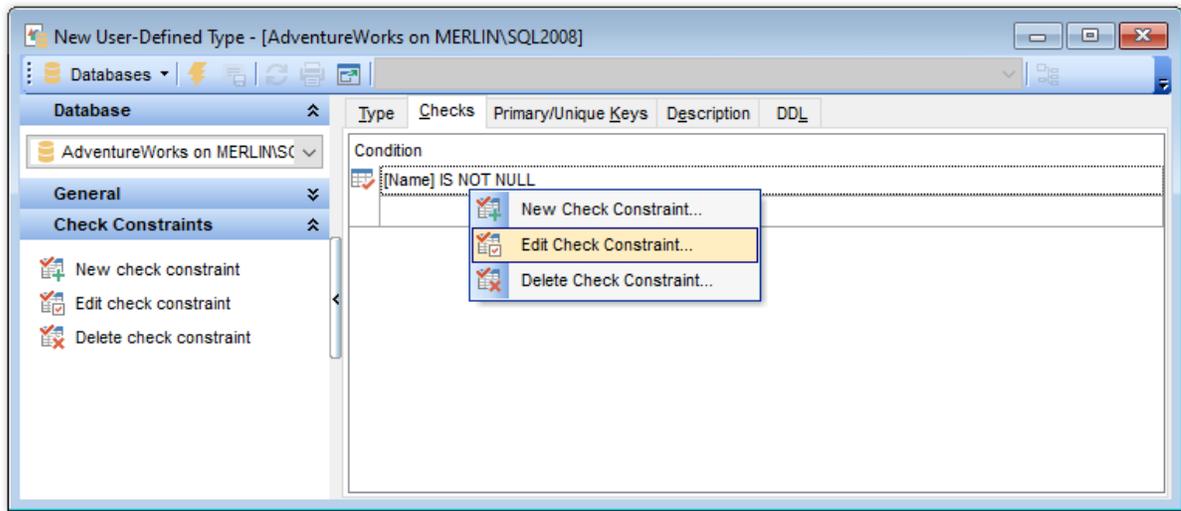
The **Columns** list provides the following attributes of each column of the UDT:

Primary Key
Column Name
Data Type
Size/Precision
Max Size
Scale
Not Null
Unique
Identity
Sparse
Filestream
Default Value
Comment

For details see [Columns](#)^[213].

5.3.2.5.3 Managing UDT checks

The **Checks** tab is provided for viewing and editing UDT checks. This tab is only available for [Table Data Type](#)^[267].



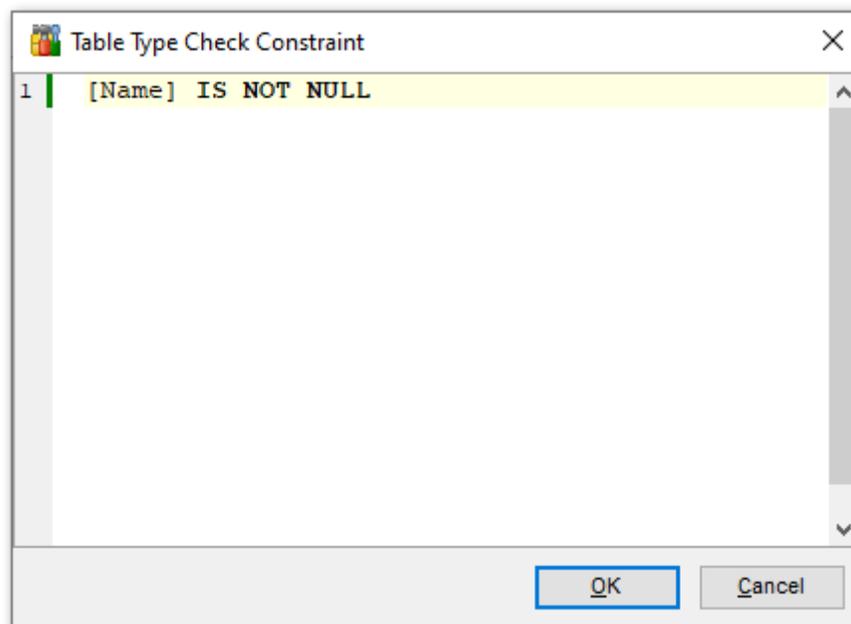
Double-click a check to edit the condition of the check using the [Table Type Check Constraint](#) ^[269] dialog.

Right-click a check to display the context menu allowing you to *create* new, *edit*, or *drop* the selected check constraint.

5.3.2.5.3.1 Table Type Check Constraint dialog

The **Table Type Check Constraint** dialog allows you to specify the UDT check condition.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#) ^[429] and [Using the context menu](#) ^[430].

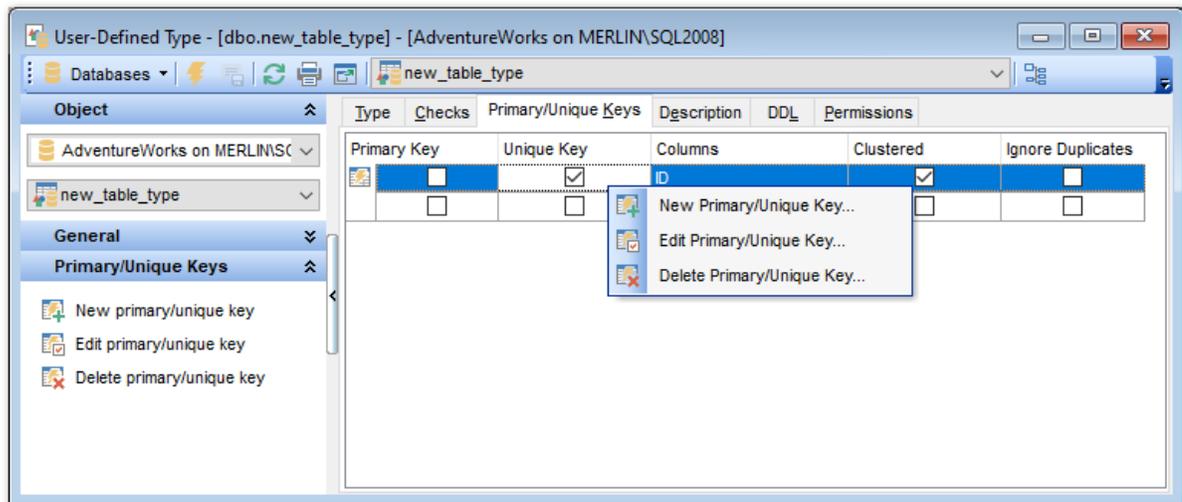


5.3.2.5.4 Managing UDT Primary/Unique Keys

The **Primary/Unique Keys** tab is provided for viewing and editing UDT primary/unique keys. This tab is only available for [Table Data Type](#)^[267].

Double-click a constraint to edit it using the [Table Type Constraint](#)^[270] dialog.

Right-click a constraint to display the context menu allowing you to *create new*, *edit*, or *drop* the selected constraint.



The **Columns** list provides the following attributes of each constraint of the UDT:

Primary Key

Unique Key

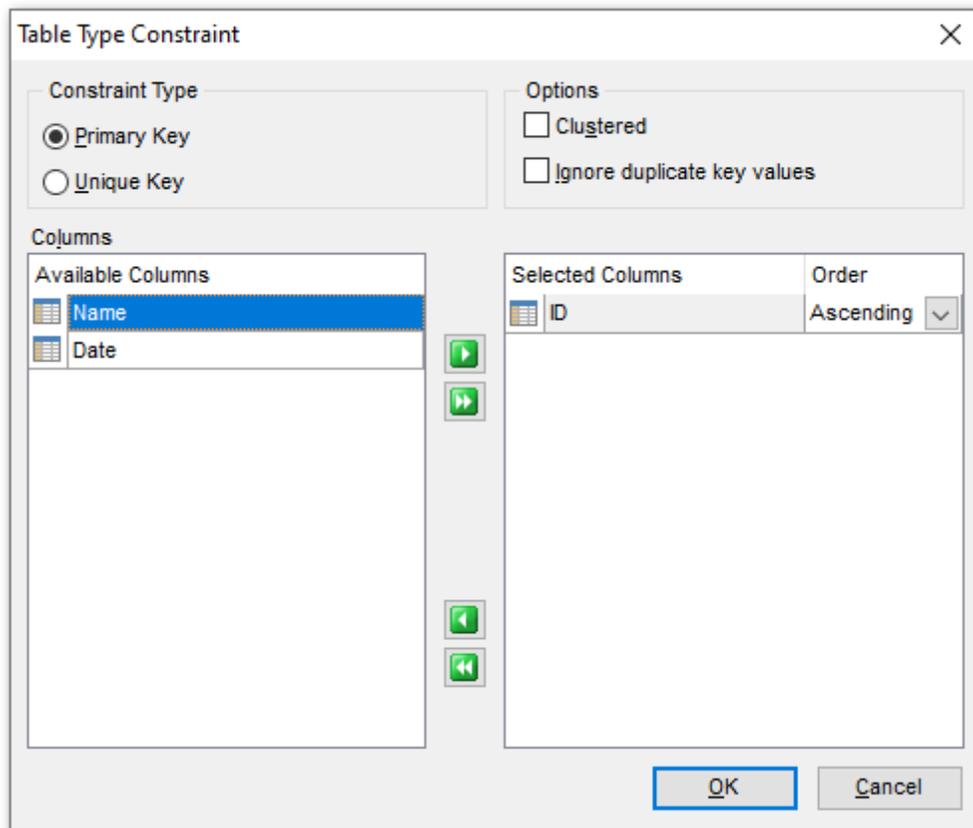
Columns

Clustered

Ignore Duplicates

5.3.2.5.4.1 Table Type Constraint dialog

The **Table Type Constraint** dialog allows you to specify the UDT Primary/Unique Key properties.



Constraint Type

This group allows you to specify the UDT constraint type:

- Primary Key*
Specifies a primary key constraint.
- Unique Key*
Specifies a unique key constraint.

Options

Clustered

If this option is selected, the logical order of the key values determines the physical order of the corresponding rows in a table.

Ignore duplicate keys

This option specifies the error response to duplicate key values in a multiple-row insert operation on a unique clustered or unique nonclustered constraint.

Columns

To specify column(s) for the UDT constraint, you need to move it from the **Available Columns** list to the **Selected Columns** list. Use the     buttons or drag-and-drop operations to move the columns from one list to another.

To change the sorting order for a column, select the column in the **Selected Columns** list

and change the **Order** value (*ascending/descending*).

5.3.2.6 Sequences

A **Sequence** is a database object from which multiple users may generate unique integers. You can use sequences to automatically generate primary key values. When a sequence number is generated, the sequence is incremented, independently of the transaction committing or rolling back. If two users concurrently increment the same sequence, then the sequence numbers each user acquires may have gaps, because sequence numbers are being generated by the other user. One user can never acquire the sequence number generated by another user. After a sequence value is generated by one user, that user can continue to access that value regardless of whether the sequence is incremented by another user.

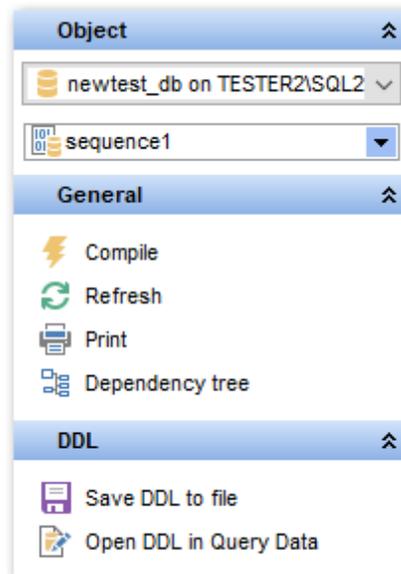
Sequence Editor allows you to define sequence properties. It opens automatically when you create a new sequence and is available on editing an existing one (see Create sequence and Edit sequence for details).

To open a sequence in the **Sequence Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[272]
- [Creating/editing sequence](#)^[273]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.2.6.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Sequence Editor**.



The **Navigation bar** of **Sequence Editor** allows you to:

Object

-  select a database
-  select a sequence for editing

General

-  [compile](#)^[923] the sequence (if it is being created)
-  set [printing options](#)^[645] to [print metadata](#)^[643] of the sequence
-  view the [dependency tree](#)^[612] for the sequence
-  refresh the content of the active tab
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the sequence:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Sequence Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.2.6.2 Creating/editing sequence

Use the **Sequence** tab of **Sequence Editor** to create/edit a sequence and specify its properties.

Name

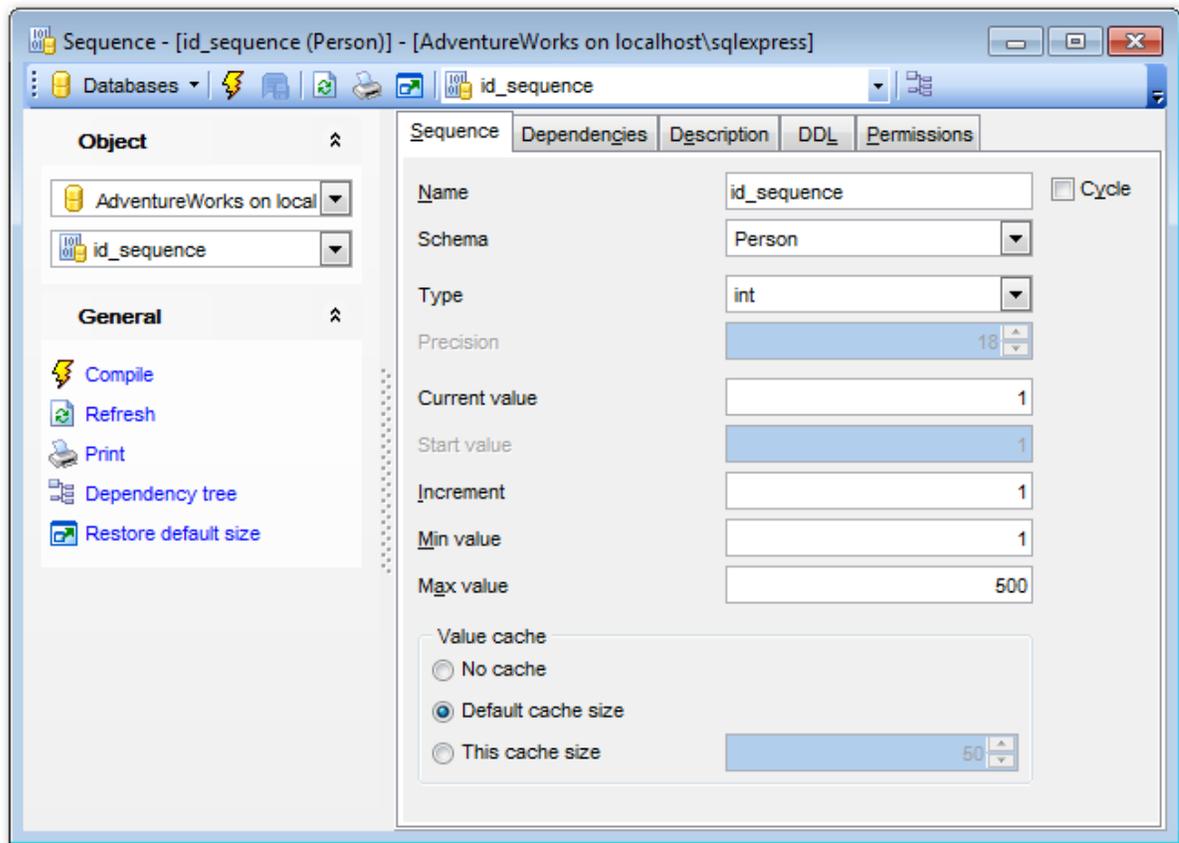
Specify the name of the sequence to be created, or view the name of the sequence being edited. Note that the sequence name must be unique within its schema.

Cycle

This option indicates that the sequence continues to generate values after reaching either its maximum or minimum value. After an ascending sequence reaches its maximum value, it generates its minimum value. After a descending sequence reaches its minimum, it generates its maximum value.

Schema

Use the drop-down list to specify the schema in which the sequence will be created.

**Type**

Specify the type of generated sequence numbers.

Precision

Specify the size value (for the *decimal* type).

Start value

Specify the first sequence number to be generated. Use this setting to start an ascending sequence at a value greater than its minimum or to start a descending sequence at a value less than its maximum.

Increment

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.

Min value

Specify the minimum value of the sequence.

Max value

Specify the maximum value for the sequence.

Value Cache

Specify how many sequence numbers are to be preallocated and stored in memory for

faster access in the *This size cache* field or select *Default cache size* or *No cache*.

To [compile](#)^[923] the object, use the corresponding  **Compile** item of the [Navigation bar](#)^[272] or [toolbar](#)^[272].

5.3.2.7 Synonyms

You can use **Synonyms** in place of their referenced base object in a number of SQL statements and expression contexts. When working with synonyms in these contexts, the base object is affected. For example, if you have a synonym that references a base object that is a [table](#)^[192], when you insert a row into the synonym, you are actually inserting a row into the referenced table.

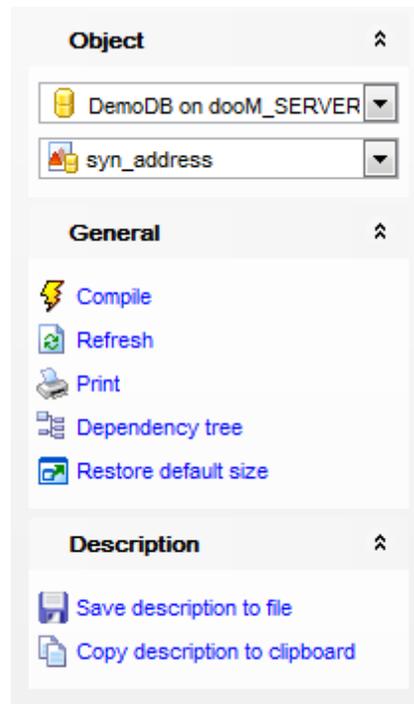
Synonym Editor allows you to define synonym properties. It opens automatically when you create a new synonym and is available on editing an existing one.

To open a synonym in **Synonym Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[275]
- [Creating/editing synonym](#)^[277]
- [Browsing object dependencies](#)^[921]
- [Editing synonym description](#)^[920]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.2.7.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Synonym Editor**.



The **Navigation bar** of **Synonym Editor** allows you to:

Object

-  select a database
-  select a synonym for editing

General

-  [compile](#)^[923] the synonym (if it is being created/modified)
-  save the synonym [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the synonym
-  view the [dependency tree](#)^[612] for the synonym
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the synonym:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Synonym Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.2.7.2 Creating/editing synonym

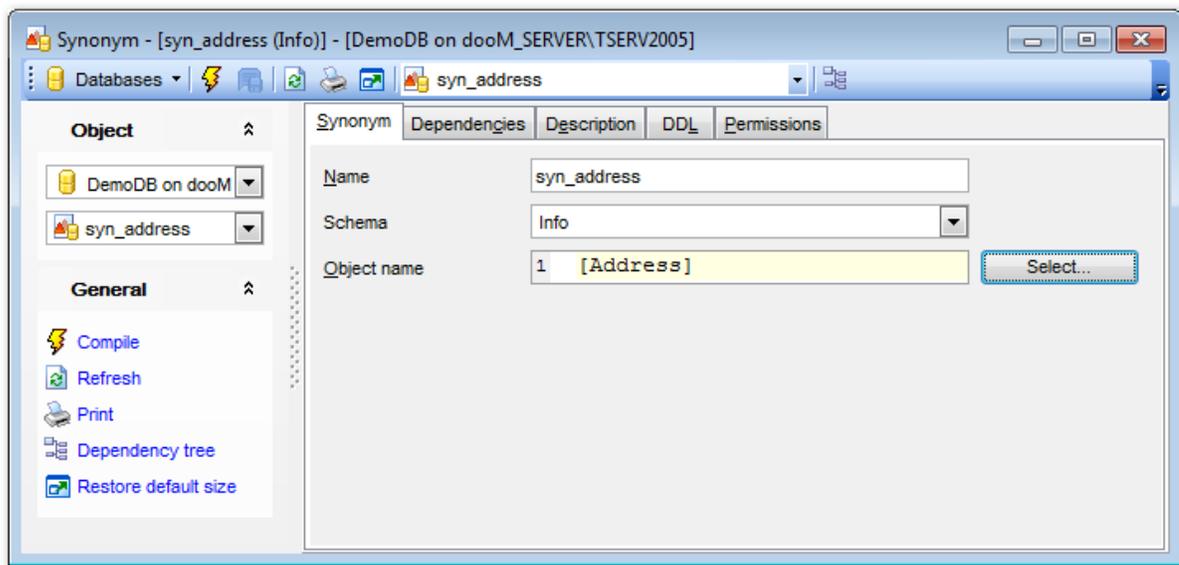
Use the **Synonym** tab of **Synonym Editor** to create/edit a synonym and specify its properties.

Name

Enter a name for the new synonym, or modify the name of the synonym being edited.

Schema

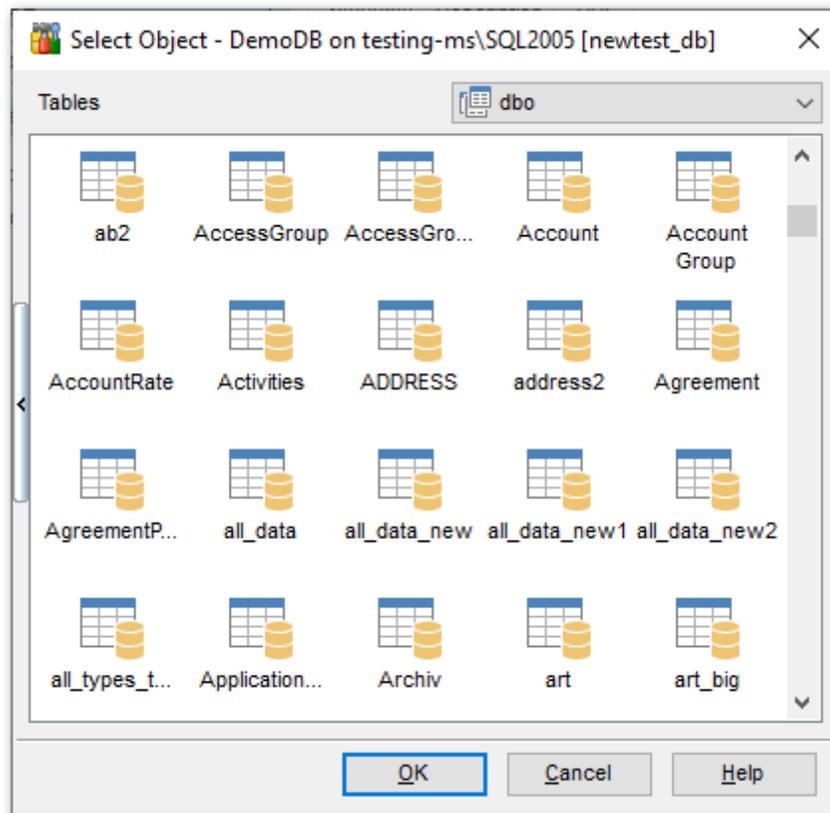
Use the drop-down list to select the [schema](#)^[189] in which the synonym is created.



Object name

This box displays the base object that the synonym references. To change the object, click the **Select...** button.

The **Select Object** dialog allows you to specify a database object to use as the referenced object.



Hint: The context menu of the **Select Object** dialog allows you to toggle the *Icons/List* object representation mode.

5.3.2.8 Aggregates

Aggregate functions, or **Aggregates**, perform a calculation on a set of values and return a single value. Traditionally Microsoft® SQL Server supported only built-in aggregate functions, such as *SUM* or *MAX*, that operate on a set of input scalar values and generate a single aggregate value from that set. SQL Server integration with the .NET Framework common language runtime (CLR) now allows developers to create custom aggregate functions in managed code and make these functions accessible to Transact-SQL or other managed code.

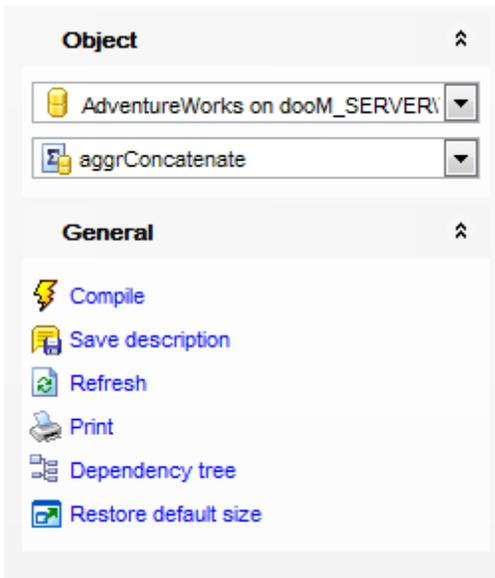
Aggregate Editor allows you to define aggregate properties. It opens automatically when you create a new aggregate and is available on editing an existing one.

To open an aggregate in **Aggregate Editor**, double-click it in the **DB Explorer**^[63] tree.

- [Using Navigation bar and Toolbar](#)^[279]
- [Creating/editing aggregate](#)^[280]
- [Browsing object dependencies](#)^[921]
- [Editing aggregate description](#)^[920]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.2.8.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Aggregate Editor**.



The **Navigation bar** of **Aggregate Editor** allows you to:

Object

-  select a database
-  select an aggregate for editing

General

-  [compile](#)^[923] the aggregate (if it is being created/modified)
-  save the aggregate [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the aggregate
-  view the [dependency tree](#)^[612] for the aggregate
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the aggregate:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

-  save [DDL](#)^[919] to file

open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Aggregate Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.2.8.2 Creating/editing aggregate

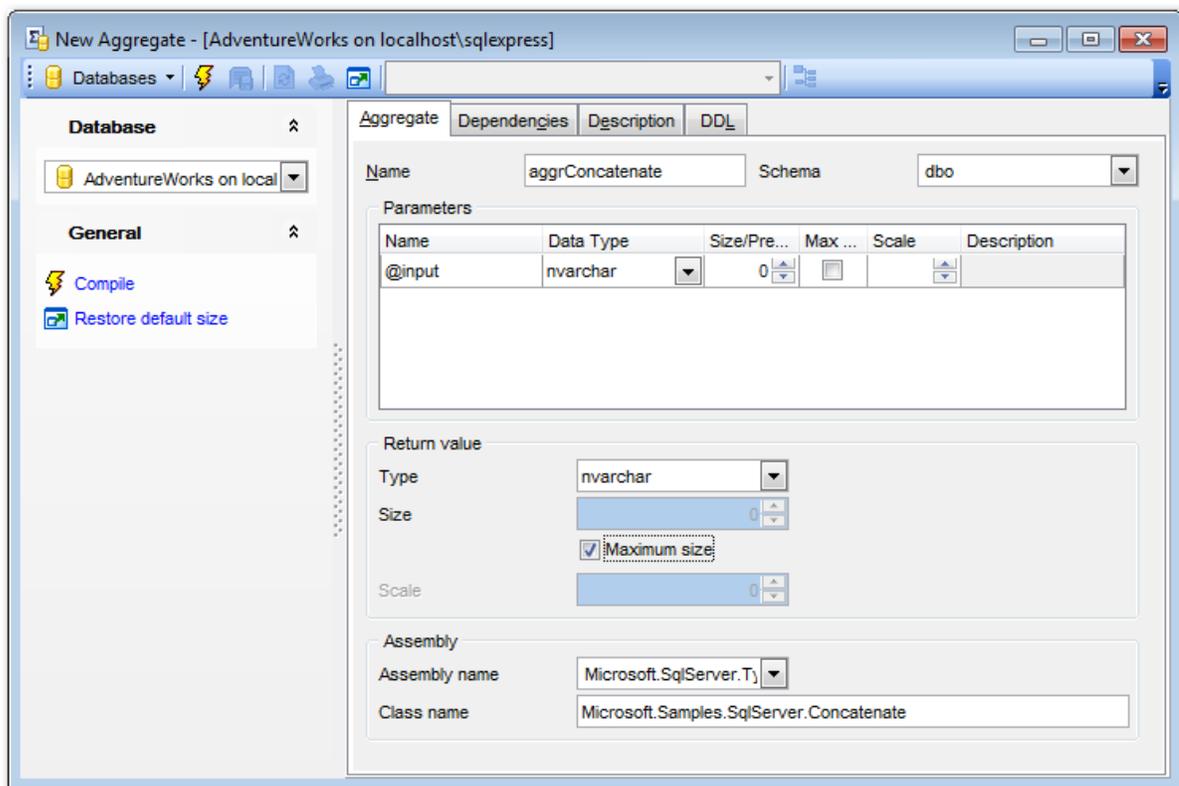
Use the **Aggregate** tab of **Aggregate Editor** to create/edit an aggregate function and specify its definition.

Name

Enter a name for the new aggregate, or modify the name of the aggregate being edited.

Schema

Use the drop-down list to select the [schema](#)^[189] to which the user-defined aggregate function belongs.



Parameter

Name

Specify the parameter name for the user-defined aggregate. The value of the parameter is supplied by the user when the aggregate function is executed. Specify a parameter

name using an at (@) sign as the first character.

Type

Use the drop-down list to select one of the SQL Server system scalar data types to hold the value of the input parameter or return value.

Size

Specify the size value (for certain types). Check the **Maximum size** option to use the maximum values set by SQL Server.

Scale

Defines the maximum number of decimal digits that can be stored to the right of the decimal point of the value (for float data types).

Return value**Type**

Use the drop-down list to select the name of an existing data type to be used as the return value type.

Size

Specify the size value (for certain types). Check the **Maximum size** option to use the maximum values set by SQL Server.

Assembly**Assembly name**

Use the drop-down list to select the SQL Server [assembly](#)^[304] to bind with the user-defined aggregate function. The assembly must already have been created in the database.

Class name

Specify the name of the class in the assembly that implements the user-defined aggregate. This value must be a valid SQL Server identifier and match the name of a class that exists in the assembly. This may be a namespace-qualified name if the programming language used to write the class uses namespaces, such as C#.

5.3.2.9 XML Schema Collections

Microsoft® SQL Server™ provides native storage of XML data through the XML data type. The **XML Schema Collection** stores the imported XML schemas and is then used to do the following:

- Validate XML instances
- Type the XML data as they are stored in the database

The XML stored in a column or variable that a schema is associated with is referred to as typed XML, because the schema provides the necessary data type information for the instance data. SQL Server uses this type information to optimize data storage.

Note that XML Schema Collection is a metadata entity like a table in the database, hence the XML Schema Collection can be created, modified and dropped.

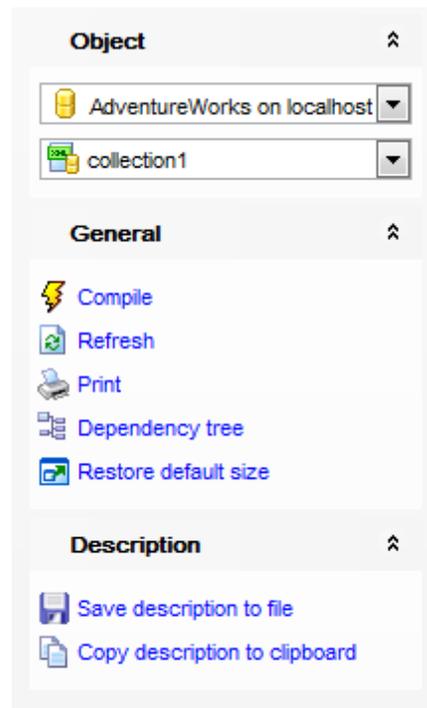
XML Schema Collection Editor allows you to define XML schema collection properties. It opens automatically when you create a new XML schema collection and is available on editing an existing one.

To open a XML schema collection in **XML Schema Collection Editor**, double-click it in the **DB Explorer**^[63] tree.

- [Using Navigation bar and Toolbar](#)^[282]
- [Creating/editing XML Schema Collection](#)^[283]
- [Browsing object dependencies](#)^[921]
- [Editing object description](#)^[920]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.2.9.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **XML Schema Collection Editor**.



The **Navigation bar** of **XML Schema Collection Editor** allows you to:

Object

- select a database
- select a XML schema collection for editing

General

- [compile](#)^[923] the XML schema collection (if it is being created/modified)
- save the XML schema collection [description](#)^[920] (if it has been modified)
- refresh the content of the active tab

-  [print metadata](#) ^[643] of the XML schema collection
-  view the [dependency tree](#) ^[612] for the XML schema collection
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the XML schema collection:

Description

-  save object [description](#) ^[920] to file
-  copy [description](#) ^[920] to clipboard

DDL

-  save [DDL](#) ^[919] to file
-  open [DDL](#) ^[919] in [Query Data](#) ^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **XML Schema Collection Editor**. To enable the [toolbar](#) ^[917], open the [Environment Options](#) ^[825] dialog, proceed to the [Windows](#) ^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#) ^[915]) in the **Bar style for child forms** group.

5.3.2.9.2 Creating/editing XML Schema Collection

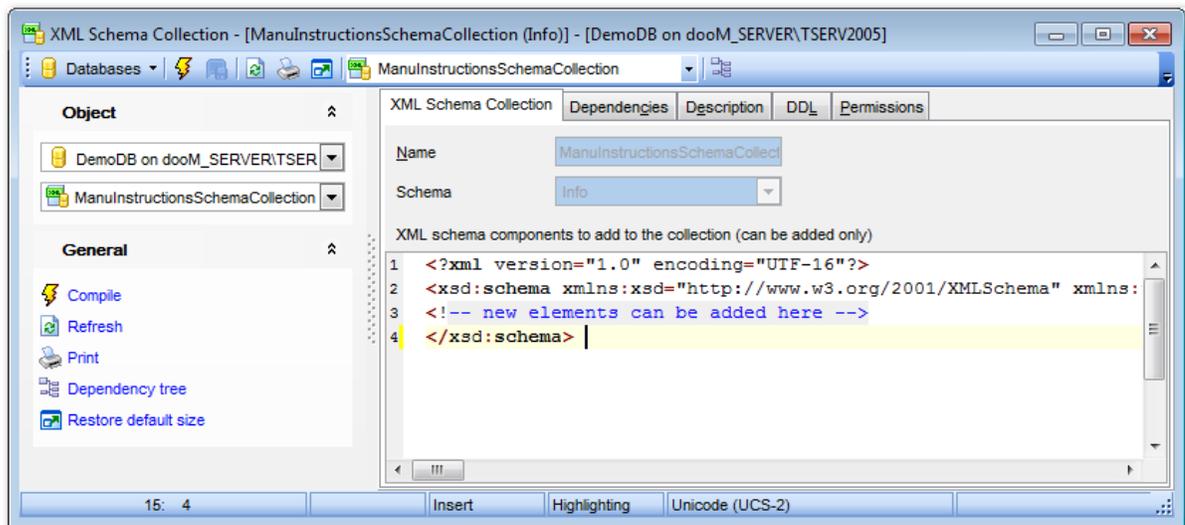
Use the **XML Schema Collection** tab of **XML Schema Collection Editor** to create/edit a XML Schema Collection and specify its definition.

Name

Enter a name for the new XML Schema Collection, or view the name of the XML Schema Collection being edited.

Schema

Use the drop-down list to select the [schema](#) ^[189] to which the XML Schema Collection belongs.



The lower area of the editor window allows you to specify the XML Schema Collection definition. You can add a new schema or its component(s) to **XML Schema Collection**. After successful compilation, the **DDL** tab will display the changes made to the schema. To compile the schema, use the corresponding item of the [Navigation bar](#)^[282].

5.3.2.10 Defaults

When bound to a [column](#)^[213] or a [user-defined data type](#)^[259], a **Default** specifies a value to be inserted into the column to which the object is bound (or into all columns, in case of [UDF](#)^[259]) when no value is explicitly supplied during an insert operation.

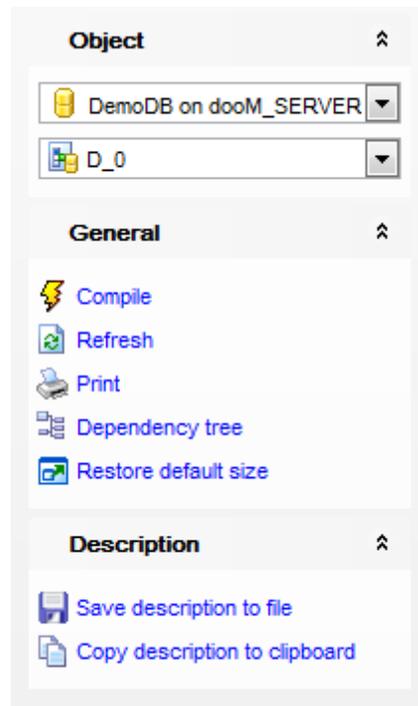
Default Editor allows you to define default properties. It opens automatically when you create a new default and is available on editing an existing one.

To open a default in **Default Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[284]
- [Creating/editing default](#)^[286]
- [Browsing object dependencies](#)^[921]
- [Editing default description](#)^[920]
- [Viewing DDL definition](#)^[919]

5.3.2.10.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Default Editor**.



The **Navigation bar** of **Default Editor** allows you to:

Object

-  select a database
-  select a default for editing

General

-  [compile](#)^[923] the default (if it is being created/modified)
-  save the default [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the default
-  view the [dependency tree](#)^[612] for the default
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the default:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Default Editor**. To

enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.2.10.2 Creating/editing default

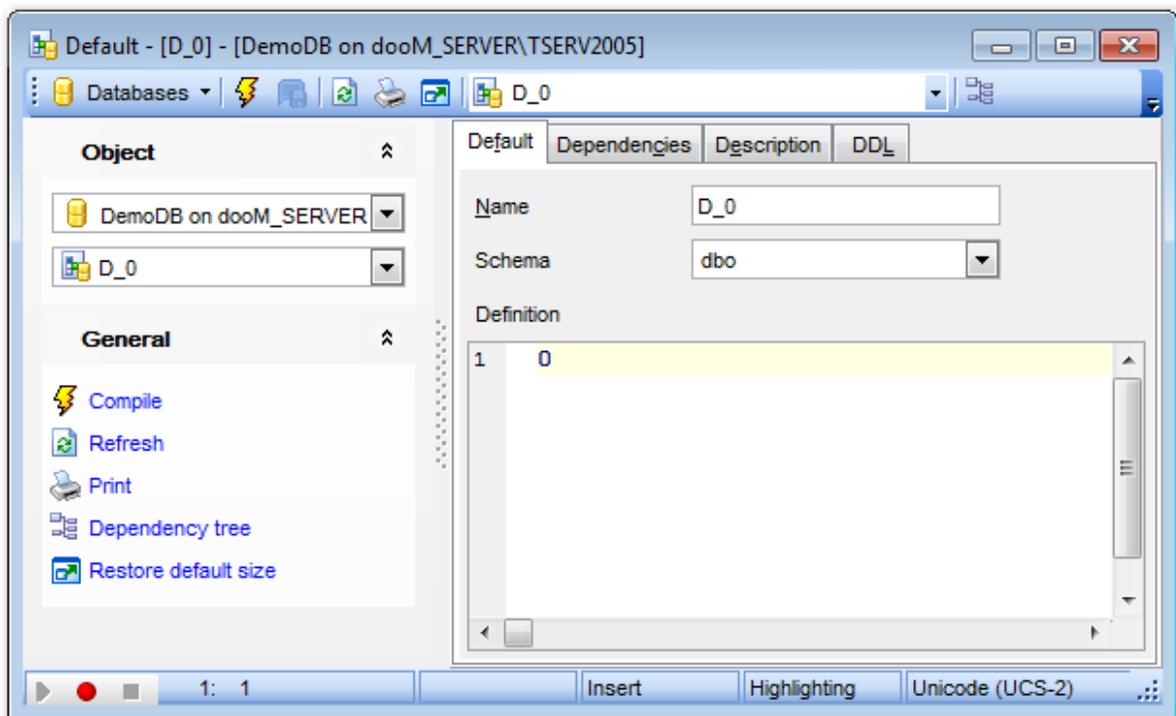
Use the **Default** tab of **Default Editor** to create/edit a default and specify its definition.

Name

Enter a name for the new default, or modify the name of the default being edited.

Schema

Use the drop-down list to select the [schema](#)^[189] to which the default belongs.



Definition

This area represents an expression that contains only constant values (it cannot include the names of any [columns](#)^[213] or other database objects). Any constant, built-in function, or mathematical expression can be used, except those containing alias data types.

The definition must conform to the following rules:

- character and date constants are enclosed in single quotation (') marks;
- monetary, integer, and floating-point constants do not require quotation marks;
- binary data must be preceded by 0x
- monetary data must be preceded by a dollar (\$) sign.

5.3.2.11 Rules

When bound to a [column](#)^[213] or a [user-defined data type](#)^[259], a **Rule** specifies the acceptable values that can be inserted into that column or to the fields having the specified data type.

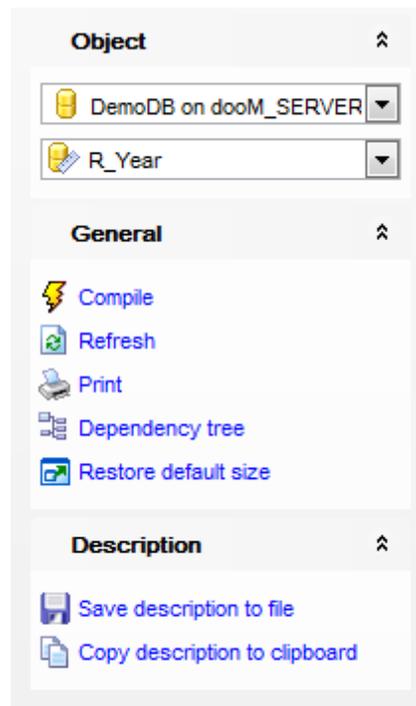
Rule Editor allows you to define rule properties. It opens automatically when you create a new rule and is available on editing an existing one.

To open a rule in **Rule Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[287]
- [Creating/editing rule](#)^[288]
- [Browsing object dependencies](#)^[921]
- [Editing rule description](#)^[920]
- [Viewing DDL definition](#)^[919]

5.3.2.11.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Rule Editor**.



The **Navigation bar** of **Rule Editor** allows you to:

Object

-  select a database
-  select a rule for editing

General

-  [compile](#)^[923] the rule (if it is being created/modified)
-  save the rule [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the rule
-  view the [dependency tree](#)^[612] for the rule
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the rule:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Rule Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.2.11.2 Creating/editing rule

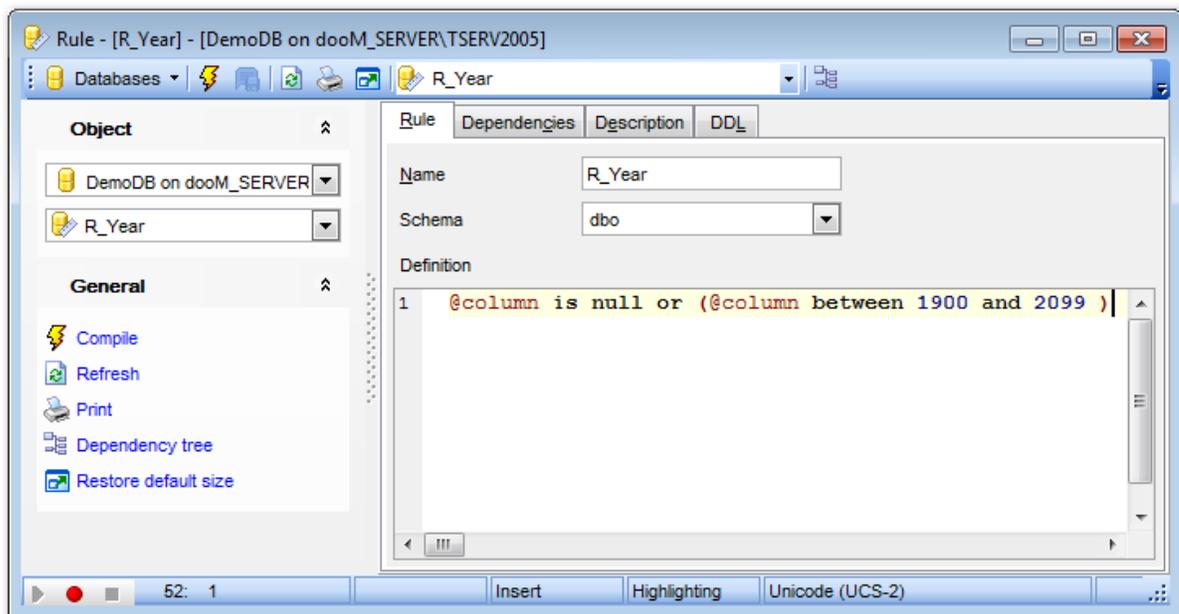
Use the **Rule** tab of **Rule Editor** to create/edit a rule and specify its definition.

Name

Enter a name for the new rule, or modify the name of the rule being edited.

Schema

Use the drop-down list to select the [schema](#)^[189] to which the rule belongs.



Definition

This area represents the condition(s) that define the rule (*condition_expression*). This can be any expression valid in a *WHERE* clause and can include elements such as arithmetic operators, relational operators, and predicates (for example, *IN*, *LIKE*, *BETWEEN*). Rule definition includes one variable. The at (@) sign precedes each local variable. The expression refers to the value entered with the *UPDATE* or *INSERT* statement. Any name or symbol can be used to represent the value when creating the rule, but the first character must be the at (@) sign.

5.3.2.12 Queues

A **Queue** is a schema object that holds incoming messages for a [service](#)^[340]. When a message arrives for a service, Service Broker puts the message on the queue associated with the service.

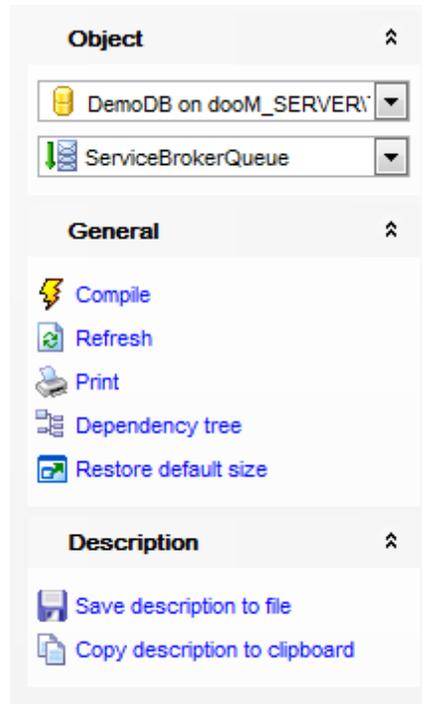
Queue Editor allows you to define queue properties. It opens automatically when you create a new queue and is available on editing an existing one.

To open a queue in **Queue Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[290]
- [Creating/editing queue](#)^[291]
- [Viewing queue messages](#)^[292]
- [Browsing object dependencies](#)^[921]
- [Editing rule description](#)^[920]
- [Viewing DDL definition](#)^[919]

5.3.2.12.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Queue Editor**.



The **Navigation bar** of **Queue Editor** allows you to:

Object

- select a database
- select a queue for editing

General

- [compile](#)^[923] the queue (if it is being created/modified)
- save the queue [description](#)^[920] (if it has been modified)
- refresh the content of the active tab
- [print metadata](#)^[643] of the queue
- view the [dependency tree](#)^[612] for the queue
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the queue:

Description

- save object [description](#)^[920] to file
- copy [description](#)^[920] to clipboard

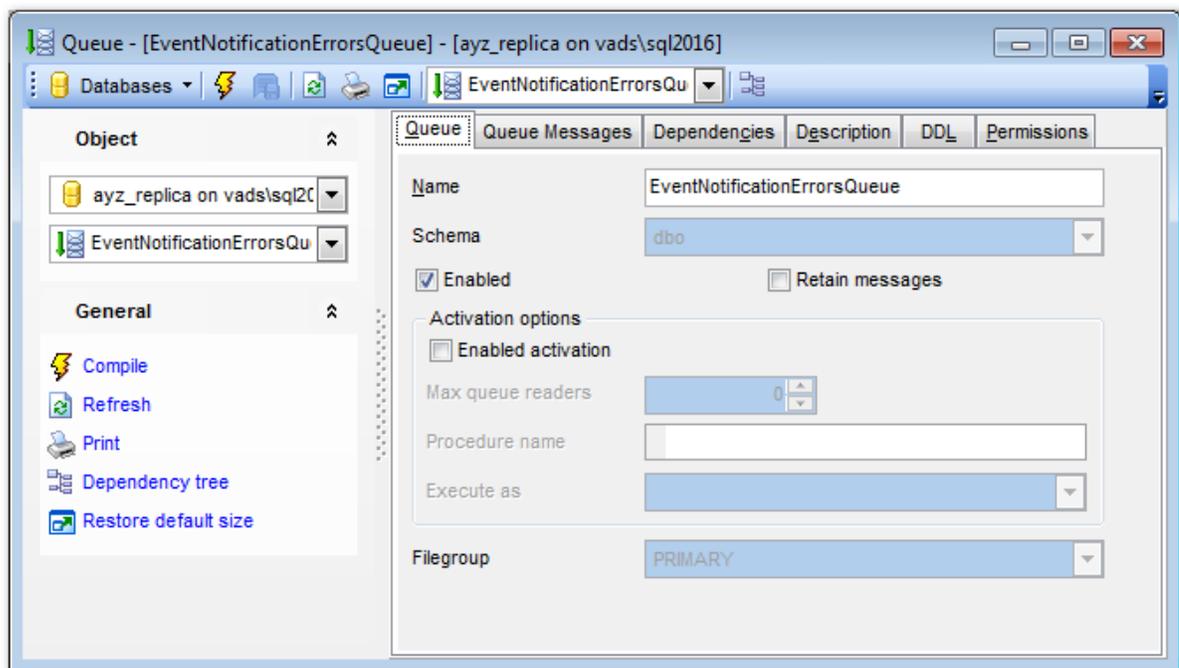
DDL

-  save [DDL](#) to file
-  open [DDL](#) in [Query Data](#)

Items of the **Navigation bar** are also available on the **ToolBar** of **Queue Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.3.2.12.2 Creating/editing queue

Use the **Queue** tab of **Queue Editor** to create/edit a queue and specify its properties.



Name

Is the name of the queue to create. This name must meet the guidelines for SQL Server identifiers.

Schema

Is the name of the schema to which the new queue belongs. The schema defaults to the default schema for the user that executes the statement.

Enabled

Specifies whether the queue is enabled (available) or disabled (unavailable). When the queue is disabled, no messages can be added to the queue or removed from the queue.

Retain messages

Specifies the retention setting for the queue. If the option is enabled, all messages sent or received on conversations that use this queue are retained in the queue until the

conversations have ended.

Activation options

Enabled activation

Specifies whether Service Broker starts the stored procedure to process messages in this queue.

Procedure name

Enter the name of the activation [stored procedure](#)^[253], i.e. the stored procedure that has to be started to process messages in this queue.

Max queue readers

Specifies the maximum number of instances of the activation stored procedure that the queue starts at the same time.

Execute as

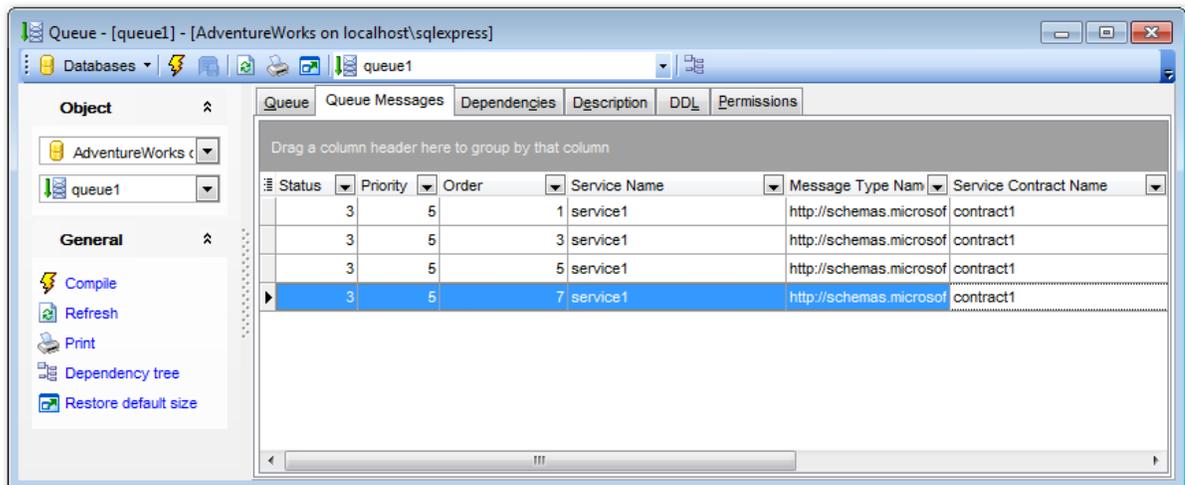
Use the drop-down list to select the SQL Server database user account under which the activation stored procedure runs.

Filegroup

Specifies the SQL Server [filegroup](#)^[154] on which the queue is created.

5.3.2.12.3 Viewing queue messages

Use the **Queue Messages** tab of **Queue Editor** to view queue messages within a request-reply message cycle.



The **Queue Messages List** displays the messages as a grid with the following columns: *Status*, *Priority*, *Order*, *Message Sequence Number*, *Service Name*, *Service Contract Name*, *Message Type Name*, *Validation*, *Message Body*. If more convenient, you can [change the order](#)^[467] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the

descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

5.3.2.13 External Tables

External tables are used in SQL Server to access data stored in a Hadoop cluster or Azure blob storage. It can also be used to create an external table for Elastic Database query.

To open an external table double-click it in the [DB Explorer](#)^[63] tree.

- [Creating/editing external tables](#)^[293]
- [Editing external table description](#)^[920]
- [Viewing DDL definition](#)^[919]

5.3.2.13.1 Creating/editing external tables

Name

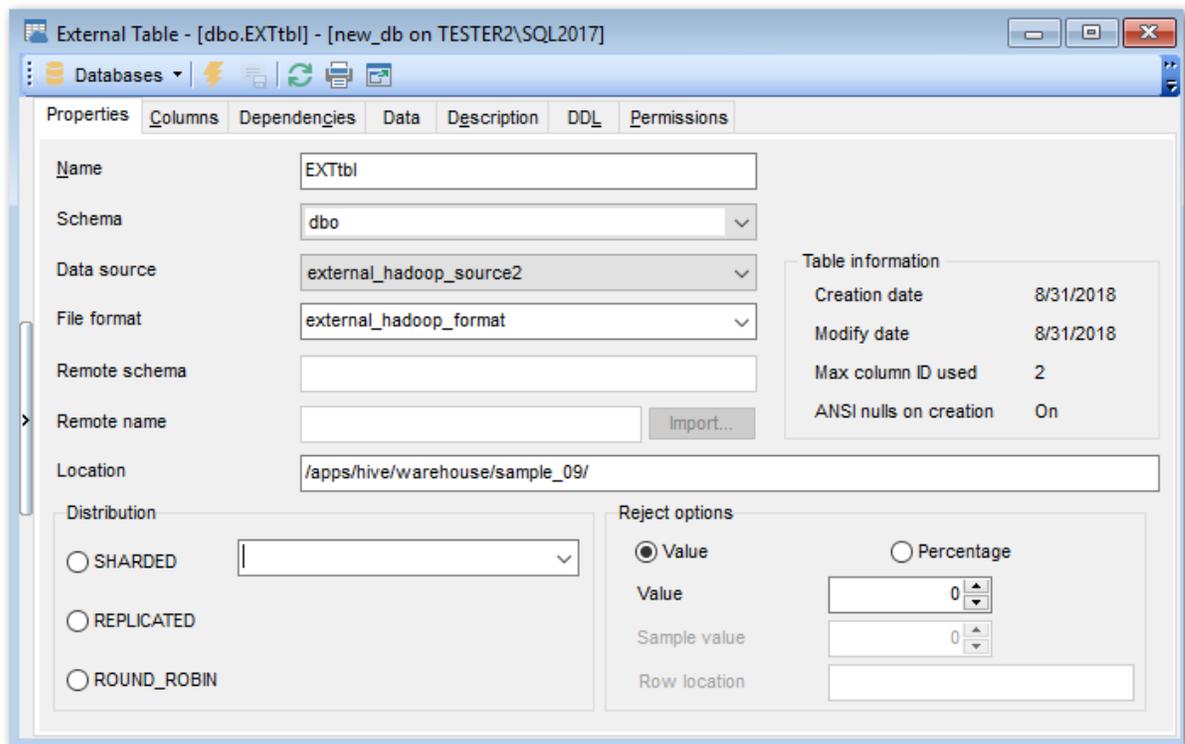
Specify the name for the new external table.

Schema

Select schema for the external table location.

Data source

Select the name of the external data source.



File format

Select the existing external file format object that stores file type and compression method for external data.

Remote schema

Specify the different schema on the remote database to map the external table definition.

Remote name

Set the remote table name

Location

Specify the folder or the full path to the file for the actual data in Hadoop or Azure blob storage. The location starts from the root folder; the root folder is the data location specified in the external data source.

Distribution

This option is only required SHARD_MAP_MANAGER databases. Select how the table is treated:

- **SHARDED** table so data from different tables is not overlapped;
- **REPLICATED** table so that tables have the same data on every shard;
- **ROUND_ROBIN** so that application-specific method is used to distribute the data.

Reject options

Reject parameters are used to determine how PolyBase will handle dirty records.

Select if the values will be specified as literal • Value or • Percentage.

Value

Specifies the value or the percentage of rows that can be rejected before the query fails.

Sample value

This attribute is required when you specify Percentage value type. It determines the number of rows to attempt to retrieve before the PolyBase recalculates the percentage of rejected rows.

Row location

Input the directory within the External Data Source to write rejected rows and the error file.

5.3.3 Non-schema Objects

Other types of objects are also stored in the database and can be created and manipulated with SQL, but are not contained in a schema:

- [Assemblies](#)^[304]
- [DDL Triggers](#)^[307]
- [Partition Functions](#)^[310]
- [Partition Schemes](#)^[314]
- [Full-Text Catalogs](#)^[317]
- [Symmetric Keys](#)^[322]
- [Asymmetric Keys](#)^[325]
- [Certificates](#)^[329]
- [Message Types](#)^[334]
- [Contracts](#)^[337]
- [Services](#)^[340]
- [Routes](#)^[343]
- [Remote Service Bindings](#)^[346]
- [DB Scoped Credentials](#)^[349]
- [External Data Sources](#)^[350]
- [External File Formats](#)^[351]

Use the [DB Explorer](#)^[63] tree to [navigate](#)^[49] within the database(s) and the objects.

See also:

[New Object dialog](#)^[180]

[Duplicate Object Wizard](#)^[182]

5.3.3.1 Users

A database **User** is a database-level security principal enabling object access permission control at the finest level of granularity. A user represents a single SQL Server login within the scope of the database in which the user is defined.

User Editor allows you to define user properties and membership. It opens automatically when you create a new user and is available on editing an existing one.

To open a user in **User Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[296]
- [Creating/editing user](#)^[297]
- [Defining user membership](#)^[298]
- [Editing object description](#)^[920]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

See also:

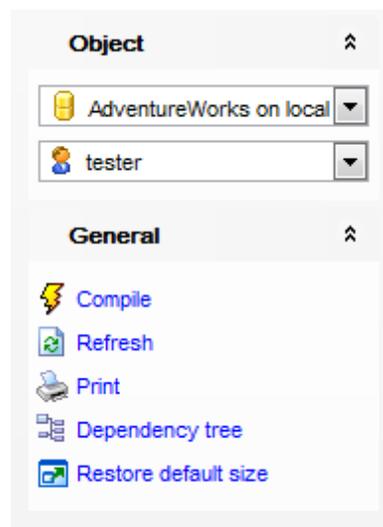
[Roles](#)^[301]

[Logins](#)^[354]

[Grant Manager](#)^[682]

5.3.3.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **User Editor**.



The **Navigation bar** of **User Editor** allows you to:

Object

- select a database
- select a user for editing

General

- [compile](#)^[923] the user (if it is being created/modified)
- save the user [description](#)^[920] (if it has been modified)
- refresh the content of the active tab
- [print metadata](#)^[643] of the user

-  view the [dependency tree](#) for the user
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the user:

Description

-  save object [description](#) to file
-  copy [description](#) to clipboard

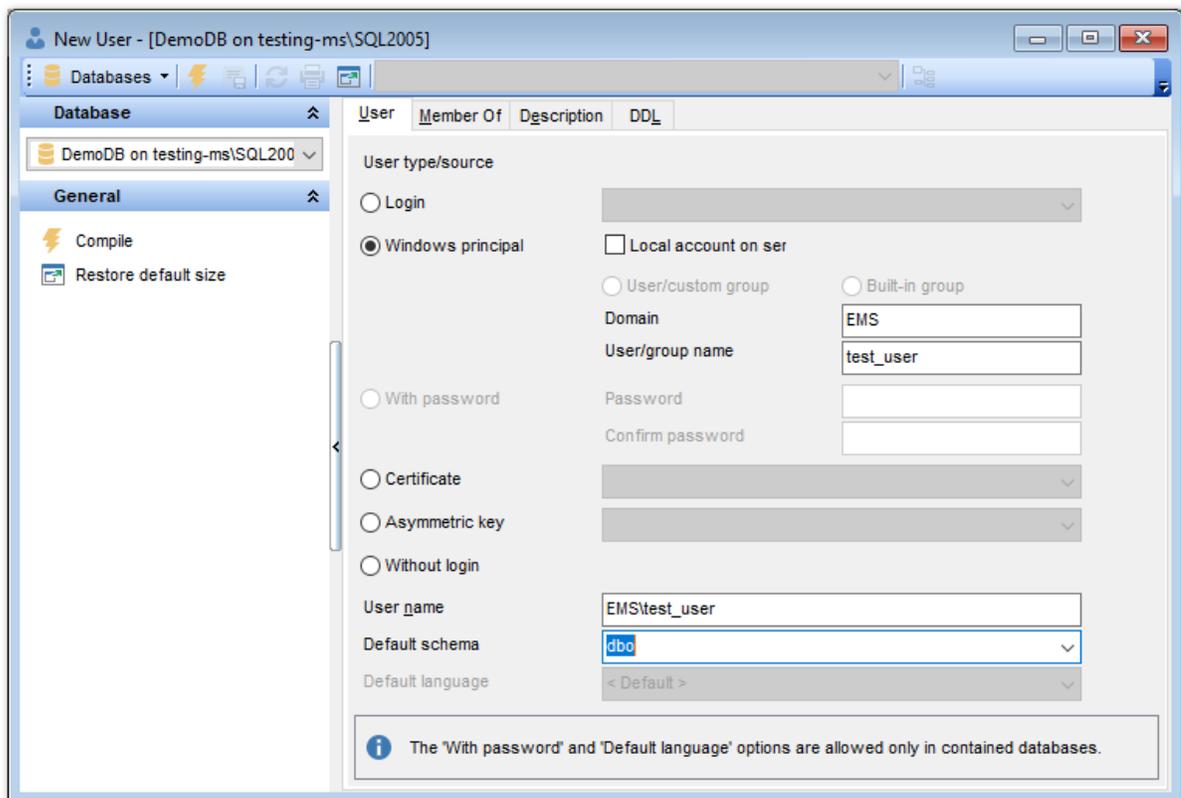
DDL

-  save [DDL](#) to file
-  open [DDL](#) in [Query Data](#)

Items of the **Navigation bar** are also available on the **ToolBar** of **User Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.3.3.1.2 Creating/editing user

Use the **User** tab of **User Editor** to create/edit a user and specify its properties.



Login

If this option is selected, use the drop-down list to specify the SQL Server [login](#)^[687] for which the database user is being created.

Windows principal

Check this option to specify the Windows principal for which the database user is being created. The Windows principal can be a Windows user, or a Windows group. The user will be created even if the Windows principal does not have a login. When connecting to SQL Server, if the Windows principal does not have a login, the Windows principal must authenticate at the Database Engine through membership in a Windows group that has a login, or the connection string must specify the contained database as the initial catalog.

Local account on server

Select this option to specify a built-in server account for the user, or specify the Windows **Domain**. After that specify **User/group name** in the corresponding field. You can select whether a new user will be created in a **User/custom group** or in a **Built-in group**.

Certificate

If this option is selected, use the drop-down list to specify the [certificate](#)^[329] for which the database user is being created.

Asymmetric key

If this option is selected, use the drop-down list to specify the [asymmetric key](#)^[325] for which the database user is being created.

Without login

This option specifies that the user should not be mapped to any of existing [logins](#)^[687].

User Name

Specifies the name by which the user is identified inside this database.

Default schema

Use the drop-down list to specify the first [schema](#)^[189] that will be searched by the server when it resolves the names of objects for this database user.

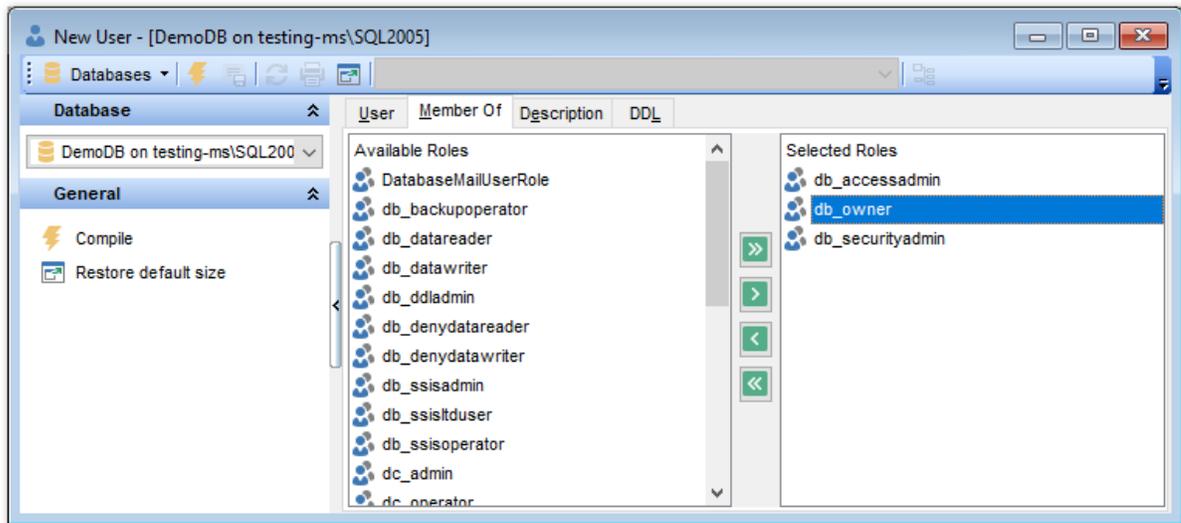
Default language

Specify the default language for the new user. If no default language is specified, the default language for the user will be the default language of the database.

Note: Default language can be specified only for contained database users.

5.3.3.1.3 Defining user membership

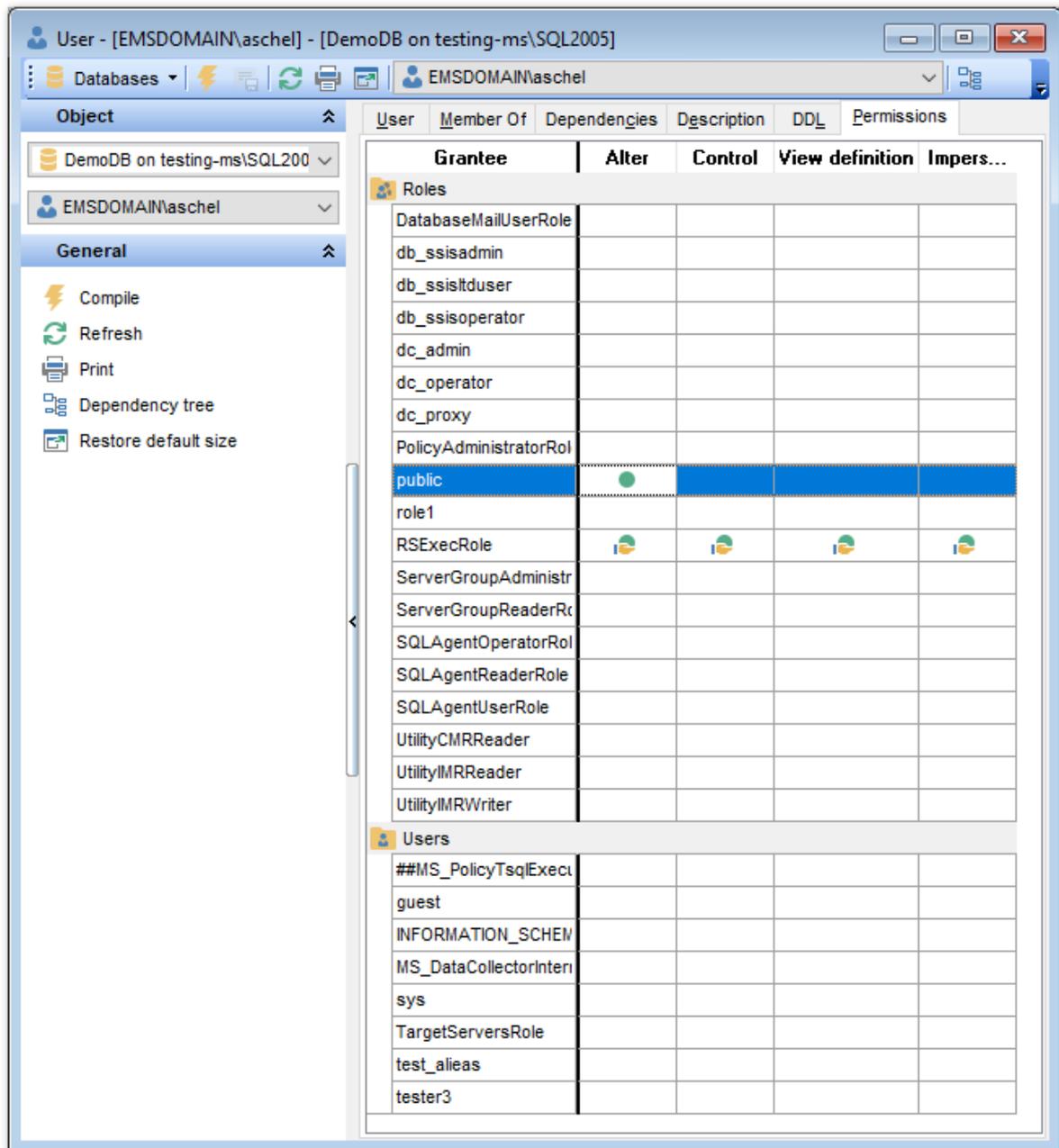
The **Member of** tab of **User Editor** allows you to define user membership, i.e. to select the built-in database [role\(s\)](#)^[307] the user will belong to. The selected roles determine the tasks that can be performed through the user.



To select a role, you need to move it from the **Available Roles** list to the **Selected Roles** list. Use the     buttons or drag-and-drop operations to move the roles from one list to another.

5.3.3.1.4 Specifying permissions

Use the **Permissions** tab to grant permissions to a user.



The **Grantee** column contains the list of roles and users; each subsequent column corresponds to the permission which can be granted on the selected user: *ALTER*, *CONTROL*, *VIEW DEFINITION*, *IMPERSONATE*.

Right-click a cell to grant a specific permission on a certain user or role. To grant a permission on a user, you should find the object in the **Grantee** list and the column with the corresponding permission. The context menu of a cell allows you to:

- grant a permission to the user;
- grant a permission (with Grant Option) to the user;
- deny a permission to the user;

- revoke a previously granted or denied permission;
- grant all permissions to the user;
- grant all permissions (with Grant Option) to the user;
- deny all permissions to the user;
- revoke all previously granted or denied permissions;
- grant a permission on all users and roles to the user;
- grant a permission (with Grant Option) on all users and roles to the user;
- deny a permission on all users and roles to the user;
- revoke a previously granted or denied permission on all users

5.3.3.2 Roles

All [users](#)^[295] interact with SQL Server within the context of a database-level principal - **Role**. A user can belong to multiple groups and have multiple roles, and the operations that are permitted by each role determine the actions that the user can perform. It is necessary to create SQL Server database roles when a group of users needs to perform a specified set of activities in the database.

Role Editor allows you to define role properties and membership. It opens automatically when you create a new role and is available on editing an existing one.

To open a role in **Role Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[301]
- [Creating/editing role](#)^[303]
- [Defining role membership](#)^[304]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

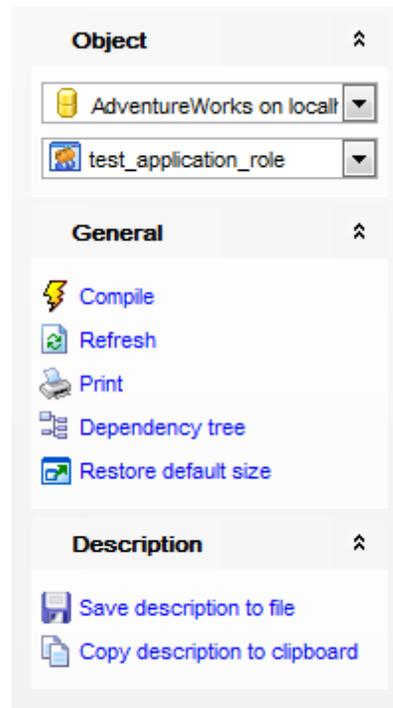
See also:

[Users](#)^[295]

[Grant Manager](#)^[682]

5.3.3.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Role Editor**.



The **Navigation bar** of **Role Editor** allows you to:

Object

-  select a database
-  select a role for editing

General

-  [compile](#) ^[923] the role (if it is being created/modified)
-  refresh the content of the active tab
-  [print metadata](#) ^[643] of the role
-  view the [dependency tree](#) ^[612] for the role
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the role:

DDL

-  save [DDL](#) ^[919] to file
-  open [DDL](#) ^[919] in [Query Data](#) ^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Role Editor**. To enable the [toolbar](#) ^[917], open the [Environment Options](#) ^[825] dialog, proceed to the [Windows](#) ^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#) ^[915]) in the **Bar style for child forms** group.

5.3.3.2.2 Creating/editing role

Use the **Role** tab of **Role Editor** to create/edit a role and specify its properties and membership.

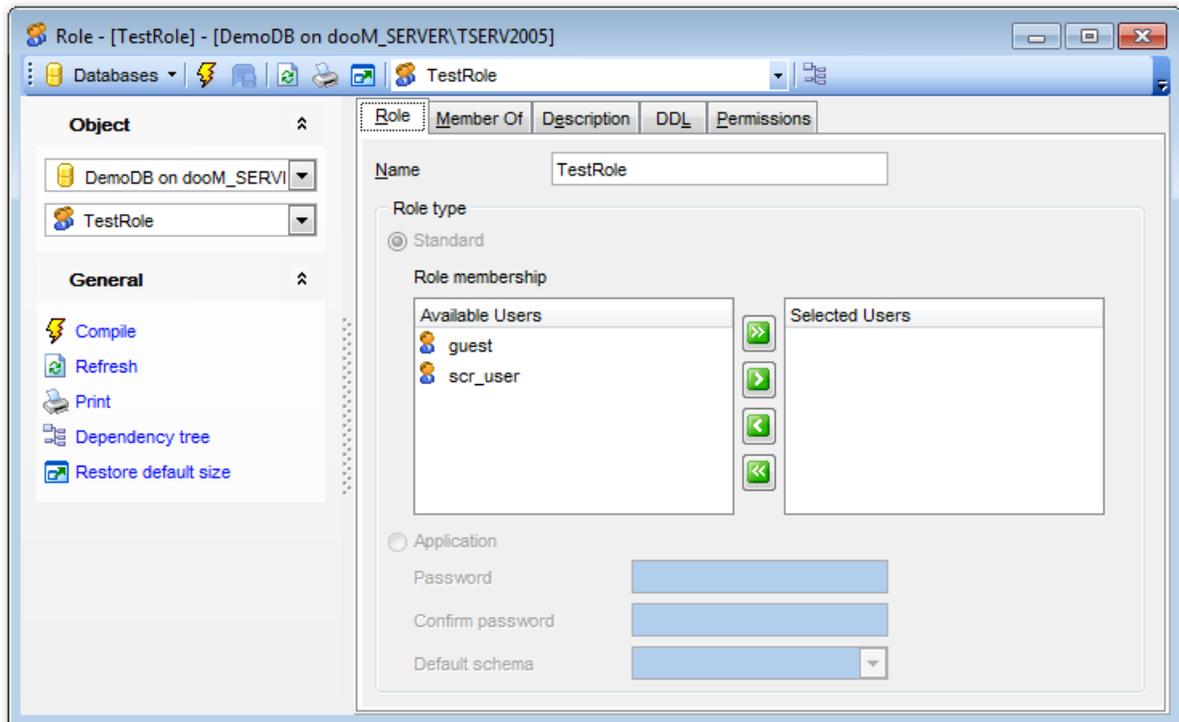
Name

Enter a name for the new role, or view the name of the role being edited.

Role type

Select whether the preferable role type:

- Standard* (user-defined) role
- Application* role



If a **Standard** role is being created/edited, you should add members to the role, i.e. add the [users](#)^[295] (or other roles) that will inherit the permissions of the role.

To add a user, you need to move it from the **Available Users** list to the **Selected Users** list. Use the  buttons or drag-and-drop operations to move the users from one list to another.

An *Application* role is a database principal that enables an application to run with its own, user-like permissions. You can use application roles to enable access to specific data to only those users who connect through a particular application.

If an **Application** role is being created/edited, you should specify a **password** for the role.

Default schema

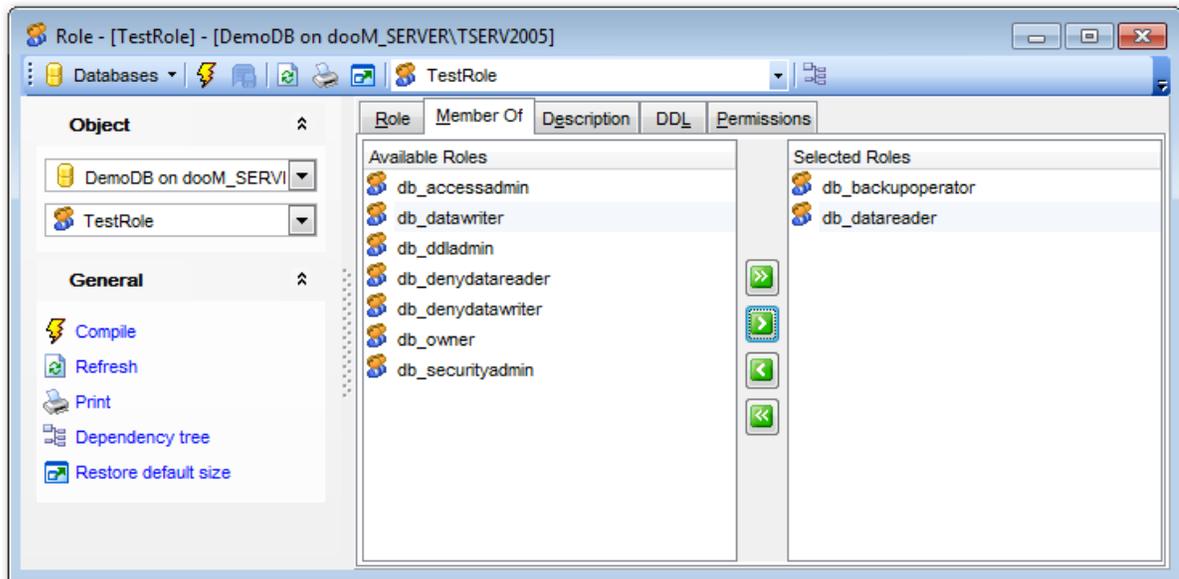
Specify the first schema that will be searched by the server when it resolves the names of objects for this role.

Note: If this field remains <Default>, the application role will use DBO as its default schema. The schema defined may not exist in the database.

Note that in the [Database Explorer](#)^[63] different icons are used for  **Application role** and  **User role**.

5.3.3.2.3 Defining role membership

The **Member of** tab of **Role Editor** allows you to define role membership, i.e. to select the built-in database role(s) the current role will be a member of. The selected roles determine the tasks that can be performed through the current role.



To select a role, you need to move it from the **Available Roles** list to the **Selected Roles** list. Use the     buttons or drag-and-drop operations to move the roles from one list to another.

5.3.3.3 Assemblies

An **Assembly** is a managed application module containing class metadata and managed code as an object in SQL Server, against which CLR functions, [stored procedures](#)^[253], [triggers](#)^[307], user-defined [aggregates](#)^[278], and [user-defined types](#)^[263] can be created in SQL Server.

Assembly Editor allows you to define assembly properties. It opens automatically when you create a new assembly and is available on editing an existing one.

To open an assembly in **Assembly Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[305]
- [Creating/editing assembly](#)^[309]
- [Browsing object dependencies](#)^[92]

- [Editing object description](#)^[920]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.3.3.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Assembly Editor**.



The **Navigation bar** of **Assembly Editor** allows you to:

Object

- 📁 select a database
- 📁 select an assembly for editing

General

- ⚡ [compile](#)^[923] the assembly (if it is being created/modified)
- 📄 save the assembly [description](#)^[920] (if it has been modified)
- 🔄 refresh the content of the active tab
- 🖨️ [print metadata](#)^[643] of the assembly
- 📄 view the [dependency tree](#)^[612] for the assembly
- 📏 restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the assembly:

Description

 save object [description](#) to file

 copy [description](#) to clipboard

DDL

 save [DDL](#) to file

 open [DDL](#) in [Query Data](#)

Items of the **Navigation bar** are also available on the **ToolBar** of **Assembly Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.3.3.3.2 Creating/editing assembly

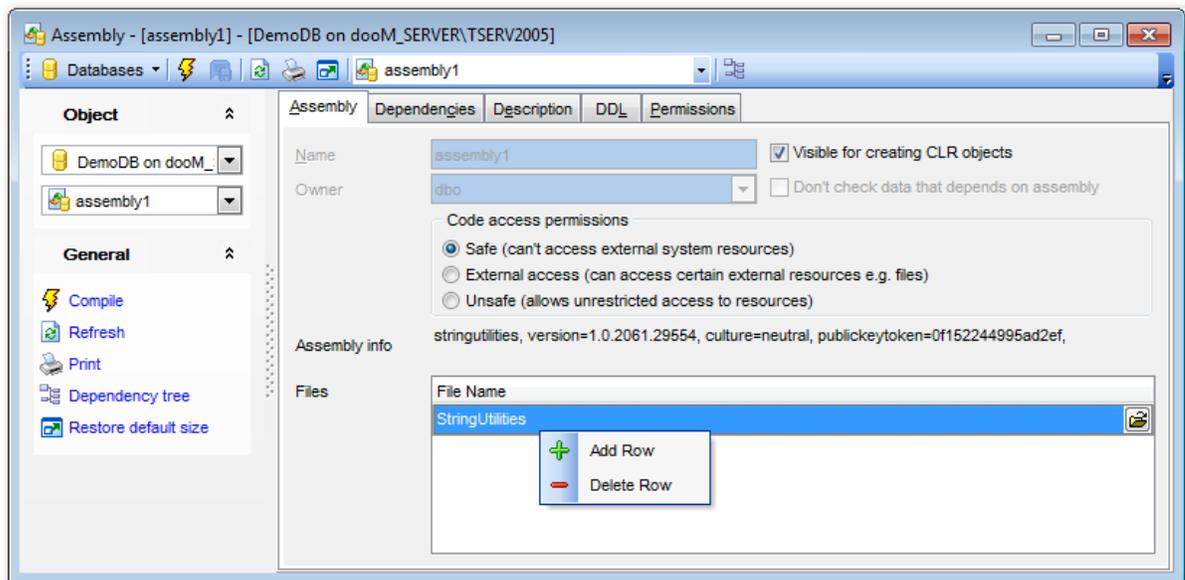
Use the **Assembly** tab of **Assembly Editor** to create/edit an assembly and specify its properties.

Name

Enter a name for the new assembly, or view the name of the assembly being edited.

Owner

Use the drop-down list to select the owner of the assembly (the name of a database [user](#) or [role](#)).



Visible for creating CLR objects

This option specifies whether the assembly is visible for creating common language runtime (CLR) functions, [stored procedures](#), [triggers](#), user-defined [aggregates](#), and [user-defined types](#) against it. If disabled, the assembly is intended to be called only by other assemblies. If there are existing CLR database objects already created

against the assembly, the visibility of the assembly cannot be changed.

Don't check data that depends on assembly

If this option is unchecked, SQL Server refreshes even those assemblies upon which persisted data in the database is dependent.

Code access permissions

Specifies a set of code access permissions granted to the assembly when it is accessed by SQL Server.

Safe

The most restrictive permission set. Code executed by an assembly cannot access external system resources such as files, the network, environment variables, or the registry.

External access

Allows assemblies to access certain external system resources such as files, networks, environmental variables, and the registry.

Unsafe

Allows assemblies unrestricted access to resources, both within and outside SQL Server. Code executing from within an Unsafe assembly can call unmanaged code.

The **Assembly info** panel is used to display information about the assembly or application, including a description, version information, company name, product name, and more. This information corresponds to the values of global assembly attributes.

The **Files** list allows you to manage files that correspond to the assembly, and specify the local path or network location.

To add a file, right-click within the *Files* area and select the **+ Add Row** popup menu item.

To remove a file, right-click the file name within the *Files* area and select the **- Delete Row** popup menu item.

5.3.3.4 DDL Triggers

A **Trigger** is a special kind of [stored procedure](#)^[253] that automatically executes when an event occurs in the database.

DDL Triggers fire in response to a variety of data definition language (DDL) events which are primarily *CREATE*, *ALTER* and *DROP* statements; logon triggers fire in response to the *LOGON* event that is raised when a user sessions is being established.

DDL Trigger Editor allows you to define DDL trigger properties (the scope of the DDL triggers is applied to the current database, i.e. the trigger fires whenever *event_type* or *event_group* happens in the current database). It opens automatically when you create a new DDL trigger and is available on editing an existing one.

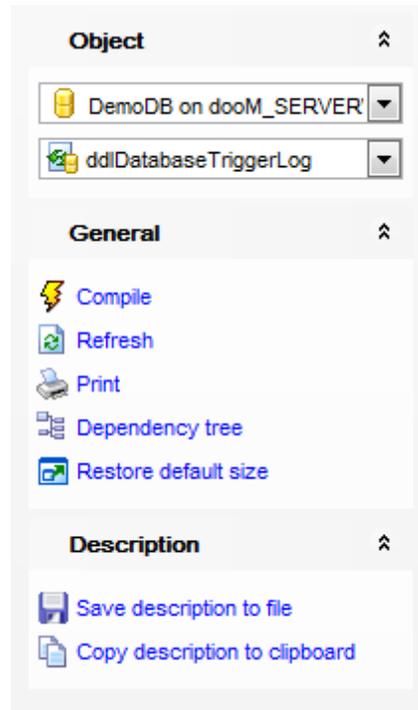
To open a DDL trigger in **DDL Trigger Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[308]
- [Creating/editing DDL trigger](#)^[309]

- [Browsing object dependencies](#)^[921]
- [Editing object description](#)^[920]
- [Viewing DDL definition](#)^[919]

5.3.3.4.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **DDL Trigger Editor**.



The **Navigation bar** of **DDL Trigger Editor** allows you to:

Object

- select a database
- select a DDL trigger for editing

General

- [compile](#)^[923] the DDL trigger (if it is being created/modified)
- save the DDL trigger [description](#)^[920] (if it has been modified)
- refresh the content of the active tab
- [print metadata](#)^[643] of the DDL trigger
- view the [dependency tree](#)^[612] for the DDL trigger
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the DDL trigger:

Description

-  save object [description](#) to file
-  copy [description](#) to clipboard

DDL

-  save [DDL](#) to file
-  open [DDL](#) in [Query Data](#)

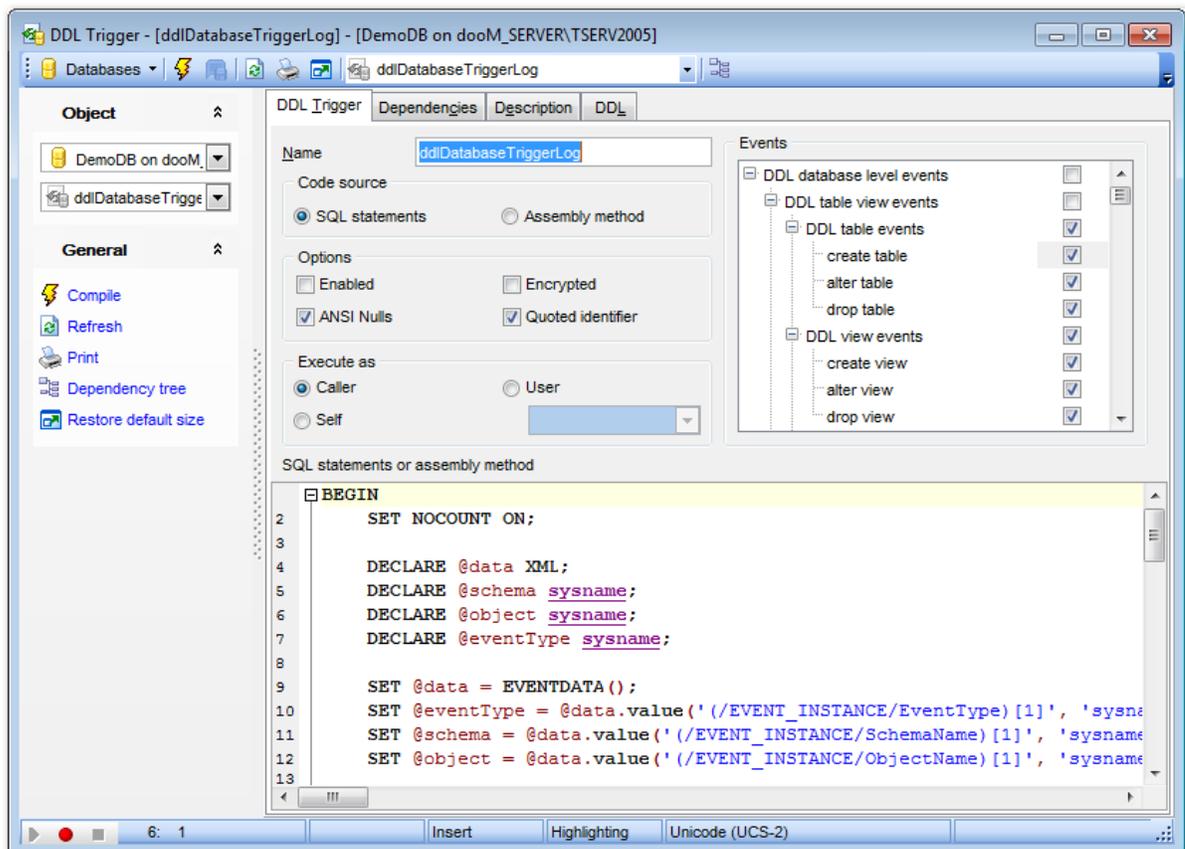
Items of the **Navigation bar** are also available on the **ToolBar** of **DDL Trigger Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.3.3.4.2 Creating/editing DDL trigger

Use the **DDL Trigger** tab of **DDL Trigger Editor** to create/edit a database-scoped DDL trigger and specify its properties.

Name

Enter a name for the new DDL trigger, or modify the name of the DDL trigger being edited.



Enabled

Enables/disables the trigger immediately after it is created. A disabled trigger still exists as an object in the current database, but does not fire.

Encrypted

If this option is selected, the text of the *CREATE TRIGGER* statement is encrypted. Using this option prevents the trigger from being published as part of SQL Server replication.

Execute as

Specify the security context under which the trigger is to be executed: *Caller*, *Self* or *User* (select which [user](#)^[295] account should be used to validate permissions on any database objects that are referenced by the trigger).

Code Source

Select the trigger code source: it can be a direct set of SQL statements or an external procedure call from a .NET assembly or DLL.

Events

This area lists the DDL events as groups. The trigger will fire after execution of any data definition language event selected in this list. Set the corresponding flag next to an event or event group name.

SQL statements or assembly method

This area allows you to set the trigger conditions and actions. Trigger conditions specify additional criteria that determine whether the tried DDL statements cause the trigger actions to be performed.

The trigger actions take effect when the DDL operation is performed.

5.3.3.5 Partition Functions

A **Partition function** specifies how a [table](#)^[192] or [index](#)^[228] is partitioned. The function maps the domain into a set of partitions. When creating a partition function, you specify the number of partitions, the partitioning column, and the range of partition column values for each partition. Note that when you specify the partitioning column, you can only specify one.

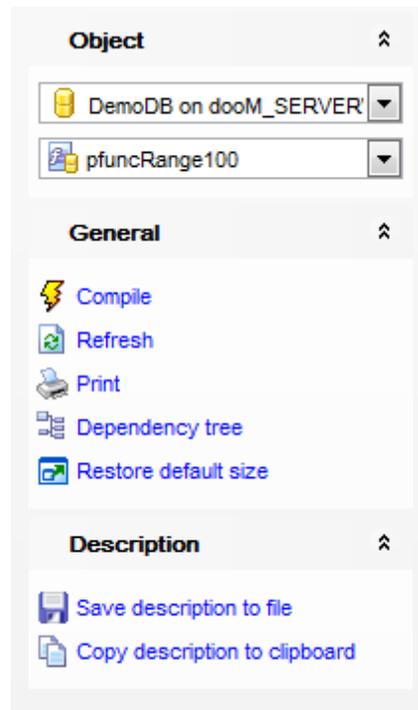
Partition Function Editor allows you to define partition function properties. It opens automatically when you create a new partition function and is available on editing an existing one.

To open a partition function in **Partition Function Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[310]
- [Creating/editing partition function](#)^[312]
- [Browsing object dependencies](#)^[921]
- [Editing object description](#)^[920]
- [Viewing DDL definition](#)^[919]

5.3.3.5.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Partition Function Editor**.



The **Navigation bar** of **Partition Function Editor** allows you to:

Object

-  select a database
-  select a partition function for editing

General

-  [compile](#) ^[923] the partition function (if it is being created/modified)
-  save the partition function [description](#) ^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#) ^[643] of the partition function
-  view the [dependency tree](#) ^[612] for the partition function
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the partition function:

Description

-  save object [description](#) ^[920] to file
-  copy [description](#) ^[920] to clipboard

DDL

-  save [DDL](#) ^[919] to file
-  open [DDL](#) ^[919] in [Query Data](#) ^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Partition Function Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.3.5.2 Creating/editing partition function

Use the **Partition Function** tab of **Partition Function Editor** to create/edit a partition function and specify its properties.

Name

Enter a name for the new partition function, or view the name of the partition function being edited.

Parameter**Type**

Specifies the data type of the column used for partitioning.

Size

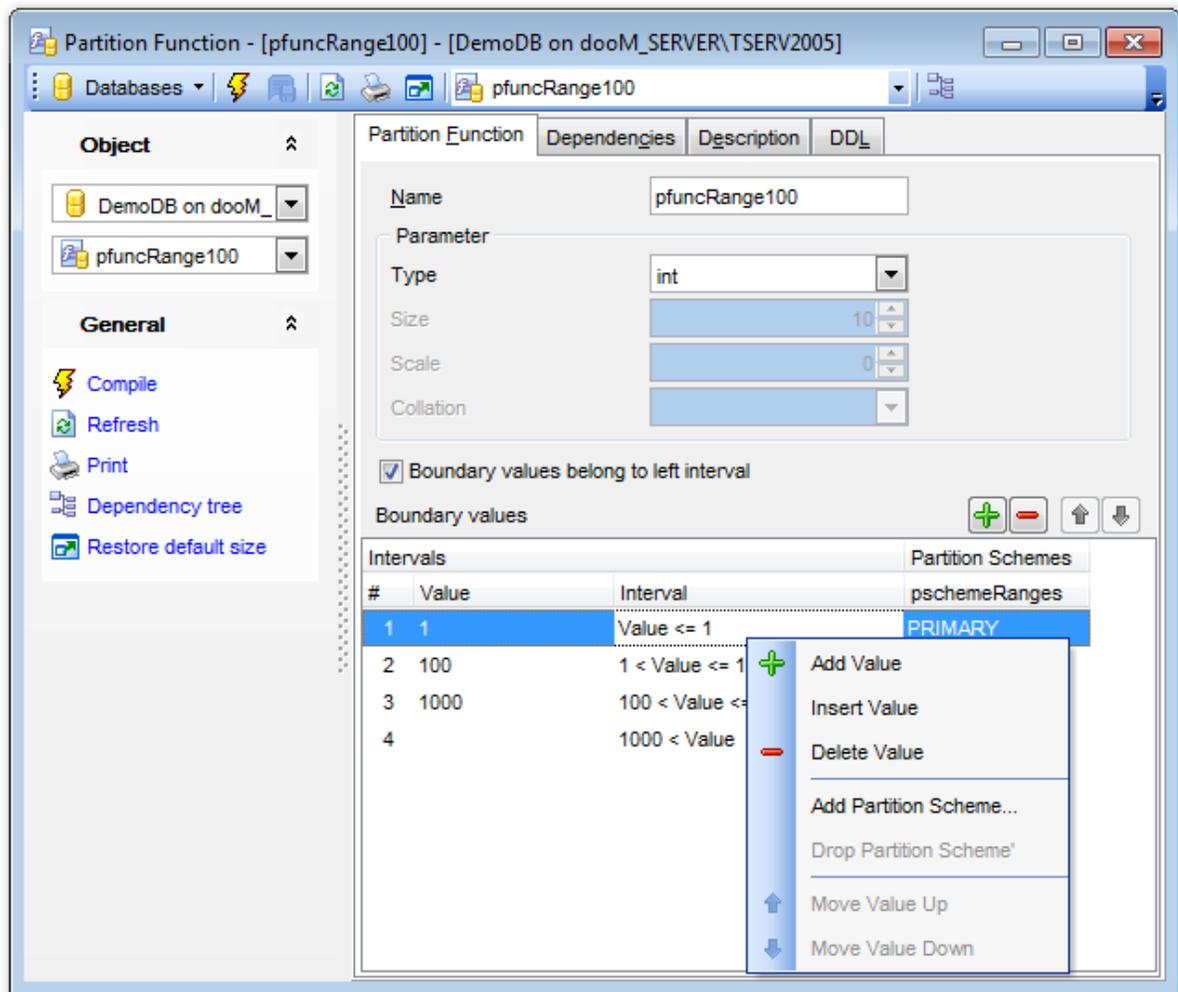
Specifies the size of the data type. This box is not editable if the size of the selected data type is fixed or not applicable.

Scale

Specifies the maximum number of decimal digits that can be stored to the right of the decimal point. This box is editable only for *numeric* and *decimal* data types only.

Collation

Defines the collation for *text*, *char*, *nchar*, *varchar*, *nvarchar* values.



Boundary values belong to left interval

This option specifies to which side of each boundary value interval, left or right, the **boundary value** belongs, when interval values are sorted by the Database Engine in ascending order from left to right. If checked, *LEFT* is specified.

Boundary values

This area lists the boundary values specified by the partition function.

To add a value, right-click within the *Boundary values* area and select the **+ Add Value** popup menu item, or press the corresponding **Add value**  button.

To remove a value, right-click the value within the *Boundary values* area and select the **- Delete Value** popup menu item, or press the corresponding **Delete value**  button.

Use the **Move up**  and the **Move down**  buttons or popup menu items to reorder the intervals.

To add a partition scheme which will use the current partition function, right-click within the *Boundary values* area and select the **Add Partition Scheme...** popup menu item. To drop the partition scheme which uses the current partition function, right-click within the *Boundary values* area and select **Drop Partition Scheme <partition_scheme_name>** popup menu item.

5.3.3.6 Partition Schemes

A **Partition scheme** maps the partitions produced by a [partition function](#)^[310] to a set of filegroups that you define. A partition scheme can use only one partition function. However, a partition function can participate in more than one partition scheme.

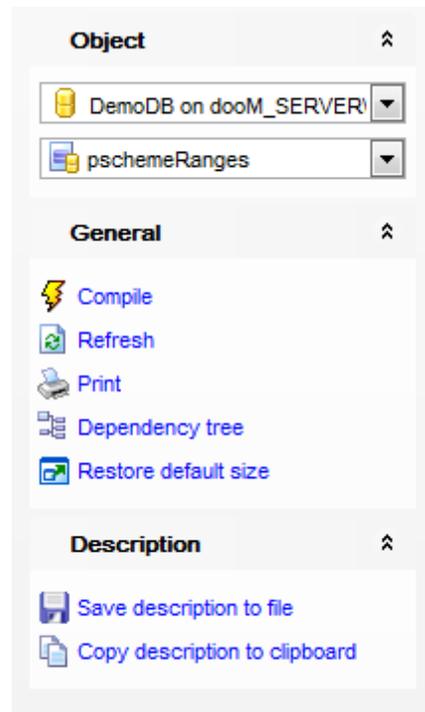
Partition Scheme Editor allows you to define partition scheme properties. It opens automatically when you create a new partition scheme and is available on editing an existing one.

To open a partition scheme in **Partition Scheme Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[314]
- [Creating/editing partition scheme](#)^[315]
- [Browsing object dependencies](#)^[921]
- [Editing object description](#)^[920]
- [Viewing DDL definition](#)^[919]

5.3.3.6.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Partition Scheme Editor**.



The **Navigation bar** of **Partition Scheme Editor** allows you to:

Object

-  select a database
-  select a partition scheme for editing

General

-  [compile](#)^[923] the partition scheme (if it is being created/modified)
-  save the partition scheme [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the partition scheme
-  view the [dependency tree](#)^[612] for the partition scheme
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the partition scheme:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Partition Scheme Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.3.6.2 Creating/editing partition scheme

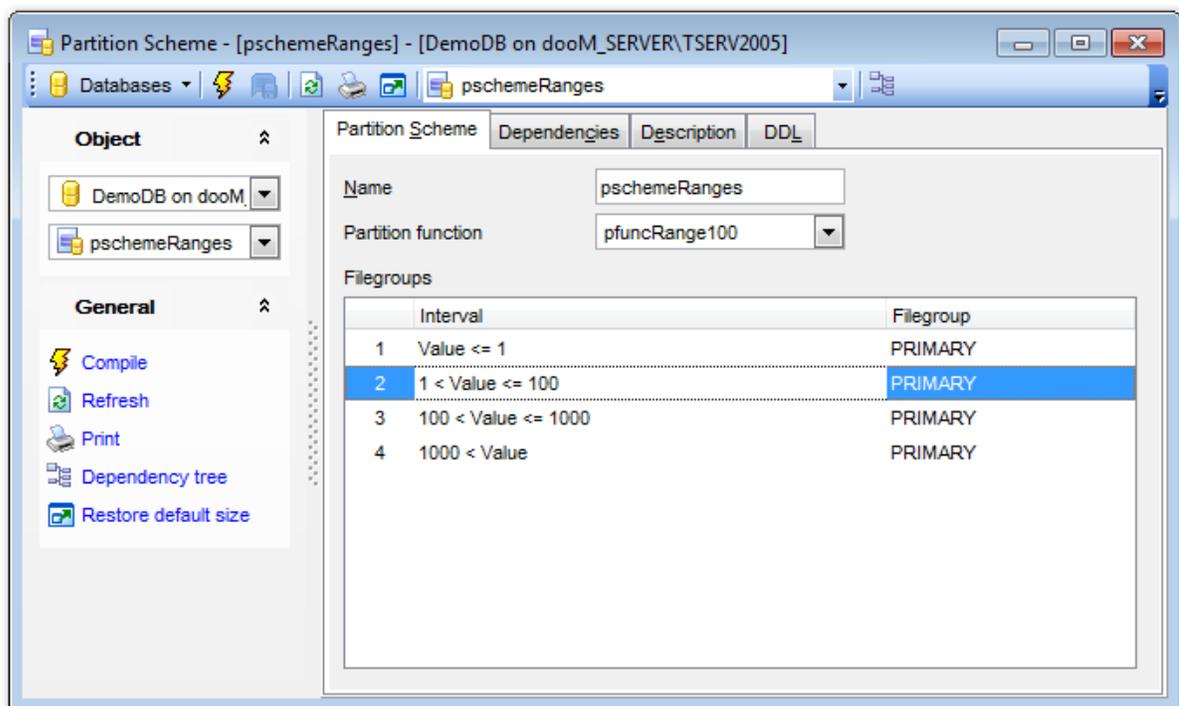
Use the **Partition Scheme** tab of **Partition Scheme Editor** to create/edit a partition scheme and specify its properties.

Name

Enter a name for the new partition scheme, or modify the name of the partition scheme being edited.

Partition function

Use the drop-down list to select the name of the [partition function](#)^[310] that will use the partition scheme.



Filegroups

Partitions created by the [partition function](#)^[310] are mapped to the filegroups specified in the partition scheme.

Select the filegroup name in the **Filegroup** drop-down list for each of the intervals specified by the [partition function](#)^[310]. If *PRIMARY* is selected, the partition is stored in the primary filegroup.

Hint: Filegroups can be created on the [Filegroups](#)^[153] page of the [Database Properties](#)^[133]

dialog.

5.3.3.7 Full-Text Catalogs

Full-text catalogs and **Full-text indexes** are the objects that are implemented in Microsoft® SQL Server for efficient full-text administration which is carried out at the server, database, table and column levels.

Like regular [indexes](#)^[228], **Full-text indexes** can be automatically updated as data are modified in the associated tables. Index updating is normally performed as an asynchronous process that runs in the background during periods of low database activity. Tables with the same update characteristics (e.g. small number of changes and large number of changes) should be grouped together and assigned to the same **Full-text catalog**.

One **Full-text catalog** can have several *full-text indexes*, but a full-text index can only be part of one full-text catalog.

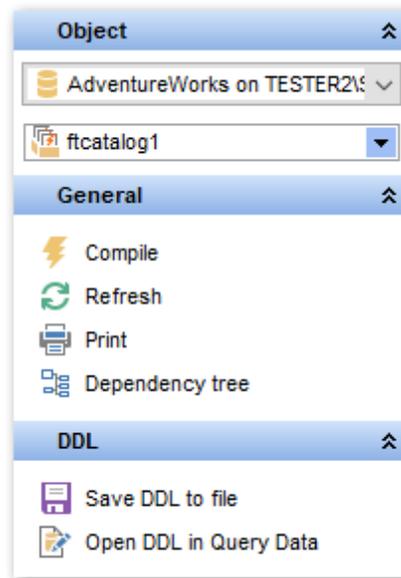
Full-Text Catalog Editor allows you to define full-text catalog properties. It opens automatically when you create a new full-text catalog and is available on editing an existing one.

To open a full-text catalog in **Full-Text Catalog Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[317]
- [Creating/editing full-text catalog](#)^[319]
- [Managing full-text indexes](#)^[320]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.3.7.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Full-Text Catalog Editor**.



The **Navigation bar** of **Full-Text Catalog Editor** allows you to:

Object

- select a database
- select a full-text catalog for editing

General

- [compile](#)^[923] the full-text catalog (if it is being created/modified)
- refresh the content of the active tab
- [print metadata](#)^[643] of the full-text catalog
- view the [dependency tree](#)^[612] for the full-text catalog
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the full-text catalog:

DDL

- save [DDL](#)^[919] to file
- open [DDL](#)^[919] in [Query Data](#)^[426]

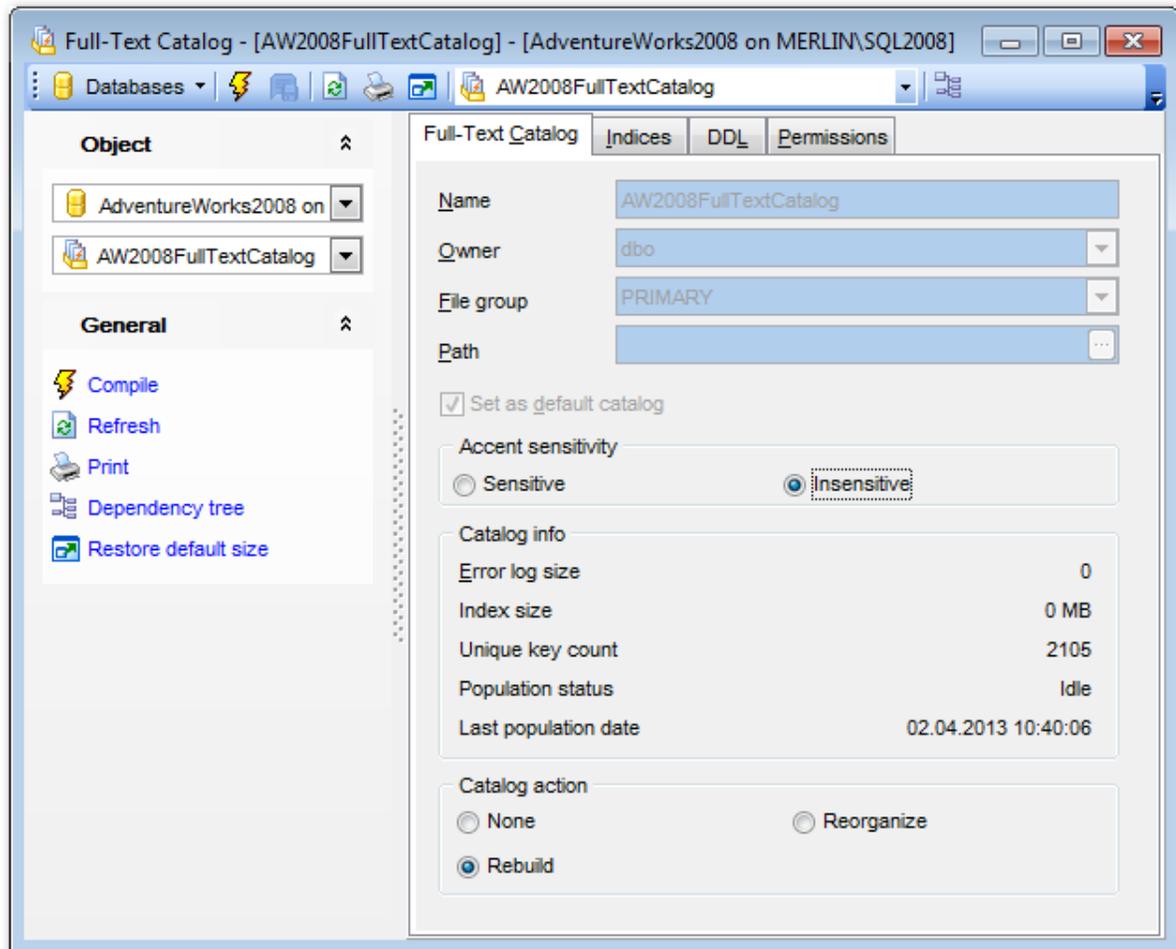
Items of the **Navigation bar** are also available on the **ToolBar** of **Full-Text Catalog Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.3.7.2 Creating/editing full-text catalog

Use the **Full-Text Catalog** tab of **Full-Text Catalog Editor** to create/edit a full-text catalog and specify its properties.

Name

Enter a name for the new full-text catalog, or view the name of the full-text catalog being edited.

**Owner**

Use the drop-down list to select the owner of the full-text catalog (the name of a database [user](#)^[293] or [role](#)^[301]).

File group

Use the drop-down list to select the filegroup which will include the new catalog. The default full-text filegroup is the *PRIMARY* filegroup for the database.

Path

Use the ellipsis  button to specify the root directory for the catalog using the [SQL Server Folders](#)^[950] dialog.

Note: Full-text catalogs must be created on a local hard drive associated with an instance of SQL Server.

Set as default catalog

This option specifies that the catalog is the default catalog. When full-text indexes are created without a full-text catalog explicitly specified, the default catalog is used.

Accent sensitivity

Specify whether the catalog is *accent* *sensitive* or *insensitive* for full-text indexing.

5.3.3.7.3 Managing full-text indexes

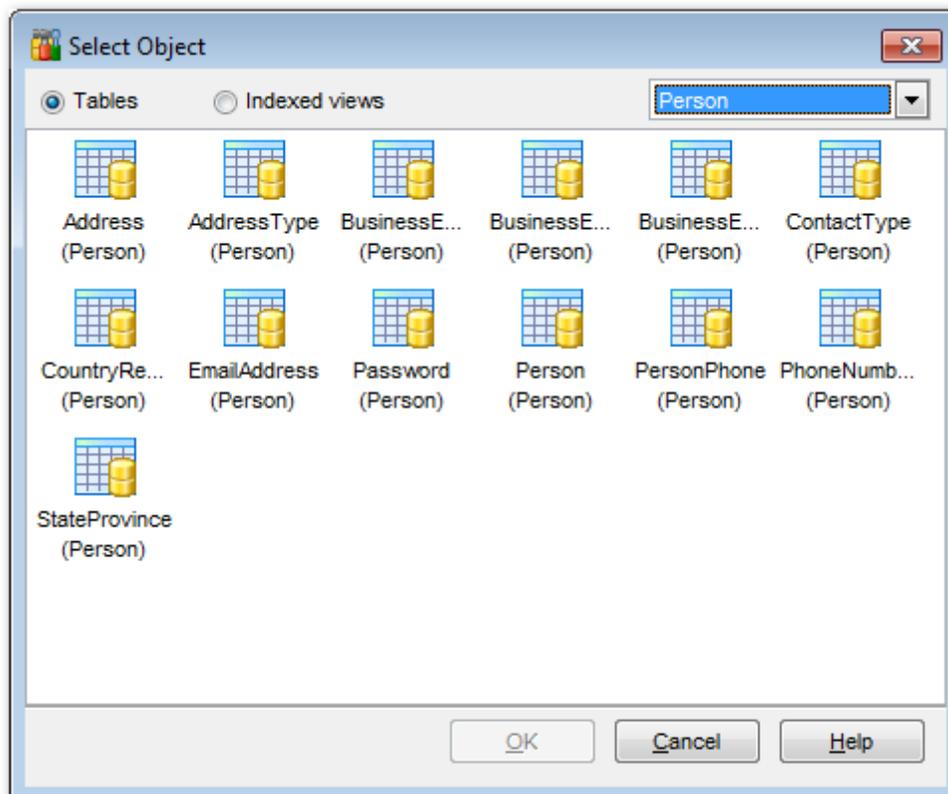
The **Indices** tab of **Full-Text Catalog Editor** allows you to manage full-text indexes and specify their properties.

Indices

This area lists the tables containing indexes that will be used by the full-text catalog.

To add a full-text index, right-click within the *Indices* area and select the **+ Add index** popup menu item, or use the corresponding button at the bottom.

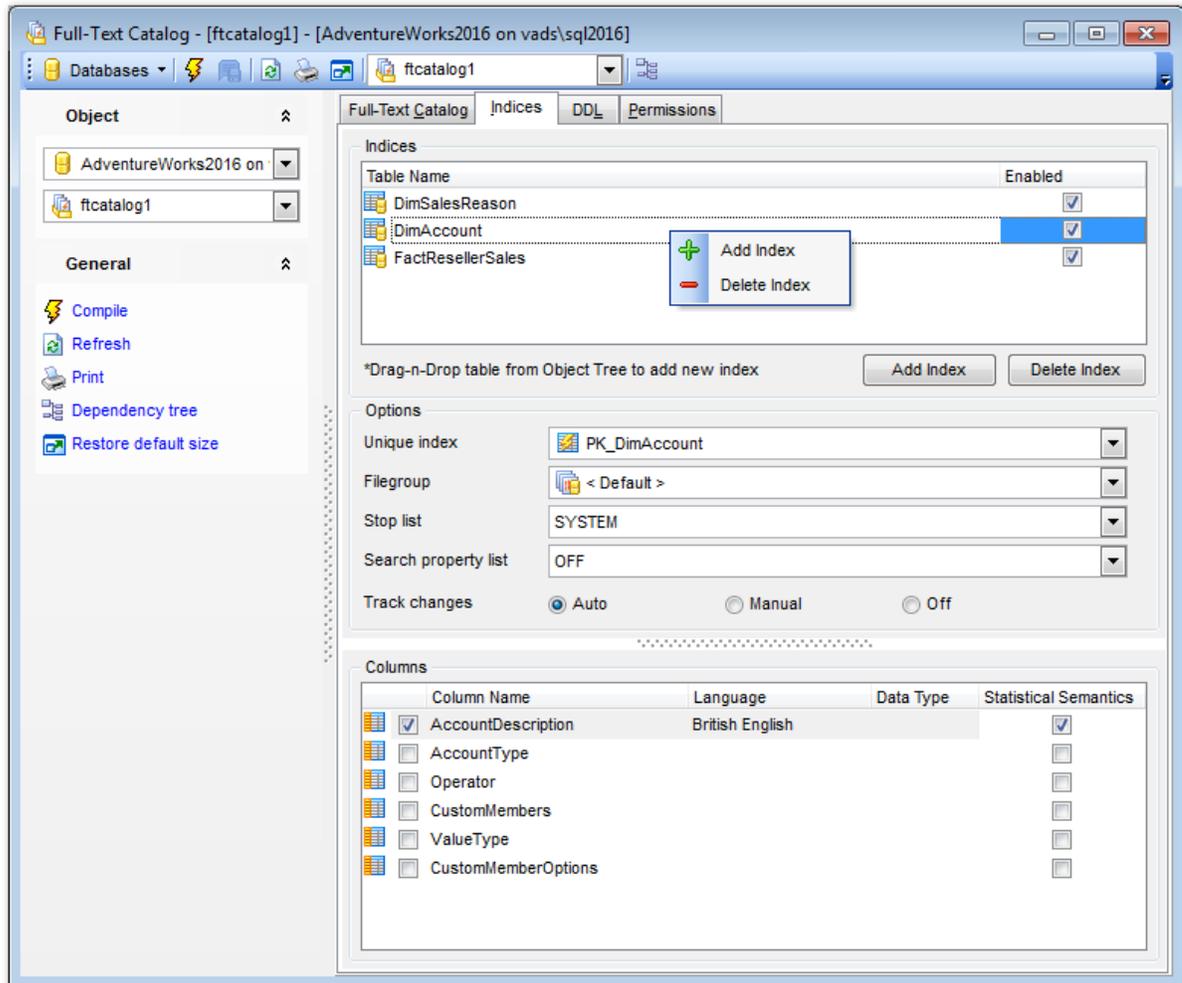
The **Select Object** dialog allows you to specify a [table](#)^[192] or an indexed [view](#)^[246] to use indexes from.



Hint: The context menu of the **Select Object** dialog allows you to toggle the *Icons/List*

object representation mode.

To remove a full-text index, right-click the index within the *Indices* area and select the **Delete index** popup menu item, or use the corresponding button at the bottom.



Options

Select the unique not null key index from **Unique index** dropdown list, which is required for a full-text index.

Select the **Filegroup** for creating a full-text index. If 'Default' value is selected the full-text index is placed in the same filegroup as base table or view for a nonpartitioned table or in the Primary filegroup for a partitioned table.

Select the full-text **Stop list** for the index. The index is not populated with any tokens that are part of the specified stoplist.

Use **Search property list** to associate with the index.

If a table index is enabled (i.e. the *Enabled* flag is set in the **Indices** list), you can

select the unique index and set the **Track changes** property:

Auto

Specifies that SQL Server automatically updates the full-text index as the data are modified in the associated tables.

Manual

Specifies that the change-tracking log will be propagated either on a schedule using SQL Server Agent, or manually by the user.

Off

Specifies that SQL Server does not keep a list of changes to the indexed data.

Columns

This area lists the columns of the selected table. Set the **Language** of the data stored in each column. Specifies the Data Type that is used to hold the document type for a varbinary(max) or image document. Tick **Statistical Semantics** on to create the additional key phrase and document similarity indexes that are part of statistical semantic indexing.

5.3.3.8 Symmetric Keys

In SQL Server 2005 and higher, data can be encrypted with a hierarchical encryption and key management infrastructure. Each layer encrypts the layer below it by using a combination of the following mechanisms for encryption: **symmetric keys**, [asymmetric keys](#)^[325], [certificates](#)^[329].

A **Symmetric key** is a single key that is used for both encryption and decryption. Encryption and decryption by using a symmetric key is fast and suitable for routine use with sensitive data in the database.

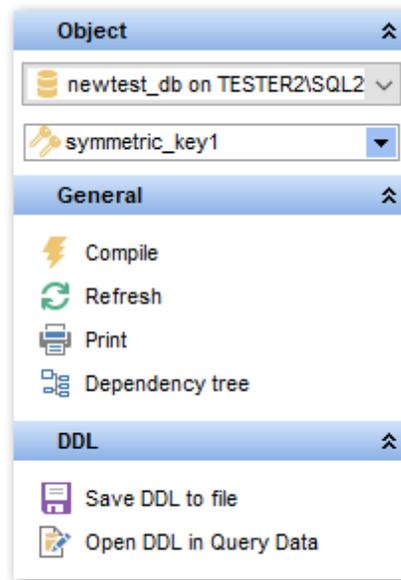
Symmetric Key Editor allows you to define symmetric key properties. It opens automatically when you create a new symmetric key and is available on editing an existing one.

To open a symmetric key in **Symmetric Key Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[322]
- [Creating/editing symmetric key](#)^[324]
- [Browsing object dependencies](#)^[921]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.3.8.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Symmetric Key Editor**.



The **Navigation bar** of **Symmetric Key Editor** allows you to:

Object

-  select a database
-  select a symmetric key for editing

General

-  [compile](#)^[923] the symmetric key (if it is being created/modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the symmetric key
-  view the [dependency tree](#)^[612] for the symmetric key
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the symmetric key:

DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

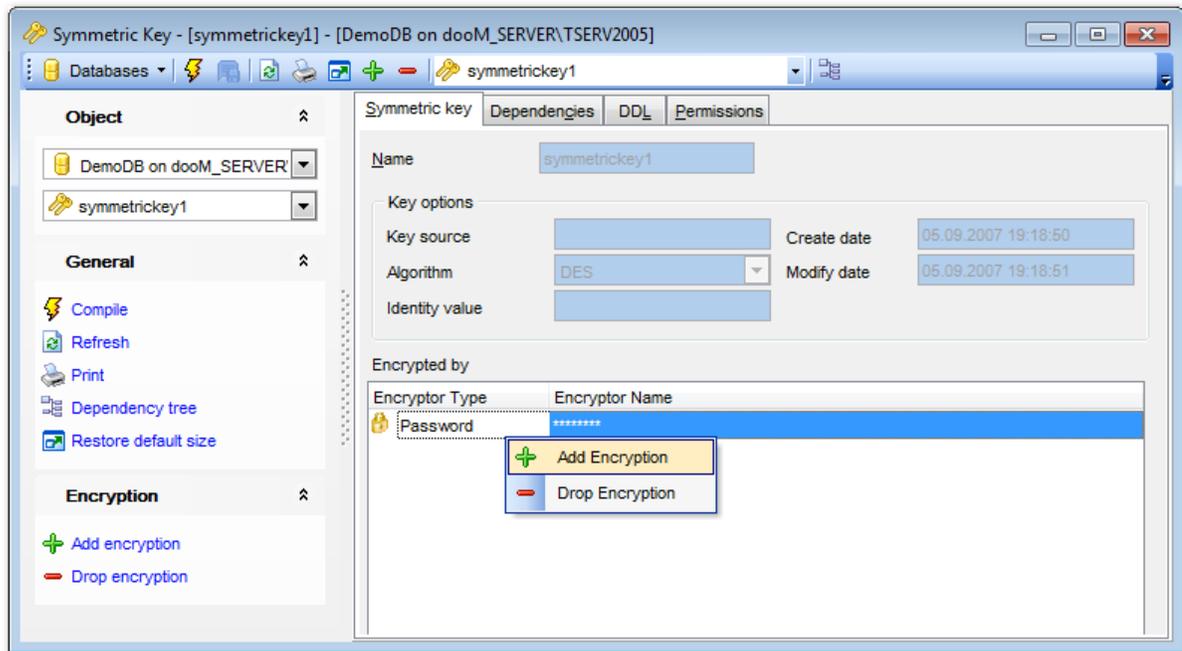
Items of the **Navigation bar** are also available on the **ToolBar** of **Symmetric Key Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.3.8.2 Creating/editing symmetric key

Use the **Symmetric key** tab of **Symmetric Key Editor** to create/edit a symmetric key and specify its properties.

Name

Enter a name for the new symmetric key, or view the name of the symmetric key being edited.

**Key options****Key source**

Specify a passphrase that will be used to derive the key from.

Algorithm

Use the drop-down list to specify an algorithm to be used by the symmetric key. Possible values are: *DES*, *TRIPLE_DES*, *RC2*, *RC4*, *DESX*, *AES_128*, *AES_192*, *AES_256*.

Identity value

Specify an identity phrase from which to generate a GUID for tagging data that is encrypted with a temporary key.

Create date

Stores the date when the symmetric key was created.

Modify date

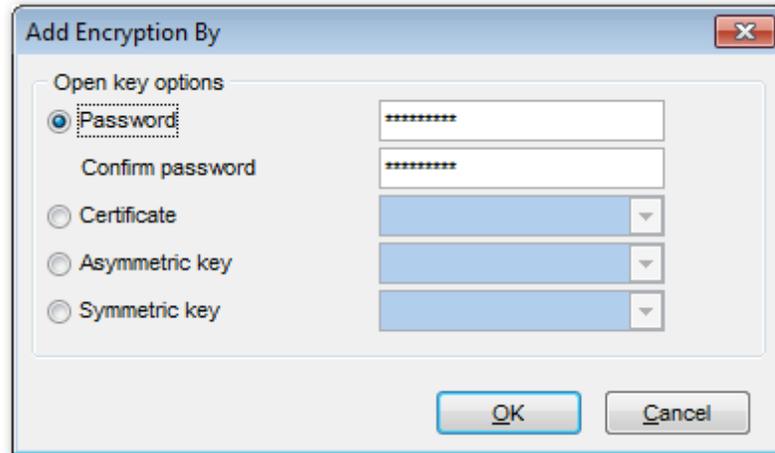
Stores the date when the symmetric key was last modified.

Symmetric key encrypt by

This area lists the encrypting mechanisms used by the symmetric key (the *ENCRYPTION BY* clause).

To add an encrypting mechanism, right-click within the *Symmetric key encrypt by* area and select the **+ Add Encryption** popup menu item.

The **Add Encryption By** dialog allows you to specify a password, a [certificate](#)^[329], an [asymmetric key](#)^[325], or a [symmetric key](#)^[322] to be used to encrypt the key that is being created.



To remove an encrypting mechanism, right-click the encrypting mechanism within the *Symmetric key encrypt by* area and select the **- Drop Encryption** popup menu item.

5.3.3.9 Asymmetric Keys

In SQL Server 2005 and higher, data can be encrypted with a hierarchical encryption and key management infrastructure. Each layer encrypts the layer below it by using a combination of the following mechanisms for encryption: [symmetric keys](#)^[322], **asymmetric keys**, [certificates](#)^[329].

An **Asymmetric key** is composed of a private key and the corresponding public key. Each key can decrypt data encrypted by the other. Asymmetric encryption and decryption provide a higher level of security than [symmetric](#)^[322] encryption. An asymmetric key can be used to encrypt a [symmetric key](#)^[322] for storage in a database.

Asymmetric Key Editor allows you to define asymmetric key properties. It opens automatically when you create a new asymmetric key and is available on editing an existing one.

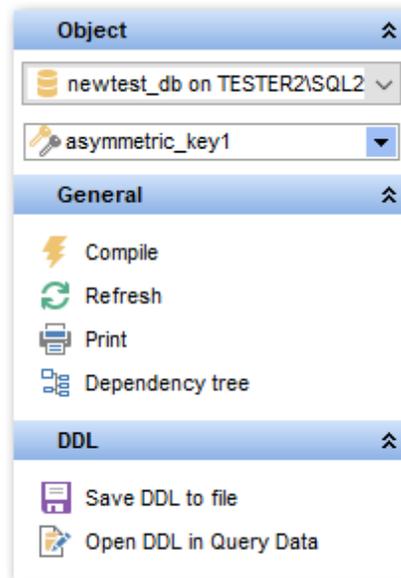
To open an asymmetric key in **Asymmetric Key Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[326]
- [Creating/editing asymmetric key](#)^[327]
- [Browsing object dependencies](#)^[921]

- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.3.9.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Asymmetric Key Editor**.



The **Navigation bar** of **Asymmetric Key Editor** allows you to:

Object

- select a database
- select an asymmetric key for editing

General

- [compile](#)^[923] the asymmetric key (if it is being created/modified)
- refresh the content of the active tab
- [print metadata](#)^[643] of the asymmetric key
- view the [dependency tree](#)^[612] for the asymmetric key
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the asymmetric key:

DDL

- save [DDL](#)^[919] to file
- open [DDL](#)^[919] in [Query Data](#)^[426]

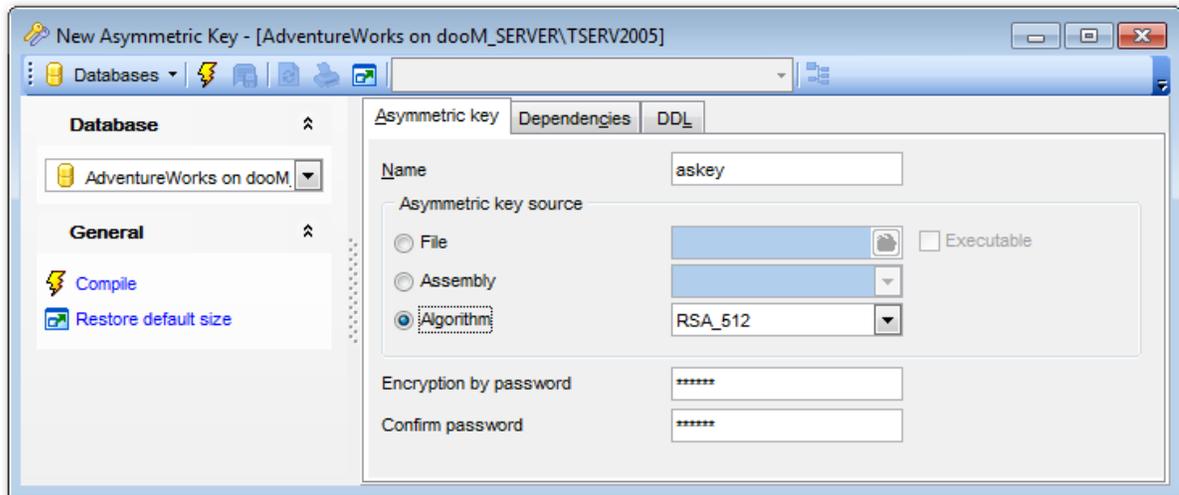
Items of the **Navigation bar** are also available on the **ToolBar** of **Asymmetric Key Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.3.9.2 Creating/editing asymmetric key

Use the **Asymmetric key** tab of **Asymmetric Key Editor** to create/edit an asymmetric key and specify its properties.

Name

Enter a name for the new asymmetric key, or view the name of the asymmetric key being edited.



Asymmetric key source

File

If this option is selected, you should specify the path to a strong-name file to be used to load the key pair from. Use the  button to specify the complete path and the name of the strong-name file.

Executable

If this option is selected, the file is a DLL used by the asymmetric key.

Assembly

If this option is selected, use the drop-down list to specify an [assembly](#)^[304] to be used to load the public key from.

Algorithm

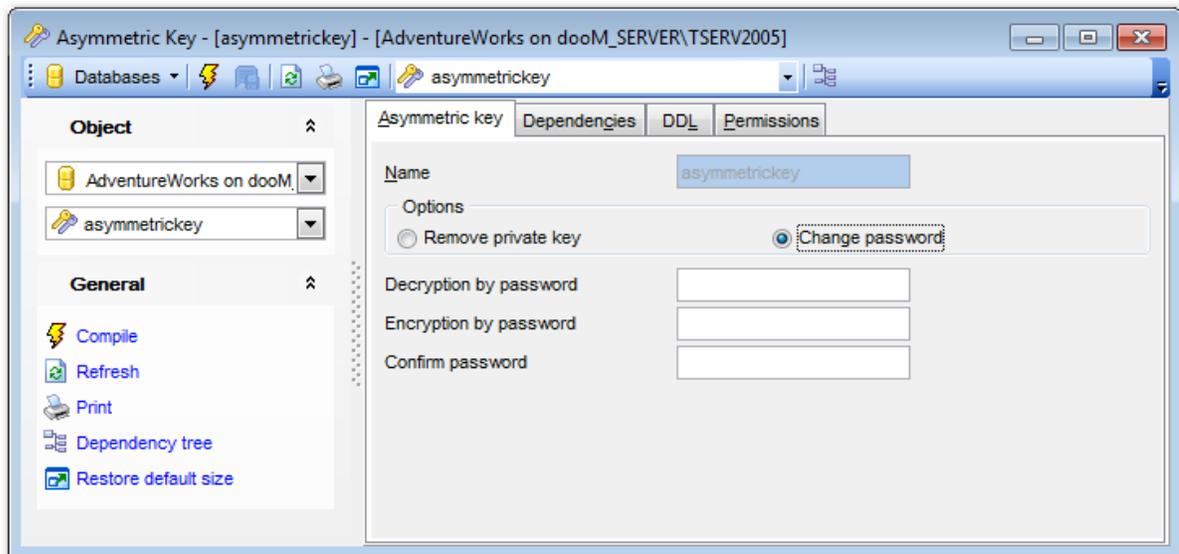
If this option is selected, use the drop-down list to specify an algorithm to be used by the asymmetric key (the *WITH ALGORITHM* clause). Possible values are: *RSA_512*, *RSA_1024*,

RSA_2048.

Encryption by password / Confirm password

Specify the password that will be used to encrypt the private key, and confirm the password in the corresponding boxes.

The **Asymmetric key** tab of **Asymmetric Key Editor** allows you to edit properties of an existing asymmetric key.



Options

Remove private key

If this option is selected, the private key will be removed from the asymmetric key.

Change password

If this option is selected, you can change the password used to encrypt the private key.

Decryption by password / Encryption by password / Confirm password

Specify the current password, a new password that will be used to encrypt the private key, and confirm the password in the corresponding boxes.

5.3.3.10 Certificates

In SQL Server 2005 and higher, data can be encrypted with a hierarchical encryption and key management infrastructure. Each layer encrypts the layer below it by using a combination of the following mechanisms for encryption: [symmetric keys](#)^[322], [asymmetric keys](#)^[325], **certificates**.

A **Certificate** is a digitally-signed statement that binds the value of a public key to the identity of the person, device or service that holds the corresponding private key. Certificates are database-level securable objects that follow the X.509 standard and support X.509 V1 fields. A certificate can be loaded from a file or [assembly](#)^[304] upon its creation.

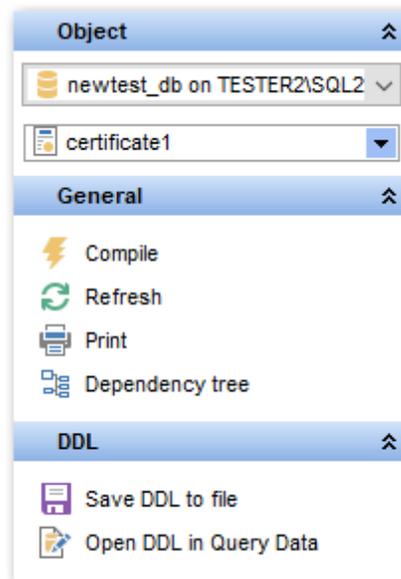
Certificate Editor allows you to define certificate properties. It opens automatically when you create a new certificate and is available on editing an existing one.

To open a certificate in **Certificate Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[330]
- [Creating/editing certificate](#)^[331]
- [Backup Certificate dialog](#)^[334]
- [Browsing object dependencies](#)^[921]
- [Viewing DDL definition](#)^[919]
- [Setting object permissions](#)^[922]

5.3.3.10.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Certificate Editor**.



The **Navigation bar** of **Certificate Editor** allows you to:

Object

- 📁 select a database
- 📄 select a certificate for editing

General

- ⚡ [compile](#)^[923] the certificate (if it is being created/modified)
- 🔄 refresh the content of the active tab
- 🖨️ [print metadata](#)^[643] of the certificate
- 📄 view the [dependency tree](#)^[612] for the certificate
- 🏠 restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the certificate:

Actions

- 📄 save the certificate using the [Backup Certificate](#)^[334] dialog

DDL

-  save [DDL](#) to file
-  open [DDL](#) in [Query Data](#)

Items of the **Navigation bar** are also available on the **ToolBar** of **Certificate Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.3.3.10.2 Creating/editing certificate

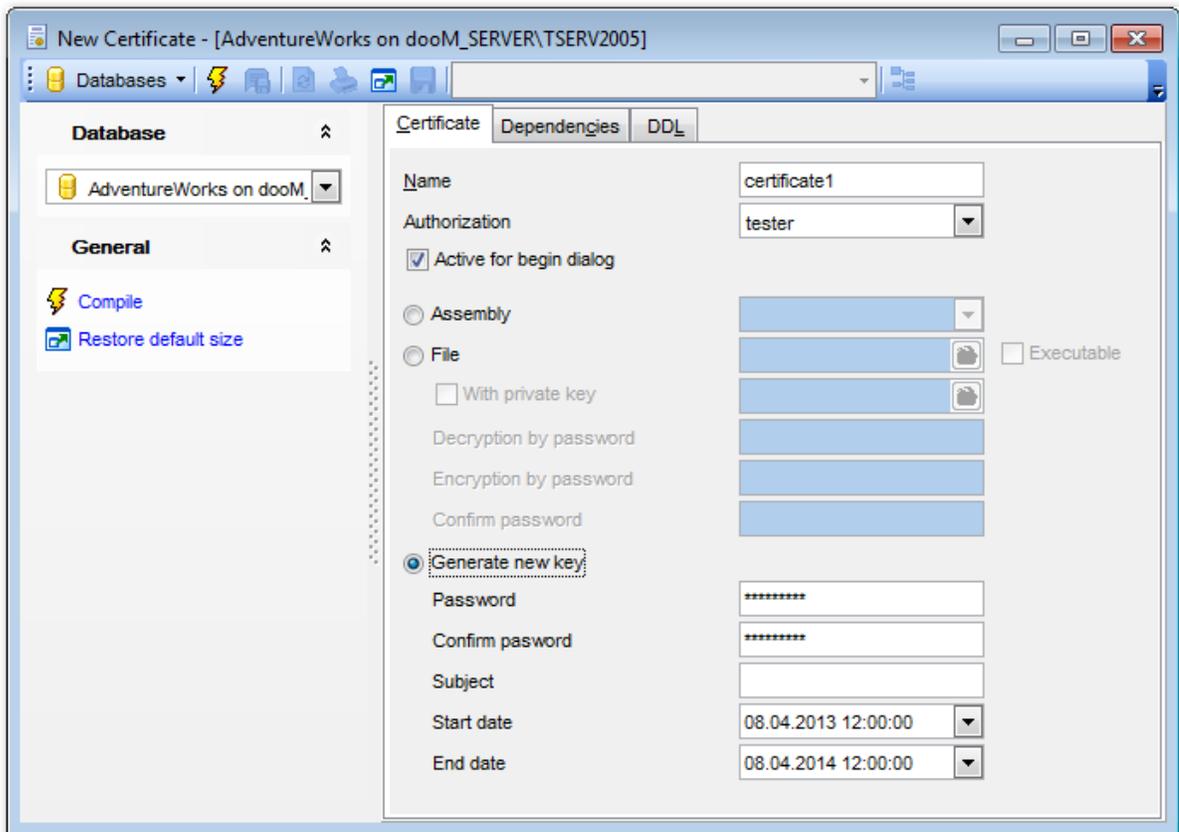
Use the **Certificate** tab of **Certificate Editor** to create/edit a certificate and specify its properties.

Name

Enter a name for the new certificate, or view the name of the certificate being edited.

Authorization

Use the drop-down list to select the name of the user that will own this certificate, or view the user selected upon the certificate creation.



The screenshot shows the 'New Certificate' dialog box for 'AdventureWorks on dooM_SERVER\TSERV2005'. The 'Certificate' tab is selected. The 'Name' field contains 'certificate1'. The 'Authorization' dropdown is set to 'tester'. The 'Active for begin dialog' checkbox is checked. The 'File' radio button is selected, and the 'Executable' checkbox is unchecked. The 'Generate new key' radio button is selected, and the 'Password' and 'Confirm password' fields are filled with asterisks. The 'Start date' is '08.04.2013 12:00:00' and the 'End date' is '08.04.2014 12:00:00'.

Active for begin dialog

This option makes the certificate available to the initiator of a Service Broker dialog conversation.

 Assembly

If this option is selected, use the drop-down list to specify a signed [assembly](#)^[304] that has been already loaded into the database.

 File

If this option is selected, you should specify the complete path and name of a DER-encoded file that contains the certificate.

 Executable

If this option is used, the file is a DLL that has been signed by the certificate.

 With private key

Check this option to specify that the private key of the certificate is loaded into SQL Server. This option is only available when the certificate is being created from a file.

Use the  button to specify the complete path and name of the private key.

Decryption by password

Specify the password required to decrypt a private key that is retrieved from a file.

Encryption by password / Confirm password

Specify the password that will be used to encrypt the private key, and confirm the password in the corresponding box.

 Generate new key

If this option is selected, a new key will be generated for the certificate. In this case you should specify the **password** for the new key, and the **subject** (a field in the metadata of the certificate as defined in the X.509 standard).

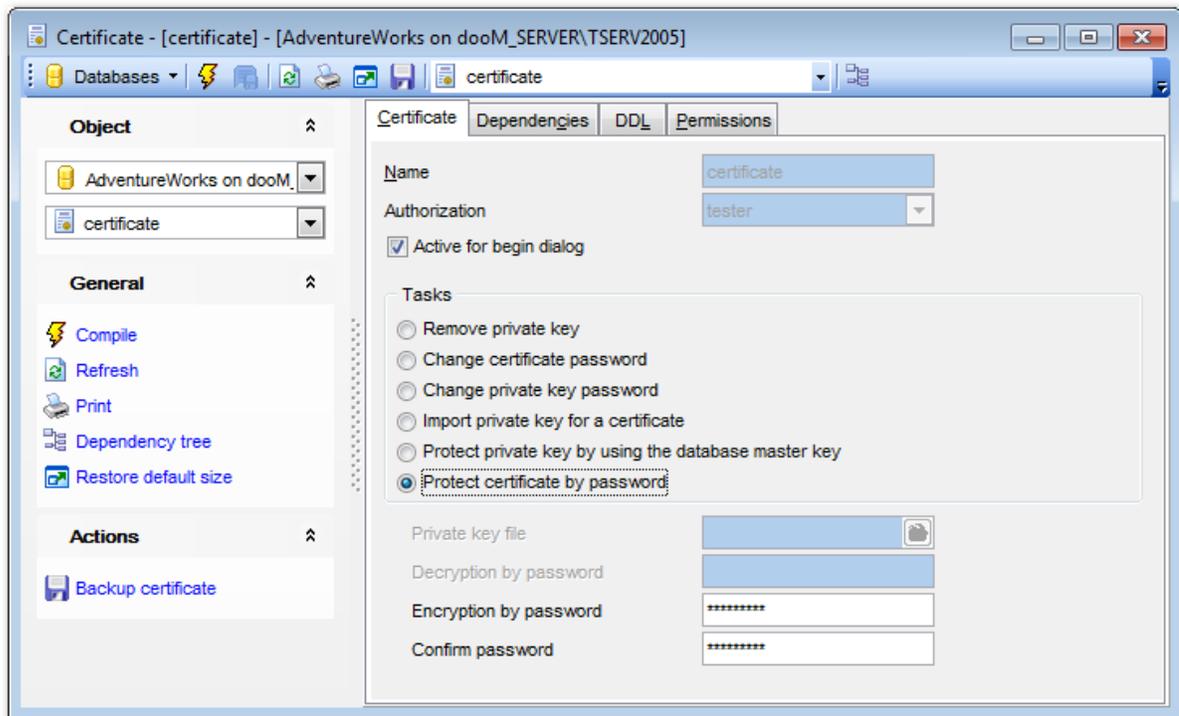
Start date

Set the date when the certificate becomes valid.

Expire date

Set the date when the certificate expires.

The **Certificate** tab of **Certificate Editor** allows you to edit properties of an existing certificate.



Tasks

Remove private key

If this option is selected, the private key will be removed from the certificate.

Change certificate password

If this option is selected, you can change the password used to protect the certificate.

Change private key password

If this option is selected, you can change the password used to encrypt the private key.

Import private key for a certificate

If this option is selected, you can import a private key to the certificate.

Protect private key using the database master key

If this option is selected, the private key used for the certificate will be protected with the database master key.

Protect certificate by password

If this option is selected, you can set a password to protect the certificate.

Private key file

Use the  button to specify the complete path and name of the private key.

Decryption by password / Encryption by password / Confirm password

Specify the current password, a new password that will be used to encrypt the certificate / private key, and confirm the password in the corresponding boxes.

5.3.3.10.3 Backup Certificate dialog

The **Backup Certificate** dialog allows you to set saving certificate options.

To call this dialog, use the **Backup Certificate** item of the [Navigation bar](#)^[330] or [toolbar](#)^[331].

**File**

Type in or use the  button to specify the path and name of the file that will contain the certificate.

 With private key

Check this option to specify that the certificate has a private key. Type in or use the  button to specify the path and name of the private key file.

Decryption by password

Specify the password required to decrypt the private key.

Encryption by password / Confirm password

Specify the password that will be used to encrypt the private key, and confirm the password in the corresponding box.

5.3.3.11 Message Types

A **Message type** object defines a name for a message type and defines the type of data that the message contains. Message types persist in the database where the message type is created. You create an identical message type in each database that participates in a conversation.

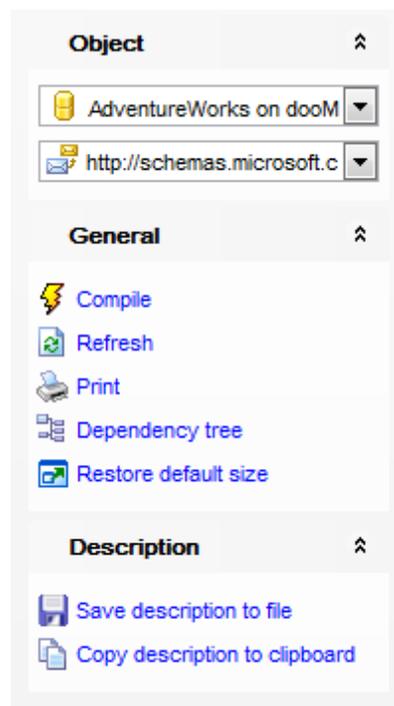
Message Type Editor allows you to define message type properties. It opens automatically when you create a new message type and is available on editing an existing one.

To open a message type in **Message Type Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[335]
- [Creating/editing message type](#)^[336]
- [Browsing object dependencies](#)^[921]
- [Viewing DDL definition](#)^[919]

5.3.3.11.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Message Type Editor**.



The **Navigation bar** of **Message Type Editor** allows you to:

Object

- select a database
- select a message type for editing

General

- compile^[923] the message type (if it is being created/modified)
- save the message type [description](#)^[920] (if it has been modified)
- refresh the content of the active tab

-  [print metadata](#) of the message type
-  view the [dependency tree](#) for the message type
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the message type:

Description

-  save object [description](#) to file
-  copy [description](#) to clipboard

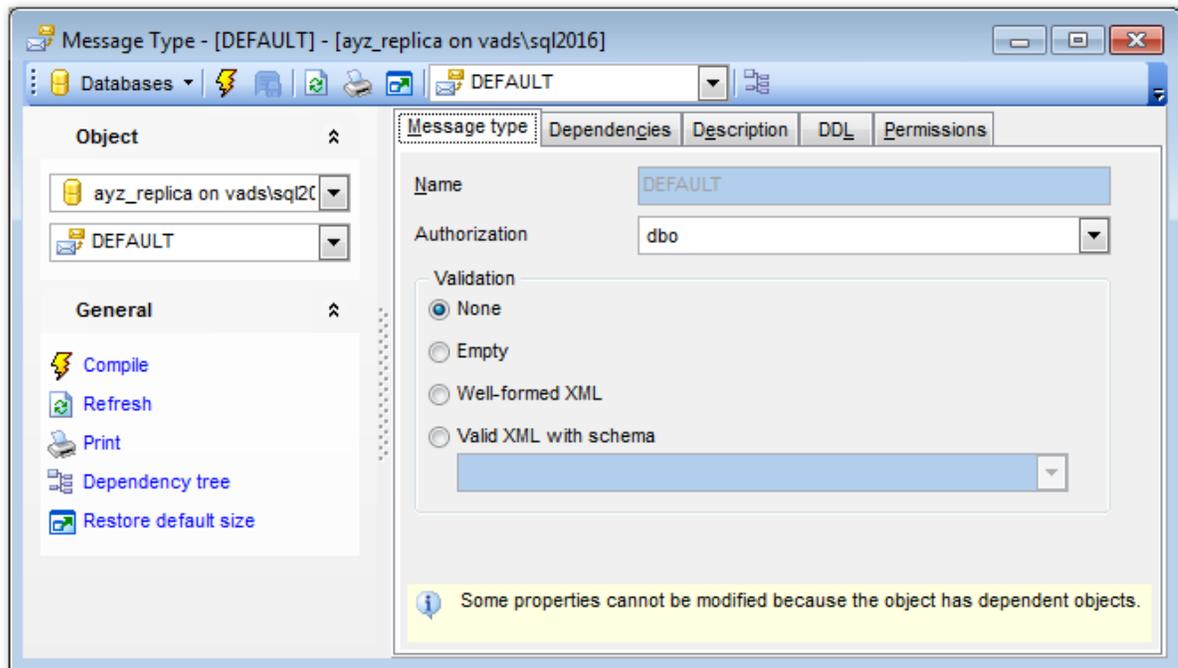
DDL

-  save [DDL](#) to file
-  open [DDL](#) in [Query Data](#)

Items of the **Navigation bar** are also available on the **ToolBar** of **Message Type Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.3.3.11.2 Creating/editing message type

Use the **Message Type** tab of **Message Type Editor** to create/edit a message type and specify its properties.



Name

Enter a name for the new message type, or view the name of the message type being edited.

Authorization

Use the drop-down list to set the owner of the message type to the specified database [user](#)^[295] or [role](#)^[301].

Validation

Specifies how Service Broker validates the message body for messages of this type.

 None

Specifies that no validation is performed. The message body can contain data, or it can be NULL.

 Empty

Specifies that the message body must be NULL.

 Well-formed XML

Specifies that the message body must contain well-formed XML.

 Valid XML with schema

Specifies that the message body must contain XML that complies with a schema in the specified schema collection. Use the drop-down list below to select an existing [XML schema collection](#)^[281].

Note: Some properties cannot be modified because of dependent objects. Open the [Dependencies](#)^[921] tab to browse the list of dependent objects, or view the [dependency tree](#)^[612] for the message type.

5.3.3.12 Contracts

Contracts define the name of a specific business task and list the message types used in that task. Service Broker contracts define two different service roles: the initiator and the target. The initiator of a conversation begins the conversation by sending a message to the target. The contract that the conversation uses defines which service role can send messages of a given [message type](#)^[334].

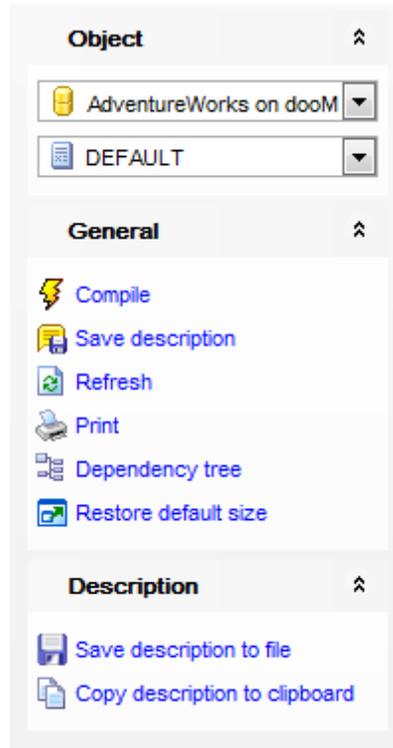
Contract Editor allows you to define contract properties. It opens automatically when you create a new contract and is available on editing an existing one.

To open a contract in **Contract Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[338]
- [Creating/editing contract](#)^[339]
- [Browsing object dependencies](#)^[921]
- [Viewing DDL definition](#)^[919]

5.3.3.12.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Contract Editor**.



The **Navigation bar** of **Contract Editor** allows you to:

Object

-  select a database
-  select a contract for editing

General

-  [compile](#)^[923] the contract (if it is being created/modified)
-  save the contract [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the contract
-  view the [dependency tree](#)^[612] for the contract
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the contract:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

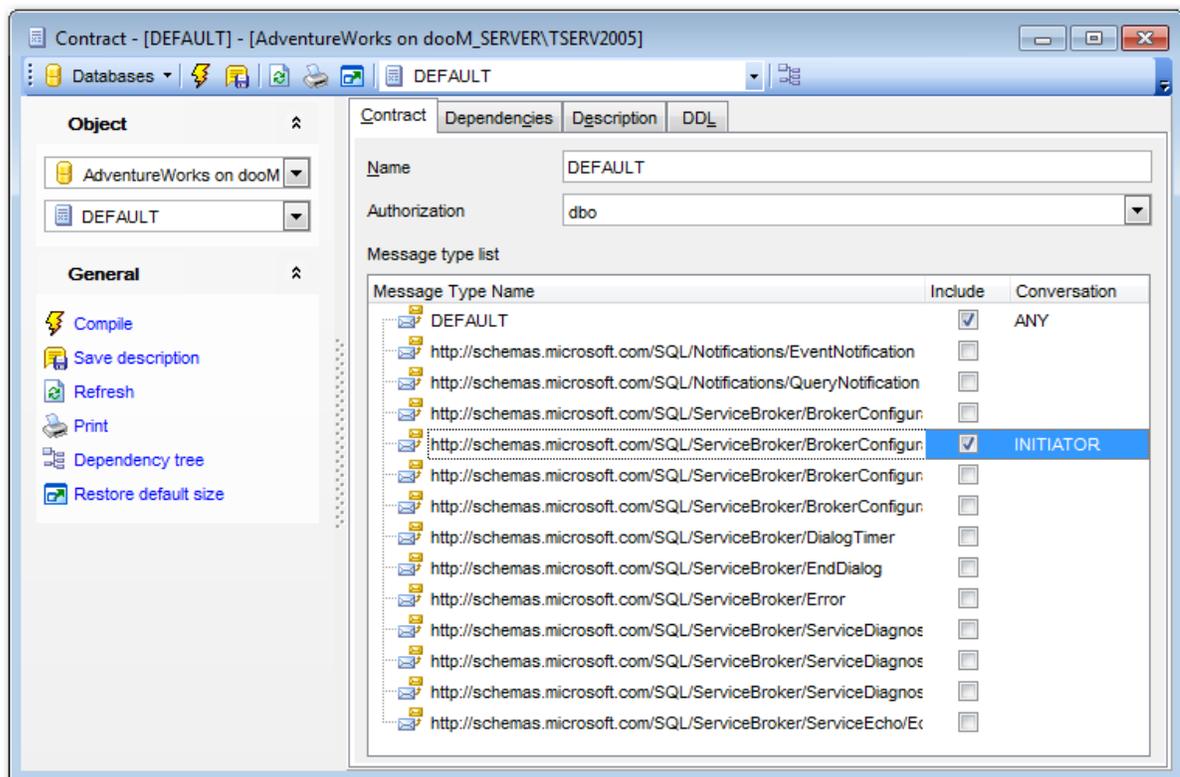
DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Contract Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.3.12.2 Creating/editing contract

Use the **Contract** tab of **Contract Editor** to create/edit a contract and specify its properties.

**Name**

Enter a name for the new contract, or modify the name of the contract being edited.

Authorization

Use the drop-down list to set the owner of the contract to the specified database [user](#)^[295] or [role](#)^[301].

Message type list

This area contains the list of [message types](#)^[334] to be included as part of the contract.

Conversation field

Specifies which endpoint can send a message of the indicated message type. Contracts document the messages that services can use to have specific conversations. Each conversation has two endpoints: the initiator endpoint, the service that started the conversation, and the target endpoint, the service that the initiator is contacting.

INITIATOR

Indicates that only the initiator of the conversation can send messages of the specified message type. A service that starts a conversation is referred to as the initiator of the conversation.

TARGET

Indicates that only the target of the conversation can send messages of the specified message type. A service that accepts a conversation that was started by another service is referred to as the target of the conversation.

ANY

Indicates that messages of this type can be sent by both the initiator and the target.

Note: Some properties cannot be modified because of dependent objects. Open the [Dependencies](#)^[921] tab to browse the list of dependent objects, or view the [dependency tree](#)^[612] for the contract.

5.3.3.13 Services

A Service Broker **Service** is a name for a specific task or set of tasks. Service Broker uses the name of the service to route messages, deliver messages to the correct [queue](#)^[289] within a database, and enforce the [contract](#)^[337] for a conversation.

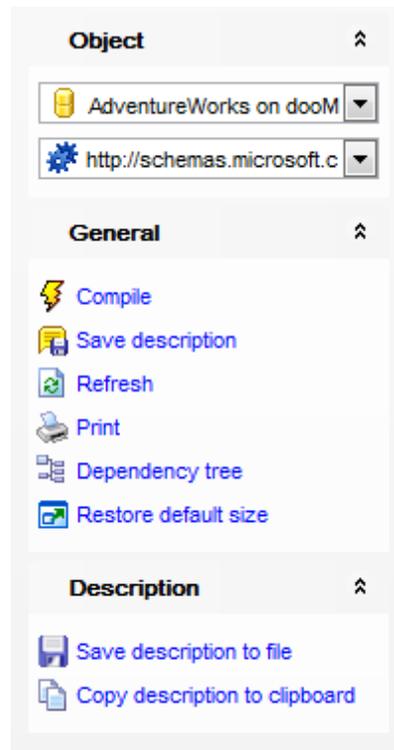
Service Editor allows you to define service properties. It opens automatically when you create a new service and is available on editing an existing one.

To open a service in **Service Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[340]
- [Creating/editing service](#)^[342]
- [Viewing service dialogs](#)^[343]
- [Browsing object dependencies](#)^[921]
- [Viewing DDL definition](#)^[919]

5.3.3.13.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Service Editor**.



The **Navigation bar** of **Service Editor** allows you to:

Object

-  select a database
-  select a service for editing

General

-  [compile](#)^[923] the service (if it is being created/modified)
-  save the service [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the service
-  view the [dependency tree](#)^[612] for the service
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the service:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

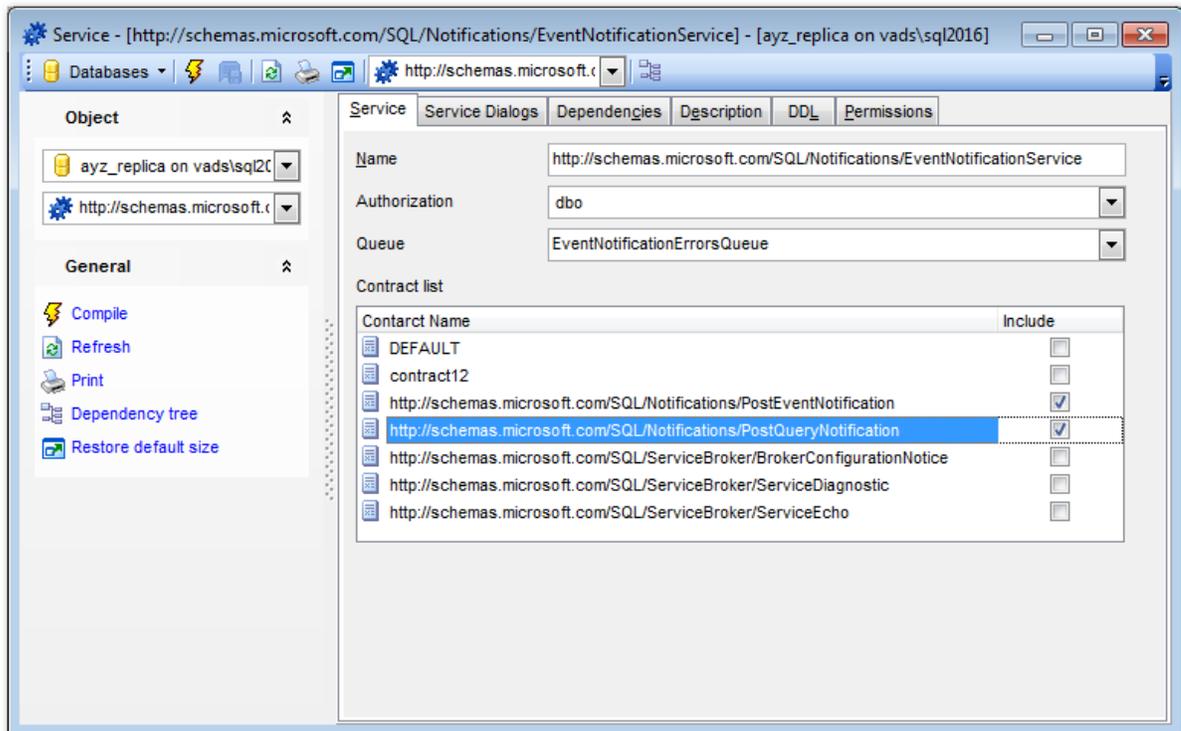
DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Service Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.3.13.2 Creating/editing service

Use the **Service** tab of **Service Editor** to create/edit a service and specify its properties.



Name

Enter a name for the new service, or modify the name of the service being edited.

Authorization

Use the drop-down list to set the owner of the service to the specified database [user](#)^[295] or [role](#)^[301].

Queue

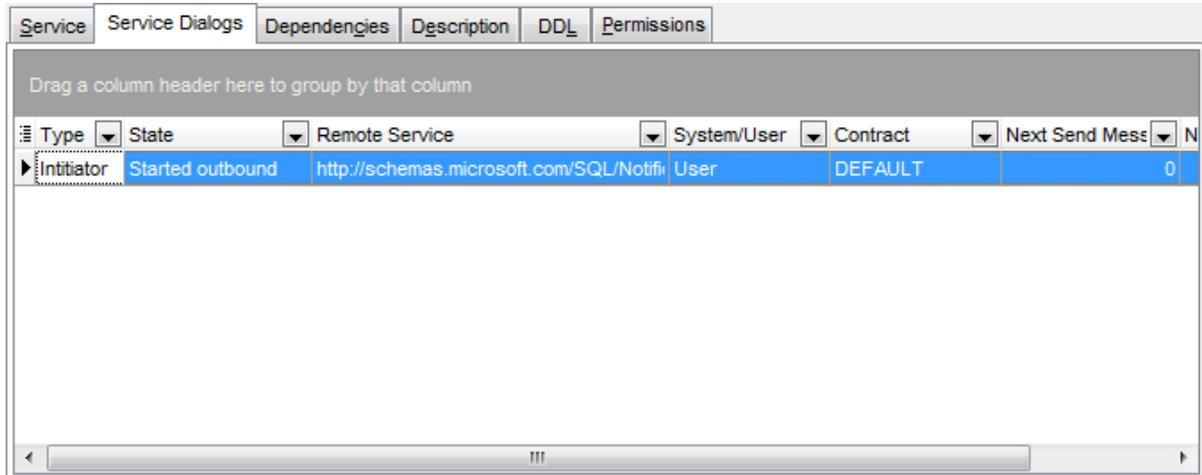
Use the drop-down list to specify the [queue](#)^[289] that will receive messages for the service.

Contract list

This area contains the list of [contracts](#)^[337] for which this service may be a target. Service programs initiate conversations to this service using the contracts specified. If no contracts are included, the service may only initiate conversations.

5.3.3.13.3 Viewing service dialogs

Use the **Service Dialogs** tab of **Service Editor** to view service dialogs within a request-reply message cycle.



The **Service Dialogs List** displays the messages as a grid with the following columns: *State*, *Remote Service*, *System/User*, *Contract*, *Next Send Message*, *Next Receive Message*. If more convenient, you can [change the order](#)^[467] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray "**Group by**" box area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

5.3.3.14 Routes

A **Route** is a non-schema object which can be added to the routing table for the current database. For outgoing messages, Service Broker determines routing by checking the routing table in the local database. For messages on conversations that originate in another instance, including messages to be forwarded, Service Broker checks the routes in msdb.

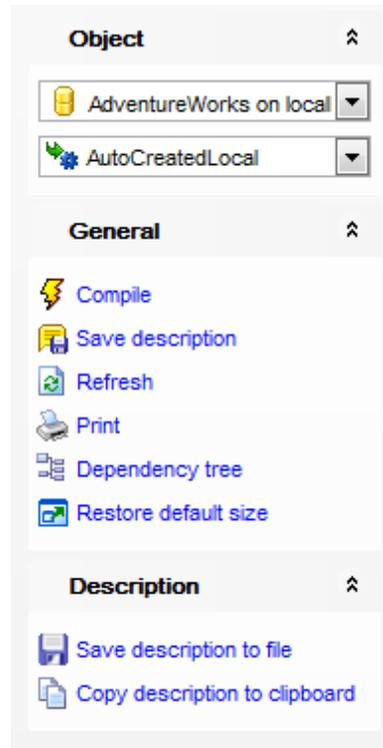
Route Editor allows you to define route properties. It opens automatically when you create a new route and is available on editing an existing one.

To open a route in **Route Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[344]
- [Creating/editing route](#)^[345]
- [Browsing object dependencies](#)^[921]
- [Viewing DDL definition](#)^[919]

5.3.3.14.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Route Editor**.



The **Navigation bar** of **Route Editor** allows you to:

Object

-  select a database
-  select a route for editing

General

-  [compile](#)^[923] the route (if it is being created/modified)
-  save the route [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the route
-  view the [dependency tree](#)^[612] for the route
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the route:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

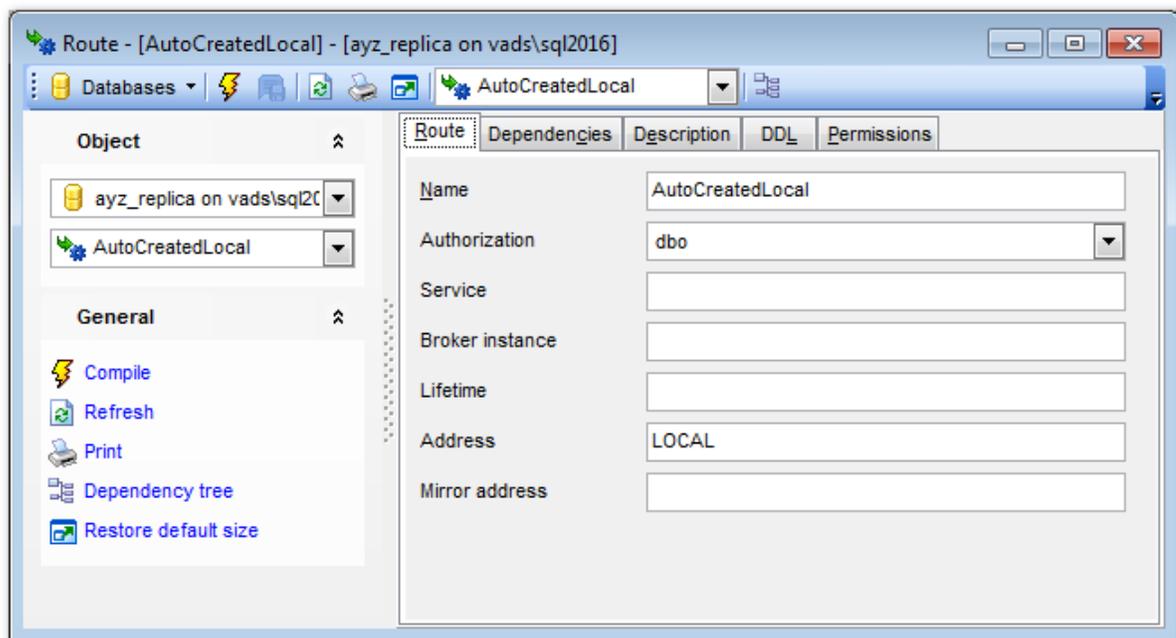
DDL

-  save [DDL](#) to file
-  open [DDL](#) in [Query Data](#)

Items of the **Navigation bar** are also available on the **ToolBar** of **Route Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.3.3.14.2 Creating/editing route

Use the **Route** tab of **Route Editor** to create/edit a route and specify its properties.

**Name**

Enter a name for the new route, or modify the name of the route being edited.

Authorization

Use the drop-down list to set the owner of the route to the specified database [user](#) or [role](#).

Service

Specifies the name of the remote [service](#) that this route points to. It must exactly match the name the remote service uses.

Broker instance

Specifies the database that hosts the target service.

Lifetime

Specifies the time, in seconds, that SQL Server retains the route in the routing table. At the end of the lifetime, the route expires, and SQL Server no longer considers the route when choosing a route for a new conversation.

Address

Specifies the network address for this route.

Mirror address

Specifies the network address for a mirrored database.

5.3.3.15 Remote Service Bindings

A **Remote service binding** establishes a relationship between a local database [user](#)^[293], the [certificate](#)^[329] for the user, and the name of a remote [service](#)^[340]. Service Broker uses the remote service binding to provide dialog security for conversations that target the remote service.

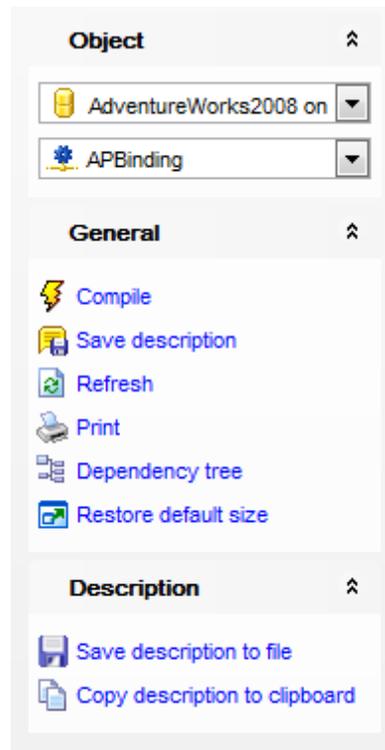
Remote Service Binding Editor allows you to define remote service binding properties. It opens automatically when you create a new remote service binding and is available on editing an existing one.

To open a remote service binding in **Remote Service Binding Editor**, double-click it in the [DB Explorer](#)^[63] tree.

- [Using Navigation bar and Toolbar](#)^[346]
- [Creating/editing remote service binding](#)^[348]
- [Browsing object dependencies](#)^[921]
- [Viewing DDL definition](#)^[919]

5.3.3.15.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Remote Service Binding Editor**.



The **Navigation bar** of **Remote Service Binding Editor** allows you to:

Object

-  select a database
-  select a remote service binding for editing

General

-  [compile](#)^[923] the remote service binding (if it is being created/modified)
-  save the remote service binding [description](#)^[920] (if it has been modified)
-  refresh the content of the active tab
-  [print metadata](#)^[643] of the remote service binding
-  view the [dependency tree](#)^[612] for the remote service binding
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the remote service binding:

Description

-  save object [description](#)^[920] to file
-  copy [description](#)^[920] to clipboard

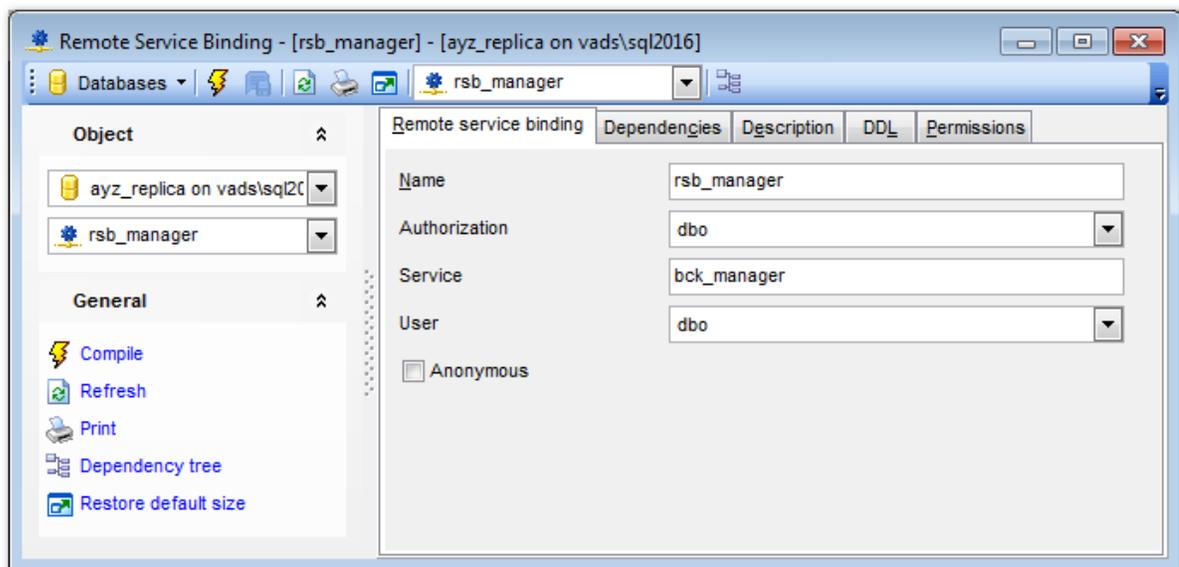
DDL

-  save [DDL](#)^[919] to file
-  open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Remote Service Binding Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.3.3.15.2 Creating/editing remote service binding

Use the **Remote Service Binding** tab of **Remote Service Binding Editor** to create/edit a remote service binding and specify its properties.



Name

Enter a name for the new remote service binding, or modify the name of the remote service binding being edited.

Authorization

Use the drop-down list to set the owner of the remote service binding to the specified database [user](#)^[295] or [role](#)^[301].

Service

Enter the name of the remote [service](#)^[340] to bind to the user identified in the **User** field.

User

Use the drop-down list to specify the database principal that owns the [certificate](#)^[329] associated with the remote service set within the **Service** field. This certificate is used for encryption and authentication of messages exchanged with the remote service.

Anonymous

Specifies whether anonymous authentication is used when communicating with the remote service.

5.3.3.16 DB Scoped Credentials

A DB scoped credential is used by the database to access to the external location anytime the database is performing an operation that requires access. It is not connected with any server login or database user.

To open a DB scoped credential in the editor, double-click it in the [DB Explorer](#)^[63] tree.

- [Creating/editing db scoped credential](#)^[349]
- [Browsing object dependencies](#)^[92]
- [Viewing DDL definition](#)^[91]

5.3.3.16.1 Creating/editing db scoped credential

Name

Specify the name of the database scoped credential.

Identity

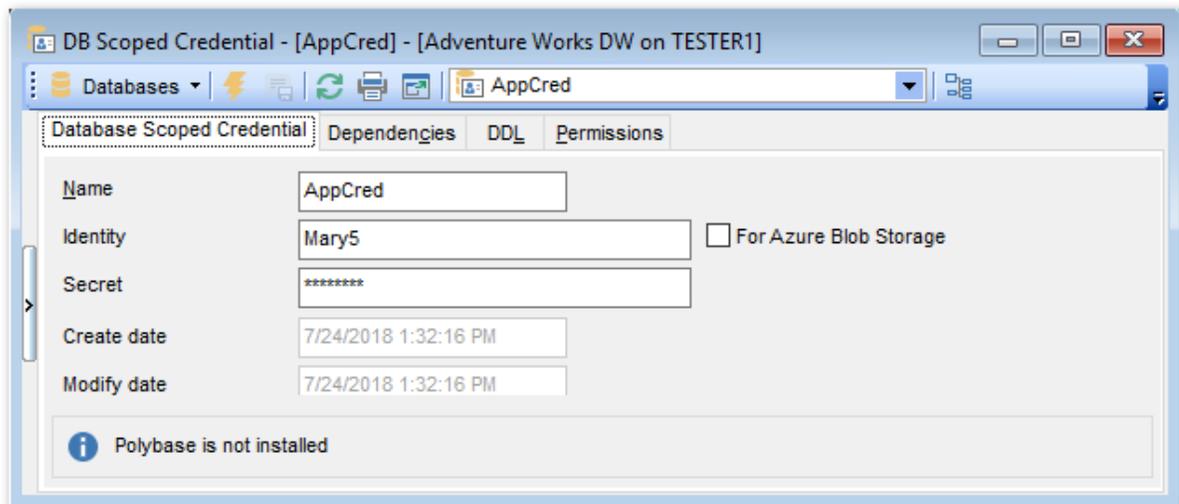
Specify the name of the account to be used when connecting outside the server.

For Azure Blob Storage

Select this option to create SHARED ACCESS SIGNATURE identity for Azure Blob storages.

Secret

Specify the secret for outgoing authentication.



Create date

Displays date and time when the credential was created.

Modify date

Displays date and time when the credential was last modified.

5.3.3.17 External Data Sources

An **external data source** is used for PolyBase or Elastic Database queries.

To open an external data source in the editor, double-click it in the [DB Explorer](#)^[63] tree.

- [Creating/editing external data source](#)^[350]
- [Browsing object dependencies](#)^[92]
- [Viewing DDL definition](#)^[919]

5.3.3.17.1 Creating/editing external data source

Name

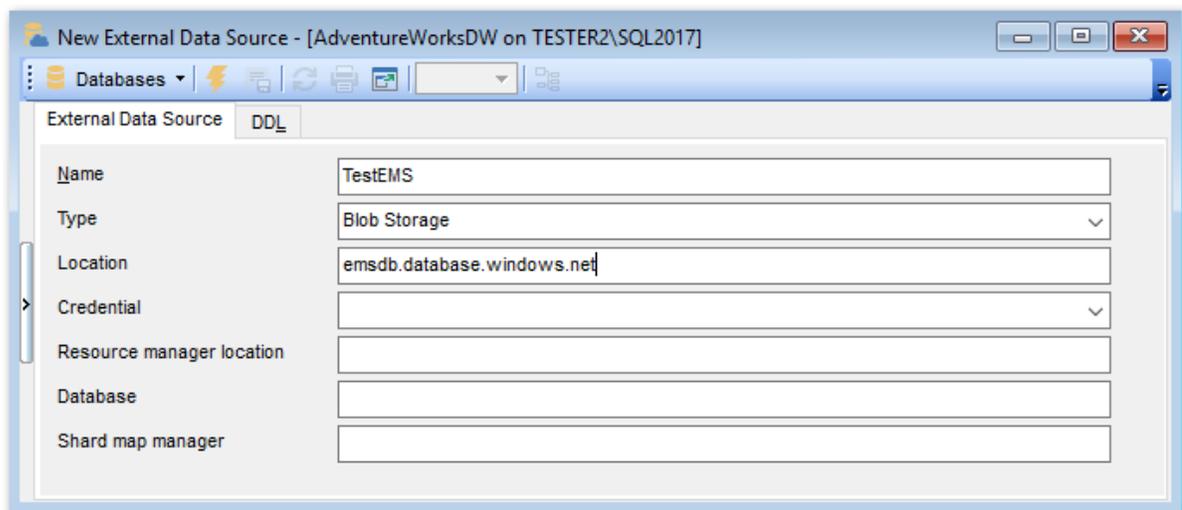
Specify the unique name for the data source being created.

Type

Select the type of the data source: HADOOP or BLOB_STORAGE.

Location

Specify connection string for HADOOP or Azure blob storage in the special format.



Credential

Specify the [database-scoped credential](#)^[349] for authenticating to the external data source.

Resource manager location

Specify the Hadoop resource manager location to improve query performance.

Database

Specify the name of the database that functions as the shard map manager or the remote database.

Shard map manager

Set the name of the shard map.

5.3.3.18 External File Formats

An external file format is the object defining external data stored in Hadoop, Azure Blob Storage, or Azure Data Lake Store. Creating an external file format is a prerequisite for creating an [External Table](#)^[293]. It stores the actual layout of the data referenced by an external table.

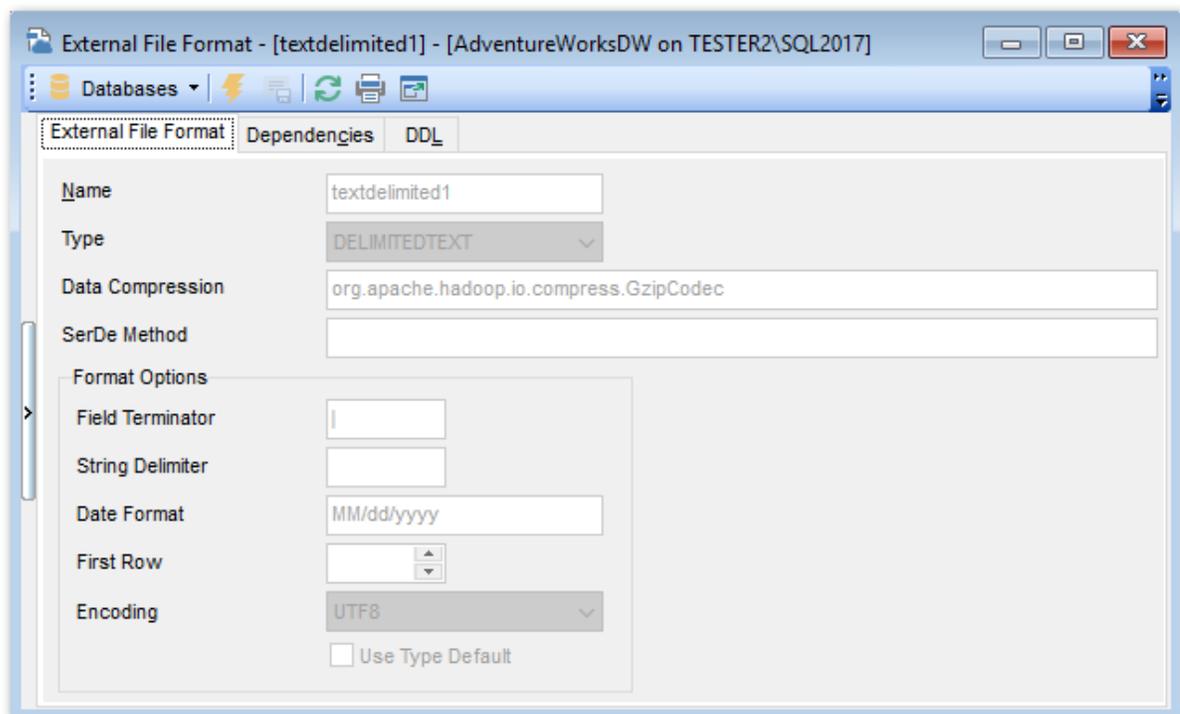
To open an external file format double-click it in the [DB Explorer](#)^[63] tree.

- [Creating/editing external file format](#)^[351]
- [Browsing object dependencies](#)^[921]
- [Viewing DDL definition](#)^[919]

5.3.3.18.1 Creating/editing external file format

Name

Specify the name for the new external file format being created.



Type

Select the type for the external file format from the list: *PARQUET*, *ORC*, *RCFILE* or *DELIMITEDTEXT*.

Data compression

Set the data compression method for external data. If not specified, data will not be compressed.

SerDe method

Specify the SerDe method to be used for RCFiles.

Format options

Set the options for the text format with column delimiters (*DELIMITEDTEXT*).

Field terminator

Set one or more characters that mark the end of each field in the text-delimited file. The default terminator is the ? character.

String delimiter

Specify the field terminator for string type in the text-delimited file. The default is the empty string "".

Date format

Set custom date and time format for the file.

First row

Specify the row number that is read first in all files during a PolyBase load (1-15).

Encoding

Set the UTF8 or UTF16 encoding.

 Use type default

Check this option to use default values in delimited text files if the value is missing.

5.4 Server Objects

SQL Manager for SQL Server provides all necessary facilities for working with server objects.

Note: To start working with server objects you need to [connect to server](#)^[68].

Server Objects:

[Logins](#)^[354]

[Backup Devices](#)^[366]

[Jobs](#)^[368]

[Schedules](#)^[376]

[Alerts](#)^[380]

[Operators](#)^[386]

[Proxies](#)^[391]

[Credentials](#)^[395]

[Linked Servers](#)^[398]

[Endpoints](#)^[402]

[DDL Triggers](#)^[412]

[DTS Packages](#)^[421]

Creating Server Objects

To create a server object:

- select the **Database | New Object...** [main menu](#)^[915] item;
- select the type of object within the [New Object](#)^[180] dialog;
- follow the steps of the wizard which guides you through the entire process of creating the object, or set the object properties using its editor - depending on the selected object type.

Note that you can also create a server object by selecting the appropriate [context menu](#)^[53] item of the [DB Explorer](#)^[71] tree or using the *Ctrl+N* [shortcut](#)^[952].

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

- select the **Database | Duplicate Object...** [main menu](#)^[915] item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click an object in the [DB Explorer](#)^[63] tree and select the **Duplicate Object <object_name>...** context menu item.

Editing Server Objects

To edit a server object:

- select the server object in the [DB Explorer](#)^[63] tree;
- right-click the object to call its [context menu](#)^[56] and select the **Edit <object type> <object name>** context menu item, or double-click the object to open it in its editor;

Renaming Server Objects

To rename a server object:

- select the object to rename in the [DB Explorer](#)^[63] tree;

- right-click the object and select the **Rename <object type> <object name>...** item from the [context menu](#)^[56];
- edit the object name using the **Rename Object...** dialog.

Note: This operation is possible for all objects except for [Logins](#)^[354], [Credentials](#)^[395], [Linked Servers](#)^[398], [Endpoints](#)^[402], [DTS Packages](#)^[421].

Dropping Server Objects

To drop a server object:

- select the server object in the [DB Explorer](#)^[71] tree;
- right-click the object to call its [context menu](#)^[56] and select the **Drop <object type> <object name>** context menu item;
- confirm dropping in the dialog window.

Note: If more convenient, you can also use the following [shortcuts](#)^[952]:

Ctrl+N to create a new object;

Ctrl+O to edit the selected object;

Ctrl+R to rename the object;

Shift+Del to drop the object from the server.

When using an object editor, you can benefit from **tabs**. To switch between tab views, click on their respective tabs at the top of the main editor window. You can do it at any time, since the tab views are absolutely independent.

To compile a newly created or edited object, you can use the  **Compile** item available within the [Navigation bar](#)^[915] or [Toolbar](#)^[917] of the object editor.

See also:

[Database objects](#)^[187]

5.4.1 Logins

Microsoft® SQL Server™ uses two ways to validate connections to SQL Server databases:

Windows Authentication which uses Windows-level principals

and

SQL Server Authentication which uses logins to validate the connection.

A **login** is an indivisible principal which is used to connect to the server and use its resources.

Login Editor allows you to define login properties. It opens automatically when you create a new server login and is available on editing an existing one.

To open a login in **Login Editor**, double-click it in the [DB Explorer](#)^[63] tree or in the [Login Manager](#)^[68]. Alternatively, you can right-click the login alias and select the **Edit Login** context menu item.

- [Setting login parameters](#)^[355]
- [Allocating members](#)^[359]
- [Defining server permissions](#)^[360]

- [Defining server role permissions](#)^[361]
- [Defining endpoint permissions](#)^[363]
- [Defining database permissions](#)^[364]
- [User mapping](#)^[366]
- [Viewing DDL definition](#)^[919]

See also:

[Users](#)^[295]

[Server roles](#)^[415]

[Grant Manager](#)^[682]

[Login Manager](#)^[681]

5.4.1.1 Setting login parameters

Use the **Login** tab of **Login Editor** to configure login authentication and default parameters.

Specify the way used by the login to connect to the instance of SQL Server:

- Windows authentication*
- SQL Server authentication*
- Mapped to certificate*
- Mapped to asymmetric key*

Enabled

Enables/disables the login immediately after it is created. A disabled login still exists in the server, but it cannot be used to connect to the instance of SQL Server.

Login is locked out

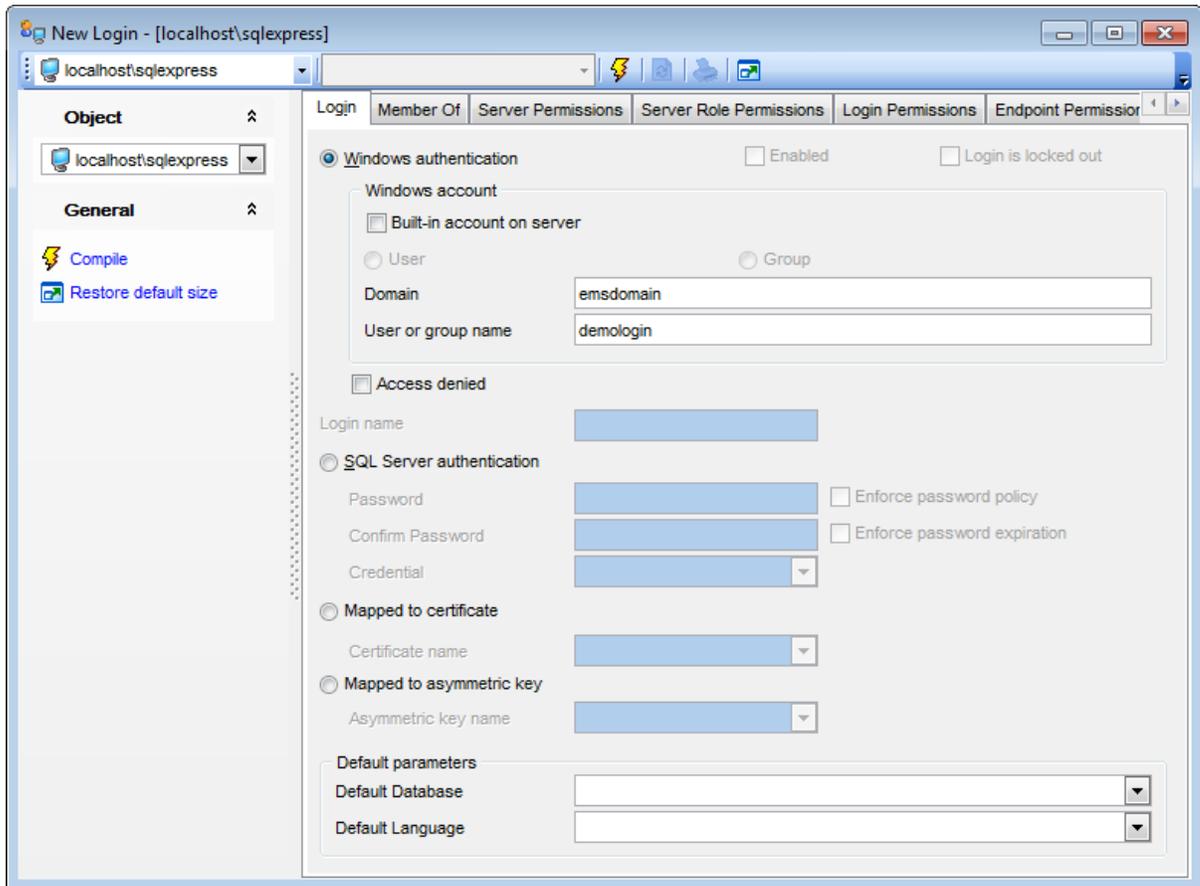
This option is used to indicate whether the login is locked out.

Windows authentication

When Windows Authentication is used to connect to SQL Server, Microsoft Windows is completely responsible for authenticating the client. In this case, the client is identified by its Windows account (Windows-level login).

Built-in account on server

Select this option to specify a built-in server account for the login (*User* or *Group*), or specify the Windows **Domain** and **User or group name**.



Access denied

Select this option to forbid any connections to the server for the login.

Login name

Enter a name for the new login, or modify the name of the login being edited.

SQL Server authentication

When SQL Server Authentication is used, SQL Server authenticates the client by comparing the client-supplied user name and password to the list of valid user names and passwords maintained within SQL Server.

Enforce password policy

This option specifies that the Windows password policies of the computer where SQL Server is running should be enforced on this login.

Enforce password expiration

This option specifies whether password expiration policy should be enforced on this login.

Credential

Use the drop-down list to select the [credential](#)^[395] that will be mapped to the new SQL Server login.

Windows authentication Enabled Login is locked out

Windows account

Built-in account on server

User Group

Domain

User or group name

Access denied

Login name

SQL Server authentication

Password Enforce password policy

Confirm Password Enforce password expiration

Credential ▼

Mapped to certificate

Certificate name ▼

Mapped to asymmetric key

Asymmetric key name ▼

Default parameters

Default Database ▼

Default Language ▼

Mapped to certificate

Select this option to specify a certificate-mapped login.

Certificate name

Use the drop-down list to select the [certificate](#)^[329] that will be associated with this login.

Windows authentication Enabled Login is locked out

Windows account

Built-in account on server

User Group

Domain

User or group name

Access denied

Login name

SQL Server authentication

Password Enforce password policy

Confirm Password Enforce password expiration

Credential

Mapped to certificate

Certificate name

Mapped to asymmetric key

Asymmetric key name

Default parameters

Default Database

Default Language

Mapped to asymmetric key

Select this option to specify an asymmetric key-mapped login.

Asymmetric key name

Use the drop-down list to select the [asymmetric key](#) ^[325] that will be associated with this login.

Windows authentication Enabled Login is locked out

Windows account

Built-in account on server

User Group

Domain:

User or group name:

Access denied

Login name:

SQL Server authentication

Password: Enforce password policy

Confirm Password: Enforce password expiration

Credential:

Mapped to certificate

Certificate name:

Mapped to asymmetric key

Asymmetric key name:

Default parameters

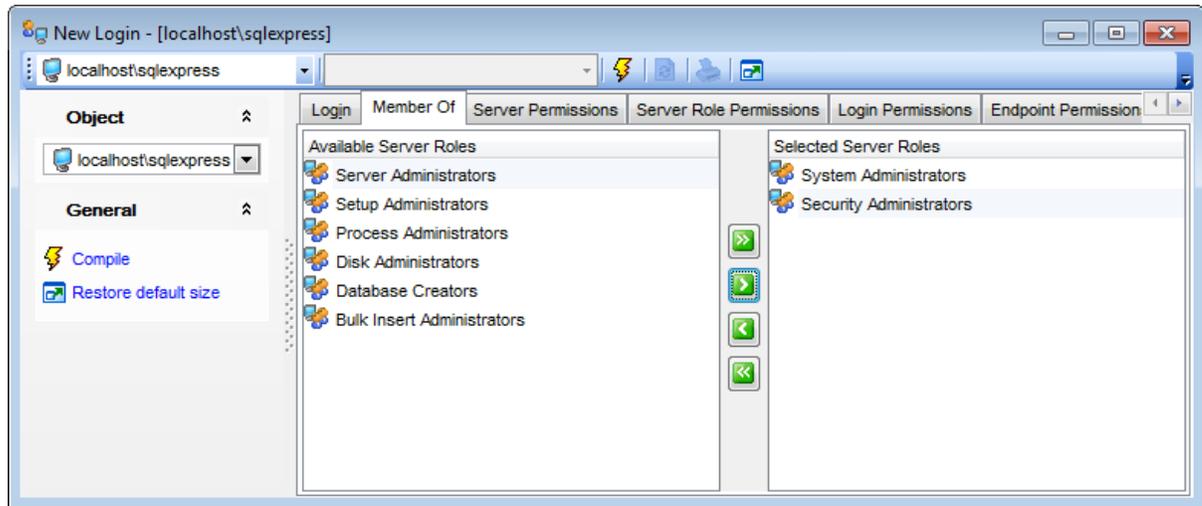
Default Database:

Default Language:

The lower group allows you to set the **Default parameters** pertaining to the login: **Default Database** and **Default Language**. Use the corresponding drop-down lists to select the required values that will be assigned to the login.

5.4.1.2 Allocating members

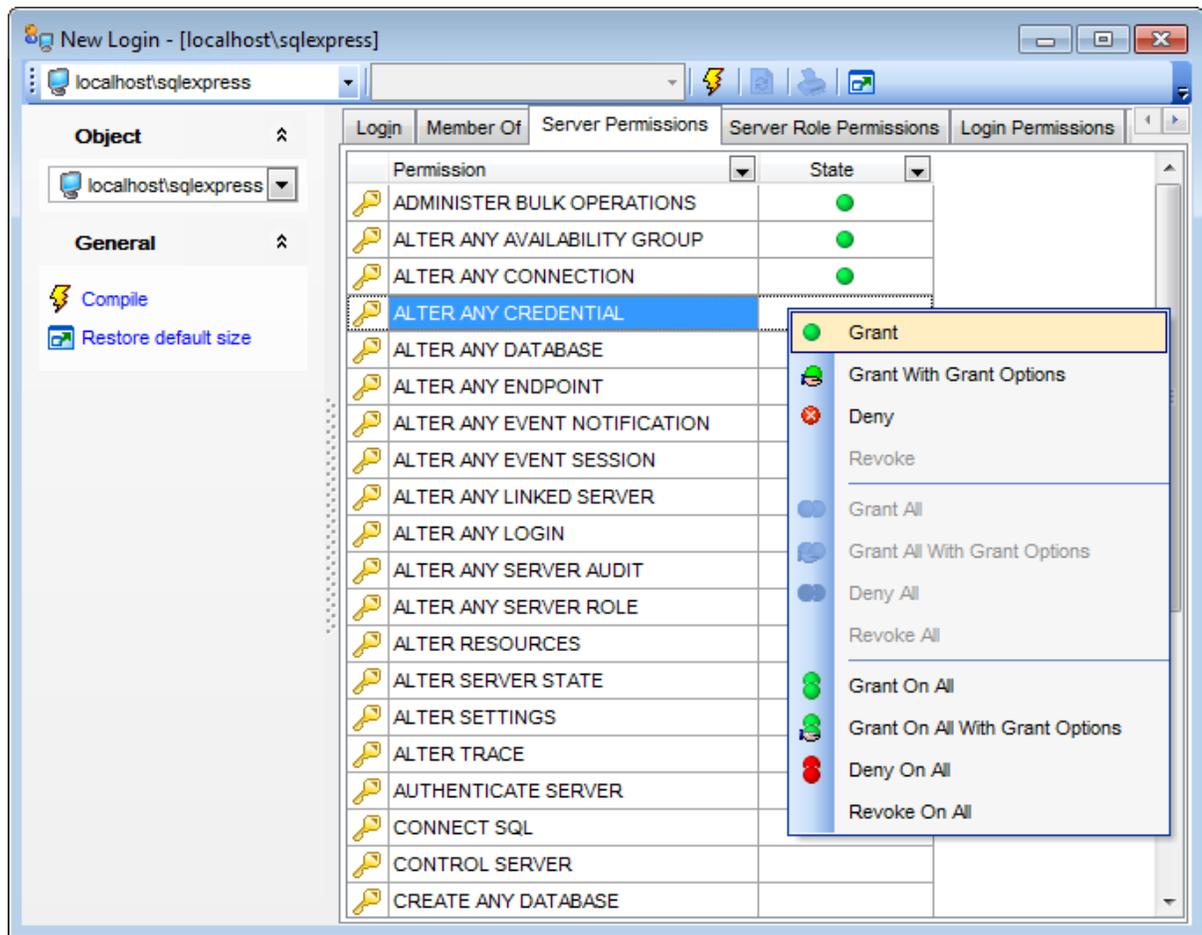
The **Member Of** tab of **Login Editor** allows you to define the login membership, i.e. to select the built-in [server role\(s\)](#)^[693] the login will belong to. The selected server roles determine the tasks that can be performed through the login.



To select a server role, you need to move it from the **Available Server Roles** list to the **Selected Server Roles** list. Use the     buttons or drag-and-drop operations to move the server roles from one list to another.

5.4.1.3 Defining server permissions

This tab allows you to grant **Server permissions** to the login.



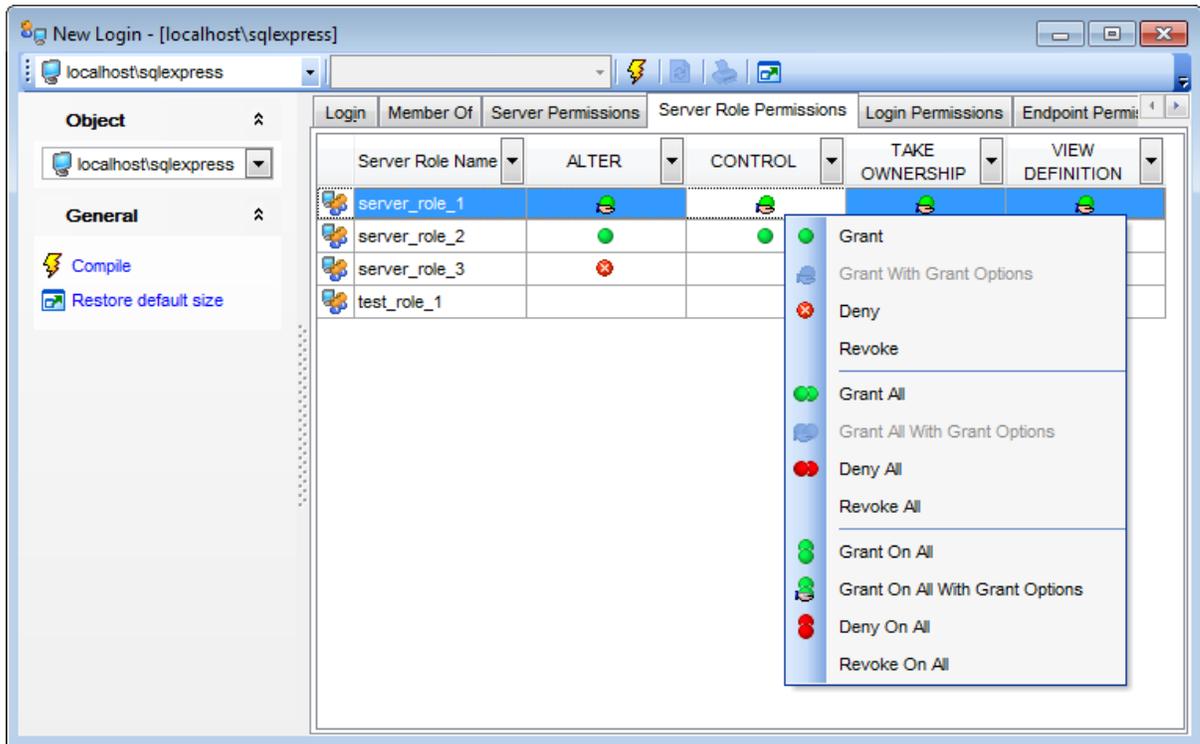
The **Permission** column contains the list of server permissions that can be granted to the login: *CONNECT SQL*, *SHUTDOWN*, *CREATE ANY DATABASE*, *CREATE ENDPOINT*, *ALTER ANY LOGIN*, *ALTER ANY CREDENTIAL*, *ALTER ANY LINKED SERVER*, *ALTER ANY CONNECTION*, etc.

Right-click a cell within the **State** column to grant a permission to the login. The context menu of a cell allows you to:

- grant a permission to the login;
- grant a permission (with Grant Option) to the login;
- deny a permission to the login;
- revoke a previously granted or denied permission;
- grant all permissions to the login;
- grant all permissions (with Grant Option) to the login;
- deny all permissions to the login;
- revoke all previously granted or denied permissions.

5.4.1.4 Defining server role permissions

This tab is available in SQL Server 2012 only. It allows to define **Server role permissions**



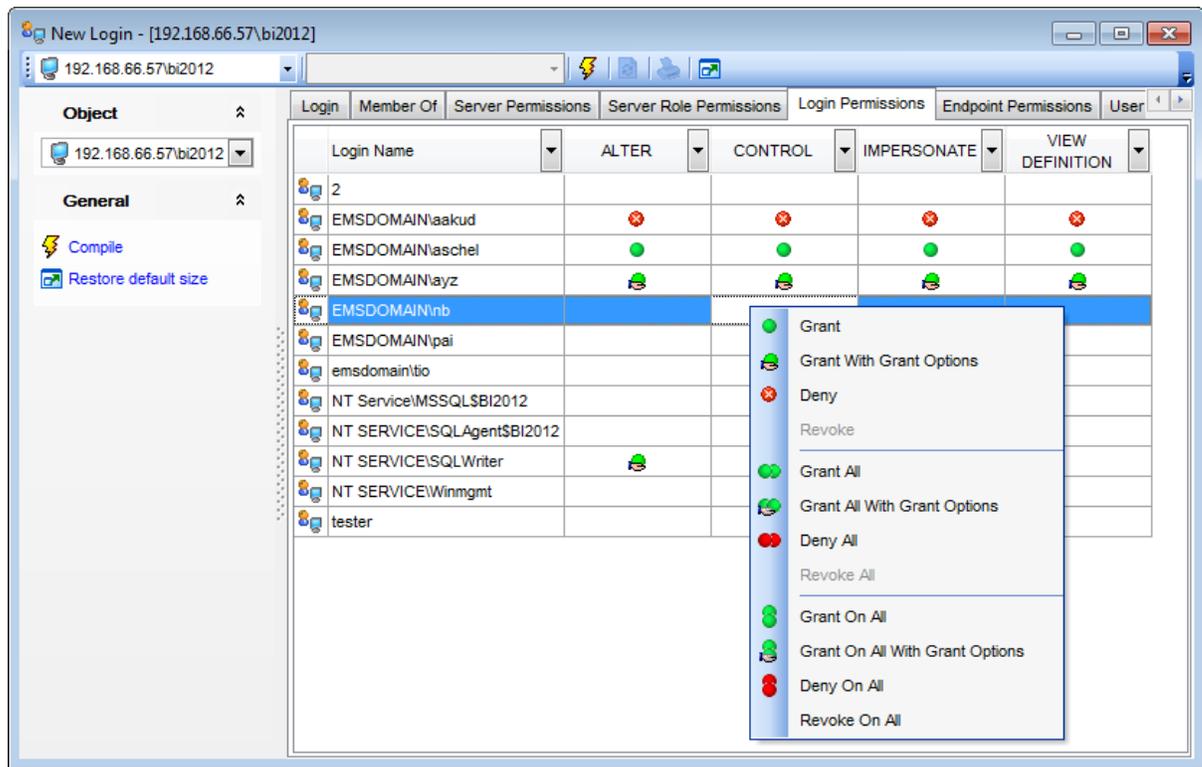
The **Server Role Name** column contains the list of server roles; each subsequent column corresponds to the permission which can be granted on the selected server role: *ALTER*, *CONTROL*, *TAKE OWNERSHIP*, *VIEW DEFINITION*.

Right-click a cell to grant a specific permission on a certain server role. To grant a permission on a server role, you should find the object in the **Server role name** list and the column with the corresponding permission. The context menu of a cell allows you to:

- grant a permission on the server role to the login;
- grant a permission (with Grant Option) on the server role to the login;
- deny a permission on the server role to the login;
- revoke a previously granted or denied permission;
- grant all permissions on the server role to the login;
- grant all permissions (with Grant Option) on the server role to the login;
- deny all permissions on the server role to the login;
- revoke all previously granted or denied permissions;
- grant a permission on all server role to the login;
- grant a permission (with Grant Option) on all server role to the login;
- deny a permission on all server role to the login;
- revoke a previously granted or denied permission on all server role

5.4.1.5 Defining login permissions

This tab allows you to define **Login permissions** to the login.



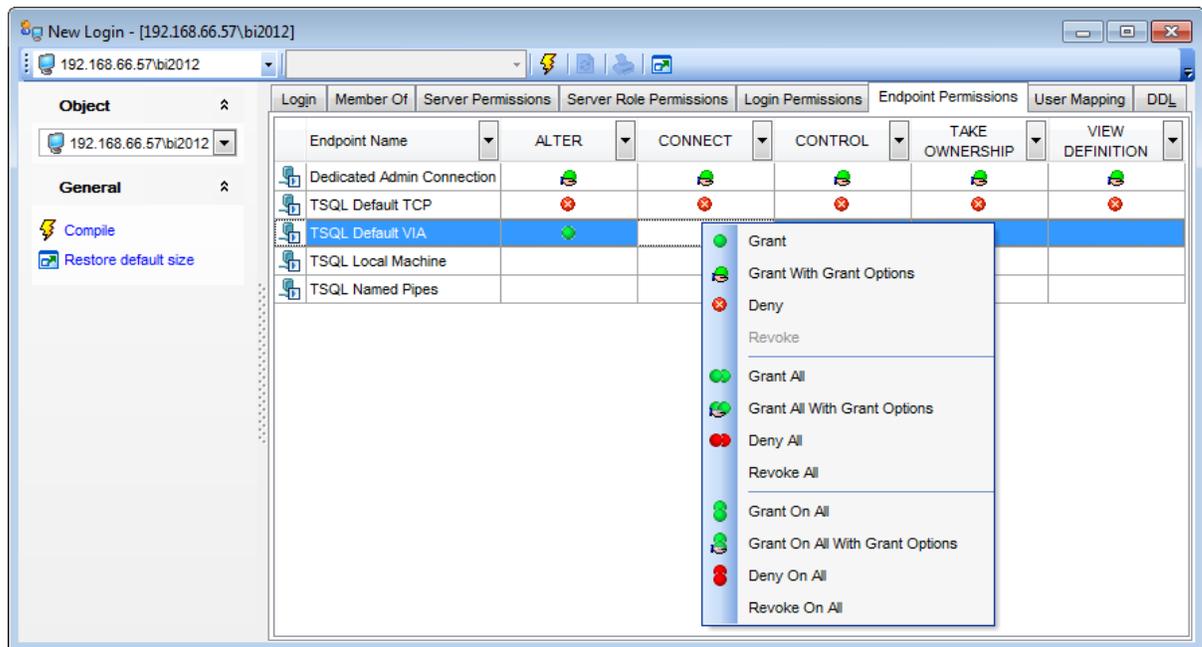
The **Login Name** column contains the list of server logins; each subsequent column corresponds to the permission which can be granted on the selected login: *ALTER*, *CONTROL*, *IMPERSONATE*, *VIEW DEFINITION*.

Right-click a cell to grant a specific permission on a certain login. To grant a permission on a login, you should find the object in the **Login name** list and the column with the corresponding permission. The context menu of a cell allows you to:

- grant a permission to the login;
- grant a permission (with Grant Option) to the login;
- deny a permission to the login;
- revoke a previously granted or denied permission;
- grant all permissions to the login;
- grant all permissions (with Grant Option) to the login;
- deny all permissions to the login;
- revoke all previously granted or denied permissions;
- grant a permission on all logins to the login;
- grant a permission (with Grant Option) on all logins to the login;
- deny a permission on all logins to the login;
- revoke a previously granted or denied permission on all logins

5.4.1.6 Defining endpoint permissions

This tab allows you to grant **Endpoint permissions** to the login.



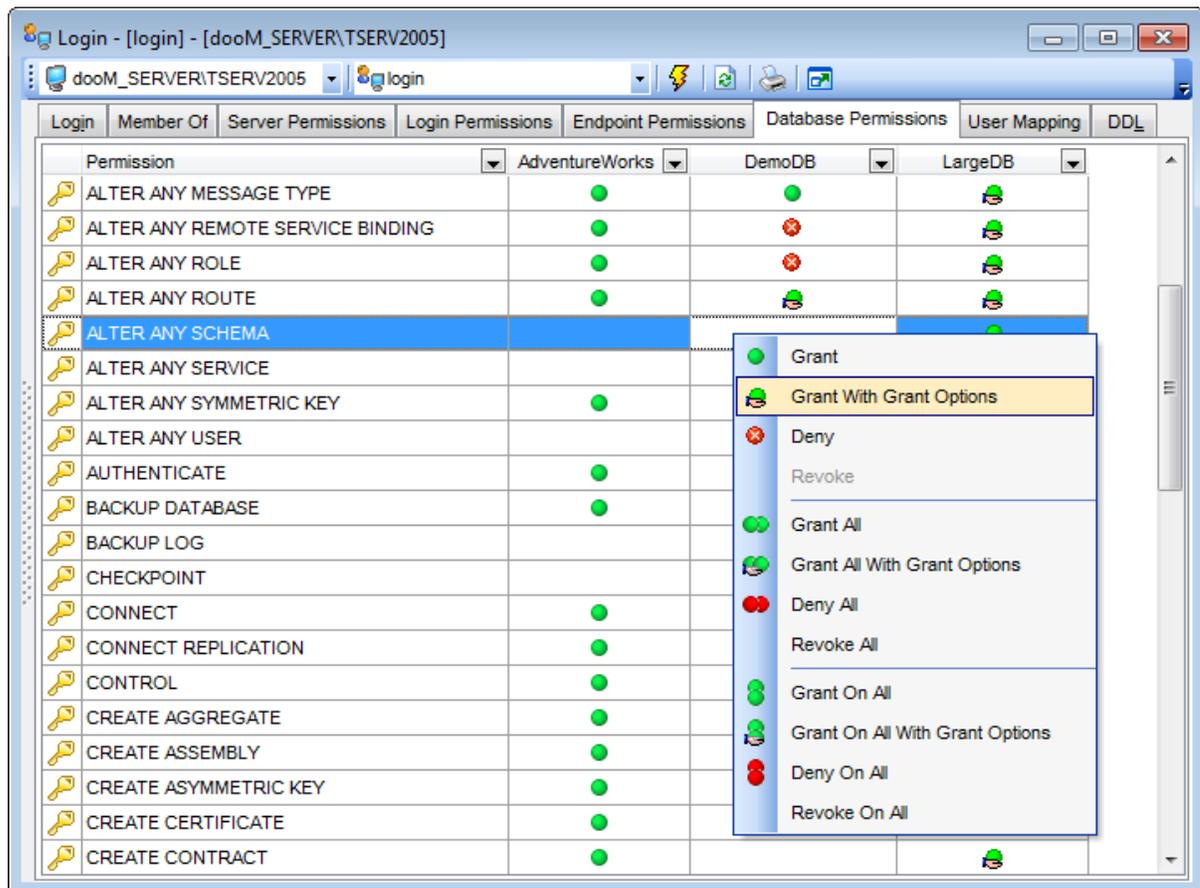
The **Endpoint Name** column contains the list of server [endpoints](#)^[402]; each subsequent column corresponds to the permission which can be granted on the selected endpoint: *ALTER*, *CONNECT*, *VIEW DEFINITION*, *TAKE OWNERSHIP*, *CONTROL*.

Right-click a cell to grant a specific permission on a certain endpoint. To grant a permission on an endpoint, you should find the object in the **Endpoint name** list and the column with the corresponding permission. The context menu of a cell allows you to:

- grant a permission on the endpoint to the login;
- grant a permission (with Grant Option) on the endpoint to the login;
- deny a permission on the endpoint to the login;
- revoke a previously granted or denied permission;
- grant all permissions on the endpoint to the login;
- grant all permissions (with Grant Option) on the endpoint to the login;
- deny all permissions on the endpoint to the login;
- revoke all previously granted or denied permissions;
- grant a permission on all endpoints to the login;
- grant a permission (with Grant Option) on all endpoints to the login;
- deny a permission on all endpoints to the login;
- revoke a previously granted or denied permission on all endpoints

5.4.1.7 Defining database permissions

This tab allows you to grant **Database permissions** to the user. This tab is only available on [editing](#)^[680] an existing server login.



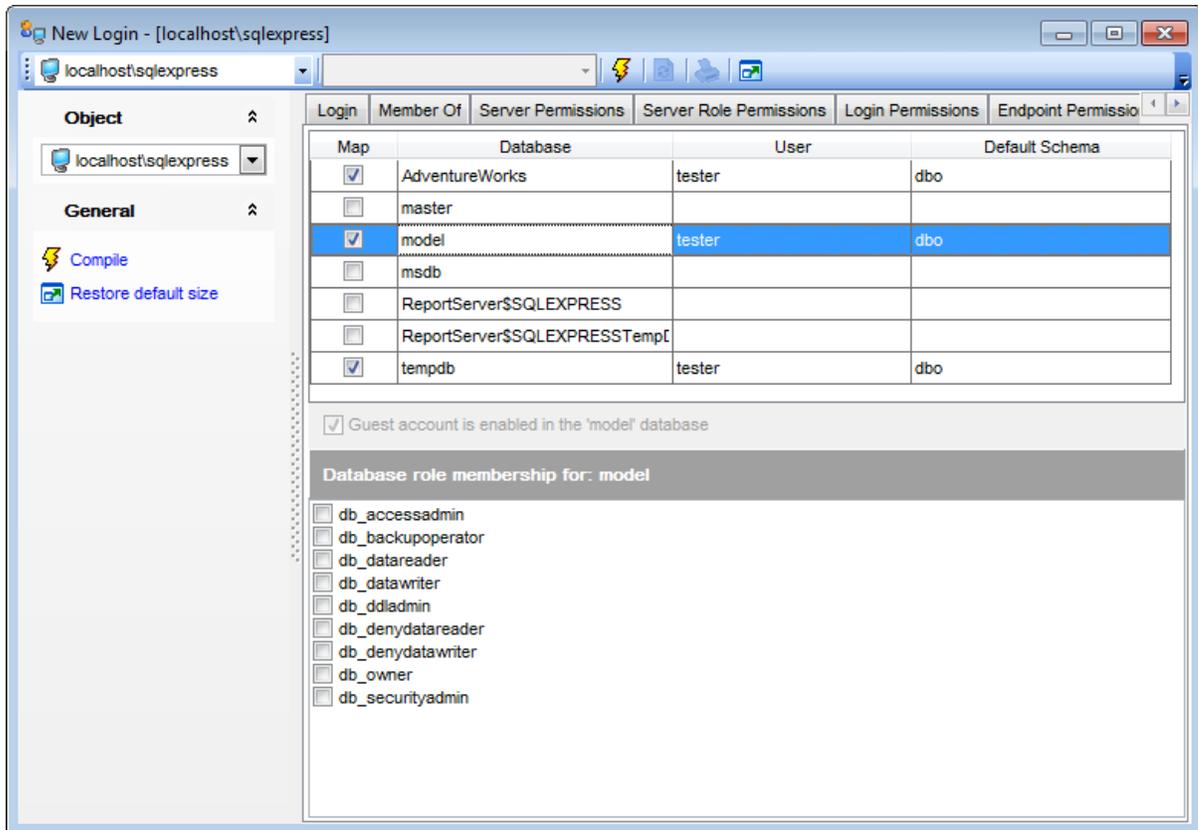
The **Permission** column contains the list of database permissions that can be granted to the login: *CREATE ANY VIEW*, *CREATE PROCEDURE*, *CREATE FUNCTION*, *CREATE RULE*, *CREATE DEFAULT*, *BACKUP DATABASE*, etc.; each subsequent column corresponds to a database that resides on the selected server.

Right-click a cell to grant a specific permission on a certain database that has a user [mapped](#)^[366] to the login. To grant a permission on a database, you should find the permission in the **Permission** list and the column with the corresponding database. The context menu of a cell allows you to:

- grant a permission on the database to the login;
- grant a permission (with Grant Option) on the database to the login;
- deny a permission on the database to the login;
- revoke a previously granted or denied permission;
- grant all permissions on the database to the login;
- grant all permissions (with Grant Option) on the database to the login;
- deny all permissions on the database to the login;
- revoke all previously granted or denied permissions;
- grant a permission on all databases to the login;
- grant a permission (with Grant Option) on all databases to the login;
- deny a permission on all databases to the login;
- revoke a previously granted or denied permission on all databases

5.4.1.8 User mapping

The **User Mapping** tab allows you to browse the list of databases available on the specified server, and to map their [users](#)^[295] to the login.



Set the **Map** flag next to a database name, and specify the **User** and the **Default Schema** of the database using the corresponding drop-down lists.

If necessary, use the **Database role membership for** area at the bottom to define [database role\(s\)](#)^[301] for each mapped user.

5.4.2 Backup Devices

A **Backup device** is a tape drive or a disk drive used in [backup](#)^[718] and [restore](#)^[732] operations. When creating a backup, you must [select a backup device](#)^[721] where the data will be written. Microsoft SQL Server 2005 (and higher) can back up databases, transaction logs, and files to disk and tape devices.

Creating Backup Devices

To create a new backup device:

- right-click the **Backup Devices** node (within the **Server Objects** branch) or any object within this node in the [DB Explorer](#)^[63] tree and select the **New Backup Device** item from the [context menu](#)^[56];
- define backup device properties using the appropriate boxes of the [New Logical](#)

[Backup Device](#)^[367] dialog

or

- select the **Database | New Object...** [main menu](#)^[915] item;
- select **Backup Device** in the [Create New Object](#)^[180] dialog;
- define backup device properties using the [New Logical Backup Device](#)^[367] dialog.

Hint: To create a new backup device, you can also select the **Services | Backup Devices** [main menu](#)^[915] item to open the **Backup devices manager** and select the **Add Device...** item from the context menu or on the Navigation bar.

To create a new backup device with the same properties as one of existing backup devices has:

- select the **Database | Duplicate Object...** menu item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click a backup device in the [DB Explorer](#)^[63] tree and select the **Duplicate Backup Device <backup_device_name>...** context menu item.

[Duplicate Object Wizard](#)^[182] allows you to select the server to create a new backup device and to edit the result SQL statement for creating the backup device.

To create, rename and drop backup devices, you can also use the **context menu** and the **Navigation bar** of [Backup devices manager](#)^[743].

See also:

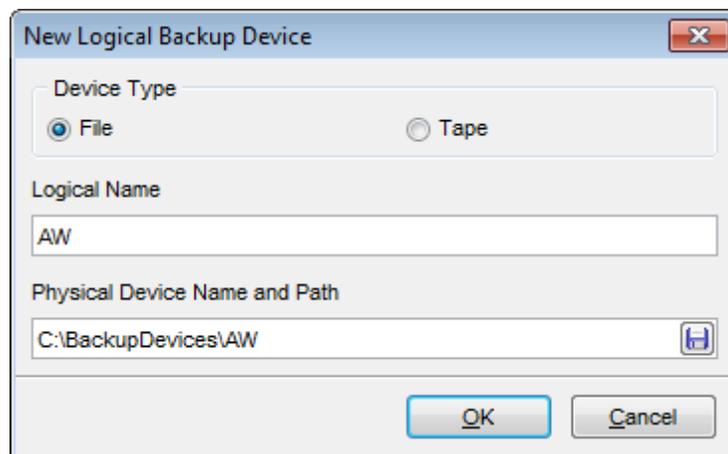
[Backup Database](#)^[718]

[Backup Devices](#)^[743]

5.4.2.1 New backup device

The **New Logical Backup Device** dialog opens automatically when you create a new backup device and allows you to define the new backup device parameters.

To call the dialog, you can right-click the **Backup Devices** node or any object within this node in the [DB Explorer](#)^[63] tree and use the *Ctrl+N* [shortcut](#)^[952].



Device Type

Select the logical backup device type: *File*, *Pipe* (for SQL Server versions earlier than 2005), or *Tape*.

Disk backup devices are files on hard disks or other disk storage media are the same as regular operating system files.

Tape backup devices are used in the same way as disk devices, but the tape device must be connected physically to the computer running an instance of SQL Server, and if a tape backup device is filled during the backup operation, but more data still needs to be written, SQL Server prompts for a new tape and continues the backup operation.

Logical Name

Enter a name for the new backup device.

Physical Device Name and Path

Define the physical location of the device.

If **Device Type** is set to *File*, enter the path and the full name of the file.

If **Device Type** is set to *Tape*, enter the physical name of the device.

5.4.3 Jobs

A **job** is a specified set of operations performed sequentially by SQL Server Agent. A job can perform a wide range of activities, including running Transact-SQL scripts, command-line applications, Microsoft ActiveX scripts, Integration Services packages, Analysis Services commands and queries, or Replication tasks. Jobs can run repetitive or [scheduled](#) ^[794] tasks, and they can automatically notify [operators](#) ^[791] of job status by generating [alerts](#) ^[788].

Before using SQL Server jobs, make sure that the **SQL Server Agent** service is running.

Job Editor allows you to define job properties. It opens automatically when you create a new job and is available on editing an existing one.

To open a job in **Job Editor**, double-click it in the [DB Explorer](#) ^[631] tree or in the [Jobs manager](#) ^[784]. Alternatively, you can right-click the job alias and select the **Edit Job** context menu item.

- [Setting job properties](#) ^[369]
- [Managing job steps](#) ^[370]
- [Managing job schedules](#) ^[373]
- [Managing notifications](#) ^[374]
- [Managing target servers](#) ^[376]
- [Viewing DDL definition](#) ^[919]

To create, edit, rename and drop jobs, you can also use the **context menu** and the **Navigation bar** of [Jobs manager](#) ^[784].

See also:

[Jobs manager](#)^[784]

[Schedules](#)^[376]

[Alerts](#)^[380]

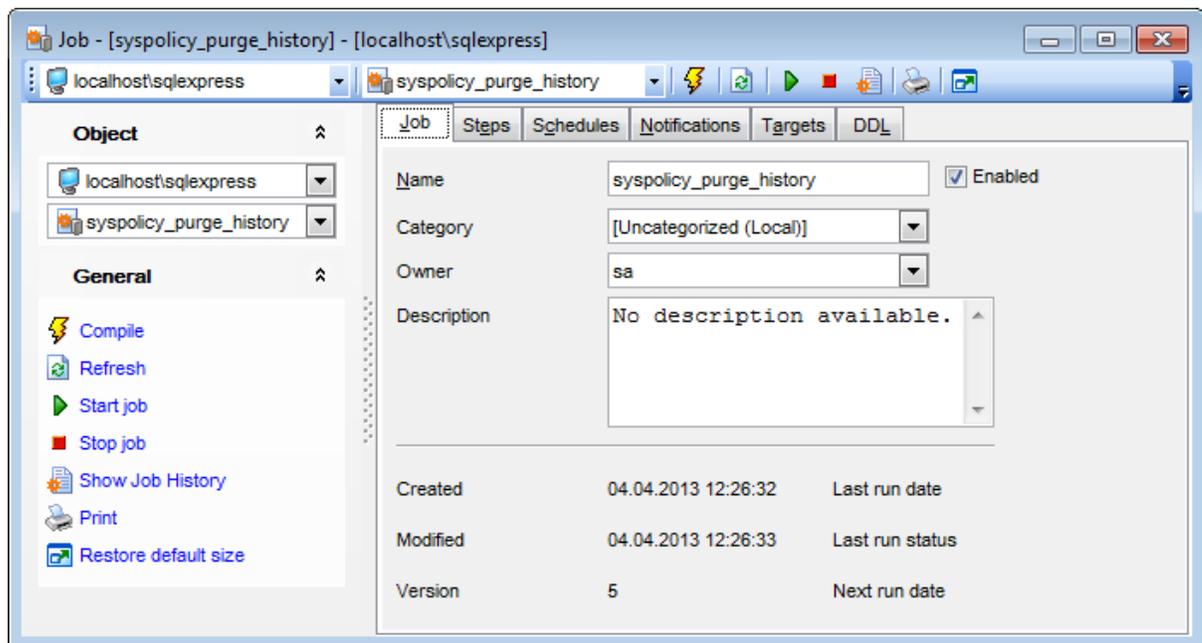
[Operators](#)^[386]

5.4.3.1 Setting job properties

Use the **Job** tab of the **Job Editor** to configure/view job properties. If necessary, you can use items of the **Navigation bar** to manage the currently opened job (see [Jobs manager](#)^[784]).

Name

Enter a name for the new job, or modify the name of the job being edited. Enable/disable the job using the **Enabled** option.



Category

Use the drop-down list to select the job category.

Job categories help you organize your jobs for easy filtering and grouping. For example, you can organize all your database backup jobs in the *Database Maintenance* category.

Owner

Use the drop-down list to select the job owner.

Note: To create a job, a user must be a member of one of the SQL Server Agent fixed database roles or the sysadmin fixed server role. A job can be edited only by its owner or members of the sysadmin role.

Description

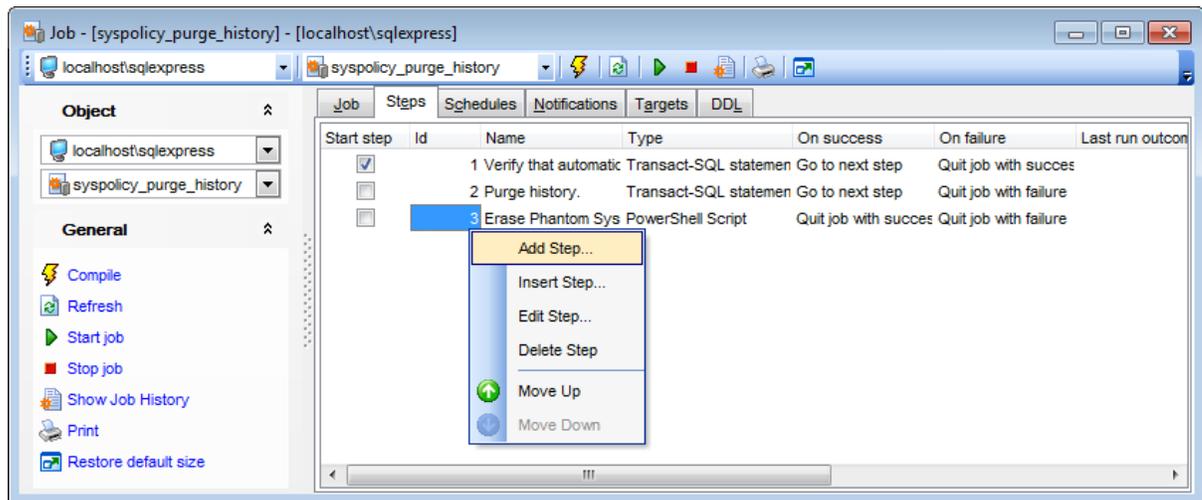
In this memo field you can supply an optional description for the job.

The lower area displays the following job events and properties:

Created
 Modified
 Version
 Last run date
 Last run status
 Next run date

5.4.3.2 Managing job steps

Use the **Steps** tab of **Job Editor** to manage job steps (operations). A **job step** is an action that the job takes on a database or a server. Every job must have at least one job step.

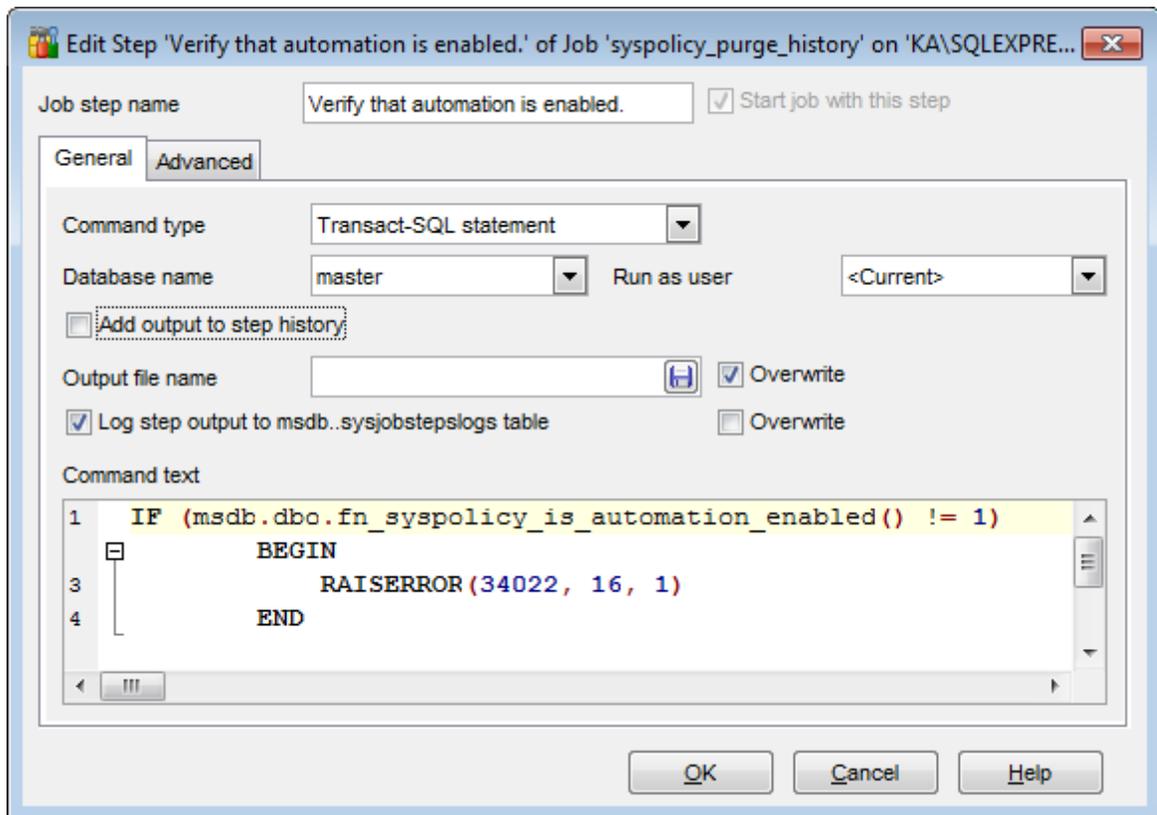


The current job steps are displayed as a grid with the following columns: *Start step*, *ID*, *Name*, *Type*, *On success*, *On failure*, *Last run outcome*, *Last run date*, *Command*.

Right-click an item within the list to call the **context menu** allowing you to *create* a new job step and specify its properties using the **Edit Step** dialog, *insert* a step, *edit* or *delete* the selected step.

The **Add New Job Step / Edit Step** dialog allows you to define job step parameters.

The **General** tab allows you to define basic parameters of the step.



Job step name

Enter a name for the new step, or modify the name of the step being edited. If necessary, you can specify to **Start job with this step**. Note that a job can have only one start step.

Specify the **Command Type** of the step indicating the subsystem used by Microsoft SQL Server Agent service to execute the job command:

- ✓ *Transact-SQL statement*
- ✓ *Active Script*
- ✓ *Operating-system command or executable program*
- ✓ *Replication Distribution Agent job*
- ✓ *Replication Snapshot Agent job*
- ✓ *Replication Log Reader Agent job*
- ✓ *Replication Merge Agent job*
- ✓ *Replication Queue Reader Agent job*
- ✓ *Analysis Services query (MDX, DMX)*
- ✓ *Analysis Services command (XMLA)*
- ✓ *Integration Services package execution*
- ✓ *PowerShell Script*

Use the **Database name** drop-down list to select the database for which the current step will be executed (for *Transact-SQL* command type step; for an *ActiveX* job step, you are to specify the name of the scripting language that the step uses), and specify the security context under which the command is executed using the **Run as user** drop-down

list.

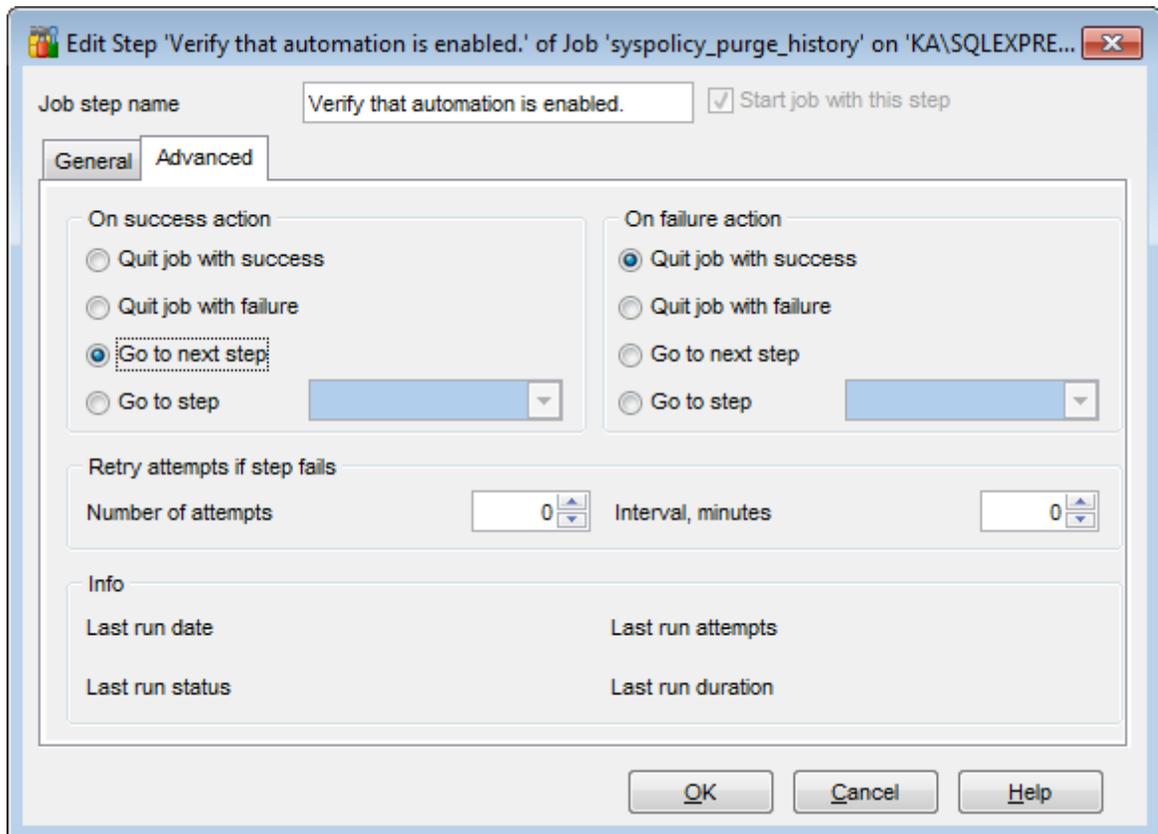
SQL Server Agent can write output from some job steps either to the *sysjobsteplogs* table in the *msdb* database or to an operating system file.

To use this feature, check the **Add output to step history** option and set the path and the file name in the **Output file name** field, and/or check **Log step output to msdb..sysjobsteplogs table**.

You can select the **Overwrite** option to specify that the existing destination log file / table will be overwritten.

Use the **Command text** memo field to enter the job step command code: *SQL code* (for **Transact-SQL** step), *Visual Basic Script / Java Script / other script code* (for **Active Script** step), or *OS command / executable program* (for **Operating-system command** step).

The **Advanced** tab provides flexible job step control of flow for success and failure.



Specify the **On success action**, i.e. the action the job will take if the step succeeds:

- Quit job with success*
- Quit job with failure*
- Go to next step*
- Go to step ...* (select the step from the drop-down list)

Specify the **On failure action**, i.e. the action the job will take if the step fails:

- Quit job with success
- Quit job with failure
- Go to next step
- Go to step ... (select the step from the drop-down list)

The **Retry attempts if step fails** group allows you to set optional parameters for the job step: the *Number of attempts* and the *Interval* between attempts (in minutes).

The **Info** group contains common information about the job step:

Last run date

Last run status

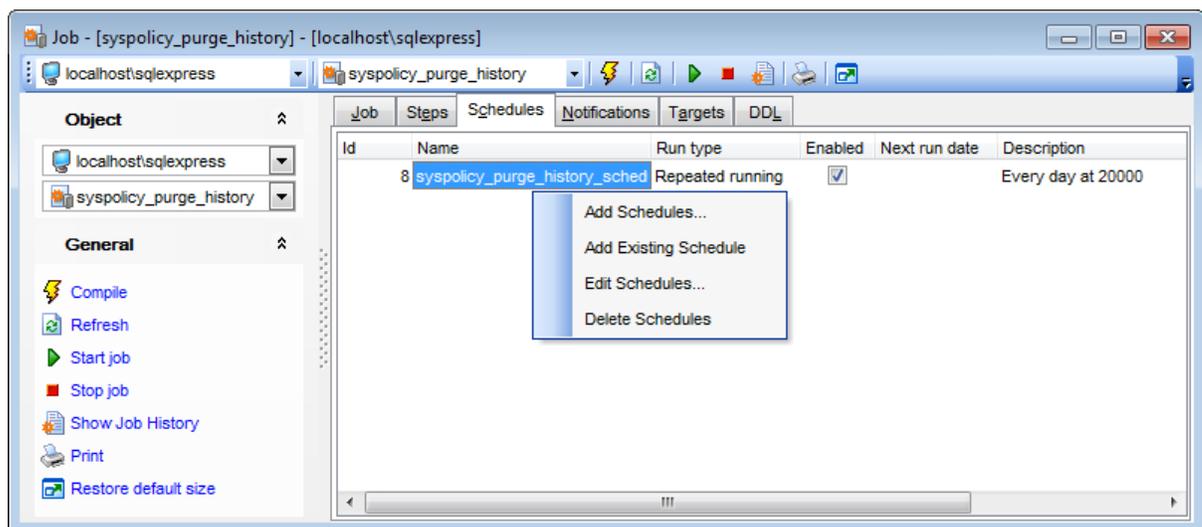
Last run attempts

Last run duration

5.4.3.3 Managing job schedules

The **Schedules** tab allows you to manage [schedules](#) assigned to the job.

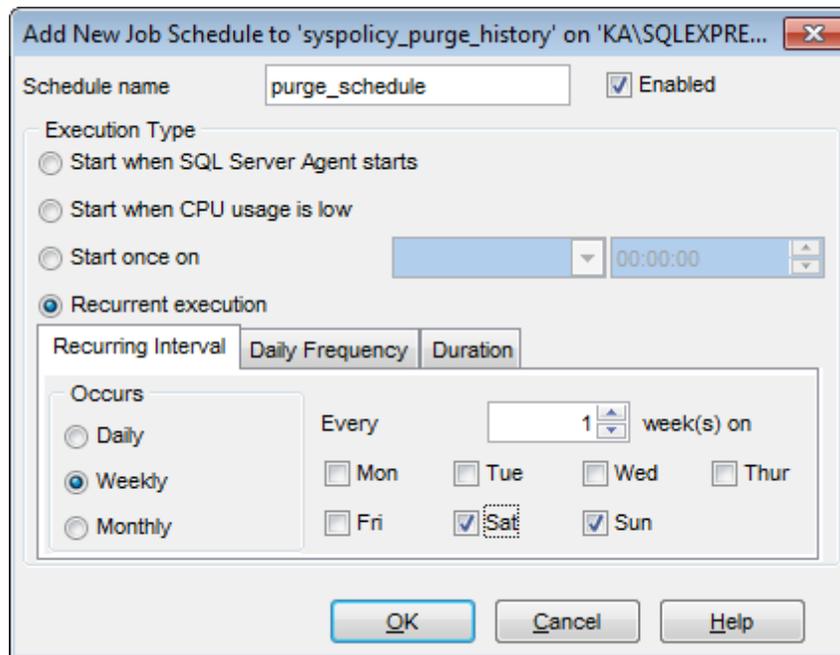
Scheduling administrative jobs consists in defining the condition(s) that cause the job to begin running. It is possible to schedule any type of job. More than one job can use the same job schedule.



The current job schedules are displayed as a grid with the following columns: *ID*, *Name*, *Run type*, *Enabled*, *Next Run Date*, *Description*.

Right-click an item within the list to call the **context menu** allowing you to *create* a new job schedule and specify its properties using the **Add New Job Schedule** dialog, *add an existing schedule*, *edit* or *delete* the selected schedule.

The **Add New Job Schedule / Edit Schedule** dialog allows you to define schedule parameters.



Schedule name

Enter a name for the new schedule, or modify the name of the schedule being edited. Enable/disable the schedule using the **Enabled** option.

Specify the **Execution Type** of the schedule indicating when the job is to be executed:

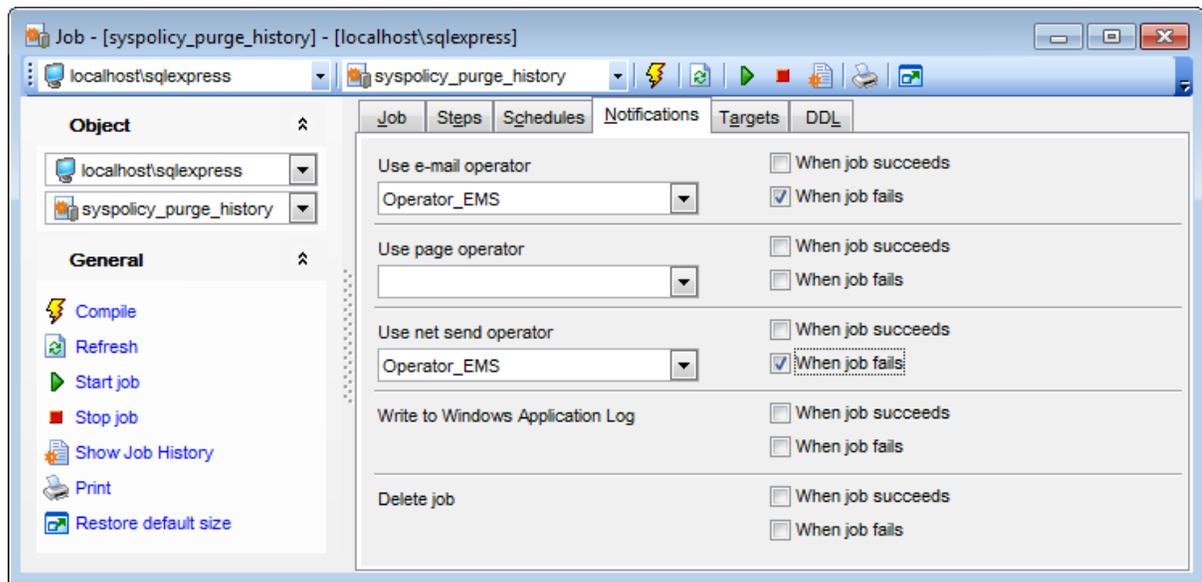
- Start when SQL Server Agent starts*
- Start when CPU usage is low*
- Start once on...*
- Recurrent execution*

If the **Recurrent execution** type is selected, you should also set the **Recurring Interval**, **Daily Frequency** and **Duration** properties of the current job schedule.

For details see [Schedule Editor](#)^[794].

5.4.3.4 Managing notifications

The **Notifications** tab allows you to specify actions that the SQL Server Agent service will take after the job completes (succeeds or fails). Job responses ensure that database administrators know when jobs complete and how frequently they run.



Use e-mail operator

Use the drop-down list to select the [operator](#) that will be notified via *e-mail*, and specify the job status for the notification to be performed:

- When job succeeds* and/or
- When job fails*

Use page operator

Use the drop-down list to select the [operator](#) that will be notified using *electronic paging*, and specify the job status for the notification to be performed:

- When job succeeds* and/or
- When job fails*

Use net send operator

Use the drop-down list to select the [operator](#) that will be notified using a *net send* message, and specify the job status for the notification to be performed:

- When job succeeds* and/or
- When job fails*

Write to Windows Application Log

If necessary, specify the job status for writing to Microsoft Windows Application Log:

- When job succeeds* and/or
- When job fails*

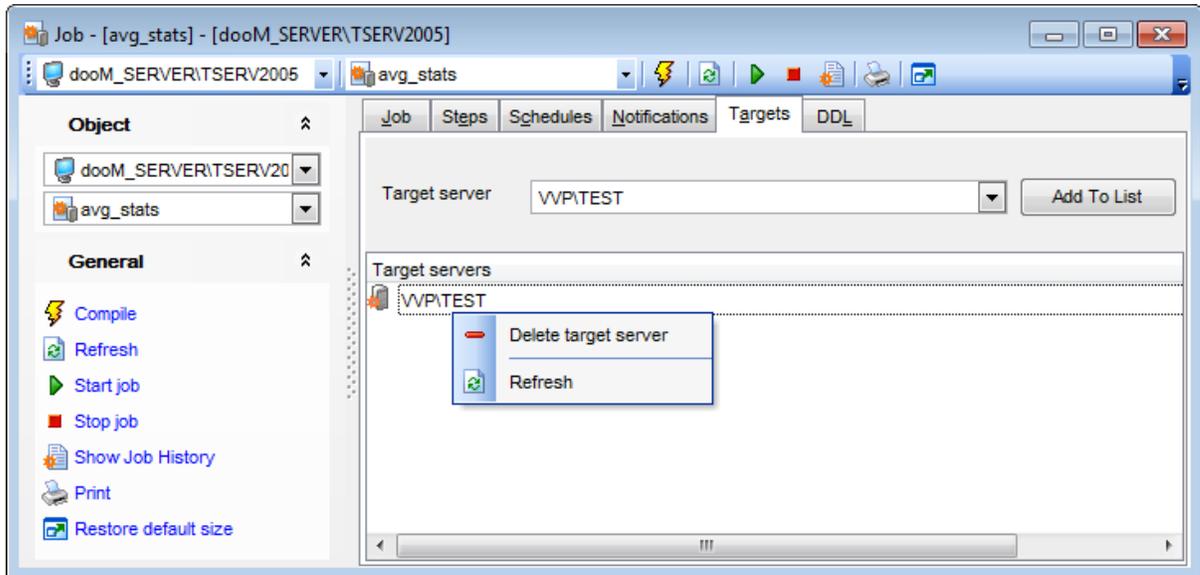
Delete job

If you are certain that you do not need to rerun this job later, you can specify the job status deleting the job:

- When job succeeds* and/or
- When job fails*

5.4.3.5 Managing target servers

The **Targets** tab allows you to target the job at the specified [target server](#)^[801].



Target server

Use the drop-down list to select the [target server](#)^[801] and press the **Add To List** button to add the selected server to the list of target servers available for the multiserver job operation.

Right-click an item within the **Target servers** area to call the **context menu** allowing you to delete the selected target server or refresh the list.

5.4.4 Schedules

Shared schedules are multipurpose items that contain ready-to-use schedule information. You can create a shared schedule once, and then reference it in a subscription or property page when you need to specify schedule information.

Before using SQL Server schedules, make sure that the **SQL Server Agent** service is running.

Schedule Editor allows you to define schedule properties. It opens automatically when you create a new schedule and is available on editing an existing one.

To open a schedule in **Schedule Editor**, double-click it in the [DB Explorer](#)^[63] tree or in the [Shared schedules manager](#)^[798]. Alternatively, you can right-click the schedule alias and select the **Edit Schedule** context menu item.

- [Using Navigation bar and Toolbar](#)^[377]
- [Setting schedule properties](#)^[378]
- [Viewing scheduled jobs](#)^[379]
- [Viewing DDL definition](#)^[919]

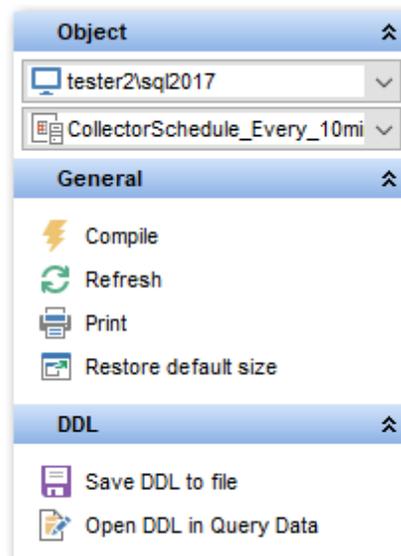
To create, edit and drop schedules, you can also use the **context menu** and the **Navigation bar** of [Shared schedules manager](#)^[796].

See also:

[Shared schedules manager](#)^[796]

5.4.4.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Schedule Editor**.



The **Navigation bar** of **Schedule Editor** allows you to:

Object

- select a server instance
- select a schedule for editing

General

- [compile](#)^[923] the schedule (if it is being created/modified)
- refresh the content of the active tab
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the schedule:

DDL

-  save [DDL](#) to an external *.sql file
-  open [DDL](#) in [Query Data](#)

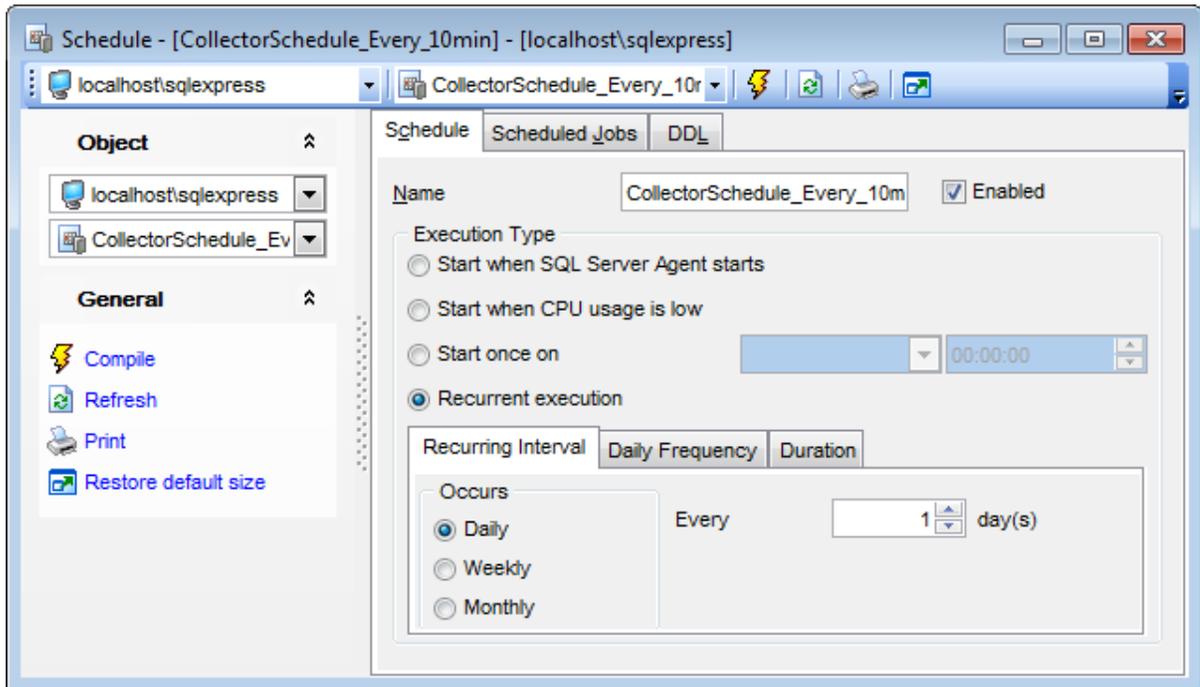
Items of the **Navigation bar** are also available on the **ToolBar** of **Schedule Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.4.4.2 Setting schedule properties

Use the **Schedule** tab of **Schedule Editor** to configure/view schedule properties.

Name

Enter a name for the new schedule, or modify the name of the schedule being edited. Enable/disable the schedule using the **Enabled** option.



Specify the **Execution Type** of the schedule indicating when the scheduled [job](#) is to be executed:

- Start when SQL Server Agent starts*
- Start when CPU usage is low*
- Start once on...* (set the date using the **date editor** which is activated when you click the Arrow-Down element of the combo-box; specify the time value using the spinner control)
- Recurrent execution*

If the **Recurrent execution** type is selected, you should also set the **Recurring Interval**, **Daily Frequency** and **Duration** properties of the current schedule.

The **Recurring Interval** tab allows you to specify the **daily/weekly/monthly** recurrence rule, define the **Every ... days/weeks** value, and select the **days of the week/month** that can be set for the schedule.

The **Daily Frequency** tab allows you to select whether the scheduled job will be run **once at ...** or **every ... hours/minutes from ... to ...** (specify the day/time values using the drop-down menu and spinner controls).

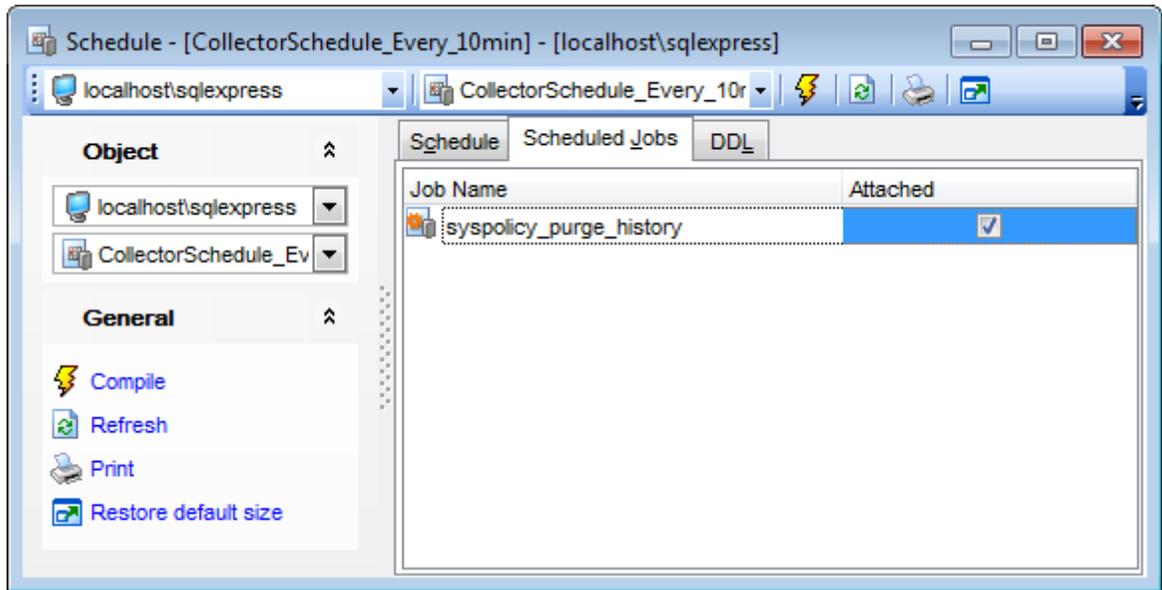
The **Duration** tab allows you to set the **Start date** and the **End date** threshold values for the interval using the **date editor** which is activated when you click the Arrow-Down element of the combo-box.

Unlimited

Check this option if you are uncertain when the scheduled job should be finished, or if no limitations on the job duration are required.

5.4.4.3 Viewing scheduled jobs

The **Scheduled Jobs** tab allows you to browse the list of [jobs](#)⁷⁸² that use the schedule, and to attach/detach them to/from the schedule.



Specify the **Attached** attribute for the jobs that should be attached to the schedule. Set the corresponding flag next to the job name.

5.4.5 Alerts

An **alert** is as an automated response to one or more events. You can define an alert to specify how SQL Server Agent should respond to their occurrence. An alert can respond to an event by notifying an administrator or running a [job](#)^[782], or both. An alert can also forward an event to the Microsoft Windows application log on a different computer. By defining alerts, database administrators can monitor and manage SQL Server more effectively.

Before using SQL Server operators, make sure that the **SQL Server Agent** service is running.

Alert Editor allows you to define alert properties. It opens automatically when you create a new alert and is available on editing an existing one.

To open an alert in **Alert Editor**, double-click it in the [DB Explorer](#)^[63] tree or in the [Alerts manager](#)^[790]. Alternatively, you can right-click the alert alias and select the **Edit Alert** context menu item.

- [Using Navigation bar and Toolbar](#)^[381]
- [Setting alert properties](#)^[382]
- [Setting additional properties](#)^[385]
- [Managing notifications](#)^[386]
- [Viewing DDL definition](#)^[919]

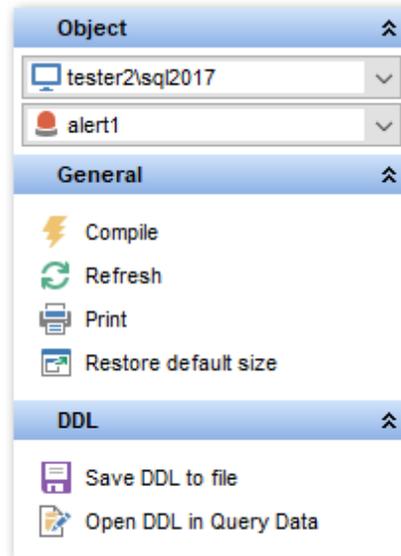
To create, edit, rename and drop alerts, you can also use the **context menu** and the **Navigation bar** of [Alerts manager](#)^[790].

See also:

[Alerts manager](#)^[790]

5.4.5.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Alert Editor**.



The **Navigation bar** of **Alert Editor** allows you to:

Object

- select a server instance
- select an alert for editing

General

- [compile](#)^[923] the alert (if it is being created/modified)
- refresh the content of the active tab
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the alert:

DDL

- save [DDL](#)^[919] to an external *.sql file
- open [DDL](#)^[919] in [Query Data](#)^[426]

Items of the **Navigation bar** are also available on the **ToolBar** of **Alert Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.4.5.2 Setting alert properties

Use the **Alert** tab of **Alert Editor** to configure/view alert properties.

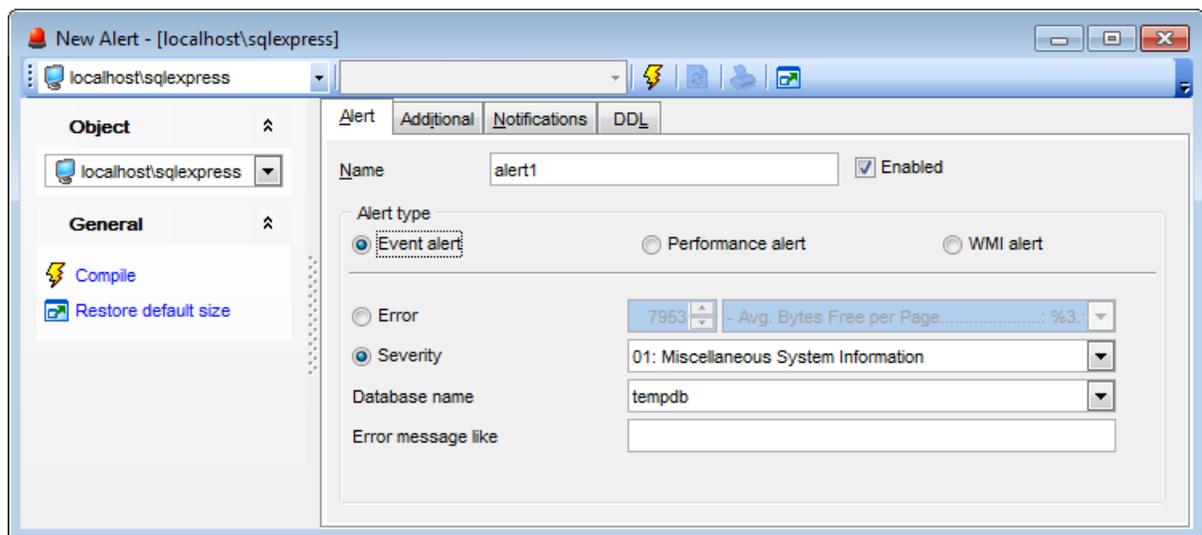
Name

Enter a name for the new alert, or modify the name of the alert being edited. Enable/disable the alert using the **Enabled** option.

An alert responds to an event of a specific type: *server event*, *server performance condition* or *WMI event*.

Event alert

Specify properties for the alert that responds to a *server event*.



Use the following parameters to specify the events that will trigger the alert:

Error

Select this option to specify that SQL Server Agent will fire the alert when a specific error occurs. Use the spinner control to specify the *Error ID* and the drop-down list to select the *Error message*.

Severity

Select this option to specify that SQL Server Agent will fire the alert when any error of the specific severity occurs. Use the drop-down list to select the *Severity level*: 01-25. For example, you can specify a severity level of 15 to respond to syntax errors in Transact-SQL statements.

Database name

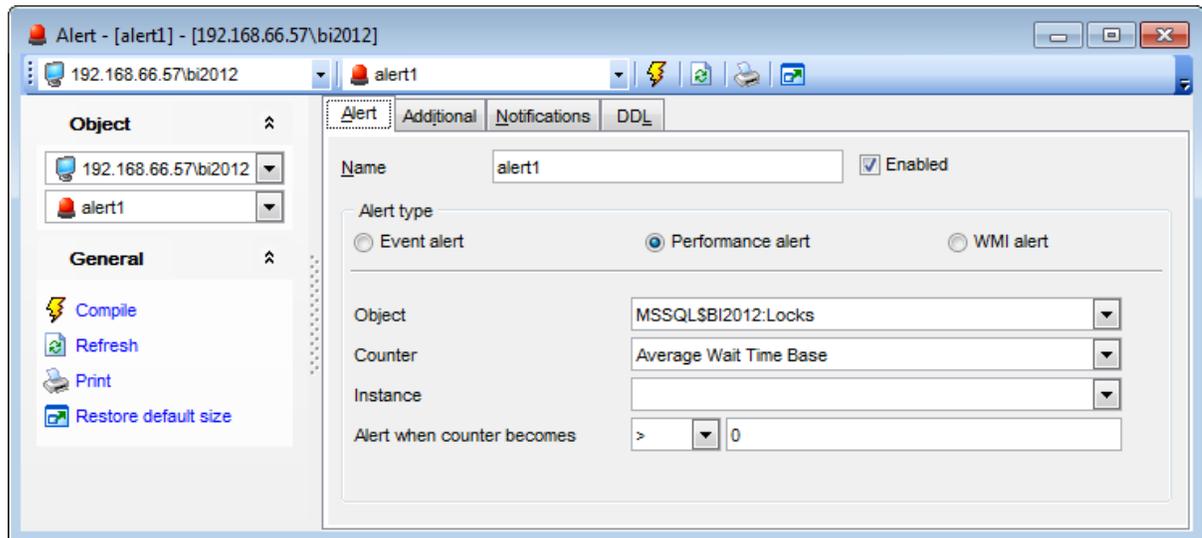
SQL Server Agent fires an alert only when the event occurs in a particular database. Select a database from the list of databases that reside on the specified SQL Server instance (see [Using Navigation bar](#)³⁸⁷).

Error messages like

SQL Server Agent fires an alert when the specified event contains a particular text string in the event message.

Performance alert

Specify properties for the alert that responds to a *server performance condition*.



Use the following parameters to specify the server performance conditions that will trigger the alert:

Object

Use the drop-down list to select the area of performance to be monitored.

Counter

Use the drop-down list to select the attribute of the area to be monitored.

Instance

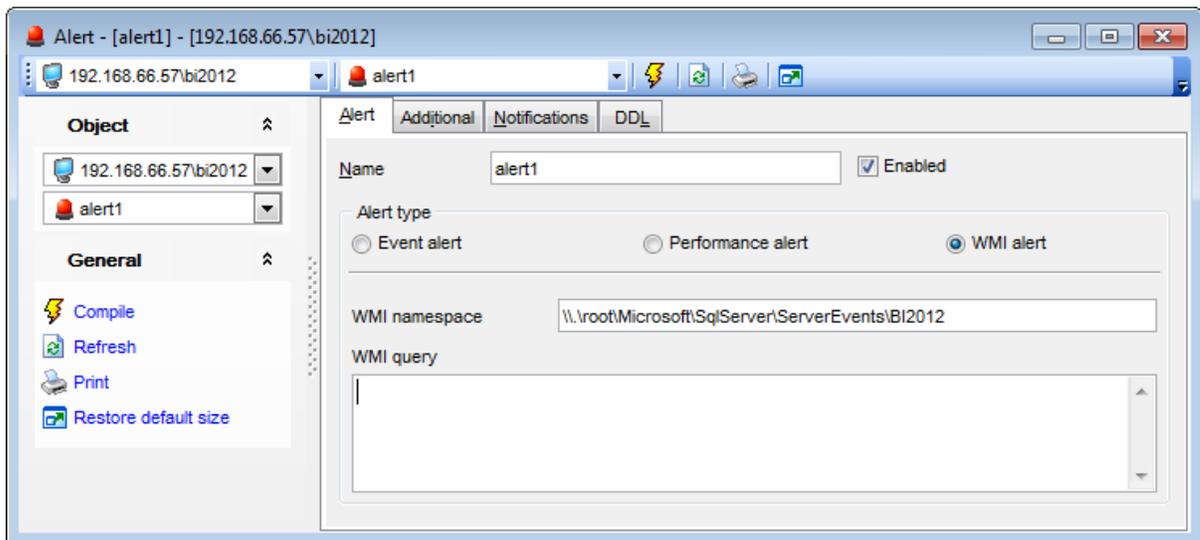
Use the drop-down list to define the specific instance (if any) of the attribute to be monitored.

Alert when counter becomes / Value

Using these boxes you should specify the threshold for the alert and the behavior that produces the alert. Use the drop-down list to select the behavior value: < (falls below), = (becomes equal to), > (rises above). Use the **Value** edit-box to specify the threshold number that describes the performance condition counter.

WMI alert

Specify properties for the alert that responds to a *WMI event*.



WMI is an acronym for *Windows Management Instrumentation*. WMI is the Microsoft's implementation of Web-Based Enterprise Management (WBEM) - a new management technology that allows software to monitor and control managed resources throughout the network. Such managed resources include hard drives, file systems, settings of operating system, processes, services, shares, registry settings, networking components, event logs, users, groups, etc.

WMI allows monitoring of performance counters as well. Microsoft® SQL Server™ has the WMI Event Provider built-in.

One common way to use the WMI Event Provider is to create SQL Server Agent [alerts](#)^[788] that respond to specific events. SQL Server Agent submits a WQL request, receives WMI events, and runs a [job](#)^[782] in response to the event.

WMI namespace

Specify the WMI namespace on the machine where SQL Server is running.

WMI Query

Use this area to specify the WMI query text for the alert.

The WMI Query Language (WQL) is a subset of standard American National Standards Institute Structured Query Language (ANSI SQL) with minor semantic changes to support WMI.

Examples:

```
SELECT * FROM Win32_OperatingSystem WHERE Caption="Microsoft Windows XP Professional" AND CSDVersion="Service Pack 2"
```

If one needs to monitor the number of processes which use more than 10 threads, the following query can be used:

```
SELECT ThreadCount FROM Win32_Process WHERE ThreadCount>10
```

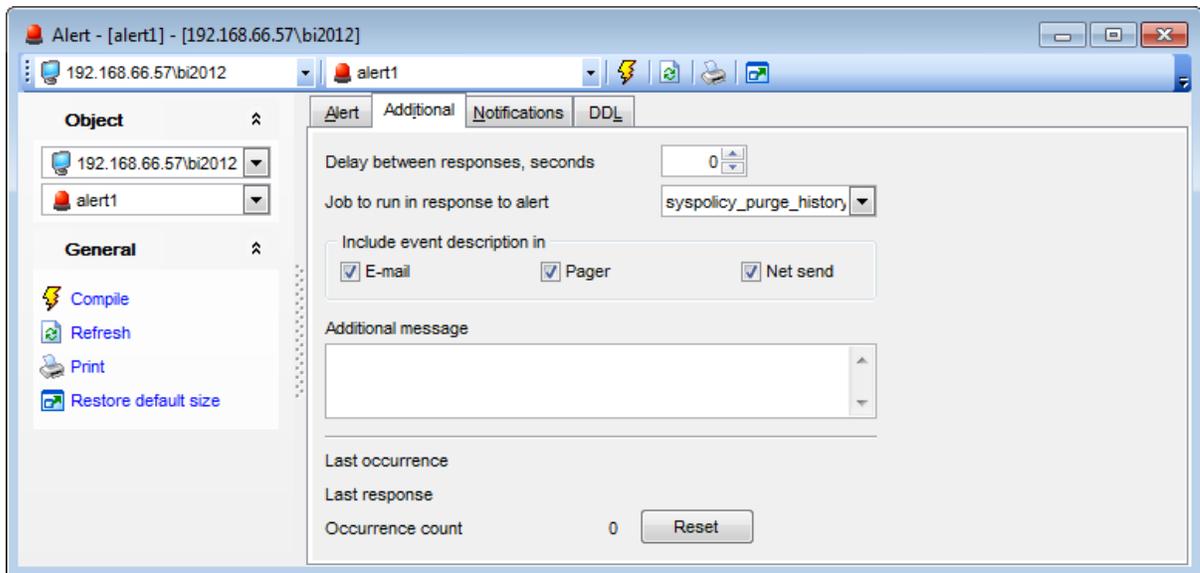
The following WQL query retrieves specific event properties for any event that occurs in the AdventureWorks database and exists under the DDL_DATABASE_LEVEL_EVENTS event

group:

```
SELECT SPID, SQLInstance, DatabaseName FROM DDL_DATABASE_LEVEL_EVENTS WHERE
DatabaseName = 'AdventureWorks'
```

5.4.5.3 Setting additional properties

The **Additional** tab provides additional settings used for the specified alert.



Delay between responses, seconds

Specify the wait period, in seconds, between responses to the alert.

Job to run in response to alert

Use the drop-down list to select the name of the [job](#)^[782] to be executed in response to this alert.

Include event description in

Specify in which way the description of the server error should be included as part of the notification message:

E-mail, Pager, Net send

Additional message

Use this box to specify an optional additional message sent to the [operator](#)^[791] as part of the e-mail, net send, or pager notification.

The lower area displays the following alert events:

Last occurrence

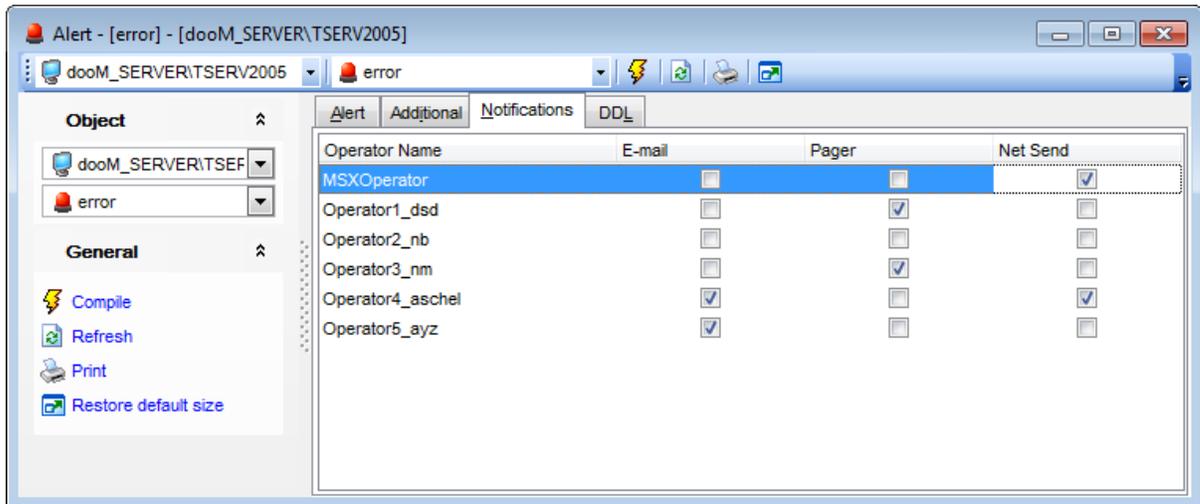
Last response

Occurrence count

If necessary, you can **reset** the occurrence history by clicking the corresponding button.

5.4.5.4 Managing notifications

The **Notifications** tab allows you to specify actions that the SQL Server Agent service will take after the alert fires. Alert notifications ensure that database administrators know when events/errors occur and which measures are taken in response.



The main area lists all currently available [operators](#)^[791]. Specify the method by which an operator is to be notified: *E-mail*, *Pager*, *Net Send*. Set the corresponding flag next to the operator name.

5.4.6 Operators

An **operator** is the object that represents a single SQL Server operator. SQL Server operators receive [alert](#)^[788] and [job](#)^[782] status notification in response to events generated by the server. You can assign [alert notifications](#)^[386] and [job notifications](#)^[374] for any operator defined for the instance of SQL Server.

Before using SQL Server operators, make sure that the **SQL Server Agent** service is running.

Operator Editor allows you to define operator properties. It opens automatically when you create a new operator and is available on editing an existing one.

To open an operator in **Operator Editor**, double-click it in the [DB Explorer](#)^[631] tree or in the [Operators manager](#)^[793]. Alternatively, you can right-click the operator alias and select the **Edit Operator** context menu item.

- [Using Navigation bar and Toolbar](#)^[387]
- [Setting operator properties](#)^[388]
- [Setting additional properties](#)^[389]
- [Managing alert notifications](#)^[389]
- [Managing job notifications](#)^[390]
- [Viewing DDL definition](#)^[919]

To create, edit, rename and drop operators, you can also use the **context menu** and

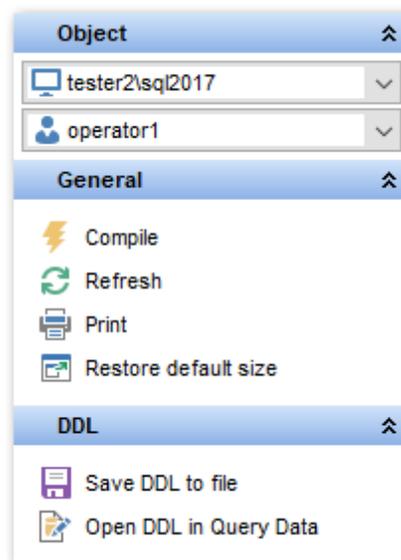
the **Navigation bar** of [Operators manager](#)^[793].

See also:

[Operators manager](#)^[793]

5.4.6.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Operator Editor**.



The **Navigation bar** of **Operator Editor** allows you to:

Object

- select a server instance
- select an operator for editing

General

- [compile](#)^[923] the operator (if it is being created/modified)
- refresh the content of the active tab
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the operator:

DDL

- save [DDL](#)^[919] to an external *.sql file
- open [DDL](#)^[919] in [Query Data](#)^[426]

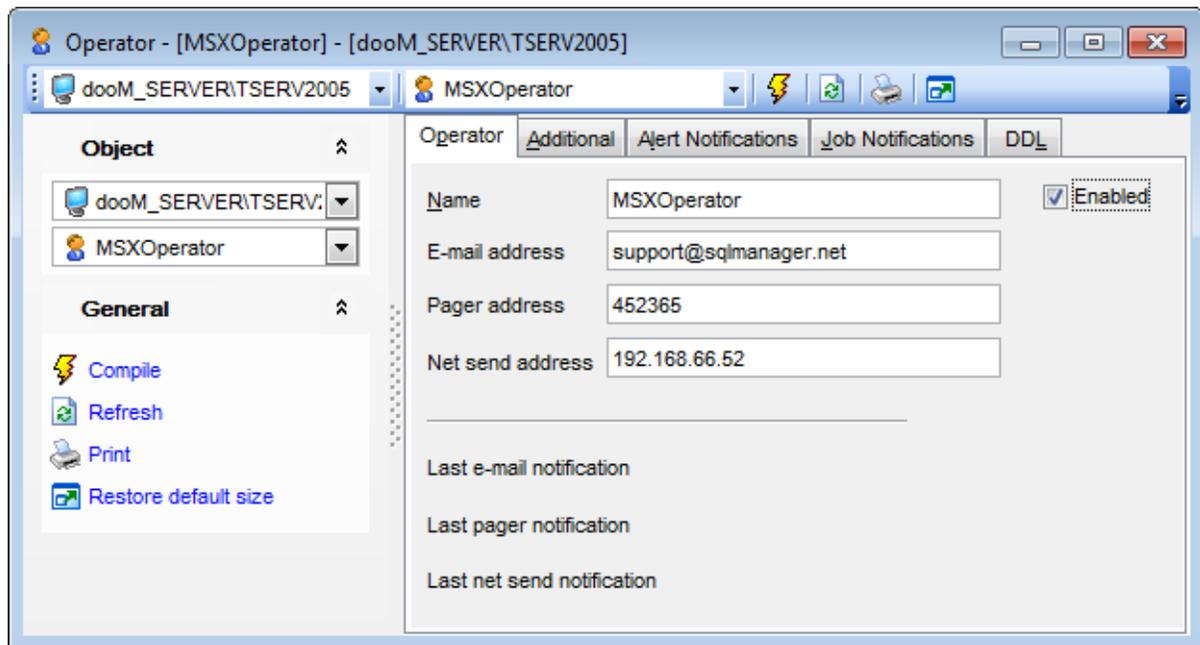
Items of the **Navigation bar** are also available on the **ToolBar** of **Operator Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.4.6.2 Setting operator properties

Use the **Operator** tab of **Operator Editor** to configure/view operator (notification recipient) properties.

Name

Enter a name for the new operator, or modify the name of the operator being edited. Enable/disable the operator using the **Enabled** option.



E-mail address

Specify the e-mail address of the operator.

Pager address

Specify the pager address of the operator.

Net send address

Specify the network address of the operator to whom the network message will be sent.

The lower area displays the latest operator notifications:

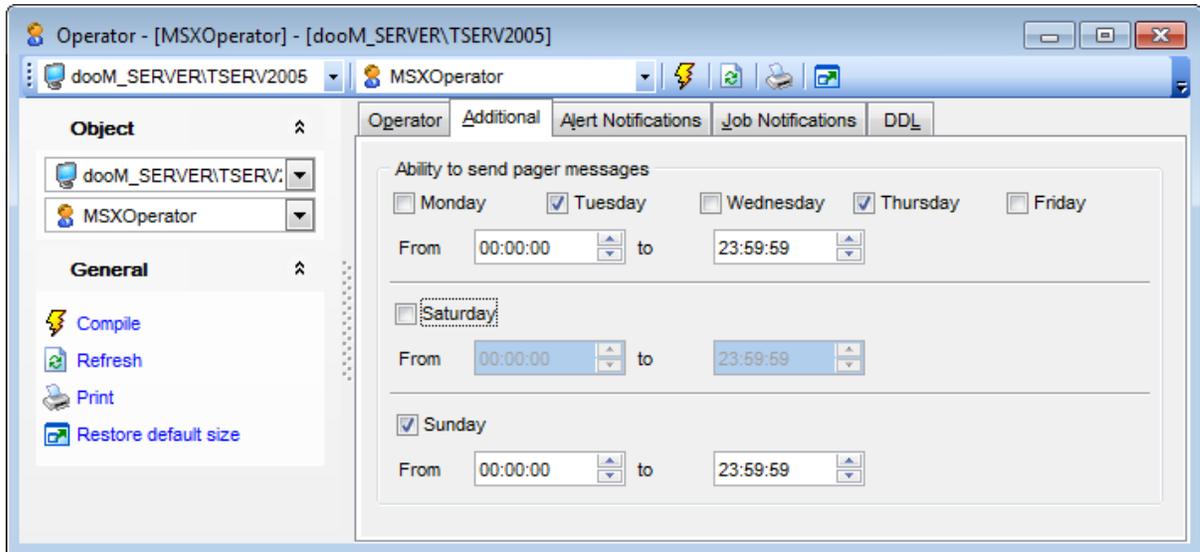
Last e-mail notification

Last pager notification

Last net send notification

5.4.6.3 Setting additional properties

The **Additional** tab provides additional settings used for the specified operator.



Ability to send pager messages

Specify when SQL Server Agent service can send pager notification to the operator:

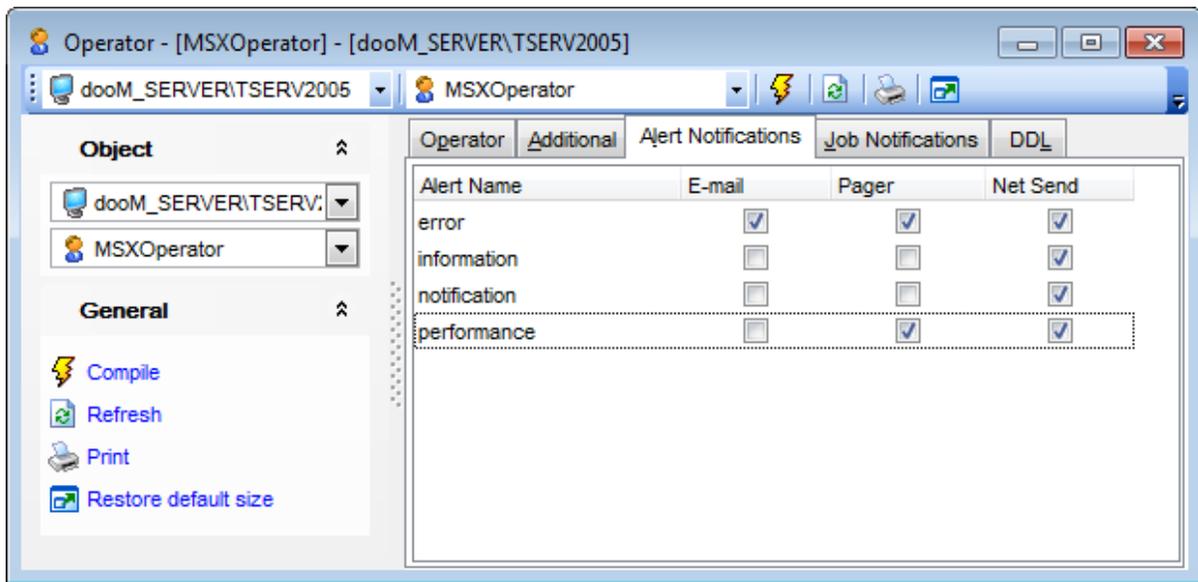
Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday

From ... To ...

Set the day time interval values using the spinner controls.

5.4.6.4 Managing alert notifications

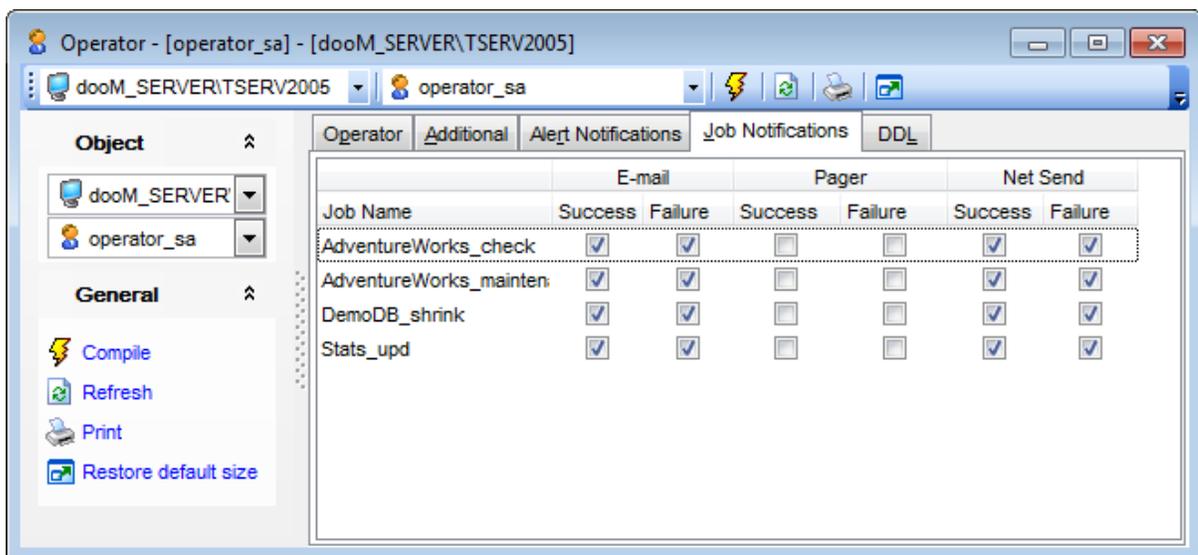
The **Alert Notifications** tab allows you to specify methods that the SQL Server Agent service uses to notify the operator when each of existing [alerts](#) fires.



The main area lists all currently available [alerts](#)^[788]. Specify the method by which the operator is to be notified: *E-mail*, *Pager*, *Net Send*. Set the corresponding flag next to the alert name.

5.4.6.5 Managing job notifications

The **Job Notifications** tab allows you to specify methods that the SQL Server Agent service uses to notify the operator when each of existing [jobs](#)^[782] is tried (succeeded or failed).



The main area lists all currently available [jobs](#)^[782]. Specify the method by which the operator is to be notified: *E-mail*, *Pager*, *Net Send*. Set the corresponding flag next to the alert name.

5.4.7 Proxies

A Microsoft® SQL Server Agent **proxy** defines the security context for a [job](#)^[782] step. A proxy provides SQL Server Agent with access to the security [credentials](#)^[395] for a Microsoft Windows user. Each proxy can be associated with one or more subsystems. A [job step](#)^[370] that uses the proxy can access the specified subsystems by using the security context of the Windows user. Before SQL Server Agent runs a [job step](#)^[370] that uses a proxy, SQL Server Agent impersonates the [credentials](#)^[395] defined in the proxy, and then runs the job step by using that security context.

SQL Server **proxies** can be used to help database administrators ensure that each job step runs with the minimum permissions required to perform its task.

Before using SQL Server proxies, make sure that the **SQL Server Agent** service is running.

Proxy Editor allows you to define proxy properties. It opens automatically when you create a new proxy and is available on editing an existing one.

A SQL Server Agent proxy manages security for [job steps](#)^[370] that involve subsystems other than the Transact-SQL subsystem. Each proxy corresponds to a security [credential](#)^[395]. A proxy may have access to any number of subsystems.

To open a proxy in **Proxy Editor**, double-click it in the [DB Explorer](#)^[63] tree or in the [Proxies manager](#)^[800]. Alternatively, you can right-click the proxy alias and select the **Edit Proxy** context menu item.

- [Using Navigation bar and Toolbar](#)^[391]
- [Setting proxy properties](#)^[392]
- [Viewing proxy jobs](#)^[395]
- [Viewing DDL definition](#)^[919]

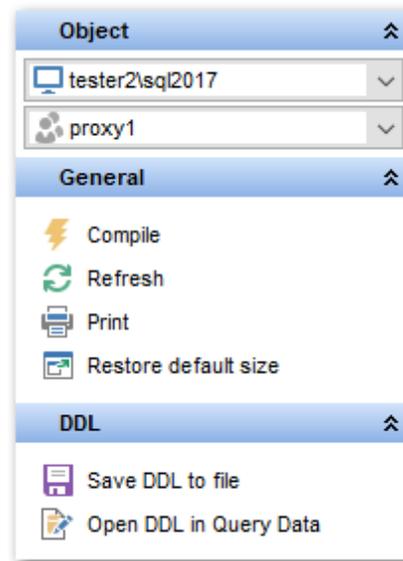
To create, edit and drop proxies, you can also use the **context menu** and the **Navigation bar** of [Proxies manager](#)^[800].

See also:

[Proxies manager](#)^[800]

5.4.7.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Proxy Editor**.



The **Navigation bar** of **Proxy Editor** allows you to:

Object

-  select a server instance
-  select a proxy for editing

General

-  [compile](#) the proxy (if it is being created/modified)
-  refresh the content of the active tab
-  restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the proxy:

DDL

-  save [DDL](#) to an external `*.sql` file
-  open [DDL](#) in [Query Data](#)

Items of the **Navigation bar** are also available on the **ToolBar** of **Proxy Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

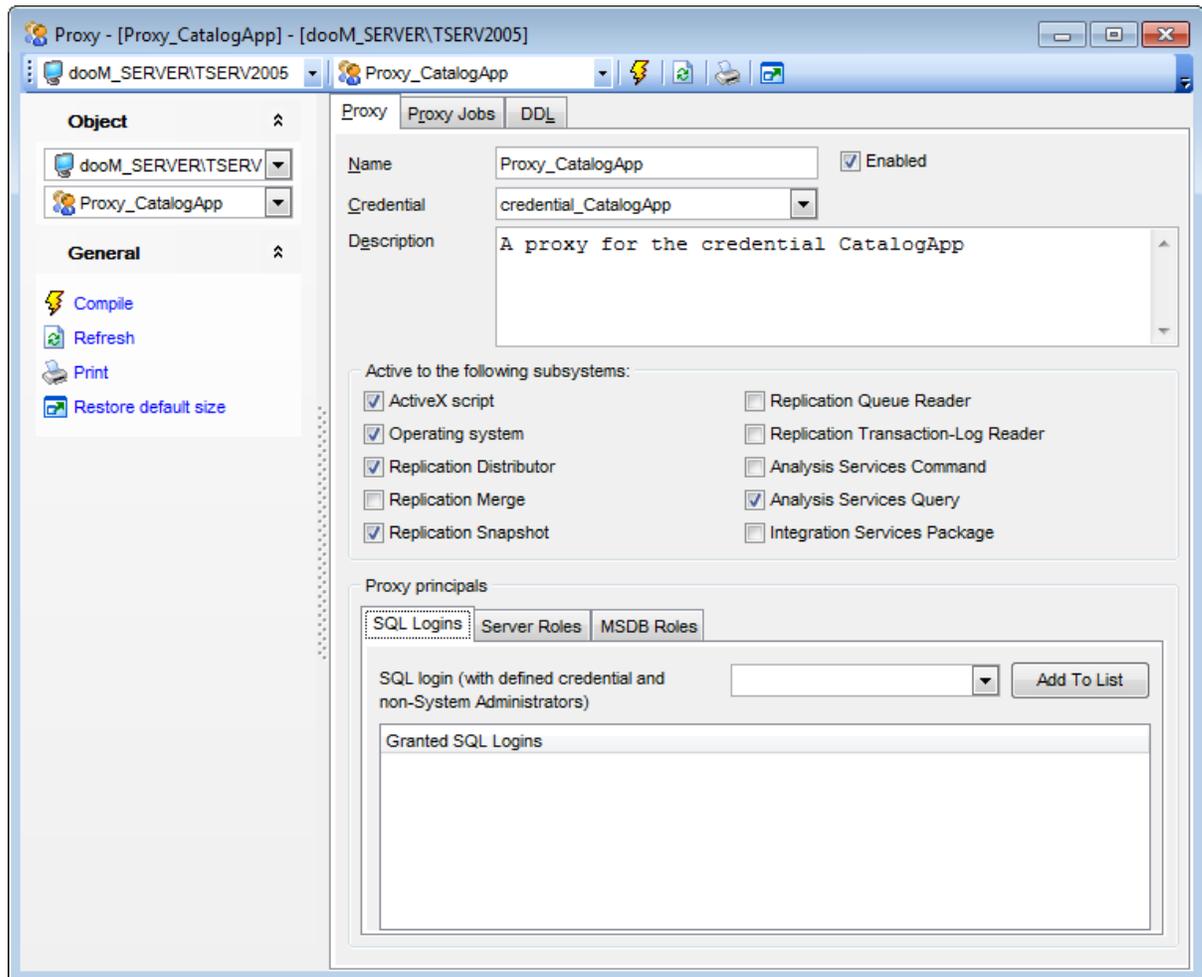
5.4.7.2 Setting proxy properties

Use the **Proxy** tab of **Proxy Editor** to configure/view proxy properties. SQL Server Agent uses **proxies** to manage security contexts.

Name

Enter a name for the new proxy, or modify the name of the proxy being edited. Enable/

disable the proxy using the **Enabled** option.



Credential

Each proxy corresponds to a security [credential](#)^[395]. Use the drop-down list to select a credential for the proxy.

Description

In this memo field you can supply an optional description for the proxy.

Each proxy can be associated with a set of subsystems and a set of [logins](#)^[681].

Active to the following subsystems

Tick off the subsystem(s) to grant access to:

- ActiveX script*
- Operating system*
- Replication Distributor*
- Replication Merge*
- Replication Snapshot*
- Replication Queue Reader*

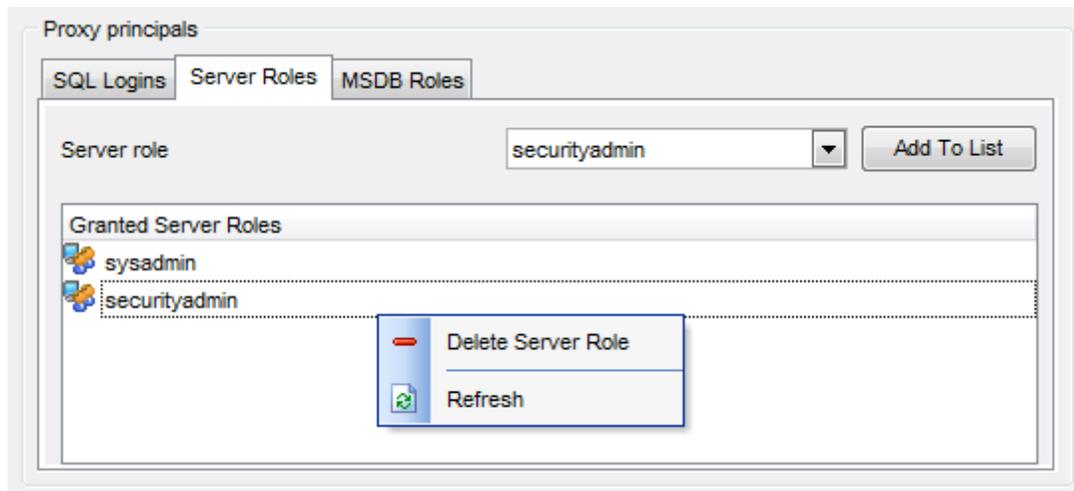
- Replication Transaction-Log Reader*
- Analysis Services Command*
- Analysis Services Query*
- Integration Services Package*

The **Proxy principals** group allows you to grant security [principal](#)^[680] access to the proxy.

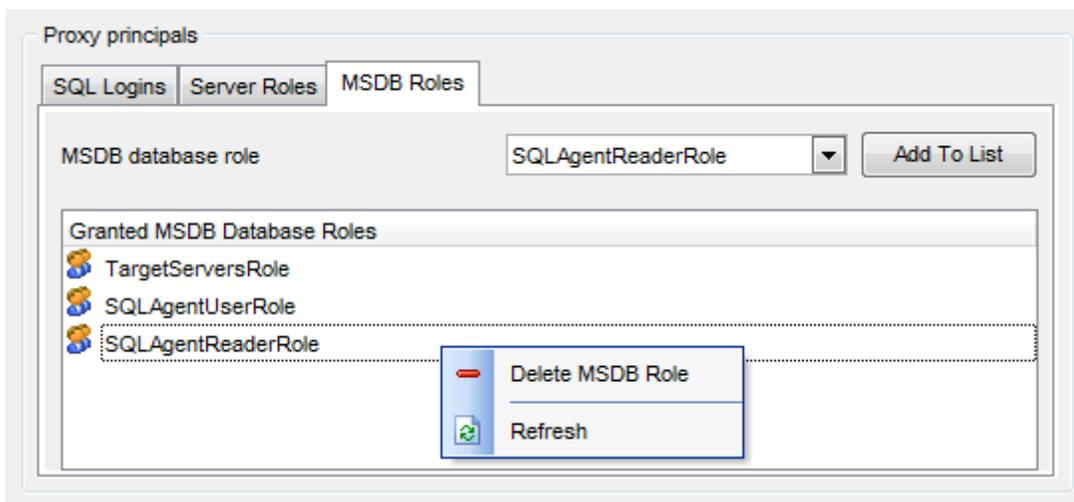
Use the **SQL Logins** tab to grant access to SQL [logins](#)^[681] (with defined [credentials](#)^[395]). To specify a login, select it in the drop-down list and click the **Add to List** button.

Use the **Server Roles** tab to grant access to fixed [server roles](#)^[693].

To specify a server role, select it in the drop-down list and click the **Add to List** button.



Use the **MSDB Roles** tab to grant access to the [database roles](#)^[301] in the *msdb* database. To specify a database role, select it in the drop-down list and click the **Add to List** button.

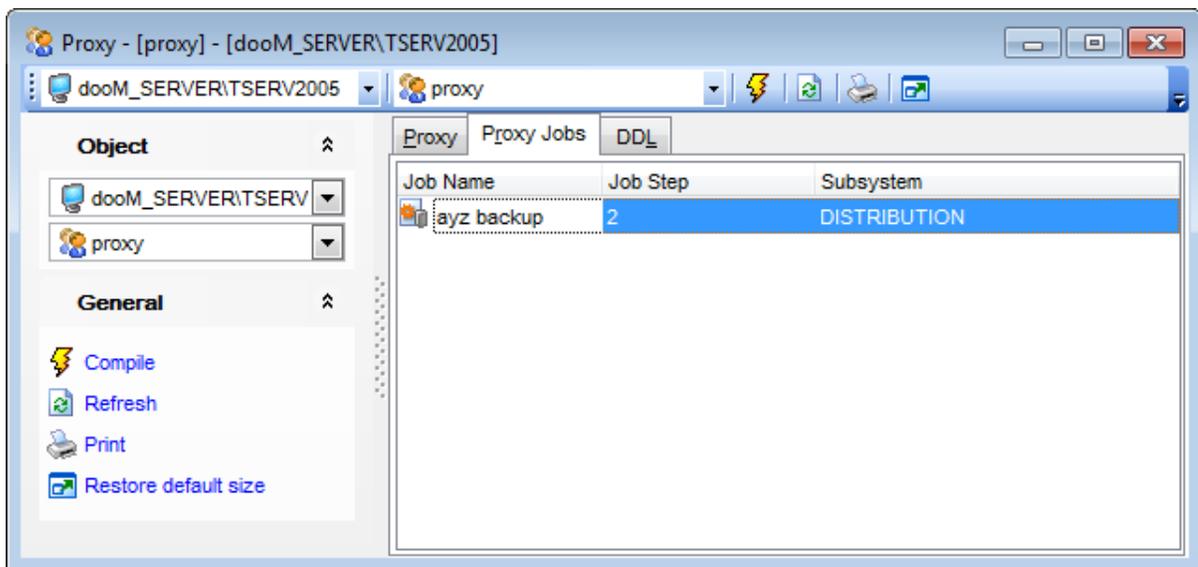


Right-click an item within the **Granted SQL Logins / Server Roles / MSDB Database Roles** list to call the **context menu** allowing you to *delete* a the selected principal and to refresh the list.

5.4.7.3 Viewing proxy jobs

The **Proxy Jobs** tab allows you to browse the list of [job steps](#)^[370] that use the proxy.

Note: The proxy can be used only for [job steps](#)^[370] that use a subsystem associated with the proxy. To create a job step that uses a specific proxy, the job owner must either belong to a [login](#)^[687] associated with that proxy or be a member of a [role](#)^[693] with unrestricted access to proxies.



A proxy can be used in more than one [job step](#)^[370].

The list displays the job steps as a grid with the following columns: *Job Name*, *Job Step*, *Subsystem*.

5.4.8 Credentials

A **Credential** is a record containing the authentication information required to connect to a resource outside of SQL Server. Most credentials consist of a Windows login and password.

Credentials allow [users](#)^[295] that connect to SQL Server using SQL Authentication to connect to Windows or other resources outside of SQL Server.

After creating a credential, you can map it to a [login](#)^[687]. A single credential can be mapped to multiple SQL Server [logins](#)^[687]. But a SQL Server [login](#)^[687] can be mapped to only one credential.

Credential Editor allows you to define credential properties. It opens automatically when you create a new credential and is available on editing an existing one.

To open a credential in **Credential Editor**, double-click it in the [DB Explorer](#)^[63] tree. Alternatively, you can right-click the credential alias and select the **Edit Credential** context menu item.

- [Using Navigation bar and Toolbar](#)^[396]
- [Setting credential properties](#)^[397]
- [Viewing DDL definition](#)^[919]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

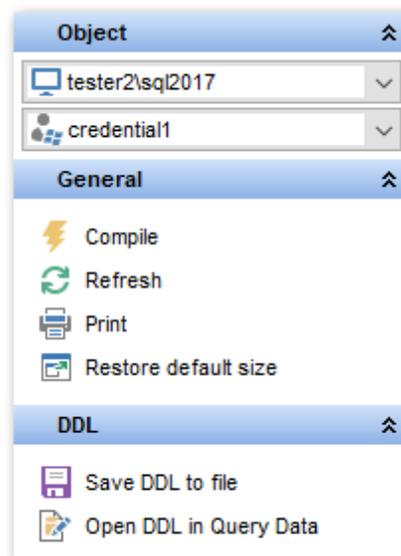
Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Logins](#)^[354]

5.4.8.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Credential Editor**.



The **Navigation bar** of **Credential Editor** allows you to:

Object

 select a server instance

 select a credential for editing

General

 [compile](#) ^[923] the credential (if it is being created/modified)

 refresh the content of the active tab

 restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the credential:

DDL

 save [DDL](#) ^[919] to an external *.sql file

 open [DDL](#) ^[919] in [Query Data](#) ^[426]

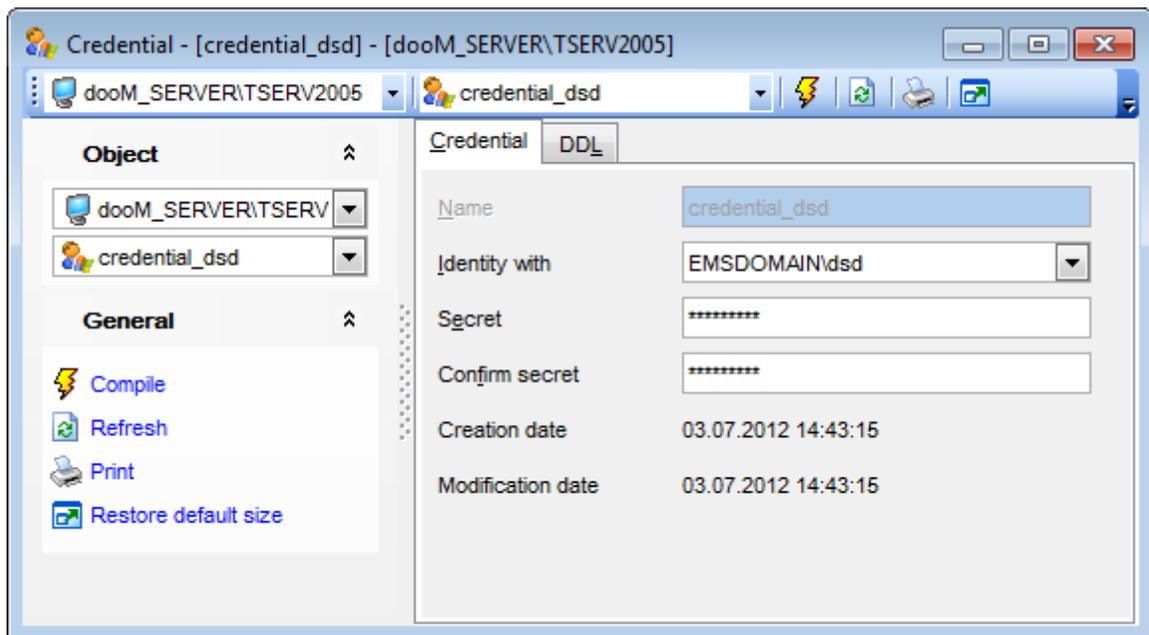
Items of the **Navigation bar** are also available on the **ToolBar** of **Credential Editor**. To enable the [toolbar](#) ^[917], open the [Environment Options](#) ^[825] dialog, proceed to the [Windows](#) ^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#) ^[915]) in the **Bar style for child forms** group.

5.4.8.2 Setting credential properties

Use the **Credential** tab of **Credential Editor** to configure/view credential properties.

Name

Enter a name for the new credential, or view the name of the credential being edited.



Identity with

Use the drop-down list to select the name of the [account](#) ^[680] to be used when connecting

outside the server.

Secret

Specify the secret required for outgoing authentication, and **confirm the secret** in the corresponding box.

The lower area displays the following credential events:

Creation date

Modification date

5.4.9 Linked Servers

A **Linked server** is a virtual server that can be defined to SQL Server 2005 (and higher) with all the information required to access an OLE DB data source. A **Linked server** configuration enables SQL Server to execute commands against OLE DB data sources on remote servers. **Linked servers** provide a number of features: remote server access; the ability to issue distributed queries, updates, commands and transactions on heterogeneous data sources; the ability to address diverse data sources universally.

Linked Server Editor allows you to define linked server properties. It opens automatically when you create a new linked server and is available on editing an existing one.

To open a linked server in **Linked Server Editor**, double-click it in the [DB Explorer](#)^[63] tree or in the [Linked servers manager](#)^[808]. Alternatively, you can right-click the linked server alias and select the **Edit Linked Server** context menu item.

- [Configuring Linked server](#)^[398]
- [Security settings](#)^[399]
- [Setting server options](#)^[401]
- [Linked Server content](#)^[402]
- [Viewing DDL definition](#)^[919]

To create, edit and drop linked servers, you can also use the **context menu** and the **Navigation bar** of [Linked servers manager](#)^[808].

See also:

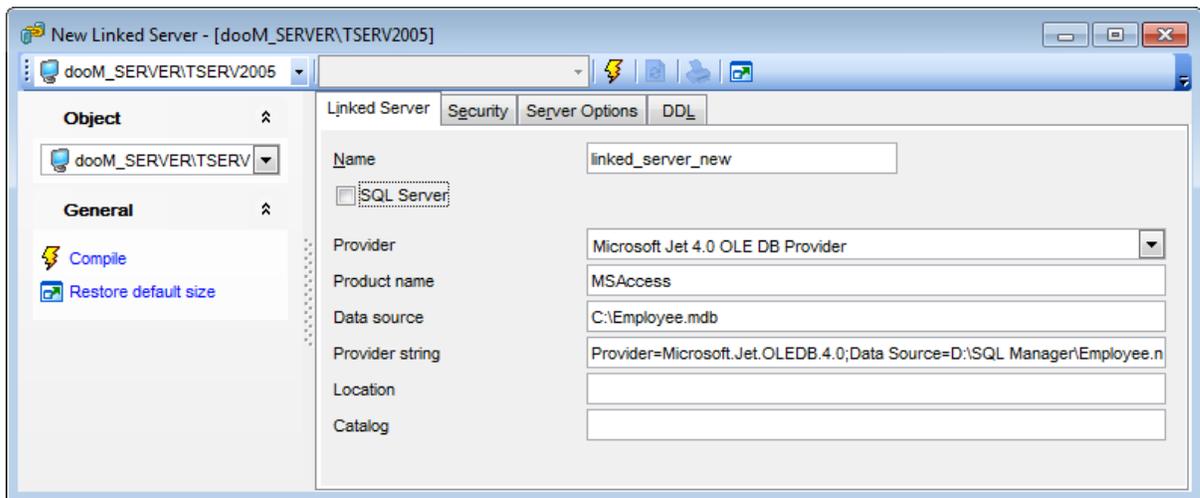
[Linked servers manager](#)^[808]

5.4.9.1 Configuring Linked server

Use the **Linked Server** tab of **Linked Server Editor** to configure/view linked server properties.

Name

Enter a name for the new linked server, or view the name of the linked server being edited.



SQL Server

Select this option to identify the linked server as an instance of Microsoft® SQL Server™. If you use this method of defining a SQL Server linked server, the name of the linked server must be the network name of the server. Also, any tables retrieved from the server are from the default database defined for the login on the linked server.

Provider

Use the drop-down list to select the name of the OLE DB Provider to be used for access to the specified linked server.

Product name

Specify the product name of the OLE DB data source you want to add as a linked server.

Data source

Specify the OLE DB data source property corresponding to the linked server.

Provider string

Specify the OLE DB provider string corresponding to the linked server.

Location

Specify the OLE DB location property corresponding to the linked server.

Catalog

Specify the OLE DB catalog property corresponding to the linked server.

5.4.9.2 Security settings

The **Security** tab provides security settings used for the specified linked server connection.

Local Login

Specify the local login IDs that can connect to the linked server.

Impersonate

Set this flag to specify that the local login ID will be used to connect to the linked server.

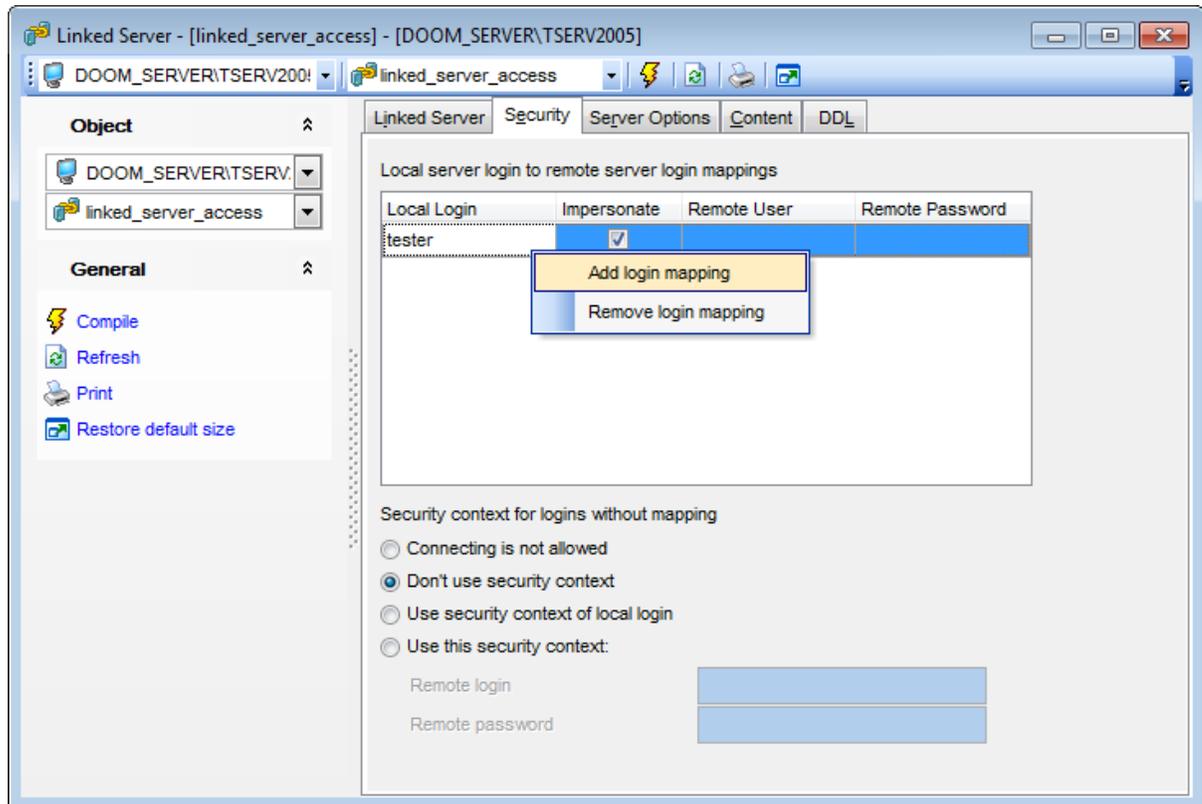
Select this option if you are certain that the local login ID exactly matches a login ID with sufficient permissions on the linked server.

Remote user

Use the remote user to map the users that are not defined in **Local login**.

Remote password

Specify the password used to map the users that are not defined in **Local login**.



Connecting is not allowed

Select this option to specify that the connection will not be established for logins that are not defined in the mapping list.

Don't use security context

Select this option to specify that for logins that are not defined in the list, the connection will be established without using a security context.

Use security context of local login

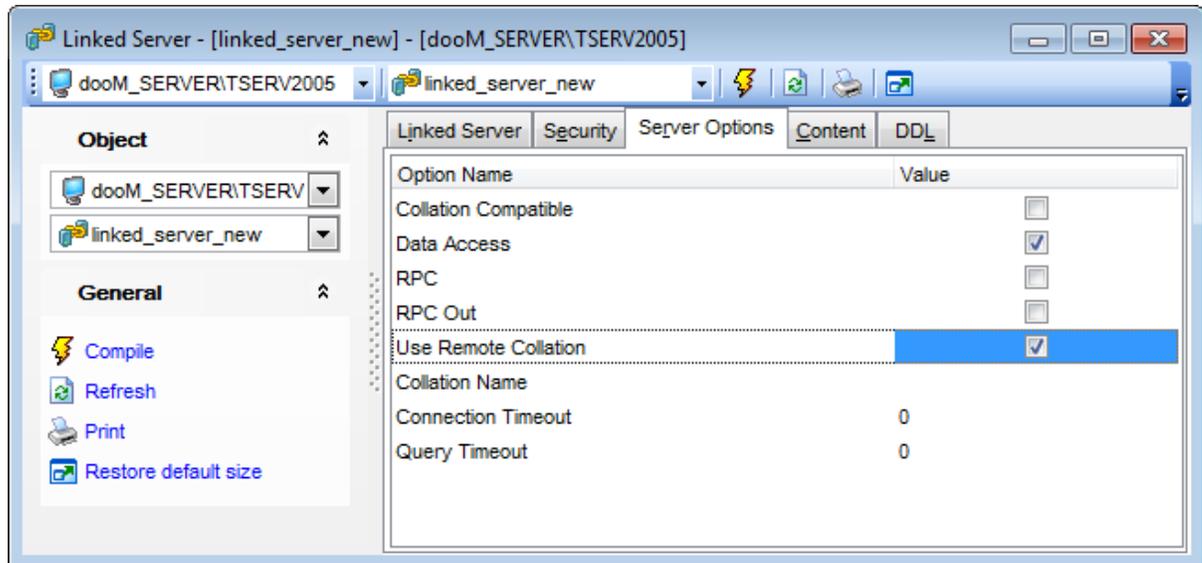
Select this option to specify that for logins that are not defined in the list, the connection will be established using the security context of the local login.

Use this security context

Select this option to specify that for logins that are not defined in the list, the connection will be established using the login and password specified in the **Remote Login** and **Remote password** boxes below.

5.4.9.3 Setting server options

The **Security** tab allows you to set server options that will be used for the specified linked server connection.



Collation Compatible

If this option is enabled, SQL Server assumes that all characters in the linked server are compatible with the local server, with regard to character set and collation sequence (or sort order). This enables SQL Server to send comparisons on character columns to the provider.

This option should be set only if it is certain that the data source corresponding to the linked server has the same character set and sort order as the local server.

Data Access

This option enables/disables a linked server for distributed query access.

RPC

This option enables/disables RPC from the given server.

RPC Out

This option enables/disables RPC to the given server.

Use Remote Collation

This option determines whether the collation of a remote column or of a local server will be used.

If checked, the collation of remote columns is used for SQL Server data sources, and the collation specified in collation name is used for non-SQL Server data sources.

If unchecked, distributed queries will always use the default collation of the local server, while collation name and the collation of remote columns are ignored.

Collation Name

This drop-down list allows you to specify the name of the collation used by the remote data source if use remote collation is true and the data source is not a SQL Server data

source.

Connection Timeout

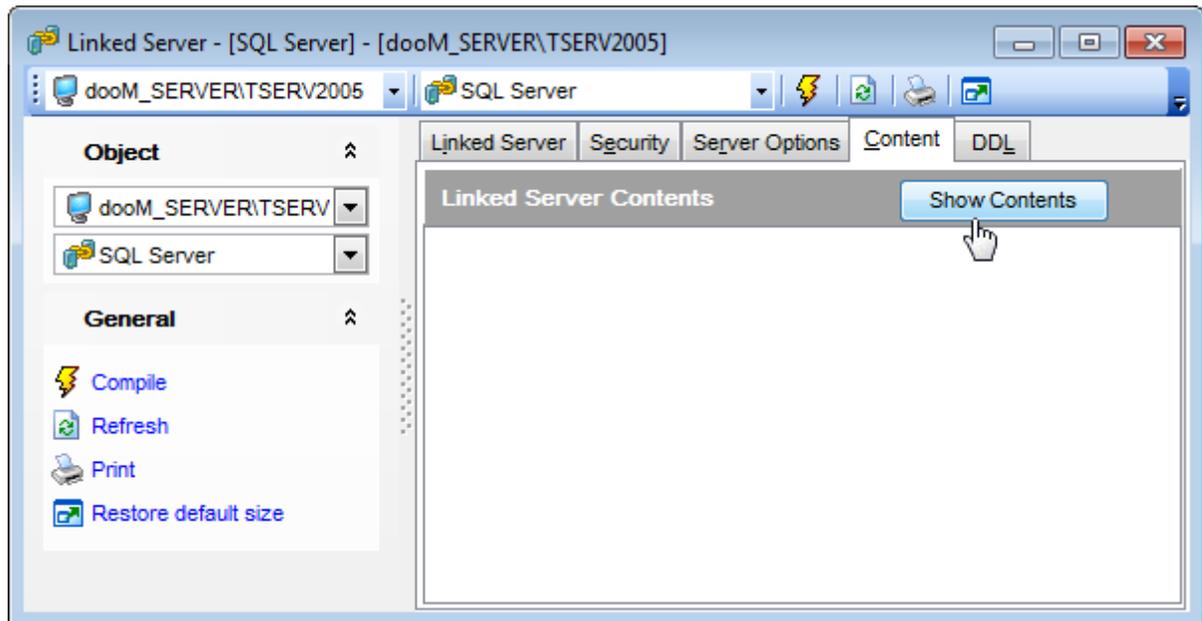
Use this edit-box to set the time-out value for connecting to the linked server.

Query Timeout

Use this edit-box to set the time-out value for queries against the linked server.

5.4.9.4 Linked Server content

The **Content** tab allows you to browse the contents of the linked server.



To display the actual linked server contents, press the **Show Contents** button.

5.4.10 Endpoints

Communication of SQL Server Database Engine with an application is formatted in a Microsoft communication format called a tabular data stream (TDS) packet. The TDS packet is encapsulated inside a standard communication protocol (such as TCP/IP or Named Pipes) by the Net-Libraries on both the server and the client computers. On the server side the Net-Libraries are part of the Database Engine, whereas on the client side the Net-Libraries are part of the SQL Native Client. To configure Net-Libraries, the server and the SQL Native Client are configured to use a network protocol. The server creates a SQL Server object called a TDS **Endpoint** for each network protocol.

Endpoint Editor allows you to define endpoint properties. It opens automatically when you create a new endpoint and is available on editing an existing one.

To open an endpoint in **Endpoint Editor**, double-click it in the [DB Explorer](#) tree. Alternatively, you can right-click the endpoint alias and select the **Edit Endpoint** context

menu item.

- [Using Navigation bar and Toolbar](#)^[403]
- [Setting endpoint properties](#)^[404]
- [Setting protocol options](#)^[405]
- [Setting payload options](#)^[407]
- [Viewing DDL definition](#)^[919]

Availability:

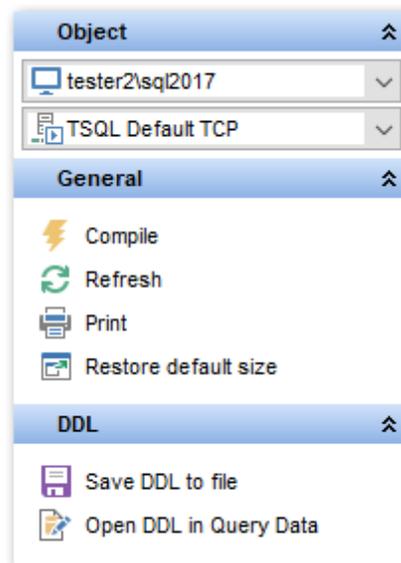
Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

5.4.10.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Endpoint Editor**.



The **Navigation bar** of **Endpoint Editor** allows you to:

Object

- select a server instance
- select an endpoint for editing

General

- [compile](#)^[923] the endpoint (if it is being created/modified)
- refresh the content of the active tab
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the endpoint:

DDL

-  save [DDL](#) to an external *.sql file
-  open [DDL](#) in [Query Data](#)

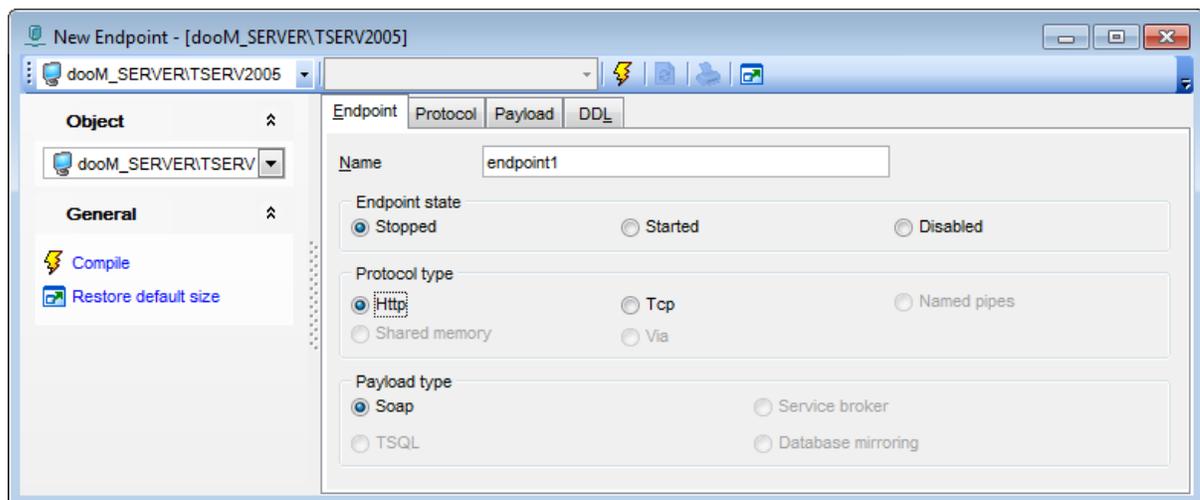
Items of the **Navigation bar** are also available on the **ToolBar** of **Endpoint Editor**. To enable the [toolbar](#), open the [Environment Options](#) dialog, proceed to the [Windows](#) section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)) in the **Bar style for child forms** group.

5.4.10.2 Setting endpoint properties

Use the **Endpoint** tab of **Endpoint Editor** to configure/view endpoint properties.

Name

Enter a name for the new endpoint, or view the name of the endpoint being edited.



Endpoint state

Specify the state of the endpoint when it is created:

Stopped

This option indicates that the endpoint is stopped. In this state, the server listens to port requests but returns errors to clients.

Started

This option indicates that the endpoint is started and is actively listening for connections.

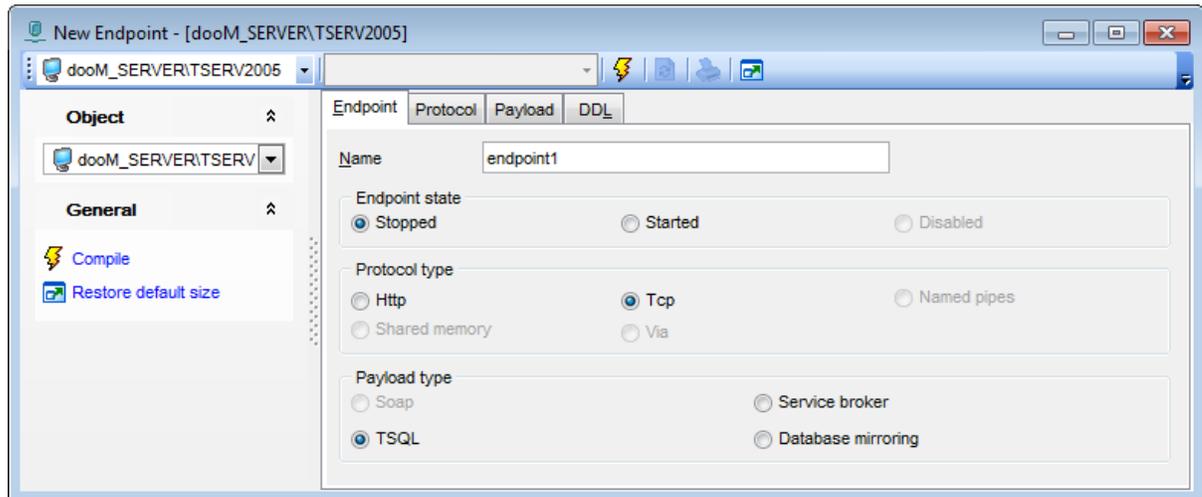
Disabled

This option indicates that the endpoint is disabled. In this state, the server does not listen to the endpoint port or respond to any attempted requests to use the endpoint.

Protocol type

Specify the transport protocol to use:

- HTTP
- TCP
- Named Pipes
- Shared memory
- Via



Payload type

Specify the payload type:

- Soap (available for HTTP protocol only)
- TSQL (available for TCP protocol only)
- Service broker (available for TCP protocol only)
- Database mirroring (available for TCP protocol only)

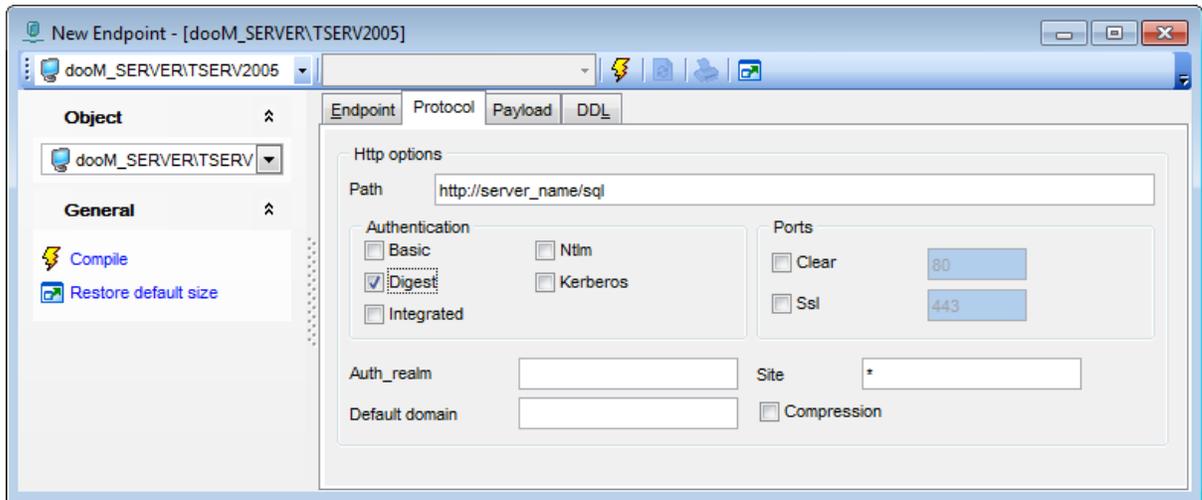
5.4.10.3 Setting protocol options

The **Protocol** tab allows you to specify HTTP/TCP protocol options pertaining to the endpoint.

HTTP options

Path

Specify the URL path that identifies the location of the endpoint on the host computer. This string is a logical partitioning of the URL namespace that is used by the listener to route requests appropriately.



Authentication

Specify the authentication type(s) to be used to authenticate users that log on to the instance of SQL Server:

Basic

It is one of the two required authentication mechanisms in the HTTP 1.1 specification. Basic authentication is made up of an Authentication header that contains the base64-encoded user name and password separated by a colon.

Digest

It is the second authentication mechanism required by HTTP 1.1. This authentication is made up of the user name and password. This is then hashed with MD5, a one-way hashing algorithm, and sent to the server. The server has access to either the raw password, or a stored MD5 hash that was created when the password was set. The server can then compare the stored calculated value to the one provided by the client. This way, the client can prove that it knows the password without actually giving it to the server.

Integrated

Endpoints configured to support integrated authentication can respond with either of the following authentication types as part of the authentication challenge: *Kerberos* or *NTLM*. Under this configuration, the server will try to authenticate the client with whichever type the client uses in requesting authentication.

NTLM

It is the authentication mechanism supported by Windows 9x and Windows NT 4.0 (client and server). This authentication mechanism is a challenge-response protocol that offers stronger authentication than either basic or digest. NTLM is implemented in Windows 2000 and later versions by a Security Support Provider Interface (SSPI).

Kerberos

This authentication is an Internet standard authentication mechanism. Kerberos authentication is supported in Windows 2000 and later versions by an SSPI. When Kerberos authentication is used, the instance of SQL Server must associate a Service Principal Name (SPN) with the account it will be running on.

Ports

Use this group to specify the listening port type(s) to be associated with the endpoint:

- Clear*
- SSL*

Auth_realm

Specify the hint that returns to the client, which sent the SOAP request to the endpoint, as part of HTTP authentication challenge (applied when **Authentication** is set to *Digest*).

Default domain

Specify the default login domain (applied when **Authentication** is set to *Basic*).

Site

Specify the name of the host computer, or one of the specific signs:

* (asterisk)

Implies that a listening operation applies to all possible host names for the computer that are not otherwise explicitly reserved.

+ (plus sign)

Implies that a listening operation applies to all possible host names for the computer.

 Compression

If this option is selected, SQL Server will honor requests where gzip encoding is accepted, and return compressed responses. That is, if a request comes in with an HTTP header specifying GZIP as a valid "accept-encoding", the server returns the response gzip-encoded.

TCP options

When TCP/IP is enabled for SQL Server, the Database Engine will listen for incoming connections on a connection point consisting of an IP address and TCP port number.

The screenshot shows a configuration window with four tabs: 'Endpoint', 'Protocol', 'Payload', and 'DDL'. The 'Protocol' tab is active. Below the tabs, there is a section titled 'Tcp options' containing two input fields: 'Listener port' with the value '4022' and 'Listener IP' with the value '255.1.1.1'.

Listener port

Specify the port number that will be listened to for connections by the service broker TCP/IP protocol. The default port number is 4022.

Listener IP

Specifies the IP address that the endpoint will listen on.

5.4.10.4 Setting payload options

The **Payload** tab allows you to define the payload that is supported on the endpoint.

The screenshot shows the 'Soap options' dialog box. At the top, there are four tabs: 'Endpoint', 'Protocol', 'Payload', and 'DDL'. The 'Soap options' section contains a table with the following data:

Webmethod	Namespace	Procedure Name	Schema	Format
DayAsNumber		[master].[sys].[fn_MSdayasnumber]	DEFAULT	ALL_RESULTS
GetSqlInfo		[master].[dbo].[xp_msver]	STANDARD	ALL_RESULTS

Below the table are two buttons: '+ Add Webmethod' and '- Drop Webmethod'. The dialog also includes several other options:

- Login type:** Radio buttons for 'WINDOWS' (selected) and 'MIXED'.
- Batches:** A checkbox that is currently unchecked.
- Database:** A dropdown menu.
- Namespace:** A text box containing 'DEFAULT'.
- Header limit:** A text box.
- Session:** A checkbox that is currently unchecked.
- Session timeout:** A text box containing '60'.
- WSDL:** Radio buttons for 'Default' (selected), 'None', and an empty text box.
- Schema:** Radio buttons for 'None' and 'Standard' (selected).
- Character set:** Radio buttons for 'XML' (selected) and 'SQL'.

Soap options

This group is available if *HTTP* is selected as the **Protocol type** and *Soap* is specified as the **Payload type** at the [Endpoint](#) ^[404] tab of the editor.

The upper area of the group displays the webmethods (the methods for which HTTP SOAP requests can be sent to the endpoint) as a grid with the following columns: *Webmethod*, *Namespace*, *Procedure name*, *Schema*, *Format*.

Right-click an item within the list to call the **context menu** allowing you to **+** add a new webmethod or **-** drop the selected one.

Login type

Specify the SQL Server authentication mode for the endpoint:

WINDOWS

This option allows only Windows authentication to be used to authenticate endpoint users.

MIXED

This option allows either SQL Server authentication or Windows authentication to be used to authenticate endpoint users.

Batches

This option specifies whether special SQL requests are supported on the endpoint. If checked, SOAP requests for queries that use the *sqlbatch* method can be sent to this

endpoint.

Database

Use the drop-down list to select the database in the context of which the requested operation will be executed.

Namespace

Specify the namespace for the endpoint.

Header limit

This value specifies the maximum size, of the header section in the SOAP envelope (in bytes).

 Session

This option specifies whether the instance of SQL Server allows sessions support. If checked, SQL Server allows sessions support, whereby multiple SOAP request/response message pairs can be identified as part of a single SOAP session.

Session timeout

Specify time that is available before a SOAP session expires at the server when no further requests are received (in seconds).

WSDL

This group indicates whether WSDL document generation is supported for this endpoint: *None*, *Default* (a default WSDL response is generated and returned for WSDL queries submitted to the endpoint), or specify [stored procedure](#)^[253] by name that will return a modified WSDL document.

Schema

This group specifies whether an XSD schema is returned by the endpoint when SOAP results are sent.

NONE

This option omits inline schema from SOAP responses.

STANDARD

This option includes inline schema in endpoint responses.

Character set

This group defines the character set behavior: *XML* (by default), or *SQL* (the characters that are not valid as character references are encoded, and then returned in the result).

Service Broker options

This group is available if *TCP* is selected as the **Protocol type** and *Service broker* is specified as the **Payload type** at the [Endpoint](#)^[404] tab of the editor.

Authentication options

Windows

Specifies that the endpoint is to connect using Windows Authentication protocol to authenticate the endpoints. In this case you should also select an authorization method (*NTLM* or *KERBEROS*) to be used as the authentication protocol, or *NEGOTIATE* that causes the endpoint to use the Windows negotiation protocol to choose either NTLM or Kerberos.

Certificate

Specifies that the endpoint is to authenticate the connection using a [certificate](#)^[329] (you should select one from the drop-down list) to establish identity for authorization.

Windows, Certificate

Specifies that the endpoint is to try to connect by using Windows Authentication and, if that attempt fails, to then try using the specified [certificate](#)^[329].

Certificate, Windows

Specifies that the endpoint is to try to connect by using the specified [certificate](#)^[329] and, if that attempt fails, to then try using Windows Authentication.

Windows auth type

Use the drop-down list to select an authorization method (*NTLM* or *KERBEROS*) to be used as the authentication protocol, or *NEGOTIATE* that causes the endpoint to use the Windows negotiation protocol to choose either NTLM or Kerberos.

Certificate name

Use the drop-down list to select a [certificate](#)^[329] to be used to authenticate the connection.

Encryption

This group specifies whether encryption is used in the process.

Required

Specifies that connections to this endpoint must use encryption. Therefore, to connect to this endpoint, another endpoint must have ENCRYPTION set to either SUPPORTED or REQUIRED.

Supported

Specifies that the data is encrypted only if the opposite endpoint specifies either SUPPORTED or REQUIRED.

Disabled

Specifies that data sent over a connection is not encrypted.

Algorithm

Specify the form of encryption used by the endpoint:

RC4 (specifies that the endpoint must use the RC4 algorithm)

AES (specifies that the endpoint must use the AES algorithm)

AES RC4 (specifies that the two endpoints will negotiate for an encryption algorithm with this endpoint giving preference to the AES algorithm)

RC4 AES (specifies that the two endpoints will negotiate for an encryption algorithm with this endpoint giving preference to the RC4 algorithm)

Message forwarding

This option determines whether messages received by this endpoint that are for services located elsewhere will be forwarded.

Message buffer size, Mb

Use the spinner control to specify the maximum amount of storage (in megabytes) to allocate for the endpoint to use when storing messages that are to be forwarded (if **Message forwarding** is selected).

The screenshot shows a configuration window with tabs for 'Endpoint', 'Protocol', 'Payload', and 'DDL'. The 'DDL' tab is active. It contains a 'Database mirroring options' section with radio buttons for 'Windows' (selected), 'Certificate', and 'Role' (with sub-options 'Witness', 'Partner', and 'All'). To the right, there is an 'Encryption' section with radio buttons for 'Required' (selected), 'Supported', and 'Disabled'. Below that is an 'Algorithm' dropdown menu currently set to 'RC4'.

Database mirroring options

This group is available if *TCP* is selected as the **Protocol type** and *Database mirroring* is specified as the **Payload type** at the [Endpoint](#) ^[404] tab of the editor.

Specify the TCP/IP authentication requirements for connections for this endpoint:

Windows

Specifies that the endpoint is to connect using Windows Authentication protocol to

authenticate the endpoints. In this case you should also select an authorization method (*NTLM* or *KERBEROS*) to be used as the authentication protocol, or *NEGOTIATE* that causes the endpoint to use the Windows negotiation protocol to choose either NTLM or Kerberos.

Certificate

Specifies that the endpoint is to authenticate the connection using a [certificate](#)^[329] (you should select one from the drop-down list) to establish identity for authorization.

Encryption

This group specifies whether encryption is used in the process.

These options are common for *Service broker* and *Database mirroring* payload types. For details see **Service Broker options**.

Algorithm

Specifies the form of encryption used by the endpoint.

This option is common for *Service broker* and *Database mirroring* payload types. For details see **Service Broker options**.

Role

This group specifies the database mirroring role or roles that the endpoint supports.

Witness

Enables the endpoint to perform in the role of a witness in the mirroring process.

Partner

Enables the endpoint to perform in the role of a partner in the mirroring process.

All

Enables the endpoint to perform in the role of both a witness and a partner in the mirroring process.

5.4.11 DDL Triggers

A **Trigger** automatically executes when an event occurs in the database server.

DDL Triggers are a special kind of trigger that fire in response to Data Definition Language (DDL) statements. They can be used to perform administrative tasks in the database server.

DDL Trigger Editor allows you to define DDL trigger properties (the scope of the DDL triggers is applied to the current server, i.e. the trigger fires whenever *event_type* or *event_group* happens anywhere in the current server). It opens automatically when you create a new DDL trigger and is available on editing an existing one.

To open a DDL trigger in **DDL Trigger Editor**, double-click it in the [DB Explorer](#)^[63] tree. Alternatively, you can right-click the DDL trigger alias and select the **Edit DDL Trigger** context menu item.

- [Using Navigation bar and Toolbar](#)^[413]
- [Setting DDL trigger properties](#)^[414]
- [Viewing DDL definition](#)^[919]

Availability:

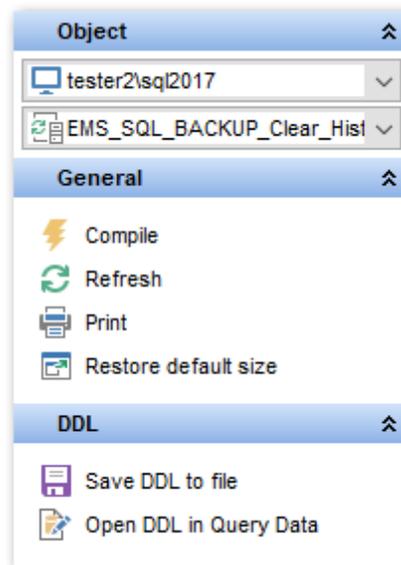
Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

5.4.11.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **DDL Trigger Editor**.



The **Navigation bar** of **DDL Trigger Editor** allows you to:

Object

- select a server instance
- select a DDL trigger for editing

General

- [compile](#)^[923] the DDL trigger (if it is being created/modified)
- refresh the content of the active tab
- restore the default size and position of the editor window

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with the DDL trigger:

DDL

- save [DDL](#)^[919] to an external *.sql file
- open [DDL](#)^[919] in [Query Data](#)^[426]

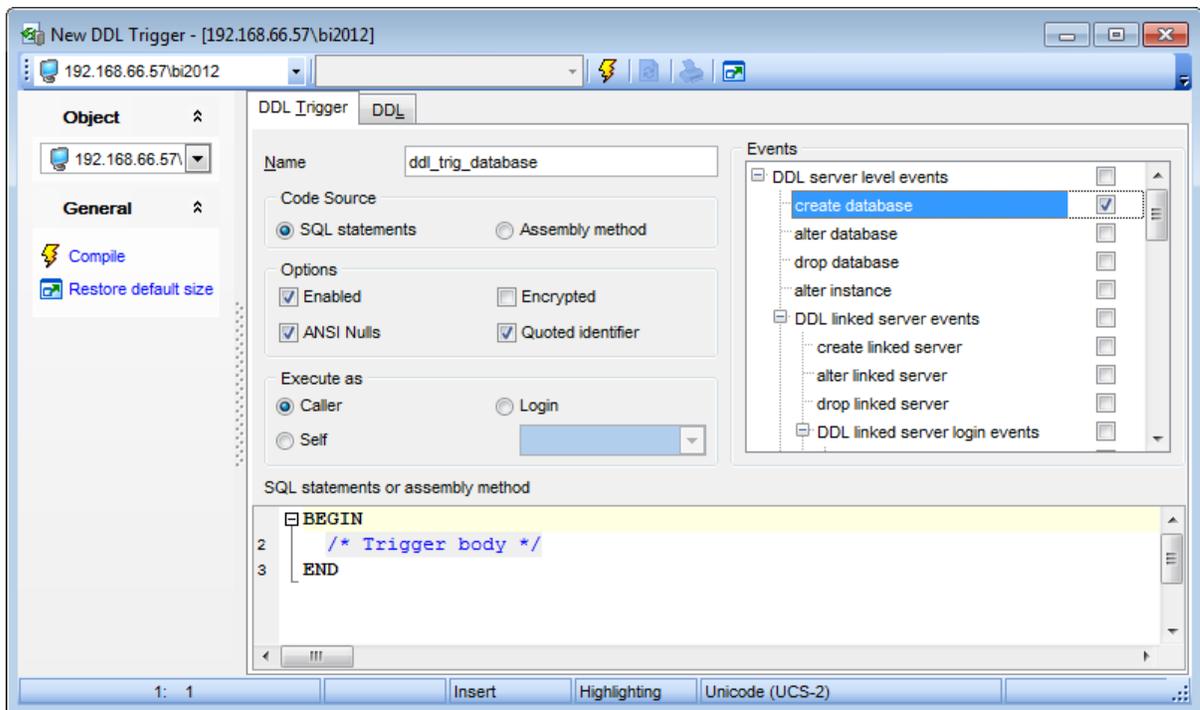
Items of the **Navigation bar** are also available on the **ToolBar** of **DDL Trigger Editor**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

5.4.11.2 Setting DDL trigger properties

Use the **DDL Trigger** tab of **DDL Trigger Editor** to configure/view server-scoped DDL trigger properties.

Name

Enter a name for the new DDL trigger, or modify the name of the DDL trigger being edited.



Enabled

Enables/disables the trigger immediately after it is created. A disabled trigger still exists as an object in the server, but does not fire.

Encrypted

If this option is selected, the text of the *CREATE TRIGGER* statement is encrypted.

Execute as

Specify the security context under which the trigger is to be executed: *Caller*, *Self* or *Login* (select which [login](#)^[681] account should be used to validate permissions on any server objects that are referenced by the trigger).

Code Source

Select the trigger code source: it can be a direct set of SQL statements or an external procedure call from a .NET assembly.

Event type

This group is available for SQL Server 2008. Specifies trigger type:

- Server level*
- Logon*

Events

This area lists the DDL events as groups. The trigger will fire after execution of any data definition language event selected in this list. Set the corresponding flag next to an event or event group name.

SQL statements or assembly method

This area allows you to set the trigger conditions and actions. Trigger conditions specify additional criteria that determine whether the tried DDL statements cause the trigger actions to be performed.

The trigger actions take effect when the DDL operation is performed.

5.4.12 Server roles

SQL Server provides server-level roles to help you manage the permissions on a server. These roles are security principals that group other principals. Server-level roles are server-wide in their permissions scope.

Fixed server roles are provided for convenience and backward compatibility. Assign more specific permissions whenever possible.

SQL Server provides nine fixed server roles. The permissions that are granted to the fixed server roles cannot be changed. Beginning with SQL Server 2012, you can create user-defined server roles and add server-level permissions to the user-defined server roles.

Server Role Editor allows you to define server role properties. It opens automatically when you create a new server role and is available on editing an existing one.

To open a server role in **Server Role Editor**, double-click it in the [DB Explorer](#)^[63] tree or in the [Server Role Manager](#)^[693]. Alternatively, you can right-click the server role alias and select the **Edit Server Role** context menu item.

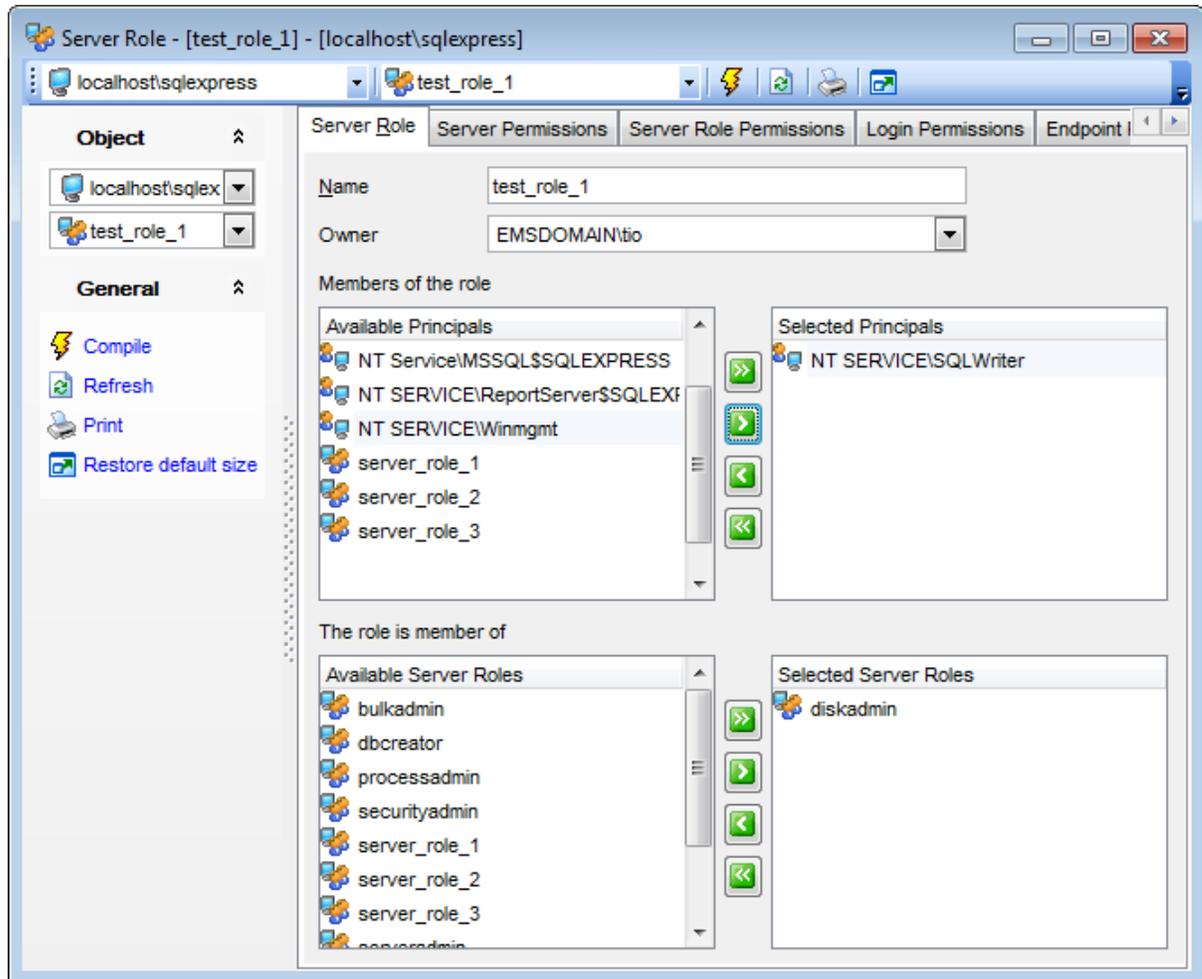
- [Setting server role parameters](#)^[416]
- [Defining server permissions](#)^[417]
- [Defining server role permissions](#)^[418]
- [Defining login permissions](#)^[419]
- [Defining endpoint permissions](#)^[420]

See also:

[Server Role Manager](#)^[693]

5.4.12.1 Setting server role parameters

Use the **Server Role** tab of **Server Role Editor** to specify server role properties and membership.



Name

Enter a name for the new server role, or view the name of the server role being edited.

Owner

Use the drop-down list to select the owner of the server role (the name of a server [login](#) [354]).

Members of the role

Add members to the role, i.e. add the [logins](#) [354] (or other server roles) that will inherit the permissions of the server role.

To add a login, you need to move it from the **Available Principals** list to the **Selected Principals** list. Use the     buttons or drag-and-drop operations to move the logins from one list to another.

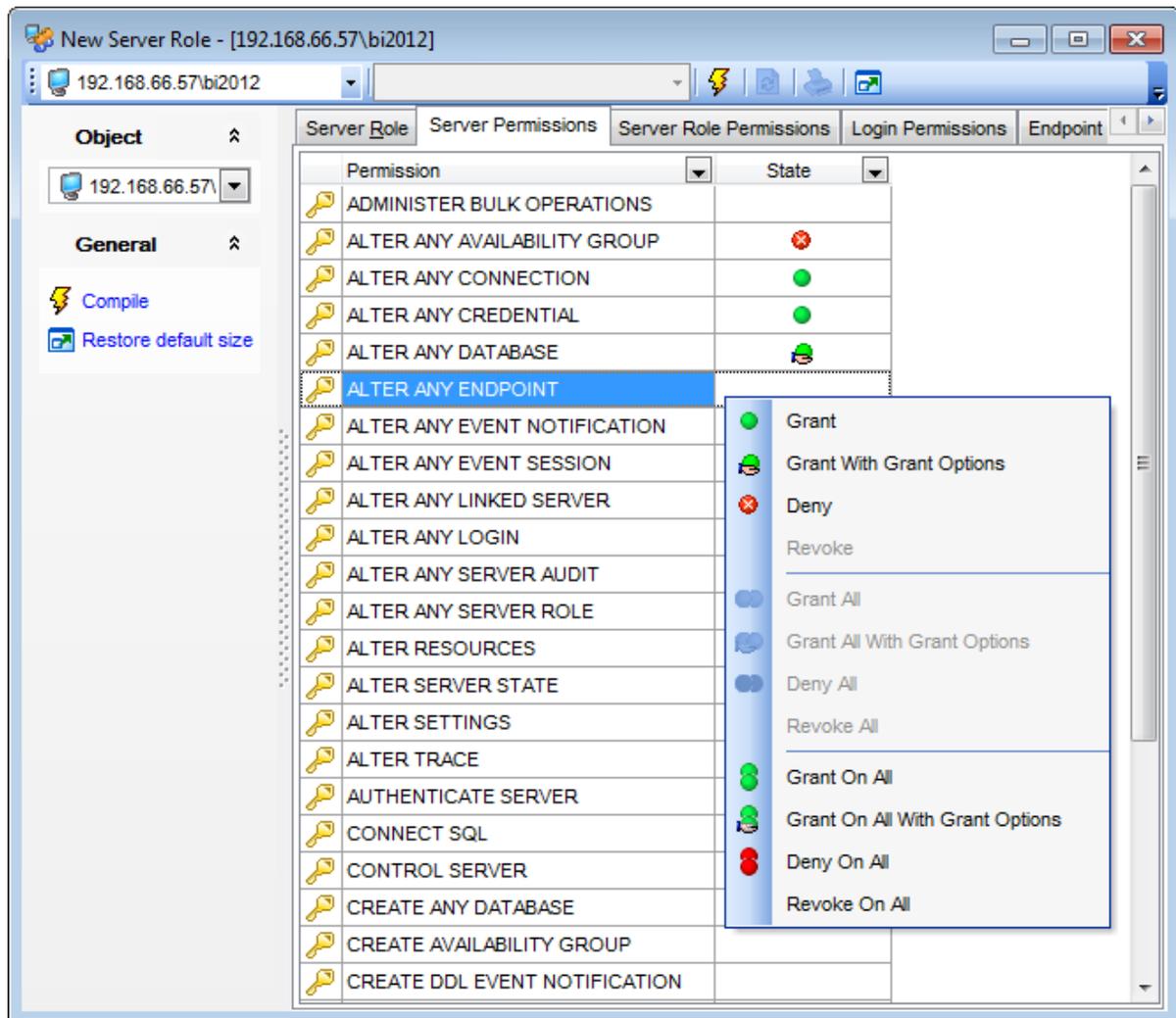
The role is member of

Define role membership, i.e. select the server role(s) the current server role will be a member of. The selected server roles determine the tasks that can be performed through the current server role.

To select a server role, you need to move it from the **Available Server Roles** list to the **Selected Server Roles** list. Use the     buttons or drag-and-drop operations to move the roles from one list to another.

5.4.12.2 Defining server permissions

This tab allows you to grant **Server permissions** to the server role.



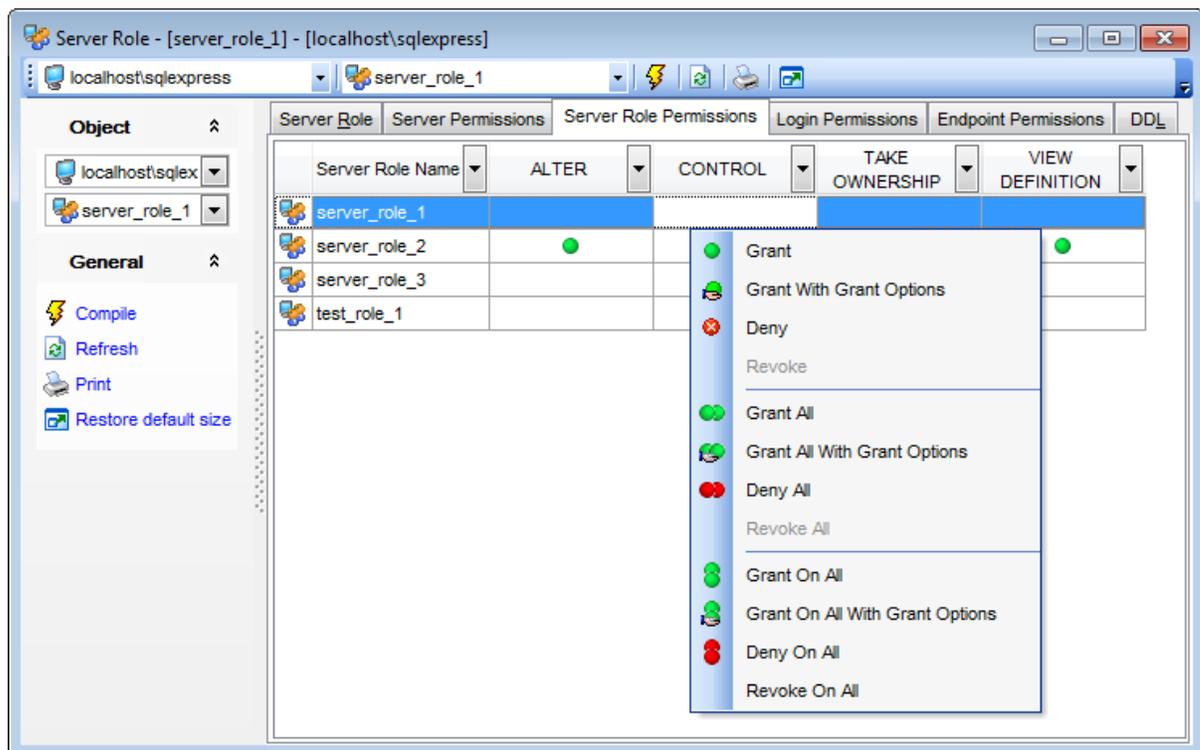
The **Permission** column contains the list of server permissions that can be granted to the server role: *CONNECT SQL*, *SHUTDOWN*, *CREATE ANY DATABASE*, *CREATE ENDPOINT*, *ALTER ANY LOGIN*, *ALTER ANY CREDENTIAL*, *ALTER ANY LINKED SERVER*, *ALTER ANY CONNECTION*, etc.

Right-click a cell within the **State** column to grant a permission to the server role. The context menu of a cell allows you to:

- grant a permission to the server role;
- grant a permission (with Grant Option) to the server role;
- deny a permission to the server role;
- revoke a previously granted or denied permission;
- grant all permissions to the server role;
- grant all permissions (with Grant Option) to the server role;
- deny all permissions to the server role;
- revoke all previously granted or denied permissions.

5.4.12.3 Defining server role permissions

This tab allows to define **Server role permissions** to the current server role.



The **Server Role Name** column contains the list of server roles; each subsequent column corresponds to the permission which can be granted on the selected server role: *ALTER*, *CONTROL*, *TAKE OWNERSHIP*, *VIEW DEFINITION*.

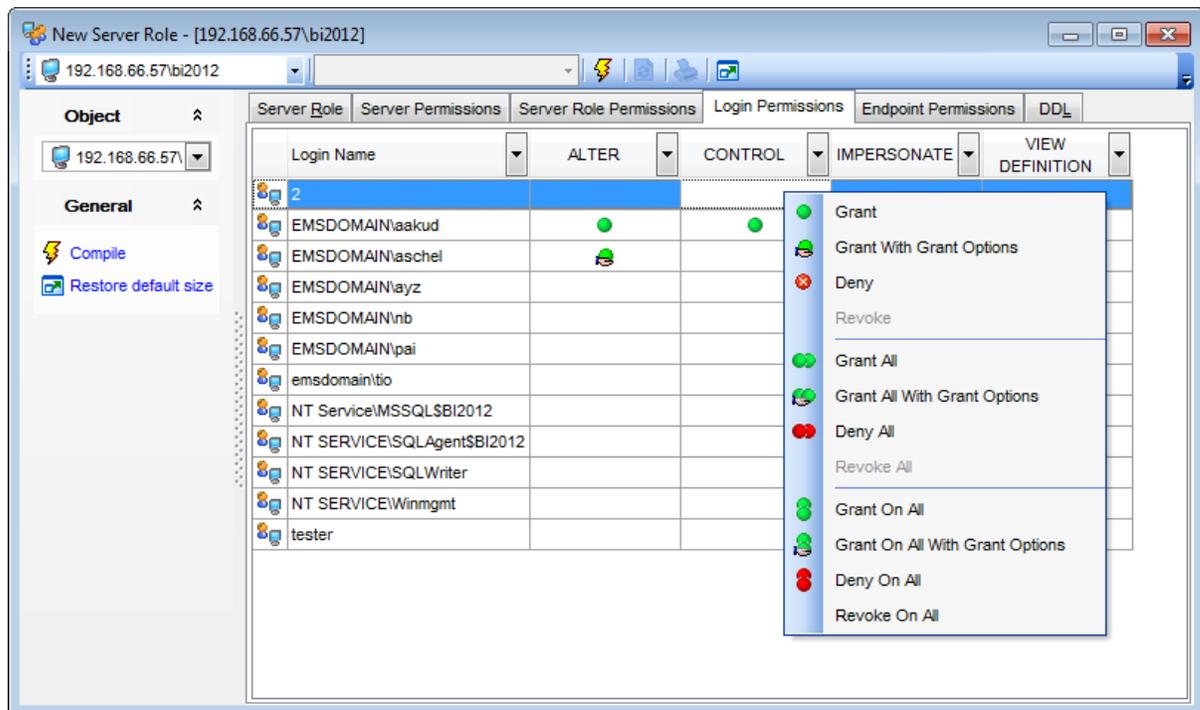
Right-click a cell to grant a specific permission on a certain server role. To grant a permission on a server role, you should find the object in the **Server Role Name** list and the column with the corresponding permission. The context menu of a cell allows you to:

- grant a permission on the server role to the current server role;
- grant a permission (with Grant Option) on the server role to the current server role;
- deny a permission on the server role to the current server role;
- revoke a previously granted or denied permission;
- grant all permissions on the server role to the current server role;
- grant all permissions (with Grant Option) on the server role to the current server role;
- deny all permissions on the server role to the current server role;
- revoke all previously granted or denied permissions;

- grant a permission on all server role to the current server role;
- grant a permission (with Grant Option) on all server role to the current server role;
- deny a permission on all server role to the current server role;
- revoke a previously granted or denied permission on all server role.

5.4.12.4 Defining login permissions

This tab allows you to define **Login permissions** to the server role.



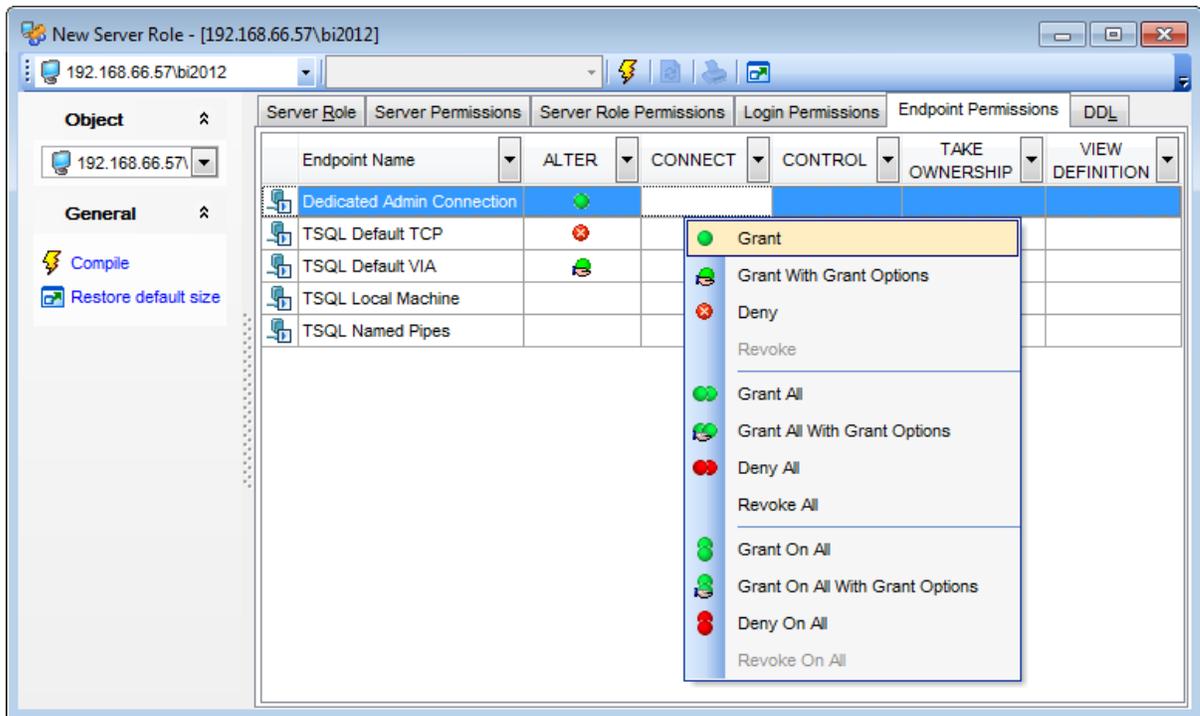
The **Login Name** column contains the list of server [logins](#)^[354]; each subsequent column corresponds to the permission which can be granted on the selected login: *ALTER*, *CONTROL*, *IMPERSONATE*, *VIEW DEFINITION*.

Right-click a cell to grant a specific permission on a certain login. To grant a permission on an login, you should find the object in the **Login Name** list and the column with the corresponding permission. The context menu of a cell allows you to:

- grant a permission on the login to the server role;
- grant a permission (with Grant Option) on the login to the server role;
- deny a permission on the login to the server role;
- revoke a previously granted or denied permission;
- grant all permissions on the login to the server role;
- grant all permissions (with Grant Option) on the login to the server role;
- deny all permissions on the login to the server role;
- revoke all previously granted or denied permissions;
- grant a permission on all logins to the server role;
- grant a permission (with Grant Option) on all logins to the server role;
- deny a permission on all logins to the server role;
- revoke a previously granted or denied permission on all logins.

5.4.12.5 Defining endpoint permissions

This tab allows you to grant **Endpoint permissions** to the server role.



The **Endpoint Name** column contains the list of server [endpoints](#)^[402]; each subsequent column corresponds to the permission which can be granted on the selected endpoint: *ALTER, CONNECT, CONTROL, TAKE OWNERSHIP, VIEW DEFINITION*.

Right-click a cell to grant a specific permission on a certain endpoint. To grant a permission on an endpoint, you should find the object in the **Endpoint name** list and the column with the corresponding permission. The context menu of a cell allows you to:

- grant a permission on the endpoint to the server role;
- grant a permission (with Grant Option) on the endpoint to the server role;
- deny a permission on the endpoint to the server role;
- revoke a previously granted or denied permission;
- grant all permissions on the endpoint to the server role;
- grant all permissions (with Grant Option) on the endpoint to the server role;
- deny all permissions on the endpoint to the server role;
- revoke all previously granted or denied permissions;
- grant a permission on all endpoints to the server role;
- grant a permission (with Grant Option) on all endpoints to the server role;
- deny a permission on all endpoints to the server role;
- revoke a previously granted or denied permission on all endpoints

5.4.13 DTS Packages

In SQL Server 2000, **Data Transformation Services (DTS)** is a component built to take data from one OLE DB data source, perform certain operations and store it in a destination OLE DB data source. DTS consists of **packages** which define a particular set of work that forms a logical work item. **DTS Packages** contain multiple connections to data sources, tasks to be performed, workflows. Examples of tasks include copying data from source to destination connections, transforming data from a source connection and placing the transformed data in the destination connection, executing a set of Microsoft ActiveX scripts or Transact-SQL statements against a connection.

In SQL Server 2005 (and higher), **Integration Services (SSIS)** packages are provided for data warehousing purposes.

SQL Manager for SQL Server provides running **Data Transformation Services (DTS)** packages that were developed by using SQL Server 2000 tools. These can be run in SQL Server 2005 and higher, alongside **Integration Services (SSIS)** packages.

Importing DTS Packages

To import DTS Package:

- right-click **DTS Package** node (within the **Server Objects** branch) or any object within this node in the [DB Explorer](#)^[63] tree and select the **Tasks | Import DTS Package...** item from the [context menu](#)^[56].

Exporting DTS Packages

To export DTS Package:

- right-click **DTS Package** node (within the **Server Objects** branch) or any object within this node in the [DB Explorer](#)^[63] tree and select the **Tasks | Export DTS Package...** item from the [context menu](#)^[56].

Running DTS Packages

To run DTS Package:

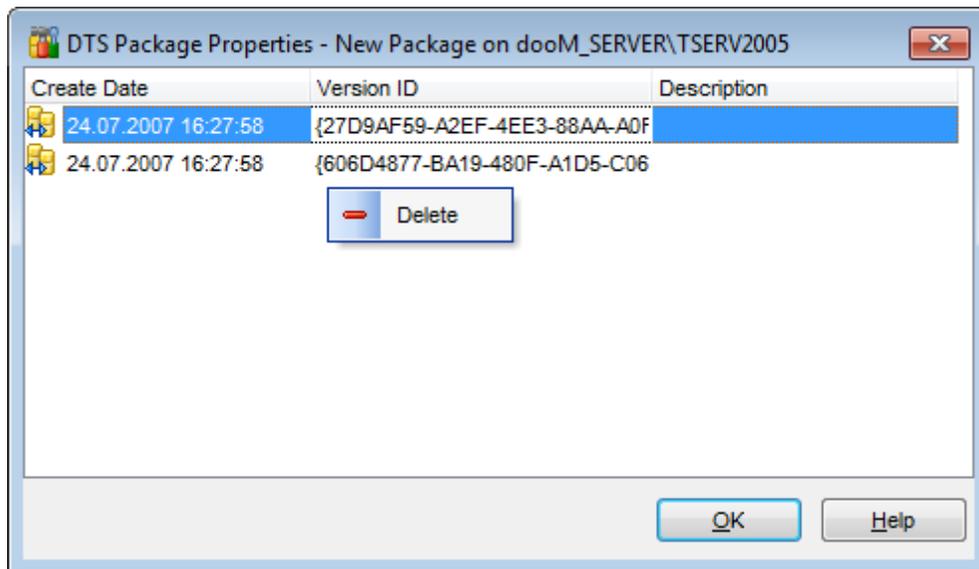
- right-click any object in the **DTS Package** node (within the **Server Objects** branch) in the [DB Explorer](#)^[63] tree and select the **Tasks | Run DTS Package...** item from the [context menu](#)^[56].

To import, export, run **DTS Packages** you can also use the **context menu** and the **Navigation bar** of [DTS Packages manager](#)^[81]. You can view package properties in the [DTS Package properties](#)^[42] dialog.

5.4.13.1 DTS Package properties

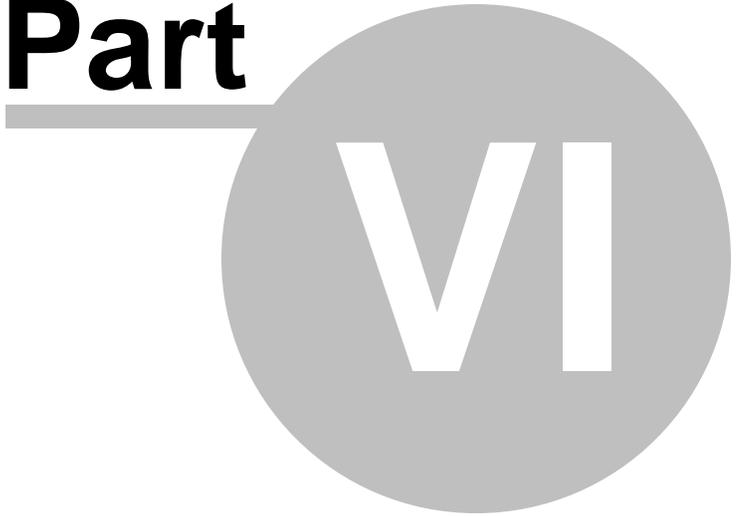
The **DTS Package Properties** dialog allows you to browse the **DTS package** common information.

To open the dialog, right-click the DTS package in [DB Explorer](#)^[63] and select the **DTS Package Properties...** context menu item.



The dialog displays common properties pertaining to the DTS package: *Create Date*, *Version ID*, *Description*.

Part



6 Query Management Tools

When using SQL Manager for SQL Server, you are provided with two basic tools you may need to manage your SQL queries: [Query Data](#)^[426] for editing SQL query text directly and [Design Query](#)^[442] for building queries visually. Find the list of common SQL query management operations below.

Creating New Queries

In order to create a new query in *Query Data*:

- select the **Tools | Query Data** [main menu](#)^[915] item or use the corresponding  [toolbar](#)^[917] button;
- click the **Add new query** item of the [Navigation bar](#)^[426];
- edit the query text within the **Edit** tab of [Query Data](#)^[426].

In order to create a new query in *Design Query*:

- select the **Tools | Design Query** [main menu](#)^[915] item or use the corresponding  [toolbar](#)^[917] button;
- build the query visually within the **Builder** tab of [Design Query](#)^[442].

Editing Queries

In order to open a query in *Query Data*:

- select the **Tools | Query Data** [main menu](#)^[915] item or use the corresponding  [toolbar](#)^[917] button;
- use the numbered tabs at the bottom of the editor window to switch between previously edited queries. The last edited query is displayed automatically on opening the editor;
- edit the query text within the **Edit** tab of [Query Data](#)^[426].

In order to open a query in *Design Query*:

- select the **Tools | Design Query** [main menu](#)^[915] item or use the corresponding  [toolbar](#)^[917] button;
- the last edited query is displayed automatically on opening Design Query;
- to load a previously saved diagram, click the **Load diagram** item of the [Navigation bar](#)^[442];
- to load a query from an *.sql file, open the **Edit** tab and click the **Load SQL** button of the Navigation bar;
- edit the query visually within the **Builder** and/or the **Edit** tabs of [Design Query](#)^[442].

In order to load a query from an *.sql file:

- select the **Tools | Query Data** [main menu](#)^[915] item or use the corresponding  [toolbar](#)^[917] button;
- click the **Load from file** item of the [Navigation bar](#)^[426];
- browse for the query file using the **Open SQL File** dialog;
- edit the query text within the **Edit** tab of [Query Data](#)^[426].

Executing Queries

In order to execute a query:

- *create a new query or open an existing one;*

- click the **Execute** item of the [Navigation bar](#)^[426] or use the *F9* hot-key to execute the query;
- view/edit the returned data within the **Results** tab of [Query Data](#)^[426].

Saving Queries

In order to save a query:

- *create a new query or open an existing one;*
 - click the **Save to file** [Navigation bar](#)^[426] item (in *Query Data*) or the **Save SQL** [Navigation bar](#)^[442] item (in *Design Query*), or use the *Ctrl+S* [shortcut](#)^[952] to save the query using the **Save as...** dialog;
 - click the **Save diagram** [Navigation bar](#)^[442] item in [Design Query](#)^[442] to save the designed diagram;
- or
- use the **Save all** [Navigation bar](#)^[426] item in [Query Data](#)^[426] if you need to save all the queries to one file.

See also:

[Getting Started](#)^[41]

[Database Explorer](#)^[63]

[Database Management](#)^[94]

[Database Objects Management](#)^[178]

[Data Management](#)^[462]

[Import/Export Tools](#)^[530]

[Database Tools](#)^[611]

[Server Tools](#)^[715]

[Personalization](#)^[824]

[External Tools](#)^[909]

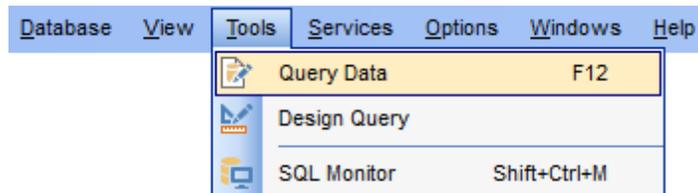
[How To...](#)^[957]

6.1 Query Data

Query Data is the basic tool of SQL Manager for SQL Server for creating and executing queries. The tool allows you to create and edit the SQL text of a query, prepare and execute queries and view the results of query execution.

To open Query Data, select the **Tools | Query Data** [main menu](#)^[915] item or use the corresponding [toolbar](#)^[917] button. You can also use the *F12* [shortcut](#)^[952] for the same purpose.

To open **New Query Data** use the *Shift+F12* shortcut.



- [Using Navigation bar and Toolbar](#)^[426]
- [Working with Query Data area](#)^[429]
- [Using the context menu](#)^[430]
- [Viewing query plan](#)^[432]
- [Using object links](#)^[433]
- [Executing queries and viewing results](#)^[434]
- [Viewing query logs](#)^[435]
- [Favorites editor](#)^[439]
- [Merging queries](#)^[440]

See also:

[Design Query](#)^[442]

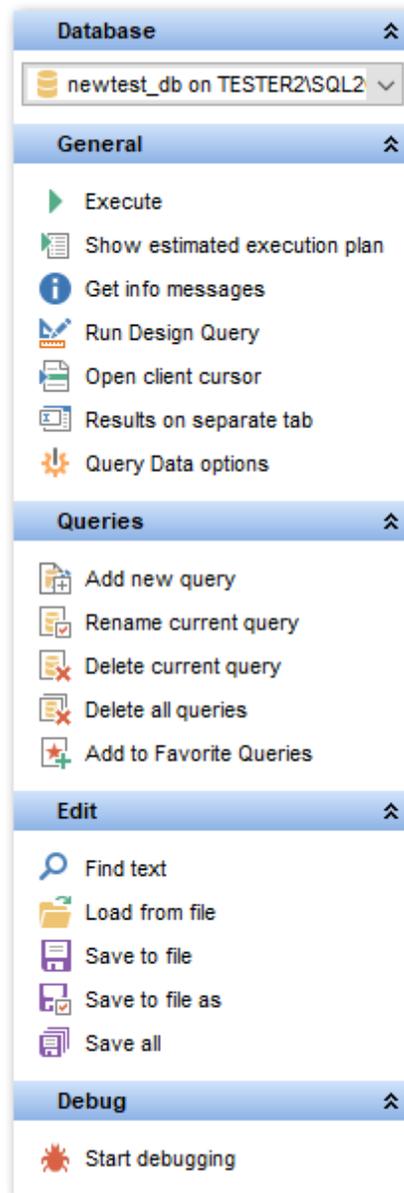
[Query parameters](#)^[459]

[Execute Script](#)^[619]

[Editor Options](#)^[869]

6.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Query Data**.



The **Navigation bar** of **Query Data** allows you to:

Database

 select a database for the query

General

-  execute the current query
-  view estimated [query execution plan](#)^[432]
-  show/hide information messages
-  run [Design Query](#)^[442] to design the query as a diagram
-  open cursor on client (server) side. If the server cursor is selected then the query dataset is processed with server resources, otherwise it's processed on the client side.

-  switch the results representation mode: *on Edit tab* or *on separate tab*
-  configure Query Data within the [Tools | Query Data](#)^[837] page of the [Environment Options](#)^[825] dialog
-  restore the default size and position of the editor window

Queries

-  add a new query (note that the current query text will not be lost)
-  rename the current query
-  delete the query
-  delete all queries from the editor
-  edit the query text using [Favorites editor](#)^[439] and add the query to the [Favorite Queries](#)^[90] list

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with queries:

Edit

-  activate the [Find Text](#)^[925] dialog
-  load a query from an *.sql file using the **Open SQL File** dialog
-  save the query to an *.sql file
-  save the query to an *.sql file using the **Save as...** dialog
-  save all queries to an *.sql file

Logs

-  activate the [Find Text](#)^[925] dialog
-  save the query log to a file
-  clear logs

Data Management

-  commit transaction
-  rollback transaction
-  export the returned dataset using [Export Data Wizard](#)^[531]
-  export the returned dataset as SQL script using the [Export as SQL Script](#)^[593] wizard
-  [import data](#)^[571]

Debug

-  debug the code using the [Debug T-SQL](#)^[437] tool

Items of the **Navigation bar** are also available on the **ToolBar** of **Query Data**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

See also:

- [Working with Query Data area](#)^[429]
- [Viewing query plan](#)^[432]

[Executing queries](#)^[434]

[Viewing query logs](#)^[435]

[Favorites editor](#)^[439]

6.1.2 Working with Query Data area

The **Editor area** of Query Data is available within the **Edit** tab and is provided for working with SQL queries in text mode.

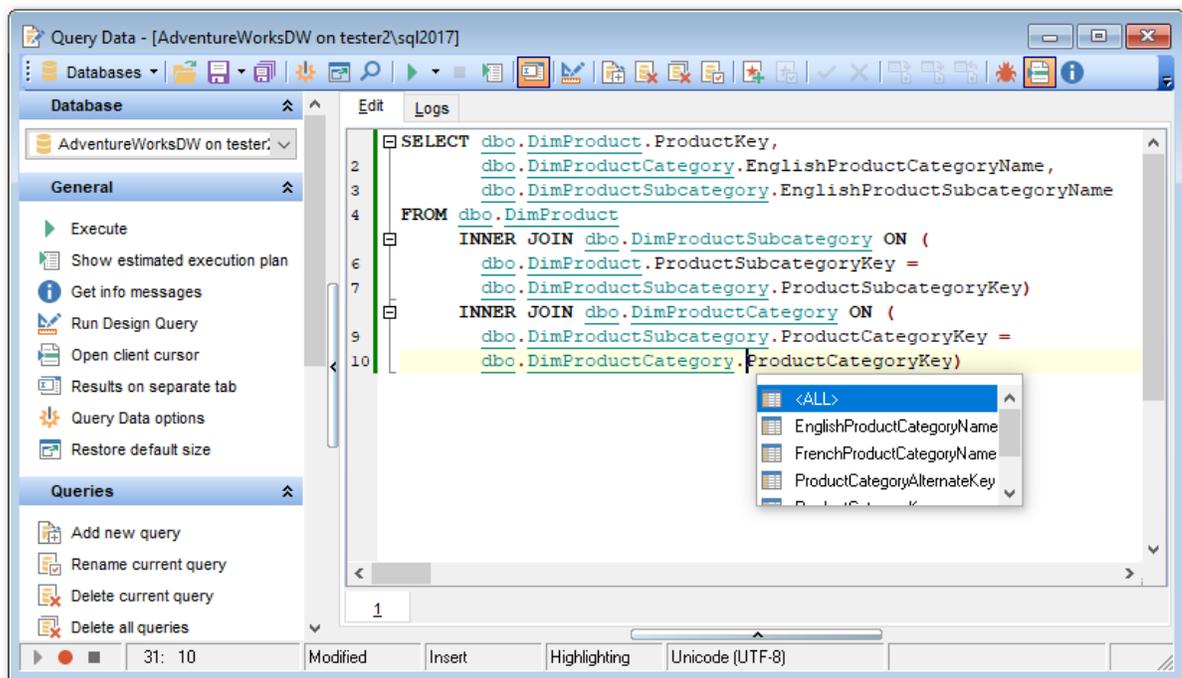
For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented:

- using [object links](#)^[433] allowing you to open the object in the associated editor;
- ability to display line numbers;
- code folding for statements and clauses;
- customizable margins and gutters;
- formatting code for better representation

and more.

If necessary, you can enable/disable or customize most of Query Data features using the [Editor Options](#)^[869] dialog.

The example of code completion is illustrated in the picture below. You can set the delay within the [Quick code](#)^[876] section of the [Editor Options](#)^[869] dialog or activate the completion list manually by pressing the *Ctrl+Space* [shortcut](#)^[952].



For your convenience the possibility to use **macros** is implemented.

To *start recording* a macro, click the **Record** button available in the status bar area, or use the *Shift+Ctrl+R* shortcut.

To *stop recording*, click the **Stop** button, or use the *Shift+Ctrl+R* shortcut.
To *call* the recorded macro, use the **Play** button, or use the *Shift+Ctrl+P* shortcut.

Hint: To paste [input parameters](#)^[256] of a [procedure](#)^[253] quickly, use the *Ctrl+Shift+P shortcut*^[952] after the procedure name.

Hint: To use a [keyboard template](#)^[894], type the template name and press the *Ctrl+J shortcut*^[952]: the text associated with the template will be inserted automatically.

If necessary, you can **print** the SQL text of your query using the corresponding item of the [context menu](#)^[430].

See also:

[Using Navigation bar and Toolbar](#)^[426]

[Using the context menu](#)^[430]

[Editor Options](#)^[869]

[Keyboard Templates](#)^[894]

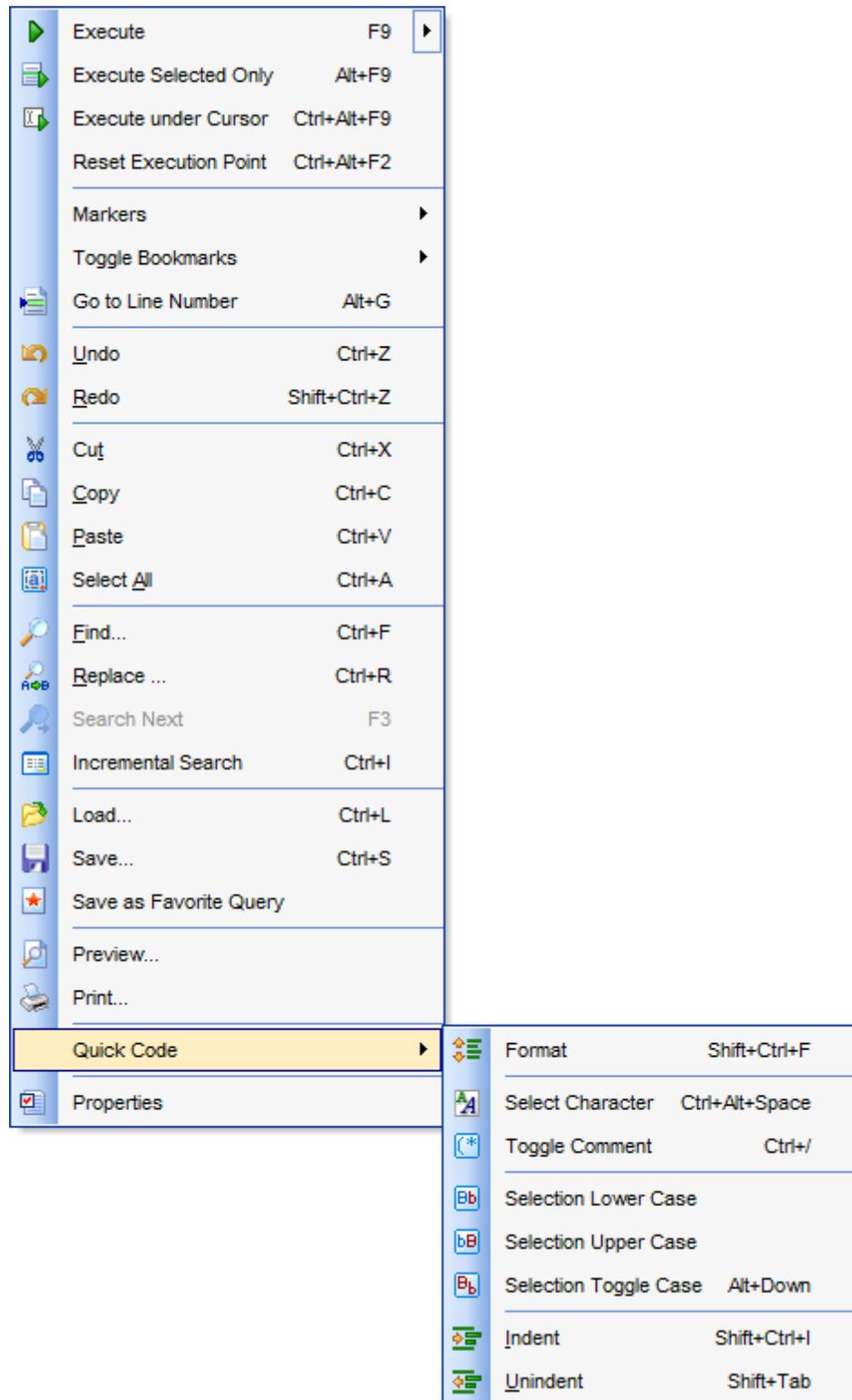
[Favorites editor](#)^[439]

[Find Text dialog](#)^[925]

[Replace Text dialog](#)^[927]

6.1.3 Using the context menu

The **context menu** of Query Data area contains execution commands, most of the standard text-processing functions (*Cut, Copy, Paste, Select All*) and functions for working with the query as a whole, e.g. you can *move the cursor to a particular line, change the case of selected text, view the query properties* or *print* the text of the query. Each of these operations can be also performed with the corresponding hot keys used.



Implementation of the [Find Text](#)^[925] / [Replace Text](#)^[927] dialogs and [Incremental search](#)^[917] bar contributes to more efficient work with the SQL code.

Find the complete list of **Query Data** context menu items below. The context menu allows you to:

- add the selected text to dictionary or correct text (see [Spell checking](#)^[882] for details);
- execute the query/selected text/text under cursor, and reset execution point (if necessary);
- manage markers: *Drop Marker, Collect Marker, Swap Marker*;
- toggle bookmarks allowing you to navigate through the query text and jump to a line with a particular number;
- perform editing operations: *Undo/Redo, Cut, Copy, Paste, Select all*;
- perform [search](#)^[925] and [replace](#)^[927] operations;
- save/load a query to/from an external *.sql file;
- perform preview/print operations;
- use the *Quick code* group allowing you to format the selected code using *SQL Formatter* to make the code easier to read, toggle comments for code fragments, change case of the selected text, indent/unindent code lines;
- add the query to the [Favorite Queries](#)^[686] list;
- open the [Editor Options](#)^[869] dialog.

See also:

[Working with Query Data area](#)^[429]

[Executing queries](#)^[434]

6.1.4 Viewing query plan

Using SQL Manager for SQL Server, you can view **the plan** for each of the queries created and executed in the application. The query plan is available within the corresponding **Plan** tab.

To view the **Plan** of a query, open the query in **Query Data** and use the  **Show estimated execution plan** item of the [Navigation bar](#)^[426] or [toolbar](#)^[428].

The **Plan** tab allows you to view the sequence of actions performed by the database server in the process of the query execution, and the amount of system resources used for the query execution.

Operation	Logical Operation	Subtree Cost	IO Cost	CPU Cost	Estimated ...	Estimated ...	Actual Exe...	Actual Rows	Row
SELECT		100,000%	0,00%	0,00%			9		
Nested Loops	Inner Join	100,000%	0,00%	0,06%	1	9			
Hash Match	Inner Join	85,178%	0,00%	54,37%	1	14			
Nested Loops	Inner Join	16,466%	0,00%	0,03%	1	6			
Clustersed Index Scan	Clustersed Index Scan	3,504%	3,33%	0,18%	1	7			
Clustersed Index Seek	Clustersed Index Seek	12,932%	3,33%	0,17%	7	1			
Clustersed Index Scan	Clustersed Index Scan	14,342%	13,58%	0,76%	1	504			
Clustersed Index Seek	Clustersed Index Seek	14,762%	3,33%	0,17%	13,52083396%	1			

The **Operation** panel below displays the operations as a tree list with the following columns: *Operation, Logical Operation, Subtree Cost, IO Cost, CPU Cost, Estimated Executions, Estimated Rows, Actual Executions, Actual Rows, Row Size, Parallel, Statement, Argument, Defined Values, Output, Warnings.*

Right-click within the panel to display the **context menu** allowing you to configure the set of *visible columns* or [export](#)^[53] the plan to any of supported [formats](#)^[935].

If necessary, you can specify that the **Plan** tab appears automatically upon query execution in Query Data: select the **Show actual execution plan on query execution** option available within the [Tools | Query Data](#)^[837] section of the [Environment Options](#)^[825] dialog.

See also:

[Query Data options](#)^[837]

[Executing queries](#)^[434]

6.1.5 Using object links

Objects that exist in the database are highlighted in the text as hyperlinks. You can open an object in the appropriate editor by clicking the object name in the text with the *Ctrl* key pressed.

```

SELECT
    EmployeeID,
    NationalIDNumber,
    ContactID,
    LoginID,
    ManagerID,
    Title,
    BirthDate,
    MaritalStatus,
    Gender,
    HireDate
FROM
    HumanResources.Employee;

```

Please note that you can change the way highlighted objects look in the editor: use the [Display | Highlight](#) ^[875] section of the [Editor Options](#) ^[869] dialog.

See also:

[Working with Query Data area](#) ^[429]

[Editor Options](#) ^[869]

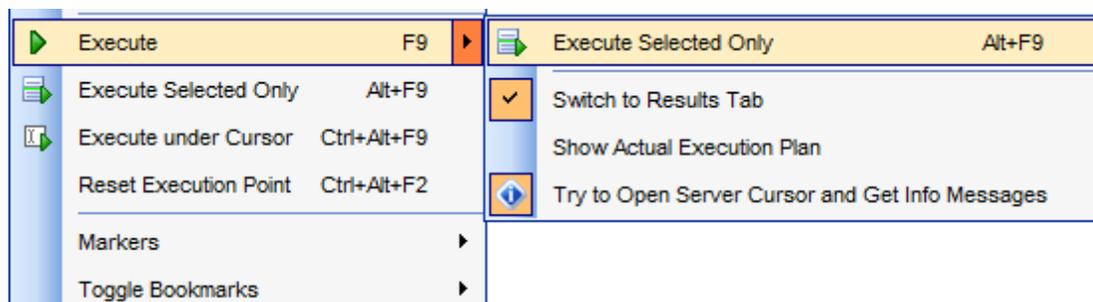
6.1.6 Executing queries

When all the query parameters are set, you can immediately **execute the query** in **Query Data**.

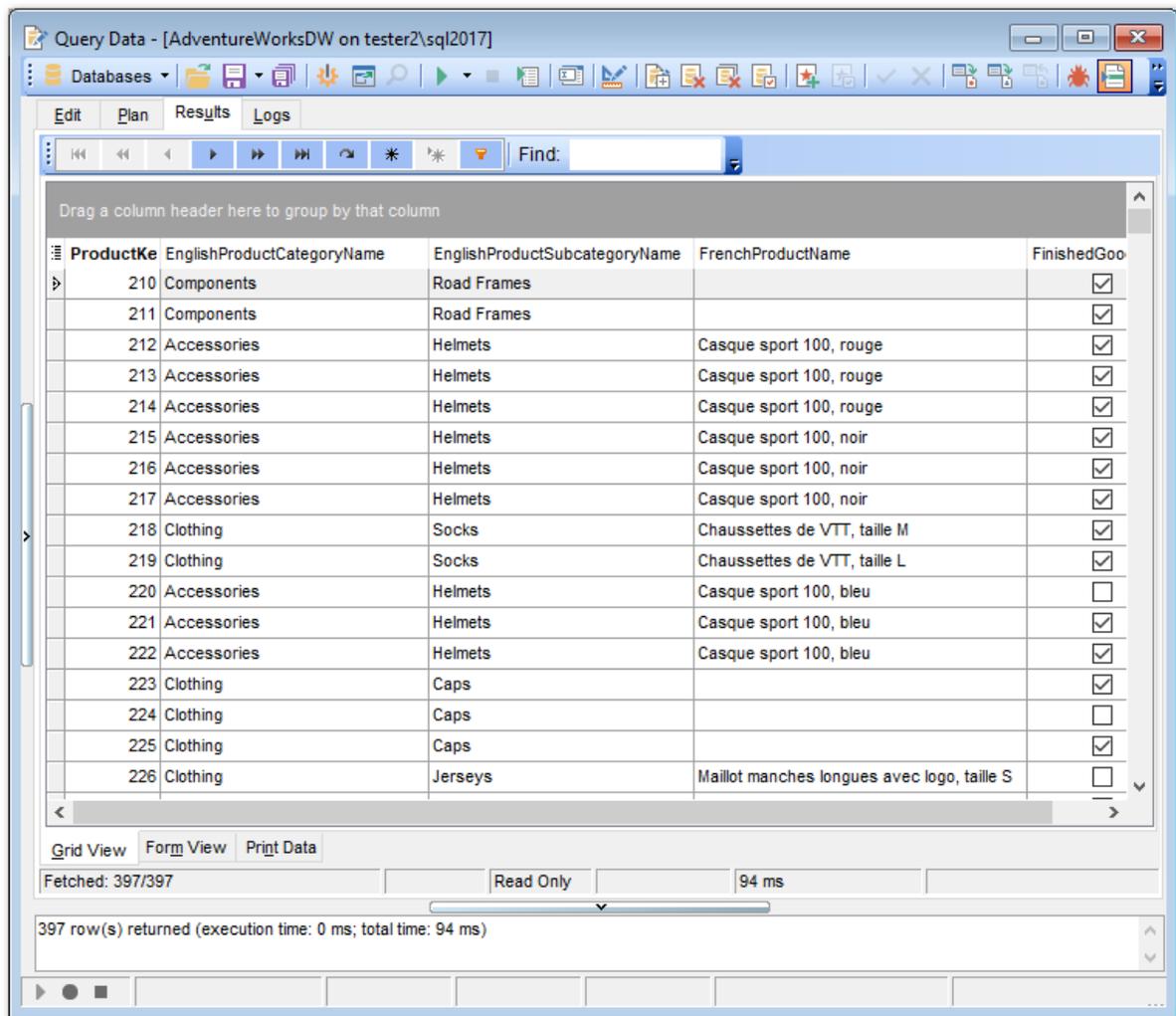
To execute a query, click the **Execute** item of the [Navigation bar](#) ^[426]. You can also use the [context menu](#) ^[430] or *F9* hot key for the same purpose.

If the SQL syntax is correct, the query is executed and, in case the query statement is supposed to return data (e.g. as SELECT statement), the returned dataset appears within the **Results** tab. The position of the tab depends on the **Results on Edit tab / Results on separate tab** selection in the [Navigation bar](#) ^[426].

If SQL syntax of the query contains any errors, the query execution is stopped and the corresponding error message is displayed in the status bar area at the bottom of the editor window.



By default, data returned by a query are displayed as a grid (see [Data View](#)^[463] for details). The [context menu](#)^[469] of the grid allows you to [Export Data](#)^[531], [Export as SQL Script](#)^[593].



See also:

[Data View](#)^[463]

[Export Data](#)^[531]

[Export as SQL Script](#)^[593]

6.1.7 Viewing query logs

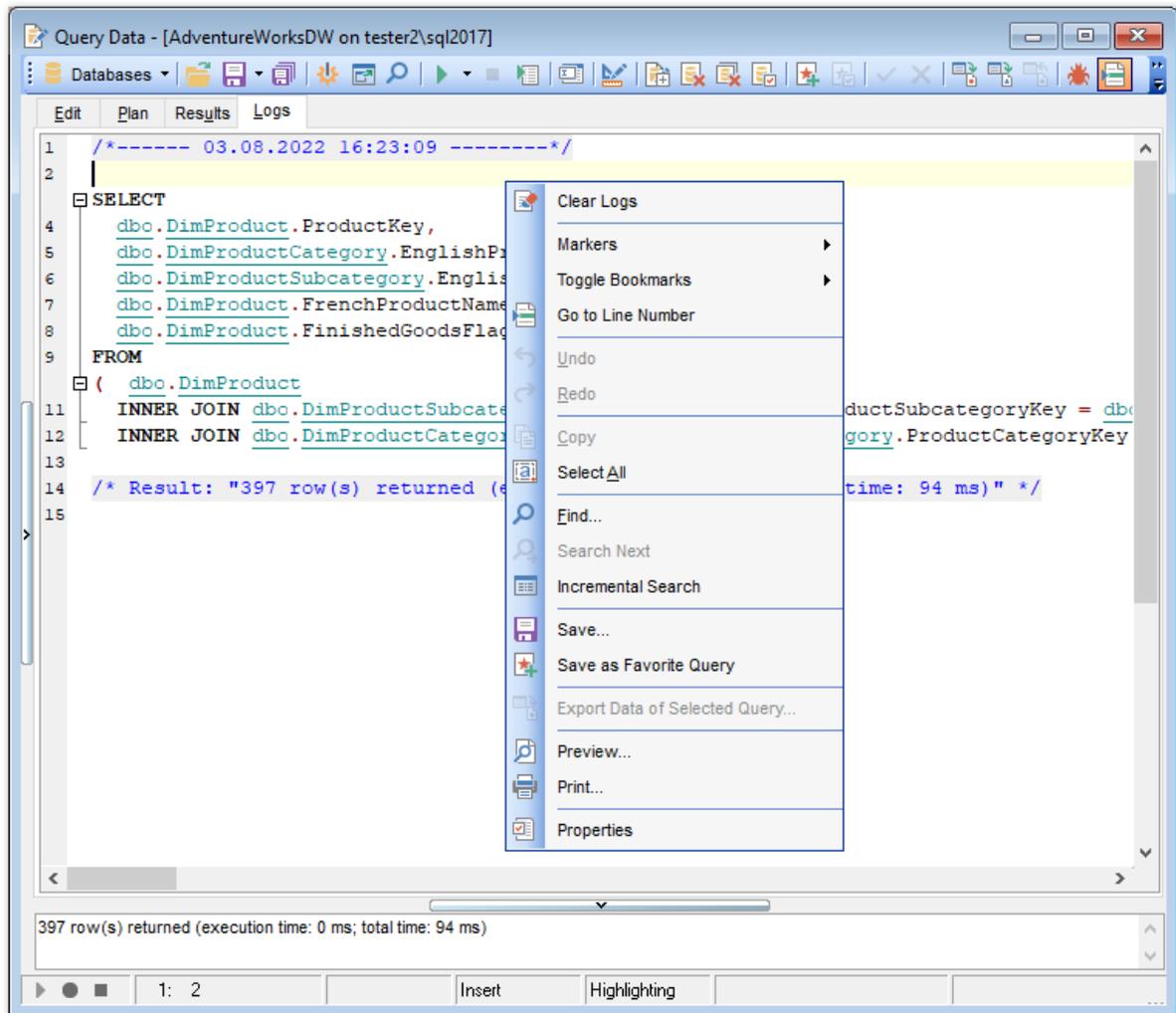
This tab allows you to view the query **log**. The log is available within the **Logs** tab of **Query Data**.

Using this tab you can view *log entries* containing the following details:

- date and time of the query execution;
- text of the query;
- number of rows fetched and fetch time, or the text of the error (if any).

Date/time and the execution result information are embedded as code comments conforming with the rules of SQL.

With the help of the **context menu** the log can be *printed*, *saved* to file or *cleared*. You can also use a number of Query Data [context menu](#)⁴³⁰ generic functions.



See also:

[Executing queries](#)⁴³⁴

[Using the context menu](#)⁴³⁰

6.1.8 Debugging T-SQL

T-SQL Debugger is the cutting edge feature of SQL Manager for SQL Server. This tool is provided for step-by-step code debugging of SQL scripts, [procedures](#)^[253], [UDFs](#)^[259]. Much of the power of the debugger comes from toggling breakpoints, getting variables' values, and fetching call stacks.

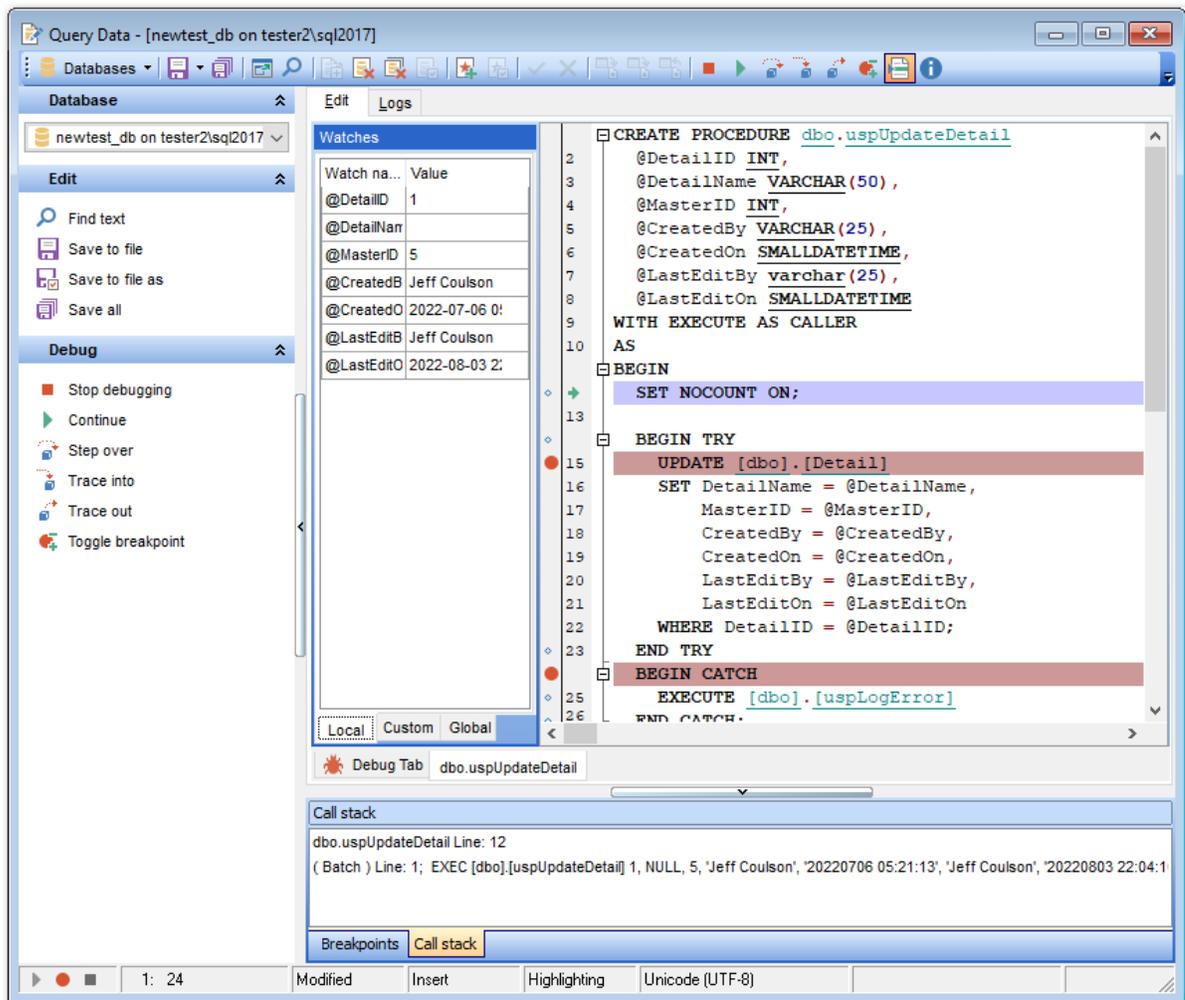
Note: For debugging on the remote server the host that is running the instance must be configured as follows <http://msdn.microsoft.com/en-us/library/cc646024.aspx>.

The **Edit** tab of the **T-SQL Debugger** window contains the following areas:

- the *Debug* panel of the [Navigation bar](#)^[426];
- the *Watches* list;
- the *T-SQL code* area;
- the *Call stack* box;
- the *Breakpoints* list.

Note: All areas within the **Edit** tab of the **PL/SQL Code Debugger** window are dockable, i.e. you can drag an area to any location within the parent form.

The **Logs** tab of the **PL/SQL Code Debugger** window displays the debug log.



-  *Start*: this command is used to start the debugging session;
-  *Break*: this command stops the current debugging session;
-  *Continue*: use this command to continue execution up to the next breakpoint;
-  *Step over*: traces the code disregarding the object body ([procedure](#)^[253], [UDF](#)^[259]);
-  *Trace into*: traces the code using the object body ([procedure](#)^[253], [UDF](#)^[259]);
-  *Trace out*: traces the code up to the point of leaving the object body ([procedure](#)^[253], [UDF](#)^[259]);
-  *Toggle breakpoint*: use this command to add/remove breakpoints;
-  *Clear watches*: allows you to clear the variables added to the **Watches** list.

The **T-SQL code** area presents the statement being debugged. All points that have been set within the code are marked with corresponding signs. Active breakpoints are highlighted red, and inactive breakpoints are highlighted green.

The **Watches** list allows you to watch (on the **Local** tab) the variables that have been declared in the code, and the value of each variable. The following attributes are listed for each watched variable:

Watch name

Value

To add custom watch proceed to the **Custom** tab and specify the watch name. You can delete the selected watch by using the *Ctrl+U* shortcut.

Use the **Global** tab to view values of the server global variables.

The **Call stack** box lists the call stacks, if applicable.

The **Breakpoints** list displays the currently toggled breakpoints. The following attributes are listed for each breakpoint:

Status

Line

Owner

Name

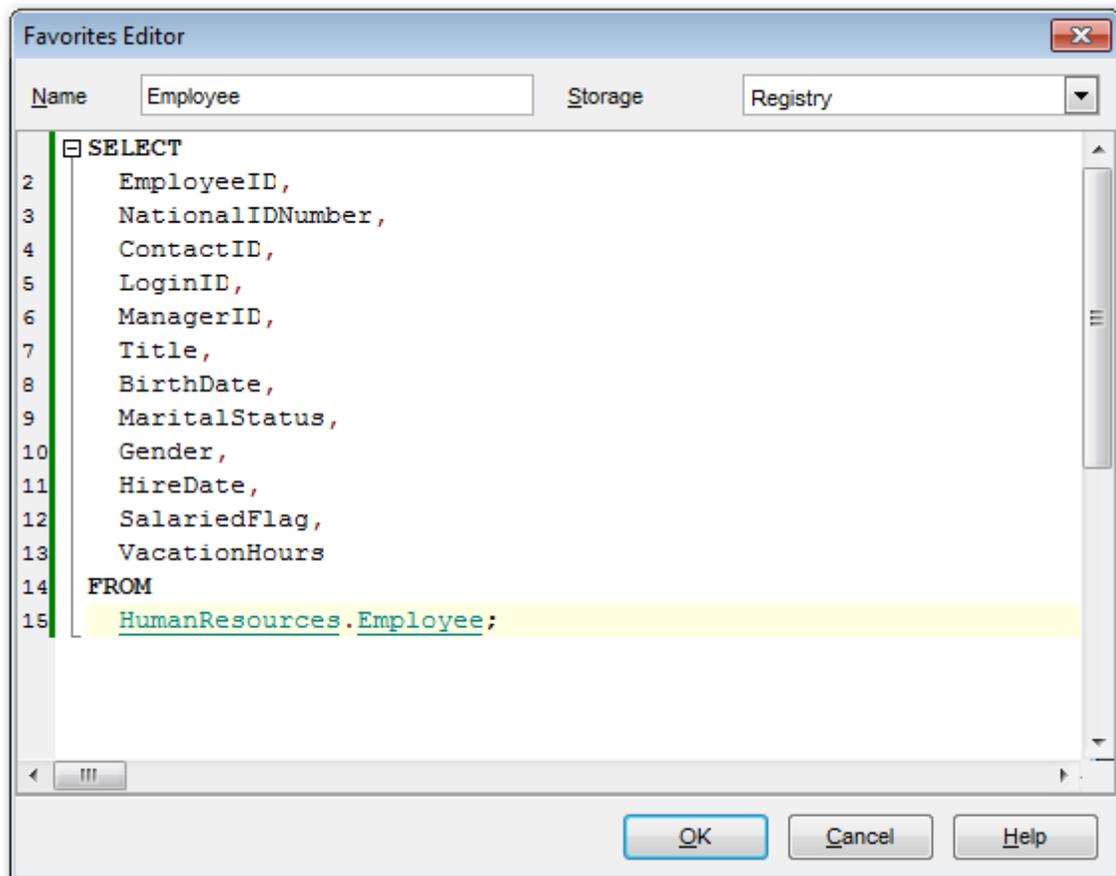
Using the context menu you can enable/disable the selected breakpoint or delete it.

6.1.9 Favorites editor

For your convenience the **Favorite Queries** list is implemented in SQL Manager for SQL Server. This list is available within the  **Favorite Queries** node of [Database Explorer](#)^[90] and allows you to store the most frequently used SQL queries in one location.

To add a query to the **Favorite Queries** list, use the  **Add to Favorite Queries** [Navigation bar](#)^[426] item in **Query Data**. The corresponding item is also available in the [context menu](#)^[430] of Query Data working area.

You can edit any of your Favorite Queries using **Favorites editor**.

**Name**

Set the name of the Favorite query.

Storage

Specify where the Favorite query will be stored: in *Windows Registry* or in the *Database*.

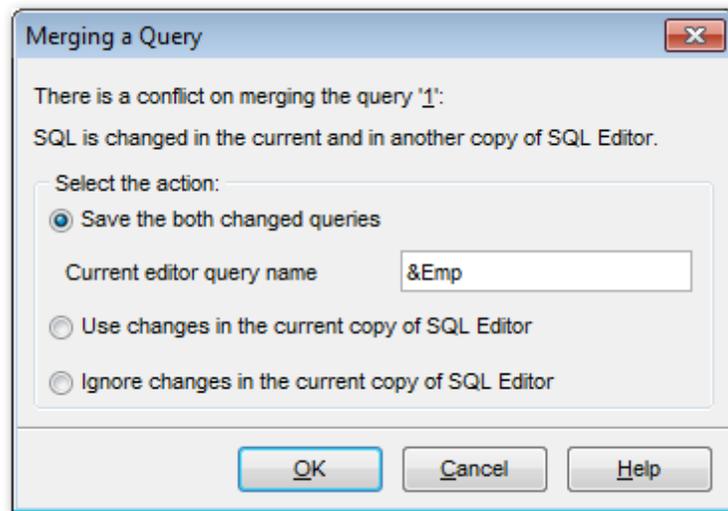
See also:

[Managing Favorite queries](#)^[90]

[Working with Query Data area](#)^[429]

6.1.10 Merging queries

When editing the same query in several copies of [Query Data](#)^[426], on attempt to close the **Query Data** window the **Merging a Query** dialog will appear like the one displayed below.



The actions offered are the following:

Save the both changed queries

The query opened in the first copy of Query Data will be saved as its original name; the query in the current copy will be saved under the name with additional postfix (by default it is '_1').

Use changes in the current copy of Query Data

The query will be saved as the original name; the modifications of SQL made within the current copy of **Query Data** will be applied.

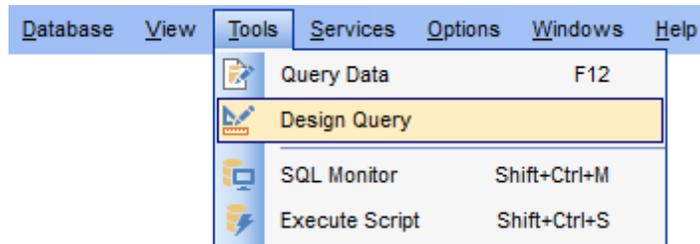
Ignore changes in the current copy of Query Data

The query will be saved as its original name; the modifications of SQL made within the current copy of **Query Data** will be ignored.

6.2 Design Query

Design Query is implemented in SQL Manager for SQL Server for building queries visually. The tool allows you to create and edit queries without deep knowledge of SQL. You can also prepare and execute queries, and view the results of their execution.

To open Design Query, select the **Tools | Design Query** [main menu](#)^[915] item or use the corresponding [toolbar](#)^[917] button.



- [Using Navigation bar and Toolbar](#)^[442]
- [Working with diagram area](#)^[444]
- [Joining two database objects by columns](#)^[446]
- [Setting the selection criteria](#)^[448]
- [Setting output columns for selection](#)^[451]
- [Setting the grouping criteria](#)^[452]
- [Setting parameters of sorting](#)^[453]
- [Working with editor area](#)^[454]
- [Executing queries and viewing results](#)^[455]
- [Viewing query plan](#)^[457]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

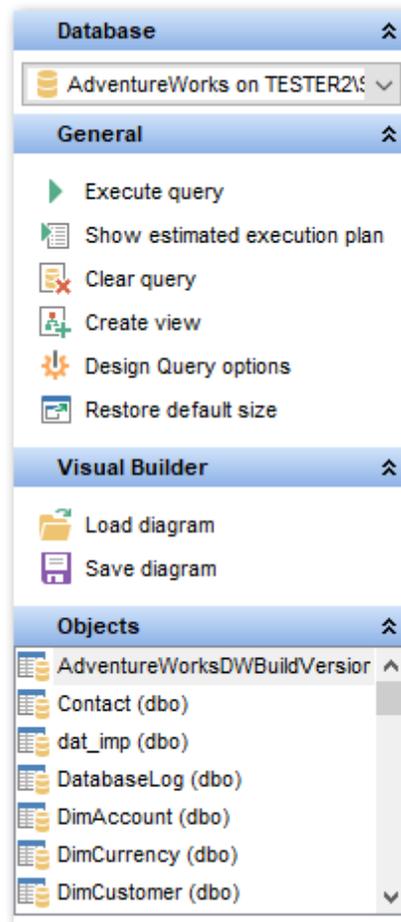
See also:

[Query Data](#)^[426]

[Query parameters](#)^[459]

6.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Design Query**.



The **Navigation bar** of **Design Query** allows you to:

Database

 select a database for the query

General

-  execute the current query
-  view estimated [query execution plan](#)^[457]
-  clear the query
-  create a [view](#)^[246]
-  configure Design Query using the [Design Queryr Options](#)^[841] page of the [Environment Options](#)^[825] dialog
-  restore the default size and position of the builder window

Objects

 browse objects of the database; you can also add tables and views to the diagram using drag-and-drop operations

Depending on the current tab selection, the **Navigation bar** expands to one or more additional panes with tab-specific actions that can be useful for working with queries:

Visual Builder

-  load a diagram from a *.vqb file using the **Open diagram** dialog
-  save the diagram to a *.vqb file using the **Save diagram as...** dialog

Edit

-  load a query from an *.sql file using the **Open SQL File** dialog
-  save the query to an *.sql file

Data Management

-  commit transaction
-  rollback transaction
-  export the returned dataset using [Export Data Wizard](#)^[531]
-  export the returned dataset as SQL script using the [Export as SQL Script](#)^[593] wizard

Items of the **Navigation bar** are also available on the **ToolBar** of **Design Query**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

See also:

- [Working with diagram area](#)^[444]
- [Query execution](#)^[455]

6.2.2 Working with diagram area

The main working area of **Design Query** is the diagram area available within the **Builder** tab. Here you can create a query by placing the database [tables](#)^[192] and [views](#)^[246] onto the area, and edit it by selecting the required data columns and setting links between objects.

To add an object to the query, you can simply drag it from the [DB Explorer](#)^[71] tree to the diagram area.

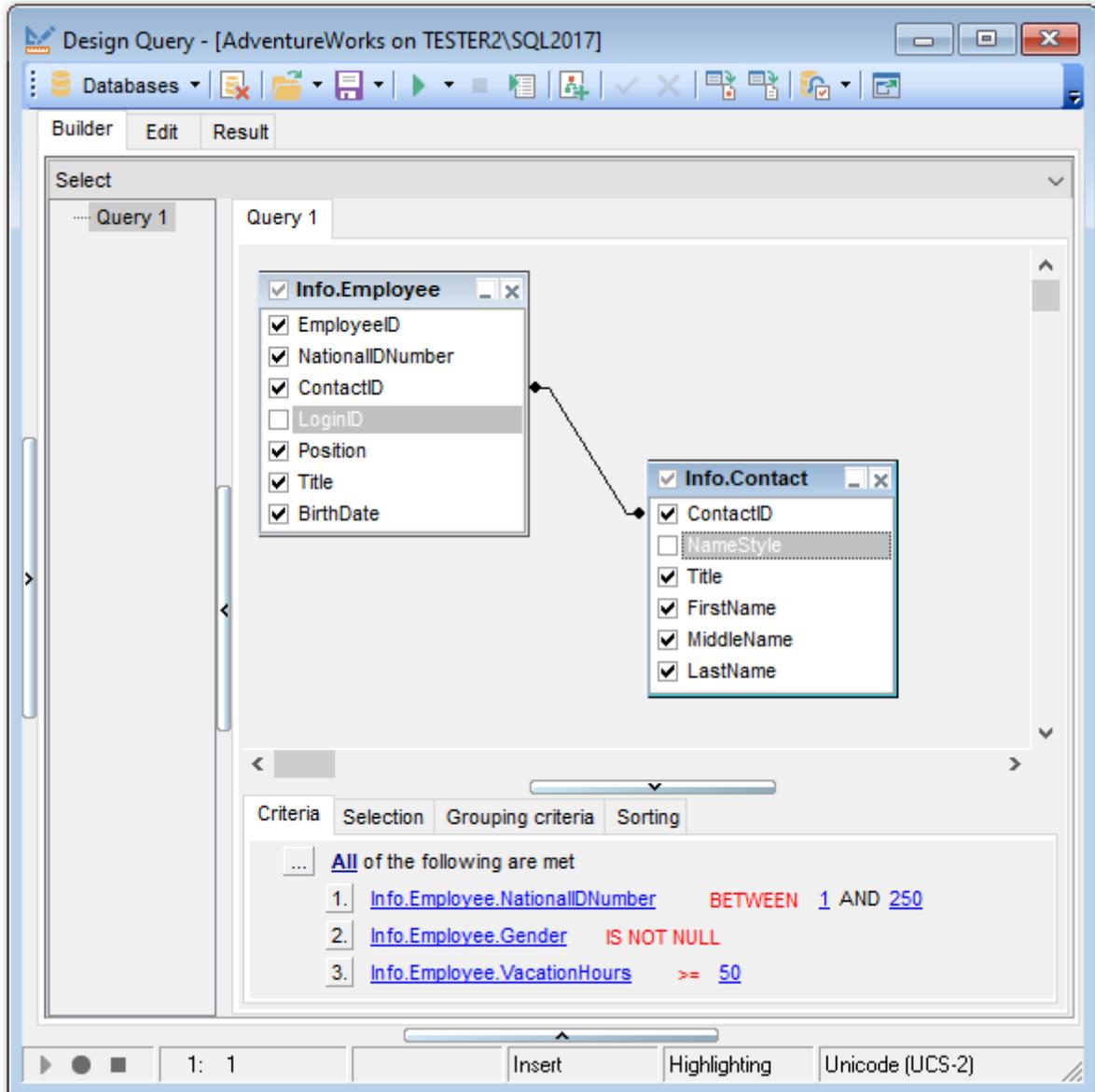
To include a column in the query, check the corresponding box located to the left from the column name in the list, or just double-click it. To include all columns of the table/view, check the box located to the left of the table/view caption. If you do not check any columns, the SQL statement is generated as `SELECT * FROM <table/view_name>`, i.e. all the columns are included in the query.

To *collapse/expand* the list of table/view columns, click the minimize/maximize button at the object caption.

To exclude a column from the query, uncheck the respective box. In order to remove the entire table/view from the query, close it by clicking the corresponding cross-button at the object caption, or right-click the object and select **Delete** from the context menu. You can also select the object and press the **Del** key.

To edit the alias of a table/view, double-click the object caption and enter the new name,

or right-click the object and select **Rename** from the context menu.

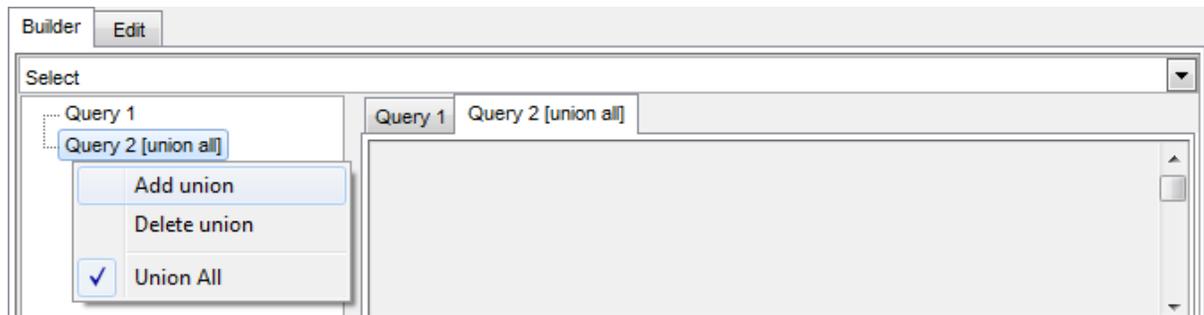


Design Query allows you to create complex queries consisting of two or more queries combined in one with the UNION operator, or add nested queries. The panel to the left of the diagram area displays the tree of subqueries.

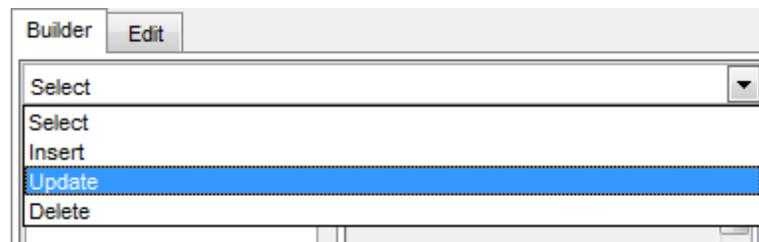
To add a query, right-click within the tree of subqueries area and select **Add union** from the context menu. A tab for the new query will appear in the diagram area.

To remove a query from the tree, right-click the query and select **Delete union** from the context menu.

To add the UNION ALL operator to the query, right-click the newly added query and select the corresponding context menu item.



Note: Depending on which query type you need to execute, you can select one from the drop-down list above the tree of subqueries: *Select*, *Insert*, *Update*, or *Delete*.



See also:

[Joining two objects](#)^[446]

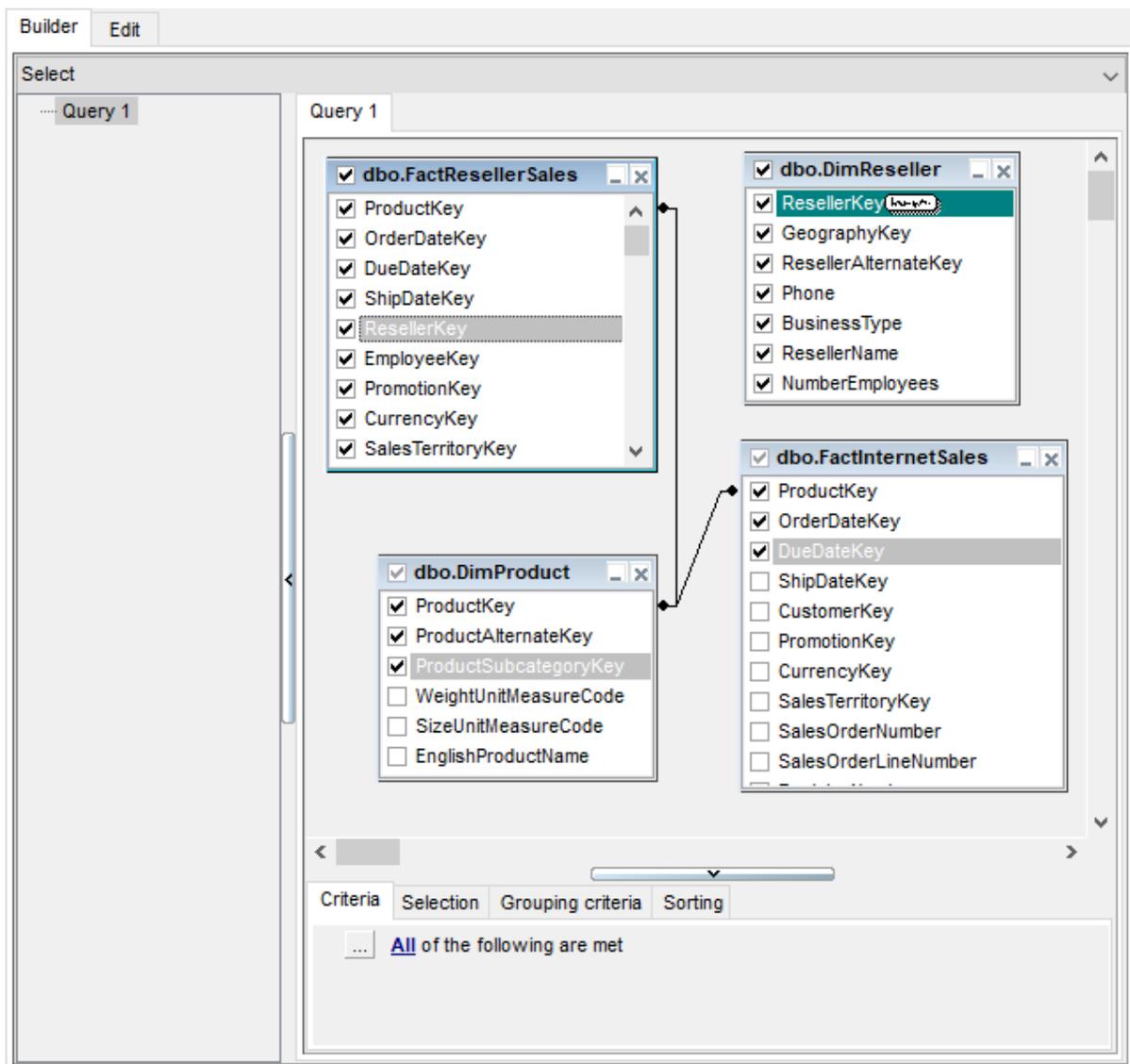
[Working with the editor area](#)^[454]

[Query execution](#)^[455]

6.2.3 Joining two objects

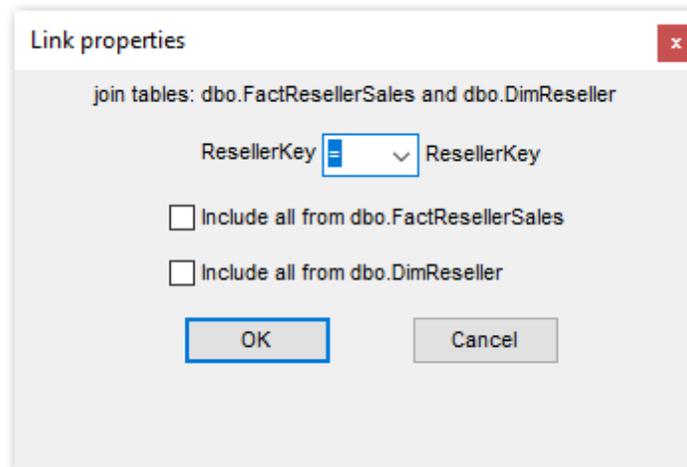
The **diagram area** allows you to associate two objects by their columns: this operation is performed by dragging a column from one object list to another. This will set a link between these objects by the selected columns. It is indicated by a bidirectional arrow between the linked columns.

Note: Once two or more tables related by a foreign key are added to the diagram area, the corresponding visual joining of these tables appears at the **Builder** tab and the *JOIN* statement appears under the **Edit** tab.



You can view the link properties of objects association: set the mouse cursor over the linking arrow, and a hint containing the association condition will popup after a short delay.

To edit the link properties, double-click the linking arrow or right-click it and select the **Property** popup menu item. The **Link properties** dialog allows you to change the association condition by choosing it from the drop-down list (=, >, <, >=, <=, <>).



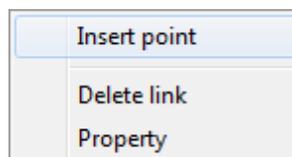
For your convenience the **Include all** option is available for each object of the association:

- if the option is enabled for the left table, the *LEFT JOIN* operator will be used for the association;
- if the option is enabled for the right table, the *RIGHT JOIN* operator is used for the association;
- if the option is enabled for neither of the tables, the *INNER JOIN* operator is used for the association.

Click **OK** to apply the changes you have made.

To remove a link between objects, right-click the linking arrow and select the **Delete link** popup menu item.

To add a point to the link line, right-click the linking arrow and select the **Insert point** popup menu item. Using the point you can move the link line easily. The point does not cause any changes to the query, it is only used for the diagram representation and makes visual building handy and more comprehensible.



See also:

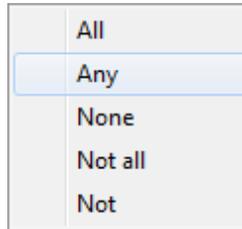
[Working with diagram area](#)^[444]

[Setting criteria](#)^[448]

6.2.4 Setting criteria

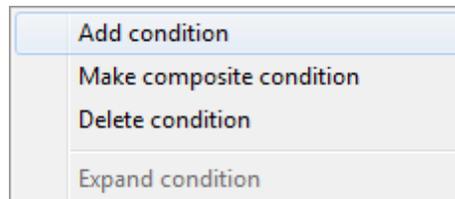
Use the **Criteria** tab to set the selection conditions.

The way the conditions are used is set in the upper string of the area (*All, Any, None or Not all of the following are met*). Click the green link to change it.



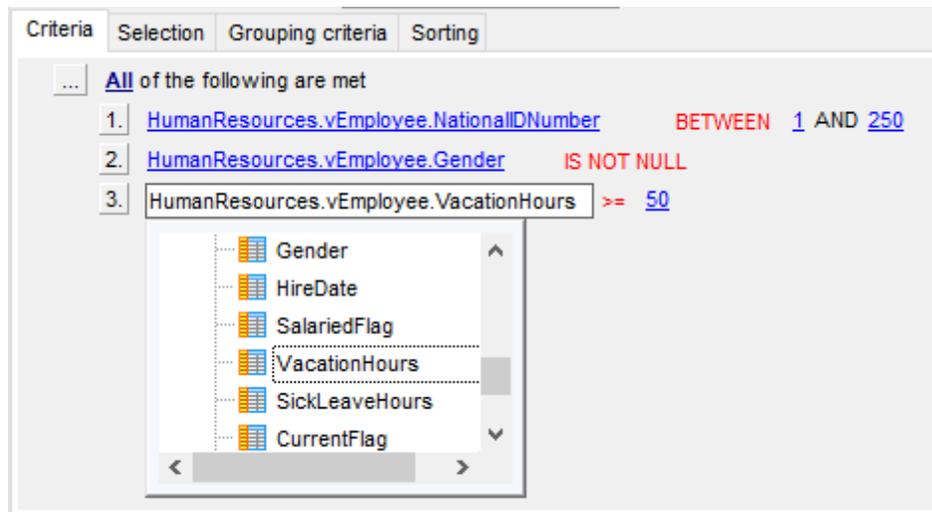
To add a condition, click the ellipsis  button on the left, and select the **Add condition** popup menu item.

Edit the condition by clicking the elements of the condition pattern and setting the necessary values. Clicking the numbered button to the left of the condition string activates the popup menu which allows you to *add a new condition* at the same enclosure level, *make composite condition* by adding a new enclosure level, *delete the current condition*, *expand* or *collapse* enclosure levels of the condition (if the condition is composite).

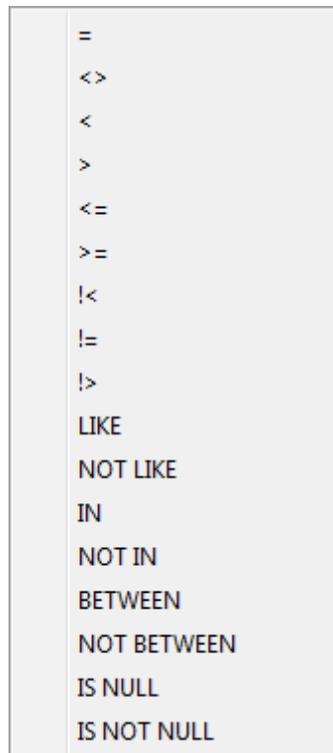


A simple condition pattern contains three elements: *an argument*, *a condition operator* and *a second argument* (if required for the condition).

Clicking each element column allows you to set its value. You can add a column by drag-and-dropping it from the working area to Criteria, Selection, Grouping criteria or Sorting tabs. When clicking an argument field, you can edit the argument as a text string: set an object name or a certain value in this field. Right-clicking the field in the edit mode activates the popup menu with the **Insert column** (also called by the *Shift+Enter shortcut*^[952]; this item allows you to select a column from the list of all the table columns) and **Insert query** (this item adds a nested query) items.



Clicking the condition operator field activates the popup menu from which you can select the operator you need.



See also:

[Setting output columns](#)^[451]

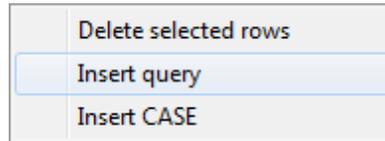
[Setting grouping criteria](#)^[452]

[Setting sorting parameters](#)^[453]

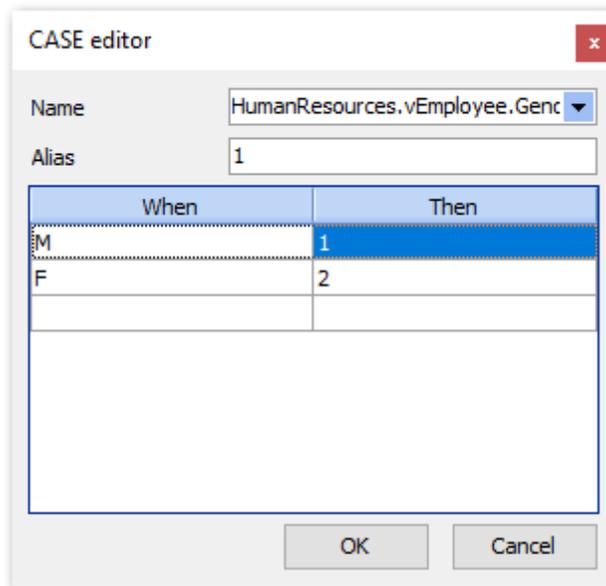
6.2.5 Setting output columns

The **Selection** tab displays the output columns of the query as a grid.

The grid allows you to edit the names of the query output columns, specify their display order and set the aggregate functions for each column. To remove a column from the list, right-click the row and select the **Delete current row** popup menu item.



The popup menu also allows you to *insert a nested query* and add a *CASE* clause. To edit the *CASE* clause, use the **CASE END AS** dialog.



To change the *Source column name*, click it and then type the column name or select it from the drop-down list.

To change the *Name of output column*, set the cursor at the corresponding column and type the required column name.

To reorder columns in the list, use the   buttons.

Criteria				
Selection				
Grouping criteria				
Sorting				
<input type="checkbox"/> Select only unique records				
				up
				down
Source column name	Name of output column	Aggregate	Grouping	
HumanResources.vEmployee	SalariedFlag		Yes	
HumanResources.vEmployee	SickLeaveHours		Yes	
HumanResources.vEmployee	CurrentFlag		Yes	
HumanResources.vEmployee	rowguid		Yes	
HumanResources.vEmployee	ModifiedDate		Yes	
HumanResources.vEmployee	BusinessEntityID		Yes	
HumanResources.vEmployee	FirstName		Yes	
> HumanResources.vEmployee	COLUMN_1	MAX		

To set an aggregate function for a column, click the row within the **Aggregate** column, and then type in the function name or select one from the drop-down list (*SUM*, *MIN*, *MAX*, *AVG*, or *COUNT*).

The **Grouping** column displays the grouping state for each of the output columns.

Select only unique records

If you check this option, the duplicate records (if any) are not included into the query result (i.e. the *DISTINCT* keyword is added to the SQL query text).

See also:

[Setting criteria](#)^[448]

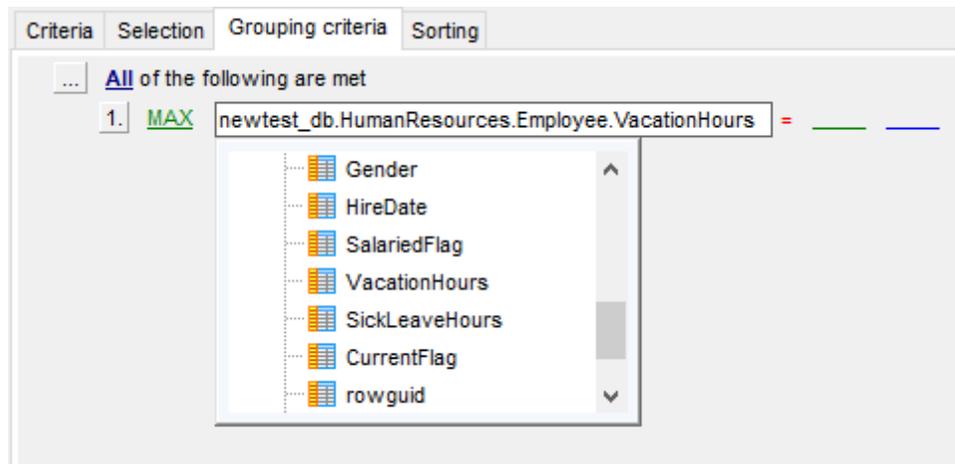
[Setting grouping criteria](#)^[452]

[Setting sorting parameters](#)^[453]

6.2.6 Setting grouping criteria

The **Grouping criteria** tab allows you to set conditions for grouping query records.

The grouping condition pattern fields are set in the same way as those of the [Criteria](#)^[448] pattern.



These conditions will be included in the *HAVING* statement of the generated SQL query.

See also:

[Setting criteria](#)^[448]

[Setting output columns](#)^[451]

[Setting sorting parameters](#)^[453]

6.2.7 Setting sorting parameters

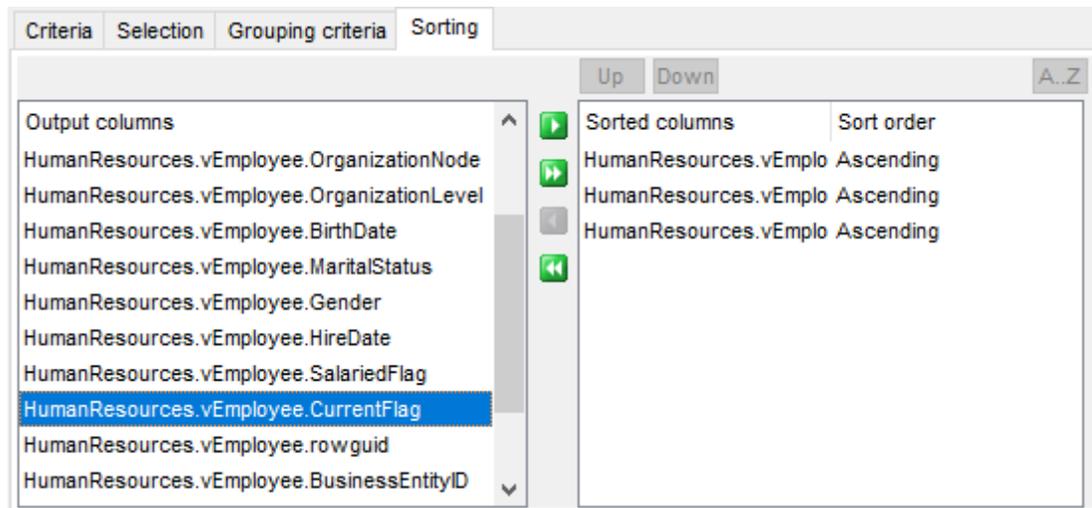
The **Sorting** tab allows you to set sorting parameters for the records returned by the query.

The working area contains the **Output columns** list (at the left) which represents all fields of the objects used in the query, and the **Sorted columns** list (at the right) which contains the columns to sort records by.

To move a column from one list to another, drag the selected column or use the **Add** and **Remove** buttons:    .

To change the sorting order for a sorted column, select the field in the **Sorted columns** list and move it using the **Up** and **Down** buttons.

To change the sorting direction, select the column in the **Sorted columns** list and switch the direction (*Ascending*, *Descending*) using the corresponding **A..Z/Z..A** button.



See also:

[Setting criteria](#)^[448]

[Setting output columns](#)^[451]

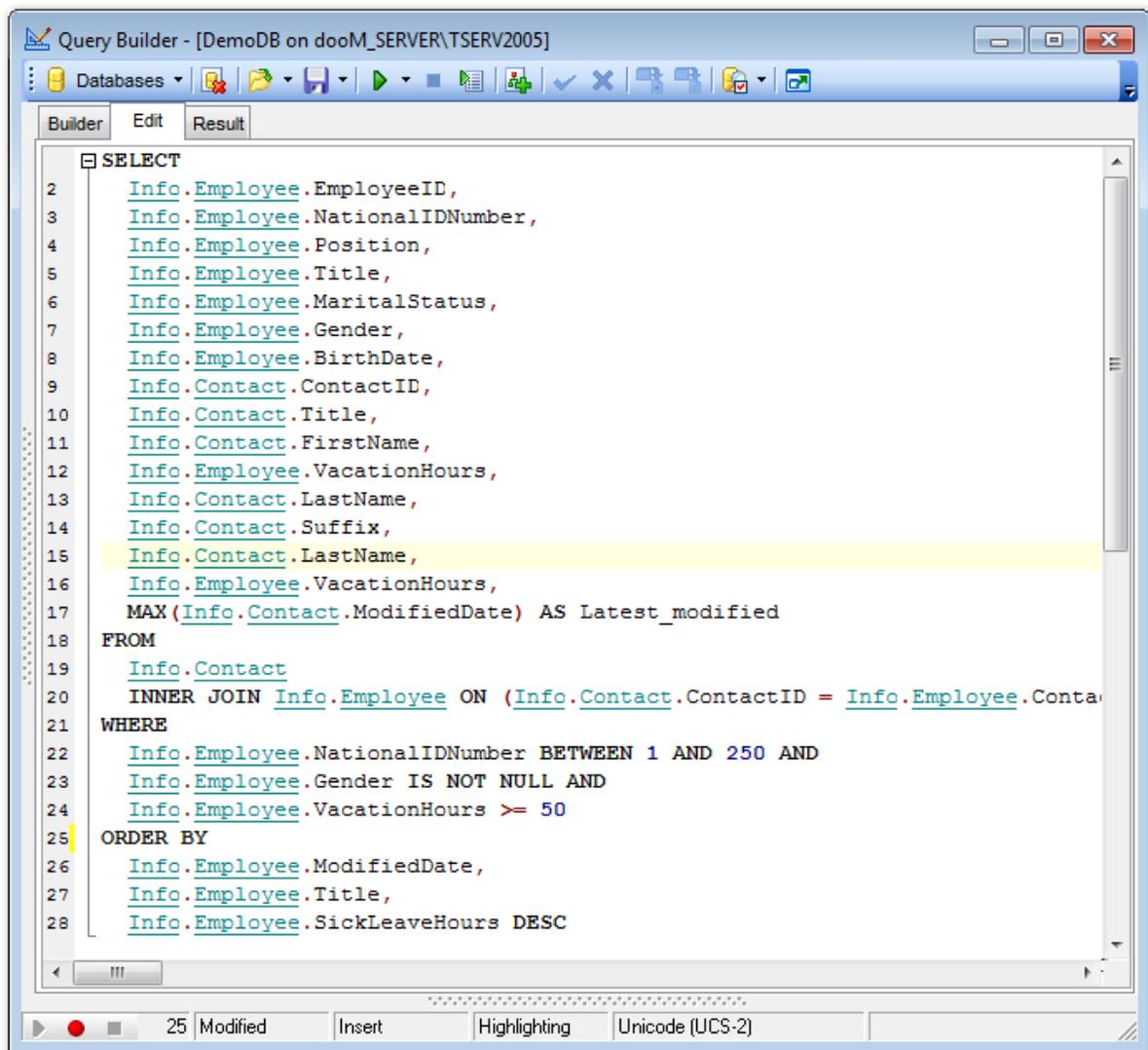
[Setting grouping criteria](#)^[452]

6.2.8 Working with the editor area

The **Editor area** of **Design Query** is available within the **Edit** tab and is provided for working directly with the SQL query text which is generated automatically while you build the query visually.

You can edit this text according to the rules of SQL, and all the changes will be displayed within the **Builder** tab respectively.

To learn more about the Query Data features available within the **Edit** tab, see [Working with Query Data area](#)^[429].



See also:

[Working with diagram area](#)^[444]

[Query execution](#)^[455]

[Query Data](#)^[426]

6.2.9 Query execution

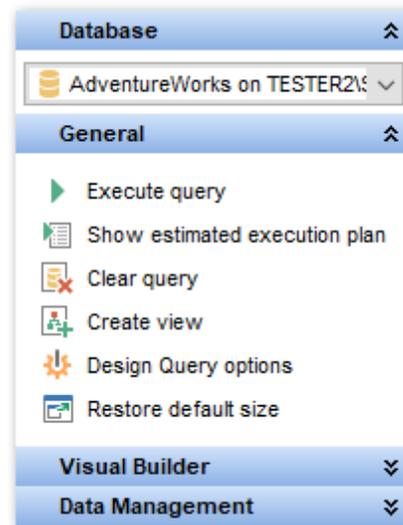
When all the query parameters are set, you can immediately **execute the query** in **Design Query**.

To execute a query, click the **Execute query** item of the [Navigation bar](#)^[442]. You can also use the *F9* hot key for the same purpose.

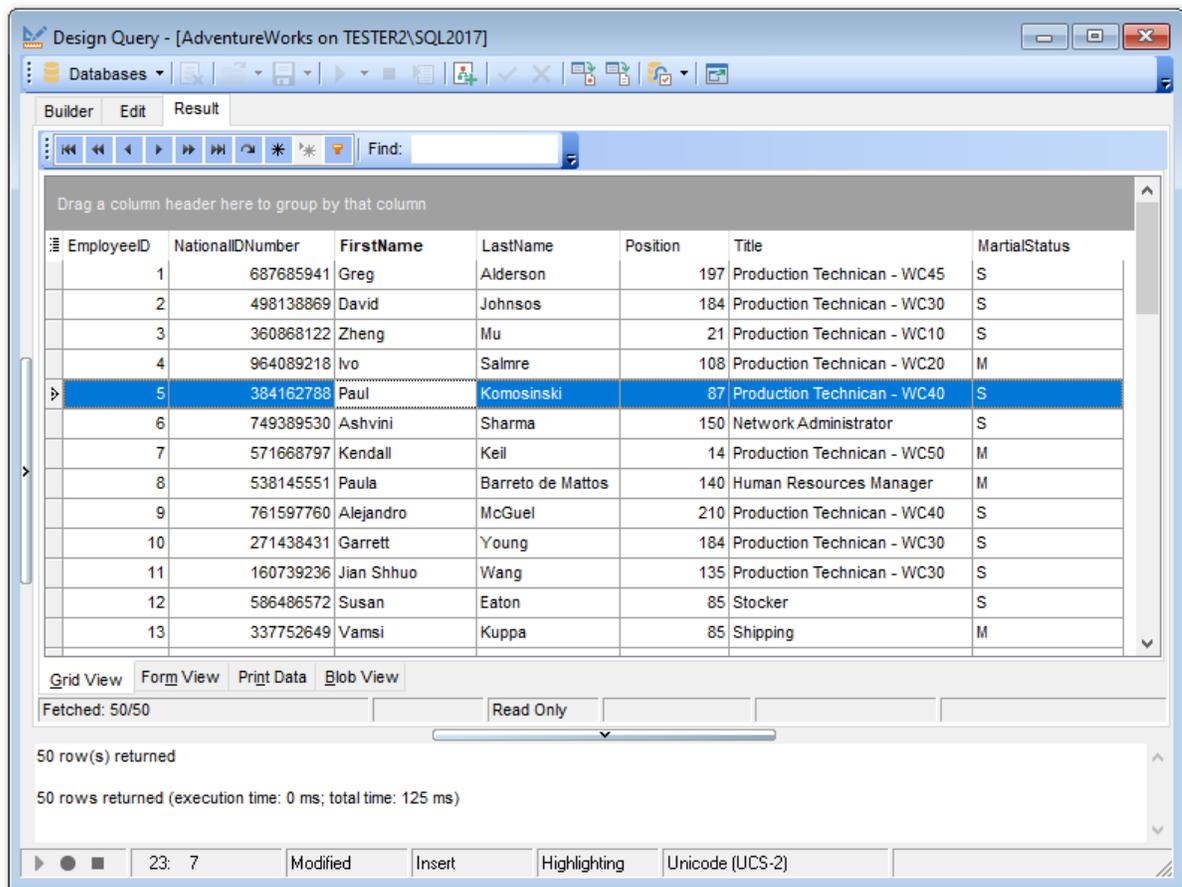
If the query parameters are specified correctly, the query is executed and, in case the

query statement is supposed to return data (e.g. as SELECT statement), the returned dataset appears within the **Result** tab.

If SQL syntax of the query contains any errors, the query execution is stopped and the corresponding error message is displayed in the status bar area at the bottom of the Design Query window.



By default, data returned by a query are displayed as a grid (see [Data View](#)^[463] for details). The [context menu](#)^[469] of the grid allows you to [Export Data](#)^[531], [Export As SQL Script](#)^[593].



See also:

[Working with diagram area](#)^[444]

[Working with the editor area](#)^[454]

[Data View](#)^[463]

6.2.10 Viewing query plan

Using SQL Manager for SQL Server, you can view **the plan** for each of the queries created and executed in the application. The query plan is available within the corresponding **Plan** tab.

To view the **Plan** of a query, open **Design Query** and use the  **Show estimated execution plan** item of the [Navigation bar](#)^[442] or [toolbar](#)^[444].

The **Plan** tab allows you to view the sequence of actions performed by the database server in the process of the query execution, and the amount of system resources used for the query execution.

Operation	Logical Operation	Subtree Cost	IO Cost	CPU Cost	Estimated ...	Estimated ...	Actual Exe...	Actual Rows	Row Siz
SELECT		100,000%	0,00%	0,00%				21	
Stream Aggregate	Aggregate	100,000%	0,00%	0,07%	1			21	
Sort	Sort	99,930%	23,57%	0,87%	1			38	
Nested Loops	Inner Join	75,497%	0,00%	0,34%	1			38	
Nested Loops	Inner Join	62,494%	0,00%	0,14%	1			16	
Nested Loops	Inner Join	43,994%	0,00%	0,28%	1			16	
Clustered Index S	Clustered Index S	6,942%	6,54%	0,40%	1			32	
Clustered Index S	Clustered Index S	36,741%	6,54%	0,33%	32			1	

If necessary, you can specify that the **Plan** tab appears automatically upon query execution in Design Query: select the **Show actual execution plan on query execution** option available within the [Tools | Design Query](#)^[841] section of the [Environment Options](#)^[825] dialog.

See also:

[Query execution](#)^[455]

6.3 Query parameters

Both [Query Data](#)^[426] and [Design Query](#)^[442] support parameters usage inside the query text. A parameter is a kind of variable for which a value can be specified just before the query execution. In the query text the parameter should appear as an identifier with a colon (':') at the beginning, e.g.

```
SELECT * FROM MYTABLE WHERE ID = :param1;
```

Note: The **Allow using of parameters in query text** option should be checked on the [Tools](#)^[830] page of the [Environment Options](#)^[825] dialog for this feature to be enabled.

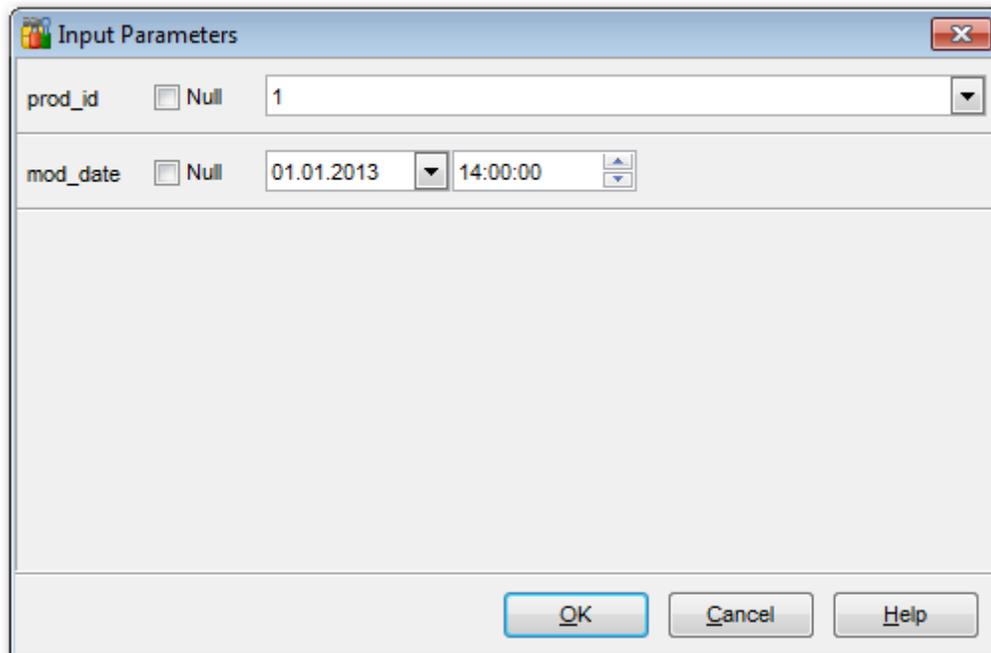
See also:

[Query Data](#)^[426]

[Design Query](#)^[442]

6.3.1 Input parameters dialog

The **Input Parameters** dialog is used to specify the query parameters as well as values of the input parameters of the query before execution.

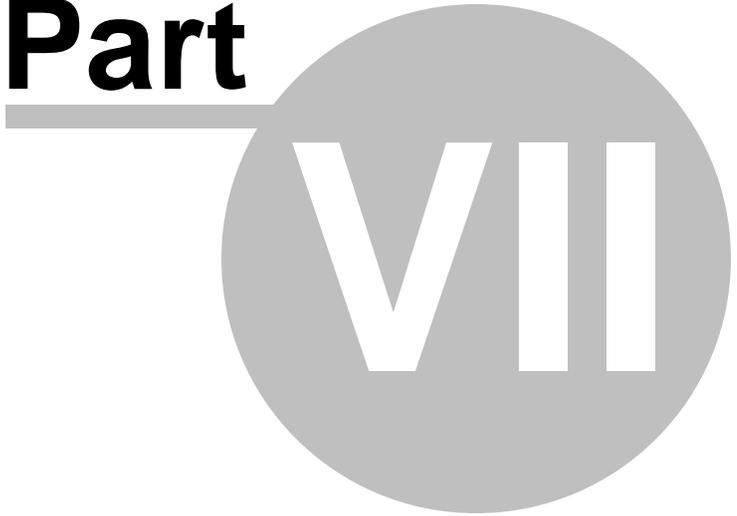


The edit field for input parameters varies according to the column data type. For your convenience the *Calculator* and *Date editor* are implemented for *Numeric* and *Date and Time* types respectively: click the arrow-down button to call the *Calculator / Date editor* popup window.

Click **OK** button to apply the values and execute the query or click **Cancel** button to

abort execution.

Part



VII

7 Data Management

Table data and query results are displayed on the **Data** or **Results** tab of [Table Editor](#)^[200], [Query Data](#)^[426], [Design Query](#)^[442], etc.

Data can be displayed in one of the following modes: **Grid View**, **Form View**, **Print Data**, **BLOB View**. See [Data View](#)^[463] to learn more about these modes. You are also provided with a number of [filtering tools](#)^[469] when working with your data.

- [Data View](#)^[463]
- [Custom Filter](#)^[517]
- [Filter Builder dialog](#)^[519]

See also:

[Getting Started](#)^[41]

[Database Explorer](#)^[63]

[Database Management](#)^[94]

[Database Objects Management](#)^[178]

[Query Management Tools](#)^[424]

[Import/Export Tools](#)^[530]

[Database Tools](#)^[617]

[Server Tools](#)^[715]

[Personalization](#)^[824]

[External Tools](#)^[909]

[How To...](#)^[957]

7.1 Data View

SQL Manager for SQL Server provides you with powerful tools for **viewing, editing and printing data** from tables and queries:

- table / view data are available within the **Data** tab of [Table Editor](#)^[200] / [View Editor](#)^[246] correspondingly;
- upon [a query execution](#)^[434] the returned dataset appears within the **Result(s)** tab of [Query Data](#)^[426] / [Design Query](#)^[442] (in Query Data the position of the tab depends on the **Results on Edit tab / Results on separate tab** selection in the [Navigation bar](#)^[426]).

The data can be displayed in one of four available **modes**: *Grid View*, *Form View*, *Print Data* and *BLOB View*. The **status bar** at the bottom displays the number of records in the current dataset, the time the records were fetched by the application and the status of the records (whether the data are read-only or editable).

Please see the succeeding chapters to learn how to work with your data in the simplest and most efficient way.

- [Using Navigation bar and Toolbars](#)^[463]
- [Grid View](#)^[465]
- [Form View](#)^[484]
- [Print Data](#)^[485]
- [BLOB View](#)^[505]
- [Applying changes](#)^[516]

See also:

[Custom Filter](#)^[517]

[Filter Builder dialog](#)^[519]

[Table Editor](#)^[200]

[View Editor](#)^[246]

7.1.1 Using Navigation bar and Toolbars

When the **Data** tab (in [Table Editor](#)^[200], [View Editor](#)^[246]) or the **Result(s)** tab (in [Query Data](#)^[426], [Design Query](#)^[442]) is selected, the [Navigation bars](#)^[915] of these tools contain the **Data Management** group which allows you to:

✓ commit transaction (if the *Use transactions in object editors, Query Data and Design Query* option is selected in the [Data Options](#)^[123] section of the [Database Registration Info](#)^[116] dialog)

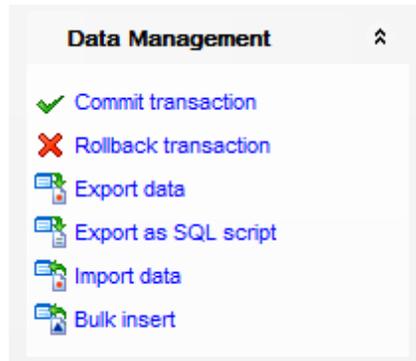
✗ rollback transaction (if the *Use transactions in object editors, Query Data and Design Query* option is selected in the [Data Options](#)^[123] section of the [Database Registration Info](#)^[116] dialog)

 [export data](#)^[531]

 [export data as SQL script](#)^[593]

 [import data](#)^[571] (in *Table Editor* only)

 [bulk insert](#)^[602] (in *Table Editor* only)



Items of the **Navigation bar** are also available on the **ToolBar**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *ToolBar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

The **Navigation pane** contains toolbars allowing you to:

- go to the first record of the dataset;
- go to the previous page;
- go to the previous record;
- go to the next record;
- go to the next page;
- go to the last record of the dataset;
- insert a new record (in *Table Editor* only);
- delete the selected record (in *Table Editor* only);
- edit the selected record (in *Table Editor* only);
- [post](#)^[516] edit (in *Table Editor* only);
- cancel edit (in *Table Editor* only);
- refresh data;
- set bookmark;
- go to saved bookmark;
- call the [Filter Builder](#)^[519] dialog;
- search for a string in the currently selected column data;
- show linked details table;
- specify the maximum number of records (record limit) for displaying data (in *Table Editor*, *View Editor* only);
- navigate within the dataset using the specified record limit (in *Table Editor*, *View Editor* only).



The **ToolBar** of the [Print Data](#)^[485] mode allows you to:

- customize the report using [Report Formatter](#)^[491] and the [Report Options](#)^[499] dialog;
- load a report from an external *.rps file;
- save the current report to an external *.rps file;
- print the report using the default printer;
- set printing options using the standard [Print](#)^[504] dialog;
- call the [Page Setup](#)^[486] dialog;

- show/hide report thumbnails;
- customize the [Report Title](#)^[500];
- add [Date and Time](#)^[502], [Page Numbering](#)^[502], show/hide empty pages;
- shrink the report to the page;
- specify background color;
- zoom in/out, [setup zoom](#)^[503], zoom page width, whole page, two/four/multiple pages;
- select the active page of the report;
- go to first/previous/next/last page of the report.



The **Toolbar** of the [BLOB View](#)^[505] mode allows you to:

- select a BLOB column;
- select encoding (*ANSI, UTF-8, UNICODE-16*);
- load BLOB content from an external file;
- save the BLOB column content to an external file;
- cut/copy/paste selected text to/from clipboard (enabled for the *Text* and *Rich Text* tabs only);
- undo changes;
- print the text (enabled for the *Text*, *Rich Text* and *HTML* tabs only);
- select font to be applied to the selected text (enabled for the *Rich Text* tab only);
- select font size to be applied to the selected text (enabled for the *Rich Text* tab only);
- make the selected text bold/italic/underlined (enabled for the *Rich Text* tab only);
- align left/center/right (enabled for the *Rich Text* tab only);
- add/remove list bullets (enabled for the *Rich Text* tab only).



See also:

[Grid View](#)^[465]

[Form View](#)^[484]

[Print Data](#)^[485]

[BLOB View](#)^[505]

[Applying changes](#)^[516]

[Customize toolbars and menus](#)^[940]

7.1.2 Grid View

By default, data returned by a query are displayed as a grid. It is indicated by the **Grid View** tab selected on the View mode panel at the bottom of the **Results** area of the window.

When in the **Grid View** mode, the columns correspond to the fields and the rows correspond to the records.

If more convenient, you can [change the order](#)^[467] of the columns by dragging their headers horizontally. Clicking the column caption sorts data by the values of this column

in the ascending or the descending mode. The [navigation pane](#)^[464] at the top of the grid allows you to browse the data quickly, to insert, update and delete records, and to set a [filter](#)^[469] for the records using the [Filter Builder](#)^[519] dialog and other tools.

The [Navigation bar](#)^[463] of the parent window, [toolbars](#)^[464] and the [context menu](#)^[472] of the grid provide you with a number of data management functions: [Export Data](#)^[531], [Import Data](#)^[571], [Export as SQL Script](#)^[593] and more.

- [Customizing columns](#)^[467]
- [Grouping data within the grid](#)^[467]
- [Filtering records](#)^[469]
- [Using the context menu](#)^[472]
- [Working in multi-level mode](#)^[473]
- [Browsing data in card view](#)^[481]
- [Column Summary](#)^[482]
- [Copying records](#)^[483]

EmployeeKey	FirstName	LastName	Title	MiddleName	NameStyle
1	Guy	Gilbert	Production Technician - WC60	R	<input type="checkbox"/>
2	Kevin	Brown	Marketing Assistant	F	<input type="checkbox"/>
3	Roberto	Tamburello	Engineering Manager	Null	<input checked="" type="checkbox"/>
4	Rob	Walters	Senior Tool Designer	Null	<input type="checkbox"/>
5	Mike	Mayers	Control Specialist	Null	<input type="checkbox"/>
6	Thierry	D'Hers	Tool Designer	B	<input type="checkbox"/>
7	David	Bradley	Marketing Manager	M	<input type="checkbox"/>
8	David	Bradley	Marketing Manager	M	<input checked="" type="checkbox"/>
9	JoLynn	Dobney	Production Supervisor - WC60	M	<input type="checkbox"/>
10	Ruth	Ellerbrock	Production Technician - WC10	Ann	<input type="checkbox"/>
11	Gail	Erickson	Design Engineer	A	<input type="checkbox"/>
12	Barry	Johnson	Production Technician - WC10	K	<input type="checkbox"/>
13	Jossef	Goldberg	Design Engineer	H	<input checked="" type="checkbox"/>
14	Terri	Duffy	Vice President of Engineering	Lee	<input type="checkbox"/>
15	Sidney	Higa	Production Technician - WC10	M	<input type="checkbox"/>
16	Taylor	Maxwell	Production Supervisor - WC50	R	<input type="checkbox"/>

Hint: To increase the speed of opening tables and views with extremely large number of records, you can use options of the **Limit options in table and view editors** group available in the [Grid | Data Options](#)^[857] section of the [Environment Options](#)^[825] dialog.

See also:

[Using Navigation bar and Toolbars](#)^[463]

[Form View](#)^[484]

[Print Data](#)^[485]

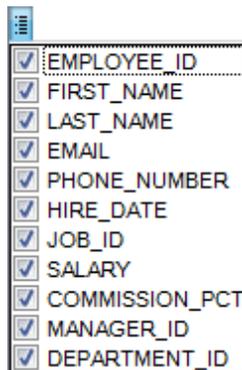
[BLOB View](#)^[505]

[Applying changes](#)^[516]

7.1.2.1 Customizing columns

Selecting visible columns

When working in the **Grid View** mode, you can specify which columns of the current dataset will be visible. Click the  button available in the top left corner of the data grid and select/deselect columns in the drop-down list to specify their visibility/invisibility.



Changing columns order

For your convenience the possibility to *change the order* of the columns in the data grid is available. To reorder columns, drag a column header horizontally to a place in between two other column headers indicated with green arrows.



See also:

[Grouping data](#)^[467]

[Filtering records](#)^[469]

[Working in multi-level mode](#)^[473]

[Working in card view mode](#)^[481]

[Column Summary](#)^[482]

7.1.2.2 Grouping and sorting data

In order to **sort data**, do the following:

open data at the **Data** or **Results** tab, choose the column by which you need to sort data and click the column title.

If the column was not sorted, the first click will sort it in the ascending order and the

second one - in the descending order.

Clear Sorting

To cancel the sorting, open the context menu by right-clicking the necessary column and choose the **Clear Sorting** item, or press the *Ctrl* button and click the column title.

If necessary, you can **group the data in grid** by any of the columns.

This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. In order to display this area, select the **Show "Group by" box** option available in the [Grid](#)^[855] section of the [Environment Options](#)^[825] dialog.

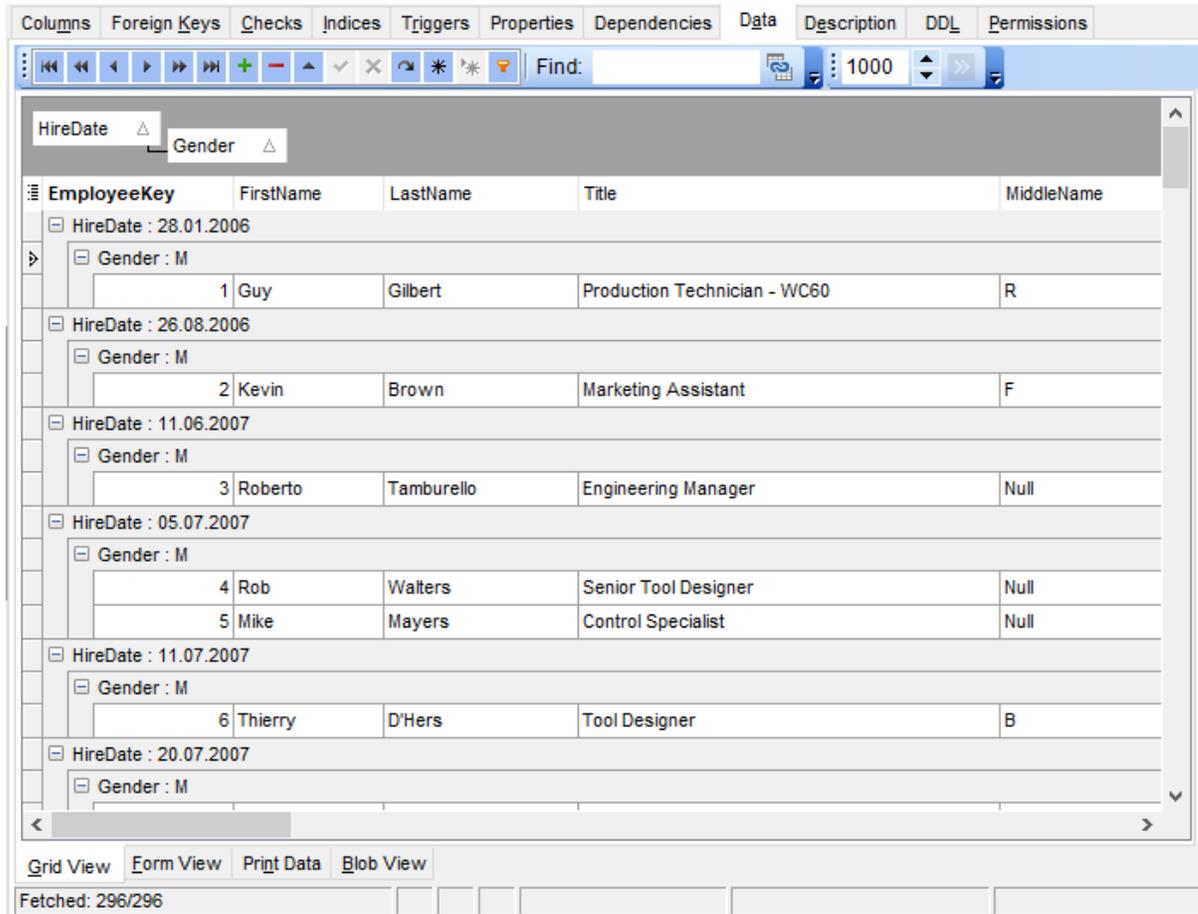
When grouping by a column is applied to the grid, all the records are displayed as subnodes to the grouping row value as displayed in the screenshot below. The grouping row can contain the column summary information specified in the **Group header** group of the [Column Summary](#)^[482] dialog.

To reverse grouping, just drag the column header back.

Hint: While dragging the column header back, you can also [change the column position](#)^[467]

EmployeeKey	FirstName	LastName	MiddleName	NameStyle	HireDate	BirthDate
Title : Network Administrator						
30	Ashvini	Sharma	R	<input type="checkbox"/>	04.07.2008	25.10.1976
192	Peter	Connelly	I	<input type="checkbox"/>	23.09.2008	27.12.1979
Title : Network Manager						
Title : North American Sales Manager						
Title : Pacific Sales Manager						
Title : Production Control Manager						
23	Peter	Krebs	J	<input type="checkbox"/>	01.07.2008	03.06.1982
Title : Production Supervisor - WC10						
27	Zheng	Mu	W	<input type="checkbox"/>	03.07.2008	26.05.1983
66	Cristian	Petculescu	K	<input type="checkbox"/>	22.07.2008	10.11.1983
189	Andrew	Hill	R	<input type="checkbox"/>	22.09.2008	06.04.1988
Title : Production Supervisor - WC20						
Title : Production Supervisor - WC30						
138	Cynthia	Randall	S	<input type="checkbox"/>	27.08.2008	18.03.1981
177	Michael	Ray	Sean	<input type="checkbox"/>	15.09.2008	29.08.1988
188	Jack	Richins	S	<input type="checkbox"/>	21.09.2008	20.01.1983
Title : Production Supervisor - WC40						
Title : Production Supervisor - WC45						

If necessary, you can group data by two or more columns. In this case column headers are displayed hierarchically, and data are grouped by these columns in the order the column headers appear in the **Group by** area.



See also:

[Customizing columns](#)^[467]

[Filtering records](#)^[469]

[Working in multi-level mode](#)^[473]

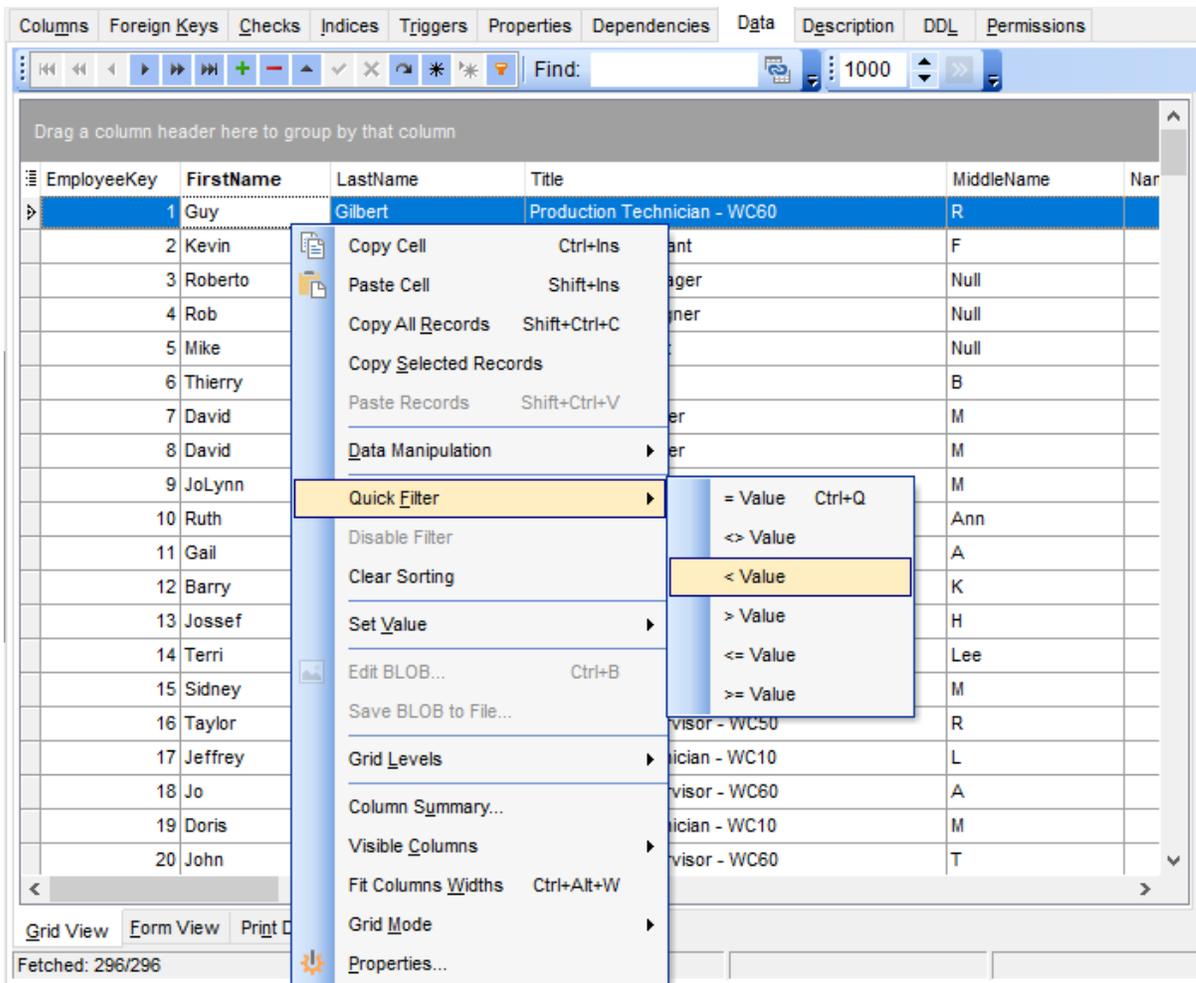
[Working in card view mode](#)^[481]

[Column Summary](#)^[482]

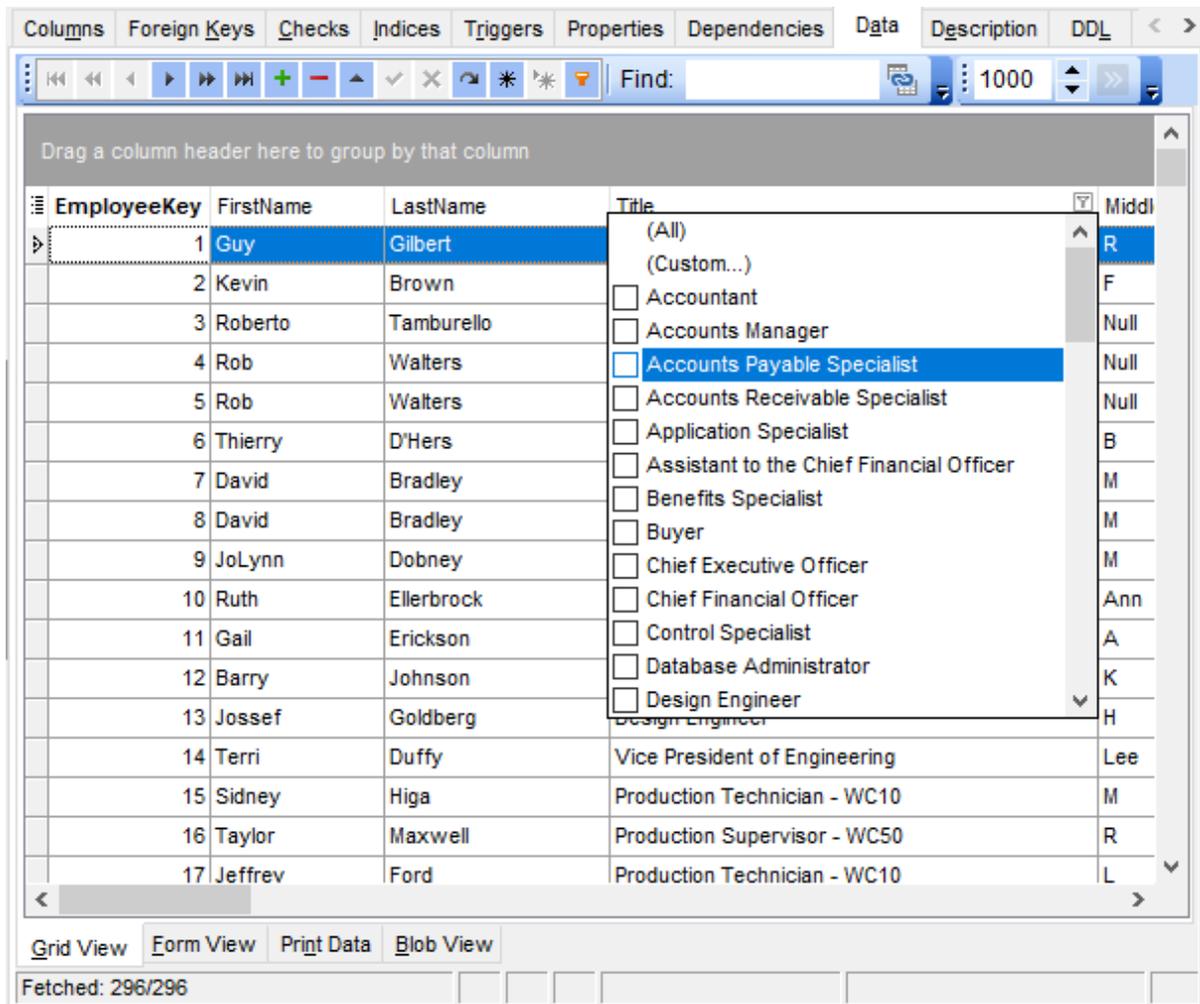
7.1.2.3 Filtering records

A number of **filtering** facilities are implemented in the grid for your convenience. You can filter records in the grid in either of the following ways:

- right-click a row and select the **Quick Filter** context menu item to filter records by the current value of the selected column;



- click the Arrow-Down button next to the column caption to display the drop-down list and select any of the column values to filter records by this value of the selected column;



or

- click the Arrow-Down button next to the column caption to display the drop-down list, then select the **Custom** item and build a simple filter using the [Custom Filter](#)^[517] dialog;
- use the **Set filter**  button on the [navigation pane](#)^[464] to invoke the [Filter Builder](#)^[519] dialog and create a composite filter using the dialog.

After the filter is set, the gray **filtering panel** becomes visible at the bottom of the grid. This panel allows you to see the active filtering condition and easily enable or disable it using the checkbox on the left. The Arrow-down button opens the drop-down menu which allows you to browse the filter history for this dataset.

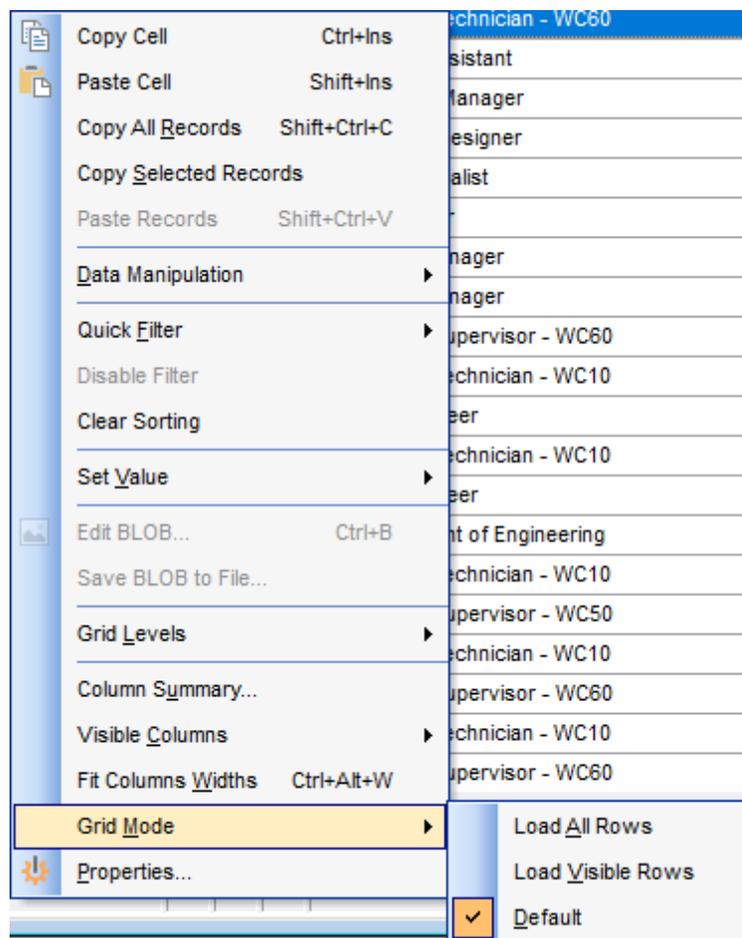
If necessary, you can click the **Customize...** button on the right to customize your filter and add more complicated filtering conditions within the [Filter Builder](#)^[519] dialog.



To remove the current filter, click the  **Close** button.

See also:[Customizing columns](#)^[467][Grouping data](#)^[467][Custom Filter](#)^[517][Filter Builder dialog](#)^[519]**7.1.2.4 Using the context menu**

The **context menu** of the grid is aimed at facilitating your work with data: you can perform a variety of operations using the context menu items:



- copy the selected cell value to Windows clipboard;
- paste the clipboard content to the currently selected cell;
- copy/paste multiple records;
- data manipulation: [Export Data](#)^[531] from the table, [Import Data](#)^[571] to the table, [Export Data as SQL Script](#)^[593], [Bulk Insert](#)^[602];
- set/disable [Quick Filter](#)^[469];
- clear sorting;
- set a value for the selected cell: *NULL*, *Empty string* (for string columns), *Now* (for

- TIME columns), "Zero" (for DATE columns);
- edit the BLOB value or save the BLOB to file using [BLOB viewer/editor](#)^[605];
 - show linked details (automatically add [grid levels](#)^[473] on the basis of existing foreign keys)
 - expand/collapse [grid levels](#)^[473] and navigate within the tabs;
 - manage grid levels: [add a new grid level](#)^[474], delete the current grid level (this item is enabled only when the detail level exists and is currently focused);
 - switch to the [Card View](#)^[481] mode;
 - view [Column Summary](#)^[482];
 - select visible/invisible columns of the dataset;
 - fit column width for better representation;
 - specify the grid mode: *Load All Rows*, *Load Visible Rows*, *Default*;
 - view/edit [grid properties](#)^[855].

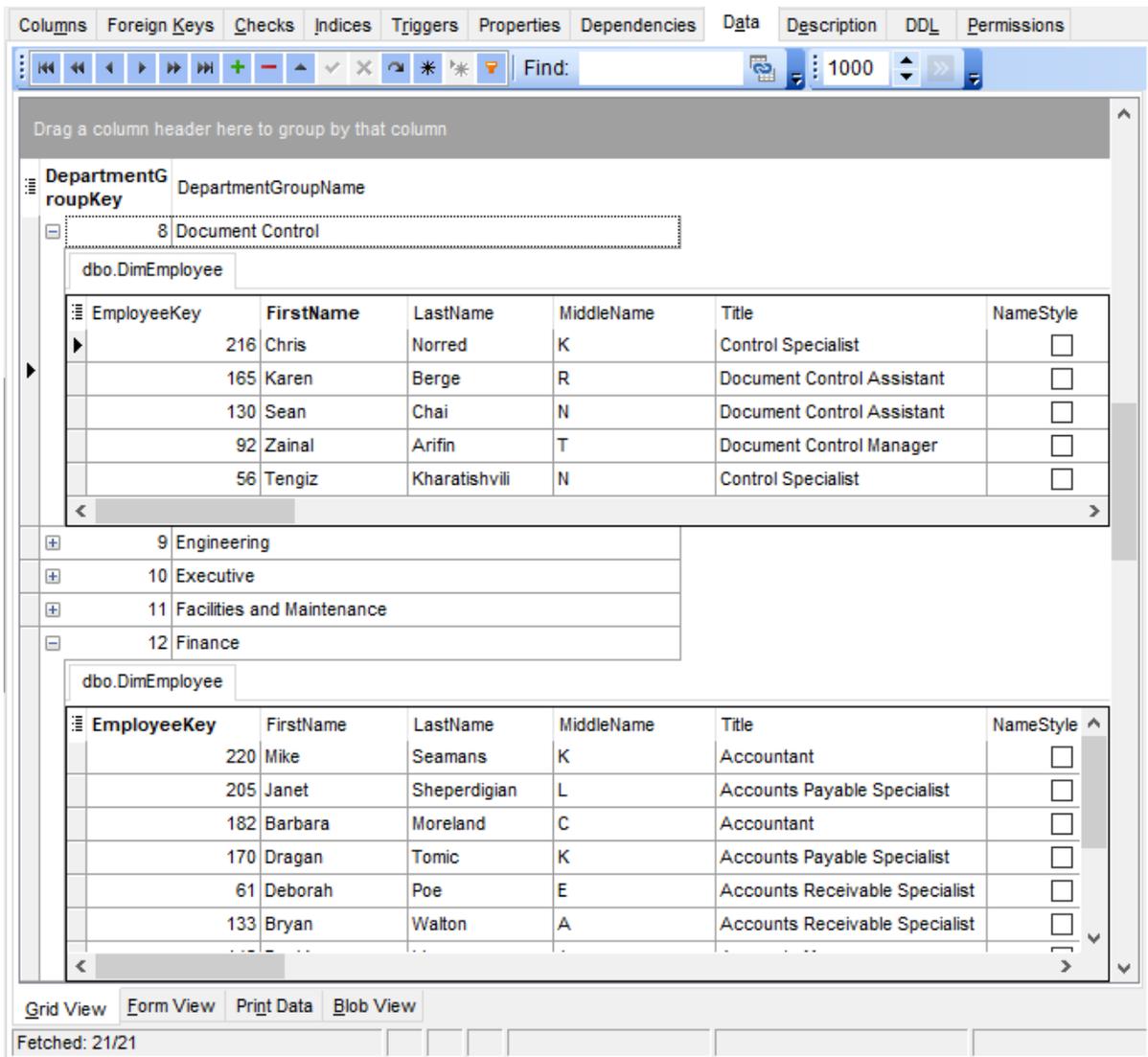
Note: If the **Show editor immediately** and **Always show editor** options on the [Environment options | Grid](#)^[855] tab are checked then the context menu of a grid can be evoked by selecting the necessary cell and right-clicking the table header. Otherwise, right-clicking the cell evokes the cell editing menu.

7.1.2.5 Working in multi-level mode

One of unique features of SQL Manager for SQL Server is the ability to work with data in multi-level mode to view and modify data in several related tables simultaneously.

To manage grid levels, right-click the grid and select the **Grid Levels context menu**^[472] group. Items of this group allow you to:

- add a new grid level using [Create Grid Level Wizard](#)^[474];
- delete the current grid level;
- switch between the ordinary *Table View* and the [Card View](#)^[481] modes.



See also:

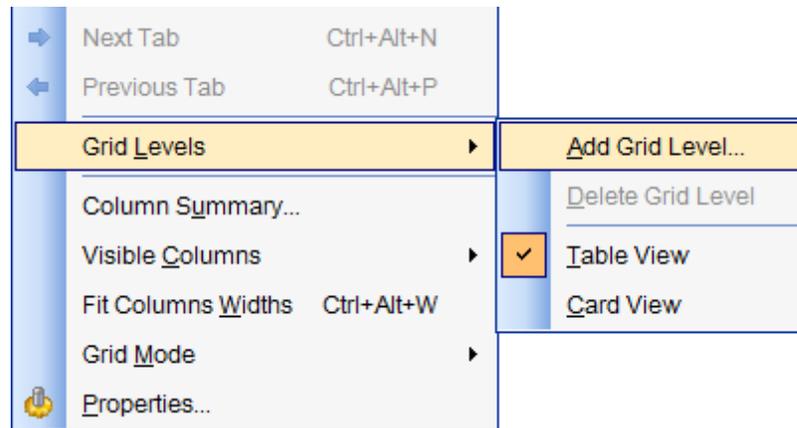
[Using the context menu](#)^[472]

[Create Grid Level wizard](#)^[474]

7.1.2.5.1 Create Grid Level wizard

Create Grid Level Wizard allows you to add a new detail level to the grid in order to get master-detail representation of your data.

To start the wizard, right-click the grid, select the **Grid Levels context menu**^[472] group and proceed to the **Add Grid Level...** item within this group.



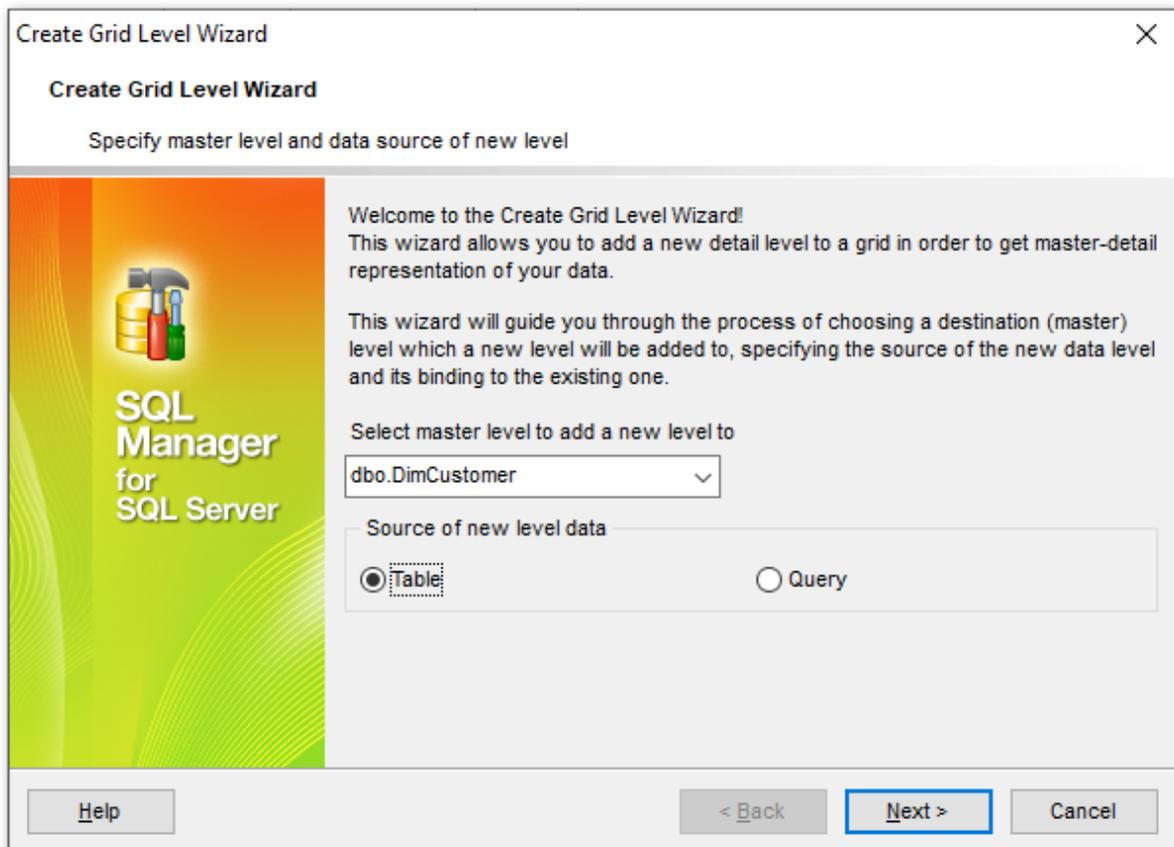
- [Specifying master level](#)^[475]
- [Selecting source table](#)^[476]
- [Binding master and detail levels](#)^[478]
- [Query parameterization](#)^[479]
- [Setting additional parameters](#)^[480]

7.1.2.5.1.1 Specifying master level

Use the drop-down list to select the table of the **master level** to which a new level will be added.

Source of new level data

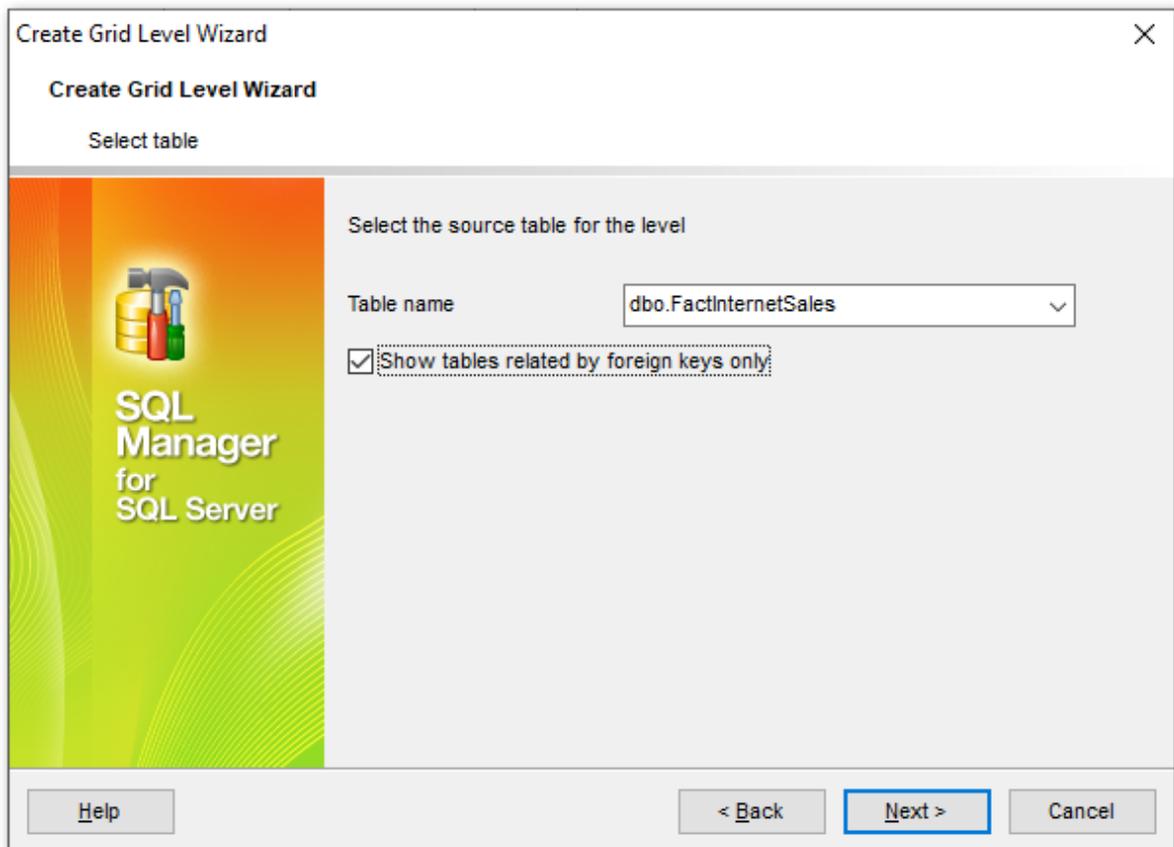
Select the source type of the new level data: *Table* or *Query*.



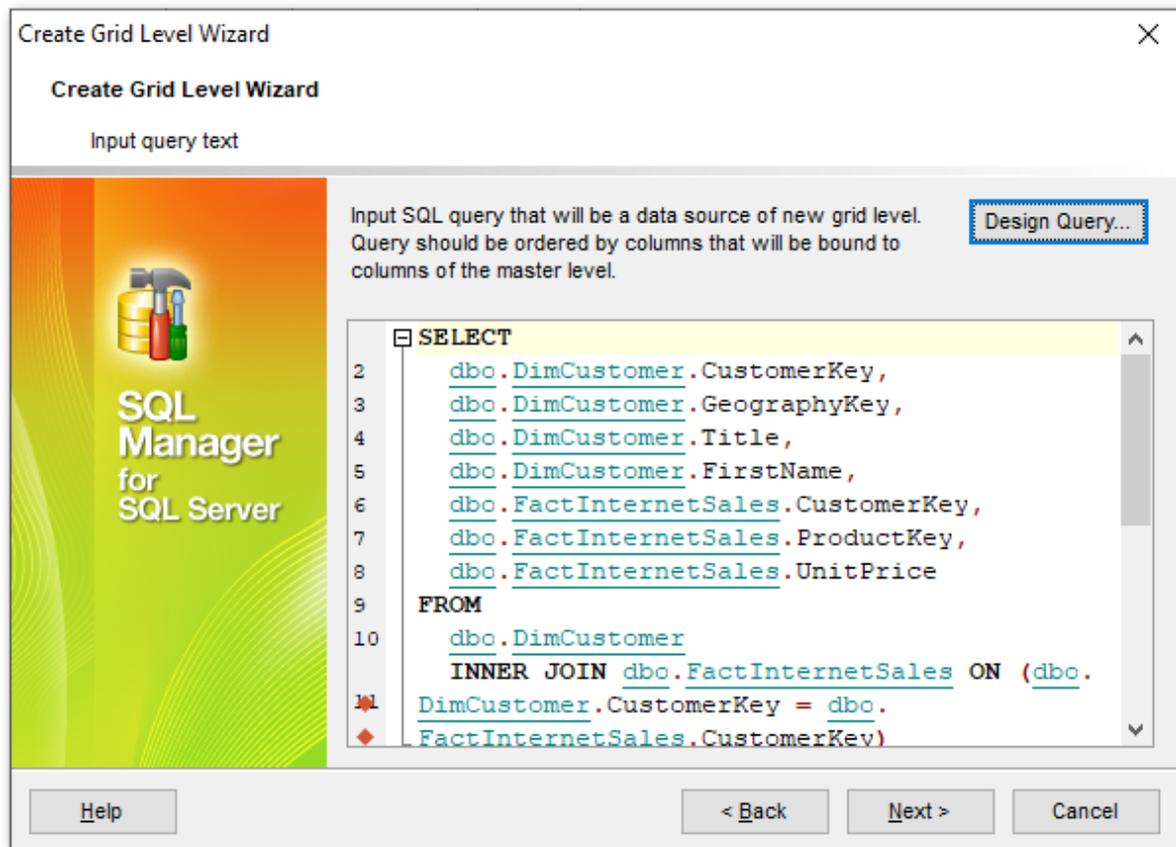
Click the **Next** button to proceed to the [Defining source for detail level](#)^[476] step to select a table for the detail level or input a query, depending on whether the **Table** or the **Query** option has been selected.

7.1.2.5.1.2 Defining source for detail level

If the **Table** option has been selected at the [previous step](#)^[475], you should now specify a table for the detail view using the **Table name** drop-down list. Set the **Show tables related by foreign keys only** option to narrow the list of tables by including only tables linked by Foreign keys.



If the **Query** option has been selected at the [previous step](#)⁴⁷⁵, you should now enter a query that will be used as the source of the new grid level. If necessary, you can use [Design Query](#)⁴⁴² to build the SQL query visually.



Click the **Next** button to proceed to the [Binding master and detail levels](#)^[478] step of the wizard.

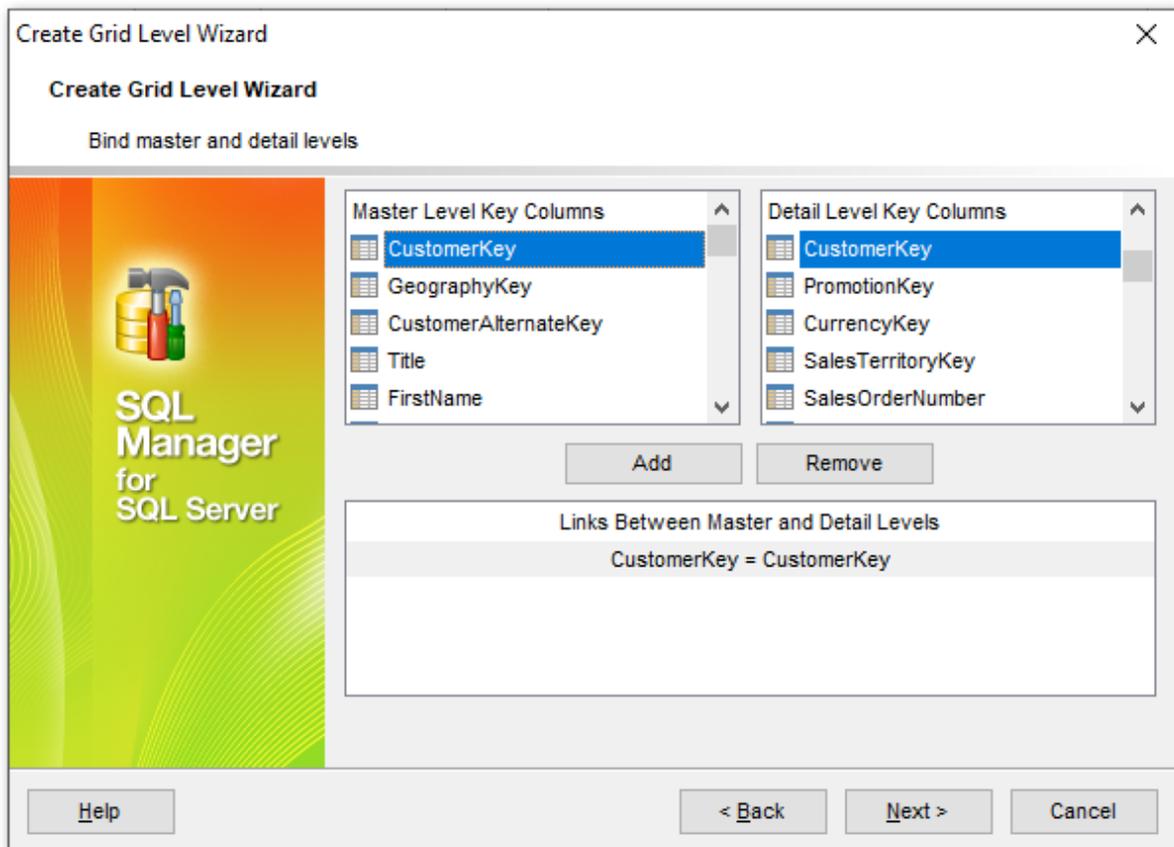
7.1.2.5.1.3 Binding master and detail levels

Define pairs of columns to link the Master Level and the Detail Level data sources:

- select a column in the **Master Level Key Columns** list;
- select a corresponding column in the **Detail Level Key Columns** list;
- click **Add** to set correspondence between the selected columns.

The newly created correspondences are listed in the **Links Between Master and Detail Levels** area. If necessary, you can delete any correspondence using the the **Remove** button.

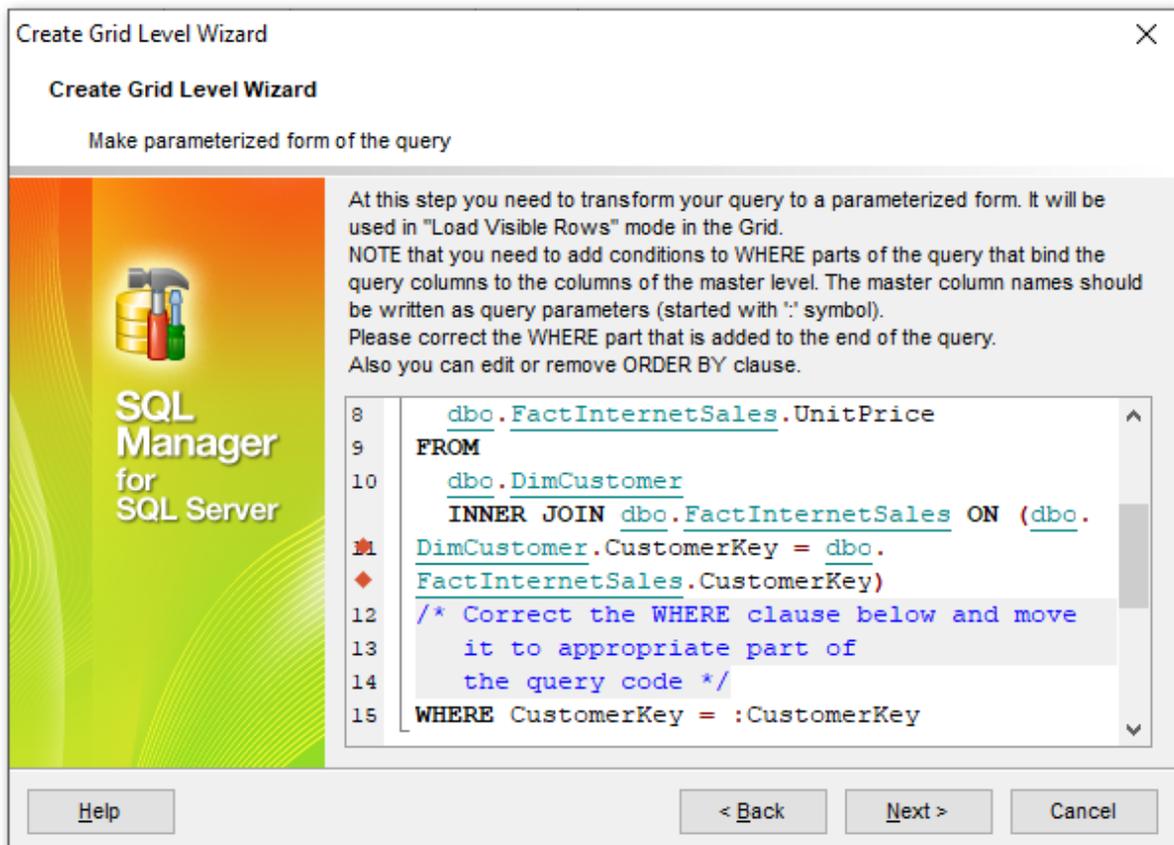
The **From Foreign Key...** menu is available if the **Show tables related by foreign keys only** option has been selected at the [previous step](#)^[478]. This menu allows you to select the [foreign key](#)^[221] to be used for identifying master-detail levels (if the table has more than one foreign key relation).



Click the **Next** button to proceed to the [Setting additional parameters](#)^[480] step or to the [Query parameterization](#)^[479] step of the wizard if **Query** was selected at the [Specifying master level](#)^[475] step of the wizard.

7.1.2.5.1.4 Query parameterization

If **Query** was selected at the [Specifying master level](#)^[475] step of the wizard, you should now transform the query to a parameterized form that will be used in the 'Load visible rows' Grid Mode (see the [Grid | Data Options](#)^[857] section of the [Environment Options](#)^[825] dialog to get more information about grid modes offered by SQL Manager).



Click the **Next** button to proceed to the [Setting additional parameters](#)^[480] step of the wizard.

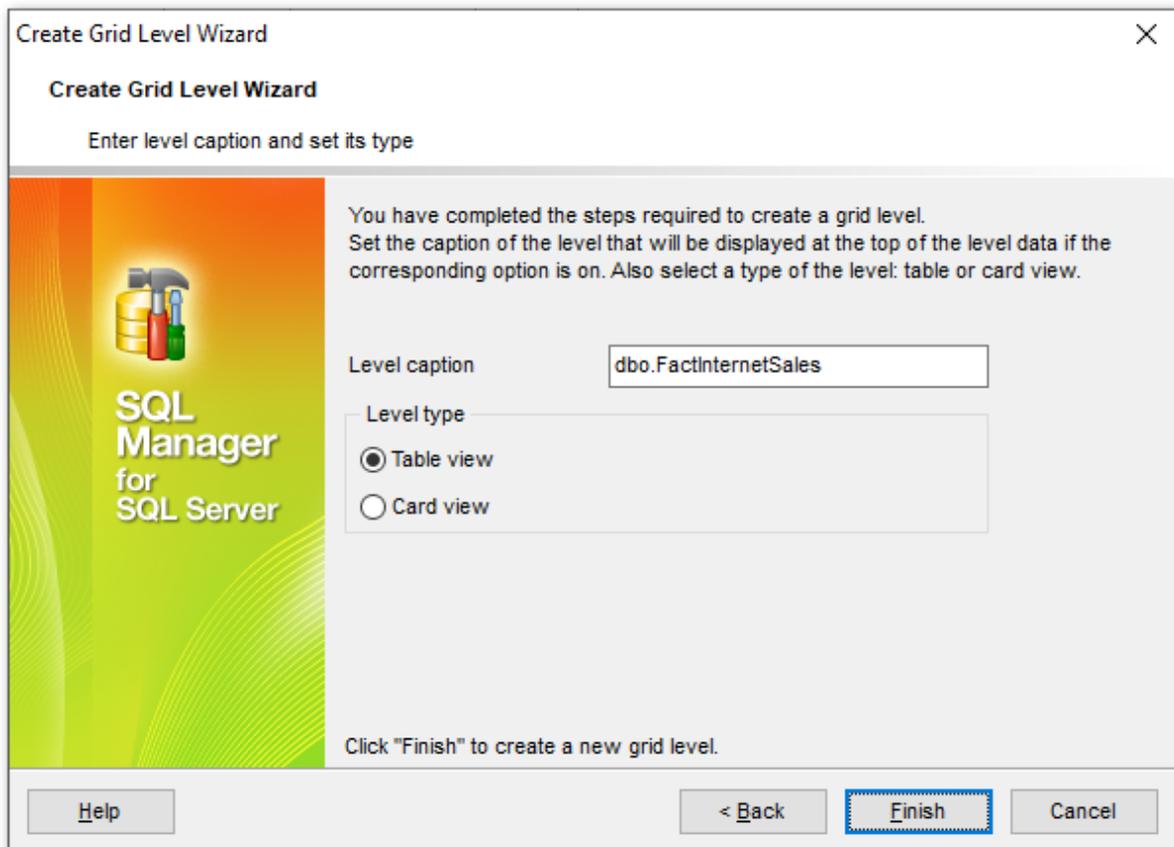
7.1.2.5.1.5 Setting additional parameters

Level caption

Set the caption to be used for the new level in the grid.

Level type

Select the type of view you wish to be applied to the grid level: *Table view* or *Card view*.

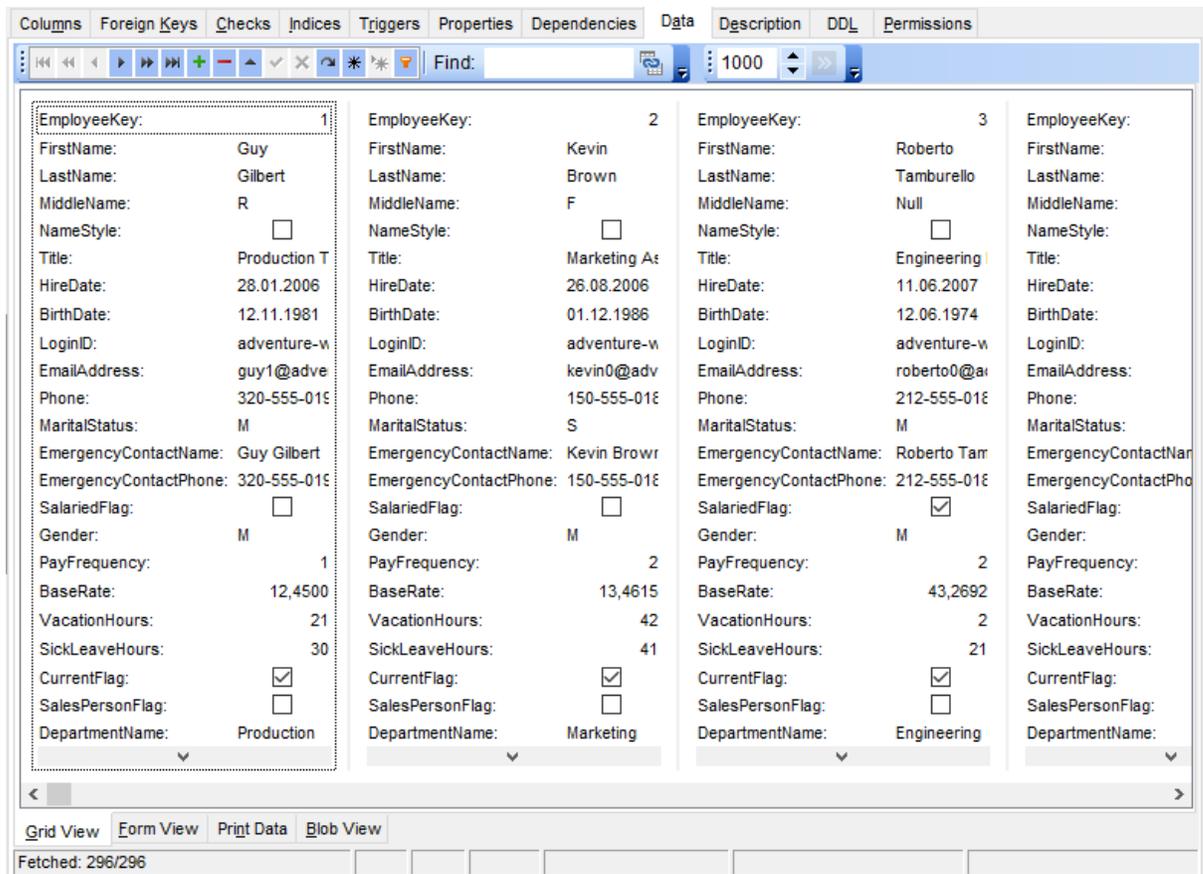


When you are done, click the **Finish** button to complete the operation.

7.1.2.6 Working in card view mode

Depending on your preferences, you can represent data in the **Table View** or in the **Card View** modes.

To switch to the **Card View** mode of data representation, right-click the grid, expand the **Grid Levels context menu**^[472] group and select the **Card View** item within this group.

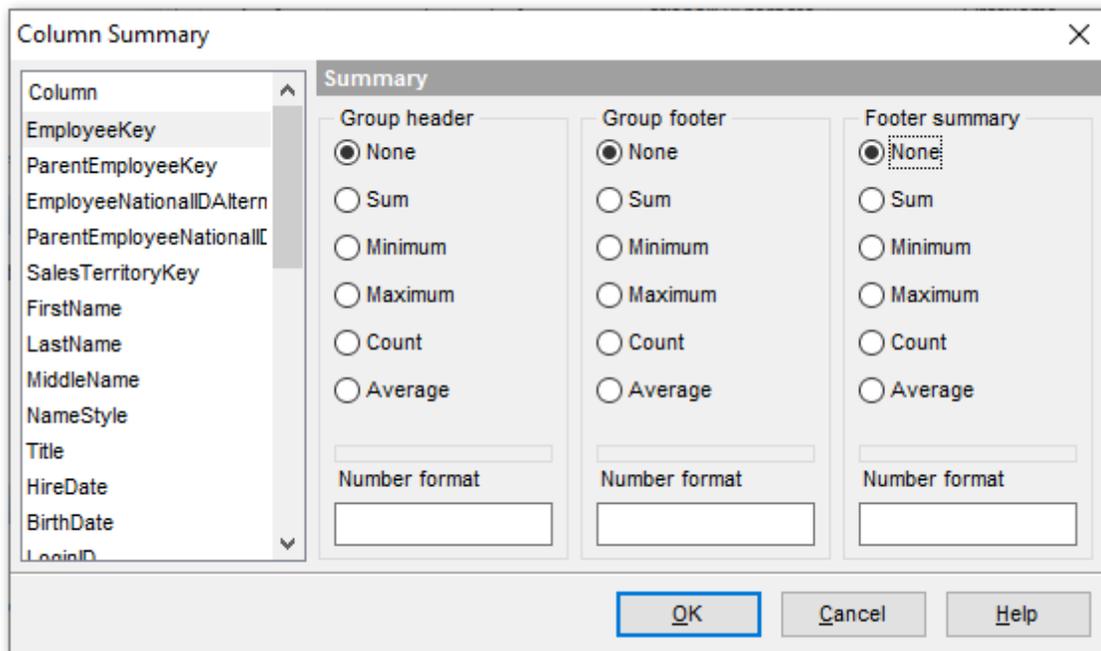


See also:

[Using the context menu](#)^[472]

7.1.2.7 Column Summary

If necessary, you can select the **Column Summary...** [context menu](#)^[472] item to open the **Column Summary** dialog which allows you to set the summary for each particular column that will be displayed in the grid *footer*, *group header* and *group footer* areas.



The **Column** list displays all columns of the dataset. Select a column and specify which information should be displayed in the grid as summary for this column:

- None*
- Sum* (for numeric types only)
- Minimum* (for numeric and date/time types only)
- Maximum* (for numeric and date/time types only)
- Count*
- Average* (for numeric types only)

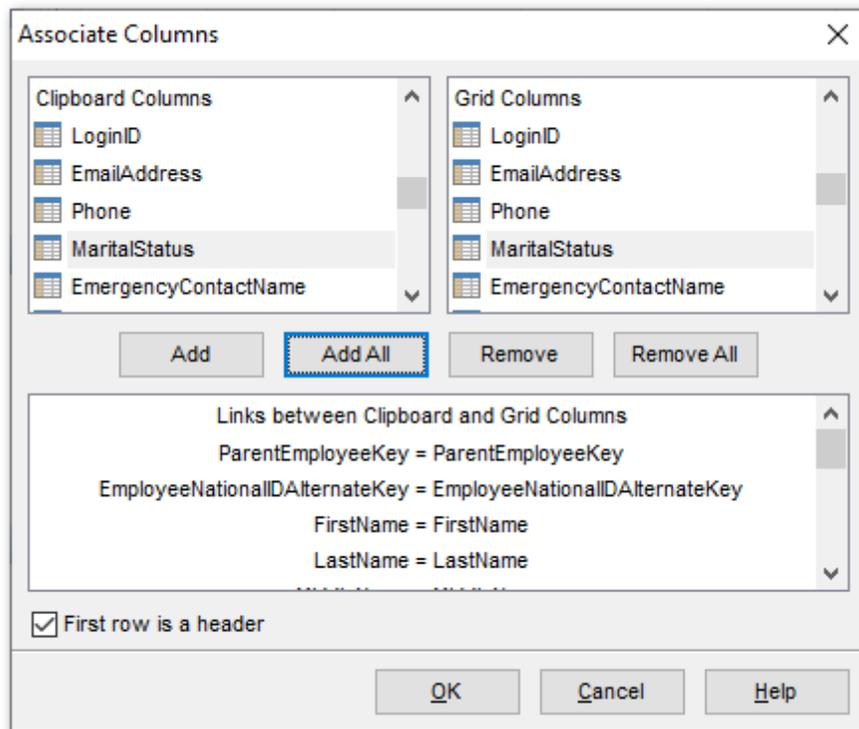
Use the **Number format** edit boxes in each group to specify the preferable [format](#)^[930] for summary info representation.

See also:

[Using the context menu](#)^[472]

7.1.2.8 Copying records

When you copy several records to clipboard and paste them into the grid, you are offered to set correspondence between columns of the clipboard and columns of the target SQL Server table using the **Associate Columns** dialog.



The **Clipboard Columns** and **Grid Columns** lists display the source and target dataset columns respectively. Set correspondence between the source clipboard columns and the table columns:

- select a source clipboard column in the **Clipboard Columns** list;
- select the corresponding column the target table in the **Grid Columns** list;
- click the **Add** button to set correspondence between the selected columns;
- the pair of columns appears in the **Links between...** list below;
- repeat the operation for all the columns you need copy.

Use the **Add All** button to add all columns to the **Links between...** list on the basis of their order.

To remove a correspondence, select the pair of columns in the **Links between...** list and press the **Remove** button.

To remove all correspondences, press the **Remove All** button.

First row is a header

This option specifies that the first row of the associated columns will be taken as the column header.

7.1.3 Form View

The **Form View** tab allows you to view data as a form. To activate this type of data view, select the **Form View** tab on the View mode panel at the bottom of the window.

The form displays the current record: column names on the left and the corresponding

values on the right. If the columns are available for editing, you can edit the record directly on this form. The [navigation pane](#)^[464] at the top of the form allows you to browse the data quickly, to insert, update and delete records, and to set a filter for the records using the [Filter Builder](#)^[519] dialog.

Each row has a **Null** checkbox which allows you to clear the column value and set it to NULL (if the column is nullable).

See also:

[Using Navigation bar and Toolbars](#)^[463]

[Grid View](#)^[465]

[Print Data](#)^[485]

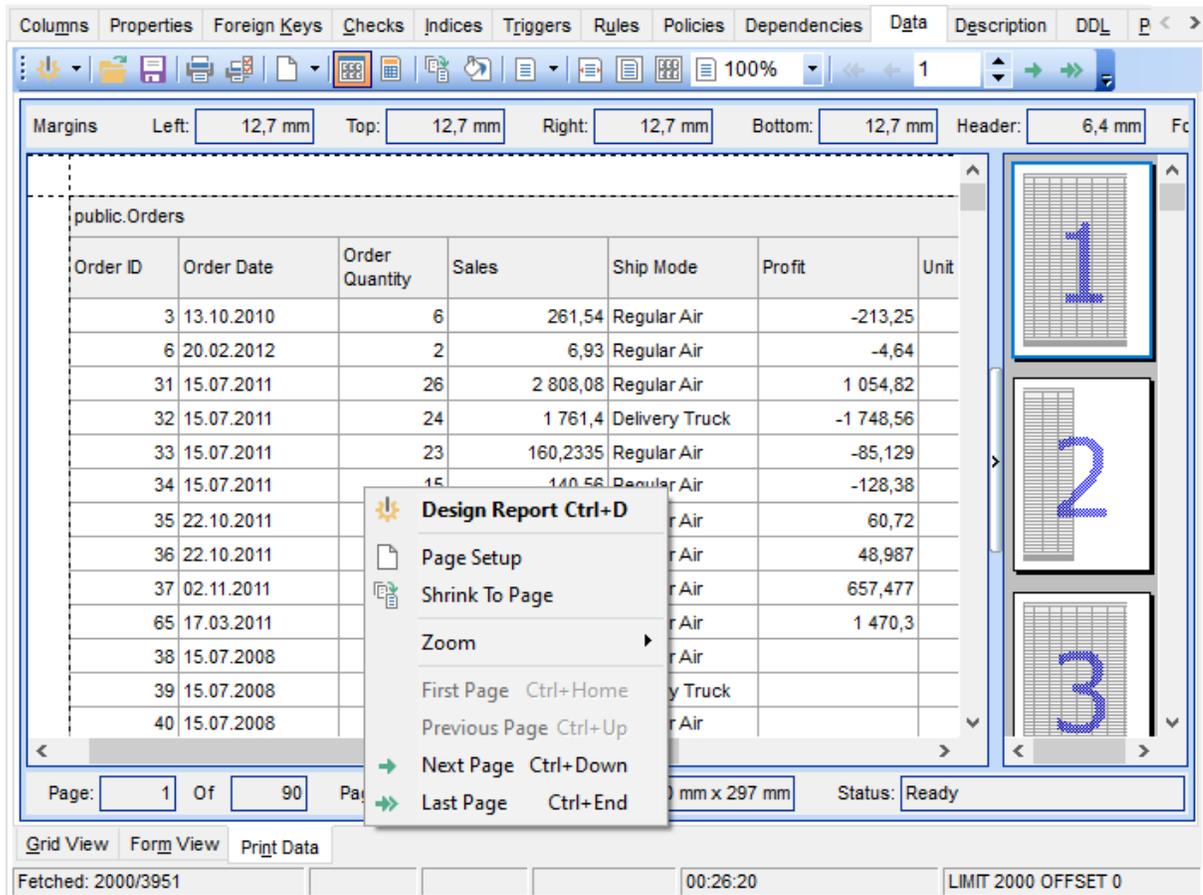
[BLOB View](#)^[505]

[Applying changes](#)^[516]

7.1.4 Print Data

Using the **Print Data** tab you can view data in the way they are printed, in WYSIWYG mode.

When in **Print Data** mode, you are provided with a powerful *context menu* and [toolbar](#)^[464] allowing you to design a report, change the view scope, save reports and load previously saved ones, set [report options](#)^[499], and specify a number of [printing](#)^[504] parameters using [Report Formatter](#)^[491] and the [Page Setup](#)^[486] dialog.



Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Using Navigation bar and Toolbars](#)^[463]

[Grid View](#)^[465]

[Form View](#)^[484]

[BLOB View](#)^[505]

[Applying changes](#)^[516]

7.1.4.1 Page Setup

The **Page Setup** dialog allows you to specify a number of settings pertaining to the report page.

To open the dialog, use the  **Page Setup** button available on the [toolbar](#)^[464].

Use the following tabs of the **Page Setup** dialog:

- [Page](#)^[487]
- [Margins](#)^[488]
- [Header/Footer](#)^[489]
- [Scaling](#)^[491]

When you are done, you can click the **Print...** button at the bottom to call the [Print](#)^[504] dialog.

See also:

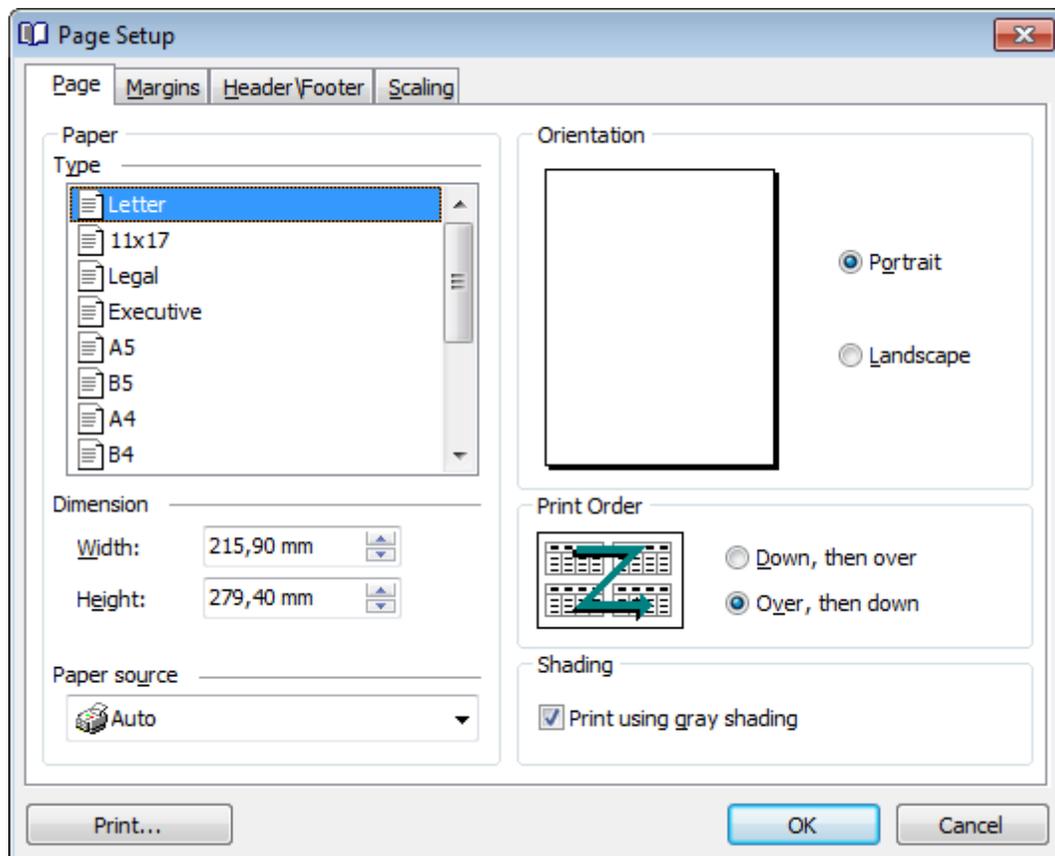
[Report Formatter](#)^[491]

[Setting report options](#)^[499]

[Print dialog](#)^[504]

7.1.4.1.1 Page

The **Page** tab of the **Page Setup** dialog allows you to specify the *paper*, *page orientation*, *print order* and *shading* settings.



Paper

Select one of the standard paper types in the **Type** list, or specify custom *width* and *height* using the **Dimension** group (in inches or millimeters, depending on the *unit of measure* specified in the [Options](#) dialog).

Use the **Paper source** drop-down list to select the paper feed type.

Orientation

Select the preferable page orientation (your selection is illustrated in the chart on the left):

- Portrait*
- Landscape*

Print Order

Select the preferable order for printing report pages (your selection is illustrated in the chart on the left):

- Down, then over*
- Over, then down*

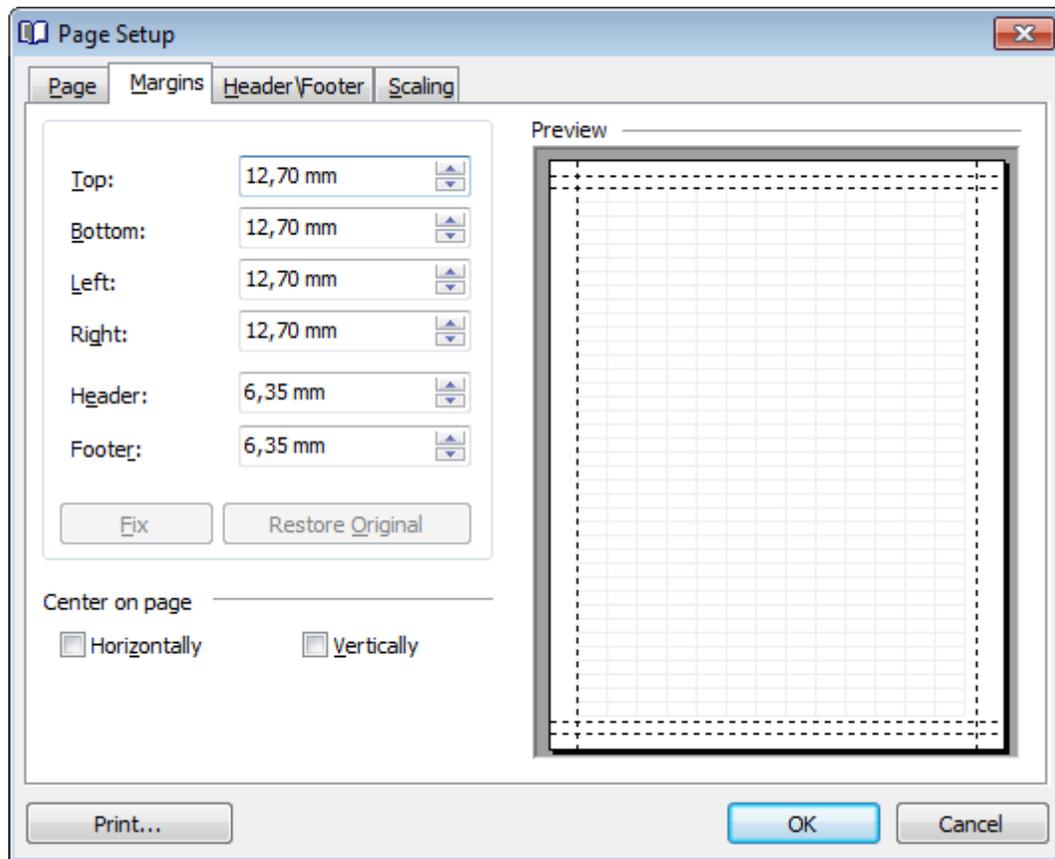
Shading

Print using gray shading

If this option is selected, gray shading (along with black and white) will be used for printing the report.

7.1.4.1.2 Margins

The **Margins** tab of the **Page Setup** dialog allows you to specify the size of the *margins* and *running titles*.



Use the spinner controls to specify the size of **top** / **bottom** / **left** / **right** margins and **header** / **footer** (in inches or millimeters, depending on the *unit of measure* specified in the [Options](#)^[499] dialog). The **Preview** area on the right illustrates the changes you have made.

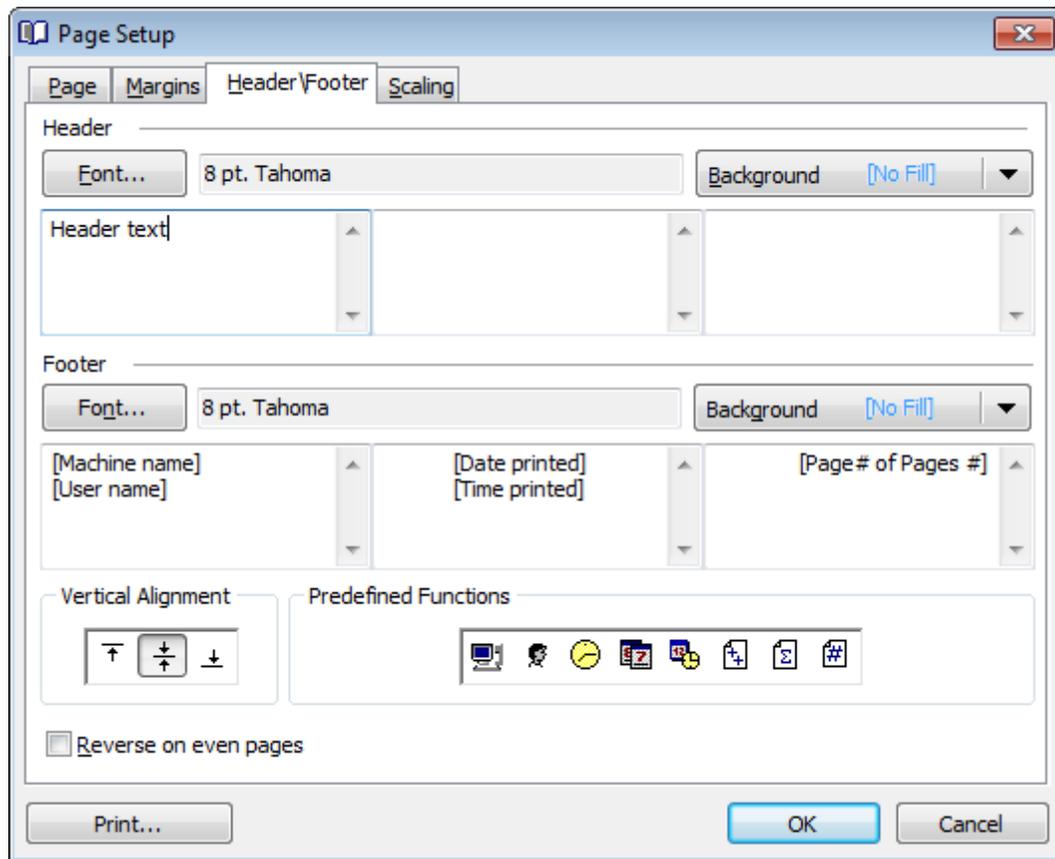
If you have specified an improper value, you can click the **Fix** button to correct it. To restore the default size values, click the **Restore Original** button.

Center on page

This group allows you to specify whether the text should be centered **horizontally** and/ or **vertically** on the page.

7.1.4.1.3 Header/Footer

The **Header/Footer** tab of the **Page Setup** dialog allows you to specify properties of the *header* and *footer* running titles.



Header / Footer

Click the **Font...** button to specify font properties using the standard **Font** dialog. The font name and size are displayed in the gray area next to the **Font...** button. Use the **Background** drop-down list to select the background color that will be applied to the page header/footer, or to customize the color using the **Color** and **Fill Effects** dialogs.

For each of the running titles you are provided with three separate text editing fields. You can use any, all or none of the fields to enter the header and footer text.

The **Vertical Alignment** group allows you to specify vertical alignment for the header/footer text according to any of the three available patterns.

Predefined Functions

This group allows you to add the following standard functions to the header and footer:

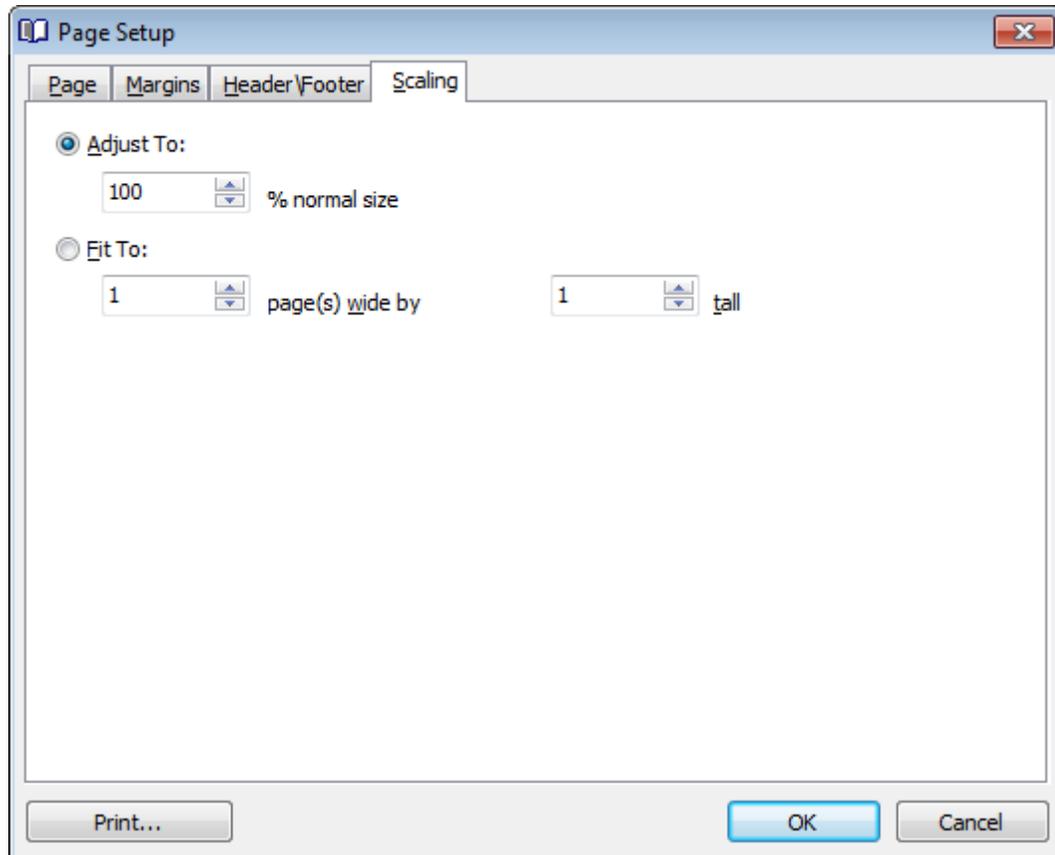
[Machine Name]
[User Name]
[Time Printed]
[Date Printed]
[Date & Time Printed]
[Page # of Pages #]
[Total Pages]
[Page #]

Reverse on even pages

If this option is selected, the header and footer text will be reversed on even pages of the printing report.

7.1.4.1.4 Scaling

The **Scaling** tab of the **Page Setup** dialog allows you to specify the page *scaling* options.



Select the preferable scaling mode:

 Adjust to ... % normal size

Use the spinner control to set the percentage of the regular page size to which the page size will be adjusted.

 Fit to ... page(s) wide by ... tall

Use the spinner controls to set the maximum number of pages (by width and by height) on one page to fit its size.

7.1.4.2 Report Formatter

Report Formatter allows you to specify a number of settings pertaining to the printing form of the report.

To open the tool, click the **Design Report**  button available on the [toolbar](#)^[464], or use the *Ctrl+D* [shortcut](#)^[955].

Use the following tabs of the **Format Report** dialog:

- [View](#)^[492]
- [Behaviors](#)^[493]
- [Formatting](#)^[494]
- [Styles](#)^[496]
- [Preview](#)^[497]
- [Cards](#)^[498]
- [Charts](#)^[499]

The **Title Properties...** button allows you to customize the report title using the [Report Title](#)^[500] dialog.

See also:

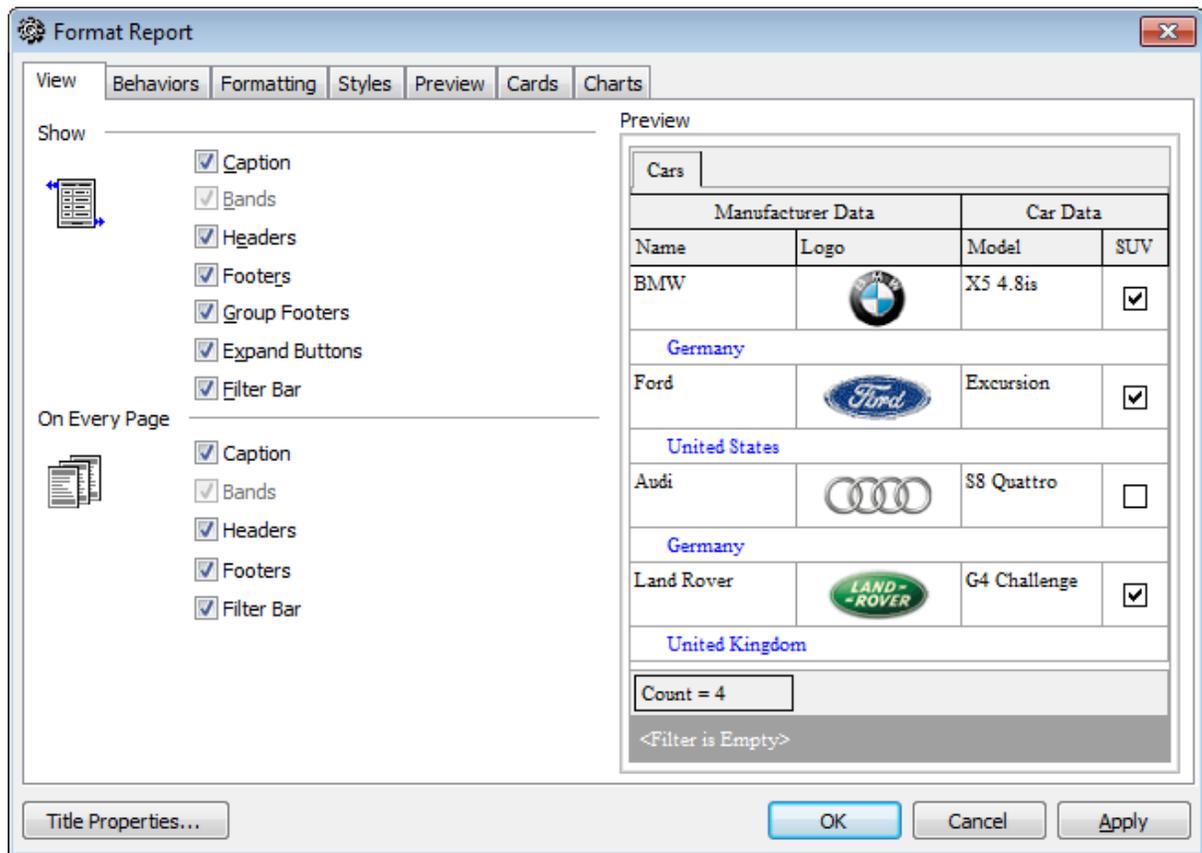
[Page Setup](#)^[486]

[Setting report options](#)^[499]

[Print dialog](#)^[504]

7.1.4.2.1 View

The **View** tab of the **Format Report** dialog allows you to specify report elements to show in the report.

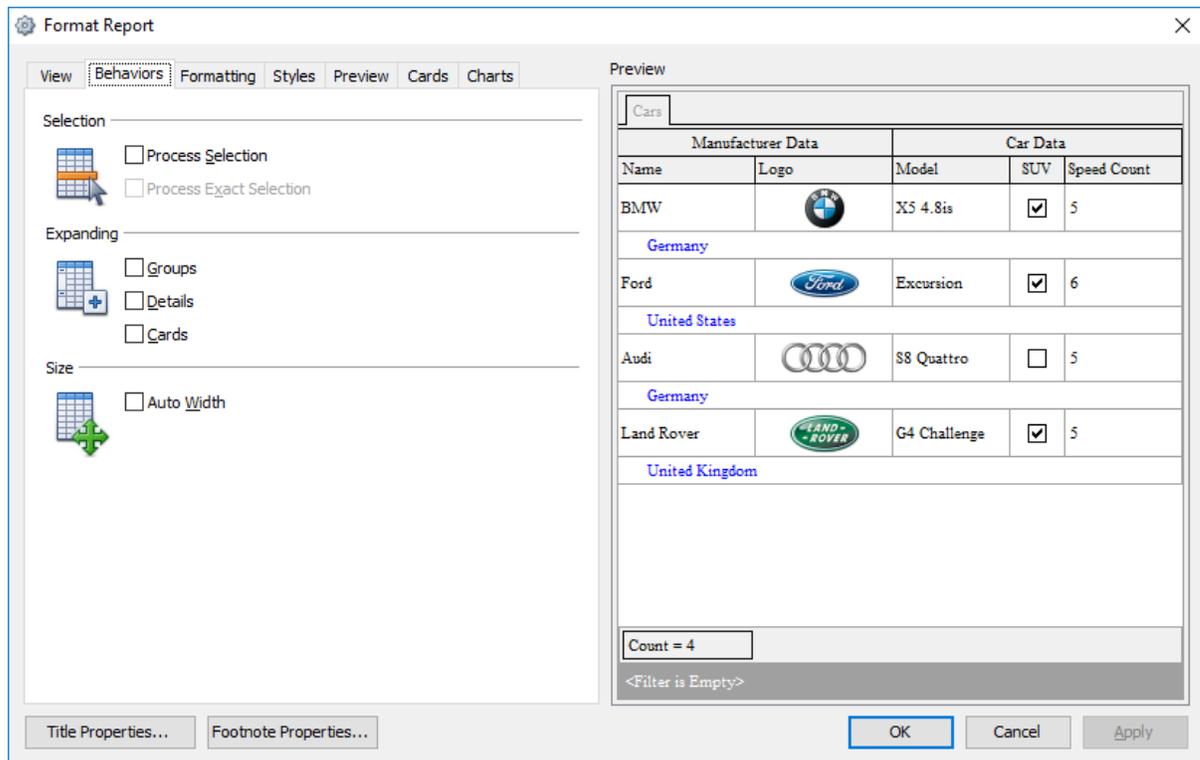


Tick off the elements to **show** in the report (*caption, bands, headers, footers, group footers, expand buttons, filter bar*) and **on every page** of the report (*caption, bands, headers, footers, filter bar*).

The **Preview** area on the right illustrates the changes you have made.

7.1.4.2.2 Behaviors

The **Behaviors** tab of the **Format Report** dialog allows you to specify the way (behavior) the report elements will appear on the printing form.



Selection

Process selection / Process exact selection

Specify whether the text selection should or should not be processed (precisely) for the printing form.

Expanding

Tick off the elements to expand in the report: *groups*, *details*, *cards*.

Size

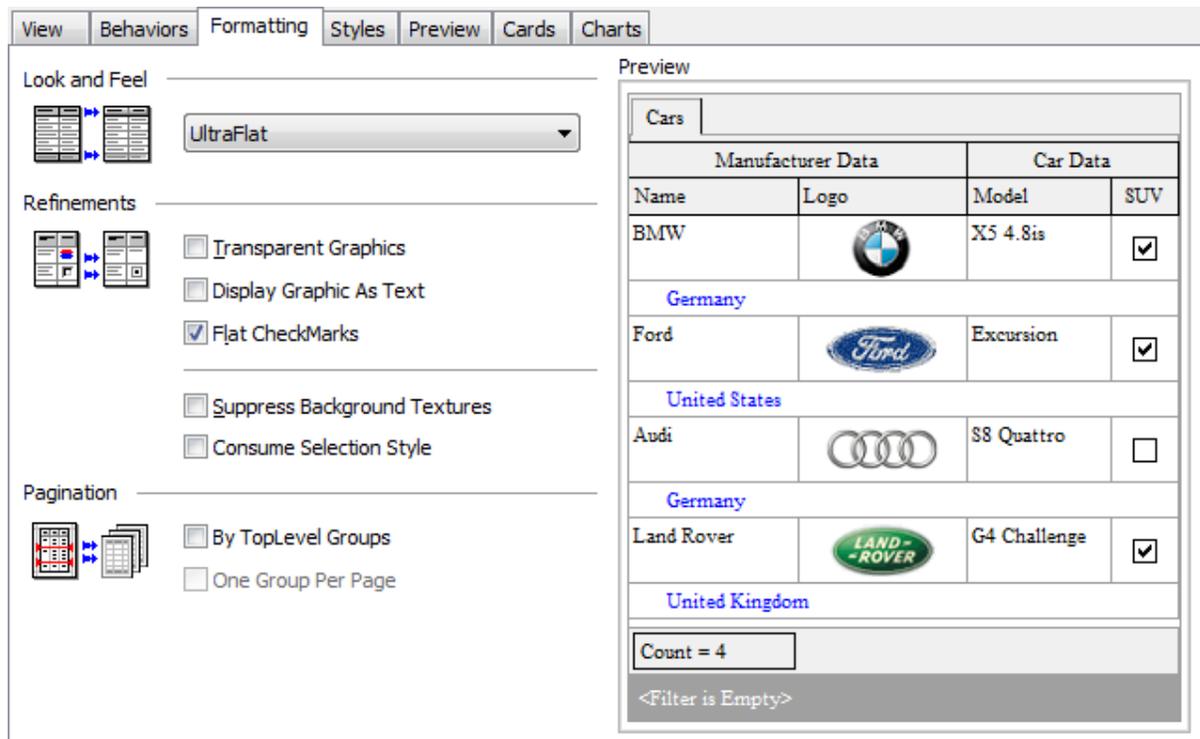
Auto Width

If this option is selected, the table will be resized automatically to fit the page by width.

The **Preview** area on the right illustrates the changes you have made.

7.1.4.2.3 Formatting

The **Formatting** tab of the **Format Report** dialog allows you to specify *Look and Feel*, *Refinements* and *Pagination* options.



Look and Feel

This setting determines the manner in which the cells are painted. Use the drop-down list to select the painting style that will be applied to the cells on the printing form:

Flat

Standard

UltraFlat

Refinements

Options of this group allow you to reduce the report size.

Transparent graphics

If this option is selected, the images will be drawn transparent in the report.

Display graphic as text

If this option is selected, text will be displayed instead of the images.

Flat CheckMarks

If this option is selected, the checkboxes will be drawn flat.

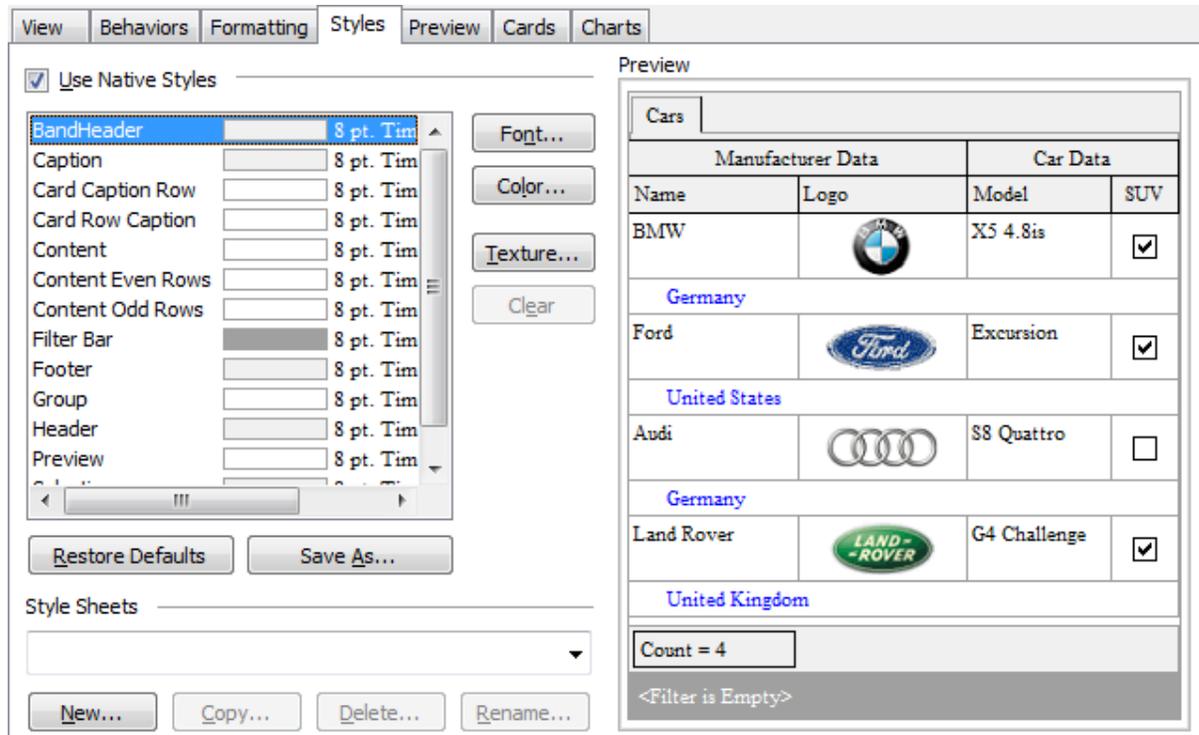
Pagination

Specify the way pagination will be performed for the report: **By TopLevel groups** or **One group per page**.

The **Preview** area on the right illustrates the changes you have made.

7.1.4.2.4 Styles

The **Styles** tab of the **Format Report** dialog allows you to specify styles to be applied to the report elements.



Use native styles

This option determines whether the native Windows style will be applied to the report elements.

Note: The **Native style** option is currently supported for the Windows® XP operating system only.

The elements list displays the names of all report elements, with background color and font properties specified by default. You can **Use native styles** for them or customize them according to your preferences.

To edit an element, select it in the list and use the buttons to the right to edit the style for it.

Click the **Font...** button to specify font properties using the standard **Font** dialog.

Click the **Color...** button to customize the background color using the standard **Color** dialog.

Click the **Texture...** button to load an image that will be used as the texture for the element.

To rollback the changes, click the **Clear** button.

To restore the default stylesheet properties, click the **Restore Defaults** button.

If you need to save the current style sheet, you can click the **Save as...** button.

These items are also available through the **context menu** of the elements list.

Style Sheets

Use the drop-down menu to select the style sheet you need. To manage the style sheets, use the corresponding buttons below: **New...**, **Copy...**, **Delete...**, **Rename...**

The **Preview** area on the right illustrates the changes you have made.

7.1.4.2.5 Preview

The **Preview** tab of the **Format Report** dialog allows you to specify report preview options.

The screenshot shows the 'Format Report' dialog with the 'Preview' tab selected. The 'Options' section on the left includes:

- Visible
- Auto Height
- Max Line Count: 0

The 'Preview' section on the right displays a table with the following data:

Manufacturer Data		Car Data	
Name	Logo	Model	SUV
BMW		X5 4.8is	<input checked="" type="checkbox"/>
Germany			
Ford		Excursion	<input checked="" type="checkbox"/>
United States			
Audi		S8 Quattro	<input type="checkbox"/>
Germany			
Land Rover		G4 Challenge	<input checked="" type="checkbox"/>
United Kingdom			
Count = 4			
<Filter is Empty>			

Visible

This option specifies visibility of the grouping rows.

Auto height

If this option is selected, the table will be resized automatically to fit the page by height.

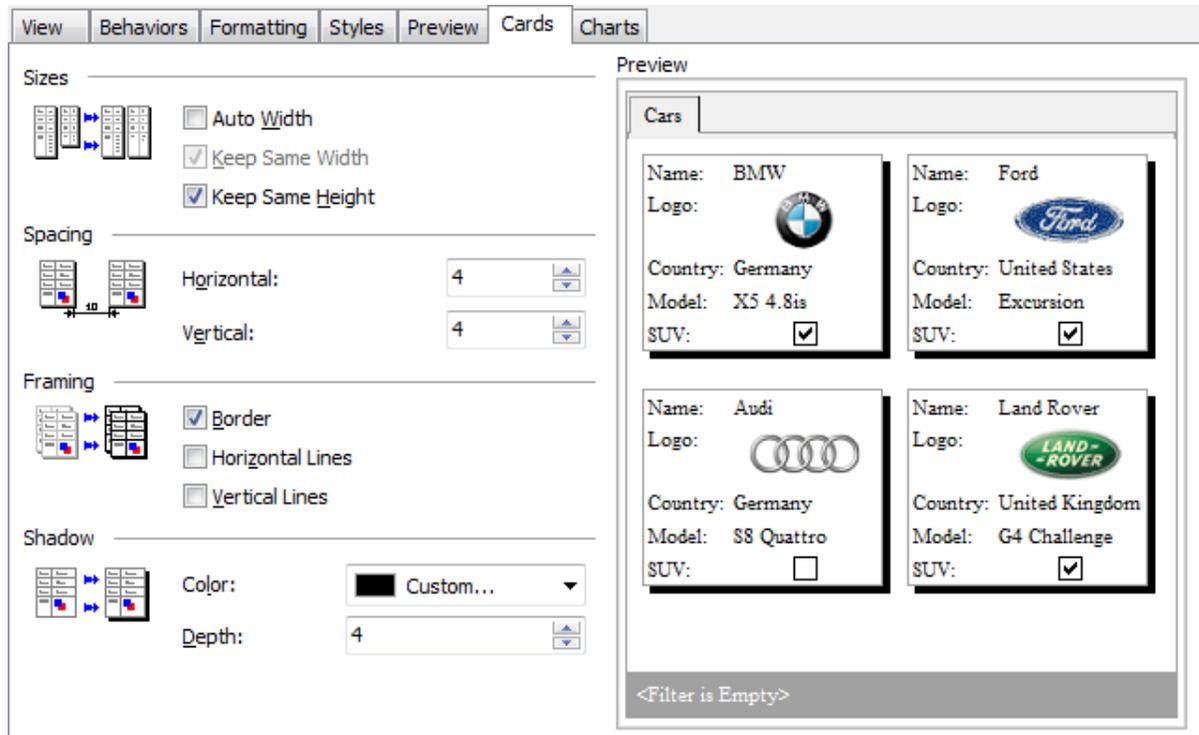
Max line count

Use the spinner control to specify the maximum possible number of lines.

The **Preview** area on the right illustrates the changes you have made.

7.1.4.2.6 Cards

The **Cards** tab of the **Format Report** dialog allows you to specify properties for the card view.



Sizes

Auto Width

If this option is selected, the cards will be resized automatically to fit the page by width.

Keep same width

Select this option to keep the card width fixed.

Keep same height

Select this option to keep the card height fixed.

Spacing

This group allows you to specify **horizontal** and **vertical** spacing between cards.

Framing

Border

This option specifies visibility of the card borders.

Horizontal lines

This option specifies visibility of the horizontal lines (row delimiters) within cards.

Vertical lines

This option specifies visibility of the vertical lines (column delimiters) within cards.

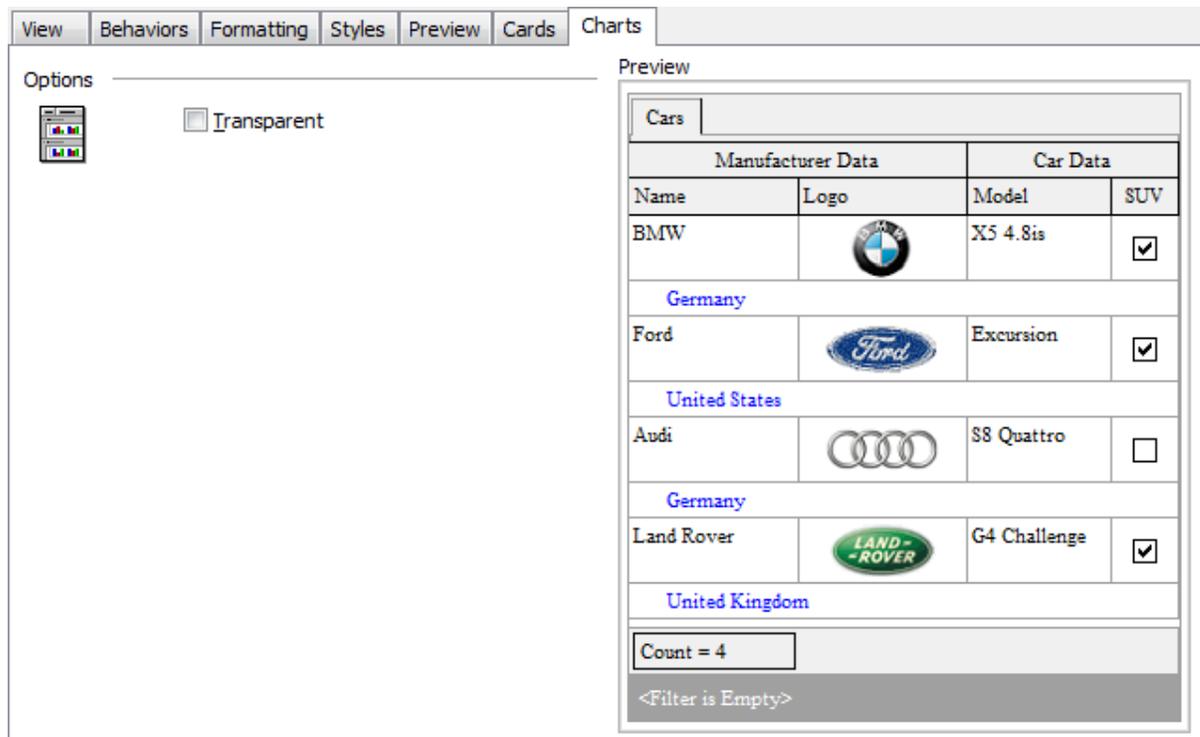
Shadow

Use the **Color** drop-down list to select the color that will be applied to the card shadows. If necessary, specify the color **depth** using the corresponding spinner control.

The **Preview** area on the right illustrates the changes you have made.

7.1.4.2.7 Charts

The **Charts** tab of the **Format Report** dialog allows you to specify options for the charts used in the report.



Transparent

If this option is selected, the charts will be drawn transparent in the report.

The **Preview** area on the right illustrates the changes you have made.

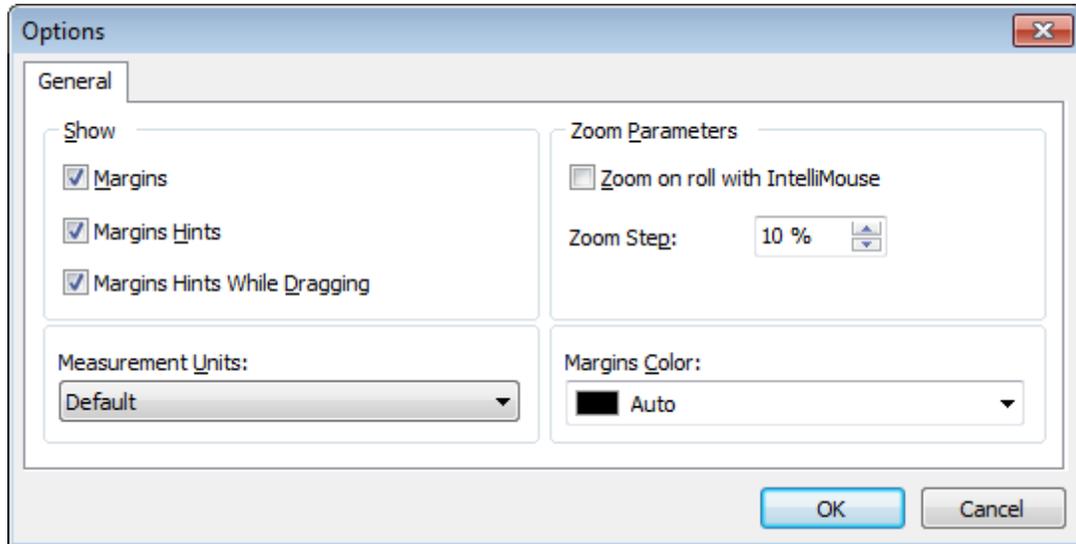
7.1.4.3 Setting report options

Options dialog

The **Options** dialog allows you to specify a number of settings pertaining to the printing

report.

To open the dialog, open the **Design Report**  menu available on the [toolbar](#)^[464] and select the **Preferences** item.



Show

Tick off the elements to **show** in the printing report (*margins, margins hints, margins hints while dragging*).

Use the **Measurement Units** drop-down list to select the unit of measure that will be used in report settings: *default, inches, or millimeters*.

Zoom Parameters

Zoom on roll with IntelliMouse

If this option is selected, you can zoom in/out by scrolling up/down (with a Microsoft® mouse or a compatible mouse used).

Zoom Step

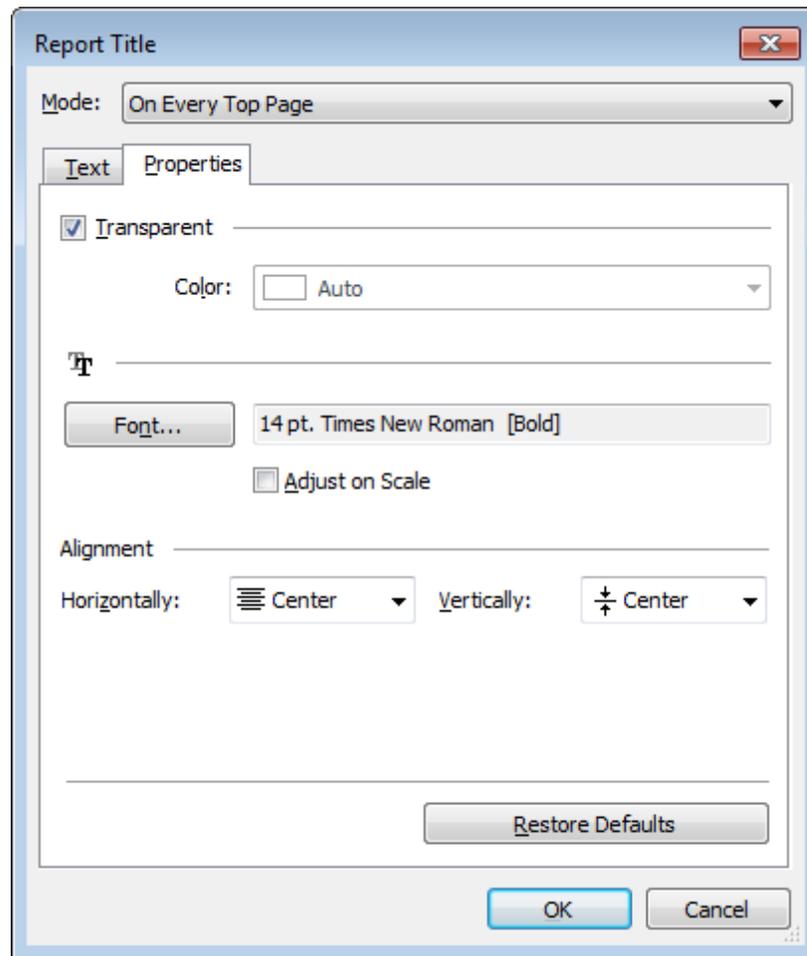
Use the spinner control to specify the percentage of the original page size to be considered as one zoom step.

Use the **Margins Color** drop-down list to select the color that will be applied to the report margins.

Report Title dialog

The **Report Title** dialog allows you to specify the report title text and properties.

To open the dialog, use the **Title...**  button available on the [toolbar](#)^[464].

**Mode**

Use the drop-down list to select where the report title should be displayed *on the first page, on every top page, or not displayed at all.*

Text

Use the edit box to enter the text of the report title.

Properties **Transparent**

If this option is selected, the report title will be drawn transparent.

Use the **Color** drop-down list to select the color that will be applied to the report title (enabled if the **Transparent** option is not selected).

Click the **Font...** button to specify title font properties using the standard **Font** dialog. The font name and size are displayed in the gray area next to the **Font...** button.

 Adjust on scale

If this option is selected, the title can be adjusted on scale.

Alignment

Use the **Horizontally** drop-down list to select the type of horizontal alignment to be applied to the report title: *Left*, *Center*, or *Right*.

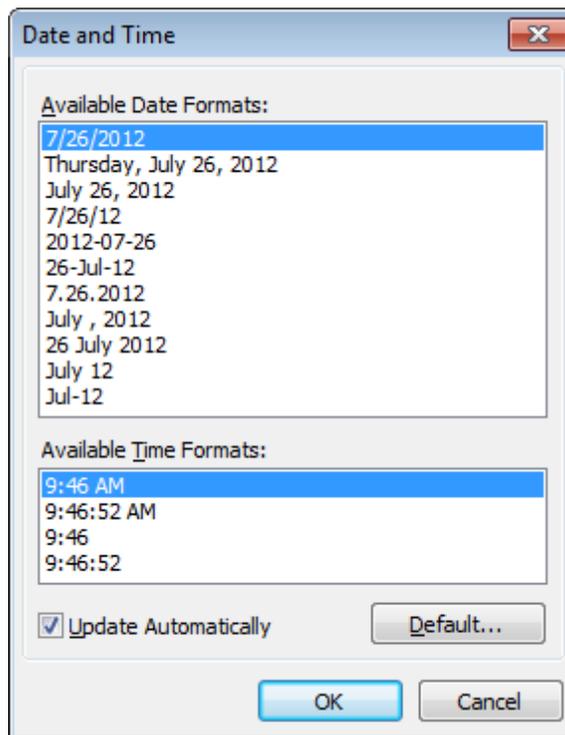
Use the **Vertically** drop-down list to select the type of vertical alignment to be applied to the report title: *Top*, *Center*, or *Bottom*.

To restore the default title properties, click the **Restore Defaults** button.

Date and Time dialog

The **Date and Time** dialog allows you to specify the date/time formats to be used in the report.

To open the dialog, open the **Title...**  menu available on the [toolbar](#)^[464] and select the **Date and Time...** item.



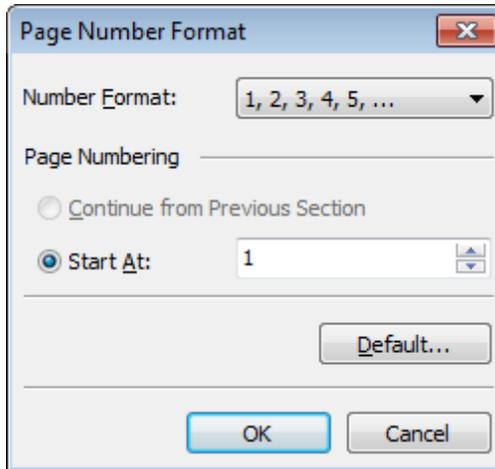
Select the preferable values from the **Available Date Formats** and the **Available Time Formats** lists. If necessary, you can specify that the date/time will be *updated automatically*.

To apply the default date/time format, click the **Default...** button.

Page Number Format dialog

The **Page Number Format** dialog allows you to specify the formats for page numbers to be used in the report.

To open the dialog, open the **Title...**  menu available on the [toolbar](#)⁴⁶⁴ and select the **Page Numbering...** item.



Select the preferable number format from the **Number Format** drop-down list.

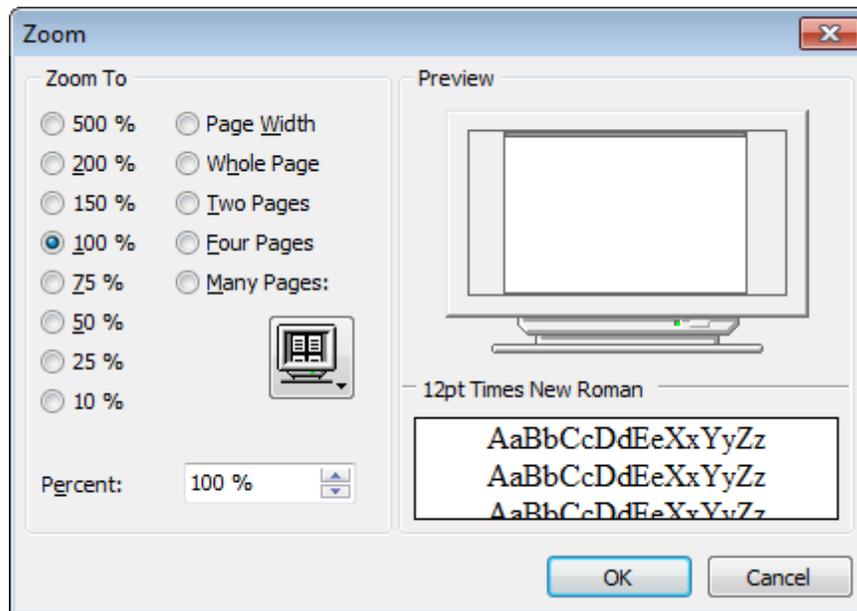
Use the **Page Numbering** section to specify whether page numbering should *continue from the previous section* (if any) or *start at the specified number*.

To set the default numbering values, click the **Default...** button.

Zoom dialog

The **Zoom** dialog allows you to zoom the report page more better representation.

To open the dialog, open the **Zoom**  menu available on the [toolbar](#)⁴⁶⁴ and select the **Setup zoom...** item.



Select the preferable percentage of zoom value (500%, 200%, 150%, 100%, 75%, 50%, 25%, 10%) or specify one of frequently used values:

- Page Width
- Whole Page
- Two Pages
- Four Pages
- Many Pages (click the chart below and select the item you need)

If necessary, you can set a custom percent value using the **Percent** spinner control below.

The **Preview** area on the right illustrates the changes you have made.

See also:

[Page Setup](#)^[486]

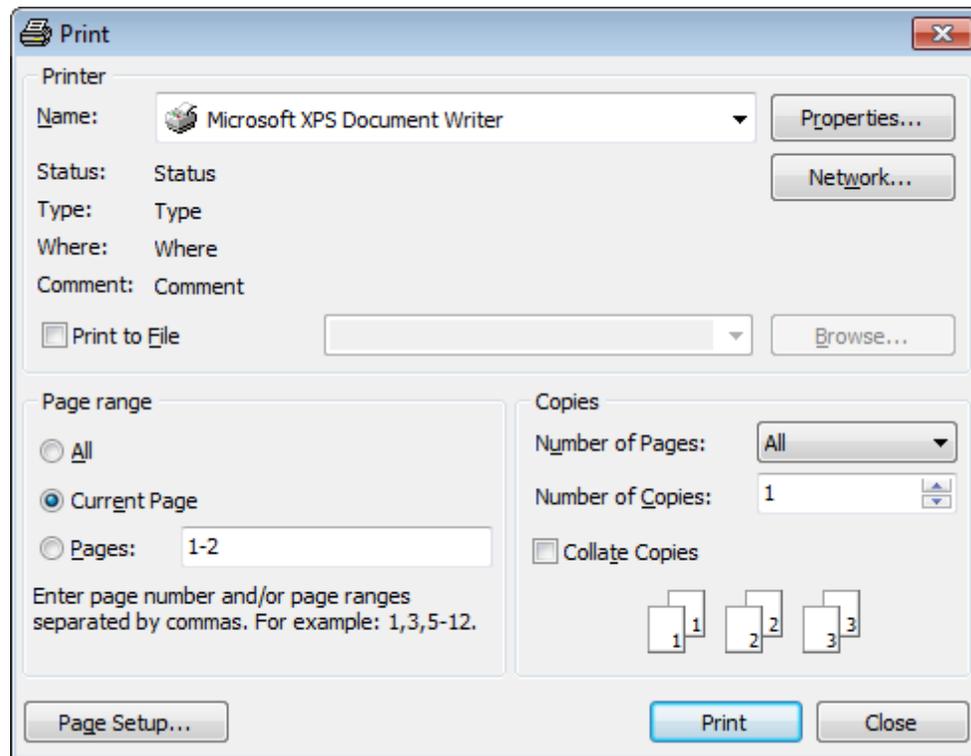
[Report Formatter](#)^[491]

[Print dialog](#)^[504]

7.1.4.4 Print dialog

The standard **Print** dialog allows you to specify printing settings for the report in groups: *printer, page range, copies*.

To open the dialog, click the **Print dialog**  button available on the [toolbar](#)^[464], or use the **Ctrl+P** [shortcut](#)^[955].



When you are done, click the **Print** button to start printing.

If you need to change any page settings before printing, you can click the **Page Setup...** button at the bottom to call the [Page Setup](#)^[486] dialog.

See also:

[Page Setup](#)^[486]

[Report Formatter](#)^[491]

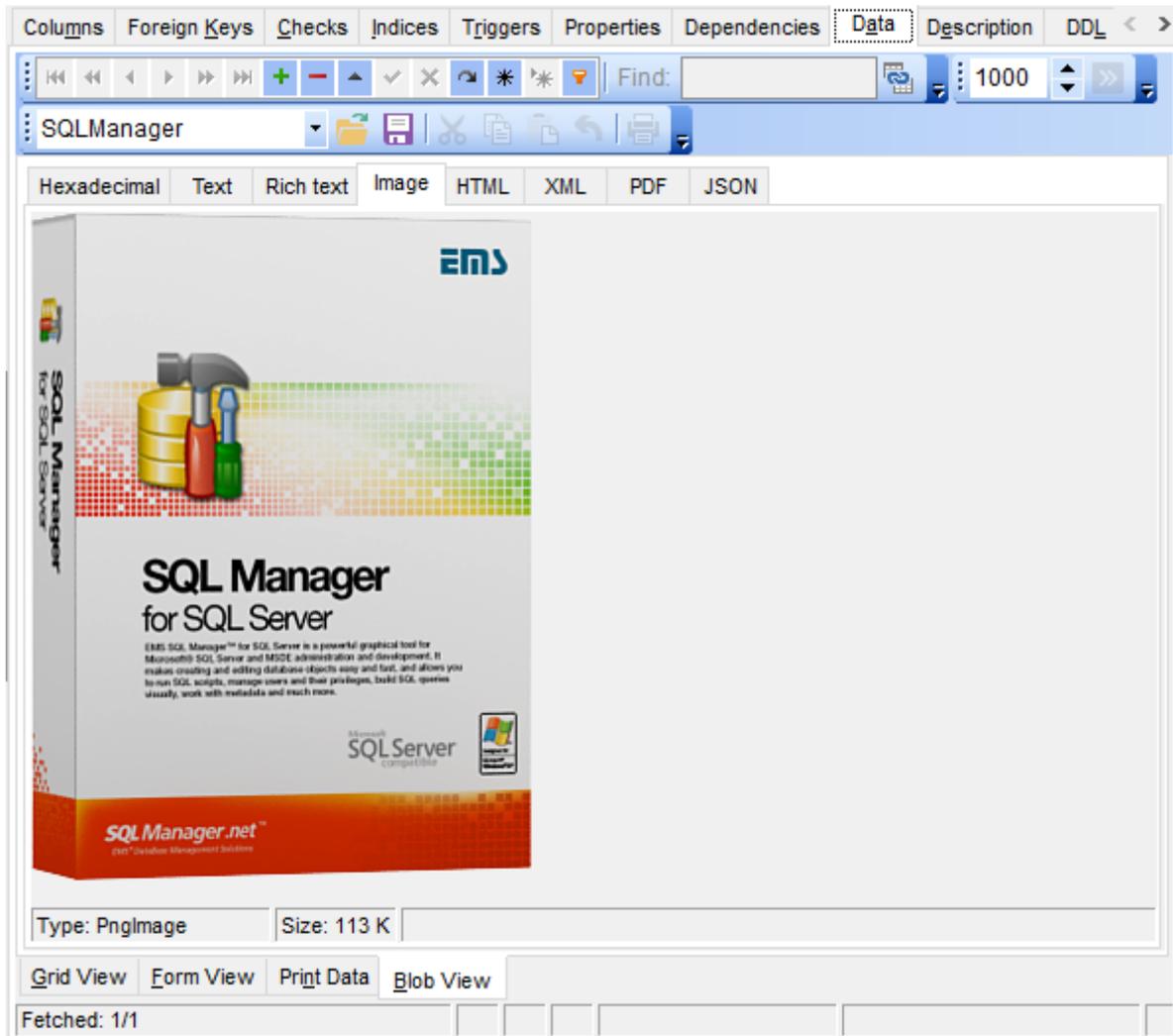
[Setting report options](#)^[499]

7.1.5 BLOB View

SQL Manager for SQL Server provides BLOB Viewer/Editor to view and edit BLOB (Binary Large Object) fields content. The BLOB Viewer/Editor can be invoked from the data grid within [Table Editor](#)^[200], [Query Data](#)^[426], [Design Query](#)^[442], etc.

- [Navigation within the BLOB Viewer/Editor](#)^[507]
- [Viewing/Editing BLOB field as Hexadecimal dump](#)^[507]
- [Viewing/Editing BLOB field as plain Text](#)^[508]
- [Viewing/Editing BLOB field as Rich Text \(RTF\)](#)^[509]
- [Viewing/Editing BLOB field as Image](#)^[510]
- [Viewing/Editing BLOB field as HTML](#)^[511]
- [Viewing/Editing BLOB field as XML](#)^[512]

- [Viewing/Editing BLOB field as PDF](#)^[514]



Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Using Navigation bar and Toolbars](#)^[463]

[Grid View](#)^[465]

[Form View](#)^[484]

[Print Data](#)^[485]

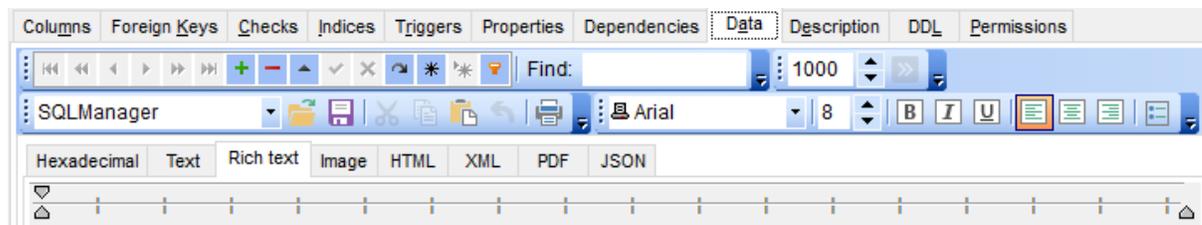
[Applying changes](#)^[516]

7.1.5.1 Navigation within BLOB Editor

The **BLOB Viewer/Editor** provides an ability to navigate within the records using **DB Navigation** buttons on the [navigation pane](#)^[464] at the top of the viewer window.

Using items of the [navigation pane](#)^[464] and the drop-down menu you can browse the data quickly, insert, update and delete records, set a filter for the records using the [Filter Builder](#)^[519] dialog, load new BLOB content and save the current content to files.

The [toolbar](#)^[465] allows you to switch the fields and perform a number of editing operations. The set of toolbar items depends on the current selection and view mode.



See also:

[Editing as Hexadecimal](#)^[507]

[Editing as Text](#)^[508]

[Editing as Rich Text](#)^[509]

[Editing as Image](#)^[510]

[Editing as HTML](#)^[511]

[Editing as XML](#)^[512]

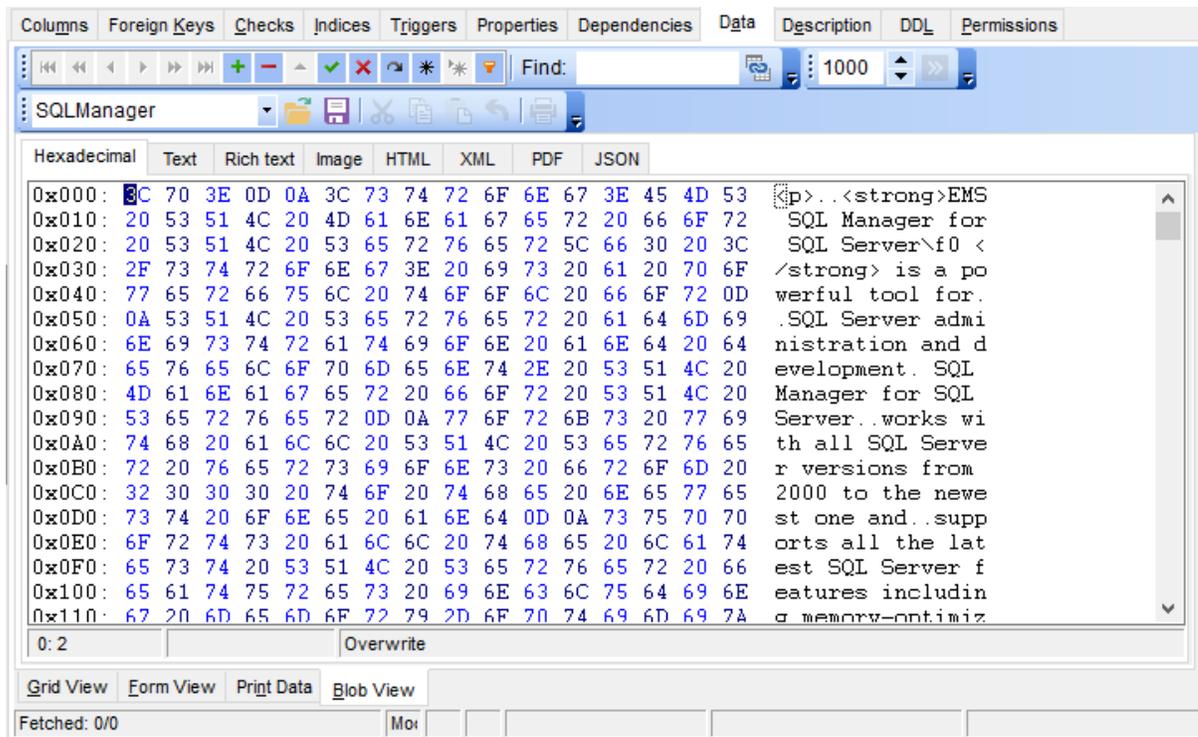
[Editing as PDF](#)^[514]

7.1.5.2 Editing as Hexadecimal

The **Hexadecimal** tab allows you to view/edit the BLOB data as hexadecimal.

The [toolbar](#)^[465] provides additional functionality for BLOB Viewer/Editor: use the  **Save to file** and the  **Load from file** toolbar buttons to save the hexadecimal data to a file, or load data from a file.

Use the *Ins* key to switch between the Insert and Overwrite modes.



See also:

[Navigation within BLOB Editor](#)^[507]

[Editing as Text](#)^[508]

[Editing as Rich Text](#)^[509]

[Editing as Image](#)^[510]

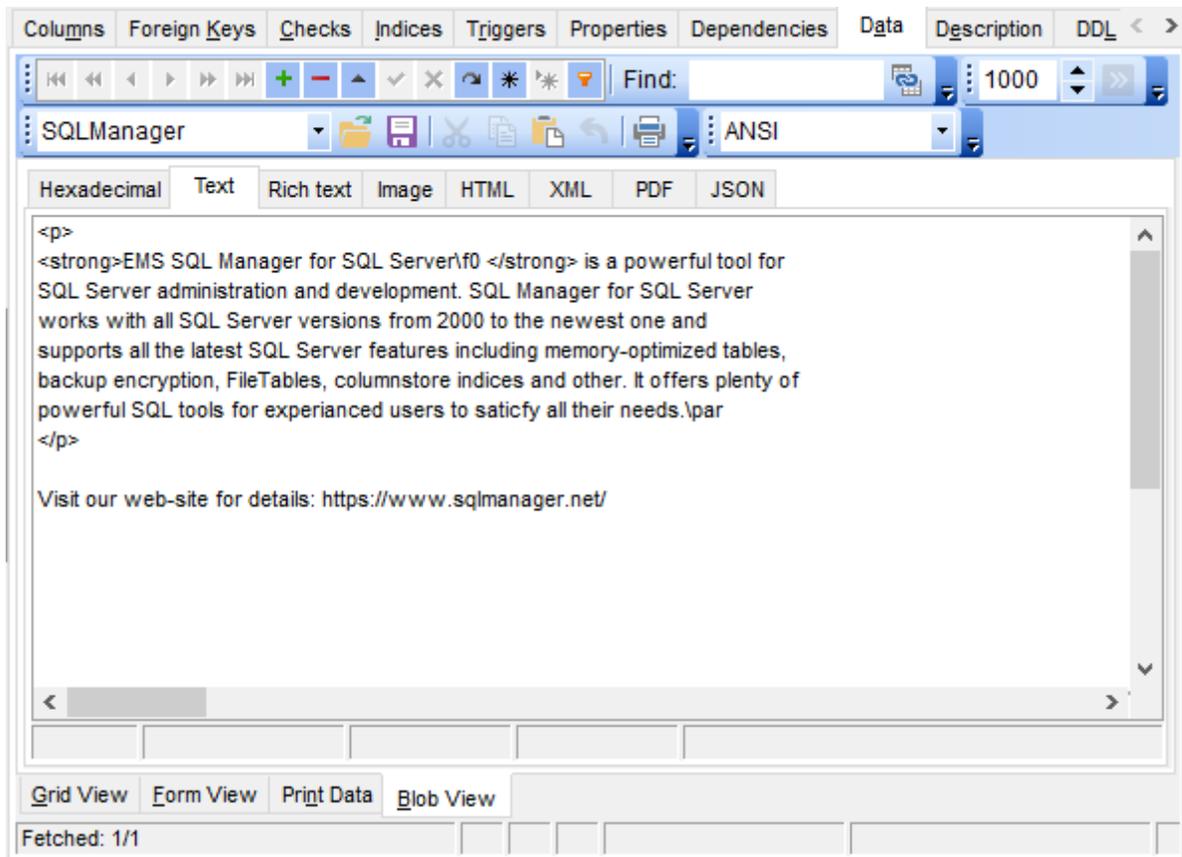
[Editing as HTML](#)^[511]

[Editing as XML](#)^[512]

7.1.5.3 Editing as Text

The **Text** tab allows you to view/edit the BLOB data as plain text.

The [toolbar](#)^[465] provides additional functionality for BLOB Viewer/Editor: use the  **Save to file** and the  **Load from file** toolbar buttons to save the text to a *.txt file, or load text from a file. Additionally, you can use the *Cut*, *Copy*, *Paste*, *Select All*, *Undo*, *Word Wrap* context menu items for editing the text efficiently, and the **Print** context menu item to print the content of the **Text** tab.



See also:

[Navigation within BLOB Editor](#)^[507]

[Editing as Hexadecimal](#)^[507]

[Editing as Rich Text](#)^[509]

[Editing as Image](#)^[510]

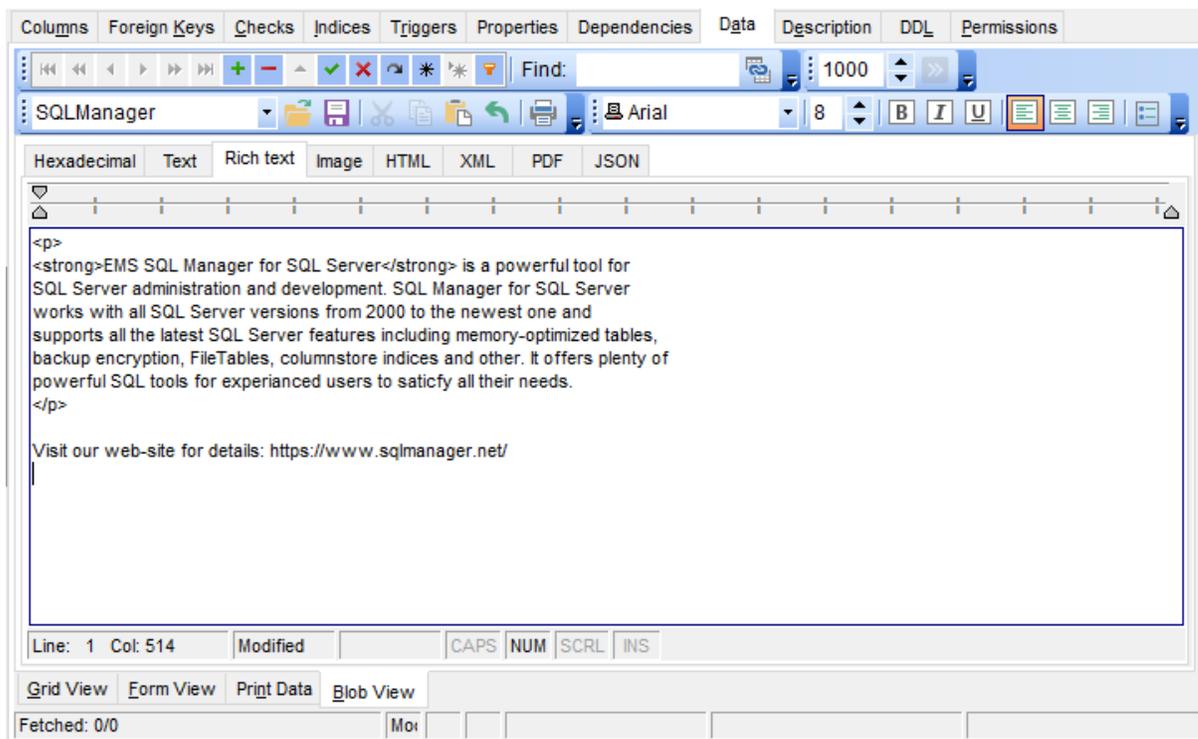
[Editing as HTML](#)^[511]

[Editing as XML](#)^[512]

7.1.5.4 Editing as Rich Text

The **Rich Text** tab allows you to view/edit the BLOB data in Rich Text format (RTF).

The [toolbar](#)^[465] provides additional functionality for BLOB Viewer/Editor: use the  **Save to file** and the  **Load from file** toolbar buttons to save the Rich Text to a *.rtf file, or load text from a file. Additionally, you can use the *Cut*, *Copy*, *Paste*, *Select All*, *Undo* context menu items for editing the text efficiently, and the **Print** context menu item to print the content of the **Rich Text** tab.



See also:

[Navigation within BLOB Editor](#)^[507]

[Editing as Hexadecimal](#)^[507]

[Editing as Text](#)^[508]

[Editing as Image](#)^[510]

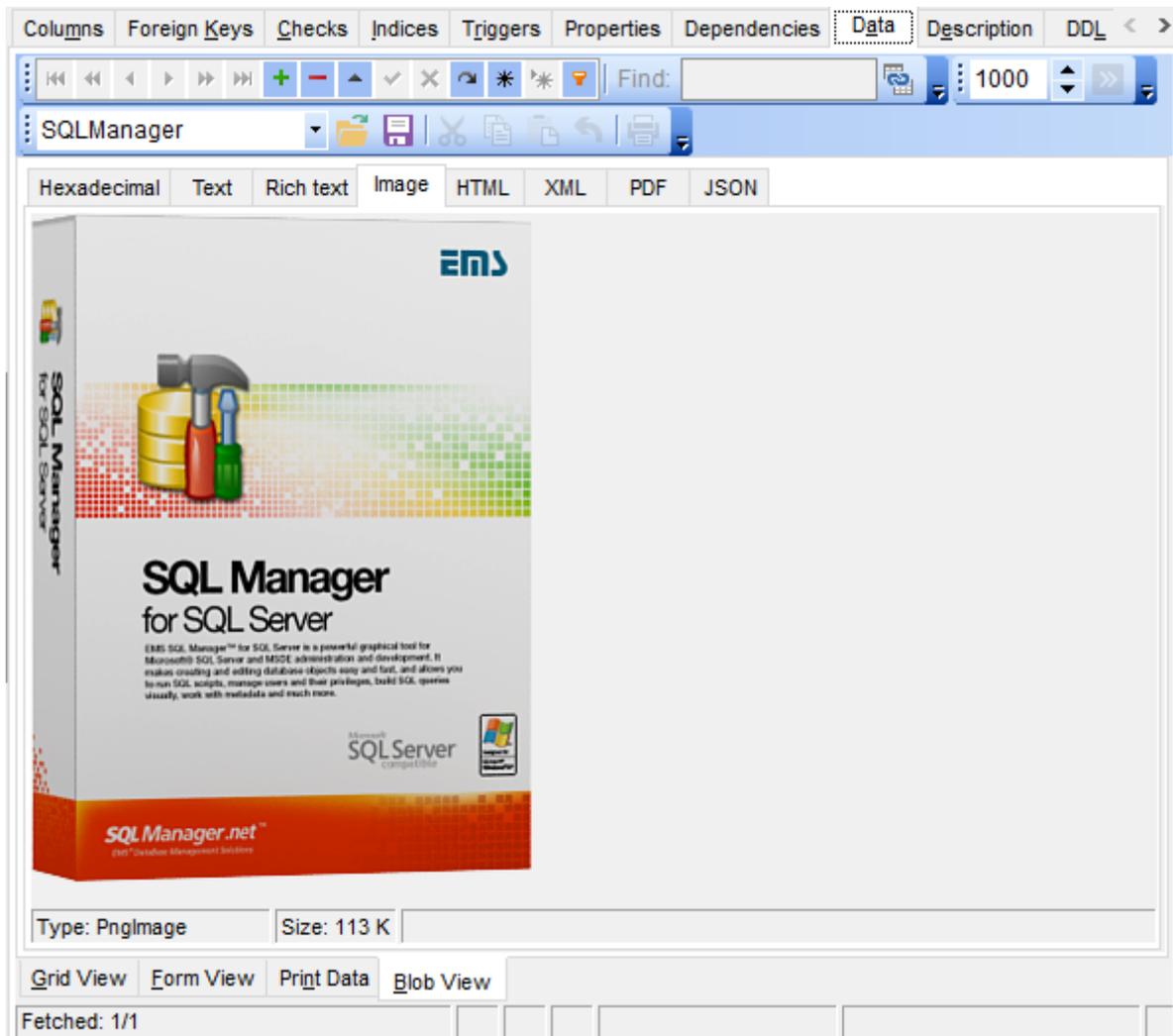
[Editing as HTML](#)^[511]

[Editing as XML](#)^[512]

7.1.5.5 Editing as Image

The **Image** tab allows you to view the BLOB data as image.

The [toolbar](#)^[465] provides additional functionality for BLOB Viewer/Editor: use the  **Save to file** and the  **Load from file** toolbar buttons to save the image to a *.png, *.wmf, *.ico, *.png or *.png file, or load an image from a file.



See also:

[Navigation within BLOB Editor](#)^[507]

[Editing as Hexadecimal](#)^[507]

[Editing as Text](#)^[508]

[Editing as Rich Text](#)^[509]

[Editing as HTML](#)^[511]

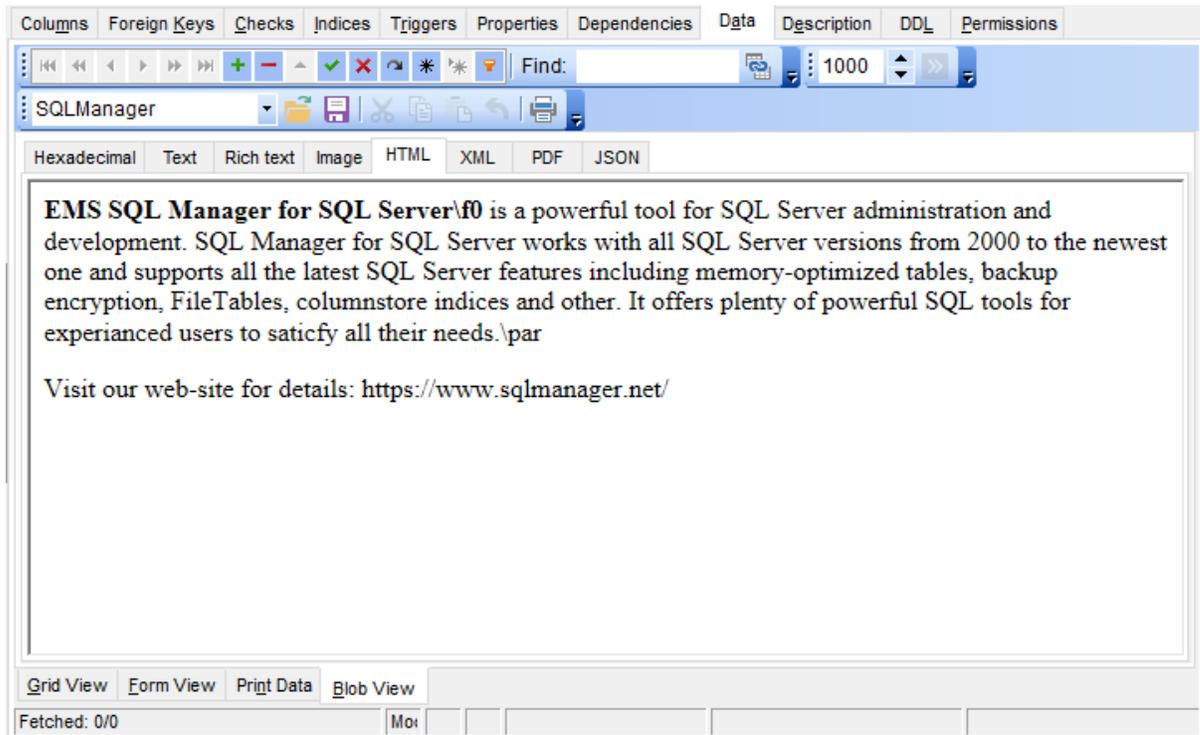
[Editing as XML](#)^[512]

7.1.5.6 Editing as HTML

The **HTML** tab allows you to view the BLOB data as HTML (Hyper-Text Markup Language format) - in the way this data would be displayed by your Internet browser.

The [toolbar](#)^[465] provides additional functionality for BLOB Viewer/Editor: use the  **Save**

to file and the  **Load from file** toolbar buttons to save the content as a *.html, or *.htm file, or load content from a file.



See also:

[Navigation within BLOB Editor](#)^[507]

[Editing as Hexadecimal](#)^[507]

[Editing as Text](#)^[508]

[Editing as Rich Text](#)^[509]

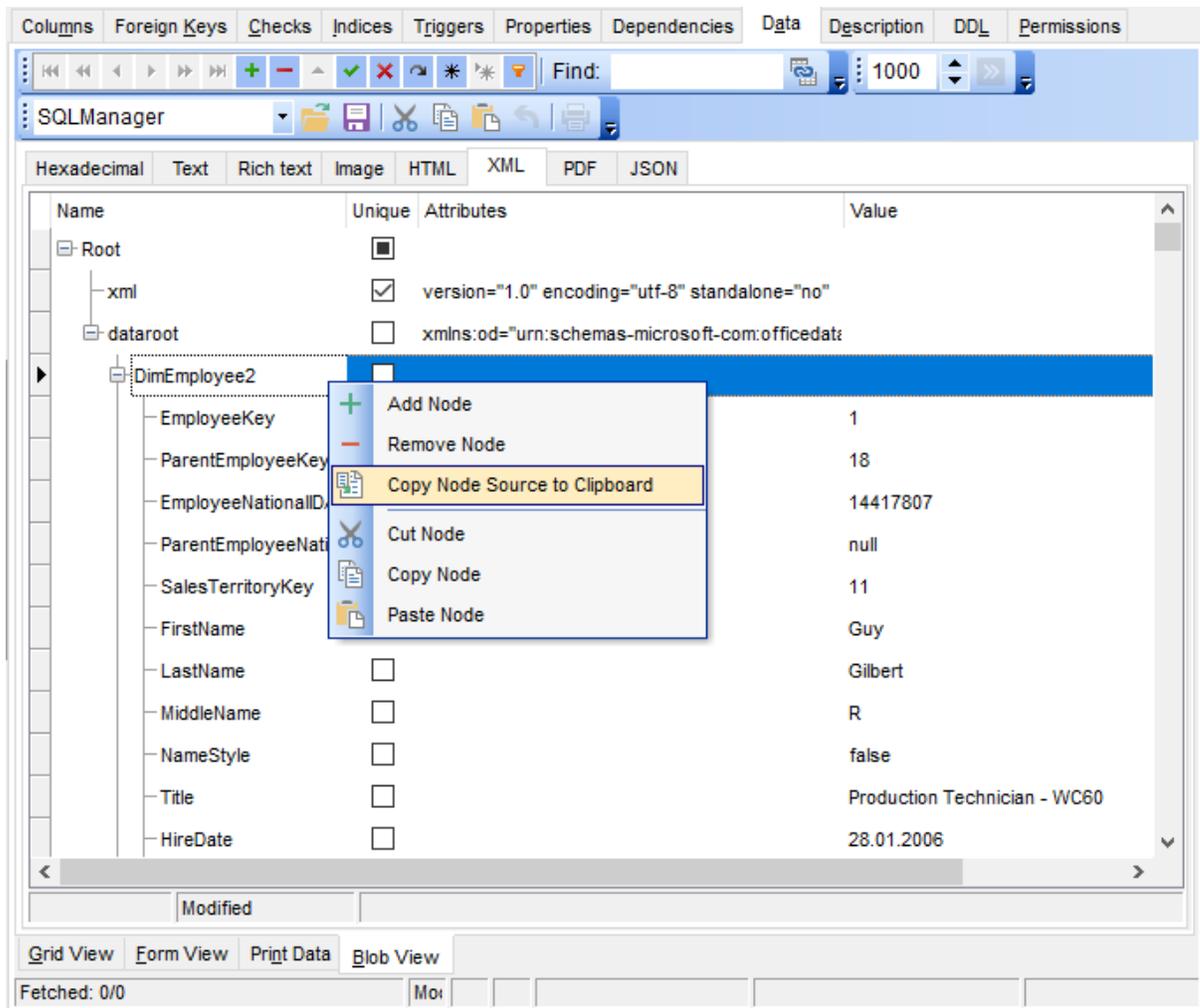
[Editing as Image](#)^[510]

[Editing as XML](#)^[512]

7.1.5.7 Editing as XML

The **XML** tab allows you to view/edit the XML (eXtensible Markup Language) data.

The [toolbar](#)^[465] provides additional functionality for BLOB Viewer/Editor: use the  **Save to file** and the  **Load from file** toolbar buttons to save the content as *.xml or load XML content from a file.



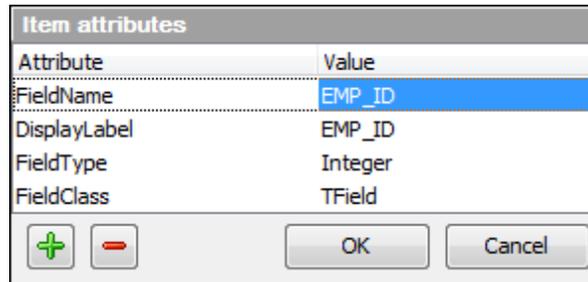
The XML content is represented as a tree-like structure consisting four editable fields: **Name**, **Unique**, **Attributes** and **Value**. You can edit data and modify the structure using drag-n-drop operations and items of the context menu.

Hint: Hold the **Shift** key when you drag-and-drop a node to insert it as a child one.

The **context menu** allows you to:

- add a node (a child node relatively to the selected one);
- remove the selected node;
- copy the selected node source to clipboard;
- cut the selected node;
- copy the selected node;
- paste a node from clipboard.

Press the **Item attributes**  button in the editing mode of an **Attribute** item to add or edit attributes.



Use the   buttons to add or remove an attribute. Click the required attribute name or value to edit.

See also:

[Navigation within BLOB Editor](#)^[507]

[Editing as Hexadecimal](#)^[507]

[Editing as Text](#)^[508]

[Editing as Rich Text](#)^[509]

[Editing as Image](#)^[510]

[Editing as HTML](#)^[511]

7.1.5.8 Editing as PDF

The **PDF** tab allows you to view the BLOB data as PDF using Adobe Acrobat Reader. You need to have Adobe Acrobat Reader installed to view PDF data.

The [toolbar](#)^[465] provides additional functionality for PDF Viewer/Editor: use the  **Save to file** and the  **Load from file** toolbar buttons to save or load the document from the file.

The screenshot displays the EMS SQL Manager for SQL Server interface. At the top, there are tabs for various database management tasks: Columns, Foreign Keys, Checks, Indices, Triggers, Properties, Dependencies, Data, Description, DDL, and Perm. Below these is a toolbar with navigation and search icons, and a search field containing the number '1000'. The main content area features a promotional banner for 'EMS SQL Manager for SQL Server' with the tagline 'Become more productive than ever before!'. The banner includes an image of a hammer and a wrench. Below the banner, there are two columns of text: 'TOP FEATURES' and 'OVERVIEW'. The 'TOP FEATURES' column lists several capabilities such as effective management of SQL Server databases, Visual Database Designer, flexible interface for viewing and printing data, ability to create and run queries with advanced visual constructor or professional SQL text editor, impressive data export and import capabilities, database snapshots creation, effective security management, report designer with clear in-use report construction wizard, and a free one-year maintenance period. The 'OVERVIEW' column provides a detailed description of the software's role in database management, highlighting its ability to simplify management processes and increase administrator productivity. A small inset image shows a screenshot of the software's interface. Below the main text, there is a 'KEY FEATURES' section. At the bottom of the interface, there are buttons for 'Grid View', 'Form View', 'Print Data', and 'Blob View', and a status bar indicating 'Fetched: 1/1'.

EMS SQL Manager for SQL Server
Become more productive than ever before!

TOP FEATURES

- ▶ Effective management tool for SQL Server databases and all database objects
- ▶ Visual Database Designer
- ▶ Flexible interface for viewing, editing and printing data with Unicode support
- ▶ Ability to create and run queries with advanced visual constructor or professional SQL text editor
- ▶ Impressive data export and import capabilities. Support of most popular file formats
- ▶ Database snapshots creation in form of SQL scripts
- ▶ Effective security management
- ▶ Report designer with clear in-use report construction wizard
- ▶ FREEWARE version
- ▶ Free One Year of Maintenance already included!

OVERVIEW

Modern database management systems built on SQL technology are the foundation for company's data warehouse environment and play an important role in day-to-day business operations. Such environments need a solution that simplifies management process and increases database administrator productivity. Although organizations can install and use the DBMS as delivered, often the functionality needed to adequately support database development and maintenance is not provided by the DBMS product alone. Concepts of database management maintain the focus on real-world cases such as database design, data integrity, concurrent updates, data security and many other issues. With the help of the appropriate database tools a DB developer can reduce errors, speed up the complex work of analyzing, designing and implementing database applications. Specialized DBA tools will help reduce the costs associated with implementing efficient database administration.

EMS SQL MANAGER is a powerful tool for SQL Server administration and development. It simplifies database management tasks throughout the database life-cycle, from initial creation to everyday servicing, maintenance and data manipulation. EMS SQL Manager offers plenty of powerful tools for database administrators and developers to satisfy all their needs. It makes creating and editing SQL Server database objects easy and fast, and allows you to run SQL scripts, manage users and their privileges, build SQL queries visually, extract, print and search metadata, export data to 17 available file formats and import them, view and edit BLOB fields, and much more. The program has a friendly user interface with a well-described wizard system, so clear in use that even a newbie will not be confused with it. EMS SQL Manager will make your work with the SQL Server as easy as it can be!

KEY FEATURES

SQL Manager works with all SQL Server versions from 2000 to 2019 and supports all of the latest SQL Server innovations. It provides you with an ability to contribute to efficient SQL Server administration and

Grid View Form View Print Data Blob View

Fetched: 1/1

See also:[Navigation within BLOB Editor](#) ^[507][Editing as Hexadecimal](#) ^[507][Editing as Text](#) ^[508][Editing as Rich Text](#) ^[509][Editing as Image](#) ^[510][Editing as HTML](#) ^[511][Editing as XML](#) ^[512]

7.1.6 Applying changes

After changes are done, click the **Post Edit**  button on the [navigation pane](#)^[464] to apply the changes or the **Cancel Edit**  button to discard the changes.



See also:

[Using Navigation bar and Toolbars](#)^[463]

[Grid View](#)^[465]

[Form View](#)^[484]

[Print Data](#)^[485]

[BLOB View](#)^[505]

7.2 Custom Filter

The **Custom Filter** dialog is one of the [filtering](#)⁴⁶⁹ facilities implemented in [Data View](#)⁴⁶³ for your convenience.

To open the dialog, click the Arrow-Down button next to the column caption, and select the **Custom** item from the drop-down list.

Select a logical operator for checking the column values (*like, is less than, is greater than, etc.*) and set a value to be checked by this operator in the corresponding box on the right.

The screenshot displays the SQL Manager interface with a data grid showing employee records. A 'Custom Filter' dialog box is open, allowing the user to define a filter condition. The dialog is configured as follows:

- Show rows where:** Title
- Operator:** like
- Value:** Quality%
- Logical Operator:** AND (selected)
- Instructions:** Use % to represent any series of characters; Use _ to represent any single character.

Below the dialog, the data grid shows a filter expression: (Title LIKE Quality%). The grid contains the following data:

EmployeeKey	FirstName	LastName	Title	MiddleName	Name
43	Peng	Wu	Quality Assurance Supervisor	J	
79	Sean	Alexander	Quality Assurance Technician	P	
114	Mark	Harrington	Quality Assurance Technician	L	
149	Andreas	Berglund	Quality Assurance Technician	T	
204	Hazem	Abolrous	Quality Assurance Manager	E	
257	Sootha	Charncherngkha	Quality Assurance Technician	T	

If necessary, you can set the second condition and specify the relation between the two conditions: whether both of them should be satisfied (*AND*) or just any of them (*OR*). Use the '_' character to represent any single symbol, and use the '%' character to represent any series of symbols in the condition string.

See also:[Data View](#)^[463][Filter Builder dialog](#)^[519]

7.3 Filter Builder dialog

The **Filter Builder** dialog is a powerful [filtering](#)^[469] tool implemented in [Data View](#)^[463] for your convenience.

The dialog is aimed at facilitating the procedure of creating and applying complex filter criteria for data. In addition, the tool allows you to save filter criteria to an external *.flt file for future use.

To open the **Filter Builder** dialog, use the  **Set filter** button on the navigation pane available within the [Data](#)^[210] tab of [Table Editor](#)^[200] and the **Result(s)** tabs of [Query Data](#)^[426] and [Design Query](#)^[442].

- [Invoking the Filter Builder dialog](#)^[519]
- [Adding a new condition to the filter](#)^[520]
- [Setting filter criteria](#)^[521]
- [Setting filter operator](#)^[522]
- [Setting filter criteria values](#)^[523]
- [Adding a new group](#)^[524]
- [Setting group operator](#)^[525]
- [Applying filter conditions](#)^[526]

See also:

[Data View](#)^[463]

[Custom Filter](#)^[517]

7.3.1 Invoking the Filter Builder dialog

The **Filter Builder** dialog can be invoked in either of the following ways:

- if a [simple filter](#)^[469] or the [Custom Filter](#)^[517] is being used, click the **Customize...** button on the gray **filtering panel**;

EmployeeKey	FirstName	LastName	Title	MiddleName	NameStyle
1	Guy	Gilbert	Production Technician - WC60	R	<input type="checkbox"/>
2	Kevin	Brown	Marketing Assistant	F	<input type="checkbox"/>
3	Roberto	Tamburello	Engineering Manager	Null	<input type="checkbox"/>
4	Rob	Walters	Senior Tool Designer	Null	<input type="checkbox"/>
5	Mike	Mayers	Control Specialist	Null	<input type="checkbox"/>
6	Thierry	D'Hers	Tool Designer	B	<input type="checkbox"/>
7	David	Bradley	Marketing Manager	M	<input type="checkbox"/>
8	David	Bradley	Marketing Manager	M	<input type="checkbox"/>
12	Barry	Johnson	Production Technician - WC10	K	<input type="checkbox"/>
13	Jossef	Goldberg	Design Engineer	H	<input type="checkbox"/>
15	Sidney	Higa	Production Technician - WC10	M	<input type="checkbox"/>
16	Taylor	Maxwell	Production Supervisor - WC50	R	<input type="checkbox"/>
17	Jeffrey	Ford	Production Technician - WC10	L	<input type="checkbox"/>
20	John	Campbell	Production Supervisor - WC60	T	<input type="checkbox"/>

Grid View | Form View | Print Data | Blob View

Fetch: 296/296 | Record: | | |

- use the **Set filter**  button on the [navigation pane](#) ^[464] and create a composite filter using the dialog.



The succeeding pages of this chapter are intended to illustrate usage of the **Filter Builder** dialog. Please see the instructions below to learn how to perform various operations in the easiest way.

See also:

[Adding a new condition](#) ^[520]

[Setting filter criteria](#) ^[521]

[Setting filter operator](#) ^[522]

[Setting filter criteria values](#) ^[523]

[Adding a new group](#) ^[524]

[Setting group operator](#) ^[525]

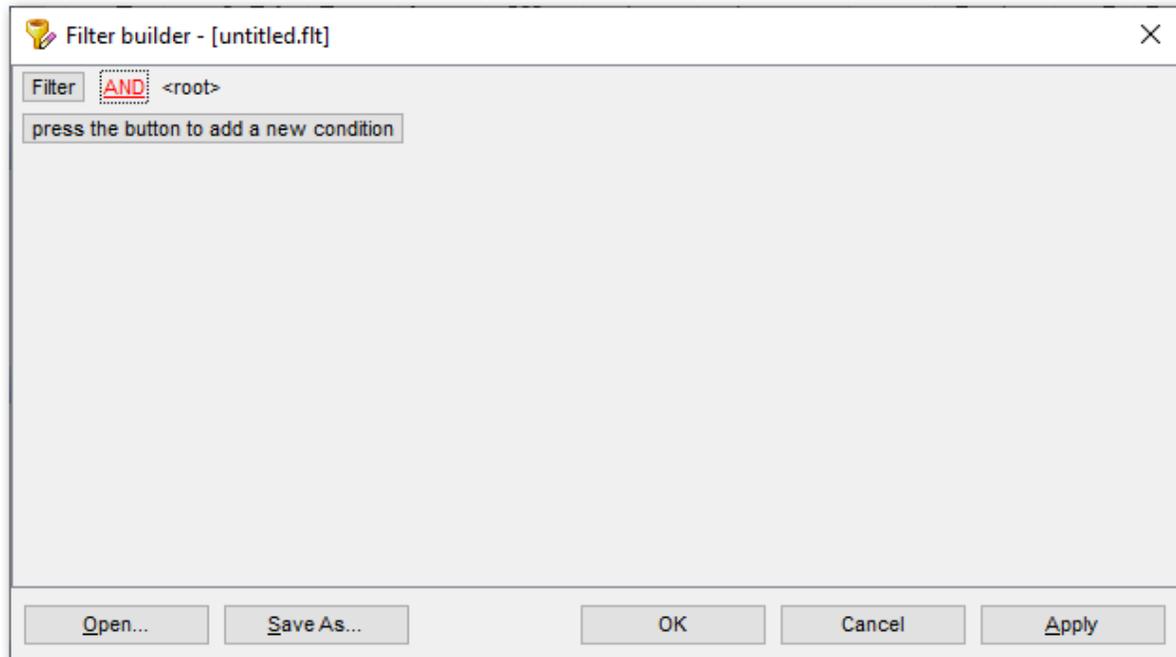
[Applying filter conditions](#) ^[526]

7.3.2 Adding a new condition

Suppose we need to select data from the sample table *Employee* to view the list of male engineers belonging to the *Engineering* and *Tool Design* departments that were hired

after 10/1/2007. These criteria are applied to the *Gender*, *HireDate*, *Position* and the *DepID* columns.

Click **press the button to add a new condition** - this will add a new condition to the criteria. Alternatively, you can click the **Filter** button and select the **Add Condition** popup menu item.



See also:

[Invoking the Filter Builder dialog](#)^[519]

[Setting filter criteria](#)^[521]

[Setting filter operator](#)^[522]

[Setting filter criteria values](#)^[523]

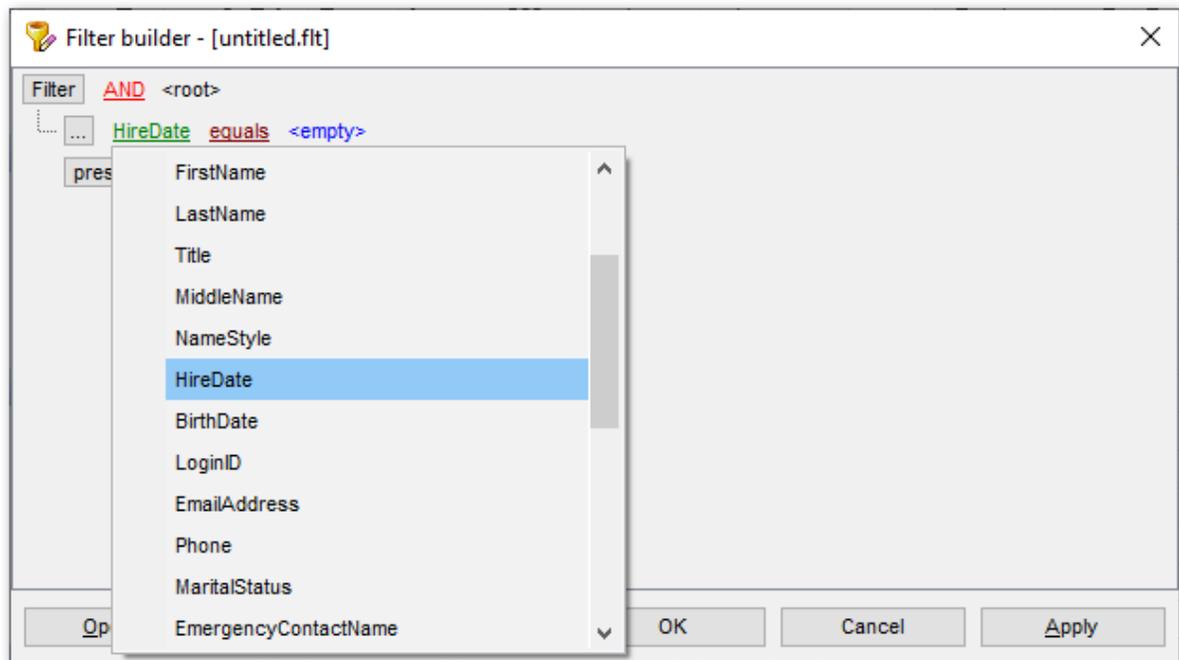
[Adding a new group](#)^[524]

[Setting group operator](#)^[525]

[Applying filter conditions](#)^[526]

7.3.3 Setting filter criteria

As we need to apply the filter criteria to the *HireDate* column, we click the column box (next to the ellipsis  button) to open the drop-down list displaying the available column names and select the *HireDate* item.

**See also:**

[Invoking the Filter Builder dialog](#)^[519]

[Adding a new condition](#)^[520]

[Setting filter operator](#)^[522]

[Setting filter criteria values](#)^[523]

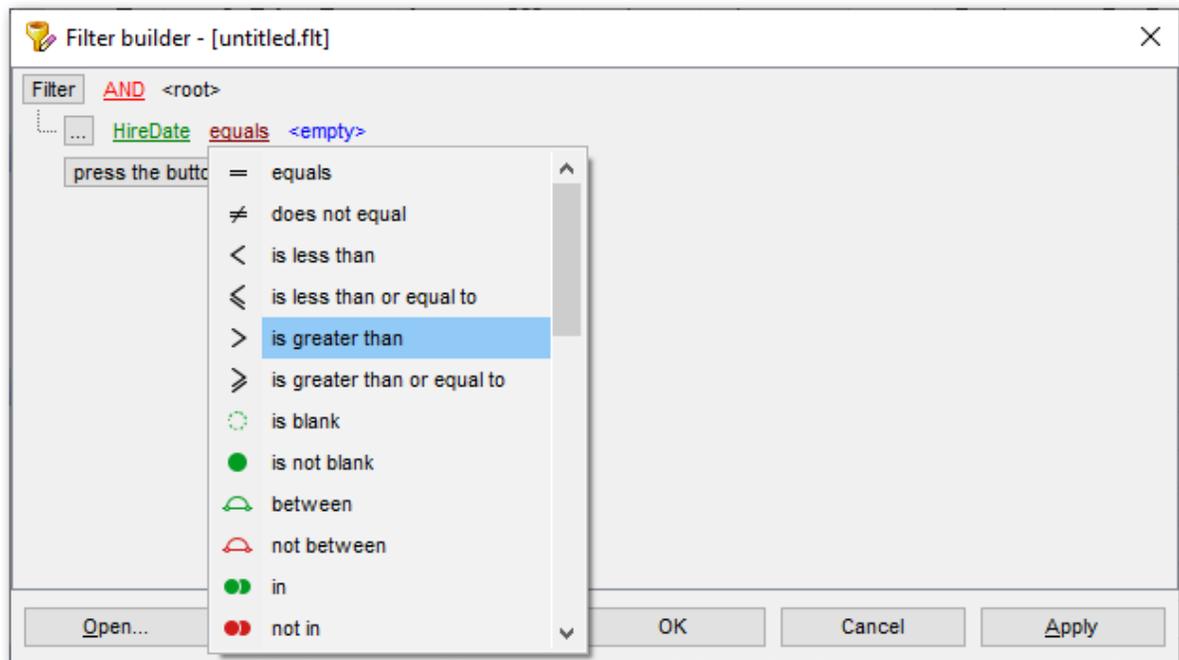
[Adding a new group](#)^[524]

[Setting group operator](#)^[525]

[Applying filter conditions](#)^[526]

7.3.4 Setting filter operator

Since we need the list of employees hired after *10/1/2007*, we need to select the *IS GREATER THAN* operator from the corresponding drop-down list.



See also:

[Invoking the Filter Builder dialog](#)^[519]

[Adding a new condition](#)^[520]

[Setting filter criteria](#)^[521]

[Setting filter criteria values](#)^[523]

[Adding a new group](#)^[524]

[Setting group operator](#)^[525]

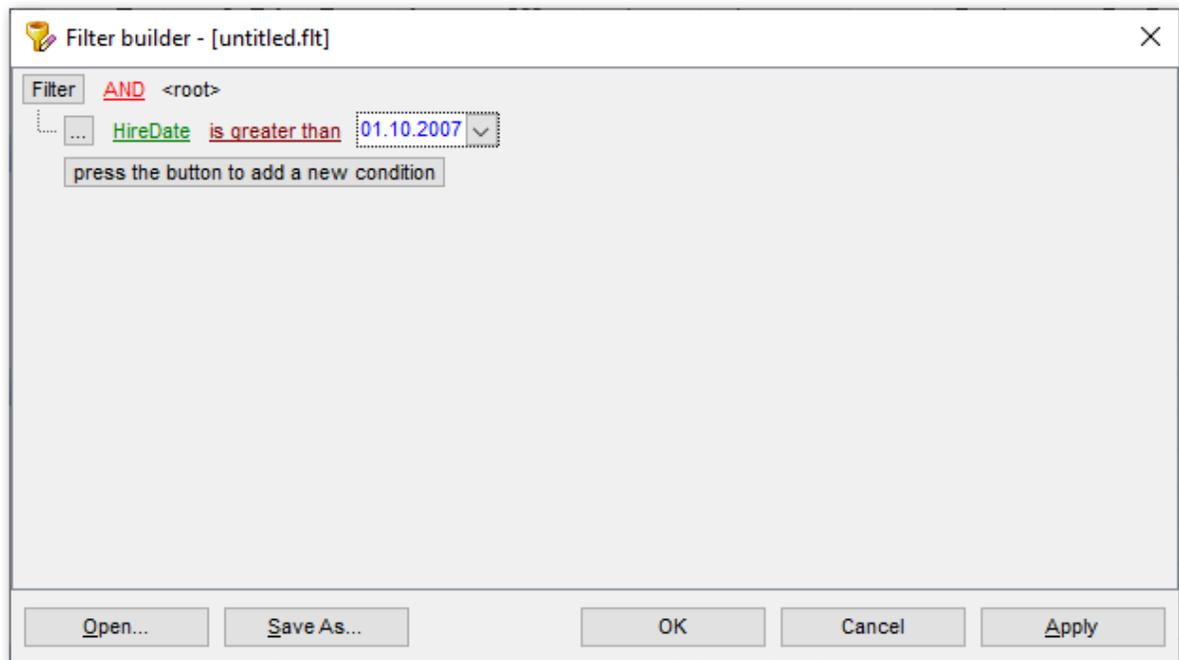
[Applying filter conditions](#)^[526]

7.3.5 Setting filter criteria values

Next, we need to specify value '10/1/2007' for the *IS GREATER THAN* operator.

Similarly, if, for example, we need to get the list of employees hired during the 9/1/2007 - 10/1/2007 term, we set the *BETWEEN* [filter operator](#)^[522] (this will add two empty value boxes to specify the inclusive range for the *BETWEEN* condition) and specify the range for the operator, i.e. the '9/1/2007' and the '10/1/2007' values in the corresponding value boxes.

It is possible to set the date value **manually** by typing it in, or using the **date editor** which is activated when you click the value box.



Editors used in value boxes are determined by the **data type** assigned to the corresponding columns.

See also:

[Invoking the Filter Builder dialog](#)^[519]

[Adding a new condition](#)^[520]

[Setting filter criteria](#)^[521]

[Setting filter operator](#)^[522]

[Adding a new group](#)^[524]

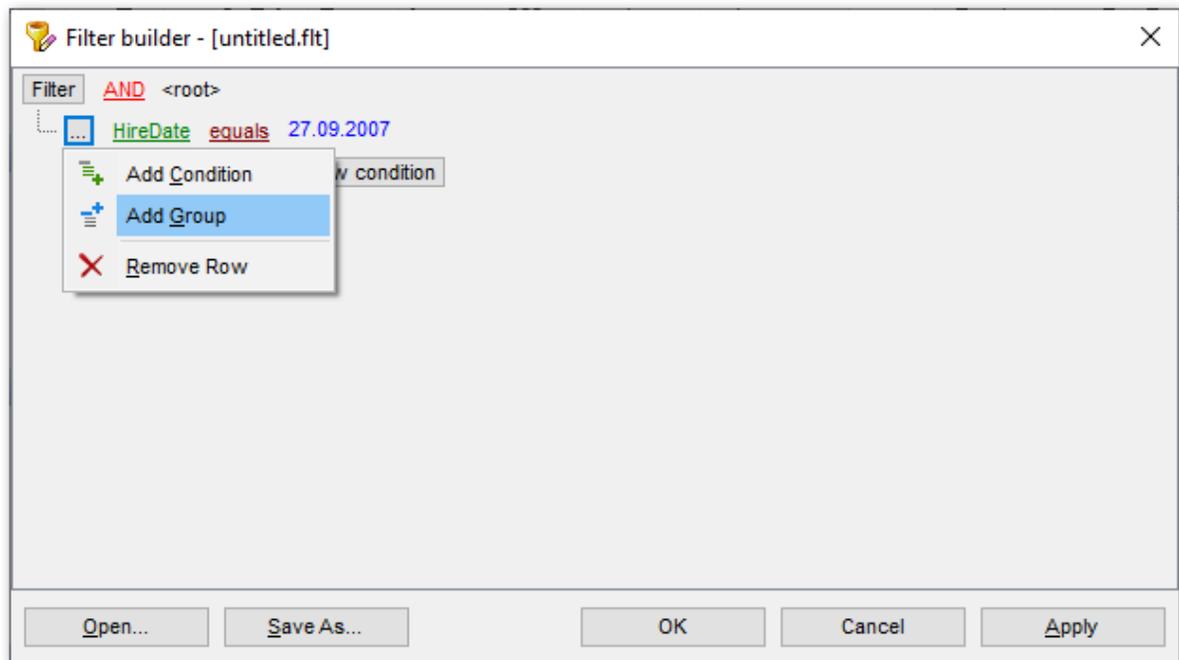
[Setting group operator](#)^[525]

[Applying filter conditions](#)^[526]

7.3.6 Adding a new group

Since we also need to get the list of male specialists-engineers (i.e. those registered in the *Engineering* and *Tool Design* departments and having an engineering-oriented position), we can add a complex filter condition combining simple conditions with the *AND* operator. (However, in this particular case we can just add them at the same root level as for the existing condition).

If you need to add a group of conditions, click the ellipsis  button for the *HIRE_DATE* condition and select the **Add Group** popup menu item.



See also:

[Invoking the Filter Builder dialog](#)^[519]

[Adding a new condition](#)^[520]

[Setting filter criteria](#)^[521]

[Setting filter operator](#)^[522]

[Setting filter criteria values](#)^[523]

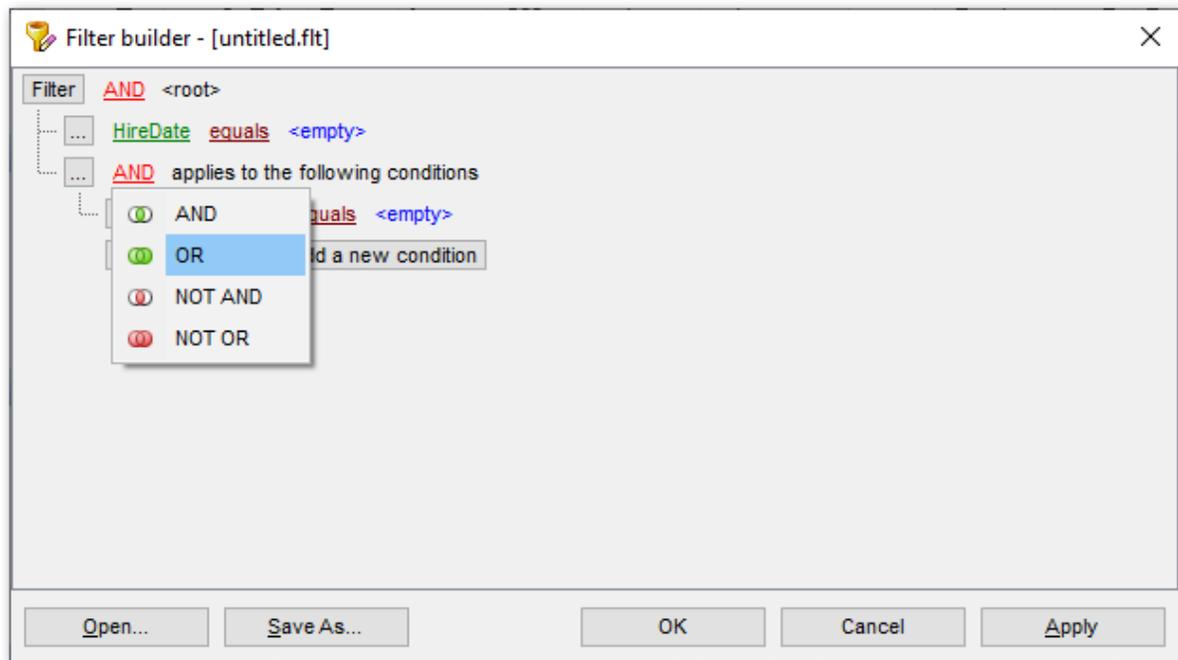
[Setting group operator](#)^[525]

[Applying filter conditions](#)^[526]

7.3.7 Setting group operator

Conditions of complex criteria can be combined with any of the four logical operators used: *AND*, *OR*, *NOT AND*, *NOT OR*.

In our case it is enough to click the **group operator** box and select the *AND* item from the drop-down menu.



See also:

[Invoking the Filter Builder dialog](#)^[519]

[Adding a new condition](#)^[520]

[Setting filter criteria](#)^[521]

[Setting filter operator](#)^[522]

[Setting filter criteria values](#)^[523]

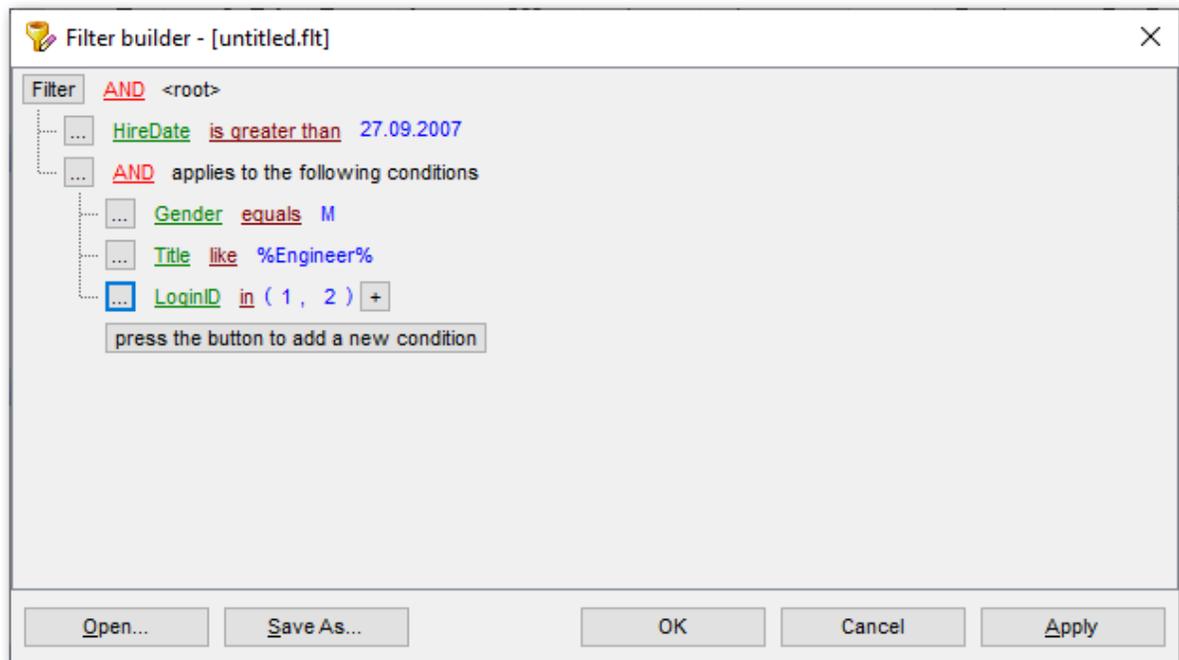
[Adding a new group](#)^[524]

[Applying filter conditions](#)^[525]

7.3.8 Applying filter conditions

Suppose we have created a condition within the new group. If we need, we can [add more conditions](#)^[520] at the same level and specify the required values using the value boxes. When the operation is completed, the **Filter Builder** dialog will look like in the screenshot below.

Click the **Apply** button to see the result of the filtering you have made, and click **OK** or **Cancel** to close the dialog with or without saving your filter conditions respectively.



The **Filter Builder** dialog allows you to save filter criteria to and load them from external files. Clicking the **Save As...** or the **Open...** buttons activates the corresponding dialogs. Filter settings are stored in *.flt files. Please be informed that a column in the file is referenced by its position within a view, hence filter settings cannot be correctly restored if columns have been deleted from the view after saving the filter to a file.

See also:

[Invoking the Filter Builder dialog](#)^[519]

[Adding a new condition](#)^[520]

[Setting filter criteria](#)^[521]

[Setting filter operator](#)^[522]

[Setting filter criteria values](#)^[523]

[Adding a new group](#)^[524]

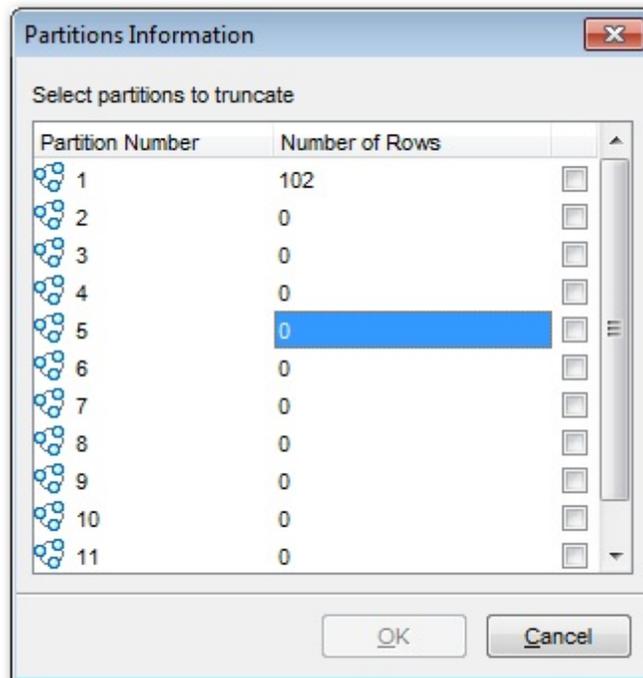
[Setting group operator](#)^[525]

7.4 Data Truncating

In the **Data** tab of the Table Editor you can truncate data for the table or for the selected partitions.

To truncate table data select  **Truncate Table** on the Tools navigation bar or Toolbar and confirm your action in the opened dialog.

Use  **Truncate Table Partitions** item from the Tools navigation bar or Toolbar to open the dialog for selecting partitions to be truncated.



Select the partitions to truncate and click **OK** button.

See also:

[Partition Functions](#)³¹⁰

[Partition Schemes](#)³¹⁴

Part



8 Import/Export Tools

Using SQL Manager for SQL Server you are provided with powerful tools to import and export data to/from your SQL Server database.

[Export Data Wizard](#)^[53]

Exports data to various supported formats including *MS Excel*, *MS Access*, *RTF*, *HTML*, *PDF*, *CSV*, *XML*, *MS Excel 2007* and more.

[Import Data Wizard](#)^[57]

Imports data from any of supported formats: *MS Excel*, *MS Access*, *DBF*, *TXT*, *CSV*, *XML*, *MS Excel 2007*, *MS Word 2007* and more.

[Export Data as SQL Script](#)^[59]

Exports data to an SQL script as a number of INSERT statements.

[Bulk Insert Wizard](#)^[59]

Imports data with the BULK INSERT statement used.

[Using templates](#)^[93]

Facilitates using import/export wizards.

See also:

[Getting Started](#)^[4]

[Database Explorer](#)^[63]

[Database Management](#)^[94]

[Database Objects Management](#)^[178]

[Query Management Tools](#)^[424]

[Data Management](#)^[462]

[Database Tools](#)^[61]

[Server Tools](#)^[71]

[Personalization](#)^[824]

[External Tools](#)^[909]

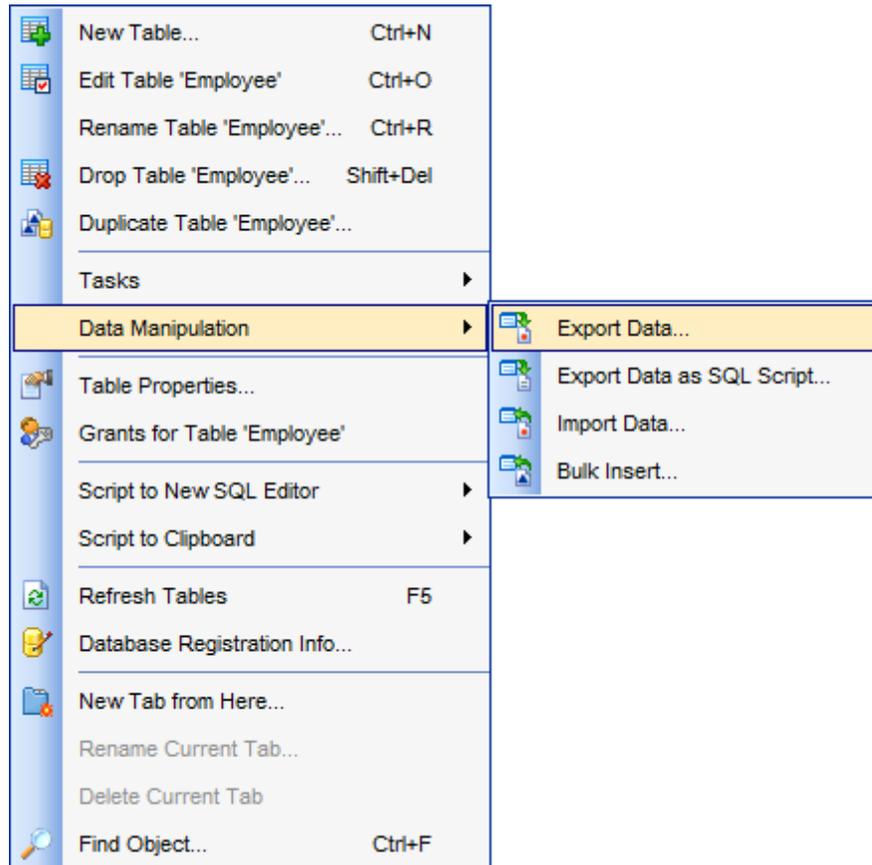
[How To...](#)^[957]

8.1 Export Data Wizard

Export Data Wizard allows you to export data from a [table](#)^[192] / [view](#)^[246] or from a query result to any of supported formats (*MS Excel, MS Access, MS Word, RTF, HTML, PDF, TXT, CSV, XML, DBF, MS Excel 2007, MS Word 2007*, etc.). You can save your settings as a [template](#)^[934] any time for future use.

To start the wizard, right-click the object in [DB Explorer](#)^[63], select the **Data Manipulation** [context menu](#)^[56] group and proceed to the  **Export Data...** item within this group.

Alternatively, you can open the **Data** tab of [Table Editor](#)^[200] / [View Editor](#)^[246] or the **Result (s)** tab of [Query Data](#)^[426] / [Design Query](#)^[442], right-click the [grid](#)^[465] there, then select the **Data Manipulation** [context menu](#)^[472] group and proceed to the  **Export Data of <object_name>...** item within this group, or use the  **Export Data** item of the [Navigation bar](#)^[915].



- [Setting name and format for the destination file](#)^[532]
- [Selecting columns for export](#)^[533]
- [Adjusting formats applied to exported data](#)^[534]
- [Setting header and footer text for the destination file](#)^[535]
- [Setting format-specific options](#)^[536]
- [Setting common export options](#)^[568]

- [Exporting data](#)^[570]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Import Data Wizard](#)^[571]

[Export as SQL Script](#)^[593]

[Bulk Insert Wizard](#)^[602]

[Using templates](#)^[934]

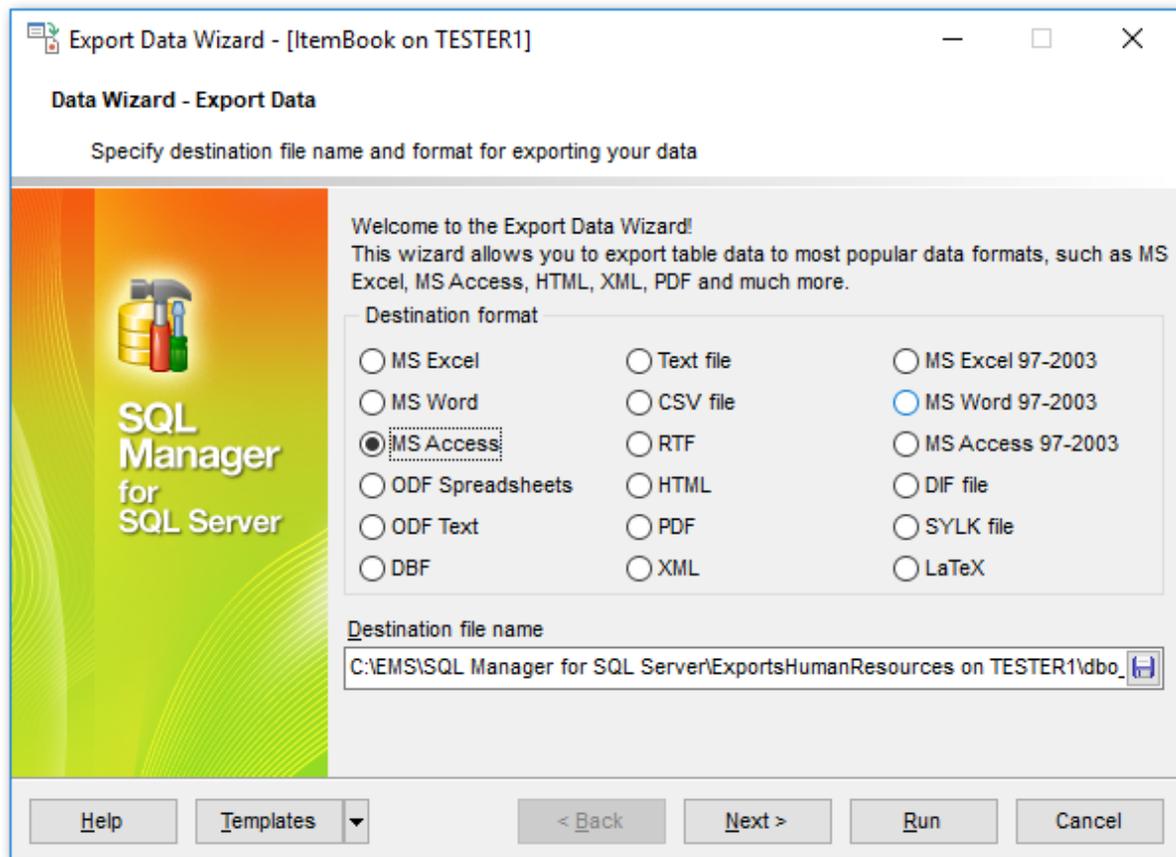
8.1.1 Setting destination file name and format

This step of the wizard allows you to select the destination file format you need to export data into.

Destination file name

Type in or use the  button to specify the path to the file using the **Save as...** dialog. The file name extension changes automatically according to the selected **Destination format**.

Note: If the target file already exists, the application will show a [warning](#)^[948] dialog where you can choose the action you need.



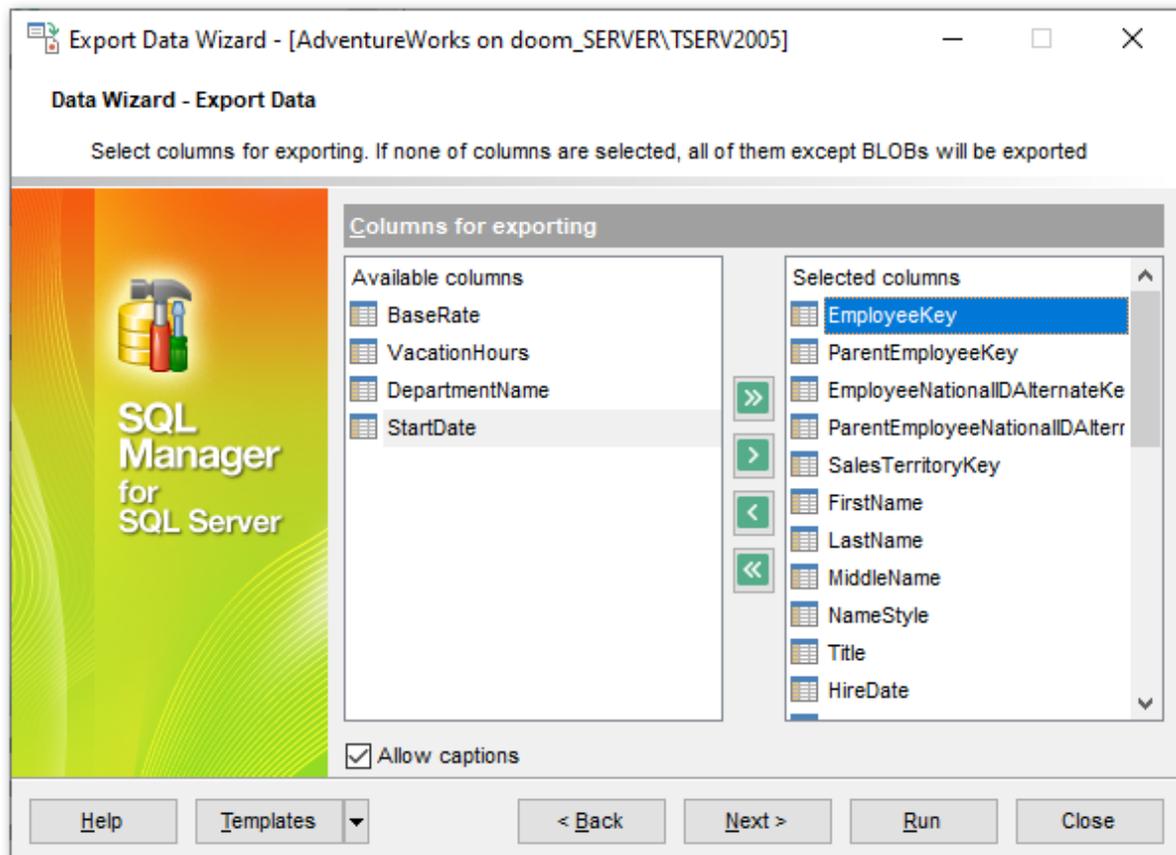
Destination format

Specify the format of the destination file. For details refer to [Supported file formats](#)^[935].

Click the **Next** button to proceed to the [Selecting columns for export](#)^[533] step of the wizard.

8.1.2 Selecting columns for export

This step of the wizard allows you to select the table column(s) to be exported. To select a column, you need to move it from the **Available columns** list to the **Selected columns** list. Use the     buttons or drag-and-drop operations to move the columns from one list to another.



If you leave all the columns in the **Available columns** list, all columns of the table (except BLOBs) will be exported.

Allow captions

Check this option if you need to export the column captions as well.

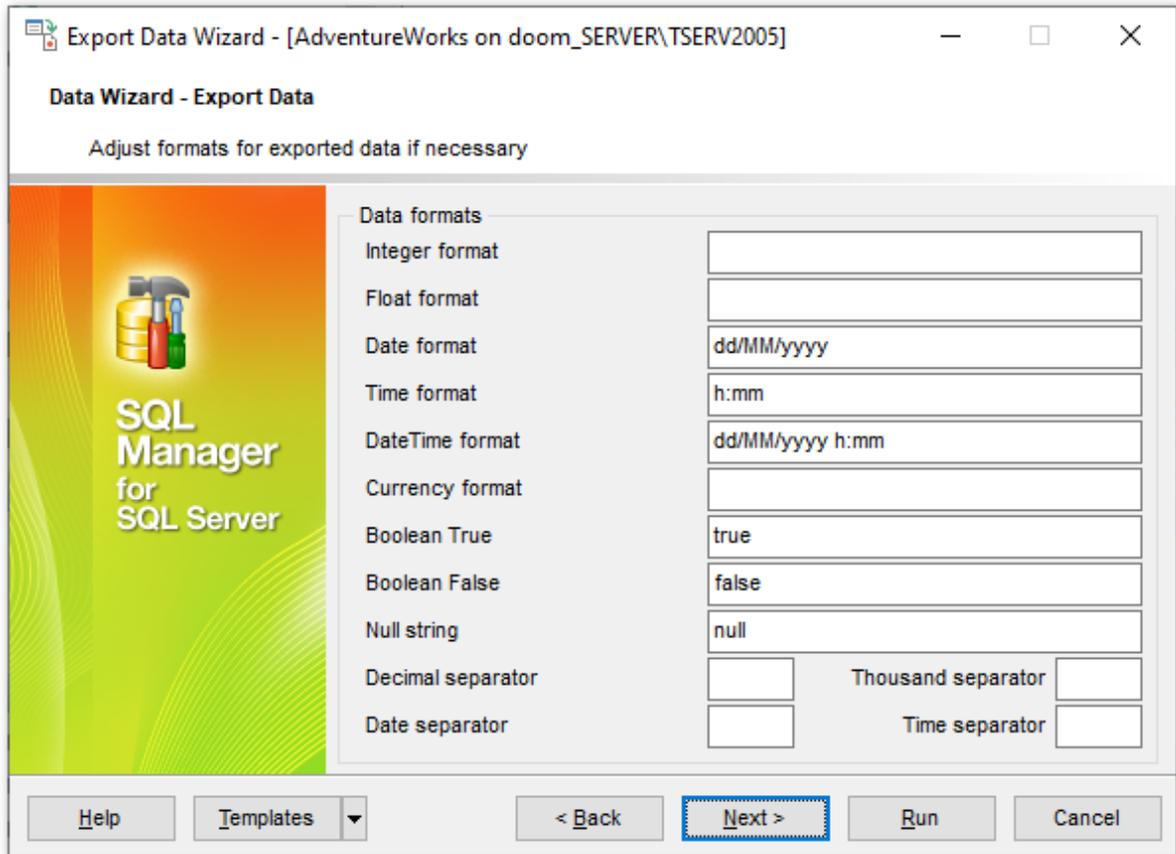
Click the **Next** button to proceed to the [Adjusting data formats](#)⁶³⁴ step of the wizard.

8.1.3 Adjusting data formats

This step allows you to customize formats applied to exported data.

Data formats

Edit the format masks to adjust the result format in the way you need: *Integer, Float, Date, Time, DateTime, Currency, Boolean True, Boolean False, NULL string, Decimal separator, Thousand separator, Date separator, Time separator.*



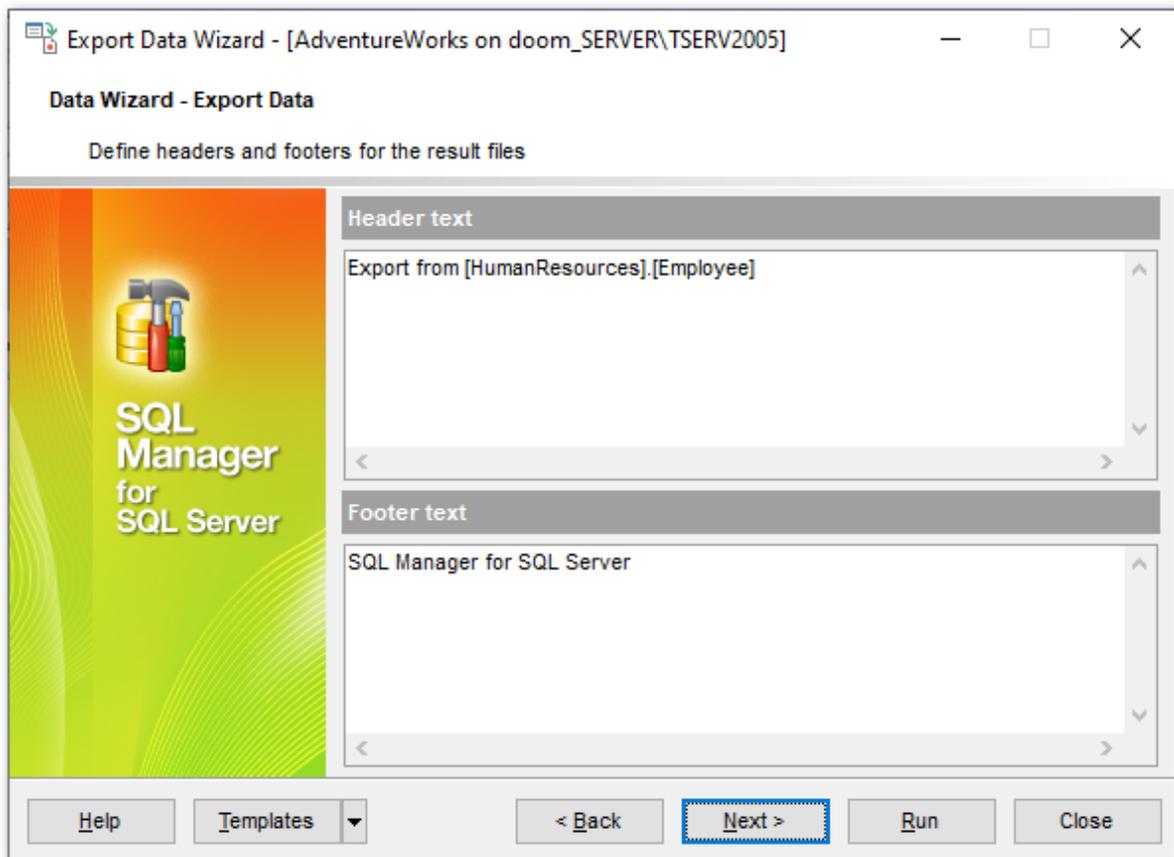
Hint: The formats used by default are specified in the [Data Export](#)^[851] section of the [Environment Options](#)^[825] dialog.

For more details refer to [Format specifiers](#)^[930].

Click the **Next** button to proceed to the [Setting header and footer](#)^[535] step of the wizard.

8.1.4 Setting header and footer

Set **Header text** and **Footer text** for the result file. This text will appear at the beginning and at the end of the result file respectively.



Click the **Next** button to proceed to [Setting format-specific options](#)^[536].

8.1.5 Setting format-specific options

This step of the wizard allows you to customize **Format-specific options**:

- [Excel 97-2003 options](#)^[536]
- [Access options](#)^[551]
- [Word 97-2003 / RTF options](#)^[552]
- [HTML options](#)^[555]
- [PDF options](#)^[560]
- [TXT options](#)^[562]
- [CSV options](#)^[562]
- [XML options](#)^[563]
- [MS Excel / ODS options](#)^[564]
- [MS Word / ODT options](#)^[566]

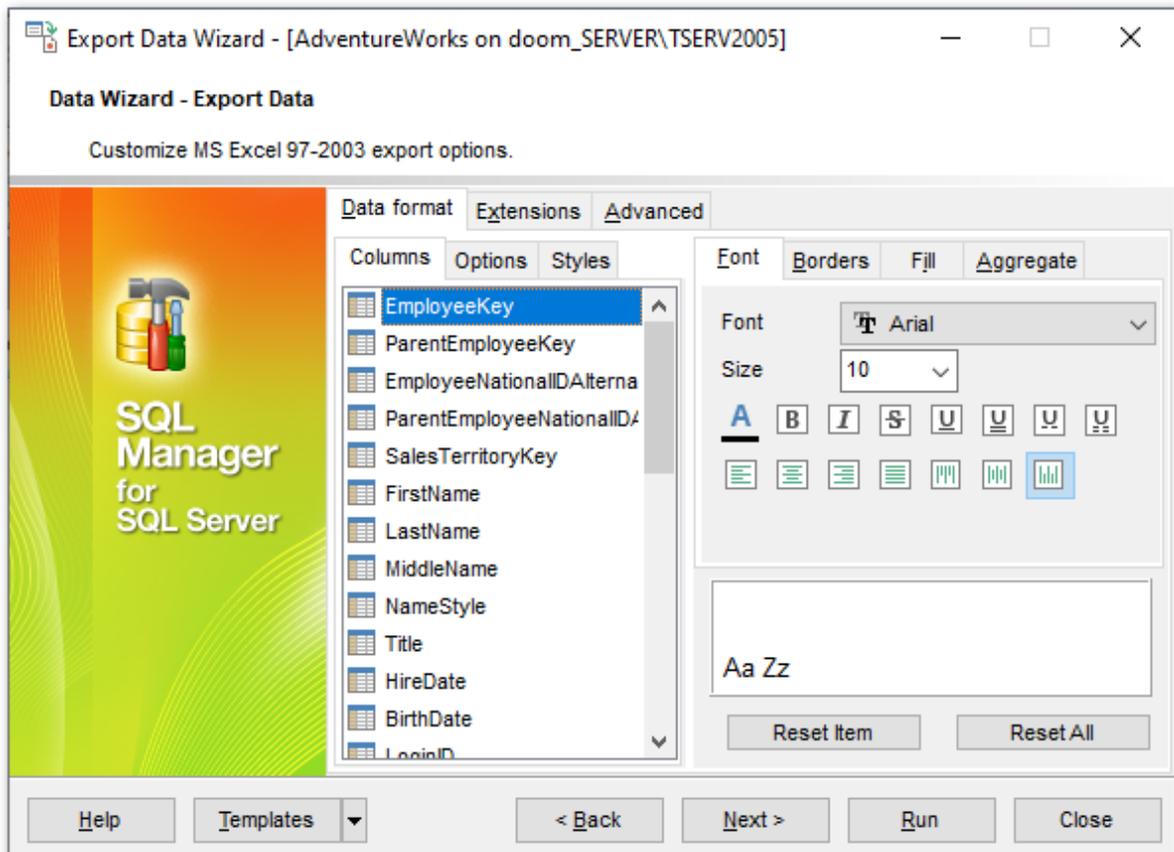
To get more information about the file formats, see the [Supported file formats](#)^[935] page.

8.1.5.1 Excel 97-2003 options

This step allows you to set options for the target **MS Excel** (*.xls) file.

You can customize **Data format**, **Extensions** and set **Advanced** options available within the corresponding tabs:

- [Data format](#)^[537]
- [Extensions](#)^[541]
- [Advanced](#)^[550]



When you are done, click the **Next** button to proceed to [Setting common export options](#)^[568].

8.1.5.1.1 Data format

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 column*, *header*, *footer*, *caption*, *data*, *hyperlink* and so on) separately. Also it is possible to create *styles* to make the target Excel file striped by columns or rows.

- [Columns](#)^[538]
- [Options](#)^[540]
- [Styles](#)^[541]

For your convenience the previews illustrating the changes are displayed in the **Sample**

Group area on each page of **Data Format** tab.

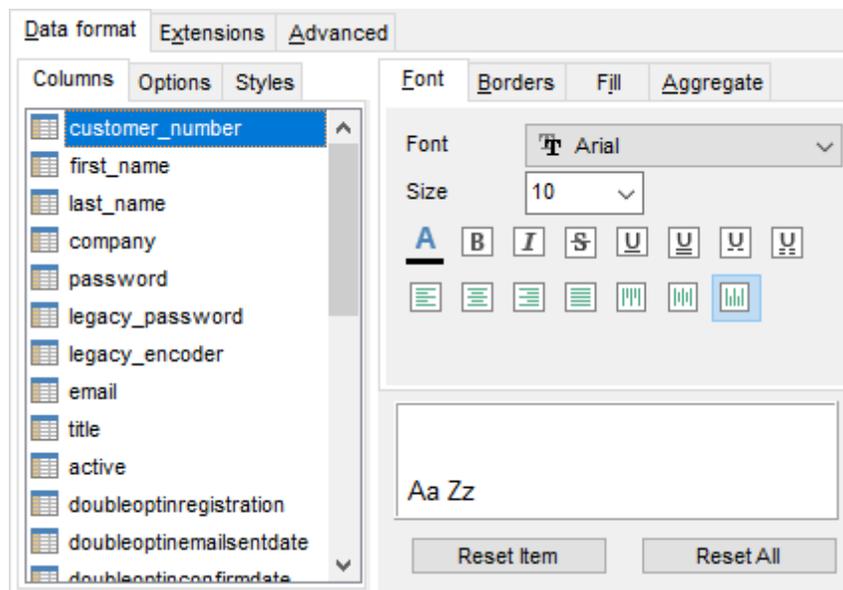
8.1.5.1.1.1 Columns

Using the **Columns** tab you can set *font* options, *border* and *fill* options and *aggregate functions* for all the **Columns** you want to export.

The **Font** tab allows you to specify properties of the font that will be used in the output Excel file cells.

Use the **Font** and **Size** drop-down lists to select the *font* and *size* to be applied to the output text.

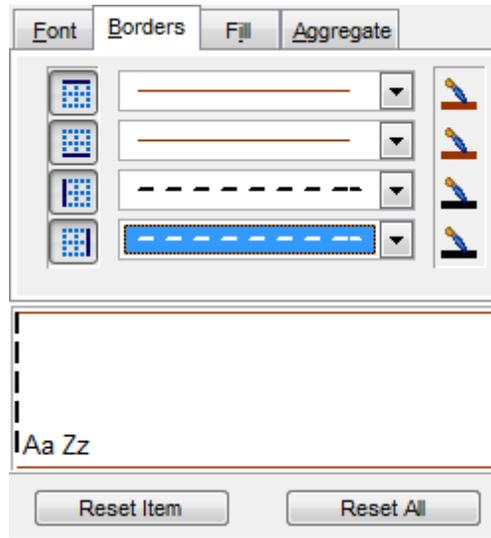
Use the buttons below to set *font color*, make text *bold*, *italicized*, *strikethrough* text, set *underline* effects, specify text *horizontal* and *vertical align*.



The **Borders** tab allows you to specify properties of the borders of the output Excel file cells.

Press the  buttons on the left to show/hide the borders they indicate.

Use the drop-down list for each border to select the *line type* and the  button on the right to select the *line color* for each border.

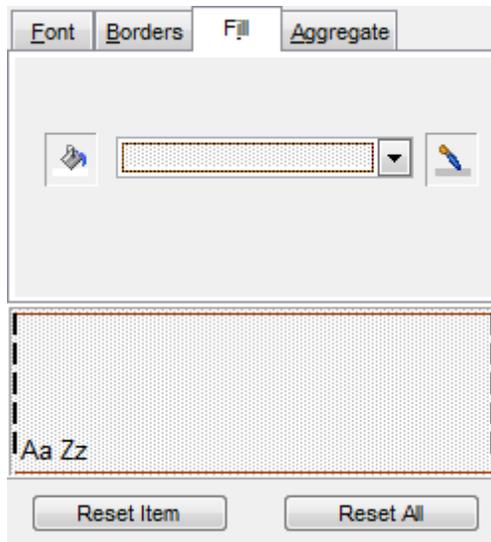


The **Fill** tab allows you to specify the fill pattern for the output Excel file cells.

Use the drop-down list to select the preferable fill pattern type.

Press the  button on the left to set the background color for the fill pattern.

Press the  button on the right to set the foreground color for the fill pattern.

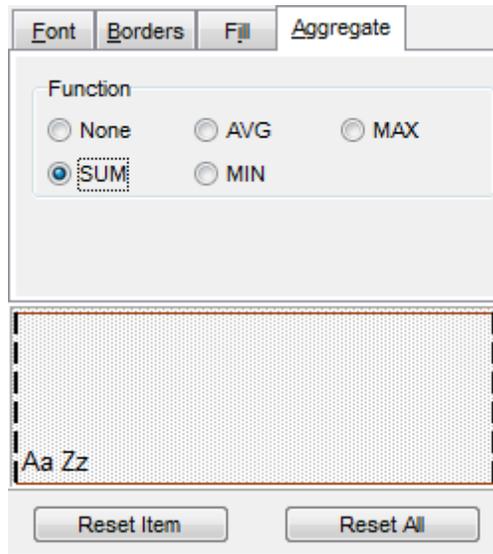


The **Aggregate** tab allows you to specify an aggregate function for the column in the output Excel file.

Select a **function** that will be applied to the field:

- None
- AVG
- MAX

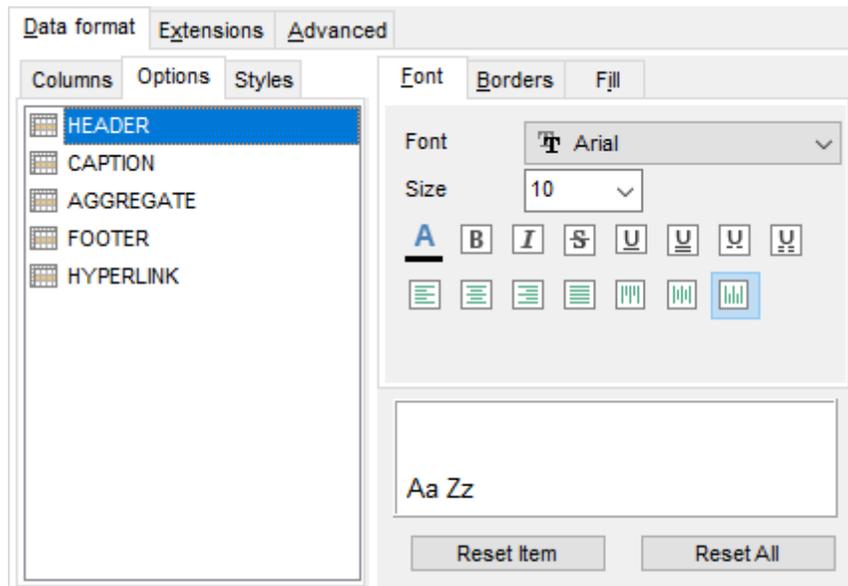
- SUM
- MIN



You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

8.1.5.1.1.2 Options

Using the **Options** tab you can set *font* options, *border* and *fill* options for all **elements** of the Excel sheet (*header, caption, footer, aggregates and hyperlinks*).



The **font**, **borders** and **fill** options are specified in the same way as for output **Columns**. For details refer to the [Columns](#) ⁵³⁸ page.

You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

8.1.5.1.1.3 Styles

Using the **Styles** tab you can make a style template: set *font* options, *border* and *fill* options and save them.

To add a style template, click the **+ Plus** button.

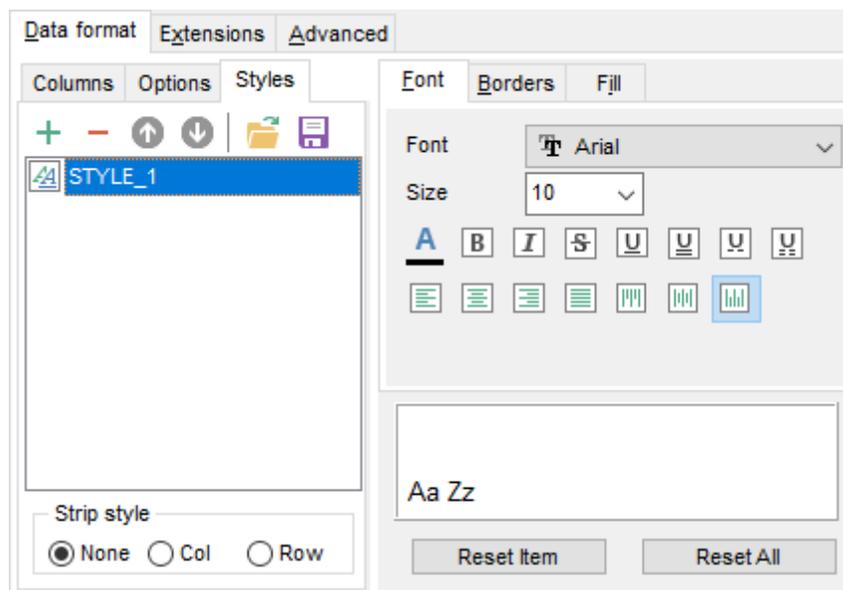
To delete a style template, select it and click the **- Minus** button.

To reorder style templates in the list, use the **↑** **↓** buttons.

To load a style template, click the **📁** button.

To save the current style template, click the **💾** button.

If you have created or loaded more than one style template, they can be ignored, or used *column-by-column* or *row-by-row* (it depends on the **Strip type** selection).



The **font**, **borders** and **fill** options are specified in the same way as for output **Columns**. For details refer to the [Columns](#)^[538] page.

You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

8.1.5.1.2 Extensions

The **Extensions** tab provides an ability to add [hyperlinks](#)^[542] and [notes](#)^[542] and to any cell of the target file, to specify a value of a cell, to create a [chart](#)^[545] and to [merge cells](#)^[549].

Click the **+ Plus** button to add an element;

click the **- Minus** button to delete an element.

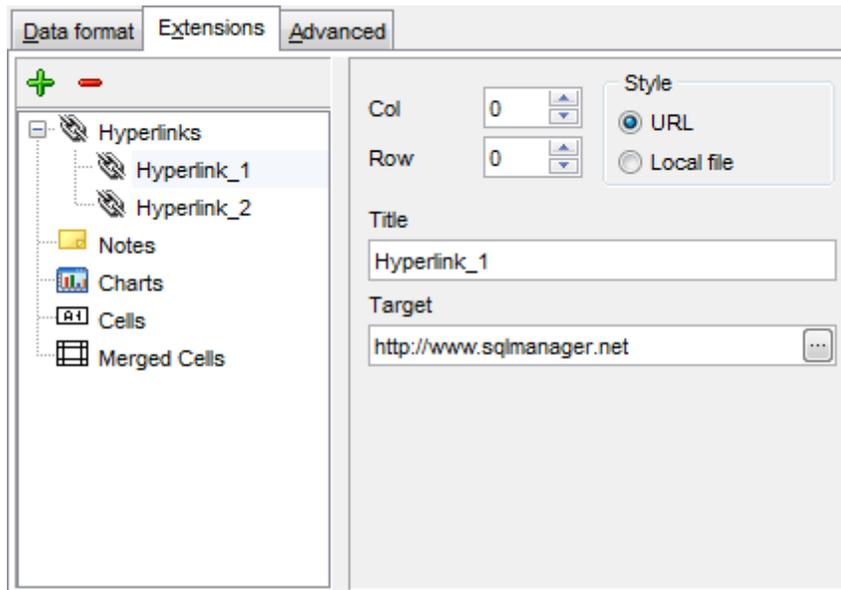
- [Hyperlinks](#)^[542]
- [Notes](#)^[542]

- [Charts](#)^[545]
- [Cells](#)^[548]
- [Merged Cells](#)^[549]

8.1.5.1.2.1 Hyperlinks

If you need to create a **hyperlink**:

- set the cell coordinates (*Col* and *Row*);
- specify whether this is a *local* link or *URL*;
- enter the *title* of the hyperlink;
- specify the *target* file location or address.



Use the **Col** and **Row** spinner controls to specify the column and row for the hyperlink in the output file.

The **Style** group allows you to select the preferable hyperlink style:

- URL*
- Local file* (i.e. the file is located on your local machine or on a machine in the LAN)

Use the **Title** box to specify the hyperlink name.

The **Target** box lets you enter the path to the target file or URL. Use the  button to check whether the specified location is available.

8.1.5.1.2.2 Notes

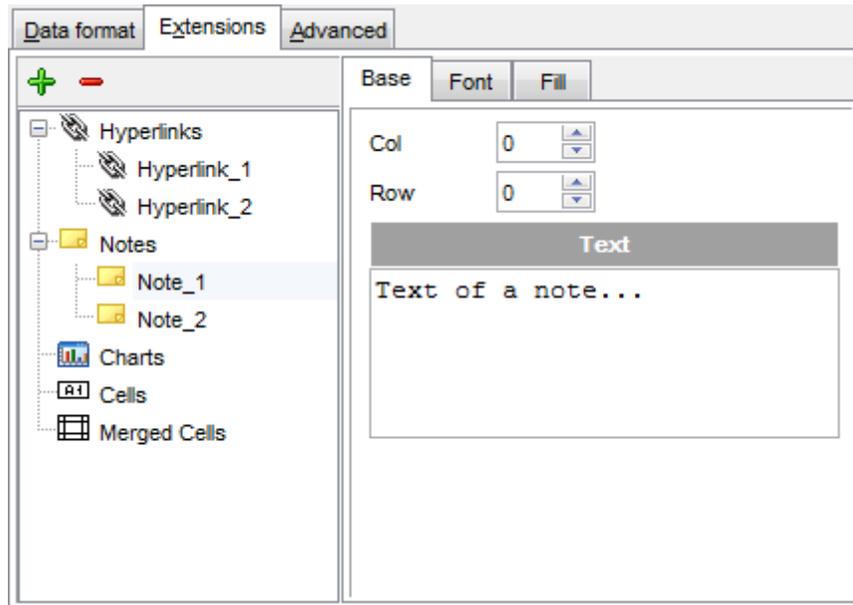
If you need to create a **note**:

- set the cell coordinates (*Col* and *Row*);
- enter *text* of a note for the cell;
- set the *font* and *fill* properties using the corresponding tabs.

The **Base** tab allows you to specify basic properties of the note to be added to the output Excel file.

Use the **Col** and **Row** spinner controls to specify the column and row for the note in the file.

Use the edit-box below to enter the text of the note.



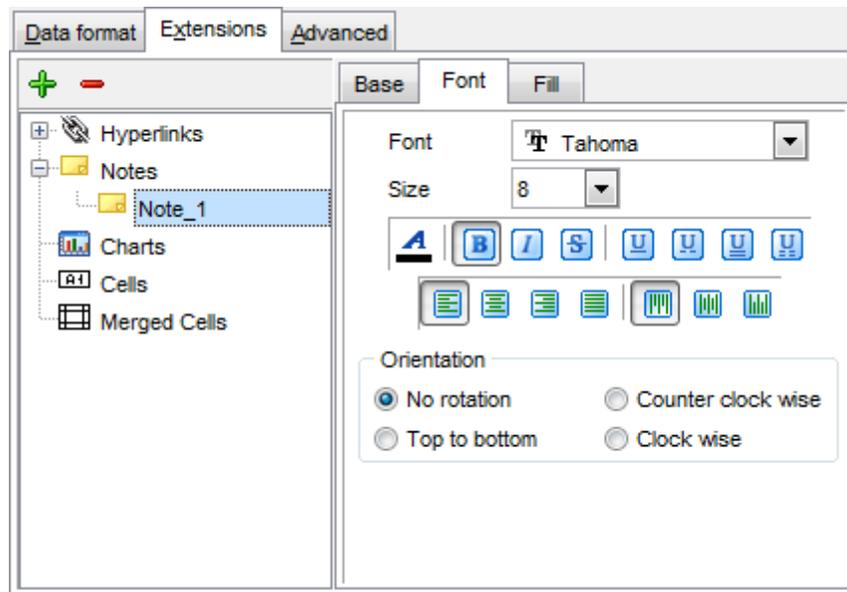
The **Font** tab allows you to specify properties of the font that will be used for the note.

Use the **Font** and **Size** drop-down lists to select the *font* and *size* to be applied to the output text.

Use the buttons below to set *font color*, make text *bold*, *italicized*, *strikethrough* text, set *underline* effects, specify text *horizontal* and *vertical align*.

The **Orientation** group allows you to select the note text orientation:

- No rotation*
- Top to bottom*
- Counterclockwise*
- Clockwise*



The **Fill** tab allows you to specify the fill type and transparency for the note.

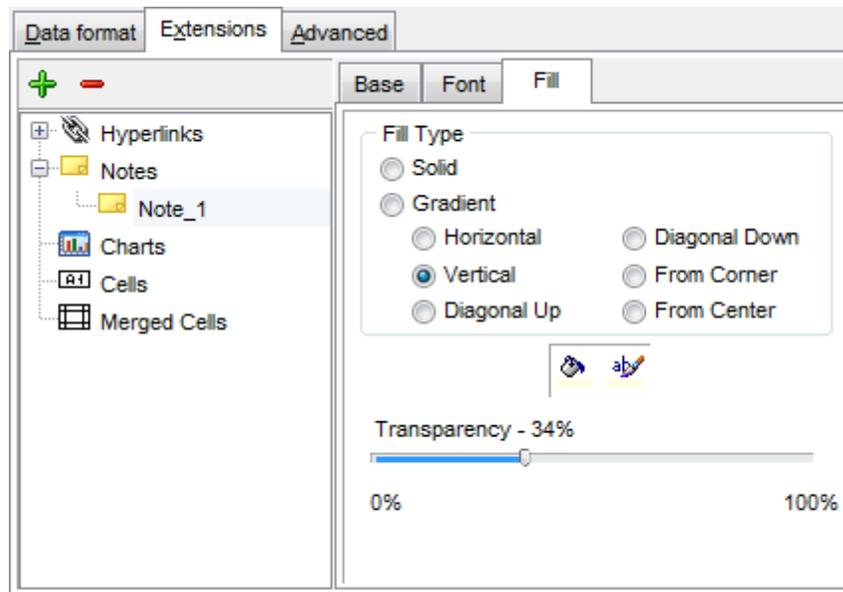
The **Fill Type** group allows you to select whether the fill color will be **solid** or **gradient**:

- Horizontal*
- Vertical*
- Diagonal up*
- Diagonal down*
- From corner*
- From center*

Press the  button to set the background color for the fill pattern.

Press the  button to set the foreground color for the fill pattern.

The **Transparency** control allows you to set the transparency degree for the note. Move the slider between the **0%** and **100%** threshold values to select the required transparency value within this scope.



8.1.5.1.2.3 Charts

If you need to create a **chart**:

- enter the chart *title*;
- select the chart style;
- set the legend position;
- specify if you want to show the legend;
- specify if you want to set the chart color automatically;
- define the chart *position* and *category labels* using the corresponding tabs.

The **Base** tab allows you to specify basic properties of the chart to be added to the output Excel file.

Use the **Title** box to specify the chart name.

Use the **Style** drop-down list to select the preferable chart style (*Column*, *Column 3D*, *Bar*, *Bar 3D*, *Line*, *Line Mark*, *Line 3D*, etc.).

The **Legend** position group allows you to specify position of the chart legend:

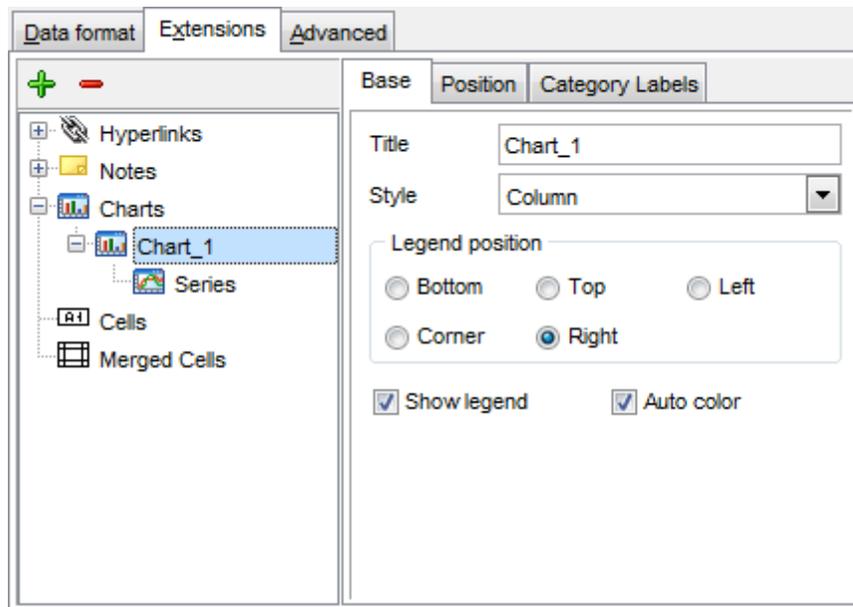
- Bottom*
- Top*
- Left*
- Corner*
- Right*

Show legend

This options specifies whether the chart legend will be visible or not.

Auto color

If this option is selected, each series will be automatically differentiated with different colors on the chart, otherwise one color will be applied for all series.



The **Position** tab allows you to specify properties pertaining to the chart position on the output file sheet.

Auto

Specifies automatic position of the chart.

The **Placement** group allows you to specify the chart position relative to the data:

Bottom

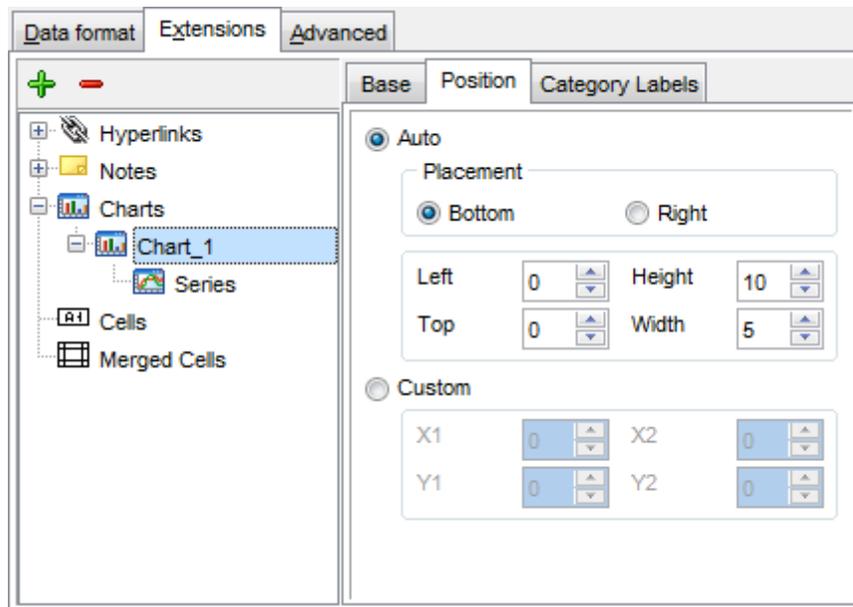
Right

Use the **Left** and **Top** spinner controls to specify the spacing between the chart and data at the left and at the top respectively.

Use the **Height** and **Width** spinner controls to specify the chart *height* and *width* respectively.

Custom

Specifies absolute position of the chart (irrelative to the data). Use the spinner controls to set the coordinates you need.



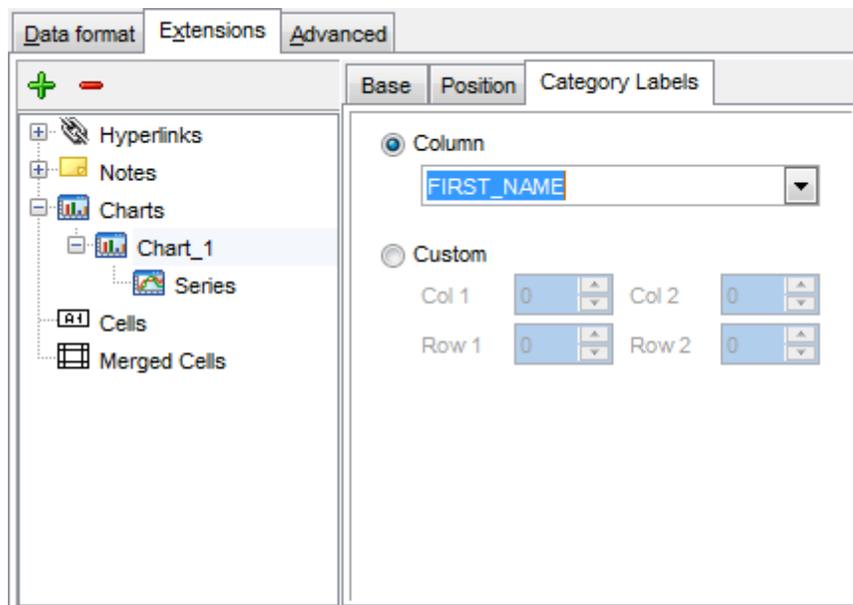
The **Category Labels** tab allows you to specify in which rows and columns the chart will be built.

Column

Use the drop-down list to select the column that will be used to take values for x-axis.

Custom

Specify the range of cells from which x-axis values will be taken. Use the spinner controls to set the range you need.



To build a chart, you also need to create **series** that will be used to take values for y-

axis. To add **series** for the chart:

- add one or more series using the  button;
- enter the *titles*;
- set data ranges (select a column from the drop-down list or set the custom range);
- define colors for all the graphs.

Use the **Title** box to specify the series name.

Data range

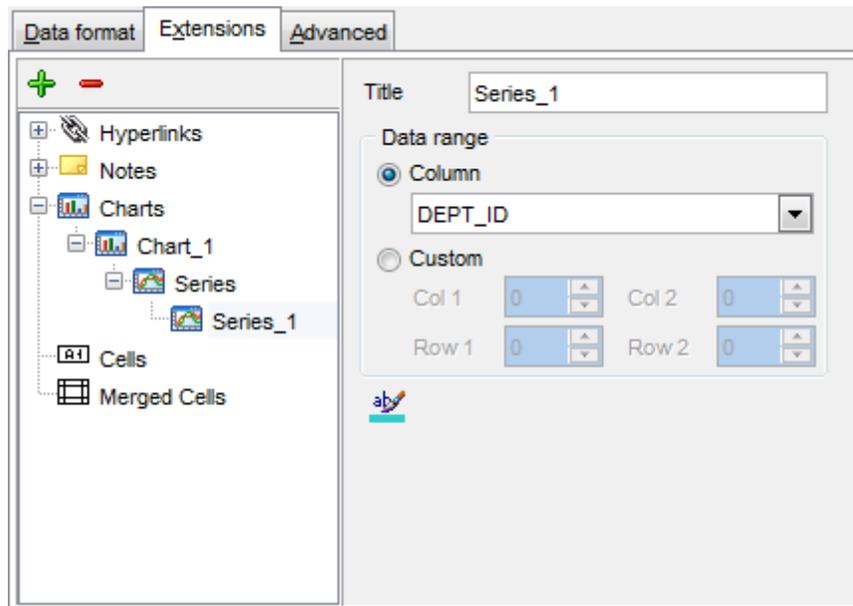
Column

Use the drop-down list to select the column that will be used to take values for the series.

Custom

Specify the range of cells from which the series will be formed. Use the spinner controls to set the range you need.

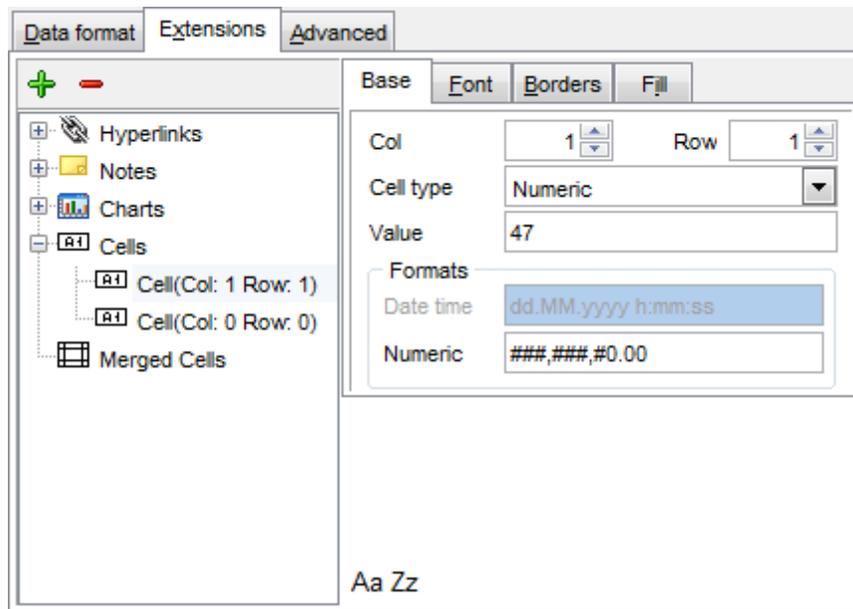
Press the  button to set the color for the series.



8.1.5.1.2.4 Cells

If you need to add a value in a specific cell:

- set the cell coordinates (*Col* and *Row*);
- select the cell type;
- enter a *value*;
- if you are adding a numeric or a date/time value, you can set the cell *format*;
- set the *font*, *borders* and *fill* properties using the corresponding tabs.



The **Base** tab allows you to specify basic properties of the cell.

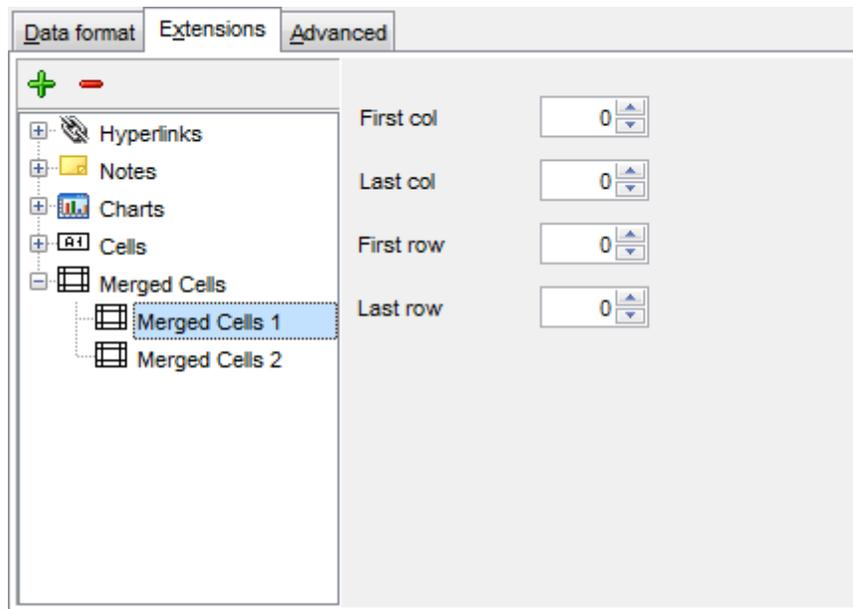
Use the **Col** and **Row** spinner controls to specify the column and row denoting the cell. Use the **Cell** type drop-down list to select the data type for the cell (Boolean, DateTime, Numeric or String). Set the required value in the **Value** edit box.

The **Formats** group allows you to specify data format for numeric or a date/time types.

The **font**, **borders** and **fill** options are specified in the same way as for output **Columns**. For details refer to the [Columns](#) ⁵³⁸ page.

8.1.5.1.2.5 Merged Cells

If you want to merge two or more cells, set the range of cell coordinates: *First col, Last col, First row, Last row*. Use the spinner controls to set the range you need.



8.1.5.1.3 Advanced

The **Advanced** tab allows you to set a number of advanced options to be applied to the result MS Excel file.

Page header

If necessary, enter some text for the page header.

Page footer

If necessary, enter some text for the page footer.

Hint: It is also possible to set macros in the **Page header** and **Page footer** fields:
&N stands for the quantity of pages;
&P - the number of the current page.

Sheet title

Specify the sheet title for the target file.

Page background

If necessary, use the **Ellipsis**  button to browse for a graphical file to be applied as the page background.

The screenshot shows a dialog box with three tabs: 'Data format', 'Extensions', and 'Advanced'. The 'Advanced' tab is selected. It contains the following fields and options:

- Page header: Text box containing 'Export data'
- Page footer: Text box containing 'Page &P of &N'
- Sheet title: Text box containing 'Sheet 1'
- Page background: Text box with a browse button ('...')
- Calculate column width automatically

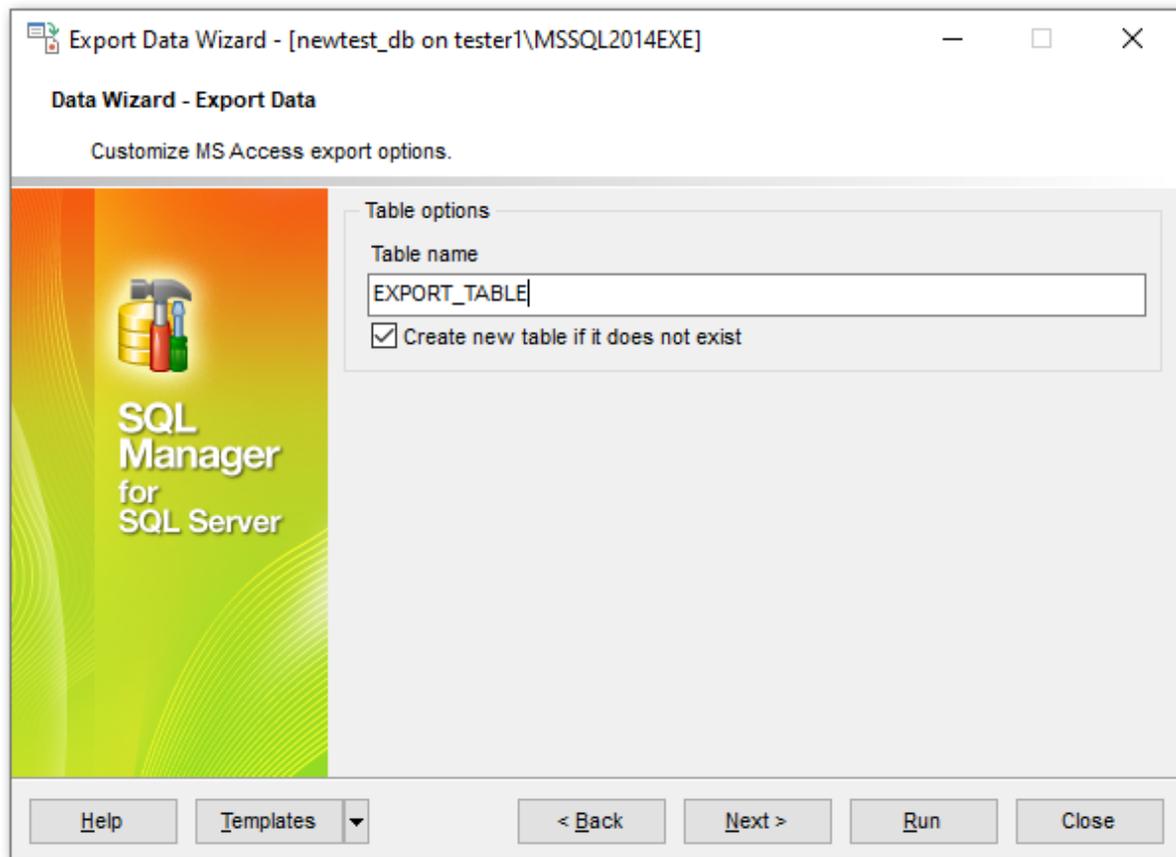
Calculate column width automatically

This option allows the wizard to determine column width in the target file automatically according to column size.

8.1.5.2 Access options

This step allows you to set options for the target **MS Access/Access 97-2003** (*.accdb, *.mdb) file.

Set the name for the target table and specify whether the wizard should **create a new table** in the MS Access/Access 97-2003 database if it does not exist yet, or use the existing table to export data into.



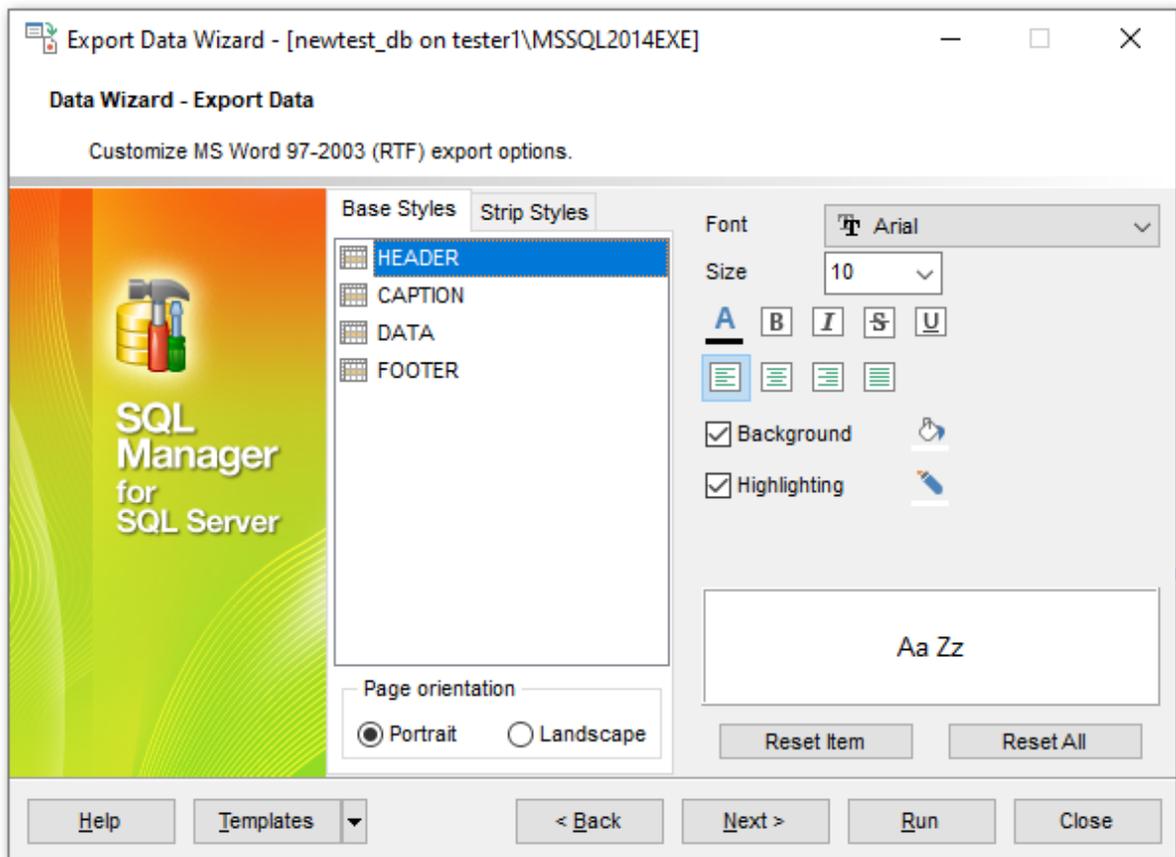
When you are done, click the **Next** button to proceed to [Setting common export options](#) ⁵⁶⁸.

8.1.5.3 Word 97-2003 / RTF options

This step allows you to set options for the target **MS Word** (*.doc) and **Rich Text Format** (*.rtf) files.

- [Base Styles](#) ⁵⁵³
- [Strip Styles](#) ⁵⁵⁴

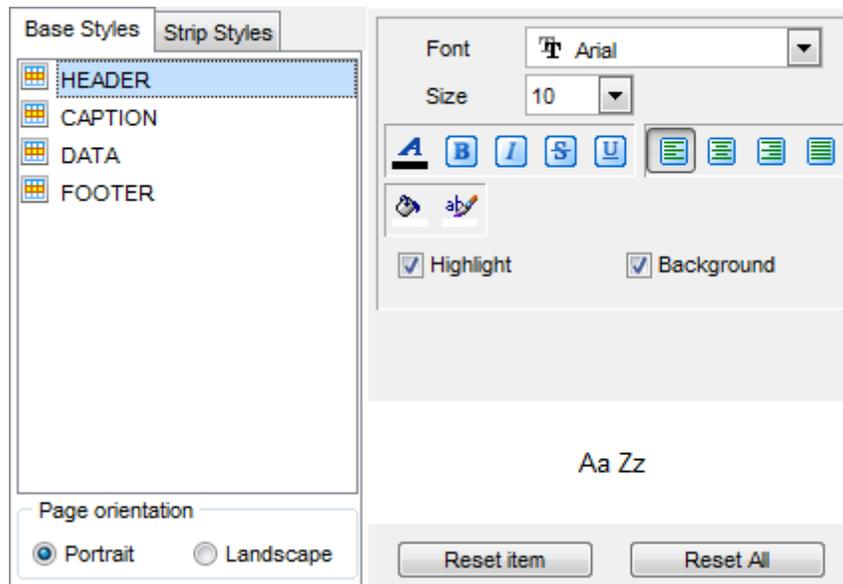
For your convenience the previews illustrating the changes are displayed in the **Sample Group** area within the *Base Styles* and the *Strip Styles* tabs.



When you are done, click the **Next** button to proceed to [Setting common export options](#) [568].

8.1.5.3.1 Base Styles

The **Base Styles** tab contains the list of target file entities: *HEADER*, *CAPTION*, *DATA*, *FOOTER*. You can customize style options, such as *font* and *size*, *background* and *foreground colors*, *text alignment*, etc. for each of them by clicking the corresponding item in the list and setting the options in the right-side panel. You can also switch **page orientation** for the target Word/RTF file using this tab.



Use the **Font** and **Size** drop-down lists to select the *font* and *size* to be applied to the text.

Use the buttons below to set *font color*, make text *bold*, *italicized*, *underlined*, *strikethrough* text, specify *horizontal align*.

Highlight

Enables/disables text highlight.

Background

Enables/disables background for text.

Press the  button to set the background color for the text.

Press the  button to set the highlight color for the text.

You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

8.1.5.3.2 Strip Styles

Using the **Strip Styles** tab you can create a style template: set *font*, *size*, *background* and *foreground colors*, *text alignment*, *highlight* and save them.

To add a style template, click the **Plus**  button.

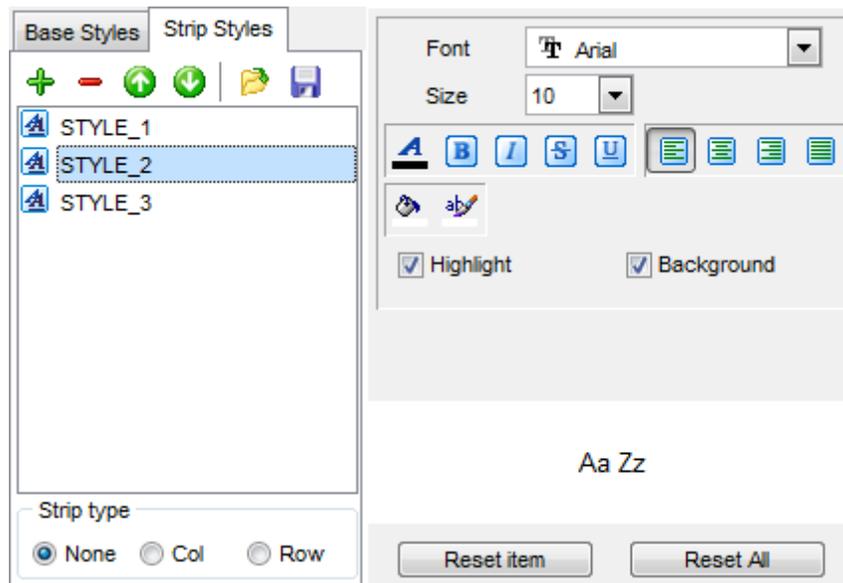
To delete a style template, select it and click the **Minus**  button.

To reorder style templates in the list, use the   buttons.

To load a style template, click the  button.

To save the current style template, click the  button.

If you have created or loaded more than one style template, they can be ignored, or used *column-by-column* or *row-by-row* (it depends on the **Strip type** selection).

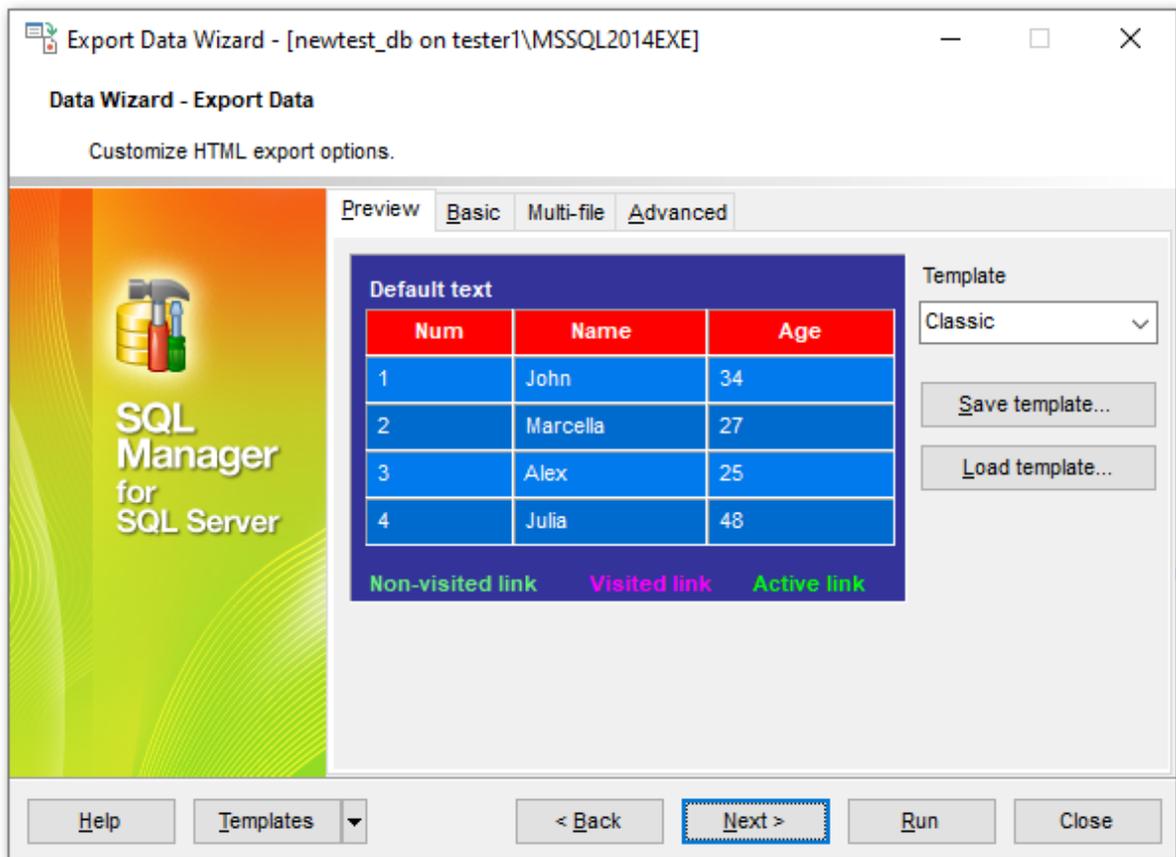


You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

8.1.5.4 HTML options

This step allows you to set options for the target **HTML** (*.htm) file.

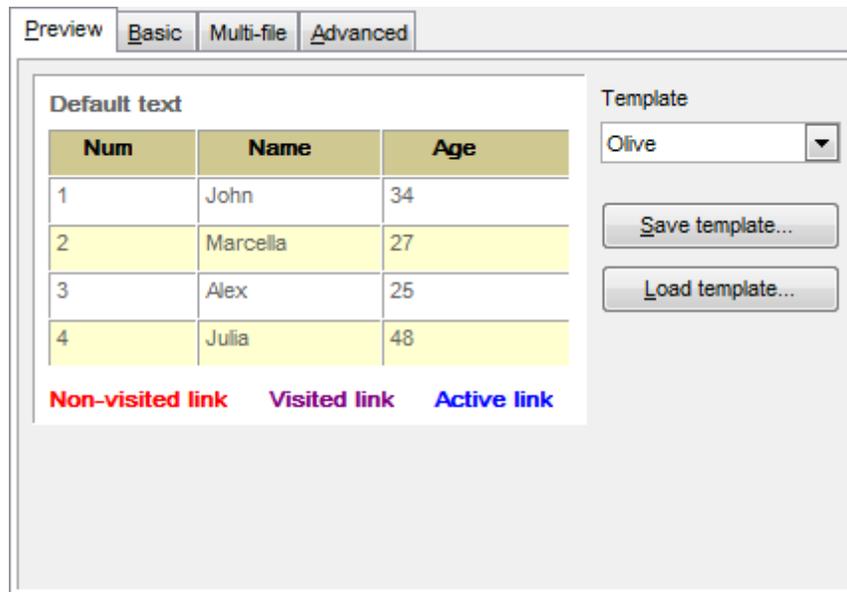
- [Preview](#)^[556]
- [Basic](#)^[557]
- [Multi-file](#)^[558]
- [Advanced](#)^[559]



When you are done, click the **Next** button to proceed to [Setting common export options](#) [568].

8.1.5.4.1 Preview

The **Preview** tab allows you to customize the style that will be applied to the target HTML file using a number of built-in templates provided in the **Templates** drop-down list.



You can select any of the pre-defined templates and customize it by clicking objects in the preview panel, and save the settings as a custom template using the **Save template...** button. Use the **Load template...** button to load a previously saved custom template from your hard disk.

Click on an element of the table to select the color that will be applied for this element (*background, font, header row, odd row, even row, non-visited link, visited link, active link*).

8.1.5.4.2 Basic

The **Basic** tab allows you to specify the basic parameters of target HTML file:

- specify the title of the result file;
- select whether the cascade style sheet (CSS) should be internal or external (the **Ellipsis**  button to browse for a *.css file);
- determine whether boolean fields of the table should be exported as HTML check boxes.

The screenshot shows the 'Advanced' tab of a configuration window. At the top, there are four tabs: 'Preview', 'Basic', 'Multi-file', and 'Advanced'. Below the tabs, there is a 'Title' field containing the text 'Film'. Underneath, a section titled 'Cascade style sheet options' contains two radio buttons: 'Internal' and 'External'. The 'External' radio button is selected. Below these radio buttons is a 'CSS file name' field containing 'Export.css' and a browse button (three dots). A checkbox labeled 'Overwrite CSS file if it exists' is located below the file name field. At the bottom of the section, there is a checked checkbox labeled 'Export boolean fields as HTML check boxes'.

8.1.5.4.3 Multi-file

The **Multi-file** tab provides you with an ability to split the target HTML file into several separate 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 to navigate between the exported files.

The screenshot shows the 'Multi-file' tab of the configuration window. At the top, there are four tabs: 'Preview', 'Basic', 'Multi-file', and 'Advanced'. Below the tabs, a section titled 'Multi-file export' contains a checked checkbox 'Use multi-file export'. Below this is a 'Record(s) in a single file' field with a value of '1000' and a spinner control. A checkbox 'Generate index' is located below the record count field. To the right of the 'Generate index' checkbox is a 'Prefix' field containing 'Page_'. Below the 'Multi-file export' section is a 'Navigation' section. It contains four checked checkboxes: 'On top', 'On bottom', 'Prior link', and 'Next link'. Below these are four text input fields: 'Index link' (containing 'Index'), 'First link' (containing 'First'), 'Prior link' (containing 'Prior'), and 'Next link' (containing 'Next'). At the bottom of the 'Navigation' section are two more text input fields: 'First link' (containing 'First') and 'Last link' (containing 'Last').

Multi-file export

- Use multi-file export**
Enables/disables the multi-file export feature.

Record(s) in a single file

Use the spinner control to specify the number of records to be exported into each of the files.

Generate index

Specifies that an index file containing links to all the data files will be generated. Use the edit-box next to the checkbox to set a name for the index file.

Navigation

This group allows you to specify properties for navigation elements, i.e. the elements that provide quick access to pages of the multi-file document. Navigation is implemented as a set of hyperlinks.

On top

Specifies that the hyperlinks will be placed at the top of the page.

On bottom

Specifies that the hyperlinks will be placed at the bottom of the page.

Use the **Index link**, **First link**, **Prior link**, **Next link** and **Last link** boxes to specify captions for the corresponding navigation elements.

8.1.5.4.4 Advanced

The **Advanced** tab allows you to set a number of advanced options to be applied to the result HTML file.

The screenshot shows the 'Advanced' tab selected in a software interface. It contains two main sections: 'Body options' and 'Table Options'. Under 'Body options', there are three fields: 'Default font' set to 'Arial', 'Background' set to 'D:\EMS_logo.bmp', and an empty 'Advanced attributes' field. Under 'Table Options', there are five fields: 'Cell padding' set to '4', 'Cell spacing' set to '1', 'Border' set to '1', 'Background' set to 'D:\Export_to_HTML_background.jpg', and an empty 'Advanced attributes' field.

Body options

Default font

Use the drop-down list to select the font that will be used in the result file by default.

Background

If necessary, use the  **Ellipsis** button to browse for a graphical file to be applied as the page background.

Table options

Use the spinner controls to specify common table options: **cell padding**, **cell spacing**, **border**.

Background

If necessary, use the  **Ellipsis** button to browse for a graphical file to be applied as the table background.

It is also possible to define **advanced attributes** for both the HTML body and table.

8.1.5.5 PDF options

This step allows you to set options for the target **PDF** (*.pdf) file.

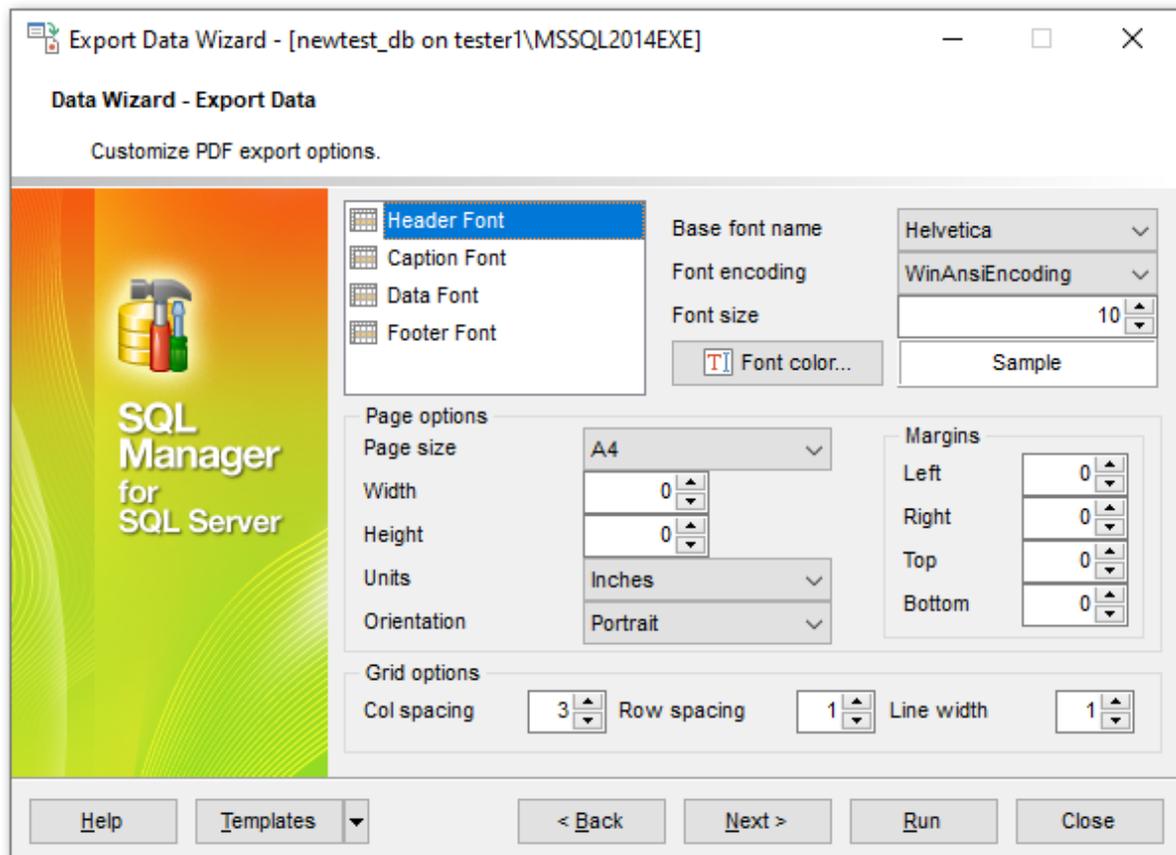
Fonts

This group of options allows you to customize fonts for the *header*, *caption*, *data*, *footer* of the result file.

Use the **Base font name** and **Font encoding** drop-down lists to select the preferable font (*Helvetica*, *Courier*, *Times Roman*, etc.) and encoding (*Standard*, *WinANSI*, *MacRoman*, *PDFDoc*) respectively, and the **Font size** spinner control to specify the font size.

Click the **Font color...** button to select the color to be applied to the font.

For your convenience the preview illustrating the changes is displayed in the **Sample** area.



Page options

Use the **Page size** drop-down list to select one of the standard page formats (*Letter*, *Legal*, *A3*, *A4*, etc.).

Use the **Width** and **Height** spinner controls to specify the page *width* and *height* respectively.

Use the **Units** drop-down list to select the unit of measure that will be used in report settings: *inches*, *millimeters*, or *dots*.

Use the **Orientation** drop-down list to select the preferable page orientation: *portrait* or *landscape*.

Margins

Use the **Left**, **Right**, **Top**, **Bottom** spinner controls to specify the corresponding page margins for the output PDF file.

Grid options

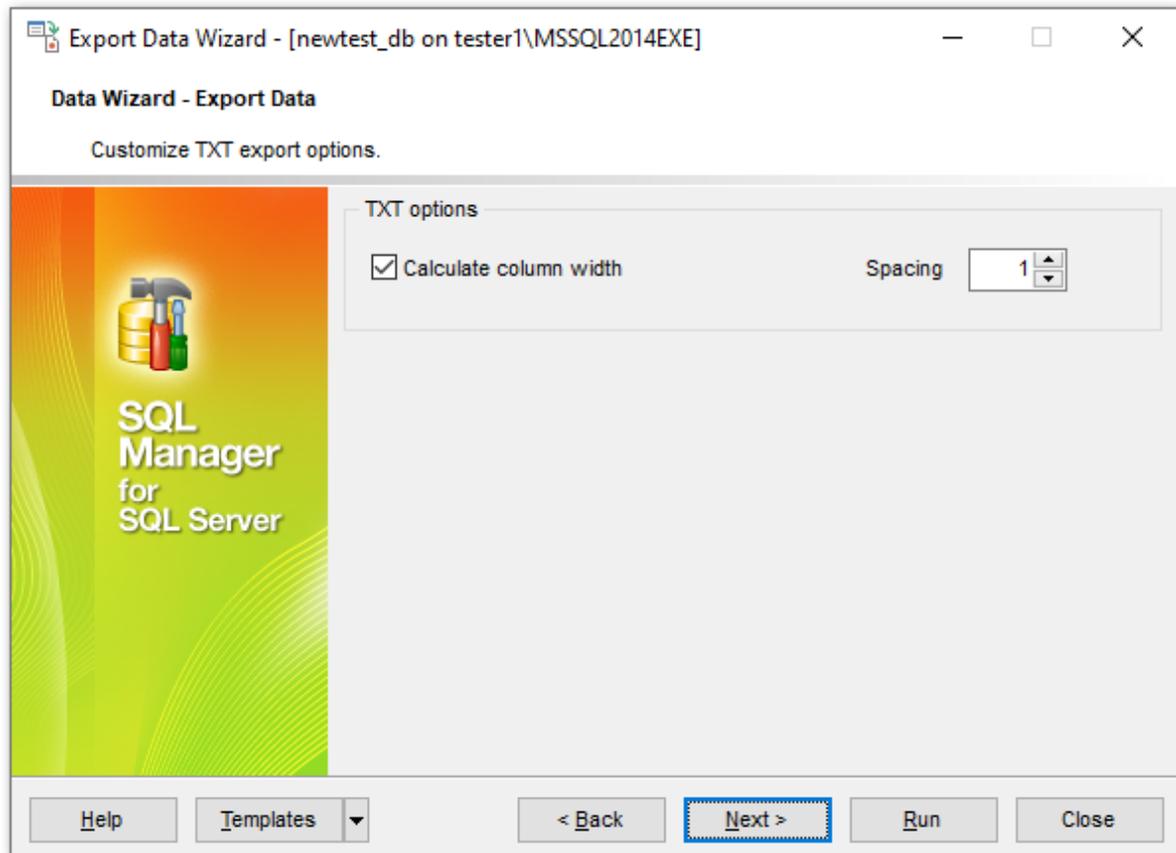
Use the **Col spacing**, **Row spacing**, **Line width** spinner controls to specify spacing for grid columns, rows, and grid line width respectively.

When you are done, click the **Next** button to proceed to [Setting common export options](#) [568].

8.1.5.6 TXT options

This step allows you to set options for the target **text** (*.txt) file.

Set the **Calculate column width** option on if you want each column of the 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.



When you are done, click the **Next** button to proceed to [Setting common export options](#) [568].

8.1.5.7 CSV options

This step allows you to set options for the target **CSV** (*.csv) file.

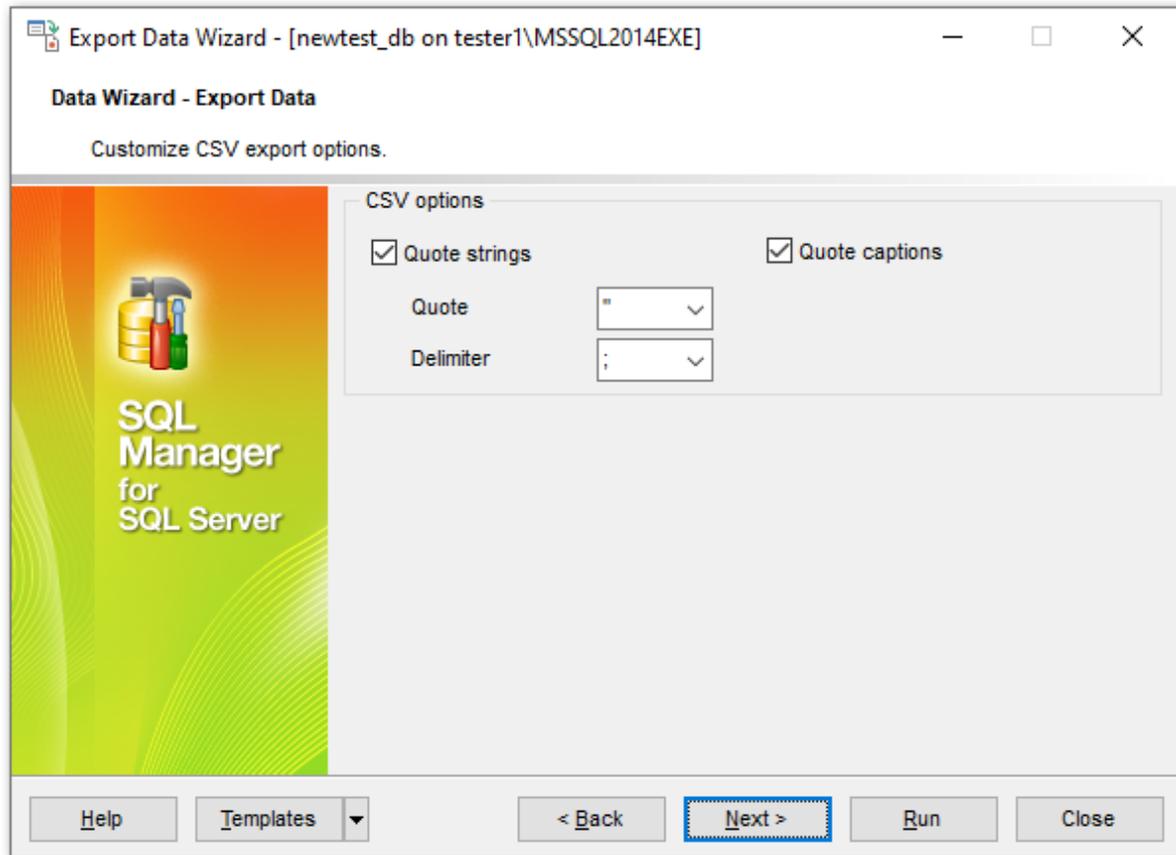
Quote strings

Check this option to apply quoting for string values in the target file.

Quote captions

Check this option to apply quoting for captions in the target file.

Specify the column separator using the **Delimiter** drop-down list and the preferable quote character using the **Quote** drop-down list.



When you are done, click the **Next** button to proceed to [Setting common export options](#) [568].

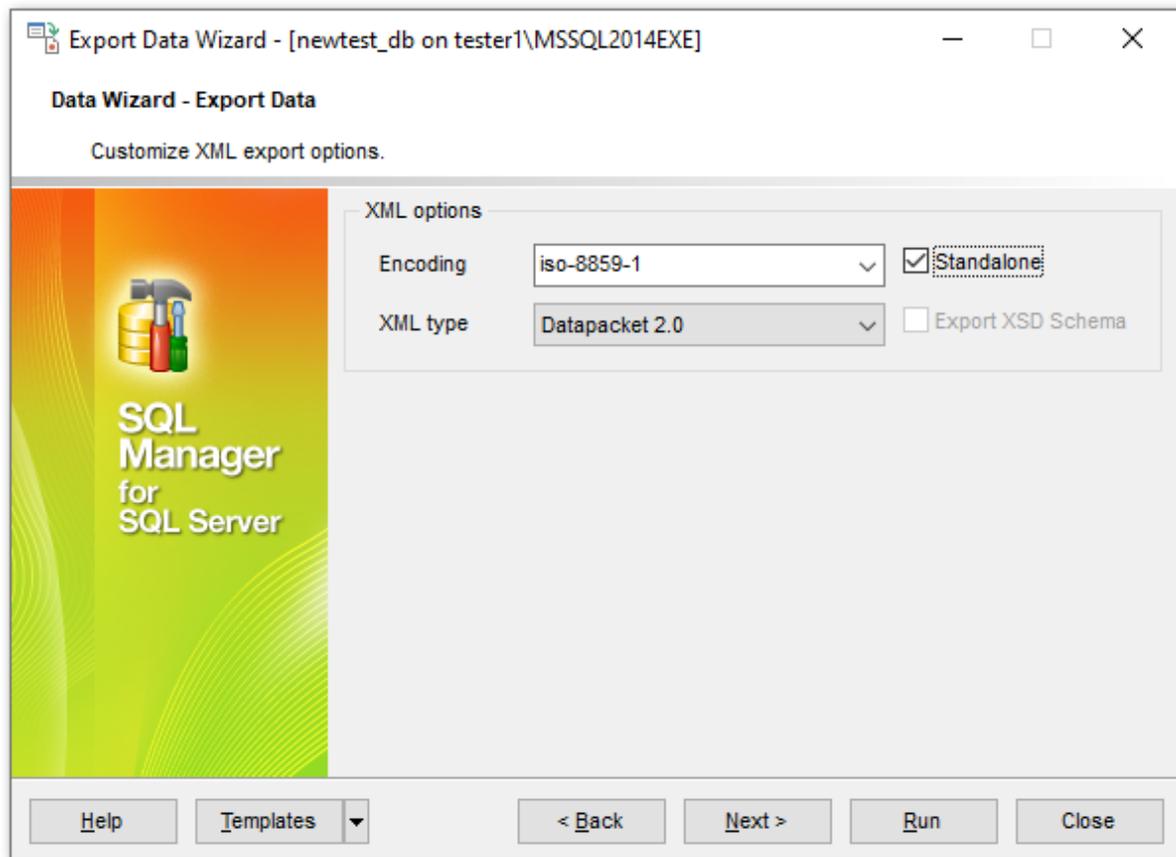
8.1.5.8 XML options

This step allows you to set options for the target **XML** (*.xml) file.

Specify XML document encoding in the **Encoding** edit box and set the **Standalone** option on if you intend to create a standalone XML document (*standalone="yes"*).

XML type

Select the type of the result XML document: *Datapacket 2.0* or *Access*. Conversion between generic XML documents and documents of the *XML-Datapacket* (CDS) format can be performed with the help of XML Mapper by Borland®.



When you are done, click the **Next** button to proceed to [Setting common export options](#) ⁵⁶⁸.

8.1.5.9 MS Excel / ODS options

This step allows you to set options for the target **MS Excel 2007** (*.xlsx) or **ODF Spreadsheets** (*.ods) file.

Using the **Base Styles** tab you can set *font* and *border* options for all **elements** of the Excel 2007 / ODS sheet (*HEADER, CAPTION, DATA, FOOTER*). You can customize style options, such as *font* and *size*, *background* and *foreground colors*, *text alignment*, etc. for each of them by clicking the corresponding item in the list and setting the options in the right-side panel.

If necessary, you can also specify the **sheet name** for the target Excel 2007 / ODS file.

Use the **Font** and **Size** drop-down lists to select the *font* and *size* to be applied to the text.

Use the buttons below to set *font color*, make text *bold*, *italicized*, *underlined*, specify *horizontal* and *vertical align*.

Background

Enables/disables background for text.

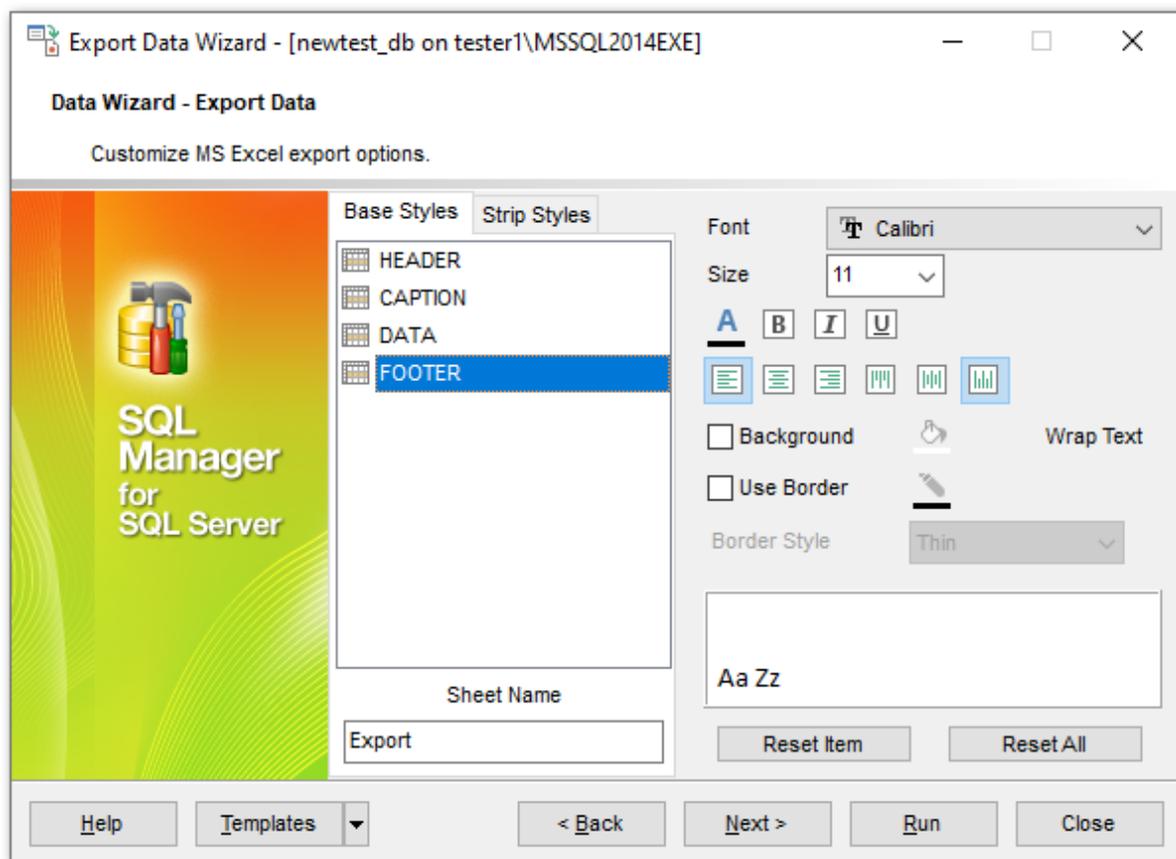
Press the  button to set the background color for the text.
Press the **Wrap Text** button to enable/disable the text wrapping feature.

Use border

Enables/disables borders in the output file.

Press the  button to set the color to be applied to the borders.
Use the **Border Style** drop-down list to select the preferable style that will be used for borders (*thin, dashed, dashdot, dotted, etc.*).

For your convenience the previews illustrating the changes are displayed in the **Sample Group** area within the *Base Styles* and the *Strip Styles* tabs.



Using the **Strip Styles** tab you can create a style template: set *font, size, background color, text alignment, wrap text* options and save them.

To add a style template, click the **Plus**  button.

To delete a style template, select it and click the **Minus**  button.

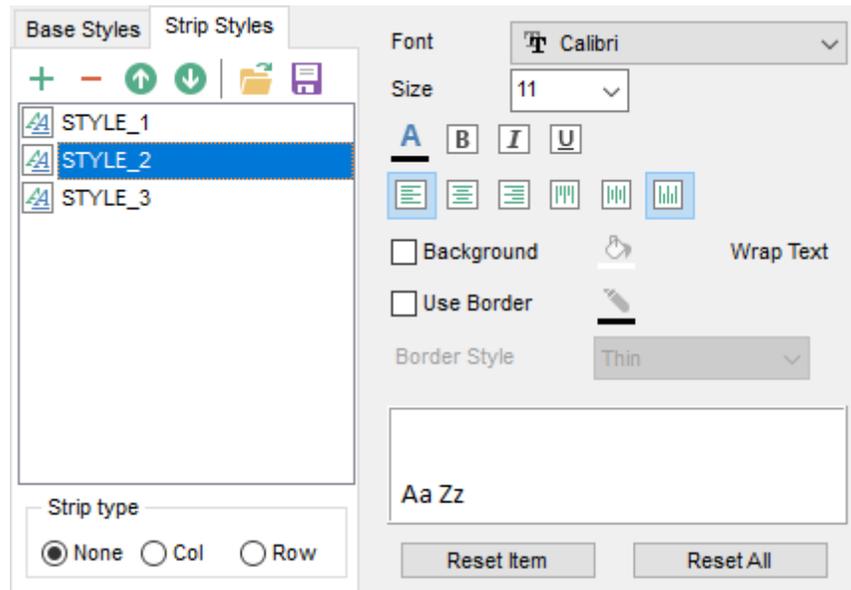
To reorder style templates in the list, use the   buttons.

To load a style template, click the  button.

To save the current style template, click the  button.

If you have created or loaded more than one style template, they can be ignored, or

used *column-by-column* or *row-by-row* (it depends on the **Strip type** selection).



You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

When you are done, click the **Next** button to proceed to [Setting common export options](#) [568].

8.1.5.10 MS Word / ODT options

This step allows you to set options for the target **MS Word 2007** (*.docx) or **ODF text** (*.odt) file.

Using the **Base Styles** tab you can set *font* options for all **elements** of the Word 2007 / ODT document (*HEADER, CAPTION, DATA, FOOTER*). You can customize style options, such as *font* and *size*, *background* and *foreground colors*, *text alignment*, *text highlight*, etc. for each of them by clicking the corresponding item in the list and setting the options in the right-side panel.

Use the **Font** and **Size** drop-down lists to select the *font* and *size* to be applied to the text.

Use the buttons below to set *font color*, make text *bold*, *italicized*, *underlined*, *strikethrough* text, specify *horizontal align*.

Background

Enables/disables background for text.

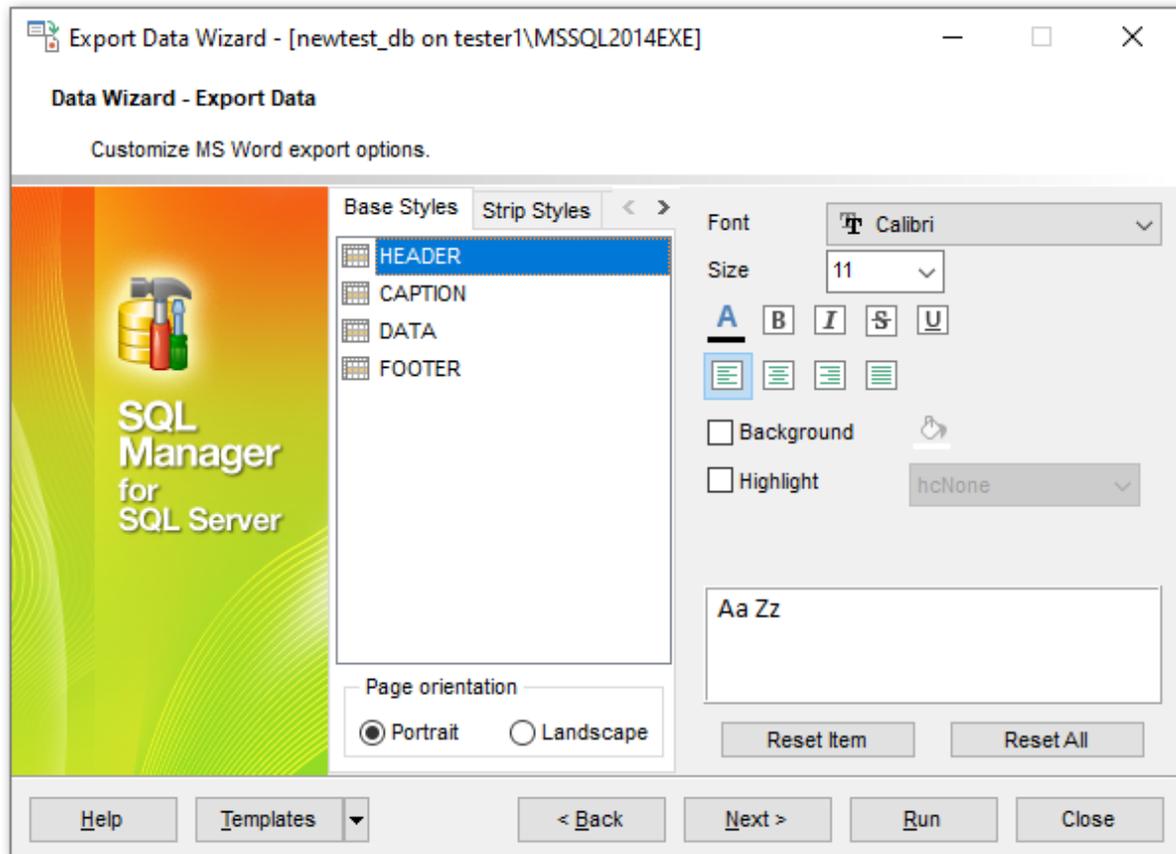
Press the  button to set the background color for the text.

Highlight

Enables/disables text highlight.

If this option is enabled, you should select the preferable highlight color from the drop-down list.

For your convenience the previews illustrating the changes are displayed in the **Sample Group** area within the *Base Styles* and the *Strip Styles* tabs.



Using the **Strip Styles** tab you can create a style template: set *font*, *size*, *background color*, *text alignment*, *highlight* options and save them.

To add a style template, click the **Plus**  button.

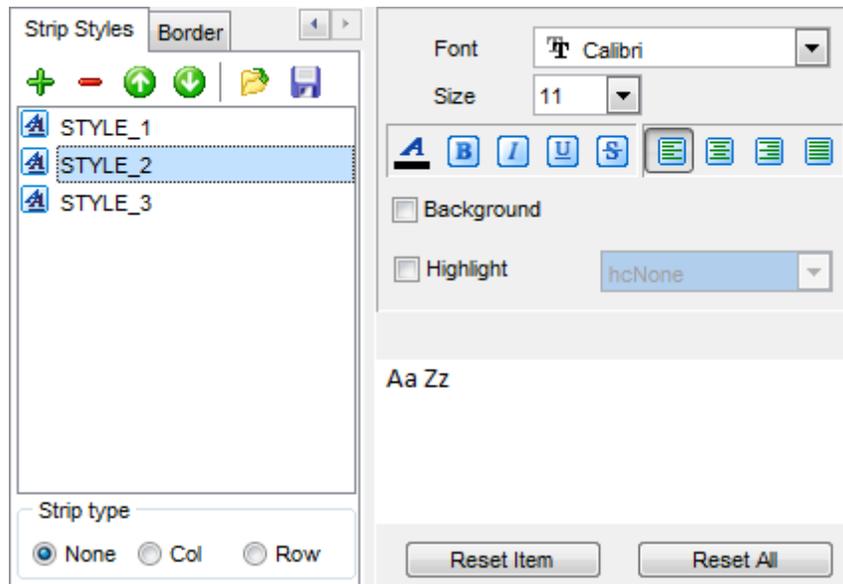
To delete a style template, select it and click the **Minus**  button.

To reorder style templates in the list, use the   buttons.

To load a style template, click the  button.

To save the current style template, click the  button.

If you have created or loaded more than one style template, they can be ignored, or used *column-by-column* or *row-by-row* (it depends on the **Strip type** selection).



You can reset the changes any time using the **Reset Item** and the **Reset All** buttons.

Using the **Border** tab you can enable borders in the result Word 2007 / ODT document and customize them.

Use border

Enables/disables borders in the output file.

Press the  button to set the color to be applied to the borders.

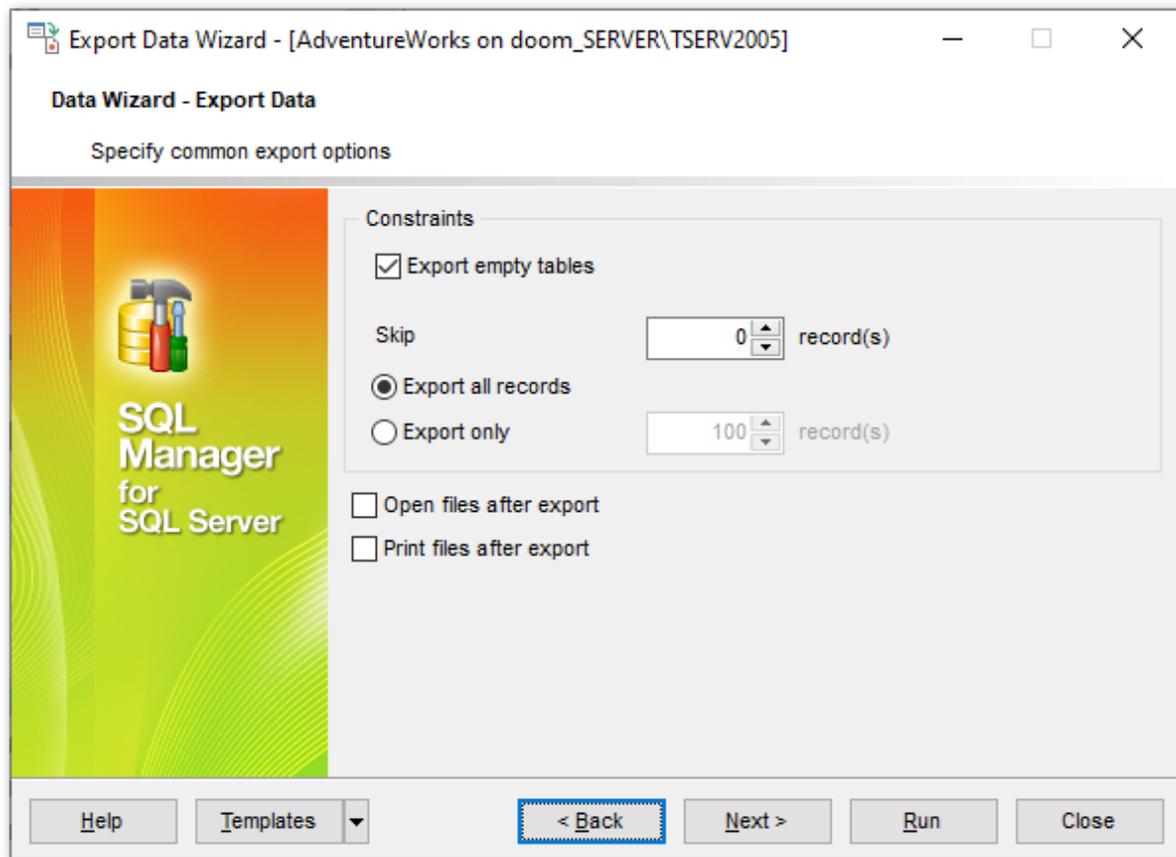
Use the **Border Style** drop-down list to select the preferable style that will be used for borders (*single, thick, double, hairline, etc.*).



When you are done, click the **Next** button to proceed to [Setting common export options](#) [568].

8.1.6 Setting common export options

Use this step of the wizard to set common export options. The detailed description of these options is given below.



Export empty tables

If checked, you can export the table even if it does not contain any data.

Skip ... record(s)

Specifies the number of records to be skipped before export starts.

Export all records

Specifies that all records of the table will be exported.

Export only ... record(s)

Specifies the number of records to be exported.

Open files after export

If this option is checked, the result file will be opened with the currently associated program after the export operation is completed.

Print files after export

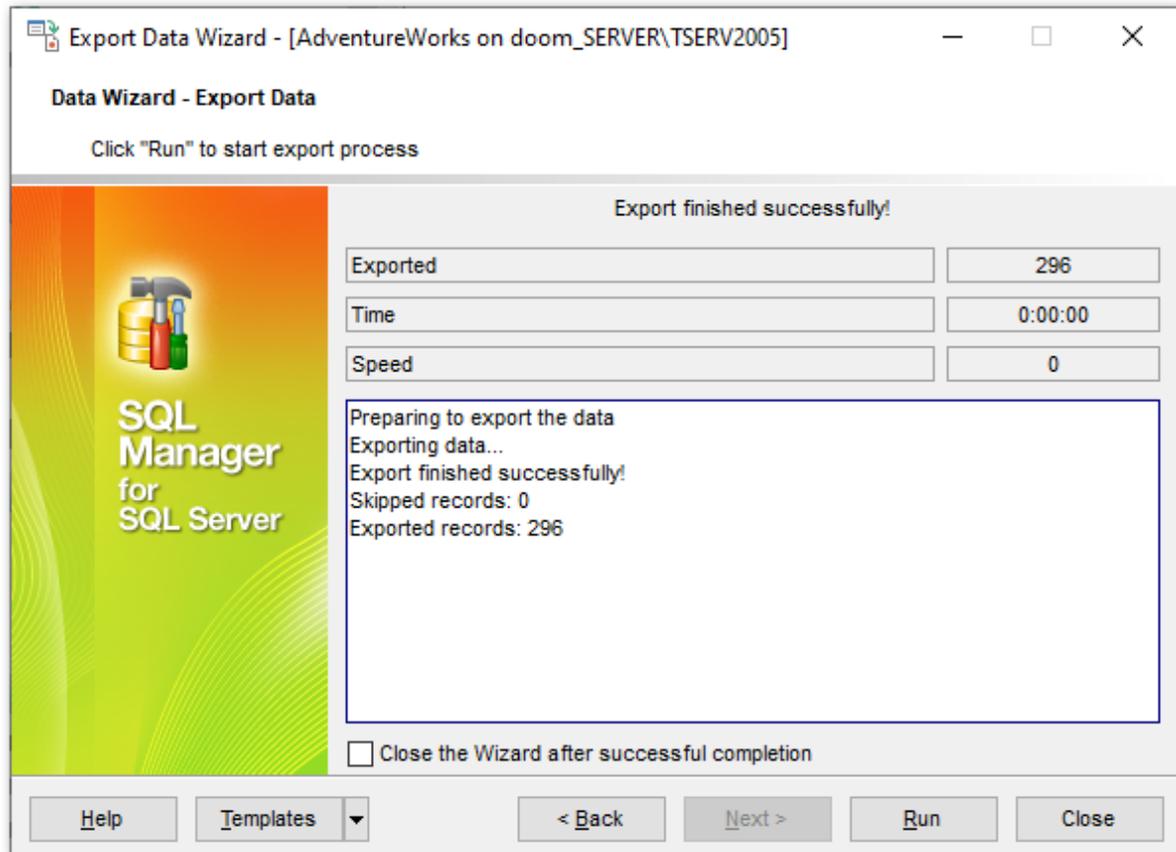
If this option is checked, the result file will be sent to the default printer after the export operation is completed.

When you are done, click the **Next** button to proceed to the [last step](#)^[570] of the wizard.

8.1.7 Exporting data

This step of the wizard is intended to inform you that all export options have been set, and you can start the export process.

The log area allows you to view the log of operations and errors (if any).



Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the export process is completed.

If necessary, you can save a [template](#) for future use.

Click the **Finish** button to run the export process.

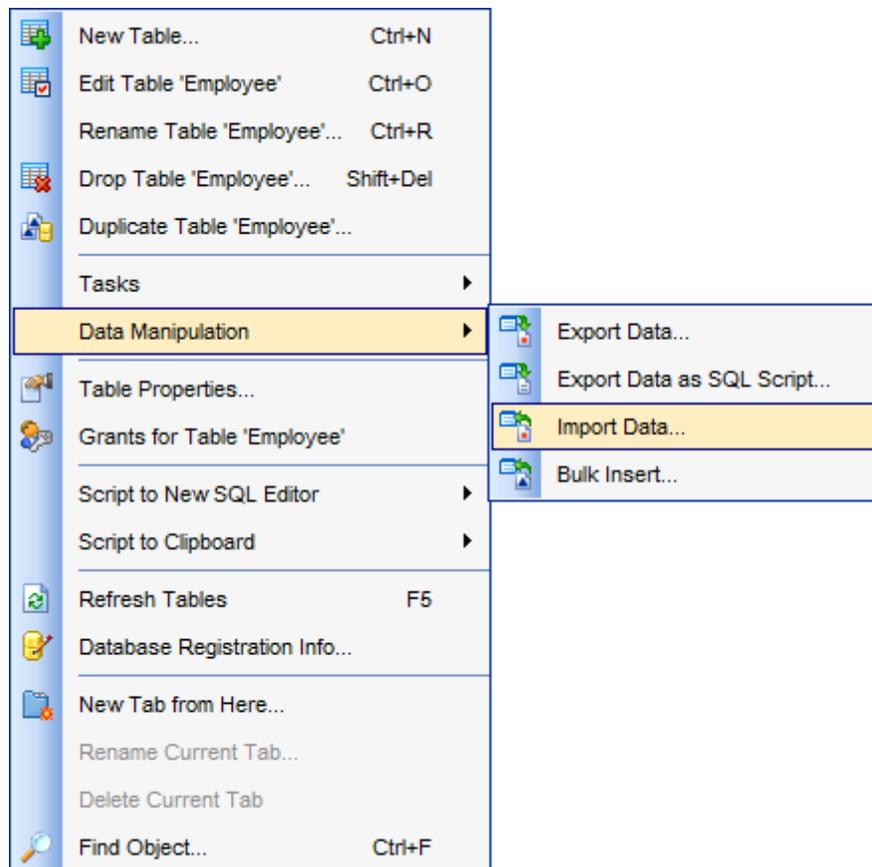
After the operation is completed, you can view the number of *exported* records, elapsed *time*, estimated export *speed*, and the *log* of operations and errors (if any).

8.2 Import Data Wizard

Import Data Wizard allows you to import data to a [table](#)^[192] / [view](#)^[246] from any of supported formats (*MS Excel, MS Access, DBF, XML, TXT, CSV, HTML, MS Excel 2007, MS Word 2007, ODF*). You can save your settings as a [template](#)^[934] any time for future use.

To start the wizard, right-click the table/view in [DB Explorer](#)^[63], select the **Data Manipulation context menu**^[56] group and proceed to the  **Import Data...** item within this group.

Alternatively, you can open the **Data** tab of [Table Editor](#)^[200] / [View Editor](#)^[246], right-click the [grid](#)^[465] there, then select the **Data Manipulation context menu**^[469] group and proceed to the  **Import Data to <object_name>...** item within this group, or use the  **Import Data** item of the [Navigation bar](#)^[915].



- [Setting source file name and format](#)^[572]
- [Selecting the source to import data from](#)^[573]
- [Setting correspondence between the source and target columns](#)^[574]
- [Adjusting common data formats](#)^[584]
- [Setting advanced column formats](#)^[585]
- [Setting import mode and data write type](#)^[587]
- [Customizing common import options](#)^[590]
- [Importing data](#)^[592]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Export Data Wizard](#)^[53]

[Export as SQL Script](#)^[59]

[Bulk Insert Wizard](#)^[60]

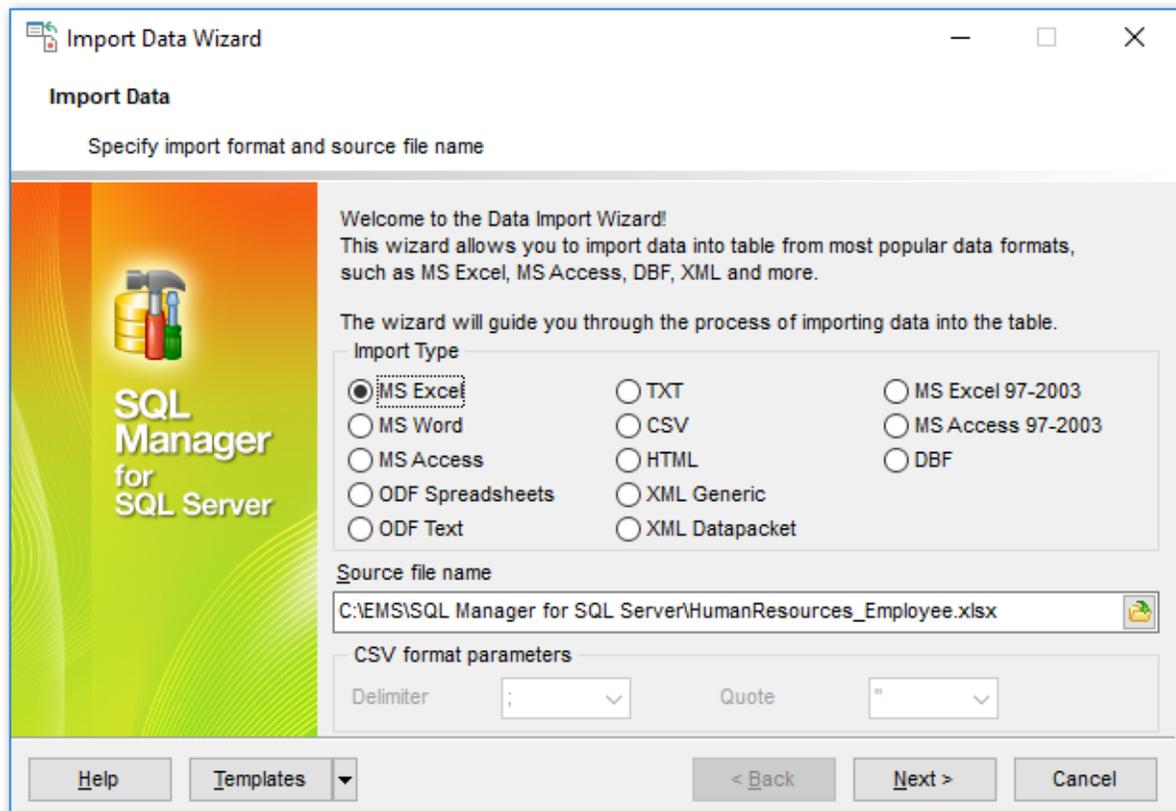
[Using templates](#)^[93]

8.2.1 Selecting source file name and format

This step of the wizard allows you to select the source file format you need to import data from.

Source file name

Type in or use the  button to specify the path to the file using the **Open file...** dialog. The file name extension changes automatically according to the selected **Import Type**.



Import Type

Specify the format of the source file. For details refer to [Supported file formats](#)^[935].

CSV format parameters

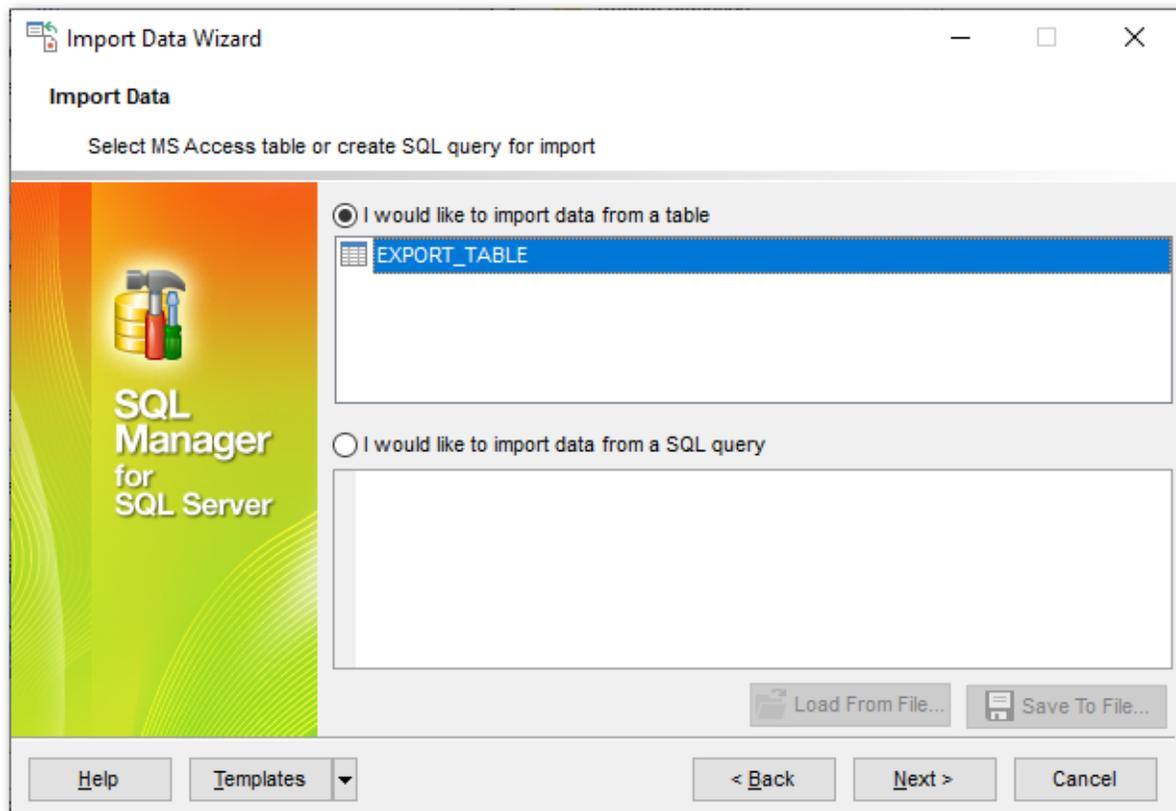
For [CSV](#)^[579] import you should define **Delimiter** and **Quote** settings using the corresponding drop-down lists.

Click the **Next** button to proceed to the [Setting columns correspondence](#)^[574] step or to the [Selecting data source](#)^[573] step of the wizard if you have selected **MS Access** as the source file format.

8.2.2 Selecting data source

This step of the wizard is only available when you are importing data from *MS Access*. Select a **table** from the table list or input a **query** in the corresponding text boxes to specify the data source.

If you choose a query as the data source, you also can load a SQL query from a **.sql* file or save the current query text to a file using the **Load from File...** and the **Save to File...** buttons correspondingly.



Click the **Next** button to proceed to the [Setting columns correspondence](#)^[574] step of the wizard.

8.2.3 Setting columns correspondence

This step of the wizard allows you to **set correspondence** between columns of the source file and columns of the target SQL Server table.

- [MS Excel 97-2003](#)^[574]
- [MS Access / DBF / XML Datapacket](#)^[577]
- [TXT](#)^[579]
- [CSV](#)^[579]
- [HTML](#)^[580]
- [XML Generic](#)^[582]
- [MS Excel / Word, ODF](#)^[583]

To get more information about the file formats, see the [Supported file formats](#)^[935] page.

8.2.3.1 Excel 97-2003

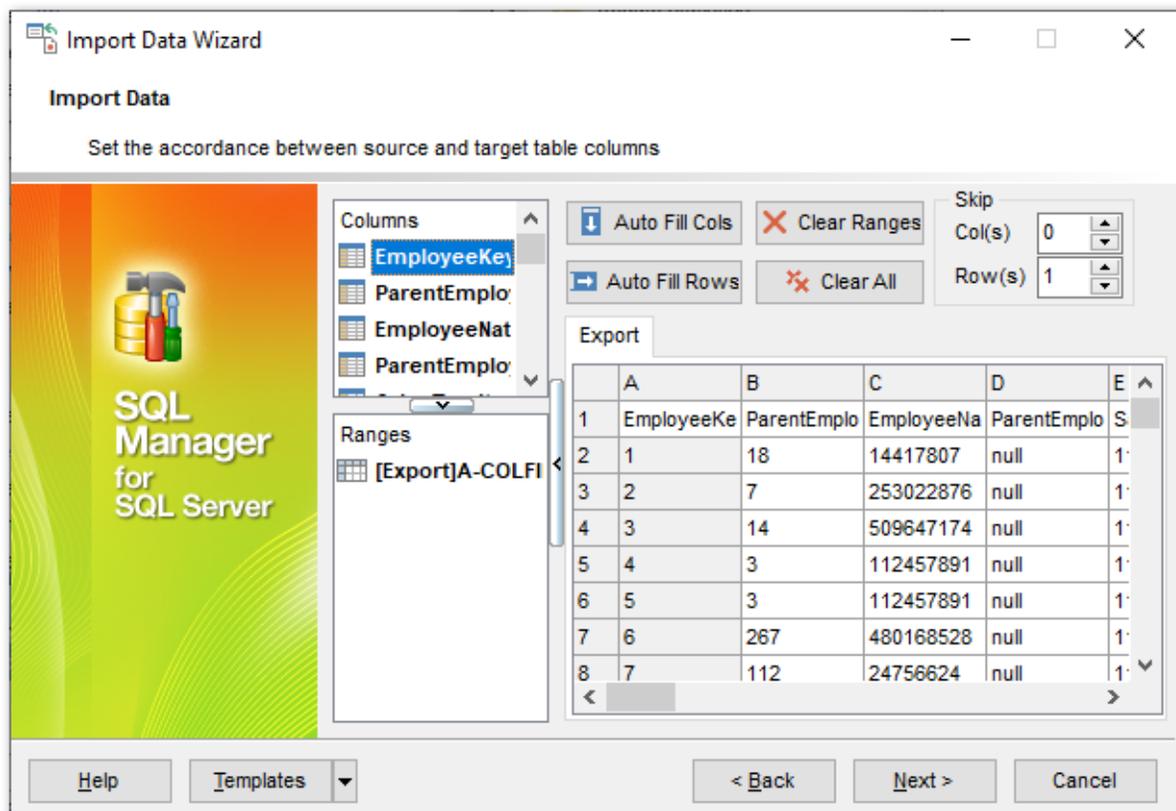
Specify ranges in the grid for the target and source columns:

- select a column of the target SQL Server table in the **Columns** list;
- proceed to the **Sheet** grid: click a column caption to select the whole column or click the row number to select the whole row;

- the selected column/row of the source file gets green highlight, and a new range indicating the source and target columns correspondence appears in the **Ranges** list;
- repeat the operation for all the columns you need to be included in the import process.

If the source Excel file and the destination SQL Server table have the same order of columns or rows, you can use the  **Auto Fill Cols** or the  **Auto Fill Rows** buttons to set correspondence between them automatically.

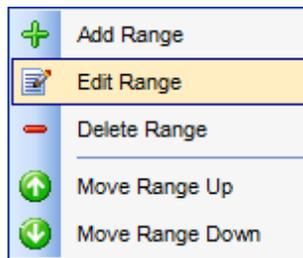
If necessary, you can choose to **skip** a defined number of the source file columns and/or rows using the **Col(s)** and **Row(s)** spinner controls of the **Skip** group (e.g. if you need to exclude column headers from the imported data range).



To clear ranges for a column, select the column in the Columns list and press the  **Clear Ranges** button.

To clear all ranges specified for the target table columns, press the  **Clear All** button.

Right-click a range in the **Ranges** list to call its popup menu. Using the popup menu you can *add* or *edit* ranges manually, *remove* them or change their *order*.



The **Range** dialog allows you to edit the data range for import manually.

Range Type

Use the drop-down list to select whether a *column*, a *row*, or a *cell* of the source Excel file will be mapped to the target table column.

Depending on the selected range type you should specify the column (e.g. *B*), the row (e.g. *2*) or the cell (e.g. *A2*).

Start / Finish

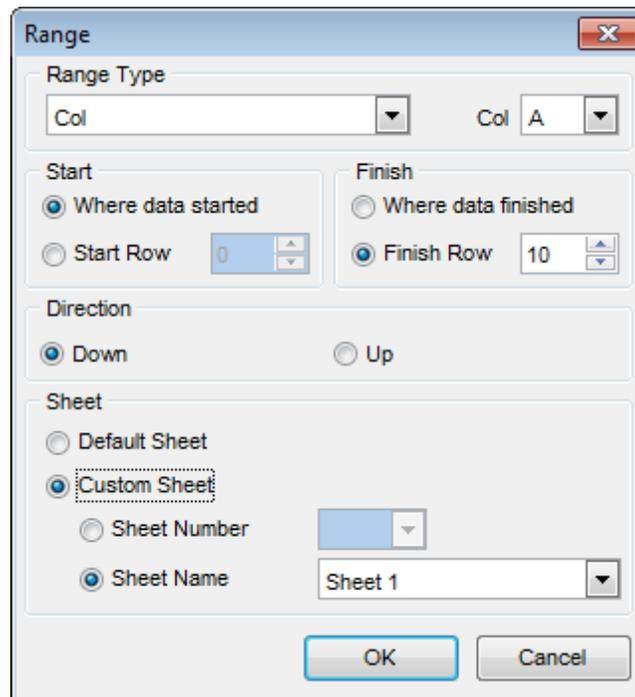
These groups allow you to set the precise data range for import: select **Where data started / finished** or use the spinner control to specify the **start/finish row** (or **start/finish column**).

Direction

Use this group to select the direction for importing data of the specified range: *Down* or *Up*.

Sheet

Use this group to define whether the specified range will be taken from the **default** Excel sheet or from a **custom** sheet (select **sheet number** or **sheet name** using the corresponding drop-down lists).



Click the **Next** button to proceed to the [Adjusting data formats](#)⁵⁸⁴ step of the wizard.

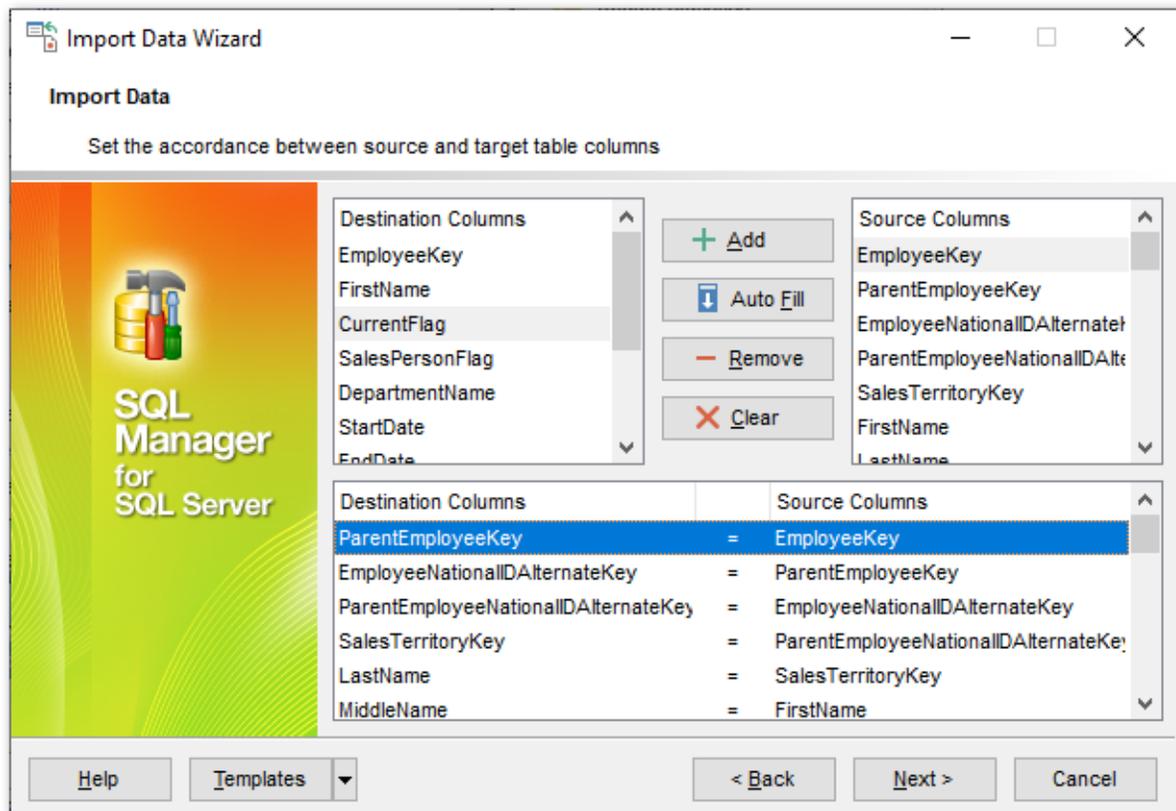
8.2.3.2 Access/DBF/XML Datapacket

Set correspondence between the source MS Access columns and the target SQL Server table columns:

- select a column of the target SQL Server table in the **Destination Columns** list;
- select the corresponding column of the source MS Access table in the **Source Columns** list;
- click the **+ Add** button to set correspondence between the selected columns;
- the pair of columns appears in the list below;
- repeat the operation for all the columns you need to be included in the import process.

Use the **Auto Fill** button to set correspondence between the source and target columns automatically on the basis of their order.

When importing data from a DBF file, the additional **Skip deleted records** option appears. Selecting this checkbox allows you to skip records marked for deletion.



To remove a correspondence, select the pair of columns in the list below and press the **Remove** button.

To remove all correspondences, press the **Clear** button.

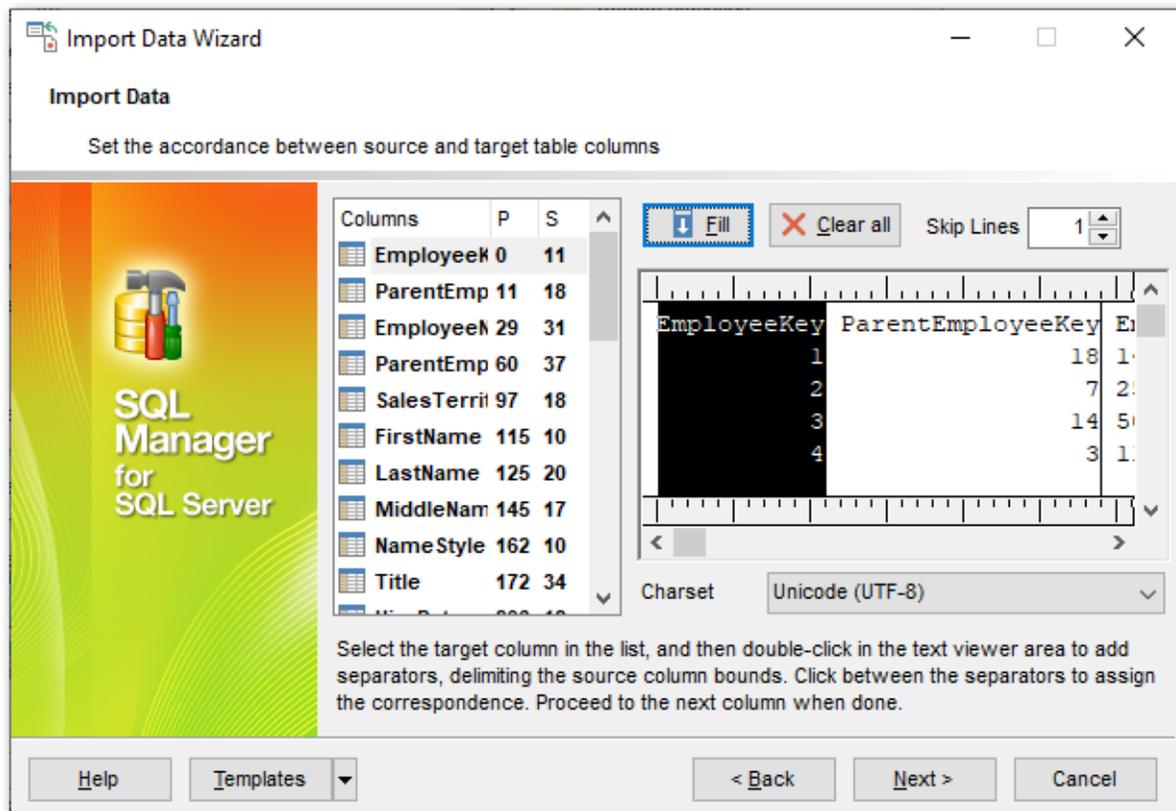
Click the **Next** button to proceed to the [Adjusting data formats](#) step of the wizard.

8.2.3.3 TXT

Set correspondence between the source text file columns and the target SQL Server table columns:

- select a column of the target SQL Server table in the **Columns** list;
- double-click in the text viewer area to add vertical separators delimiting the source column bounds;
- click the area between the separators to assign the column to the selected target table column - the selected source column gets black highlight;
- repeat the operation for all the columns you need to be included in the import process.

If necessary, you can choose to **skip** a defined number of the source file lines using the **Skip Lines** spinner control (e.g. if you need to exclude column headers from the imported data range).



To clear all correspondences, press the **✖ Clear** button.

Note: if you cannot see the content of the source text file properly, you should select the appropriate Charset to be used for processing data.

Click the **Next** button to proceed to the [Adjusting data formats](#)^[584] step of the wizard.

8.2.3.4 CSV

Set correspondence between the target table columns and the source CSV file columns:

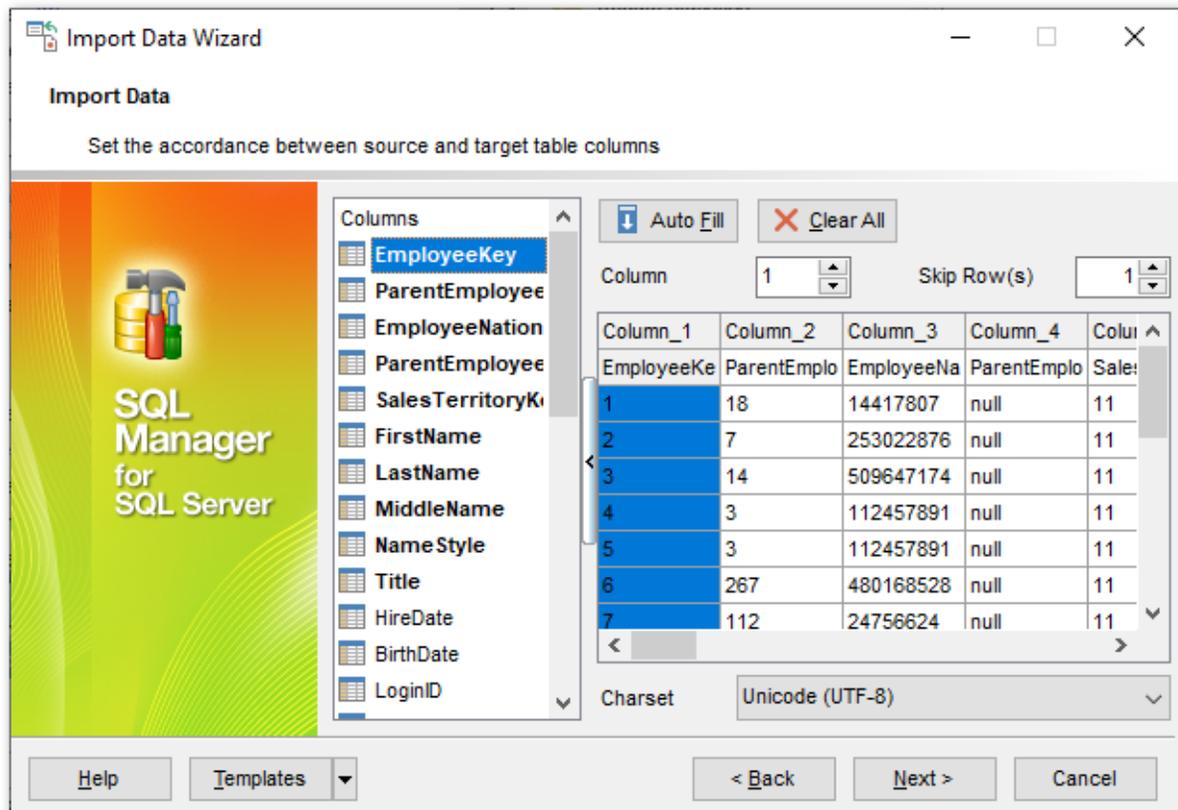
- select a column of the target SQL Server table in the **Columns** list;
- proceed to the source grid viewer area: click a caption to assign the column to the selected target table column;
- the selected column of the source file gets gray highlight;
- repeat the operation for all the columns you need to be included in the import process.

If the source CSV file and the destination SQL Server table have the same order of columns, you can use the **Auto Fill** button to set correspondence between them automatically.

Note that the CSV delimiter is specified at the [Selecting source file name and format](#)^[572] step of the wizard.

The **Col(s)** control indicates the currently selected source file column. You can also use this spinner control for quick column selection.

If necessary, you can choose to **skip** a defined number of the source file rows using the **Row(s)** spinner control of the **Skip** group (e.g. if you need to exclude column headers from the imported data range).



To remove a correspondence, select the column in the **Columns** list and press the **X Clear** button.

Note: if you cannot see the content of the source text file properly, you should select the appropriate **Charset** to be used for processing data.

Click the **Next** button to proceed to the [Adjusting data formats](#)⁵⁸⁴ step of the wizard.

8.2.3.5 HTML

Set correspondence between the target table columns and the source HTML file columns:

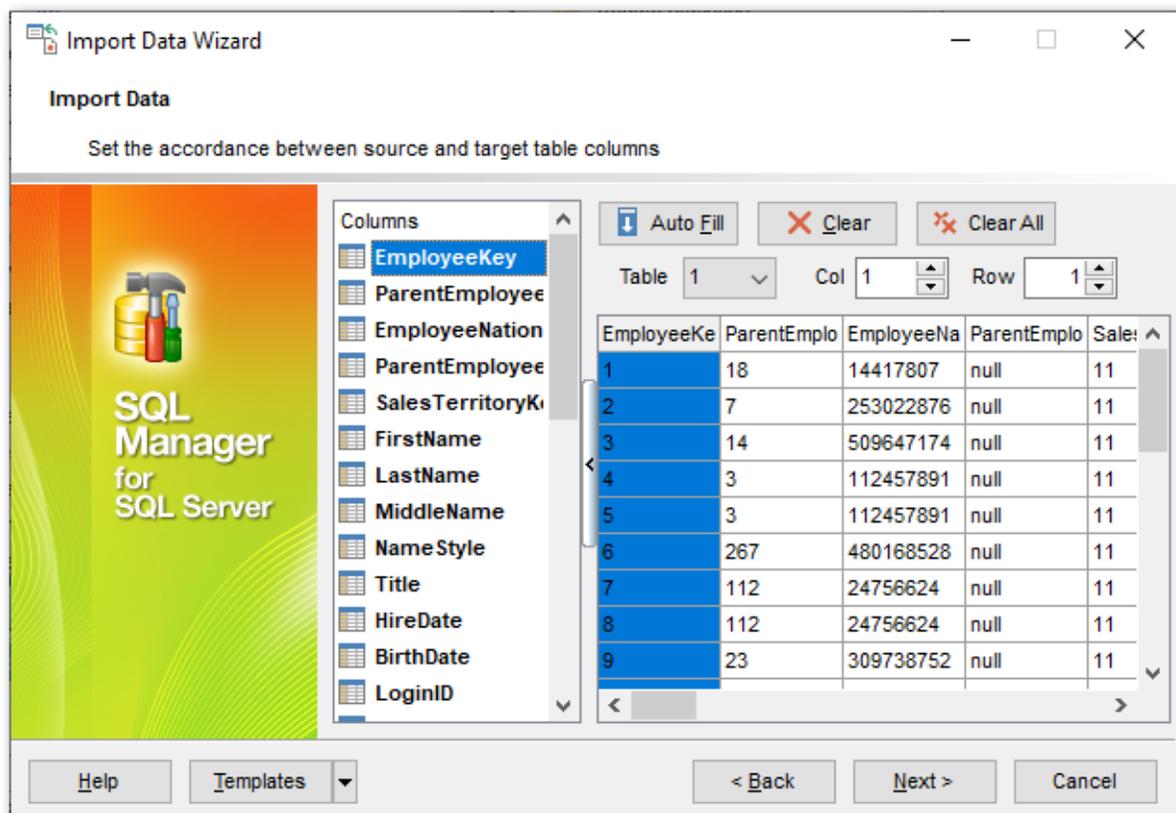
- select a column of the target SQL Server table in the **Columns** list;
- proceed to the source grid viewer area: select the **Table** from which you intend to import data and click a column to assign the column to the selected target table column;

- the selected column of the source file gets gray highlight;
- repeat the operation for all the columns you need to be included in the import process.

If the source HTML file and the destination SQL Server table have the same order of columns, you can use the **Auto Fill** button to set correspondence between them automatically.

The **Col** control indicates the currently selected source file column. You can also use this spinner control for quick column selection.

If necessary, you can choose to **skip** a defined number of the source file rows using the **Row** spinner control of the **Skip** group (e.g. if you need to exclude column headers from the imported data range).



To remove a correspondence, select the column in the **Columns** list and press the **Clear** button.

To remove all correspondences, press the **Clear All** button.

Click the **Next** button to proceed to the [Adjusting data formats](#) step of the wizard.

8.2.3.6 XML Generic

In order to set mapping of a Generic XML document, you should enter the relative **XPath** (the path must be specified in the XPath format). Press the  **Fill Grid** button to get the grid filled with text and attribute values of the selected node.

Note: if the source XML document contains huge amount of data, building the tree may take a long time.

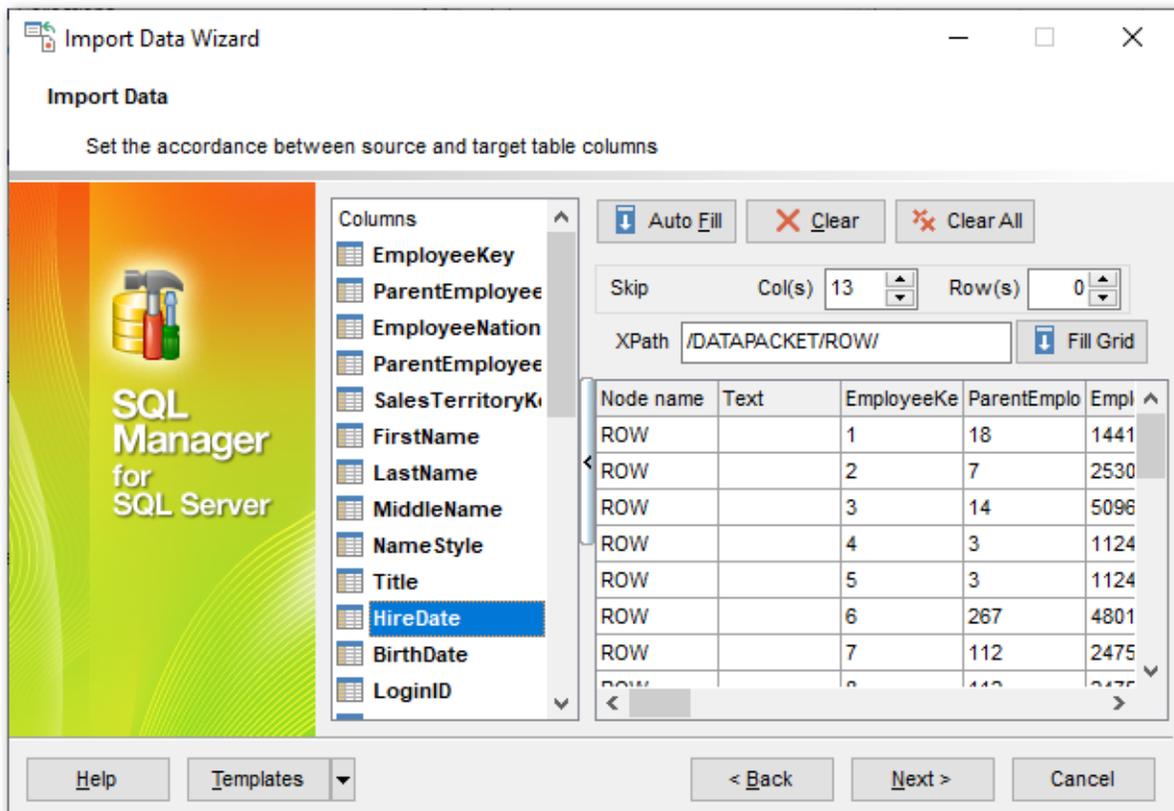
Set correspondence between the source XML file columns and the target SQL Server table columns:

- select a column of the target SQL Server table in the **Columns** list;
- proceed to the source grid viewer area: click a column to assign the column to the selected target table column;
- the selected column of the source file gets gray highlight;
- repeat the operation for all the columns you need to be included in the import process.

You can use the  **Auto Fill** button to set correspondence between the source and target columns automatically according to their order (mapping is started from the first attribute value in this case).

The **Col(s)** control indicates the currently selected source file column. You can also use this spinner control for quick column selection.

If necessary, you can choose to **skip** a defined number of the source file lines using the **Row(s)** spinner control of the **Skip** group (e.g. if you need to exclude node headers from the imported data range).



To remove a correspondence, select the column in the **Columns** list and press the **✖ Clear** button.

To remove all correspondences, press the **✖ Clear All** button.

Click the **Next** button to proceed to the [Adjusting data formats](#)^[584] step of the wizard.

8.2.3.7 MS Excel/Word, ODF

Specify ranges in the grid for the target and source columns:

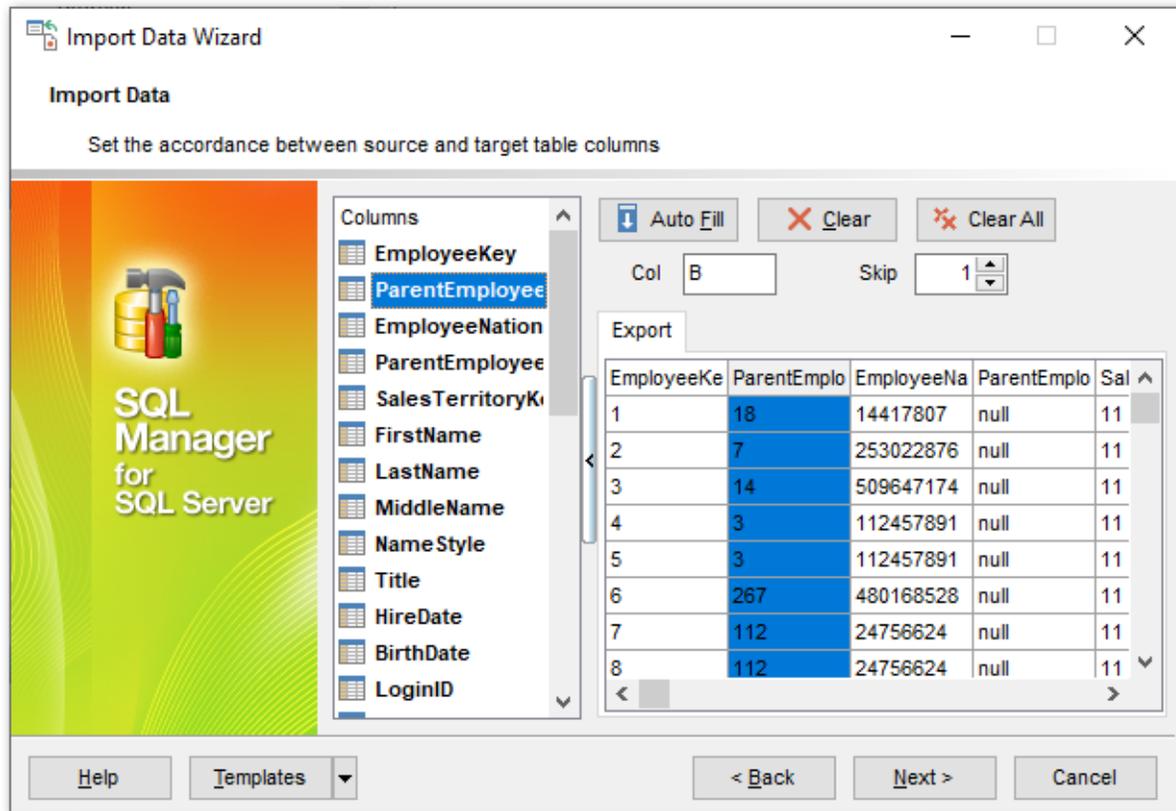
- select a column of the target SQL Server table in the **Columns** list;
- proceed to the **Sheet** grid: click a column to assign the column to the selected target table column;
- the selected column of the source file gets gray highlight;
- repeat the operation for all the columns you need to be included in the import process.

If the source file and the tiodestination SQL Server table have the same order of columns, you can use the **Auto Fill** button to set correspondence between them automatically.

The **Col** control indicates the currently selected source file column. You can also use this control for quick column selection.

If necessary, you can choose to **skip** a defined number of the source file rows using the

Skip spinner control (e.g. if you need to exclude column headers from the imported data range).



To remove a correspondence, select the column in the Columns list and press the **✖ Clear** button.

To remove all correspondences, press the **✖ Clear All** button.

Click the **Next** button to proceed to the [Adjusting data formats](#)^[584] step of the wizard.

8.2.4 Adjusting data formats

This step of the wizard provides a number of options for setting common formats for all imported data:

Date & Time formats: *Short date, Long date, Short time, Long time;*

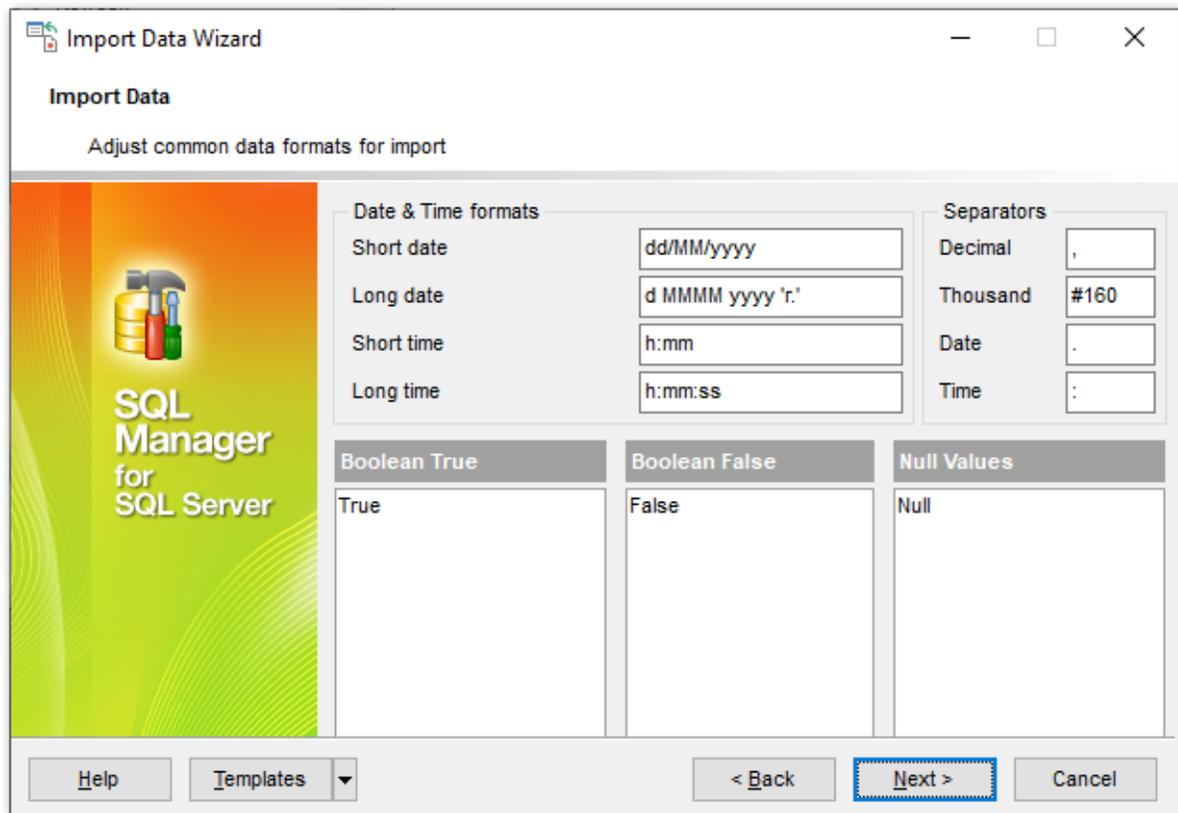
Separators: *Decimal, Thousand, Date, Time;*

Boolean True (specify the text that will be displayed for the boolean *TRUE* values);

Boolean False (specify the text that will be displayed for the boolean *FALSE* values);

NULL values (specify the text that will be displayed for the *NULL* values).

For more information refer to the [Format specifiers](#)^[930] page.

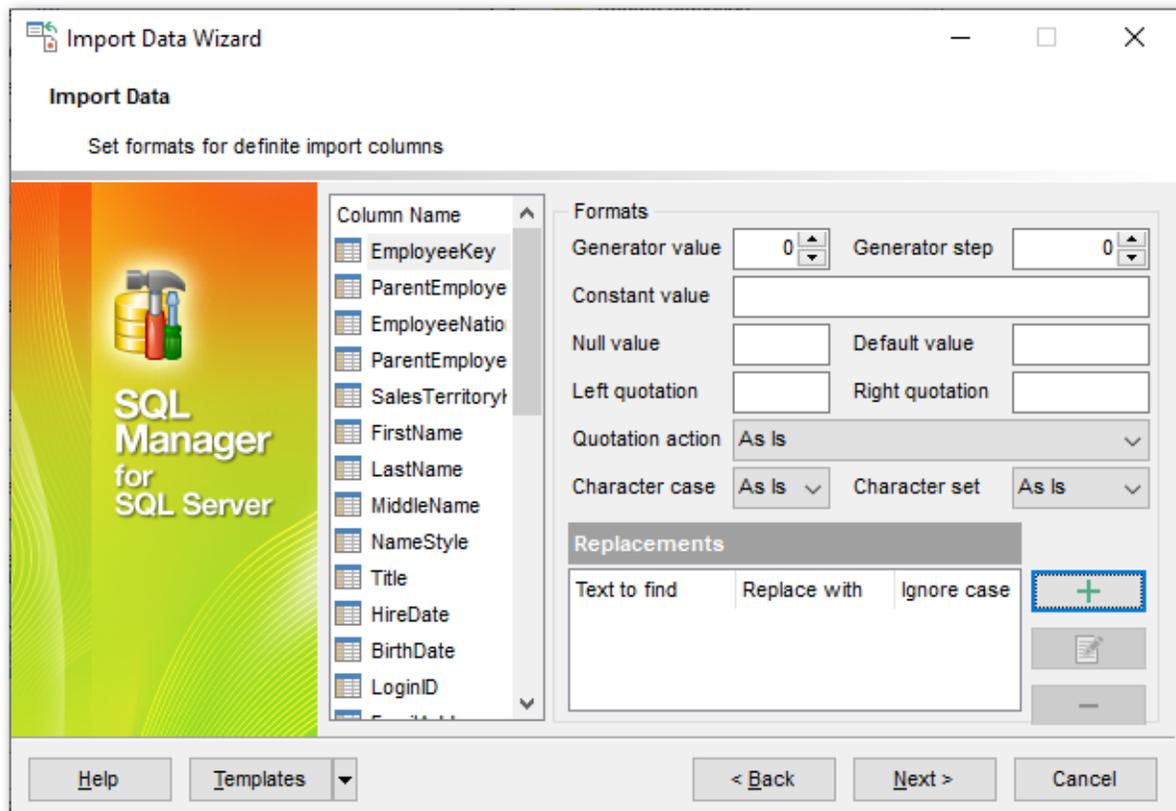


Click the **Next** button to proceed to the [Setting advanced column formats](#)⁵⁸⁵ step of the wizard.

8.2.5 Setting advanced column formats

This step of the wizard allows you to set **formats** each column separately.

Select a column in the list and adjust **format options** that will be applied to this column only.



Specify **Generator value** and **Generator step** for incremental data generation into the specified column, or enter a **Constant value** which will be set for all records in the field.

Specify the **NULL value** which will be used for the records where the value is NULL.

If necessary, specify the **default value**.

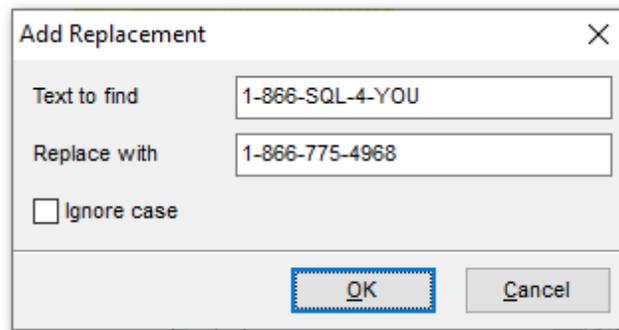
Use the **Left / Right quotation** edit boxes to specify left/right quotation marks.

Use the **Quotation action** drop-down list to select whether the quotation marks should be *added*, *removed*, or left 'As is'.

Use the **Character case** drop-down list to select the case that will be used for string values of the column: *Upper*, *Lower*, *UpperFirst*, *UpperFirstWord*, or 'As is'.

Use the **Character set** drop-down list to select which charset will be used for string data in the column: *ANSI*, *OEM*, or *As is*.

The **Replacements** area allows you to set the text you need to be replaced during data import into the selected column. Press the **Plus +** button to specify a new replacement options using the **Add Replacement** dialog.



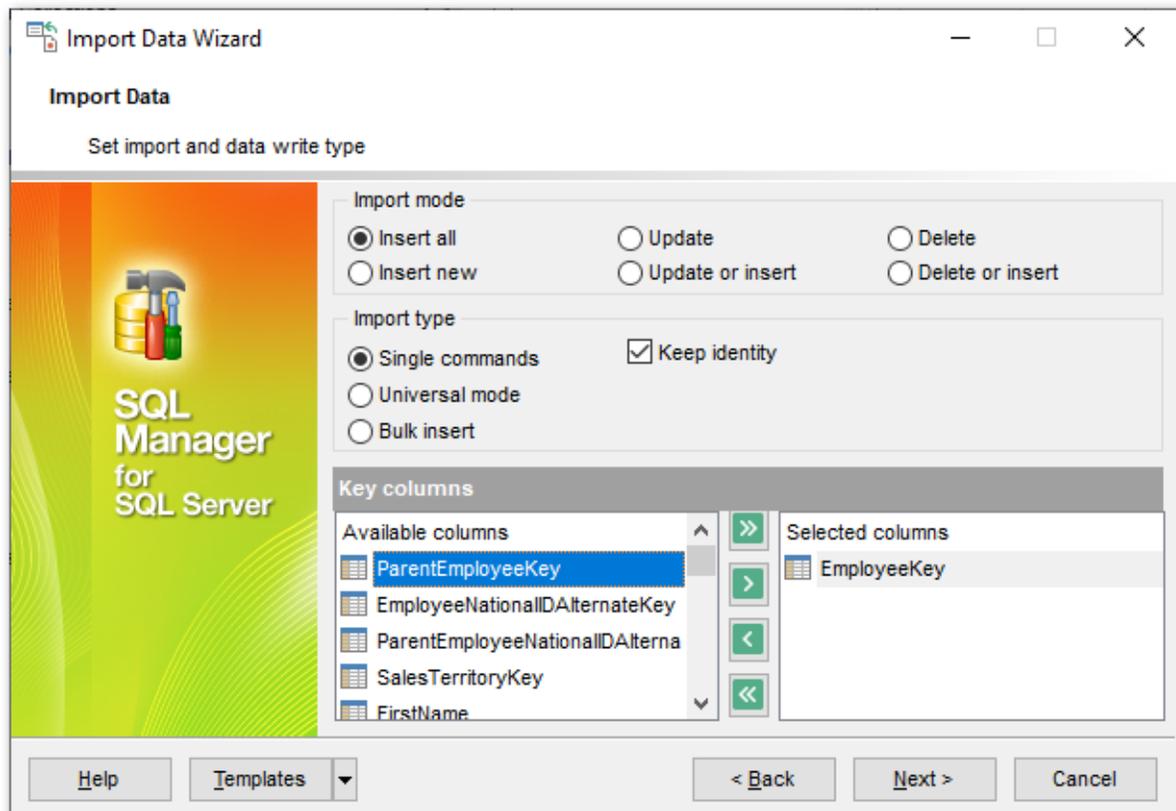
To edit a replacement, click the  **Edit** button.
To remove a replacement, click the  **Minus** button.

When you are done, click the **Next** button to proceed to the [Setting import mode](#)⁵⁸⁷ step of the wizard.

8.2.6 Setting import mode

This step of the wizard allows you to define the records processing mode as *Insert All*, *Insert New*, *Update*, *Update or Insert*, *Delete*, *Delete or Insert* mode:

- **Insert all**: all records from the source file are inserted into the tables irrespective of whether any records exist in the destination table or not
- **Insert new**: already existing records are skipped, and new records are inserted into the destination table
- **Update**: all existing records are updated from the source file
- **Update or insert**: already existing records are updated and new records are inserted into the destination table
- **Delete**: already existing records are deleted
- **Delete or insert**: existing records are deleted and new records are inserted into the destination table



Here is an **example** of some import modes offered by Import Data Wizard:

All import modes (except for the **Insert All** mode) are based on key values information. In order to perform import operations with these modes used, you need to have matches between the source file key column(s) and the destination table key column(s). For example, your source file contains three rows with the key values 1, 2, 3, and your destination table contains three rows with the key values 1, 2, 4.

Destination table

ID	DATA
1	a
2	b
4	f

Source file data

	A	B
1	1	c
2	2	d
3	3	e

If you use the **Insert new** import mode, in this case only the row with key value 3 will be inserted into the destination table.
 If you use the **Update** import mode, then the rows with key values 1, 2 will be updated.
 If you use the **Update or insert** import mode, then rows 1, 2 will be updated and the row with key value 3 will be inserted.
 It is applied to all other import modes, except for the **Insert all** mode. For all these modes (except for the **Insert all** mode) it is obligatory to select the primary key columns. This column (or columns) is used as key column to identify specific data in the target database.

Insert new	Update	Update or insert	Delete	Delete or insert																																						
<table border="1"> <thead> <tr> <th>ID</th> <th>DATA</th> </tr> </thead> <tbody> <tr><td>1</td><td>a</td></tr> <tr><td>2</td><td>b</td></tr> <tr><td>3</td><td>e</td></tr> <tr><td>4</td><td>f</td></tr> </tbody> </table>	ID	DATA	1	a	2	b	3	e	4	f	<table border="1"> <thead> <tr> <th>ID</th> <th>DATA</th> </tr> </thead> <tbody> <tr><td>1</td><td>c</td></tr> <tr><td>2</td><td>d</td></tr> <tr><td>4</td><td>f</td></tr> </tbody> </table>	ID	DATA	1	c	2	d	4	f	<table border="1"> <thead> <tr> <th>ID</th> <th>DATA</th> </tr> </thead> <tbody> <tr><td>1</td><td>c</td></tr> <tr><td>2</td><td>d</td></tr> <tr><td>3</td><td>e</td></tr> <tr><td>4</td><td>f</td></tr> </tbody> </table>	ID	DATA	1	c	2	d	3	e	4	f	<table border="1"> <thead> <tr> <th>ID</th> <th>DATA</th> </tr> </thead> <tbody> <tr><td>4</td><td>f</td></tr> </tbody> </table>	ID	DATA	4	f	<table border="1"> <thead> <tr> <th>ID</th> <th>DATA</th> </tr> </thead> <tbody> <tr><td>3</td><td>e</td></tr> <tr><td>4</td><td>f</td></tr> </tbody> </table>	ID	DATA	3	e	4	f
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The key columns for these operations are defined in the **Key columns** area.

Single commands / Universal mode / Bulk insert type

The *Single commands* import mode is performed with the Single Commands method used and serves to generate and execute single SQL commands on the server, whereas the *Bulk insert* mode uses native commands for a particular server: *BULK INSERT* for Microsoft® SQL Server™. With the help of the *Single commands* import mode your data can be imported considerably faster as compared to the *Universal* mode which is used for backward compatibility.

Keep identity

This option specifies that the values for an identity column are present in the file being imported.

Use **Import mode** to select whether to insert all records, or to update/delete existing ones. Note that for updating/deleting existing records in the target table you should move its key columns from the **Available columns** list to the **Selected columns** list.

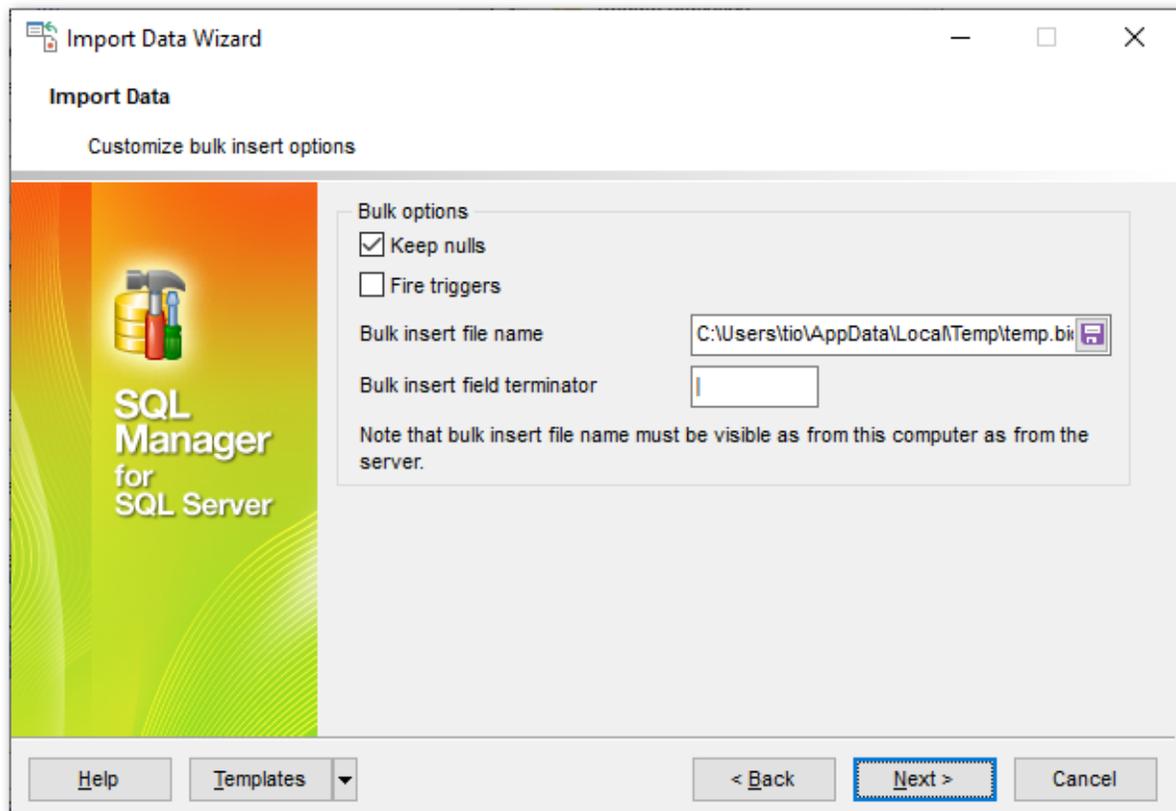
The **Key columns** area allows you to select the columns of the table to be used as the key columns for the import process.

To select a column, you need to move it from the **Available columns** list to the **Selected columns** list. Use the     buttons or drag-and-drop operations to move the columns from one list to another.

Click the **Next** button to proceed to the [Customizing common options](#)^[590] step or to the [Customizing bulk insert options](#)^[589] step of the wizard if you have selected **Bulk insert** as the import type.

8.2.7 Customizing bulk insert options

Use this step of the wizard to set bulk insert options. The detailed description of these options is given below.



Keep nulls

This option specifies that NULL columns should retain a null value during the bulk copy operation, rather than have any default values for the columns being inserted.

Fire triggers

This option specifies that any insert triggers defined on the destination table will execute during the bulk copy operation.

Bulk insert file name

Type in or use the  button to specify the name and path to the bulk insert file name using the **Save As...** dialog. If *data_file* is a remotely stored file, specify the Universal Naming Convention (UNC) name.

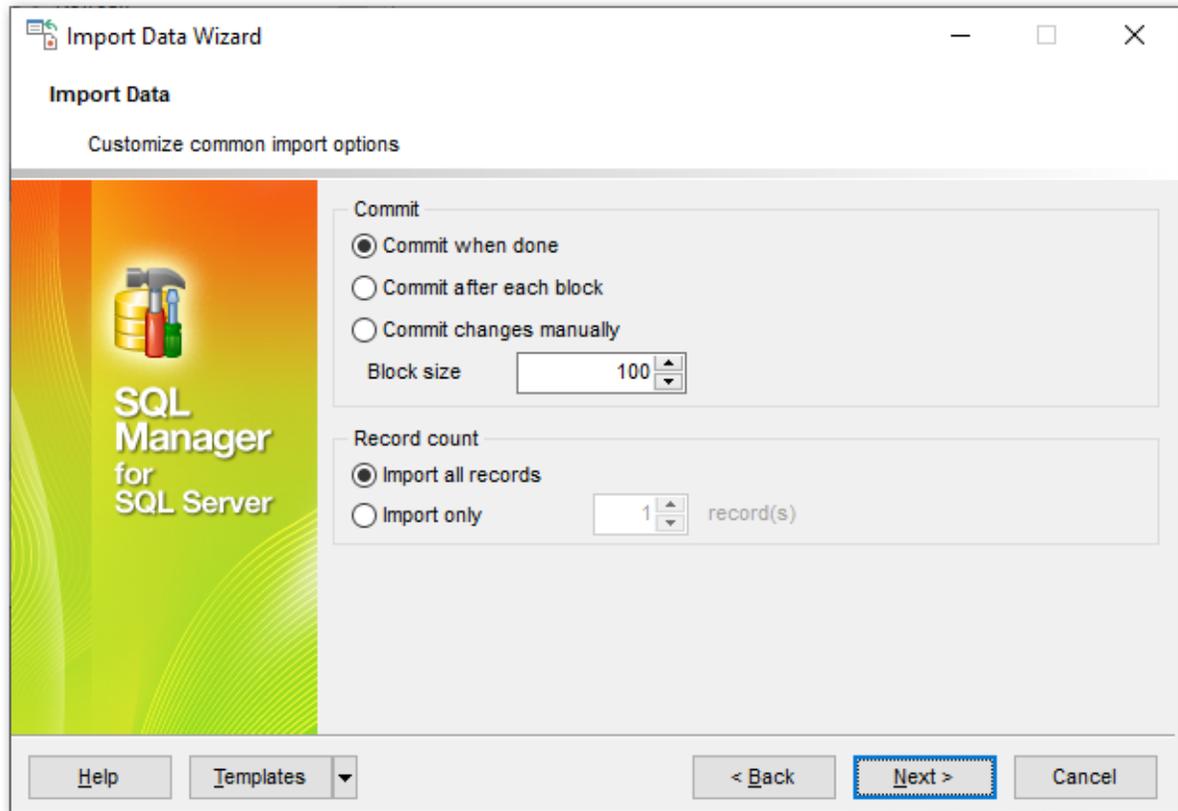
Bulk insert field terminator

Specify the field terminator to be used for *char* and *varchar* data types.

When you are done, click the **Next** button to proceed to the [Customizing common options](#) step of the wizard.

8.2.8 Customizing common options

Use this step of the wizard to set common import options. The detailed description of these options is given below.



Commit

Commit when done

Commits the transaction when all records are imported.

Commit after each block

Inserts the *COMMIT* statement after a defined number of records.

Commit changes manually

Select this option if you intend to commit the transaction manually.

Block size

Use the spinner control to define the number of records in each committed block.

Record count

Import all records

Specifies that all records of the source file will be imported.

Import only ... record(s)

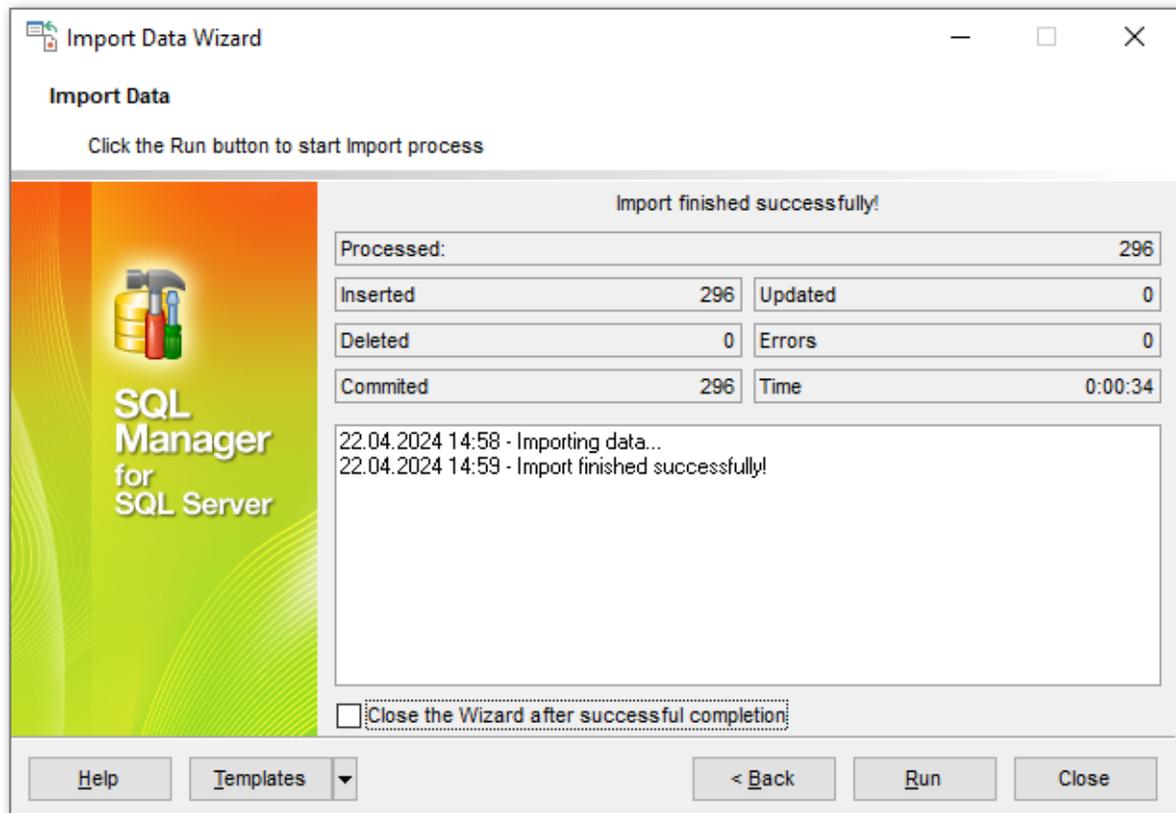
Specifies the number of records to be imported.

When you are done, click the **Next** button to proceed to the [last step](#) of the wizard.

8.2.9 Importing data

This step of the wizard is intended to inform you that all import options have been set, and you can start the import process.

The log area allows you to view the log of operations and errors (if any).



Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the import process is completed.

If necessary, you can save a [template](#)⁹³⁴ for future use.

Click the **Finish** button to run the import process.

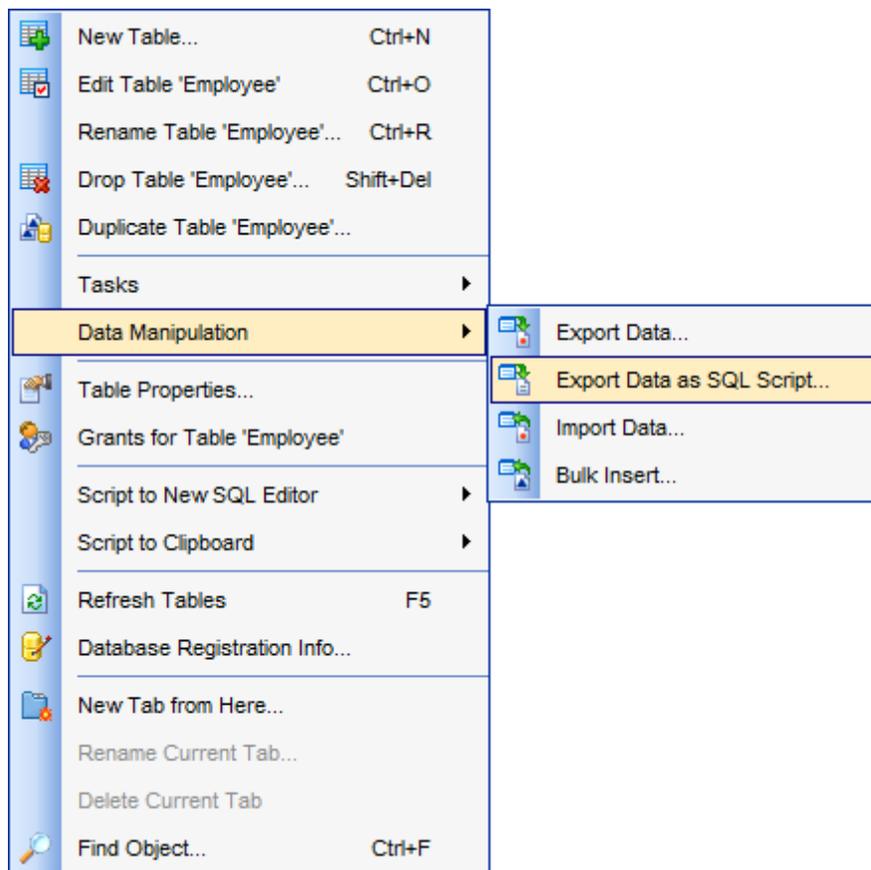
After the operation is completed, you can view the total number of *processed* records, the number of *inserted/updated/deleted* records, the number of *committed* records, the number of *errors*, elapsed *time*, and the *log* of operations and errors (if any).

8.3 Export as SQL Script

Export as SQL Script Wizard allows you to export data from a [table](#)^[192] / [view](#)^[246] or from a query result to SQL script as a number of INSERT statements. You can save your settings as a [template](#)^[934] any time for future use.

To start the wizard, right-click the object in [DB Explorer](#)^[63], select the **Data Manipulation** [context menu](#)^[56] group and proceed to the  **Export Data as SQL Script...** item within this group.

Alternatively, you can open the **Data** tab of [Table Editor](#)^[200] / [View Editor](#)^[246] or the **Result (s)** tab of [Query Data](#)^[426] / [Design Query](#)^[442], right-click the [grid](#)^[465] there, then select the **Data Manipulation** [context menu](#)^[469] group and proceed to the  **Export <object_name> as SQL Script...** item within this group, or use the  **Export as SQL Script** item of the [Navigation bar](#)^[915].



- [Selecting destination DBMS](#)^[594]
- [Setting destination file name](#)^[595]
- [Setting BLOB options](#)^[596]
- [Selecting column to export](#)^[597]
- [Editing the result table definition](#)^[598]
- [Setting export options](#)^[599]
- [Exporting as SQL Script](#)^[600]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Export Data Wizard](#)^[53]

[Import Data Wizard](#)^[57]

[Bulk Insert Wizard](#)^[60]

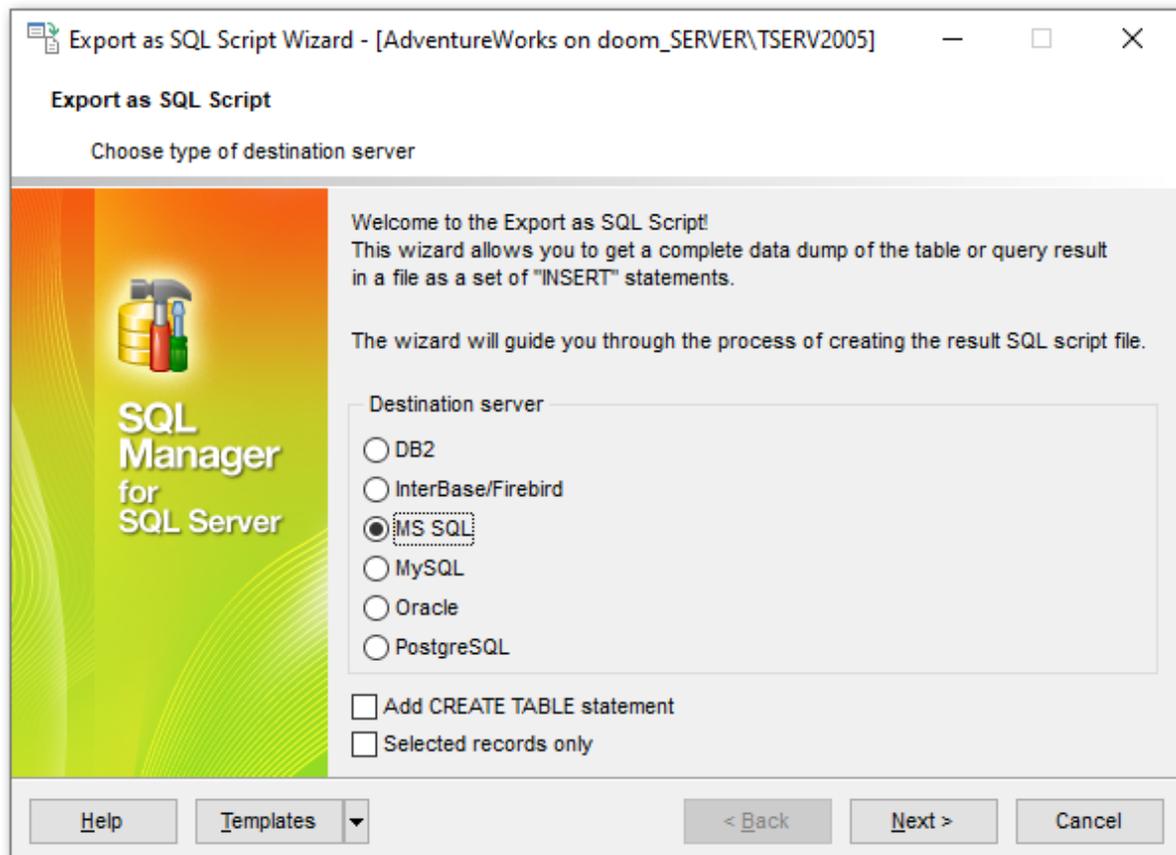
[Using templates](#)^[93]

8.3.1 **Selecting destination DBMS**

TM

This step of the wizard allows you to define the **destination server** you need to export data for. The result script will be generated in compliance with the specifications of the selected DBMS:

- DB2*
- InterBase/Firebird*
- Microsoft® SQL Server*
- MySQL*
- Oracle*
- PostgreSQL*



Add CREATE TABLE statement

Check this option to add the *CREATE TABLE* statement to the result script.

Click the **Next** button to proceed to the [Setting destination file name](#)⁶⁹⁵ step of the wizard.

8.3.2 Setting destination file name

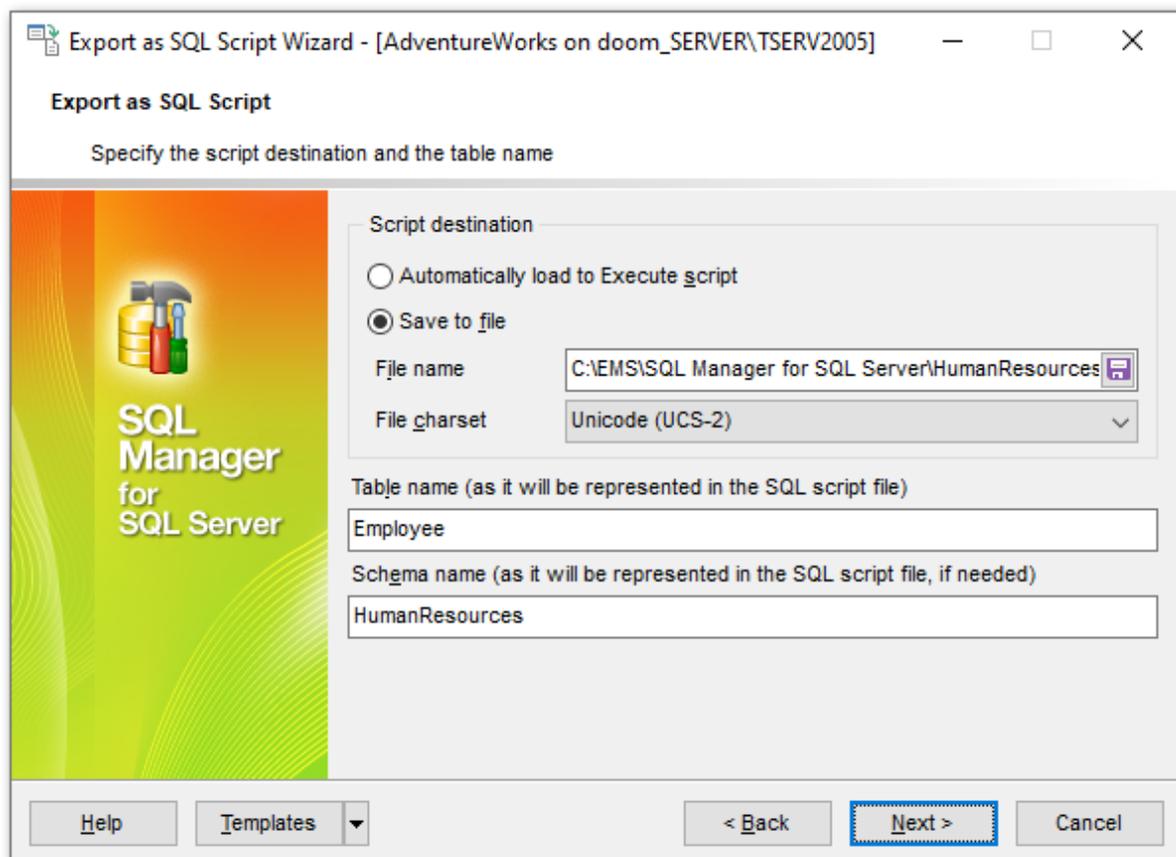
Specify whether the result script will be loaded to [Execute Script](#)⁶¹⁹ or saved to a file.

File name

Type in or use the  button to specify the path to the file and the file name.

If necessary, select the **File charset** using the corresponding drop-down list.

Enter the **Table name** and the **Schema name** to be included in the result SQL script. Schema name should only be specified for the DBMS in which this object is implemented.



Click the **Next** button to proceed to the [Setting BLOB options](#)^[596] step of the wizard.

8.3.3 Setting BLOB options

BLOB options

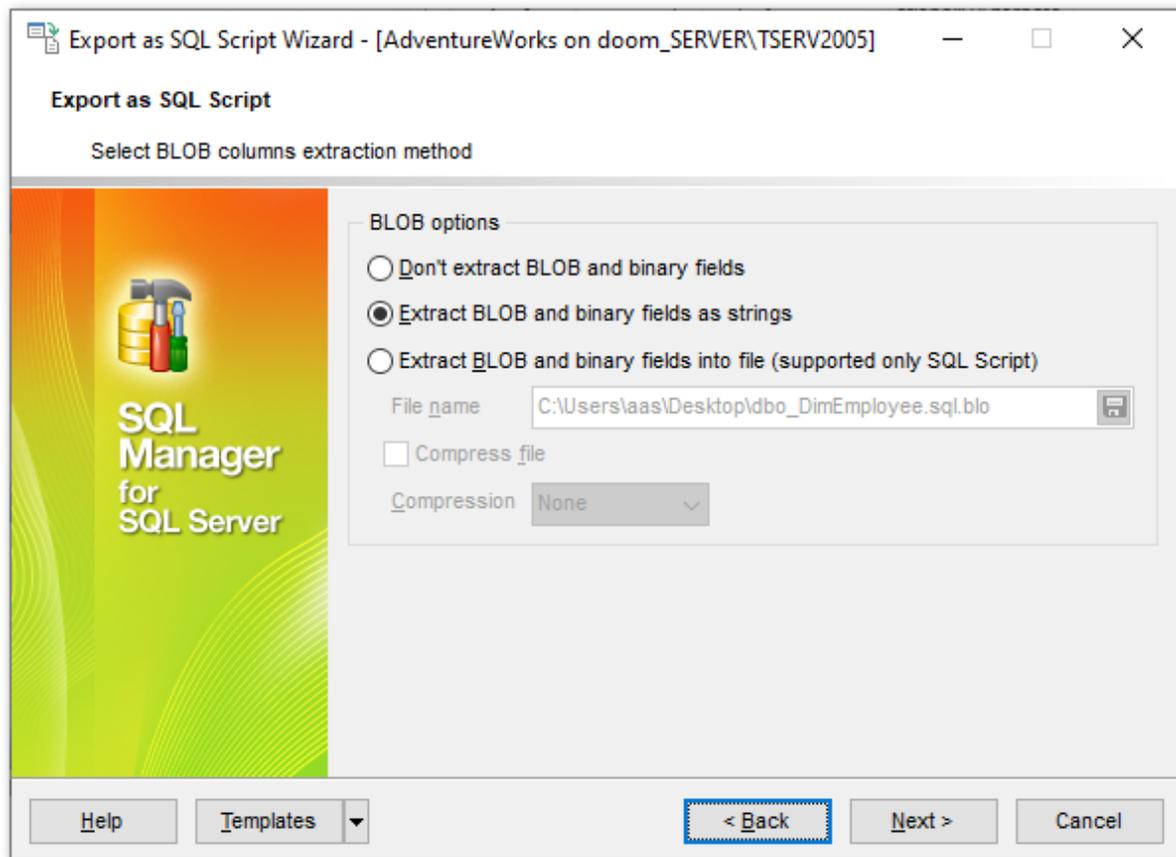
In this group of options you can determine whether BLOB and binary fields are *not to be extracted*, *extracted as strings*, or *extracted into a separate file* (available for DB2, InterBase/Firebird, MS SQL, Oracle [destination servers](#)^[594]). If the latter is selected, you also need to specify the **File name** (the *.blo file where the BLOB data will be stored) and the location of the file on your local machine using the  button.

Compress file

Check this option if you wish to compress the file containing BLOB data.

Compression

Define the desired compression level to be applied for the file: *None*, *Fastest*, *Default*, *Best*.

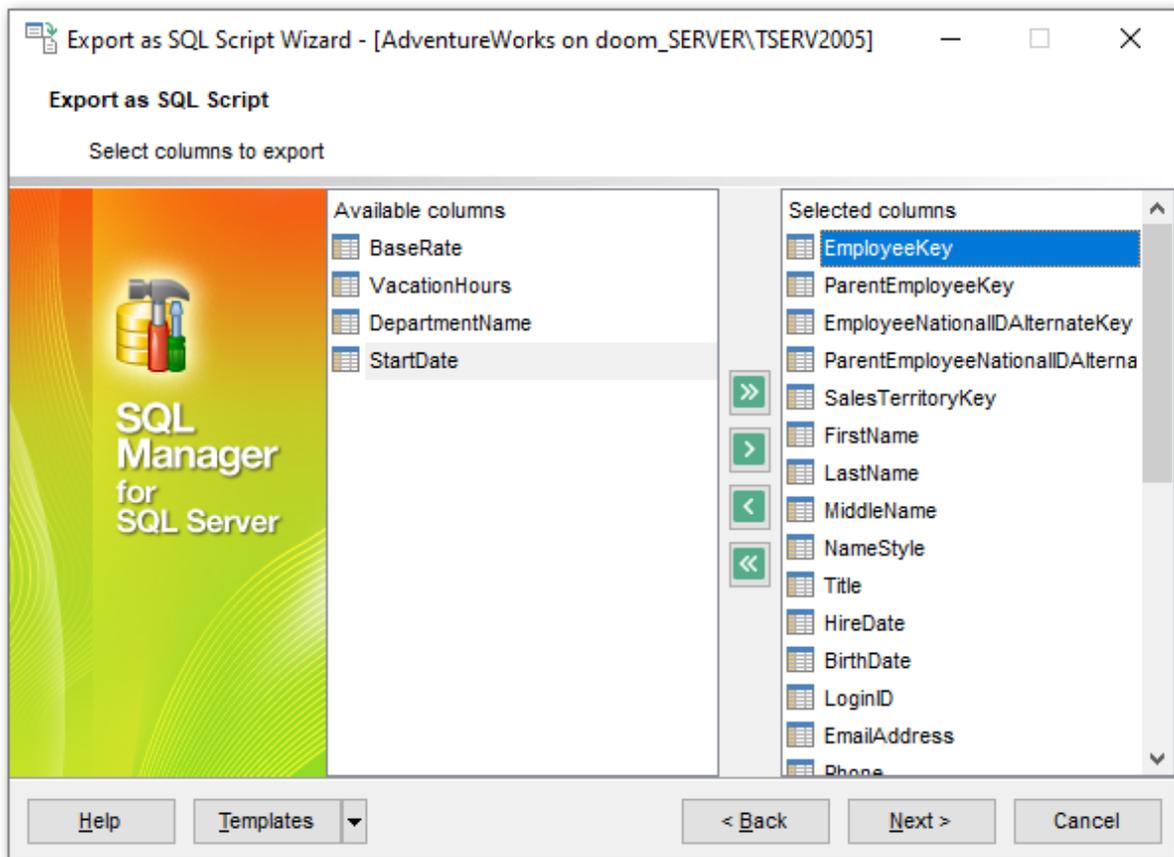


Click the **Next** button to proceed to the [Selecting columns to export](#)⁵⁹⁷ step of the wizard.

8.3.4 Selecting columns to export

This step of the wizard allows you to select the table column(s) to be exported to SQL script.

To select a column, you need to move it from the **Available columns** list to the **Selected columns** list. Use the  buttons or drag-and-drop operations to move the columns from one list to another.

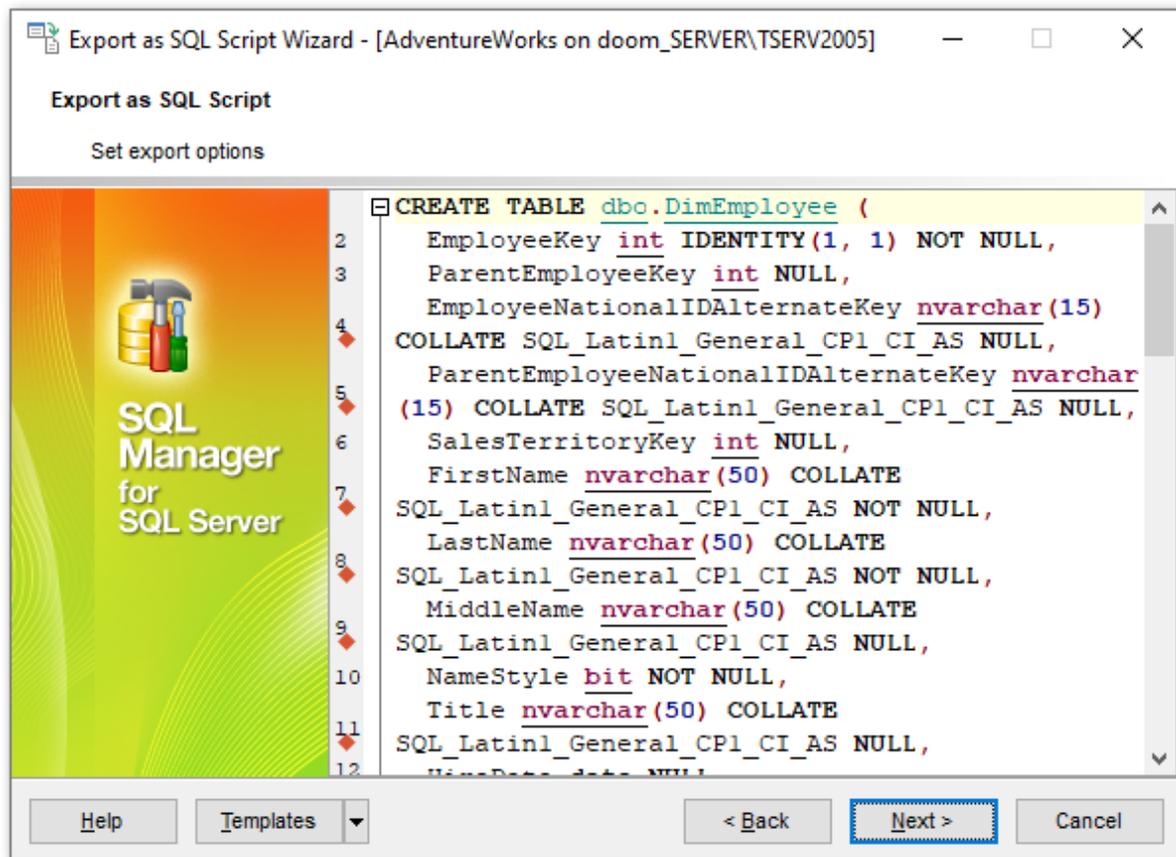


Click the **Next** button to proceed to the [Editing table definition](#)^[598] step of the wizard.

8.3.5 Editing table definition

This step is available only if the **Add CREATE TABLE statement** option was checked on the [Selecting destination DBMS](#)^[594] step of the wizard. It allows you to view/edit the SQL script for creating the table.

For your convenience the **syntax highlight**, **code folding** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#)^[429] and [Using the context menu](#)^[430].



Click the **Next** button to proceed to the [Setting export options](#)^[599] step of the wizard.

8.3.6 Setting export options

Specify common export options according to your needs.

If necessary, you can choose to **Replace non-print characters in strings with spaces.**

Quote identifiers - setting brackets in the statements.

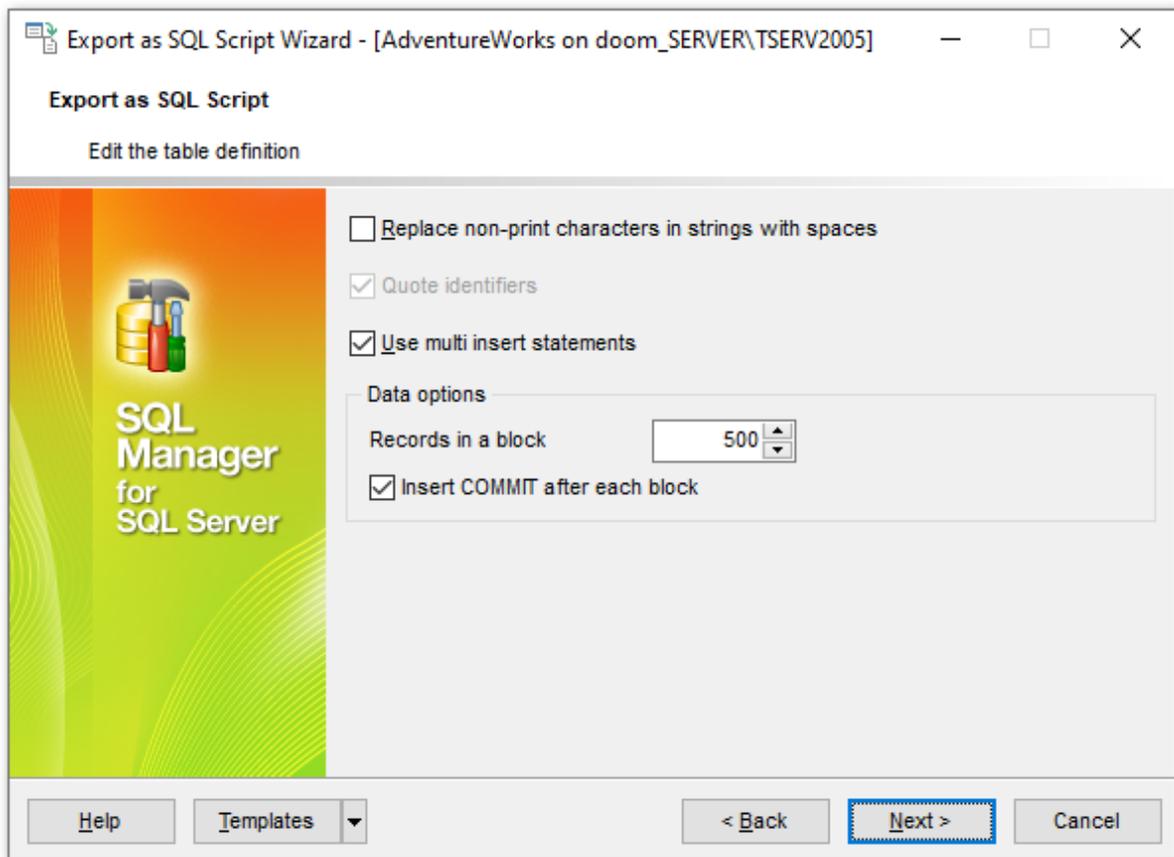
Use multi insert statements - script with multiple inserts.

Records in block

Use the spinner control to define the number of records in each committed block.

Insert COMMIT after each block

Check this option to add the *COMMIT* statement after a defined number of records.

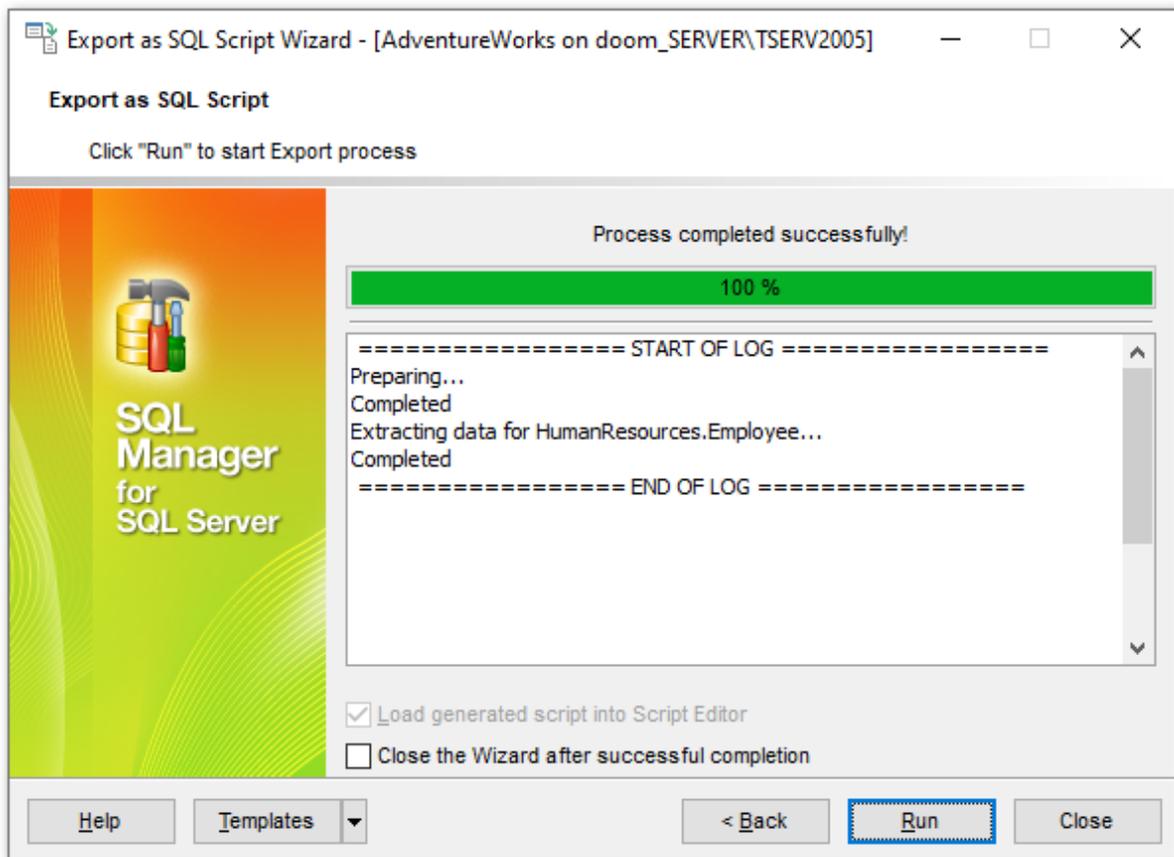


Click the **Next** button to proceed to [Exporting as SQL Script](#)⁶⁰⁰.

8.3.7 Exporting as SQL Script

This step of the wizard is intended to inform you that all export options have been set, and you can start the export as SQL script process.

The log area allows you to view the log of operations and errors (if any).



Load generated script into Script Editor

Check this option to load the result script to [Execute Script](#)⁶¹⁹.

Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the export process is completed.

If necessary, you can save a [template](#)⁹³⁴ for future use.

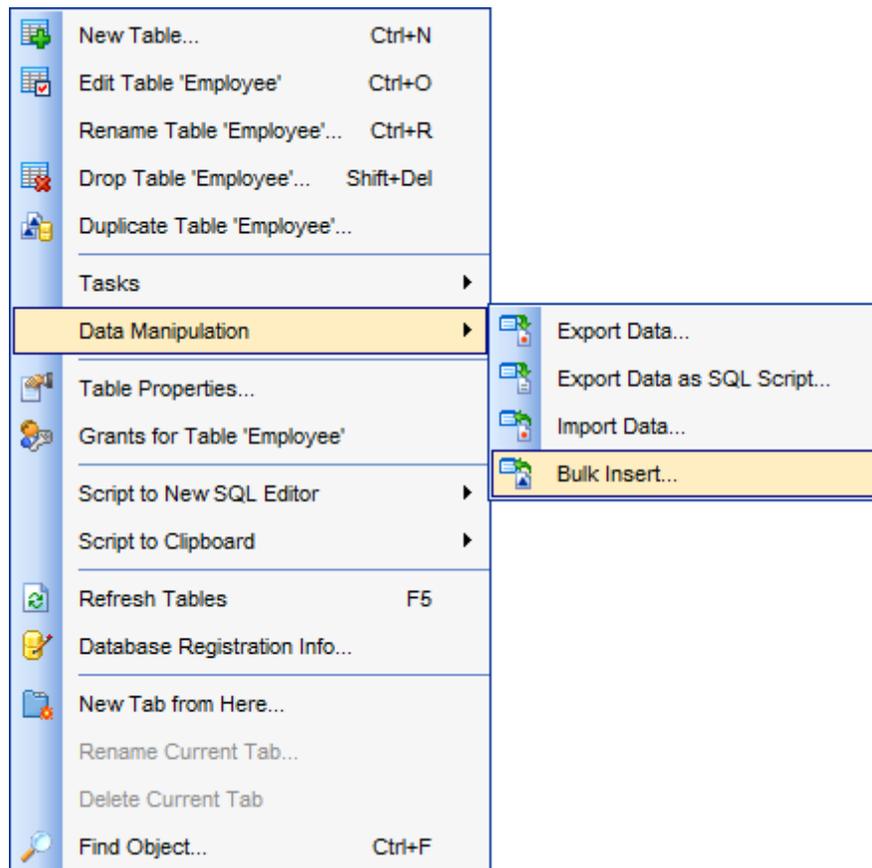
Click the **Finish** button to run the export as SQL script process.

8.4 Bulk Insert Wizard

Bulk Insert Wizard allows you to use the Transact-SQL *BULK INSERT* statement to load a data file into a database [table](#)^[192] / [view](#)^[246] in a user-specified format. This statement copies data from a file to a table, appending the records to already existing data in the table. The file must be accessible to the server and the filename must be specified from the point of view of the server. You can save your settings as a [template](#)^[934] any time for future use.

To start the wizard, right-click the table/view in [DB Explorer](#)^[63], select the **Data Manipulation context menu**^[56] group and proceed to the  **Bulk Insert...** item within this group.

Alternatively, you can open the **Data** tab of [Table Editor](#)^[200] / [View Editor](#)^[246], right-click the [grid](#)^[465] there, then select the **Data Manipulation context menu**^[469] group and proceed to the  **Bulk Insert to <object_name>...** item within this group, or use the  **Bulk Insert** item of the Navigation bar.



- [Selecting a table or view and the data file](#)^[603]
- [Setting bulk insert options](#)^[604]
- [Customizing data file format](#)^[606]
- [Viewing the result SQL statement](#)^[608]
- [Running bulk insert](#)^[608]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Export Data Wizard](#)^[53]

[Import Data Wizard](#)^[57]

[Export as SQL Script](#)^[59]

[Using templates](#)^[93]

8.4.1 Selecting a table or view and the data file

This step of the wizard allows you to select the target [table](#)^[192] (or [view](#)^[246]) and specify the data file that contains data to load into the specified table or view.

Table or view

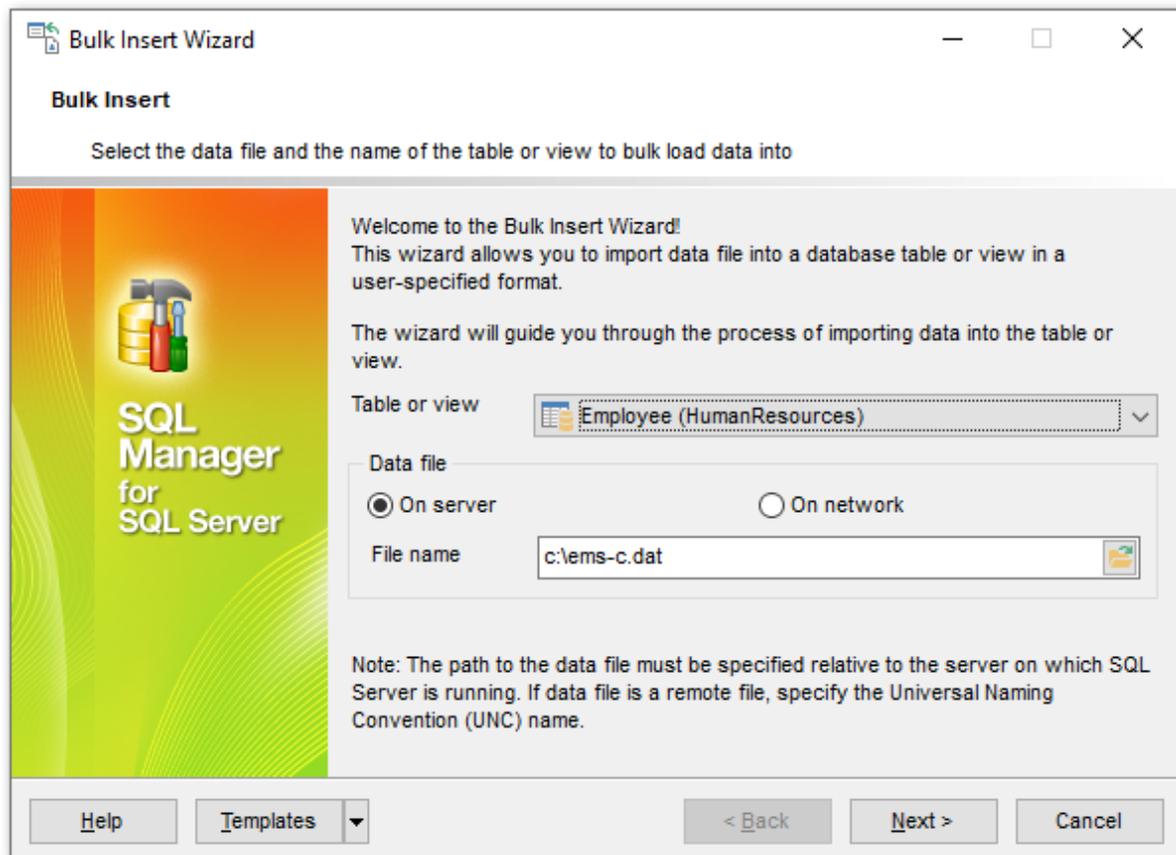
Use the drop-down list to select the target table or view.

Data file

Select whether the data file is located *on the server* or *in the network*. Note that it is obligatory to specify a valid path from the server on which SQL Server is running. If the data file is a remote file, you should specify the Universal Naming Convention (UNC) name.

File name

Type in or use the  button to specify the full path to the data file for bulk insert using the **Open file...** dialog.



Click the **Next** button to proceed to the [Setting bulk insert options](#)⁶⁰⁴ step of the wizard.

8.4.2 Setting bulk insert options

Data file type

Use this drop-down list to select the data file type value to be used to perform the load operation. Possible data file type values are: *char*, *native*, *widechar* and *widenative*.

Batch size (rows)

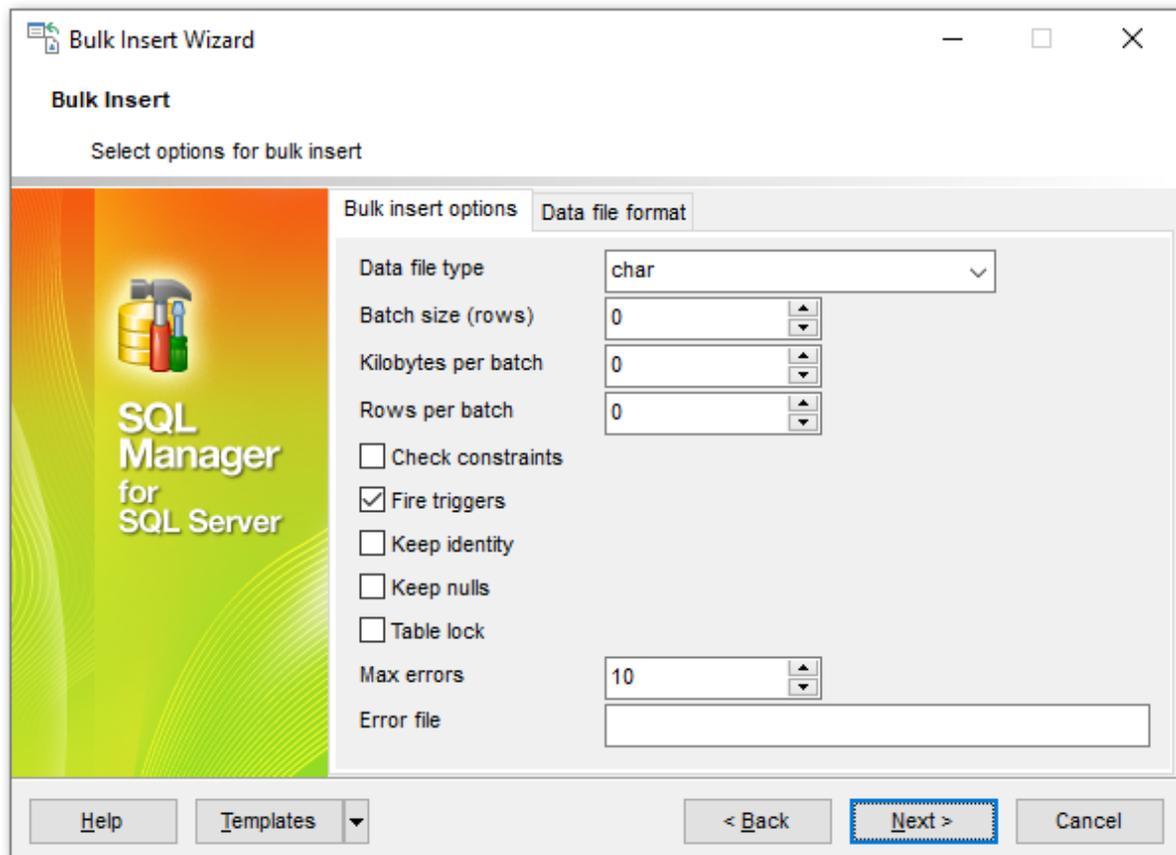
Specify the number of rows in a batch. Each batch is copied to the server as one transaction. If this operation fails, SQL Server commits or rolls back the transaction for every batch.

Kilobytes per batch

Specify the approximate number of kilobytes (KB) of data in each batch.

Rows per batch

This value indicates the number of rows in each batch.



Check constraints

Enable this option to specify that all constraints on the target table or view must be checked during the bulk insert operation. If disabled, any CHECK constraints are ignored, and after the operation the constraint on the table is marked as not-trusted. This might be necessary if the input data contains rows that violate constraints.

Note: *UNIQUE*, *PRIMARY KEY*, *FOREIGN KEY* and *NOT NULL* constraints are always enforced.

Fire triggers

Use this option to specify that any insert triggers defined on the destination table execute during the bulk load operation. If triggers are defined for *INSERT* operations on the target table, they are fired for every completed batch.

Keep identity

Use this option to specify that identity value or values in the imported data file are to be used for the identity column. If this option is not checked, the identity values for this column are verified but not imported, and SQL Server automatically assigns unique values based on the seed and increment values specified during table creation.

Keep nulls

Use this option to specify that empty columns should retain a null value during the bulk load operation, instead of having any default values for the columns inserted.

☑ Table lock

Use this option to specify that a table-level lock is acquired for the duration of the bulk load operation. Holding a lock for the duration of the bulk load operation reduces lock contention on the table and may significantly improve performance.

Max errors

Specifies the maximum number of syntax errors allowed in the data before the bulk insert operation is canceled. Each row that cannot be imported by the bulk load operation is ignored and counted as one error.

Note: This option is not applied to constraint checks and to converting *money* and *bigint* data types.

Error file

Specify the file used to collect rows that have formatting errors and cannot be converted to an OLEDB rowset. These rows are copied into this error file from the data file "as is". The error file is created when the command is executed.

Click the **Next** button to proceed to the [Customizing data file format](#) ⁶⁰⁶ step of the wizard.

8.4.3 Customizing data file format

Code page

Use this drop-down list to select the code page of the data in the data file: *ACP*, *OEM* or *RAW*. This option is relevant only if the data contains *char*, *varchar* or *text* columns with character values greater than 127 or less than 32.

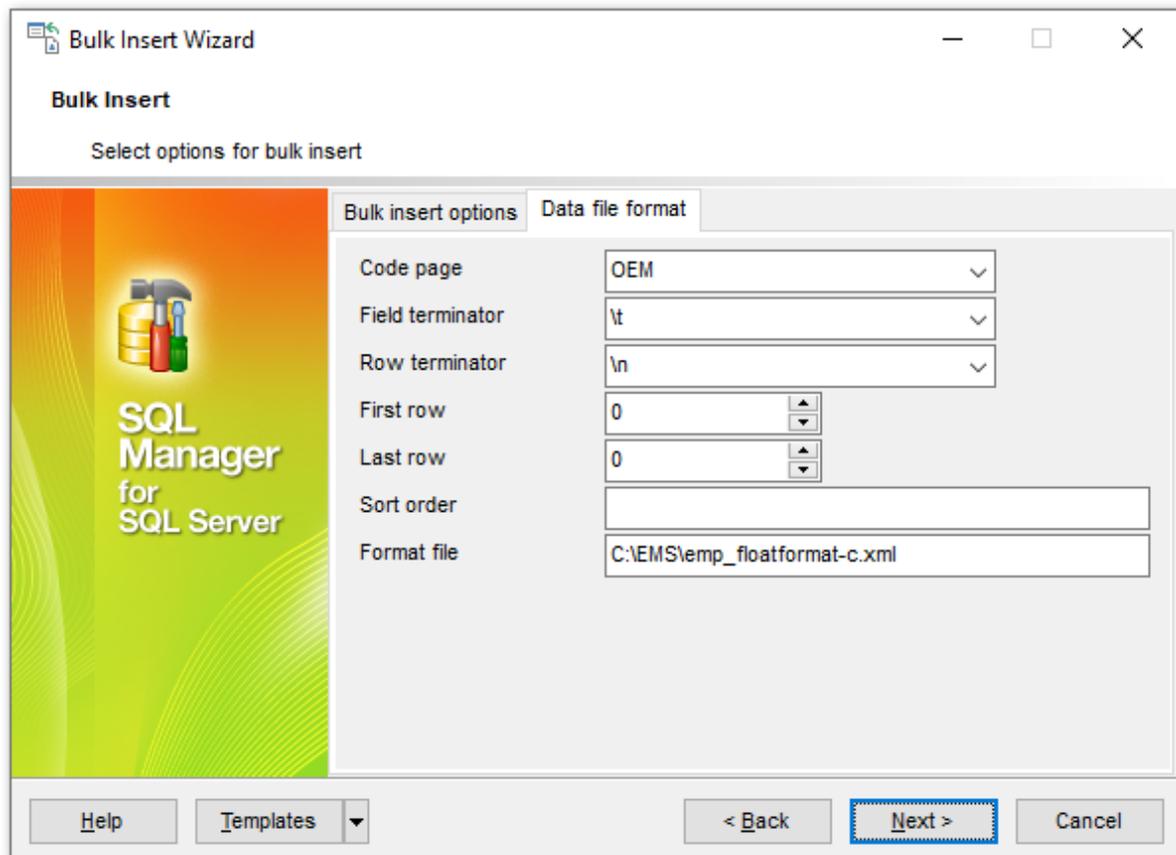
- **ACP:** columns are converted from the ANSI/Microsoft Windows code page (ISO 1252) to the SQL Server code page
- **OEM:** columns are converted from the system OEM code page to the SQL Server code page
- **RAW:** no conversion is performed

Field terminator

Use the drop-down list to specify the field terminator to be used for *char* and *widechar* data files: *tab character (\t)*, *comma (,)* or *semicolon (;)*.

Row terminator

Use the drop-down list to select the row terminator to be used for *char* and *widechar* data files: *newline character (\n)* or *return character (\r)*.

**First row**

Specify the number of the first row to load.

Last row

Specify the number of the last row to load. If this parameter is set to 0, the last row to load is the last row in the specified data file.

Sort order

`{ column_name [ASC | DESC] } [, ... n]`

This string specifies the way the data in the data file are sorted. Bulk insert operation performance is improved in case the data are sorted according to the clustered index on the table. The column names supplied must be valid columns in the destination table. By default, the bulk insert operation assumes the data file is unordered.

Format file

Specify the full path of a format file. A format file describes the data file. The format file should be used in the following cases:

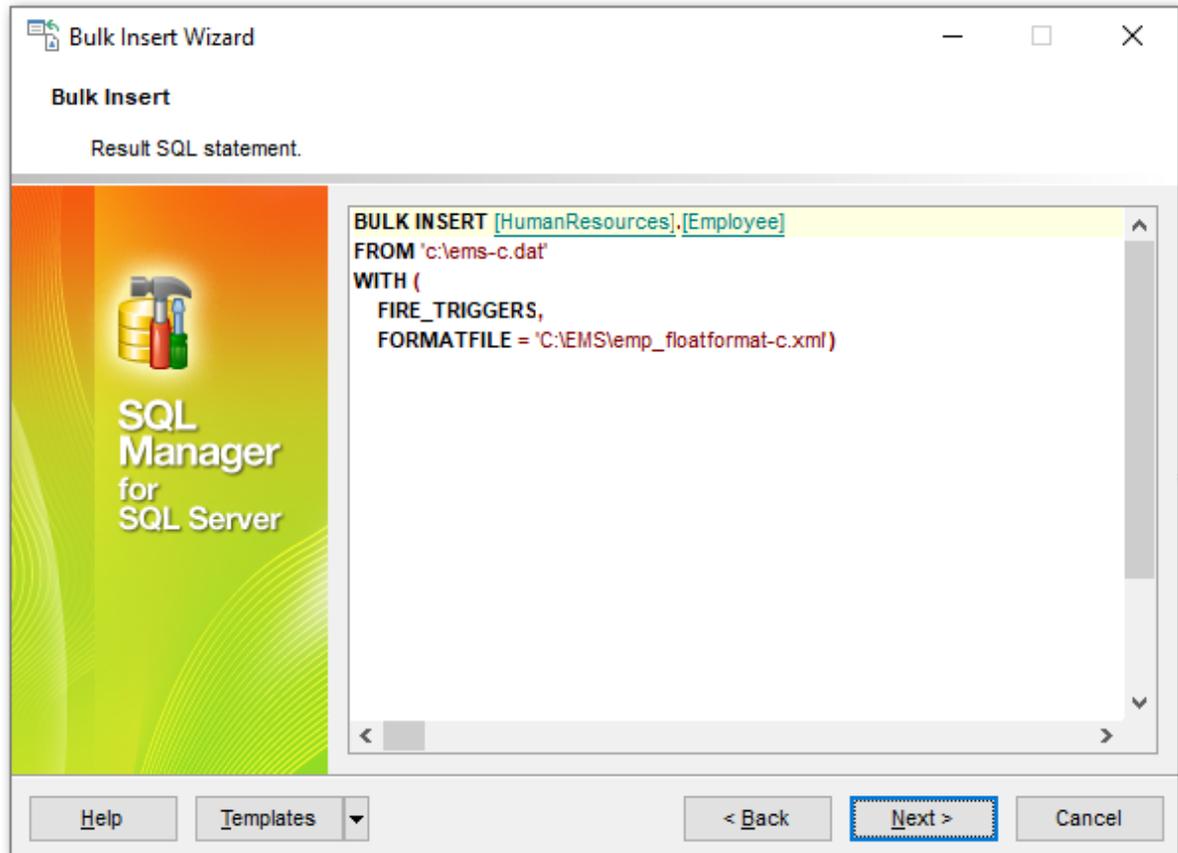
- The data file contains greater or fewer columns than the [table](#)^[192] or [view](#)^[246]
- The columns are in a different order
- The column delimiters vary
- There are other changes in the data format

Click the **Next** button to proceed to the [Viewing the result SQL statement](#)^[608] step of the wizard.

8.4.4 Viewing the result SQL statement

This step of the wizard allows you to browse **the result SQL statement**.

If necessary, you can edit the definition of the new object.

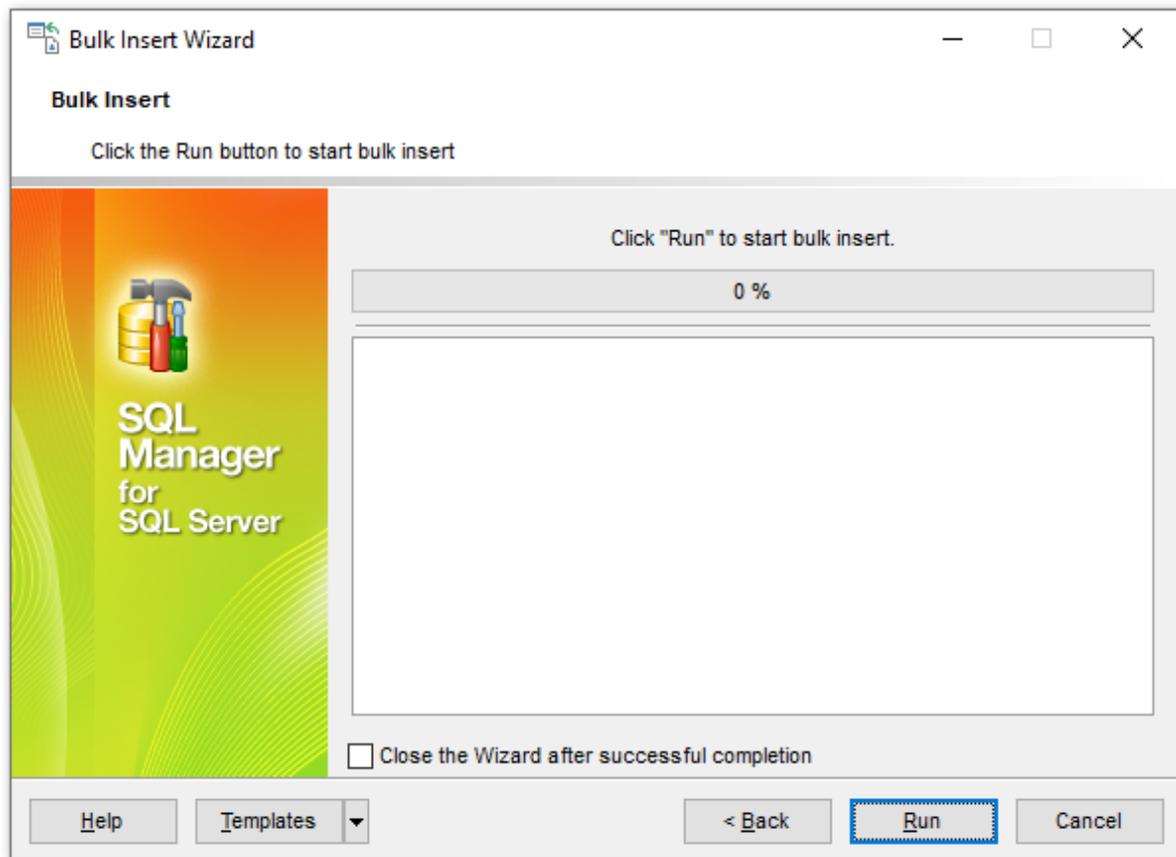


When you are done, click the **Next** button to proceed to the [last step](#)^[608] of the wizard.

8.4.5 Running bulk insert

This step of the wizard is intended to inform you that all bulk insert options have been set, and you can start the process.

The log area allows you to view the log of operations and errors (if any).



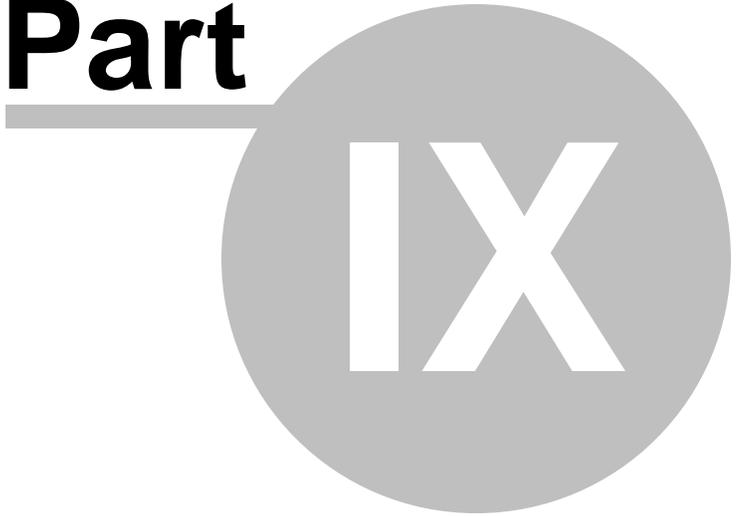
Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the bulk insert process is completed.

If necessary, you can save a [template](#)⁹³⁴ for future use.

Click the **Finish** button to run the bulk insert process.

Part



9 Tools

SQL Manager for SQL Server provides a number of powerful tools that allow you to perform various operations over your databases.

The following *common database tools* are available in SQL Manager for SQL Server:

[Dependency Tree](#)^[612]

Allows you to view all the object dependencies in one diagram.

[Visual Database Designer](#)^[695]

Allows you to lay out your database schema visually.

[Execute Script](#)^[619]

Executes SQL scripts in the database.

[Extract Database Wizard](#)^[628]

Extracts the table metadata and/or data to an SQL script which can be executed later on another machine to restore the database structure and/or data.

[Print Metadata](#)^[643]

Creates powerful metadata reports in the WYSIWYG mode ready for printing.

[HTML Report](#)^[651]

Creates powerful metadata reports in the HTML format.

[Reports management](#)^[659]

Tools for efficient management of reports: creating, editing, viewing, printing.

[SQL Monitor](#)^[616]

Displays all the SQL statements executed while working in SQL Manager for SQL Server.

[Using templates](#)^[934]

Facilitates using SQL Manager wizards.

See also:

[Getting Started](#)^[41]

[Database Explorer](#)^[63]

[Database Management](#)^[94]

[Database Objects Management](#)^[178]

[Query Management Tools](#)^[424]

[Data Management](#)^[462]

[Import/Export Tools](#)^[530]

[Server Tools](#)^[715]

[Personalization](#)^[824]

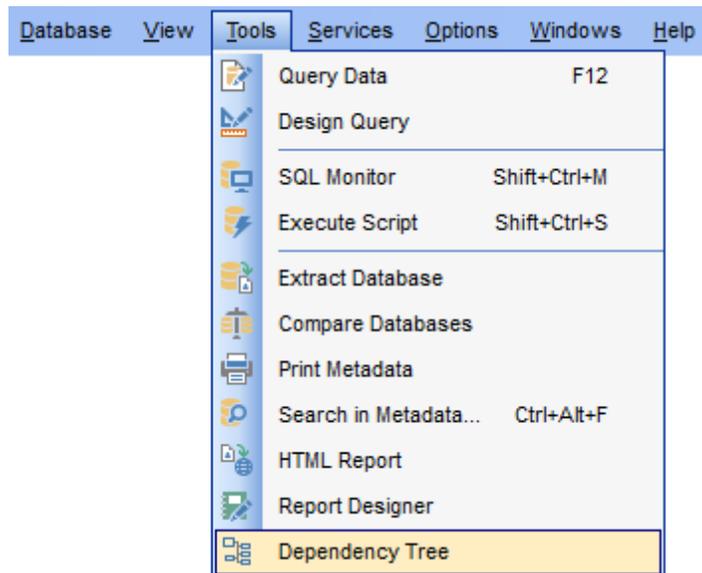
[External Tools](#)^[909]

[How To...](#)^[957]

9.1 Dependency Tree

The **Dependency Tree** tool allows you to view all the object dependencies in one diagram.

To call the **Dependency Tree** window, select the **Tools | Dependency Tree** [main menu](#)^[915] item, or use the **Dependency Tree** button on the main [toolbar](#)^[917].



- [Using Navigation bar and Toolbar](#)^[612]
- [Viewing dependency tree](#)^[614]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

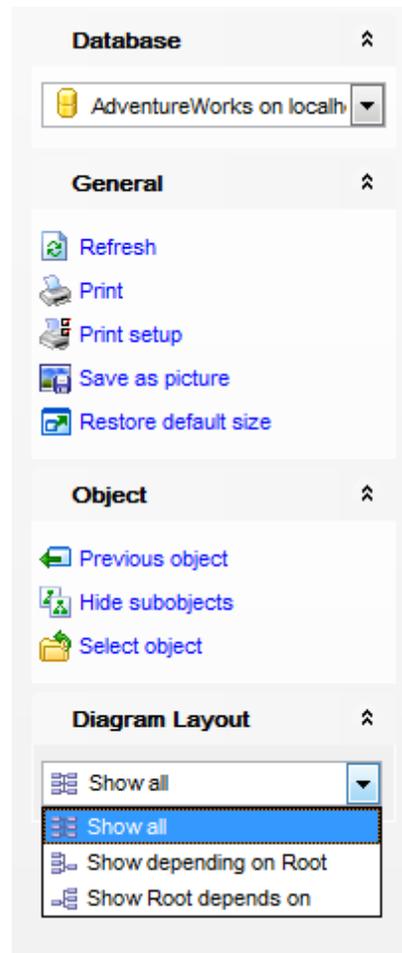
Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Database and Server Objects Management](#)^[178]

9.1.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Dependency Tree**.



The **Navigation bar** of the **Dependency Tree** window allows you to:

Database

 select a database for browsing object dependencies

General

-  refresh the currently displayed dependency tree
-  print the diagram
-  set printing options using the **Print Setup** dialog
-  save the current diagram as a picture
-  restore the default size and position of the window

Object

-  navigate by switching to the previous object
-  navigate by switching to the next object
-  show/hide subobjects
-  [select](#) ^[614] a root object

Diagram layout

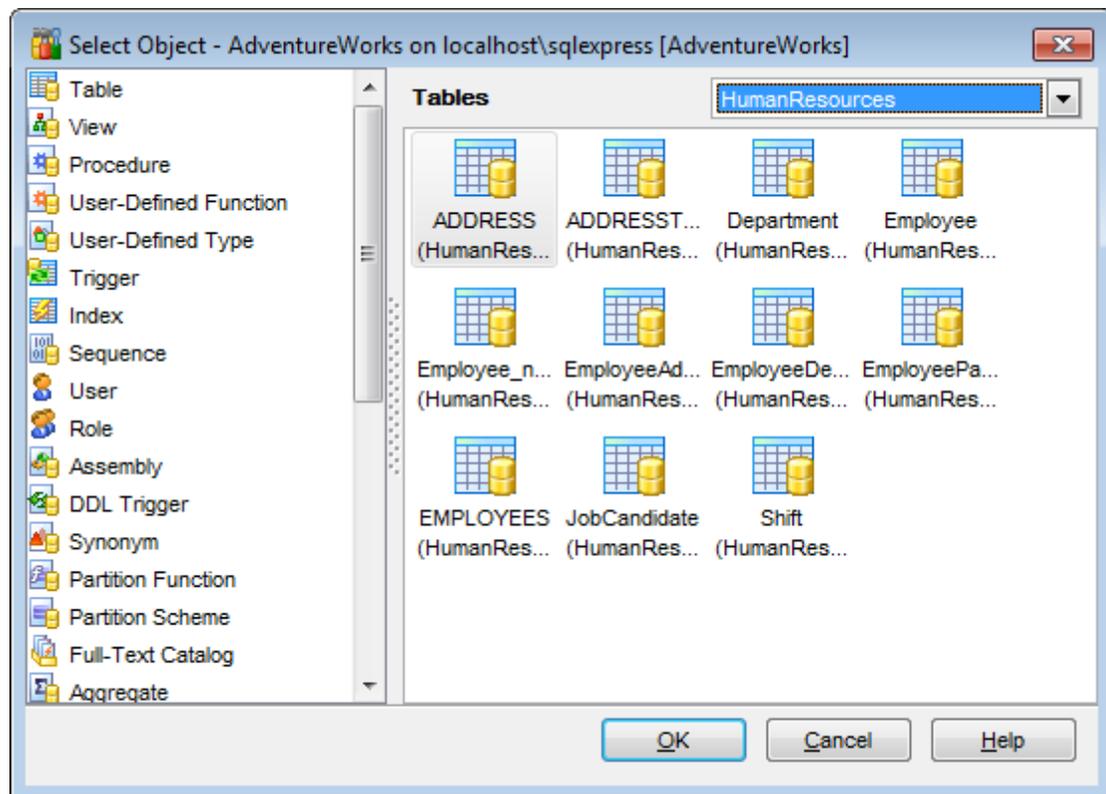
-  show all objects
-  show objects depending on Root
-  show Root depends on objects

Items of the **Navigation bar** are also available on the **ToolBar** of the **Dependency Tree** window. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

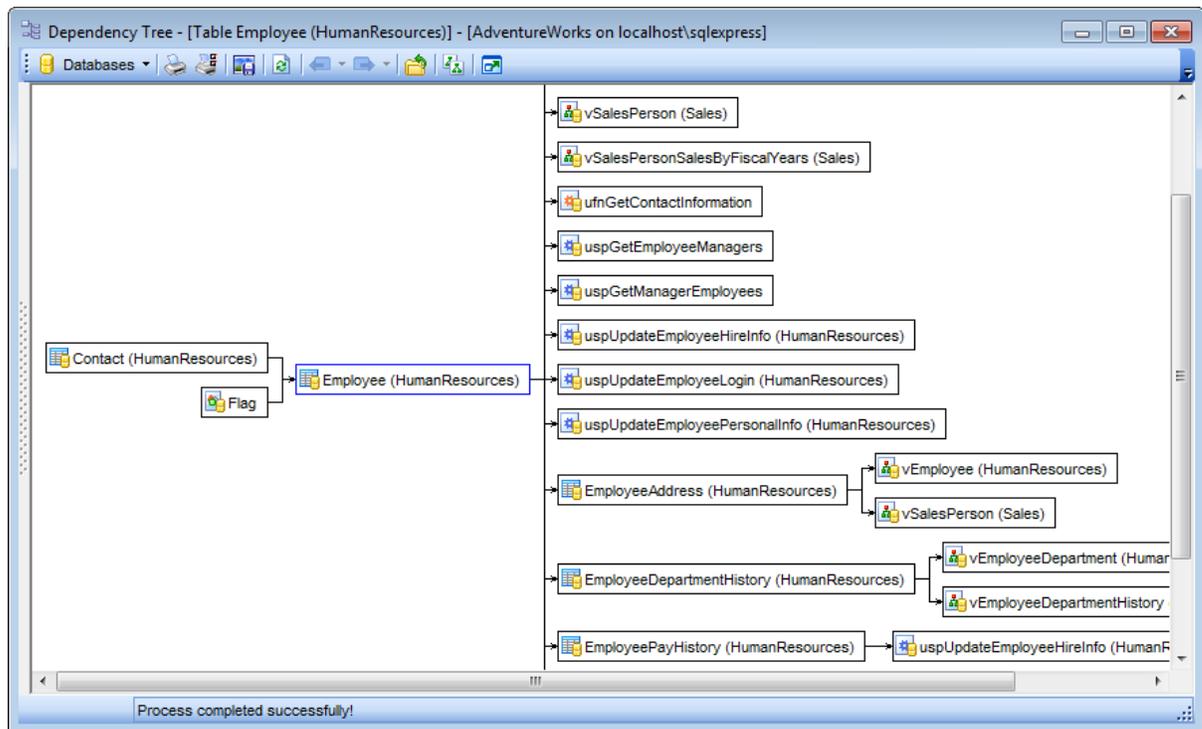
Hint: Items of the **Object** pane of the **Navigation bar** are also available in the context menu of the **Dependency Tree** area.

9.1.2 Viewing dependency tree

To view dependencies of an object, click the **Select object** [Navigation bar](#)^[612] item. Then select the required object in the **Select Object** dialog window. The dependency tree will appear in the main area of the window.



While the tree of dependencies is being built, the [progress bar](#)^[917] is displayed in the status area at the bottom of the window.



The *root* object is marked out with a blue frame.

The objects that *the root object depends on* are located to the left of the root object. The objects that *depend on the root object* are located to the right of the root object.

Object dependencies are denoted as regular arrows from the left to the right (->). A *cyclic dependency* (i.e. when the object already has some other depending object(s)) is denoted as a line ending with a cross (-x).

You can switch between objects by selecting them in the diagram. The selected object becomes the root object. To make an object root, you can also right-click it in the diagram area and select **Set as Root** from the **context menu**. The context menu of an object also allows you to *edit* it using the corresponding editor.

The history of selected root objects is also available: you can move back and forward through this history using the **Previous object** and the **Next object** links on the [Navigation bar](#)^[612] or [toolbar](#)^[614].

Hint: To show/hide subobjects (e.g. table [triggers](#)^[236], [foreign keys](#)^[221]), click the **Show subobjects** / **Hide subobjects** item on the [Navigation bar](#)^[612].

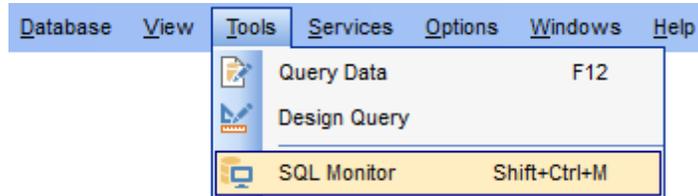
See also:

[Select Object dialog](#)^[951]

9.2 SQL Monitor

SQL Monitor allows you to view the log of all operations performed over databases and database objects in SQL Manager for SQL Server. The content of the window is read-only.

To open the **SQL Monitor** window, select the **Tools** |  **SQL Monitor** [main menu](#)^[915] item, or use the *Shift+Ctrl+M* [shortcut](#)^[952].



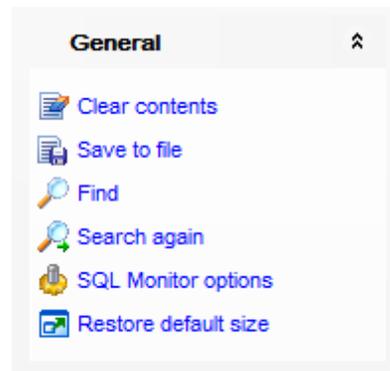
- [Using Navigation bar and Toolbar](#)^[616]
- [Working with SQL Monitor](#)^[617]

See also:

[SQL Monitor options](#)^[838]

9.2.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **SQL Monitor**.



The **Navigation bar** of **SQL Monitor** allows you to:

General

-  clear the content of the window
-  save the content to a *.txt file using the **Save as...** dialog
-  search for a string using the [Find Text](#)^[925] dialog
-  search again

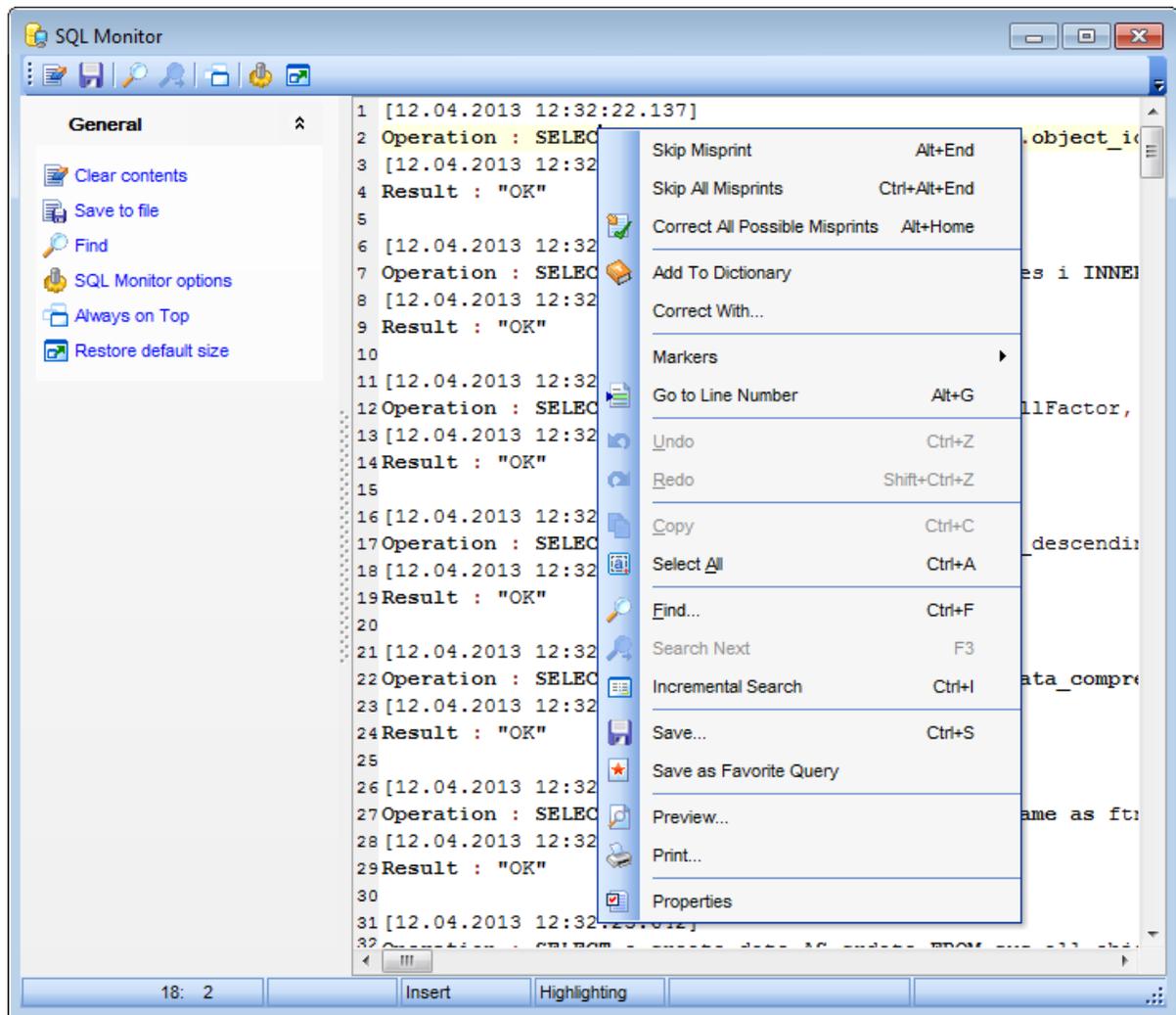
-  configure SQL Monitor using the [SQL Monitor](#) ^[838] section of the [Environment Options](#) ^[825] dialog
-  restore the default size and position of the window
-  specify that the window is displayed on top of other child windows

Items of the **Navigation bar** are also available on the **ToolBar** of **SQL Monitor**. To enable the [toolbar](#) ^[917], open the [Environment Options](#) ^[825] dialog, proceed to the [Windows](#) ^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#) ^[915]) in the **Bar style for child forms** group.

9.2.2 Working with SQL Monitor

The working area of **SQL Monitor** lists the log of database operations and SQL queries as items, each consisting of 3 parts: *Executed* (the date and time of the operation), *Operation* (SQL statement sent to the server), *Result* (the result of the operation).

Items of the **context menu** of SQL Monitor area provide access to various functions for working with the window content. The context menu contains standard text-processing functions (*Copy*, *Select All*), [spelling checking](#) ^[882] and functions for working with the content as a whole, e.g. you can set *markers*, *move the cursor to a particular line*, *save the content to a file* or as a [favorite query](#) ^[907], configure the editor using the [properties](#) ^[869] item or *preview/print* the content. Most of these operations can be also performed with the corresponding [hot keys](#) ^[952] used.

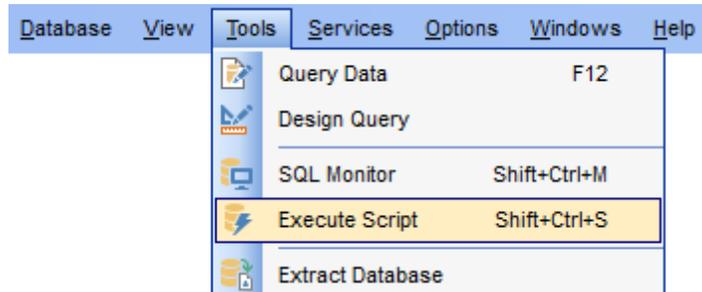


Implementation of the [Find Text](#)^[925] dialog and [Incremental search](#)^[917] bar contributes to more efficient work with the content of SQL Monitor.

9.3 Execute Script

Using **Execute Script** editor you can view, edit and execute SQL scripts.

To open Execute Script editor, select the **Tools | Execute Script** [main menu](#)^[913] item or use the corresponding [toolbar](#)^[917] button. You can also use the *Shift+Ctrl+S* [shortcut](#)^[952] for the same purpose.



In the script area you can view and edit the SQL script text. For your convenience syntax highlight and code completion features are implemented.

- [Using Navigation bar and Toolbar](#)^[619]
- [Working with Execute Script area](#)^[627]
- [Using Script Explorer](#)^[623]
- [Script execution](#)^[627]

Note: **Execute Script** does not show results returned upon SELECT queries execution. Please use [Query Data](#)^[426] for that purpose instead.

See also:

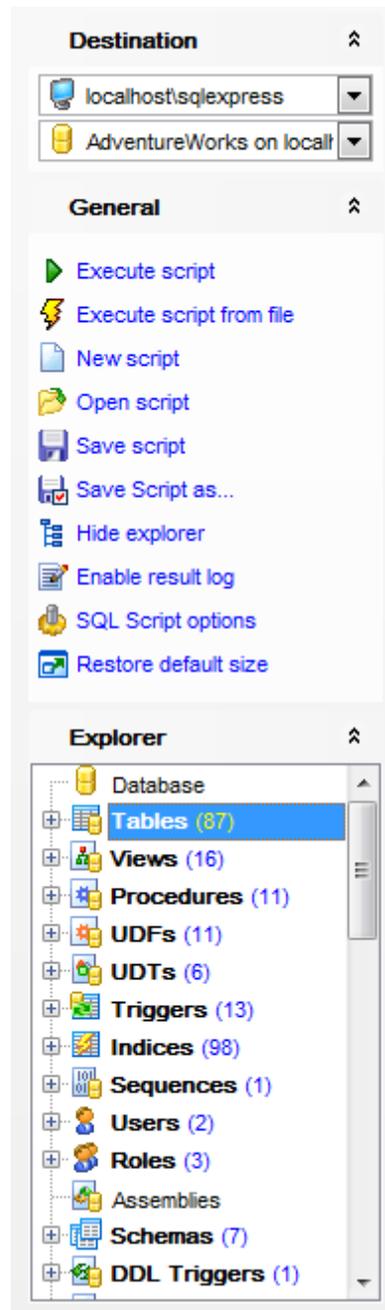
[Query Data](#)^[426]

[Execute Script options](#)^[839]

[Editor Options](#)^[869]

9.3.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Execute Script**.



The **Navigation bar** of **Execute Script** allows you to:

Destination

-  select a host
-  select a database for the script

General

-  [execute](#)⁶²⁴ the current script
-  execute a script from file

-  create a new script
-  load a script from an *.sql file using the **Open Script** dialog
-  save the current script
-  save the script to an *.sql file using the **Save as...** dialog
-  hide/show [SQL Explorer](#)^[623]
-  enable/disable result log
-  configure Execute Script within the [Script Options](#)^[839] section of the [Environment Options](#)^[825] dialog
-  restore the default size and position of the editor window

Explorer

-  browse the tree objects used in the script using the [Script Explorer](#)^[623] pane

Items of the **Navigation bar** are also available on the **ToolBar** of **Execute Script**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

See also:

[Working with Execute Script area](#)^[624]

[Using Script Explorer](#)^[623]

[Script execution](#)^[624]

9.3.2 Working with Execute Script area

The **Editor area** of Execute Script is provided for efficient working with SQL scripts in text mode.

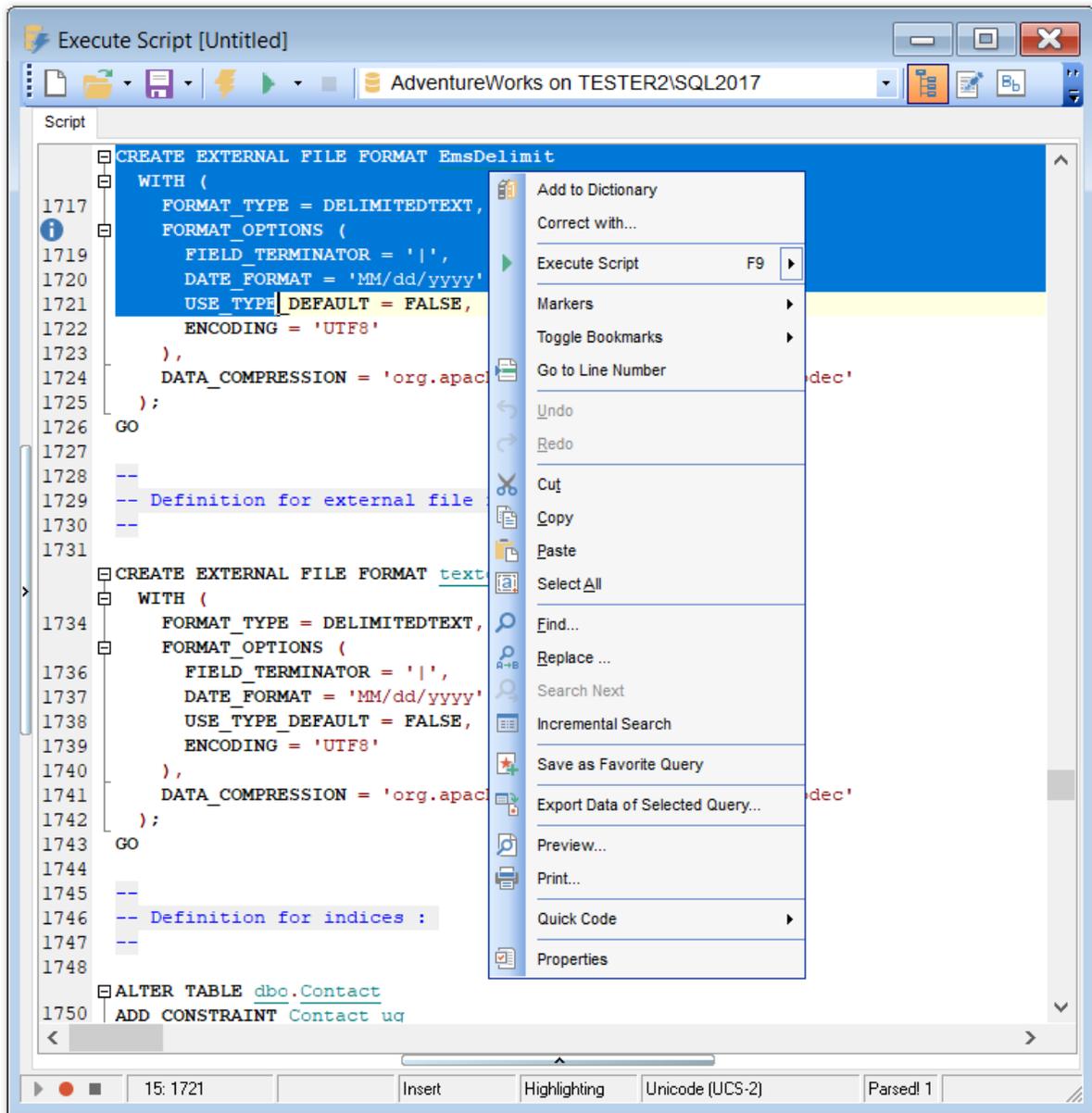
For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented:

- using [object links](#)^[433] allowing you to open the object in the associated editor;
- ability to display line numbers;
- code folding for statements and clauses;
- customizable margins and gutters;
- formatting code for better representation

and more.

The **context menu** of Execute Script area contains [execution](#)^[624] commands, most of the standard text-processing functions (*Cut*, *Copy*, *Paste*, *Select All*), [spelling checking](#)^[882] and functions for working with the script as a whole, e.g. you can enable/disable *parsing*, toggle *bookmarks* and *comments*, *move the cursor to a particular line*, *change the case of selected text*, *load/save* the content from/to a file or save as a [favorite query](#)^[901], [configure](#)^[869] the editor using the **Properties** item or *preview/print* the text of the script. Most of these operations can be also performed with the corresponding [hot keys](#)^[952] used.

Implementation of the [Find Text](#)^[925] / [Replace Text](#)^[927] dialogs and [Incremental search](#)^[917] bar contributes to more efficient work with the SQL code.



For your convenience the possibility to use **macros** is implemented.

To *start recording* a macro, click the **Record** button available in the status bar area, or use the *Shift+Ctrl+R* shortcut.

To *stop recording*, click the **Stop** button, or use the *Shift+Ctrl+R* shortcut.

To *call* the recorded macro, use the **Play** button, or use the *Shift+Ctrl+P* shortcut.

See also:

[Using Navigation bar and Toolbar](#)^[619]

[Using Script Explorer](#)^[623]

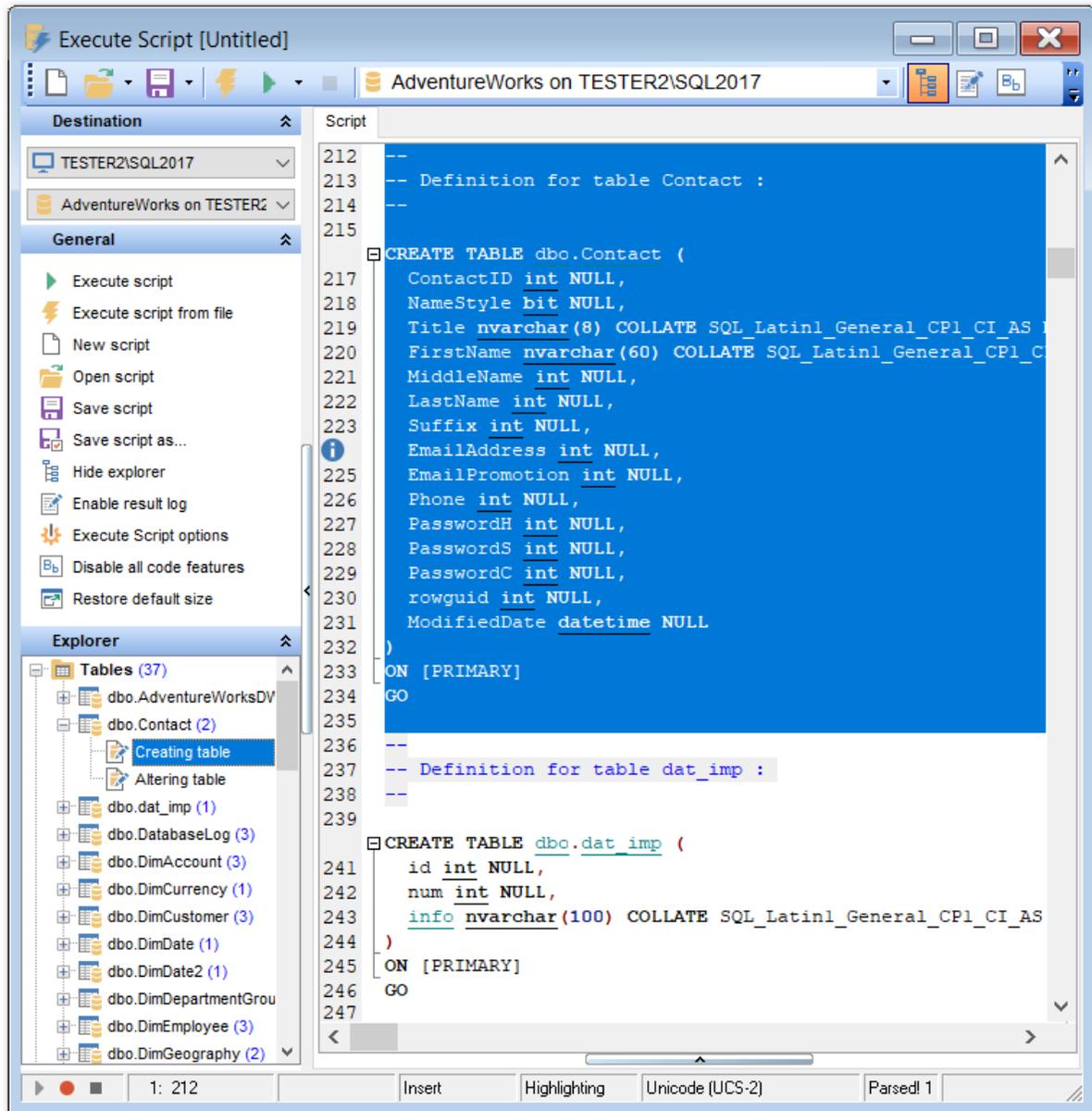
[Script execution](#)^[624]

[Managing Favorite queries](#)^[90]

[Execute Script options](#)^[839]

9.3.3 Using Script Explorer

The **Explorer** group on the [Navigation bar](#)^[619] displays the tree of objects, used in the current script and allows you to get to the required script fragment quickly by clicking the object in the tree.



Hint: When you click a node in the **Script Explorer** tree, the corresponding SQL statement is highlighted in the editor area. If you double-click a node, the corresponding SQL statement is highlighted, and the current focus is switched to the editor area (the

cursor appears after the highlighted statement).

See also:

[Using Navigation bar and Toolbar](#)^[619]

[Working with Execute Script area](#)^[621]

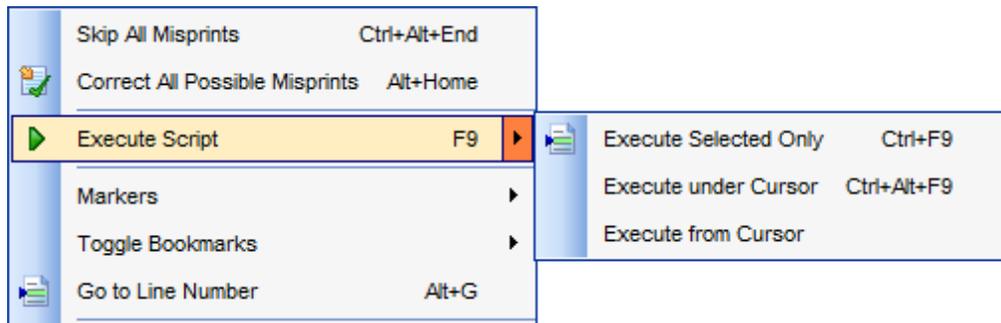
[Database and Server Objects Management](#)

^[178]

9.3.4 Script execution

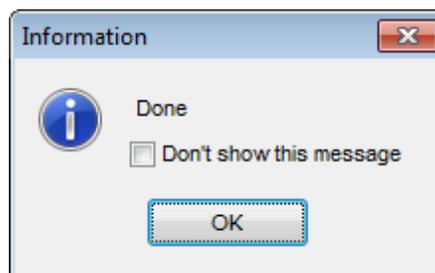
When all the script parameters are set, you can immediately **execute the script** in **Execute Script**.

To execute a script, click the **Execute script** item of the [Navigation bar](#)^[619] or [toolbar](#)^[621]. You can also use the [context menu](#)^[621] or *F9* hot key for the same purpose.



Note: If the **Execute selected text separately** option (see the [Tools | Execute Script](#)^[839] section of the [Environment Options](#)^[825] dialog) is enabled (by default) and a text fragment is currently selected, only this fragment is executed when you click *Execute script* on the [Navigation bar](#)^[619] or press *F9*. If this option is disabled, the whole script is executed, but you can still execute the selected fragment using the corresponding *Execute Selected Only* item of the [context menu](#)^[621] or by pressing *Ctrl+F9*.

If the SQL syntax is correct, the script is executed and the 'Done!' information message appears.



If the syntax contains errors or script cannot be executed, the corresponding error message is displayed in the status bar area at the bottom of the editor window.

Hint: When you select an item from the error list (in the status bar area), the corresponding SQL statement is highlighted in the editor area. If you double-click an item, the corresponding SQL statement is highlighted, and the current focus is switched to the editor area (the cursor appears after the highlighted statement).

Note: Execute Script does not show results returned upon SELECT queries execution. Please [execute](#)^[434] such queries in [Query Data](#)^[426] to see the result dataset.

See also:

[Using Navigation bar and Toolbar](#)^[619]

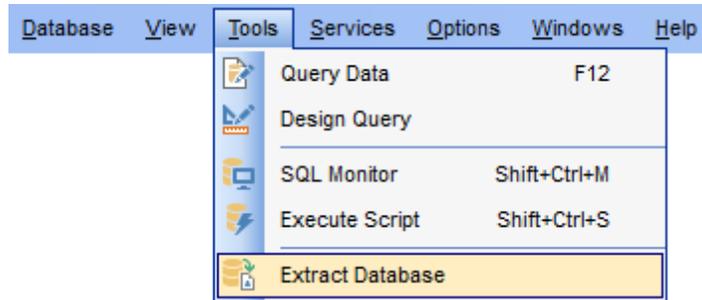
[Working with Execute Script area](#)^[621]

[Using Script Explorer](#)^[623]

9.4 Extract Database Wizard

Extract Database Wizard allows you to extract database objects and/or data to an SQL script, e.g. for backup purposes.

To start the wizard, select the **Tools** |  **Extract Database...** [main menu](#)^[915] item, or right-click the database alias in the [DB Explorer](#)^[63] tree and select the **Tasks** |  **Extract Database...** item from the [context menu](#)^[54].



- [Selecting a database for extraction](#)^[626]
- [Specifying destination file name](#)^[627]
- [Setting extraction mode](#)^[628]
- [Setting BLOB options](#)^[629]
- [Selecting objects for metadata extraction](#)^[630]
- [Selecting objects for data extraction](#)^[632]
- [Customizing script options](#)^[633]
- [Start of extraction process](#)^[635]
- [Using templates](#)^[934]

See also:

[Execute Script](#)^[619]

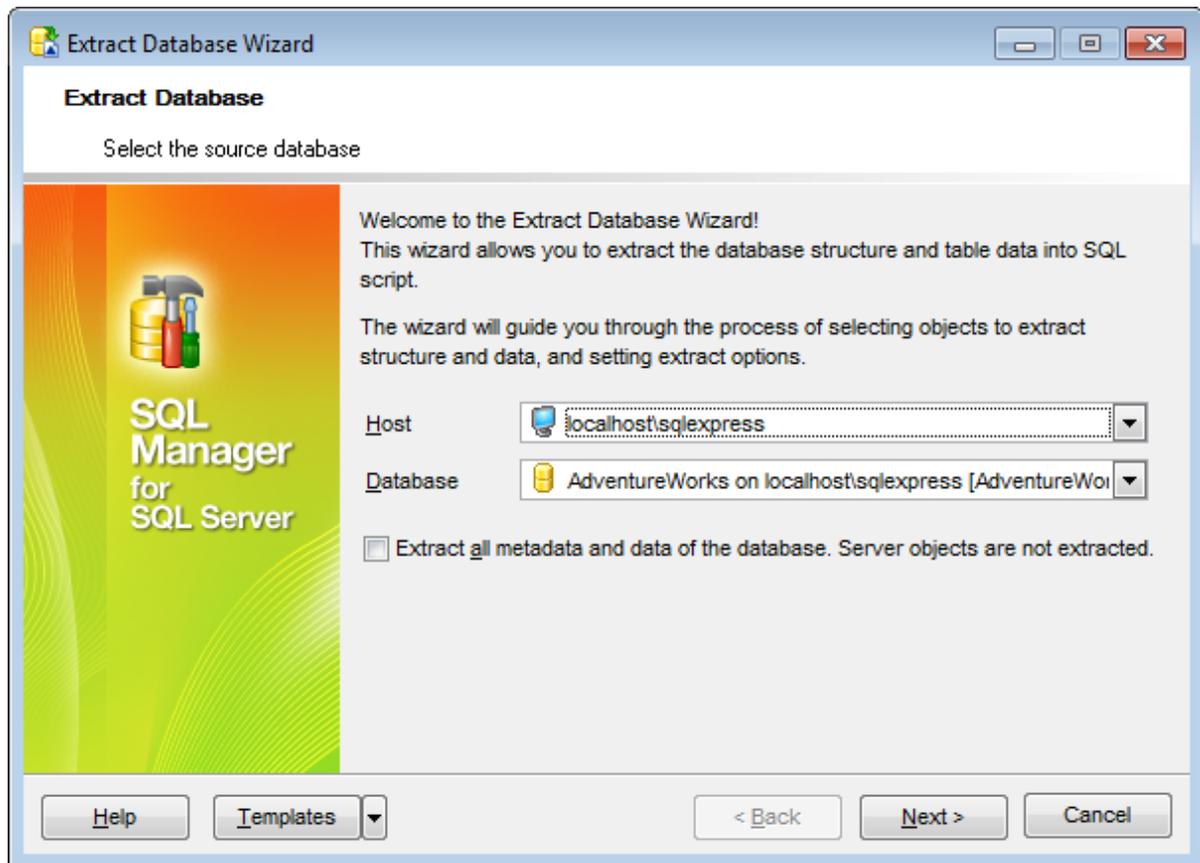
[Database Objects Management](#)^[178]

[Using templates](#)^[934]

9.4.1 Selecting source database

This step of the wizard allows you to select the **source database** from which metadata and/or data are to be extracted.

If necessary, check the **Extract all metadata and data of the database** option to simplify the wizard.



Click the **Next** button to proceed to the [Specifying destination file name](#)⁶²⁷ step of the wizard.

9.4.2 Specifying destination file name

Script destination

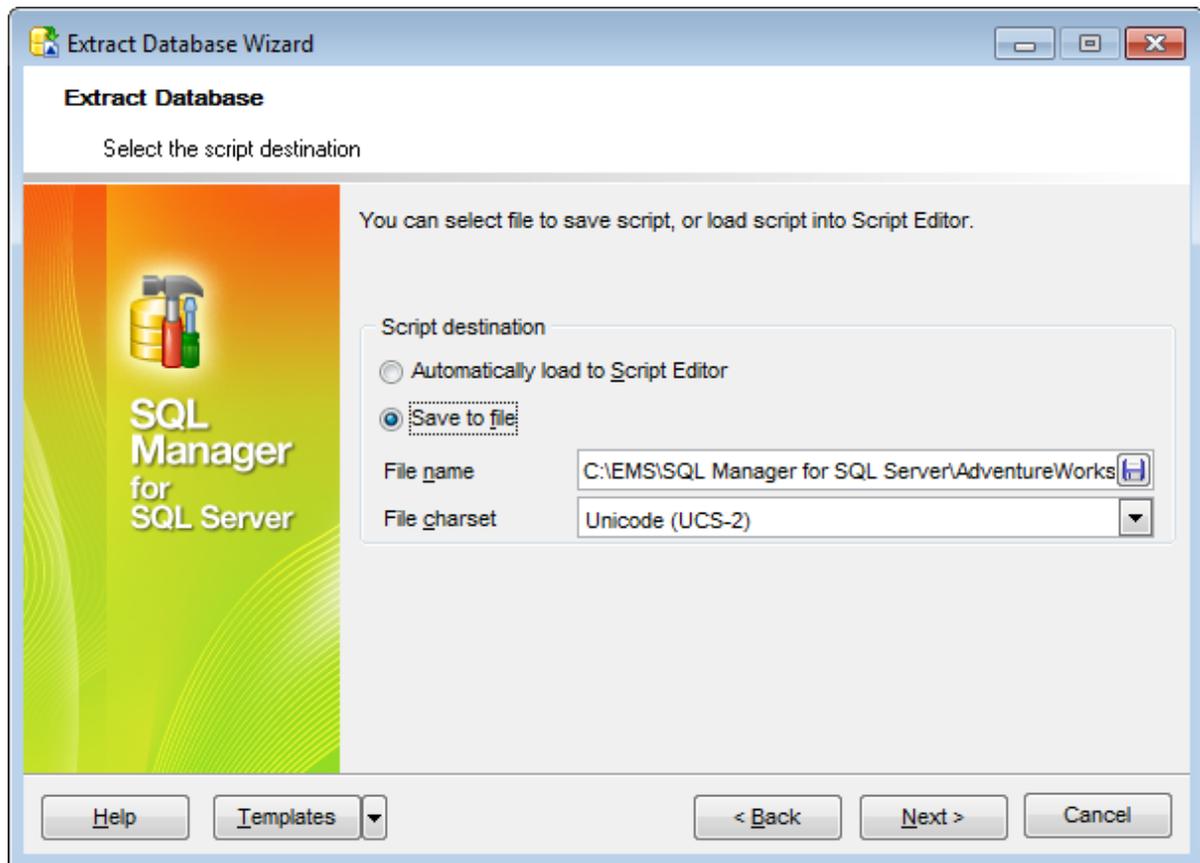
This group of options allows you to specify whether the result SQL script will be automatically loaded to [Execute Script](#)⁶¹⁹ or saved into a file.

File name

Set a name for the result *.sql file and type in or use the  **Save as...** button to specify the path to this file on your local machine or on a machine in the LAN.

File charset

If necessary, use the drop-down list to select the character set to be applied to the output file.

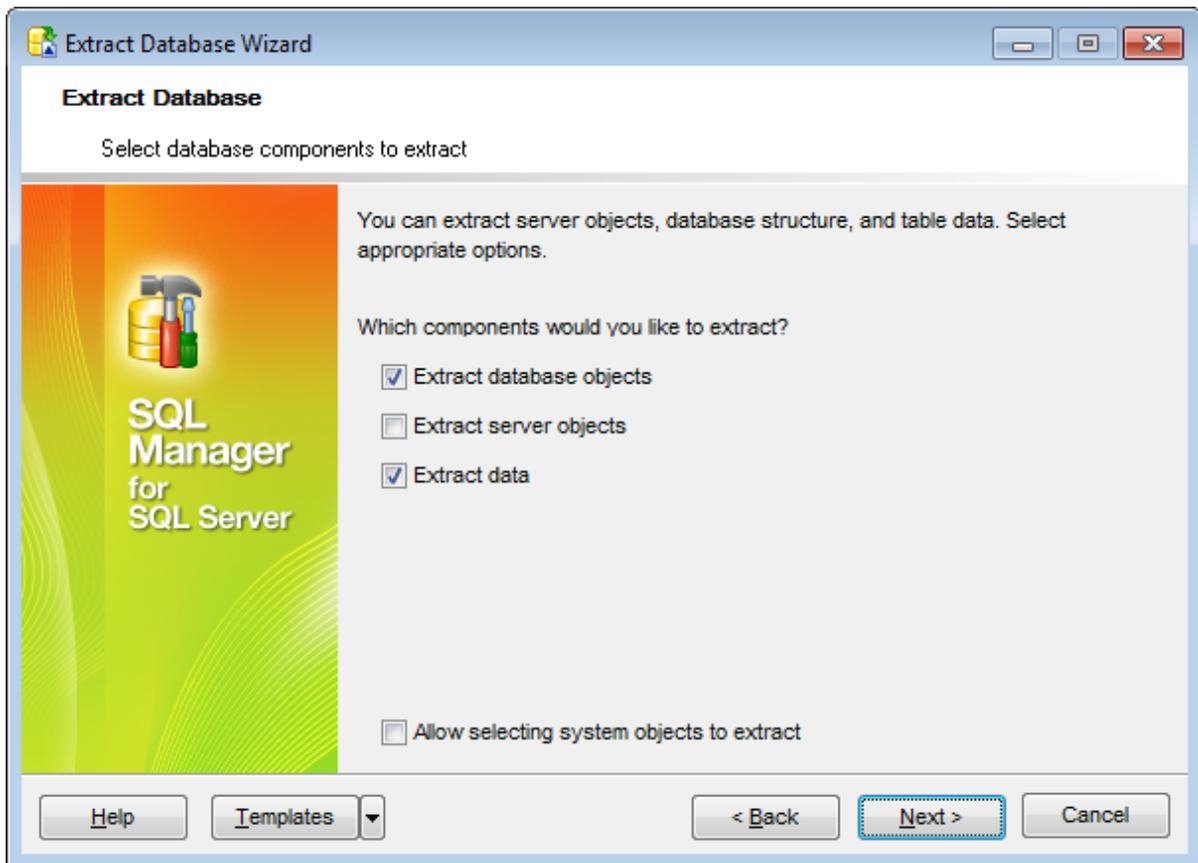


Depending on whether you have checked the **Extract all metadata and data of the database** option at the [Selecting source database](#)^[628] step, upon pressing the **Next** button you will either proceed to the [next step of the wizard](#)^[628], or you will be immediately forwarded to the [Setting BLOB options](#)^[629] step, and then to the [Customizing script options](#)^[633] step of the wizard.

9.4.3 Setting extraction mode

This step allows you to specify the **extraction mode**: choose whether *database objects*, *server objects* and/or *data* only are to be extracted.

To make system objects available for extraction, use the **Allow selecting system objects to extract** option.



Click the **Next** button to proceed to the [Setting BLOB options](#)^[629] step of the wizard.

9.4.4 Setting BLOB options

BLOB options

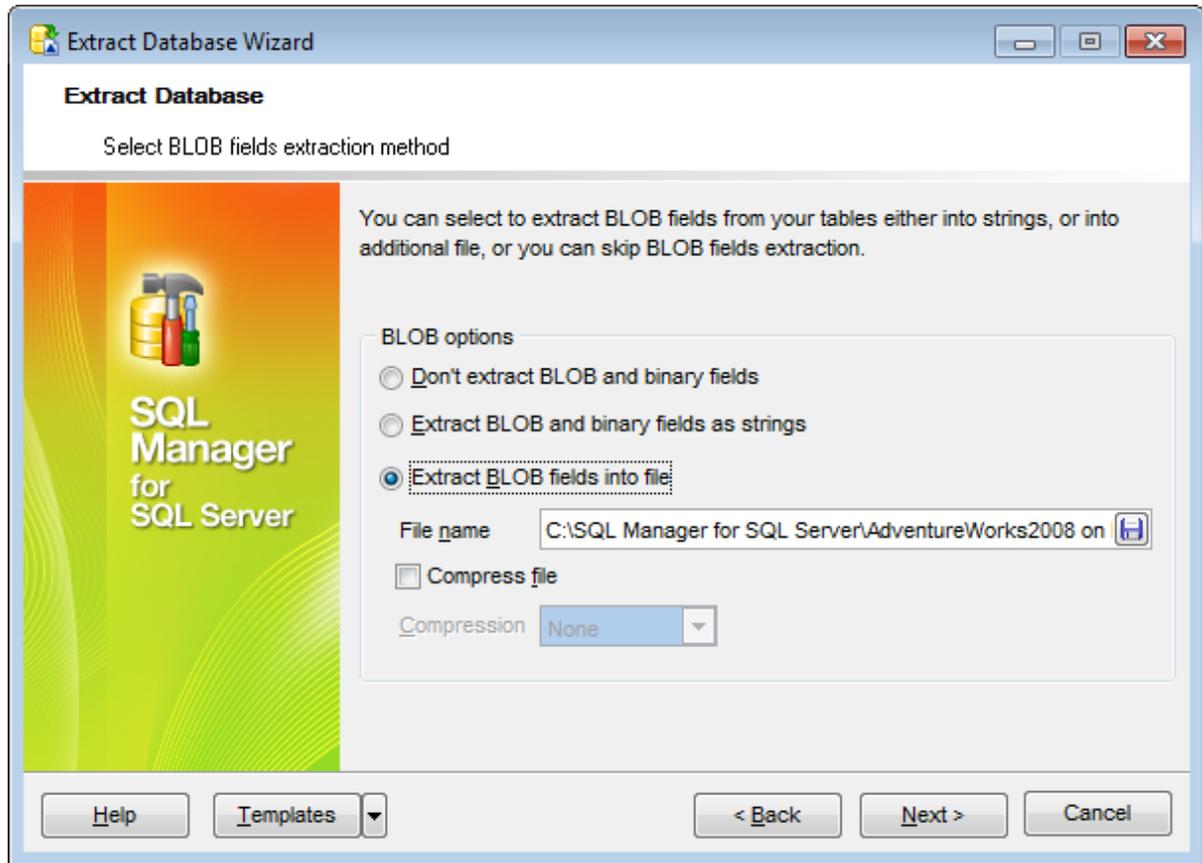
In this group of options you can determine whether BLOB fields are *not to be extracted*, *extracted as strings*, or *extracted into a separate file*. If the latter is selected, you also need to specify the **File name** (the *.blo file where the BLOB data are to be stored) and the location of the file on your local machine using the  **Save as...** button.

Compress file

Check this option if you wish to compress the file containing BLOB data.

Compression

Define the desired compression level to be applied for the file: *None*, *Fastest*, *Default*, *Best*.



Note: If you choose to **Extract BLOB fields into file** then afterwards the result SQL file can be restored only by using the SQL Manager for SQL Server [Execute Script](#)⁶¹⁹ tool.

Click the **Next** button to proceed to [Selecting objects for structure extraction](#)⁶³⁰.

9.4.5 Selecting objects for structure extraction

This step of the wizard allows you to **select objects for metadata extraction**.

Note that this step is only available if the **Extract all metadata and data of the database** option was unchecked when [selecting the source database](#)⁶²⁶.

Extract all objects

Adds all objects of the database to structure extraction process.

Extract all objects of schema...

Adds all objects of a schema to structure extraction process.

Schema name

Use the drop-down list to select the schema to extract all objects from.

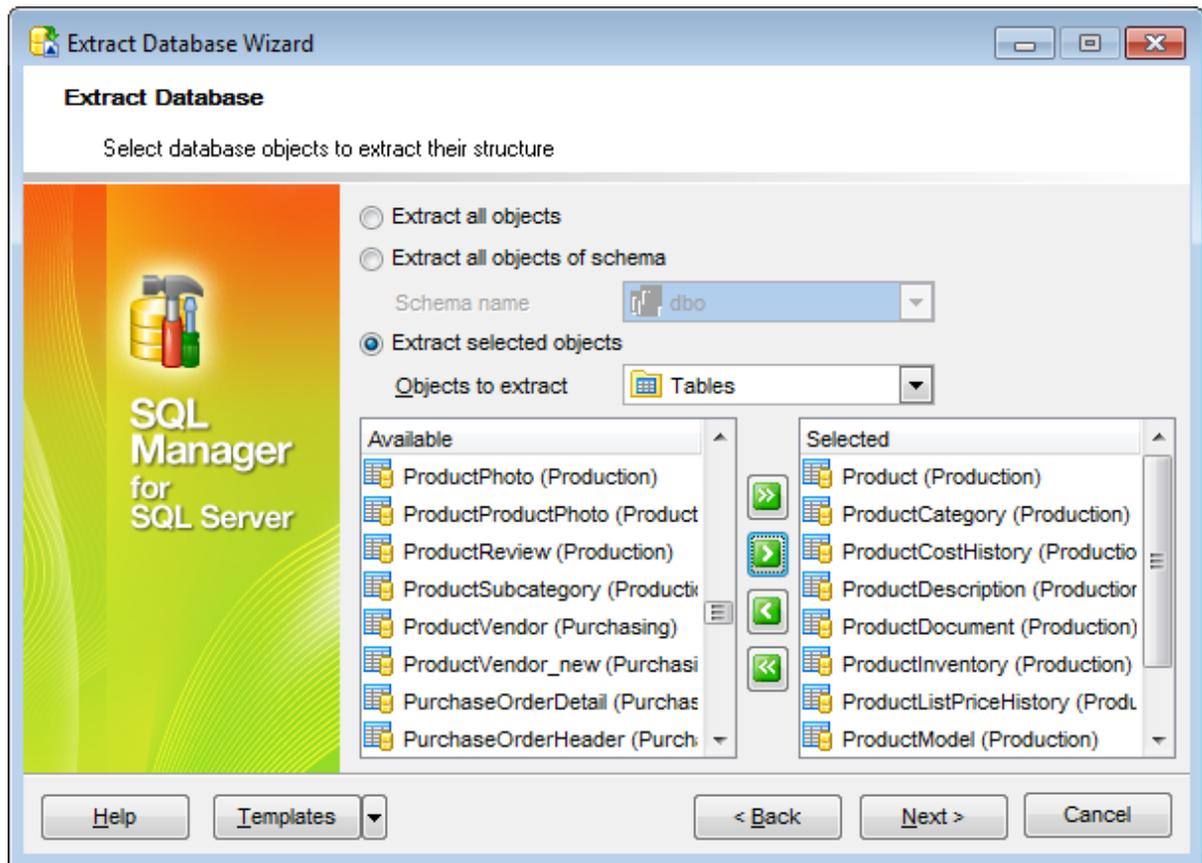
Extract selected objects

Adds only selected objects to structure extraction process.

Objects to extract

Use the drop-down list to select the type of objects to be extracted.

To select an object, you need to move it from the **Available** list to the **Selected** list. Use the     buttons or drag-and-drop operations to move the objects from one list to another.



Click the **Next** button to proceed to [Selecting objects for data extraction](#)^[632].

9.4.6 Selecting server objects for extraction

This step of the wizard allows you to **select objects for metadata extraction**.

Note that this step is only available if the **Extract all metadata and data of the database** option was unchecked when [selecting the source database](#)^[628].

Extract all objects

Adds all objects of the database to structure extraction process.

Extract all objects of schema...

Adds all objects of a schema to structure extraction process.

Schema name

Use the drop-down list to select the schema to extract all objects from.

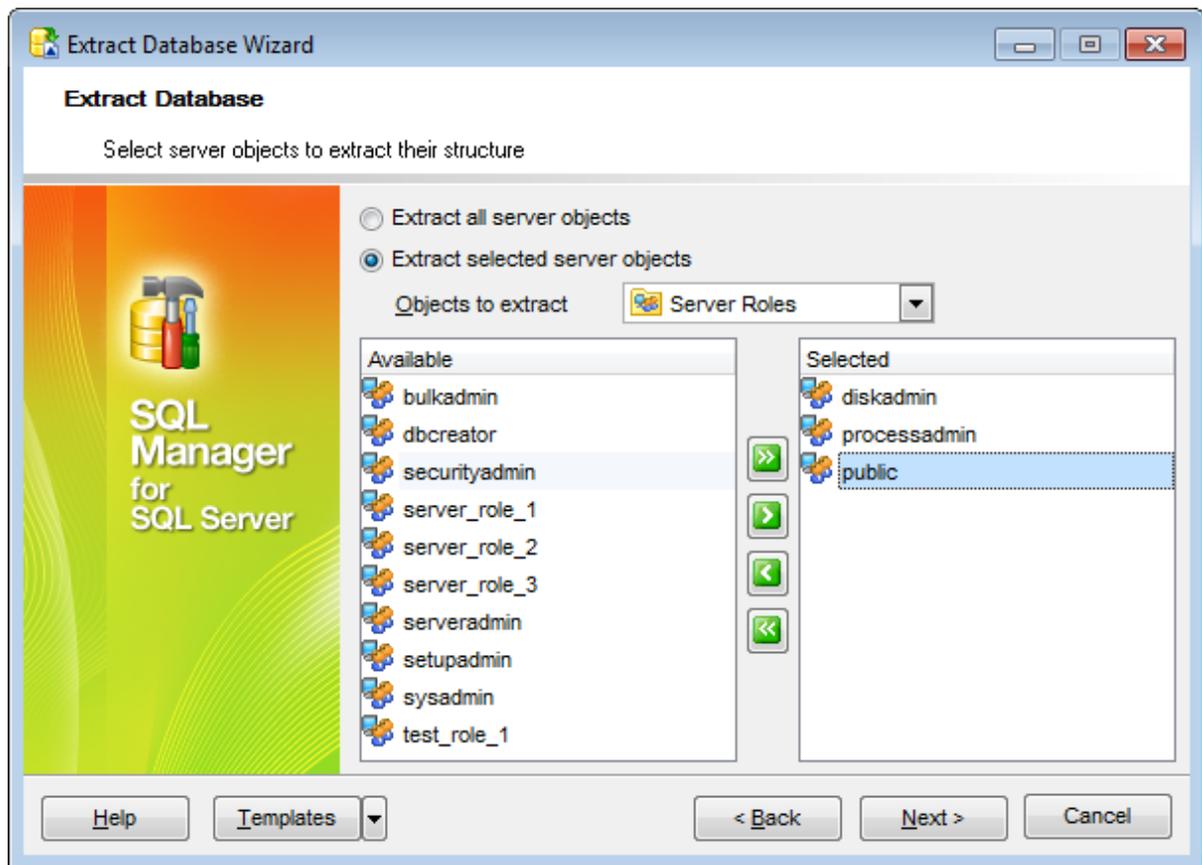
Extract selected objects

Adds only selected objects to structure extraction process.

Objects to extract

Use the drop-down list to select the type of objects to be extracted.

To select an object, you need to move it from the **Available** list to the **Selected** list. Use the     buttons or drag-and-drop operations to move the objects from one list to another.



Click the **Next** button to proceed to [Selecting objects for data extraction](#)⁶³².

9.4.7 Selecting objects for data extraction

This step of the wizard allows you to **select tables for data extraction**.

Note that this step is only available if the **Extract all metadata and data of the database** option was unchecked when [selecting the source database](#)⁶²⁸.

Extract data of the selected tables

Adds only selected tables to data extraction process.

To select a table, you need to move it from the **Available** list to the **Selected** list. Use

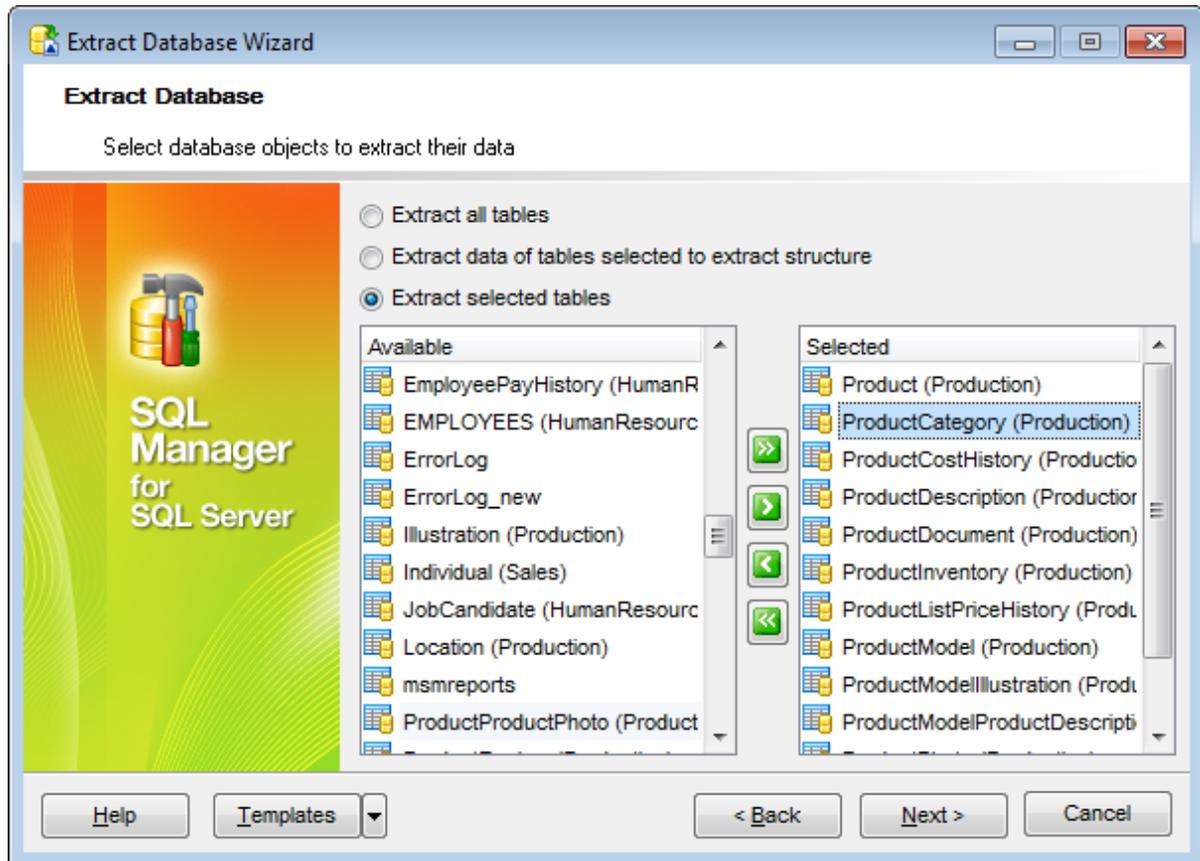
the  buttons or drag-and-drop operations to move the tables from one list to another.

Extract data of all tables

Adds all tables of the database to data extraction process.

Extract data of tables selected on the previous step

Adds only the tables [selected for metadata extraction](#)^[630].



Click the **Next** button to proceed to the [Customizing script options](#)^[633] step of the wizard.

9.4.8 Customizing script options

This step allows you to customize common **script options** and **data options** for the extraction process.

Script options

Generate "CREATE DATABASE" statement

Check this option to add the *CREATE DATABASE* statement to the result script.

Generate DROP statements

Check the option to add the *DROP* statements for the extracted objects in the result

script.

With IF statements

Check this option to add the *IF* keyword to the *DROP* statements in the result script.

Use IF EXISTS clause for DROP statement

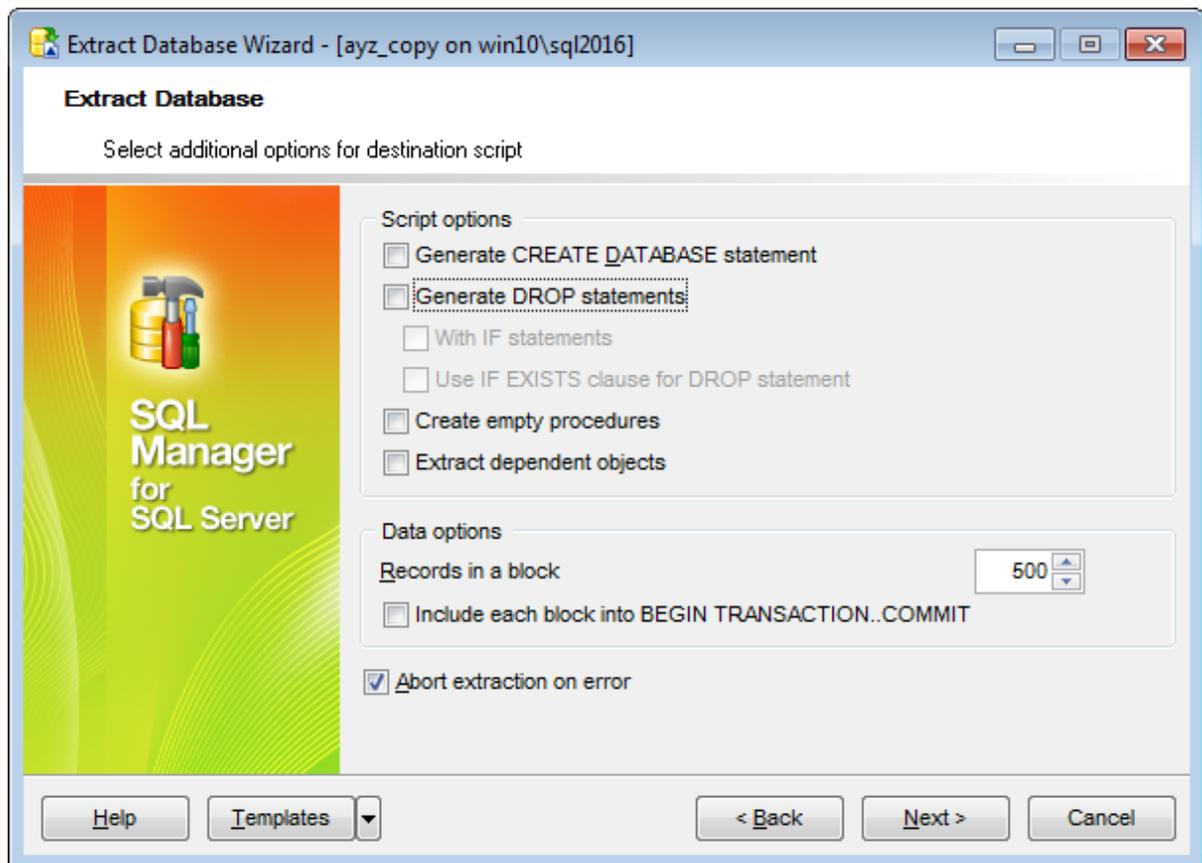
Check this option to add the *IF EXISTS* clause to the *DROP* statements in the result script, if available.

Create empty procedures

This option specifies whether procedures with empty bodies are included in the result script or not.

Extract dependent objects

This option determines objects' [dependencies](#) usage in the extraction process. Check the option to extract all objects that the selected objects depend on.



Data options

Records in a block / Insert "COMMIT" statement after each block

These controls allow you to define whether the *COMMIT* statement is added to the script or not, and to specify the number of records in each block to be supplemented with this statement.

Abort extraction on error

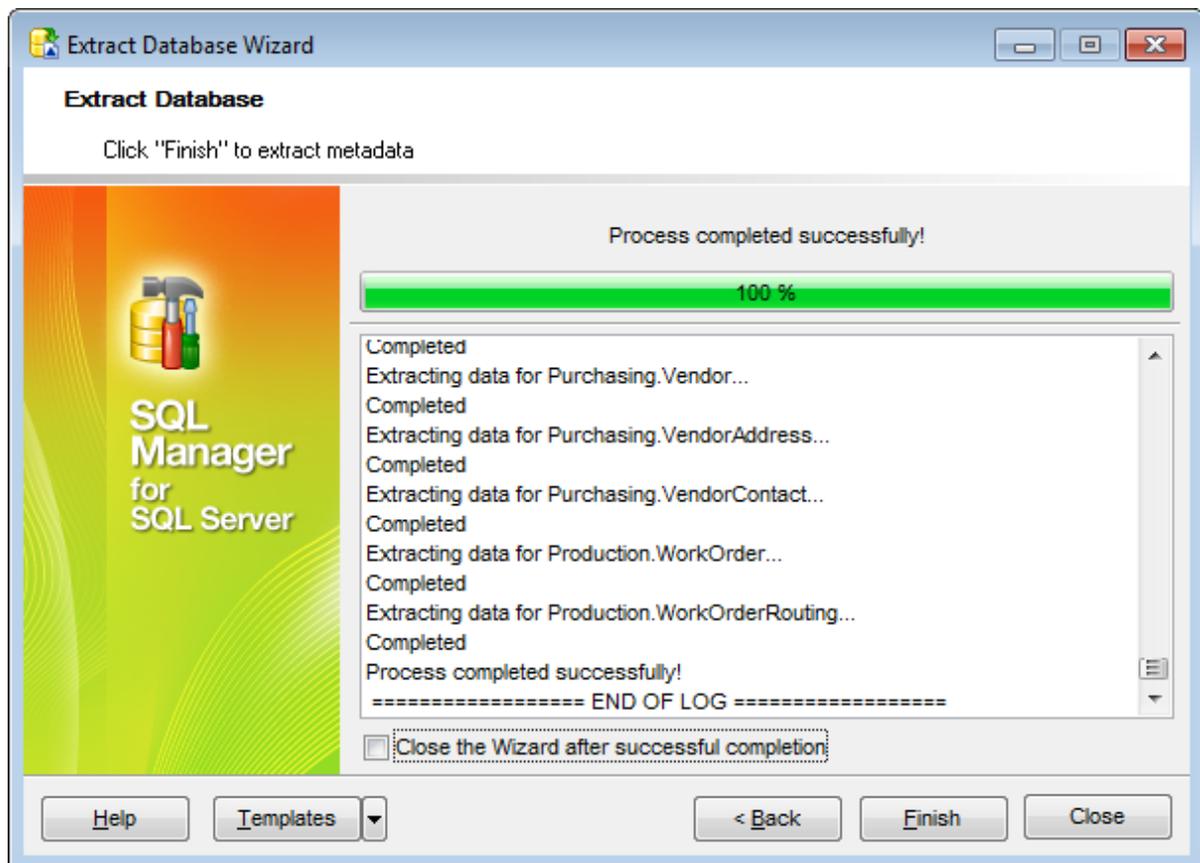
This option determines whether the extraction process should be stopped or forced to continue if an error occurs.

Click the **Next** button to proceed to the [last](#) step of the wizard.

9.4.9 Start of extraction process

This step of the wizard is intended to inform you that all extraction options have been set, and you can start the extraction process.

The log area allows you to view the log of operations and errors (if any).



Close the wizard after successful completion

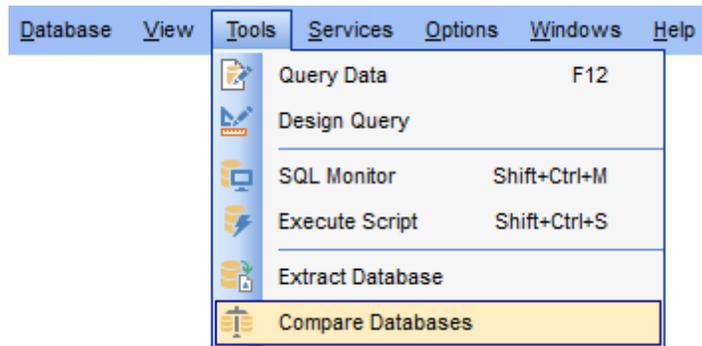
If this option is selected, the wizard is closed automatically when the extraction process is completed.

If necessary, you can save a [template](#) for future use.

Click the **Finish** button to run the extraction process.

9.5 Database Comparer Wizard

Compare Databases Wizard creates an SQL script that provides database structure synchronization. To launch the wizard use the **Tools |  Compare Databases...** item of the [main menu](#)^[915].



- [Selecting source database](#)^[637]
- [Selecting target database](#)^[638]
- [Selecting type of the synchronization script](#)^[639]
- [Defining options for the destination script](#)^[640]
- [Performing operation](#)^[641]

Availability:

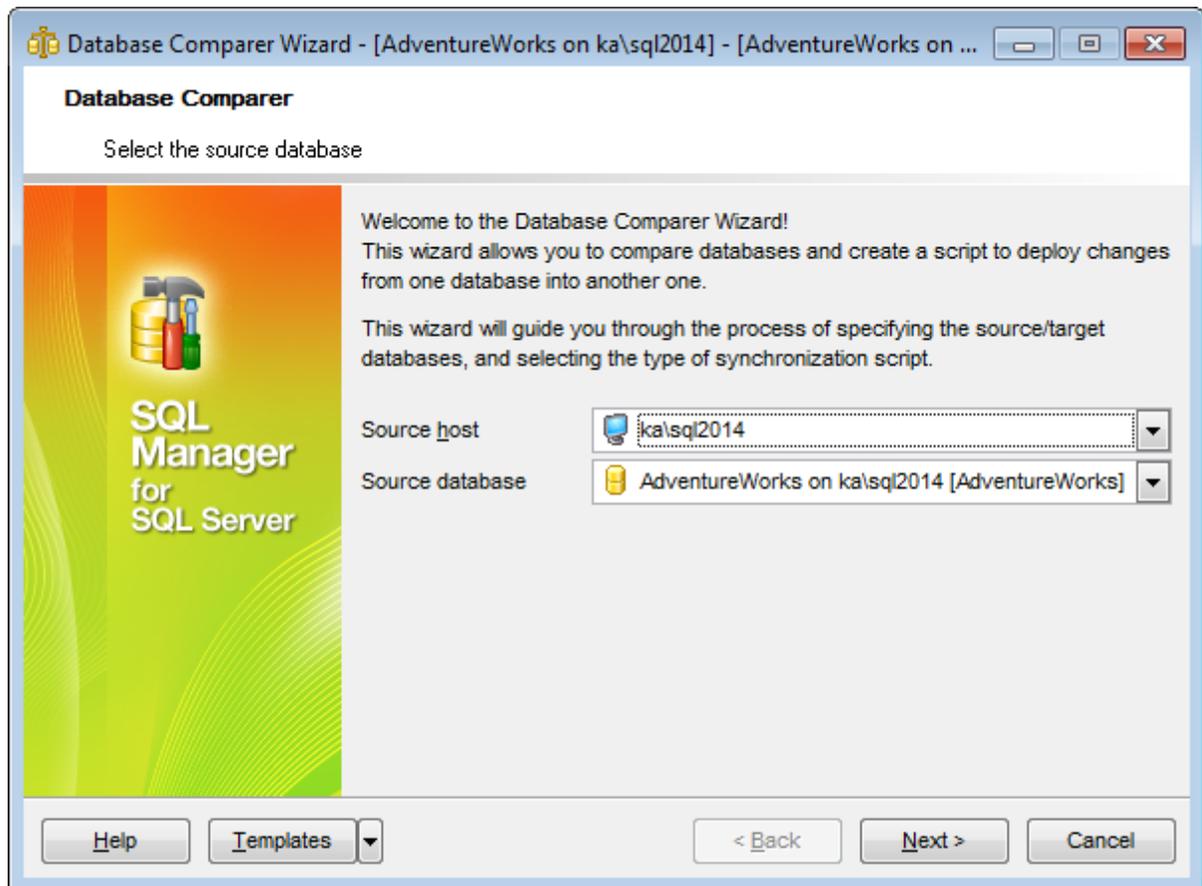
Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of **SQL Manager**, refer to the [Feature Matrix](#)^[231] page.

9.5.1 Selecting source database

Use this step to define source database for comparing.

**Source host**

Define host where source database is located.

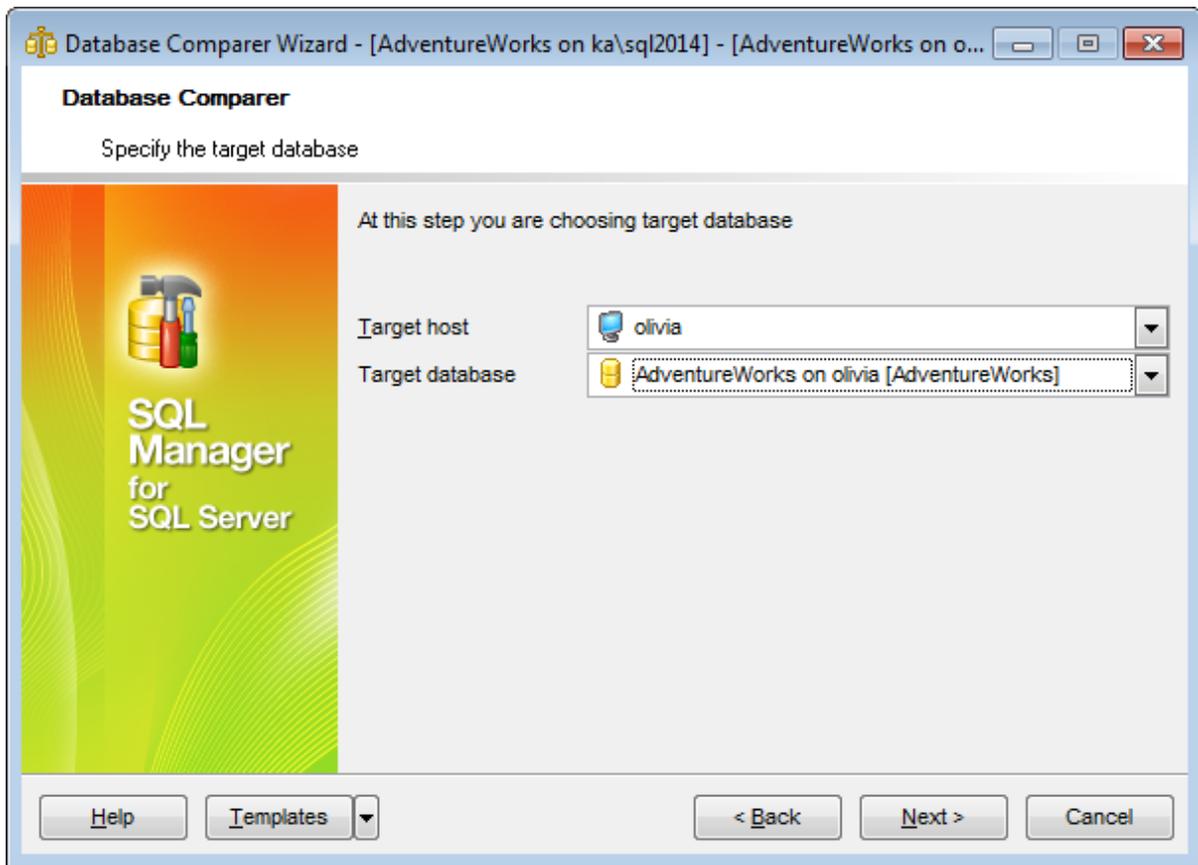
Source database

Select source database from the drop-down list.

Click the **Next** button to proceed to the [Selecting target database](#)⁶³⁸ step.

9.5.2 Selecting target database

Use this step to define target database for comparing.

**Target host**

Define host where target database is located.

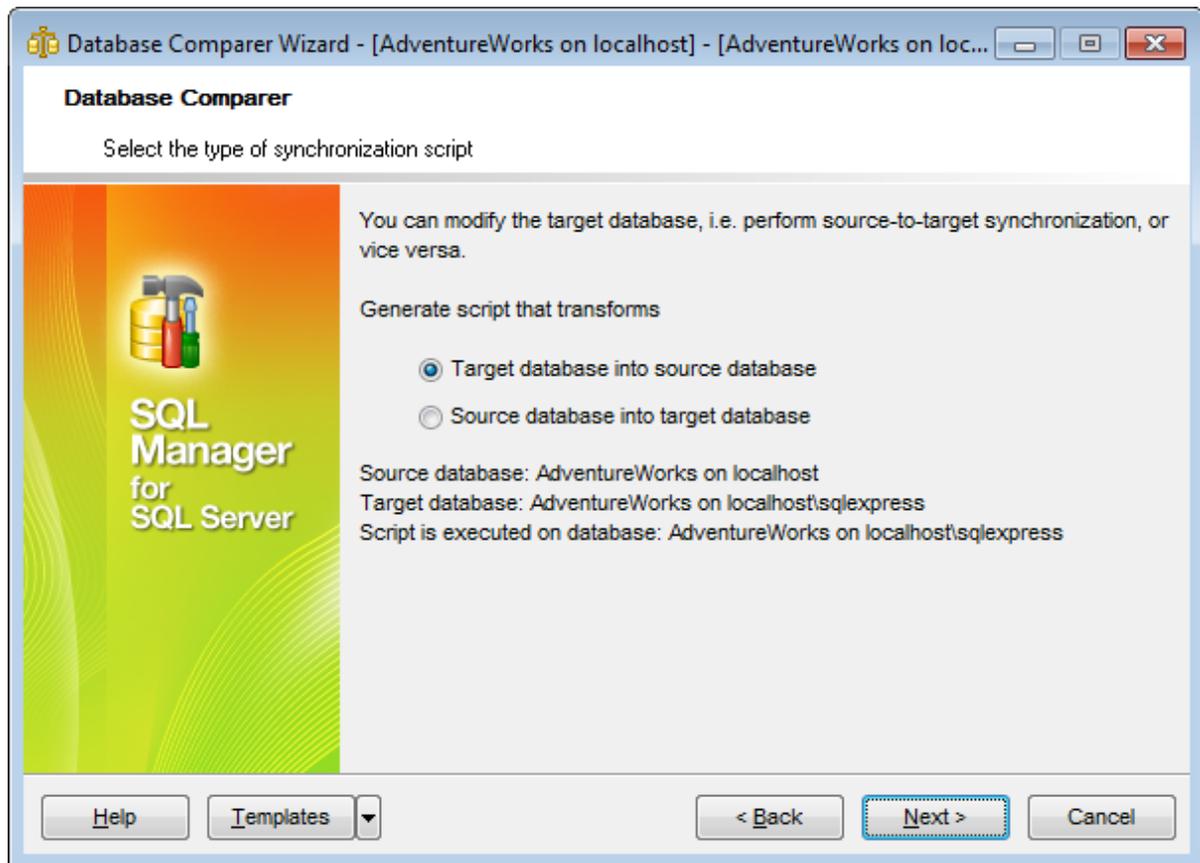
Target database

Select target database from the drop-down list.

Click the **Next** button to proceed to the [Selecting type of the synchronization script](#)^[639] step.

9.5.3 Selecting type of synchronization script

Specify the direction of the selected databases comparing.



• **Target database into source database**

Enables reverse comparing: the synchronization script will contain statements which make the [target](#)^[686] database identical to the [source](#)^[684] one.

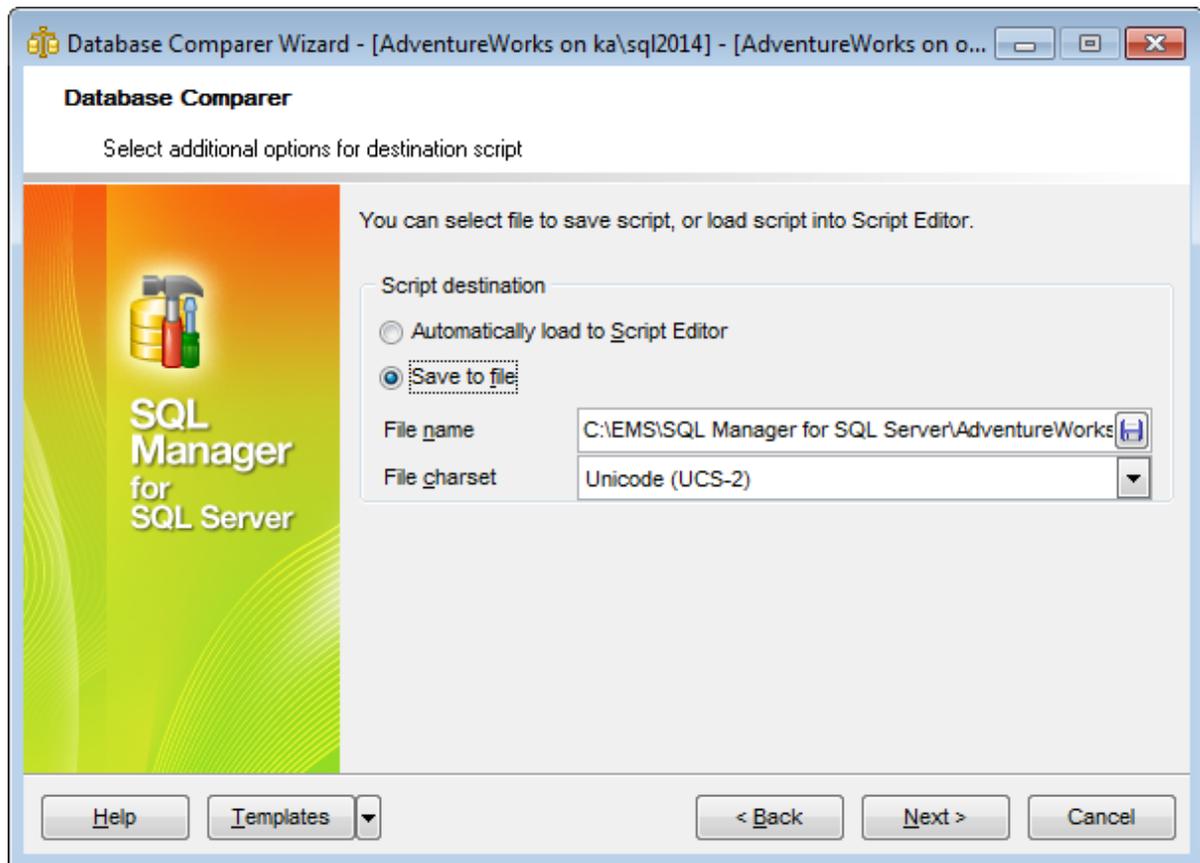
• **Source database into target database.**

Enables direct comparing: the synchronization script will contain statements which make the [source](#)^[684] database identical to the [target](#)^[686] one.

Click the **Next** button to proceed to the [Defining options concerned destination script](#)^[640] step.

9.5.4 Defining options for destination script

Use this step to define additional option for destination script.



Automatically load to Script Editor

With this option is enabled, the synchronization script will not be saved. It will be loaded to [Execute Script](#)^[619].

Save to file

Use this option if you need to save the synchronization script to a file.

File name

Defines the name of the file to save the synchronization script to. Click the  **Save** button to locate file using the standard dialog or type the file name and its location manually.

File charset

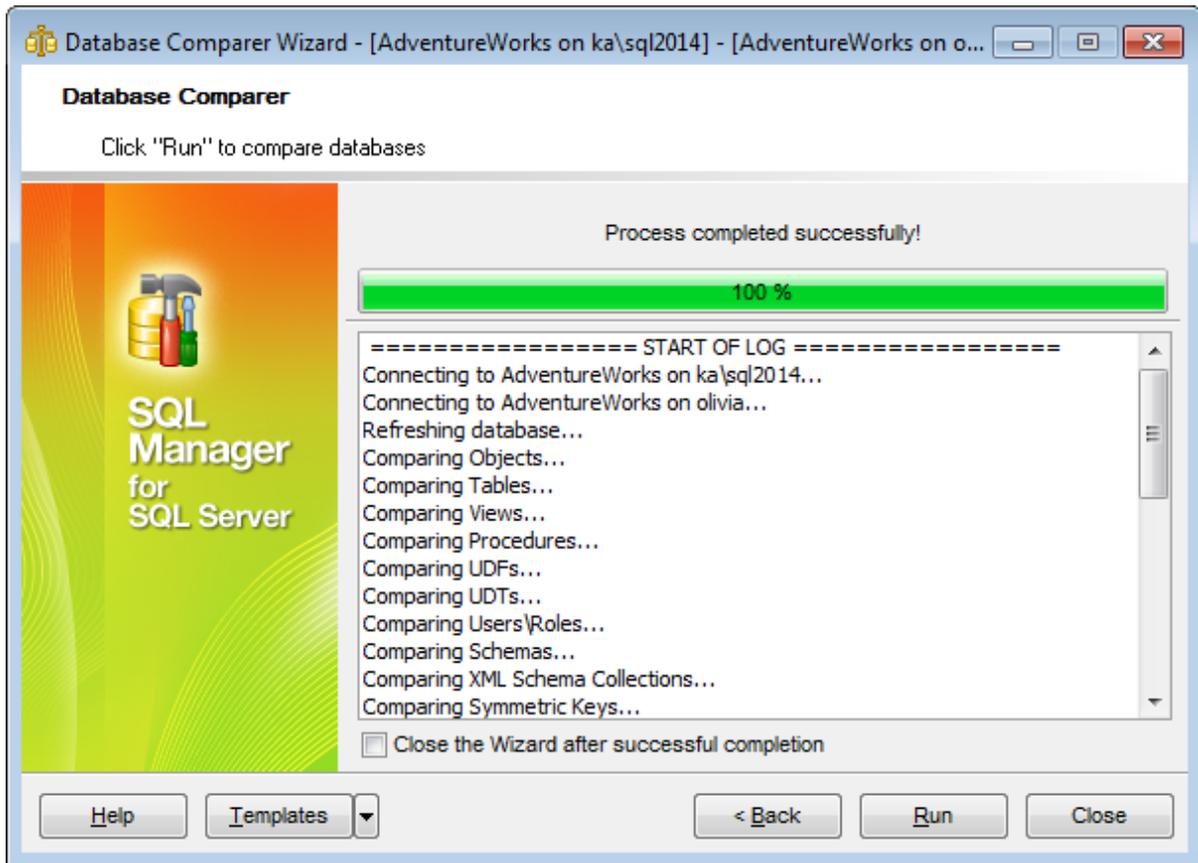
Specified character set will be used when saving the script to file.

Click the **Next** button to proceed to the [Performing operation](#)^[641] step.

9.5.5 Performing operation

This step of the wizard is intended to inform you that all necessary options have been set, and you can start comparing databases.

The log area allows you to view the log of operations and errors (if any).



Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed. If the option is disabled then you can repeat the operation with the same or redefined parameters.

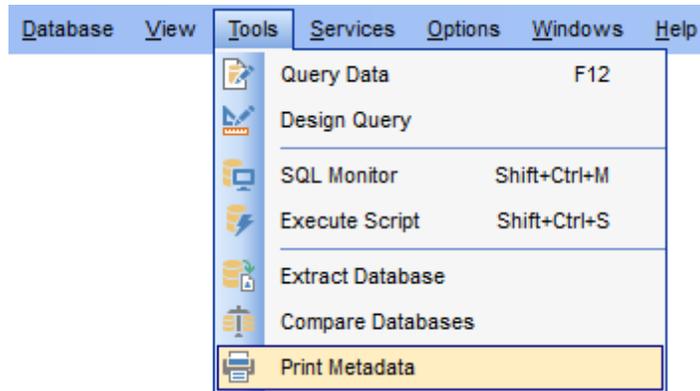
Click the **Run** button to run the backup database operation.

Use the [templates](#) ⁹³⁴ button to save current settings to template or to restore settings from an existing template.

9.6 Print Metadata

Print Metadata allows you to generate and print metadata reports of any database/server object(s).

To open the window, select the **Tools |  Print Metadata main menu^[915]** item, or use the ** Print Metadata** button on the main **toolbar^[917]**. Alternatively, you can right-click the database alias in the **DB Explorer^[63]** tree and select the **Tasks |  Print Metadata** item from the **context menu^[54]**.



- [Using Navigation bar and Toolbar^{\[643\]}](#)
- [Printing options^{\[645\]}](#)
- [Print Preview^{\[646\]}](#)

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix^{\[23\]}](#) page.

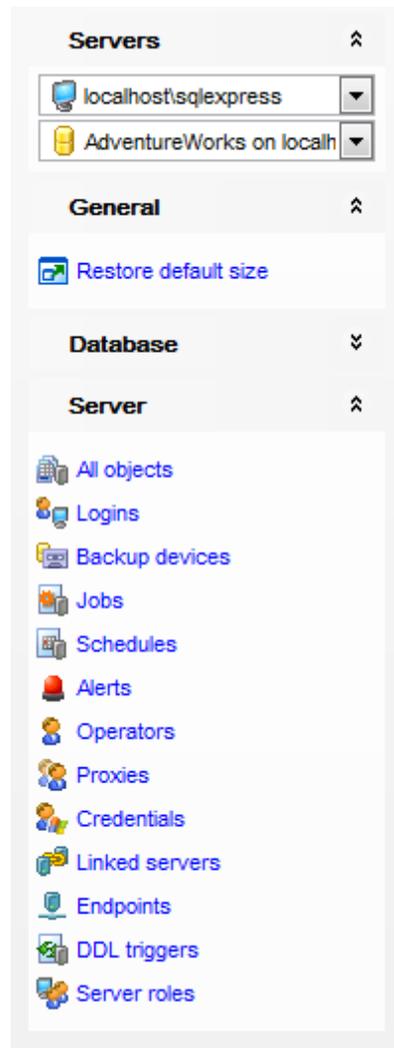
See also:

[Database and Server Objects Management^{\[178\]}](#)

[Print Metadata options^{\[85\]}](#)

9.6.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Print Metadata**.



The **Navigation bar** of the **Print Metadata** window allows you to:

Servers

-  select a server instance for the printing report
-  select a database for the printing report

General

-  print metadata of the selected object(s)
-  [preview](#)^[646] the printing report
-  restore the default size and position of the window

Database

- ✓ filter database objects by type

Server

- ✓ filter server objects by type

Items of the **Navigation bar** are also available on the **ToolBar** of the **Print Metadata** window. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

9.6.2 Printing options

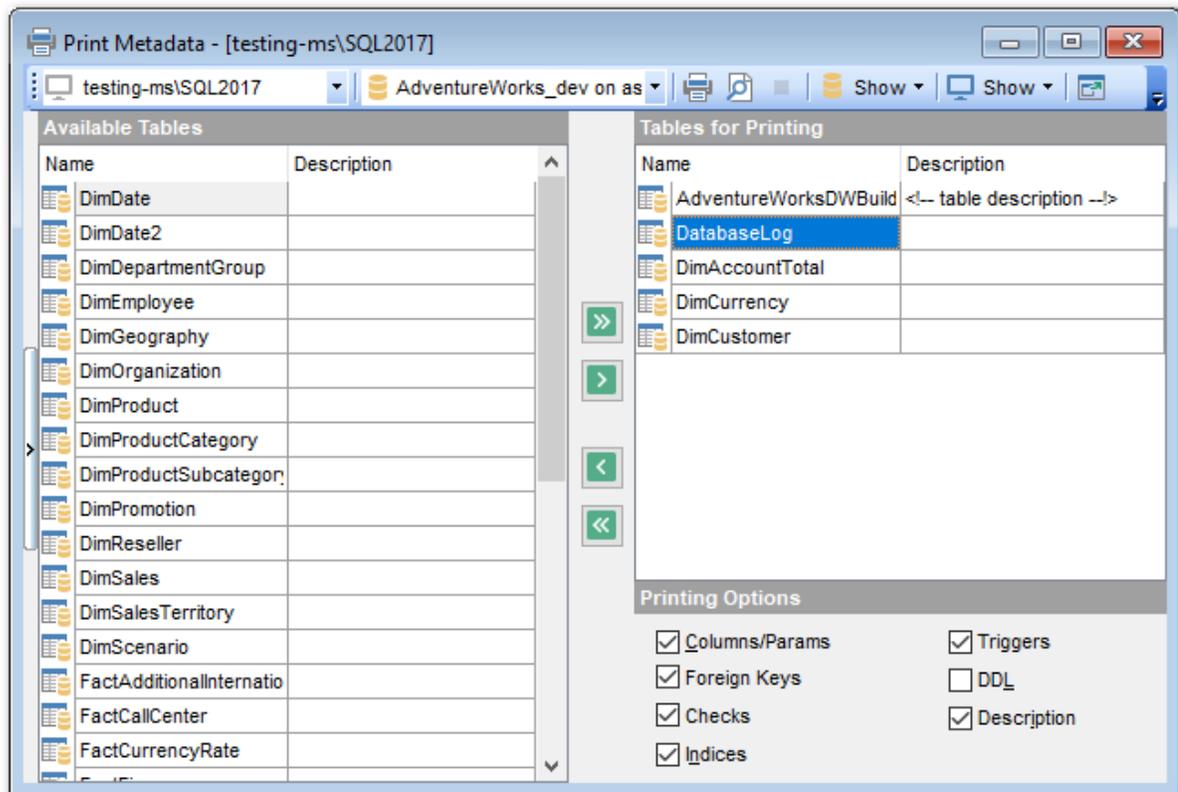
The **Print Metadata** window allows you to select the database objects for printing metadata.

To select an object, you need to move it from the **Available objects** list to the **Objects for printing** list. Use the     buttons or drag-and-drop operations to move the objects from one list to another.

After you select one or several objects, the **Printing Options** pane appears at the bottom.

Printing Options

Select an object in the **Objects for printing** list and specify items to be included into the printing report: *DDL*, *Description* (for all database objects), *Columns/Params*, *Foreign Keys*, *Checks*, *Indexes*, *Triggers* (for tables).



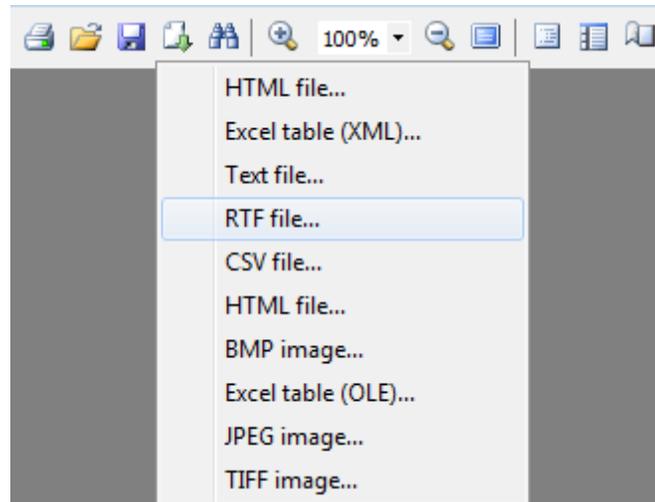
See also:

[Using Navigation bar and Toolbar](#)^[643]

[Print Preview](#)^[646]

9.6.3 Print Preview

You can  **make a preview** of the printing report and  **print metadata** for objects of the selected type using the corresponding items of the [Navigation bar](#)^[643] (or [toolbar](#)^[645]).



The [toolbar](#)^[647] of the **Preview** window allows you to:

- start printing the report;
- open a previously saved printing report;
- save the current report to an external *.fp3 file;
- export the preview content to any of the available formats: *HTML file, Excel file, Text file, RTF file, CSV file, HTML file, BMP image, Excel table (OLE), JPEG image, TIFF image* (use the  **Export** button for this purpose);
- search for text within the printing report;
- adjust zoom options;
- enable/disable printing report outline;
- enable/disable printing report thumbnails;
- specify page settings;
- edit the page using [Report Designer](#)^[665];
- navigate within the printing report pages;
- close the **Preview** window.

See also:

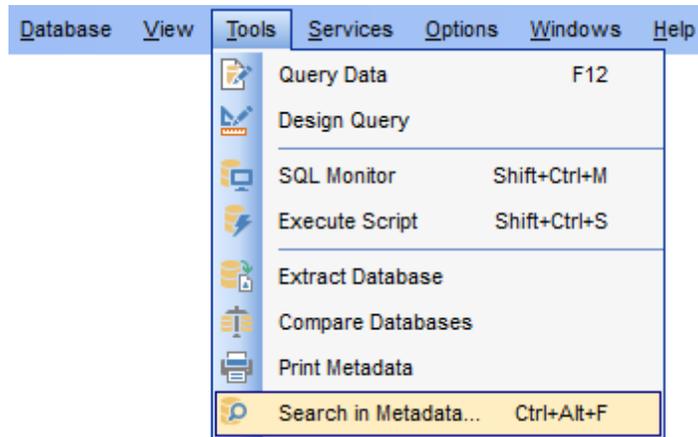
[Using Navigation bar and Toolbar](#)^[643]

[Printing options](#)^[645]

9.7 Search in Metadata

The **Search in Metadata** tool is implemented for quick search within the scope of database metadata. The tool allows you to set various search conditions and view the results.

To launch the **Search in Metadata** tool, select the **Tools | Search in Metadata** [main menu](#)^[615] item, or use the *Ctrl+Alt+F* [shortcut](#)^[652].



- [Using Navigation bar and Toolbar](#)^[647]
- [Setting search conditions](#)^[649]
- [Viewing search results](#)^[650]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

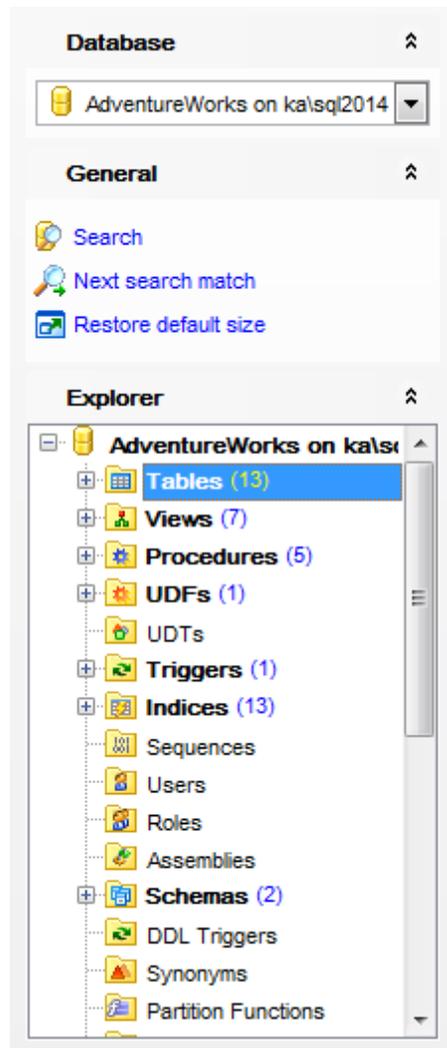
Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Database Objects Management](#)^[178]

9.7.1 Using navigation bar and toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Search in Metadata**.



The **Navigation bar** of the **Search in Metadata** tool allows you to:

Database

 select a database for searching

General

 set [search conditions](#)^[649]

 - go to next search match

 restore the default size and position of the window

Explorer

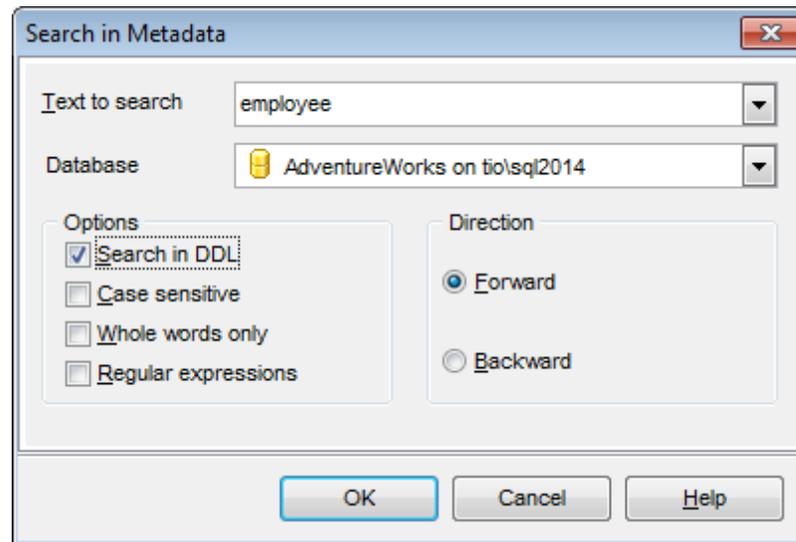
browse the tree of found database objects

Items of the **Navigation bar** are also available on the **ToolBar** of the **Search in Metadata** tool. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar

only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

9.7.2 Setting search condition

The **Search in Metadata** dialog allows you to set search conditions. It opens each time the **Search in Metadata** tool is launched.



Text to search

Enter a search string in this box. The Arrow-Down button which can be found next to the input box allows you to select any of the previously entered search strings.

Database

Use the drop-down list to select a database for the search operation.

Options

Search in DDL

Check this option to search for the specified text in full object DML statements. If the option is unchecked, the quick search is made in object names only.

Other search options are similar to those provided by the **Find Text** dialog. For detailed description of the search options refer to the [Find Text dialog](#)^[925] page.

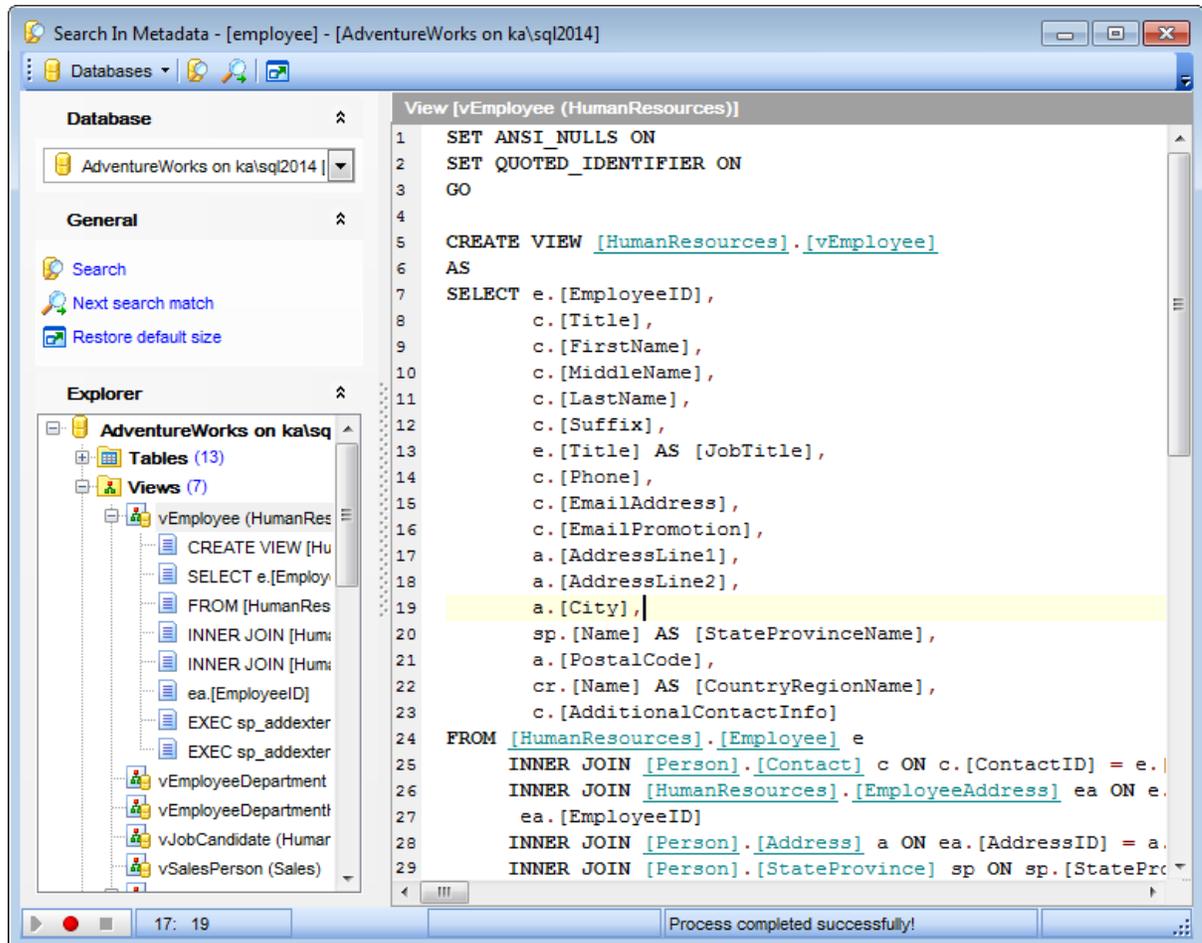
When all the options are set, click OK. The **Search in Metadata [search string]** report window will display the search progress and [results](#)^[650].

See also:

[Find Text dialog](#)^[925]

9.7.3 Viewing search result

The **Search in Metadata** window allows you to view the search progress and results fetched from the database.



After the search is complete, the **Explorer** group on the [Navigation bar](#)^[647] displays the tree of database objects in which the search string is found, and allows you to view metadata of the required object or its fragment quickly by clicking enclosed object branches in the tree.

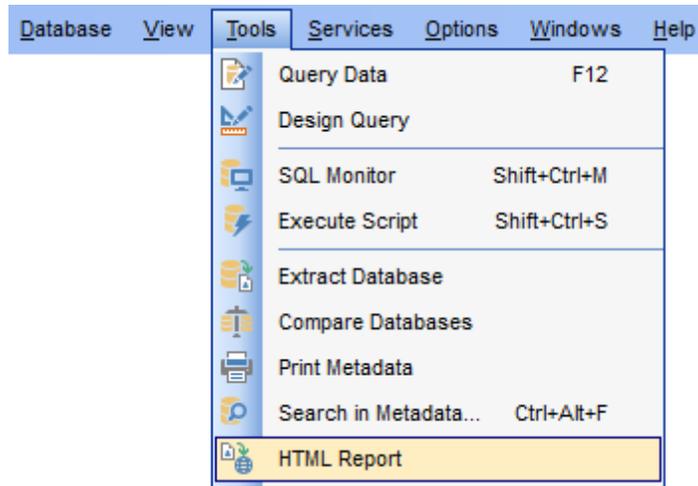
The **Object <object_name>** area is provided for viewing metadata of the objects, with the search string highlighted.

For your convenience the **syntax highlight**, **code completion** and a number of other features for efficient SQL editing are implemented. For details see [Working with Query Data area](#)^[429] and [Using the context menu](#)^[430].

9.8 HTML Report Wizard

HTML Report wizard allows you to generate a detailed HTML report of the selected database objects.

To start **HTML Report Wizard**, select the **Tools | HTML Report** [main menu](#)^[915] item, or use the **HTML Report** button on the main [toolbar](#)^[917]. Alternatively, you can right-click the database alias in the [DB Explorer](#)^[63] tree and select the **Tasks | HTML Report...** item from the [context menu](#)^[54].



- [Selecting database and directory](#)^[652]
- [Selecting object types](#)^[652]
- [Specifying CSS for HTML report](#)^[654]
- [Setting additional report options](#)^[656]
- [Creating HTML report](#)^[657]
- [Using templates](#)^[934]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Database and Server Objects Management](#)^[178]

[Using templates](#)^[934]

9.8.1 Selecting database and directory

At this step of the wizard you should select the **source database** and **output directory** for the HTML report.

Source host

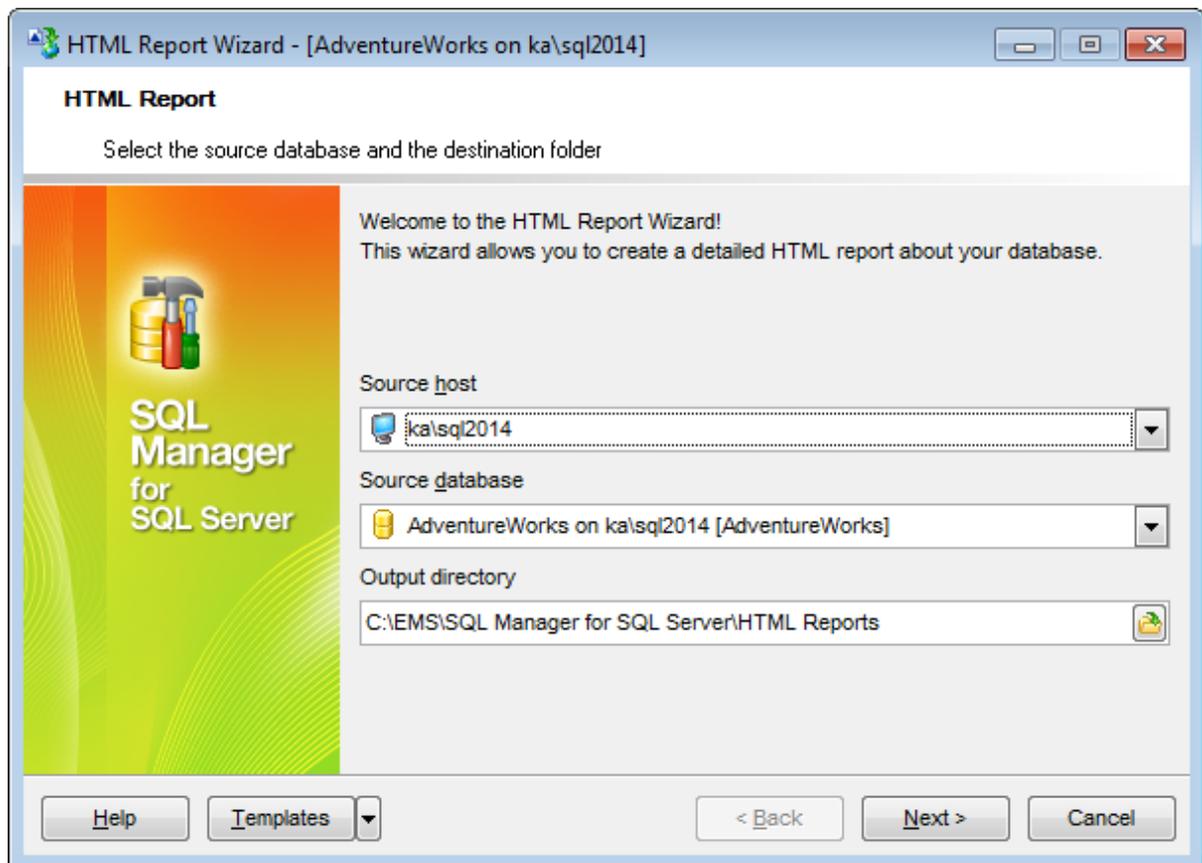
Define host where source database is located.

Source database

Use the drop-down list of [registered](#)^[117] and [connected](#)^[68] databases to select the source database for the report.

Output directory

Type in or use the  button to specify the path to the output directory for the result HTML files using the **Browse for Folder** dialog.

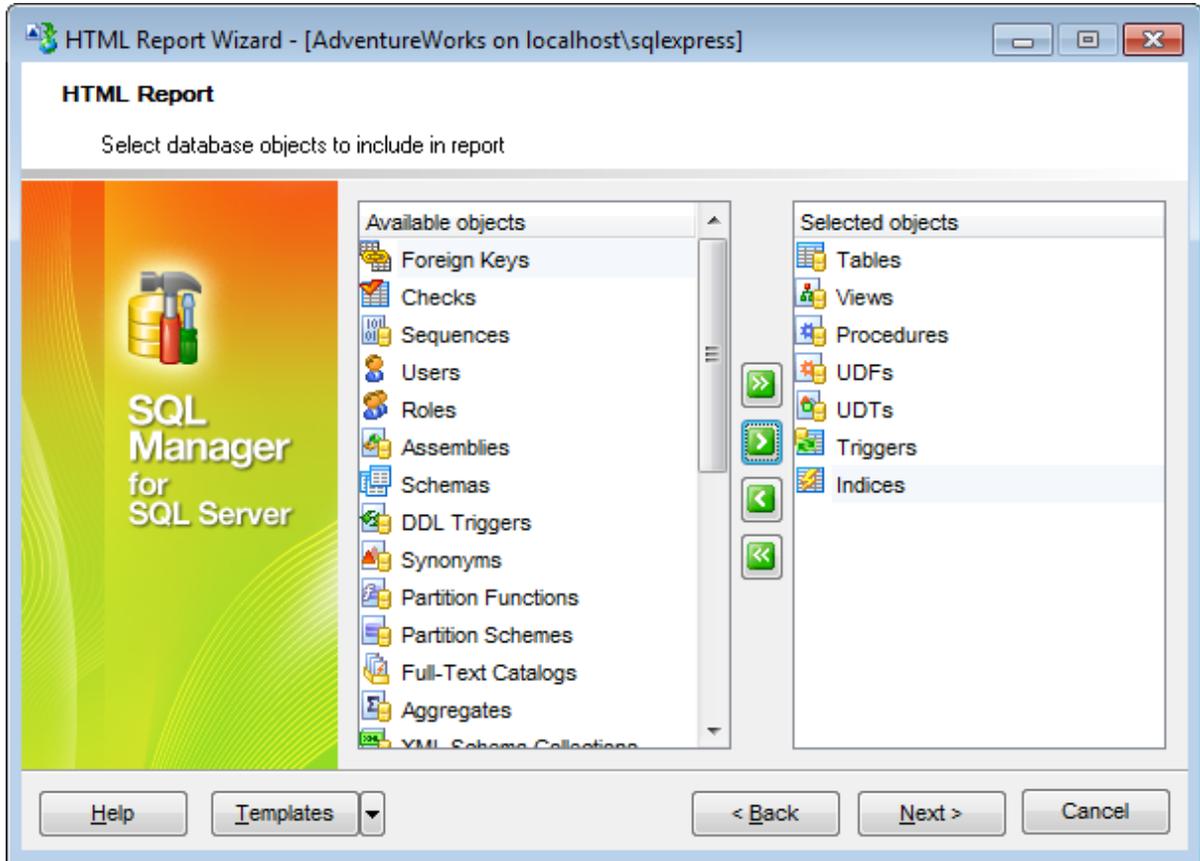


Click the **Next** button to proceed to the [Selecting object types](#)^[652] step of the wizard.

9.8.2 Selecting object types

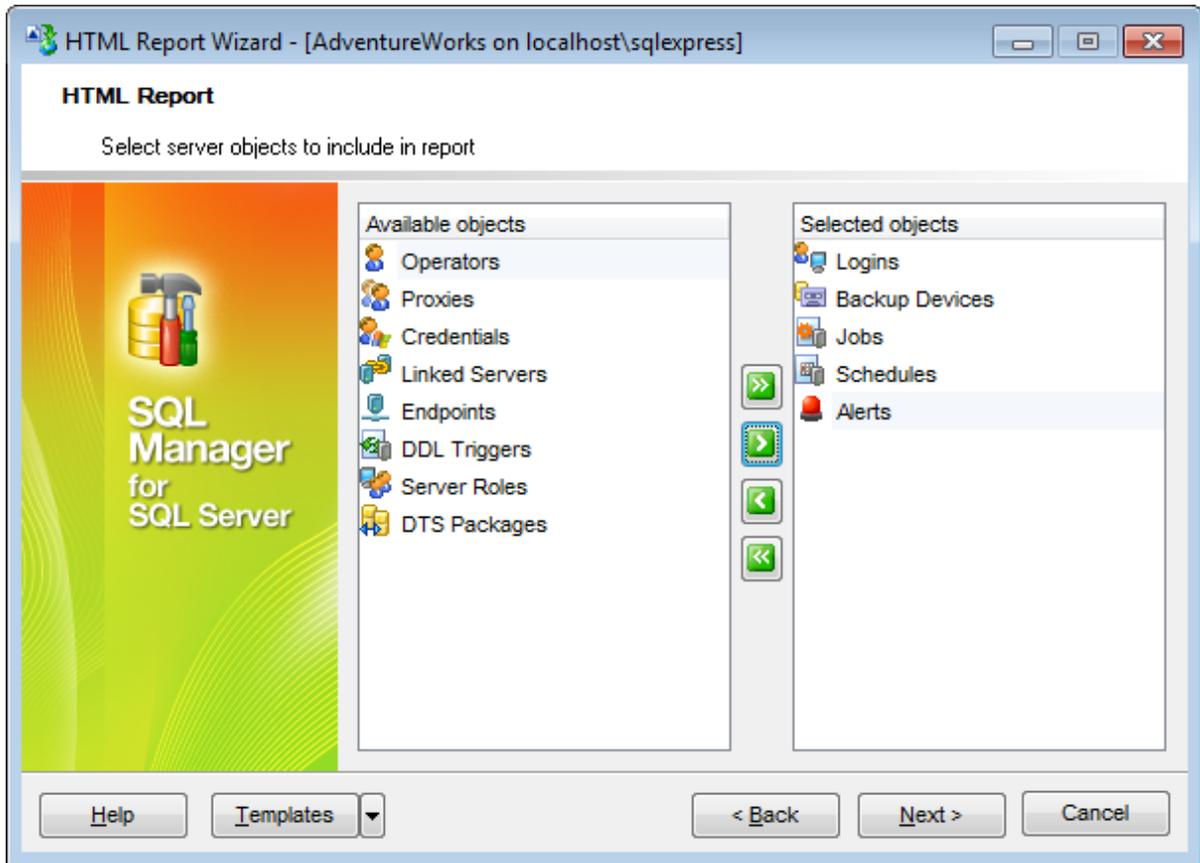
Use this step of the wizard to select *the types of database objects* to be included in the result HTML report.

To select a database object, you need to move it from the **Available objects** list to the **Selected objects** list. Use the     buttons or drag-and-drop operations to move the objects from one list to another.



Click the **Next** button to proceed to the next step allowing you to select *the types of server objects* to be included in the result HTML report.

To select a server object, you need to move it from the **Available objects** list to the **Selected objects** list. Use the     buttons or drag-and-drop operations to move the objects from one list to another.

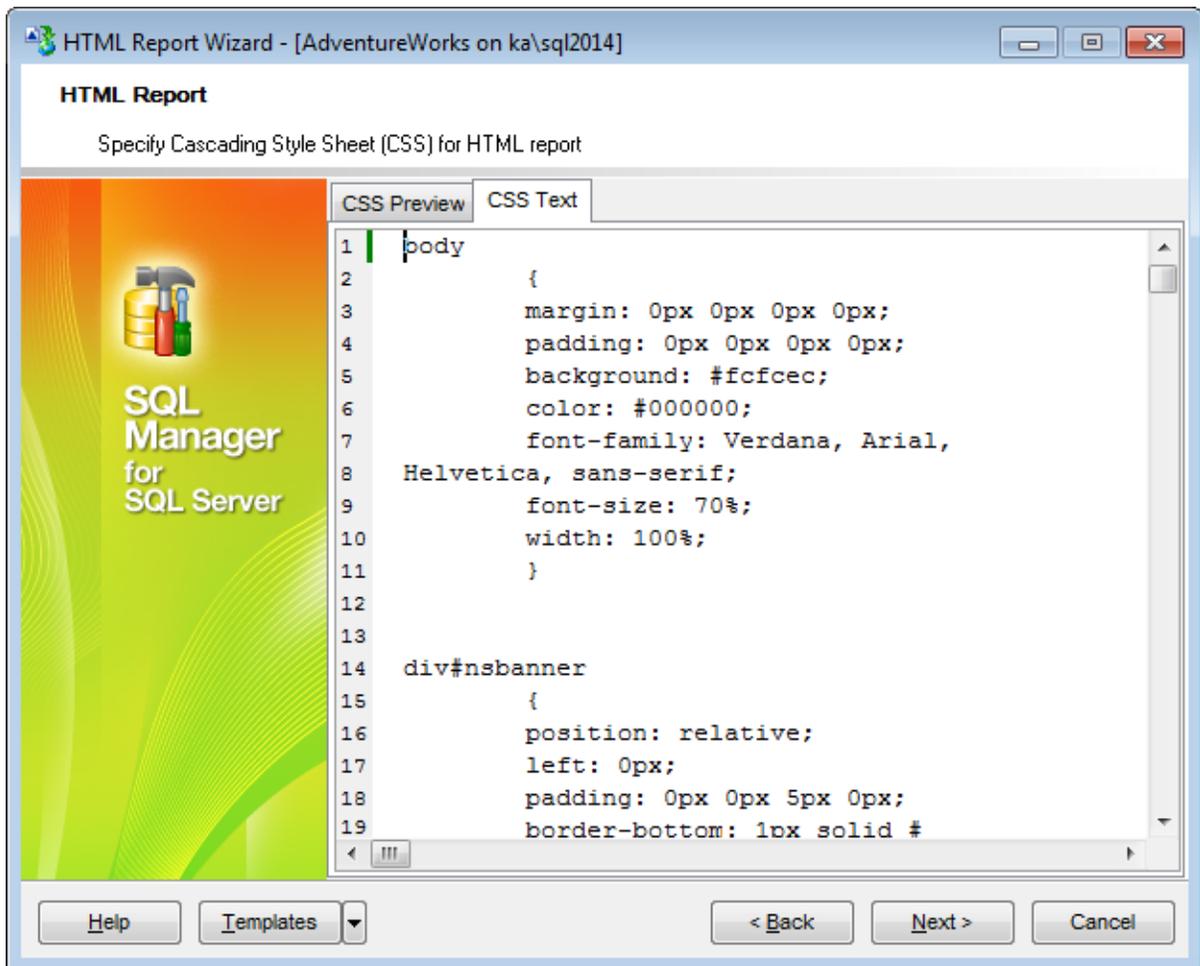


Click the **Next** button to proceed to the [Specifying CSS](#)⁶⁵⁴ step of the wizard.

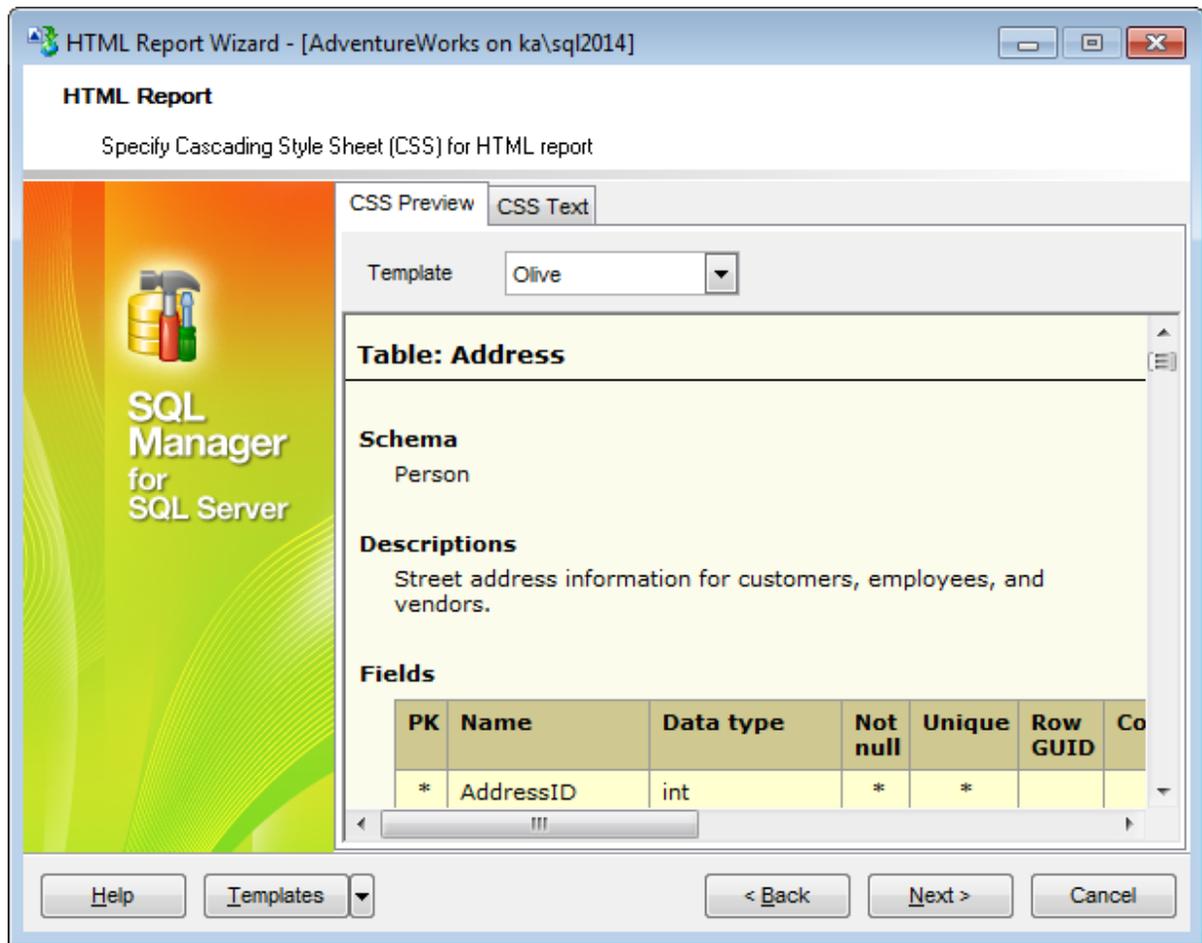
9.8.3 Specifying CSS

This step of the wizard allows you to edit the CSS (Cascading Style Sheet) file that will be used by the result HTML report.

On the *CSS Text* Tab you can edit the CSS file.



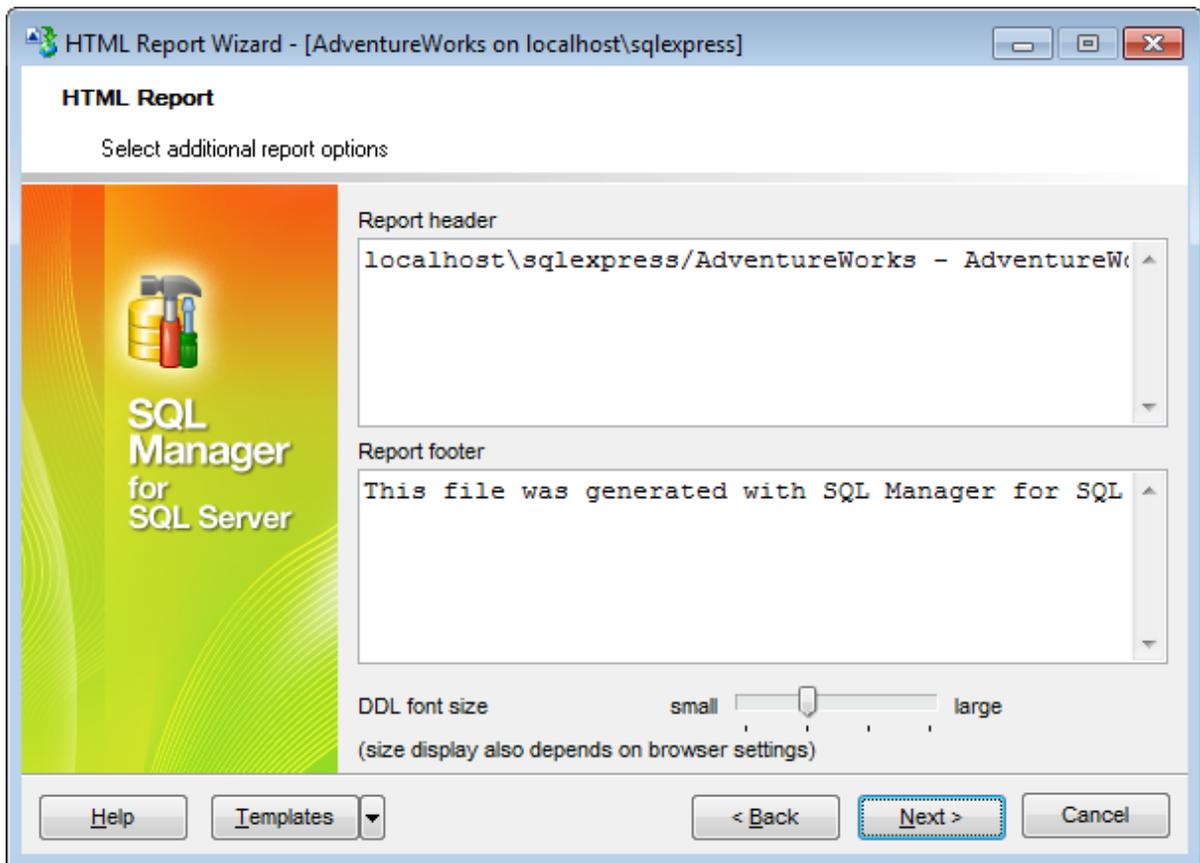
The *CSS Preview* tab allows you to view the HTML report with the defined style. You can select one of the pre-installed templates from the **Templates** drop-down list or select the Custom template and edit it on the *CSS Text* tab.



Click the **Next** button to proceed to the [Setting additional report options](#)⁶⁵⁶ step of the wizard.

9.8.4 Setting additional report options

Use this step of the wizard to set additional HTML report options.



If necessary, you can set optional text to **Report header** and **Report footer** of the result HTML report. For your convenience the default header and footer text is already available. If necessary, you can edit this text according to your needs.

DDL font size

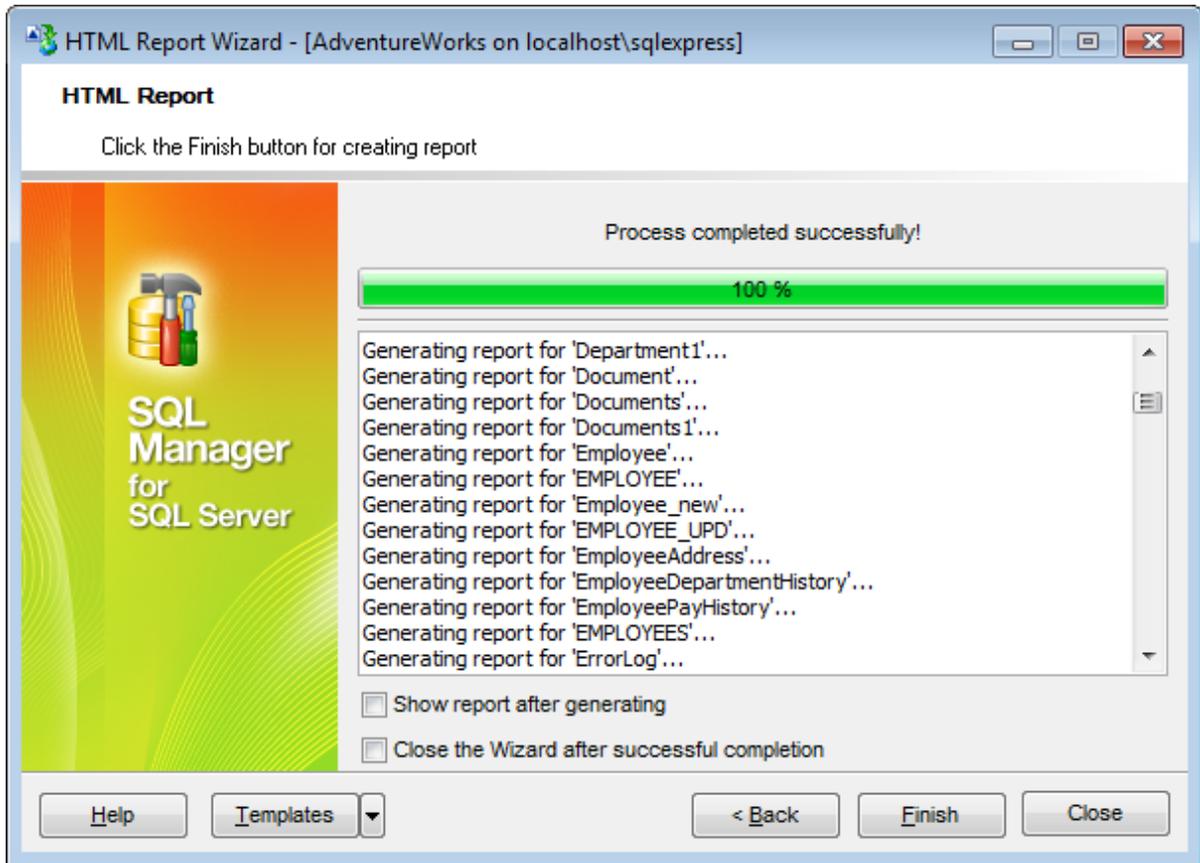
This control allows you to set the font size for the DDL section. Move the slider between the **small** and **large** threshold values to select the required font size value within this scope. Note that the text size also depends on your browser settings.

Click the **Next** button to proceed to [Creating HTML report](#)⁶⁵⁷.

9.8.5 Creating HTML report

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the process.

The log area allows you to view the log of operations and errors (if any).



Show report after generating

This option opens the result report in your default browser after generating.

Close the wizard after successful completion

If this option is selected, the wizard is closed automatically when the creating HTML report process is completed.

If necessary, you can save a [template](#)⁹³⁴ for future use.

Click the **Finish** button to run the process.

9.9 Reports management

SQL Manager for SQL Server provides several tools for efficient *reports management*:

[Create Report Wizard](#)^[659]

This tool is used to simplify the process of creating reports.

[Report Designer](#)^[665]

It is a basic tool for creating powerful reports.

[Report Viewer](#)^[677]

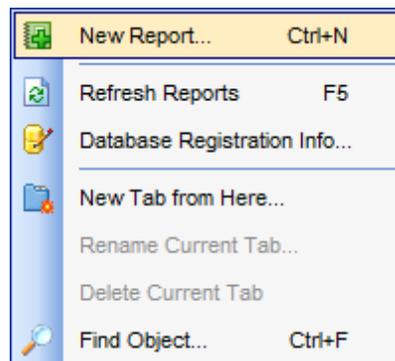
Allows you to view created reports.

Reports can be stored either in the database (table *msmreports* will be created to store them) or in a directory on your hard drive specified on the [Directories](#)^[127] page of the [Database Registration Info](#)^[116] dialog.

9.9.1 Create Report Wizard

Using **Create Report Wizard** you can create a report containing required datasets, bands and fields on them, with a definite report style applied.

To start the wizard, select the **Database | New Object...** [main menu](#)^[915] item, then select **Report** in the [Create New Object](#)^[180] dialog. Alternatively, you can right-click the **Reports** node of the [DB Explorer](#)^[63] tree and select the **New Report...** item from the [context menu](#)^[56].



- [Specifying report name and options](#)^[660]
- [Selecting report bands](#)^[661]
- [Selecting report style](#)^[662]
- [Specifying paper settings](#)^[663]
- [Specifying margins](#)^[663]
- [Specifying other page settings](#)^[664]

Availability:

Full version (for Windows) **Yes**

Lite version (for **No**)

Windows)

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Report Designer](#)^[665]

[Report Viewer](#)^[677]

9.9.1.1 Specifying database name and report options

Select the source **database** for adding a report and choose the action you need to perform: either *create a new report* or *import an existing report from file*.

Set the **name** for the new report and specify the save options for it:

Save to database

The report will be created on the server inside the database.

Save to file

If this option is selected, the report will be saved as a *.fr3 file to the directory specified on the [Directories](#)^[127] page of the [Database Registration Info](#)^[116] dialog.

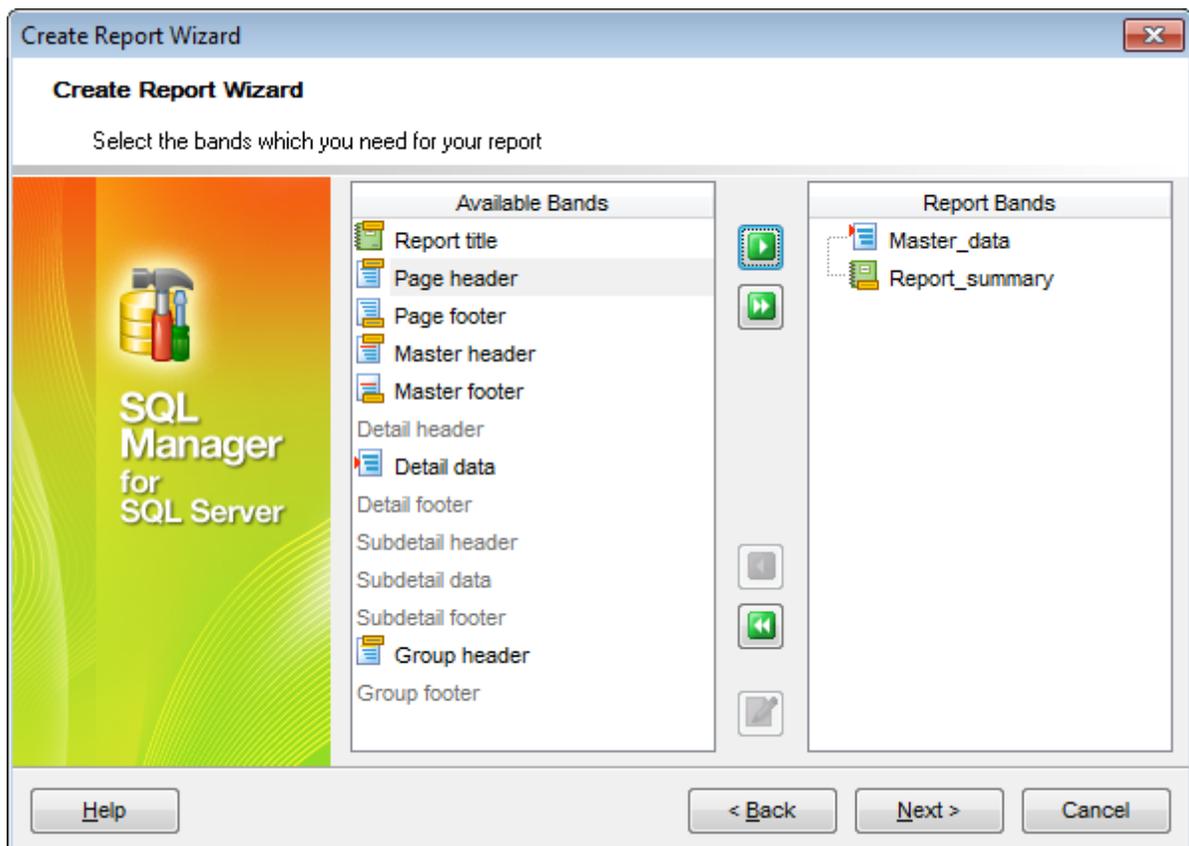


Click the **Next** button to proceed to the [Selecting report bands](#)^[667] step of the wizard.

9.9.1.2 Selecting report bands

This step of the wizard allows you to select the bands to be included in the report. To select a band, you need to move it from the **Available Bands** list to the **Report Bands** list. Use the     buttons or drag-and-drop operations to move the fields from one list to another.

Use the  **Edit** button to create datasets for 'data' bands using [Design Query](#)^[442].



Brief information about bands functionality is listed below. See **FastReport Help** for more information.

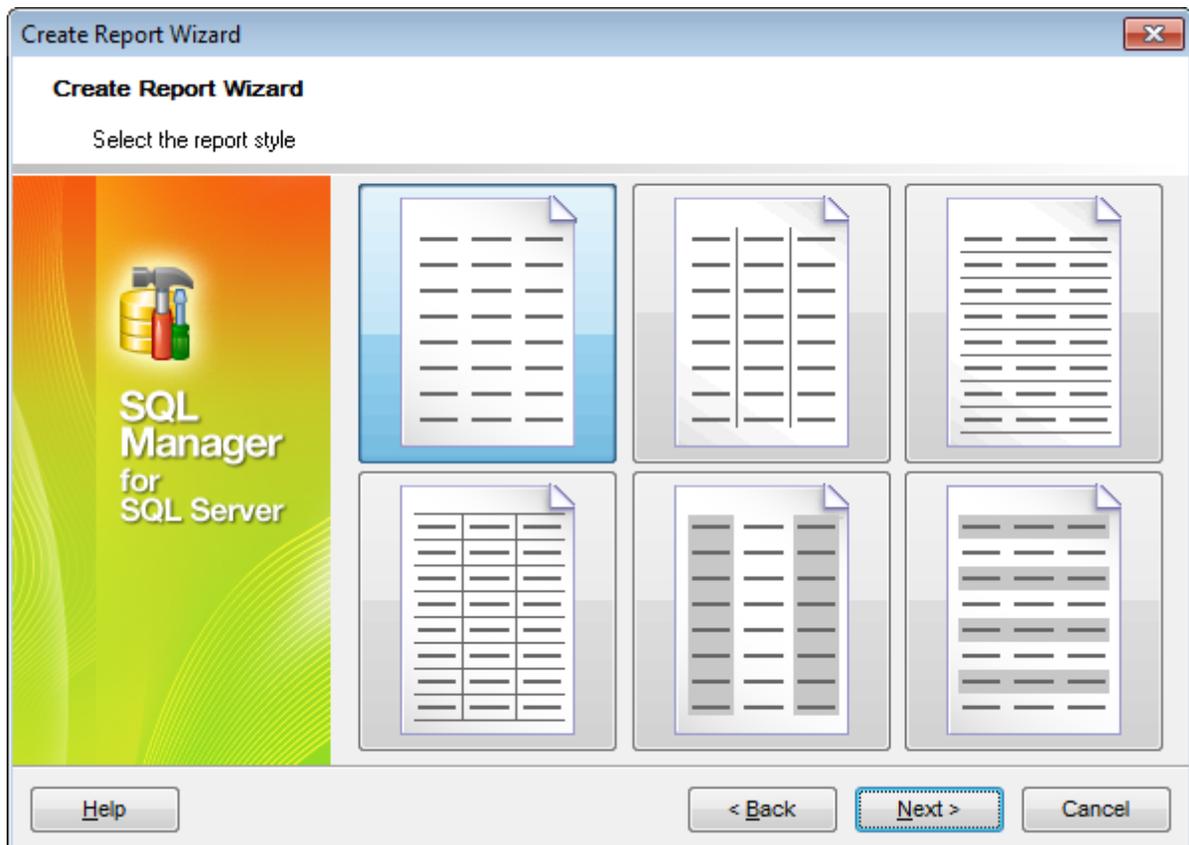
Name	Functionality
Report title	<i>Prints once at the beginning of report</i>
Report summary	<i>Prints once at the end of report</i>
Page header	<i>Prints at the top of each page</i>
Page footer	<i>Prints at the bottom of each page</i>
Master header	<i>Prints at the beginning of master list</i>
Master data	<i>Data rows of master list</i>

Master footer	<i>Prints at the end of master list</i>
Detail header	<i>Prints at the beginning of detail list</i>
Detail data	<i>Data rows of detail list</i>
Detail footer	<i>Prints at the end of detail list</i>
Subdetail header	<i>Prints at the beginning of subdetail list</i>
Subdetail data	<i>Data rows of subdetail list</i>
Subdetail footer	<i>Prints at the end of subdetail list</i>
Group header	<i>Prints at the beginning of each group</i>
Group footer	<i>Prints at the end of each group</i>

Click the **Next** button to proceed to the [Selecting report style](#)⁶⁶² step of the wizard.

9.9.1.3 Selecting report style

Select the report style by clicking one of the images illustrating the styles available for the report.

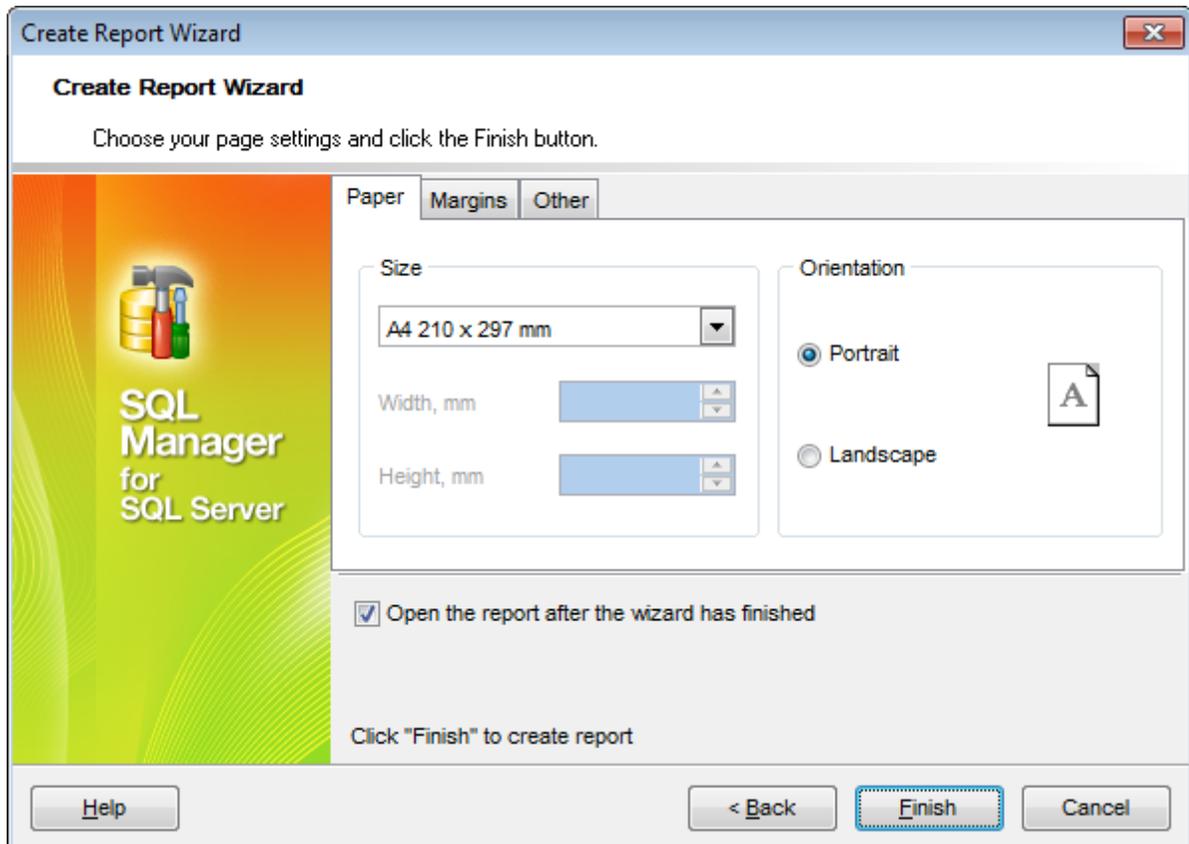


Click the **Next** button to proceed to the [Specifying paper settings](#)⁶⁶³ step of the wizard.

9.9.1.4 Specifying page settings

9.9.1.4.1 Specifying paper settings

Specify report options: paper size and orientation, [page margins](#)^[663], [other settings](#)^[664].



Use the **Margins** tab to [specify margins](#)^[663] for the result report.

Open the report after the wizard has finished

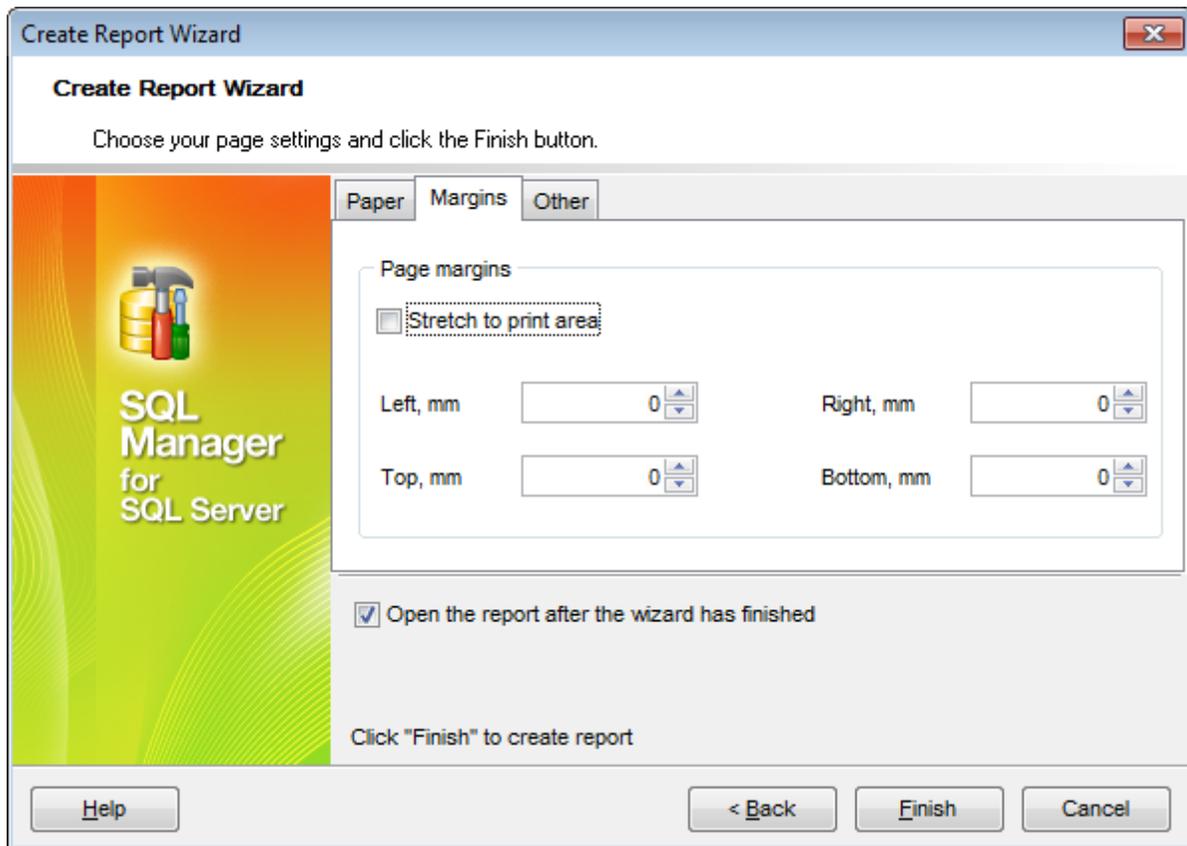
If this option is checked, the report will be opened in [Report Designer](#)^[665] after generating.

When you are done, click the **Finish** button to run the report generation process.

9.9.1.4.2 Specifying margins

Stretch to print area

If this option is checked, the size of report is adjusted to the print area. If this option is unchecked, you can specify the *left*, *right*, *top* and *bottom* margins (in millimeters).



Use the **Other** tab to [specify other page settings](#)^[664] for the result report.

Open the report after the wizard has finished

If this option is checked, the report will be opened in [Report Designer](#)^[665] after generating.

When you are done, click the **Finish** button to run the report generation process.

9.9.1.4.3 Specifying other page settings

Options

Print to previous page

This option allows to use white space on a previous page. This option can be used in case when a report template consists of several pages or when printing batch (composite) reports.

Two-pass report

If this option is selected, report's formation will be performed in two steps. During the first pass, a report is formed, and is divided into pages, but the result is not saved anywhere. During the second pass a standard report formation with saving a result in the stream is performed.

Page numbering

This option allows to print a page numbers.

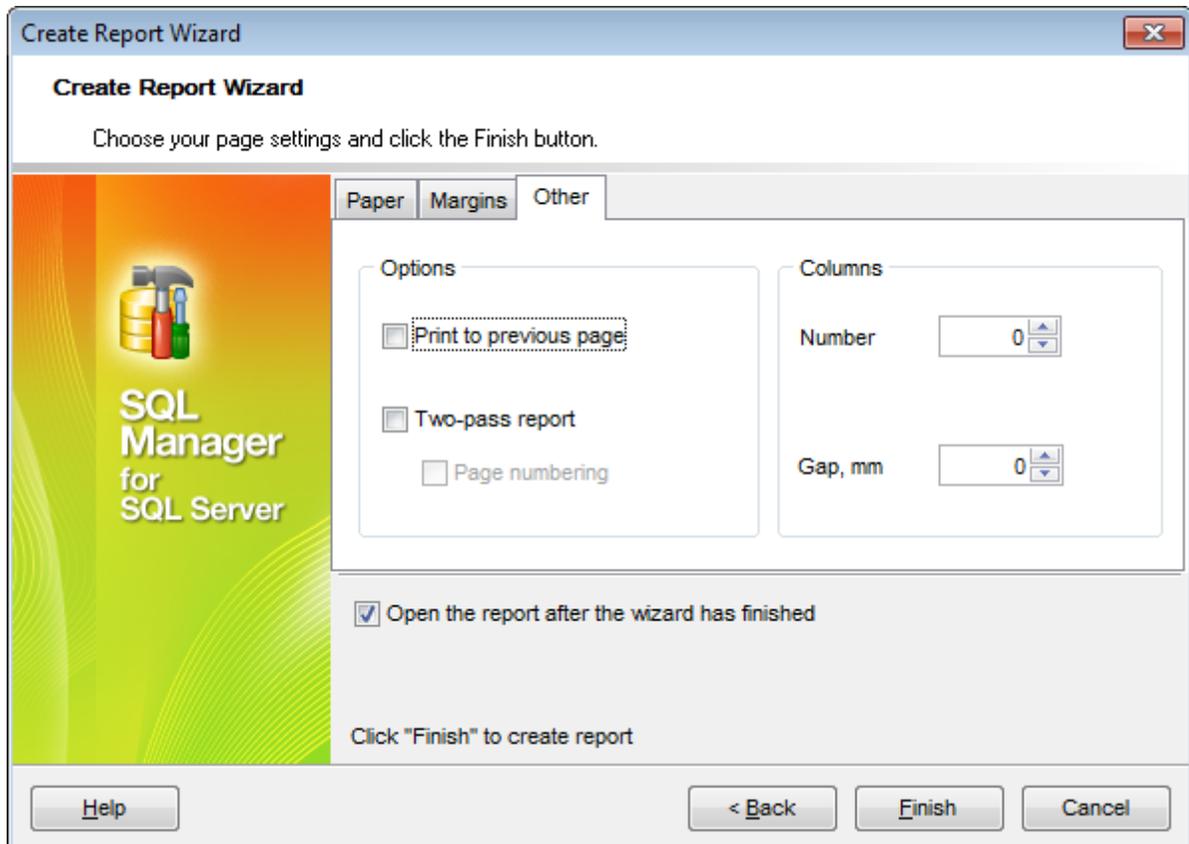
Columns

Number

This parameter specifies the number of columns for multi-column reports' printing.

Gap, mm

This parameter specifies the width of the gap between columns.



Open the report after the wizard has finished

If this option is checked, the report will be opened in [Report Designer](#)^[665] after generating.

When you are done, click the **Finish** button to run the report generation process.

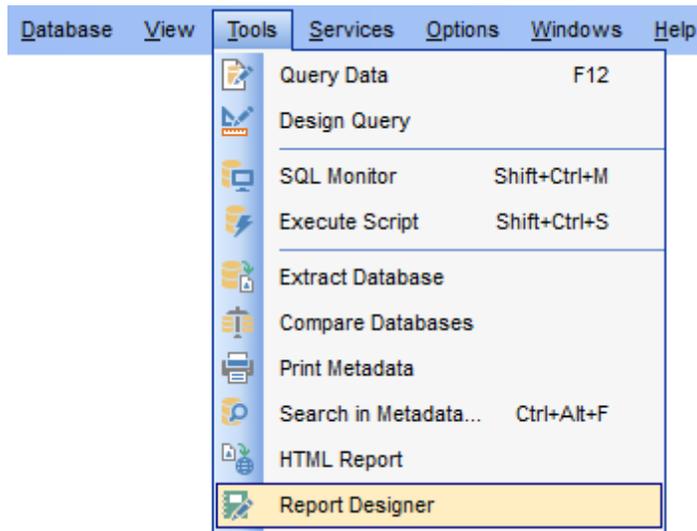
9.9.2 Report Designer

Report Designer allows you to create and edit reports. This tool can be opened after completion of [Create Report Wizard](#)^[659] to design a new report.

To edit an already existing project, use the appropriate [Navigation bar](#)^[678] item of [Report Viewer](#)^[677].

This module is provided by Fast Reports, Inc. (<http://www.fast-report.com>) and has its

own help system. Press the **F1** key in the **Report Designer** to call the **FastReport** help.



Please find the instructions on how to create a simple report in the **Report Designer** below:

- [Adding dialog form](#)^[676]
- [Adding database and query components](#)^[670]
- [Adding report data](#)^[672]
- [Viewing the report](#)^[674]
- [Saving the report](#)^[675]

Note: The **Object Inspector** which allows you to edit report object properties, can be shown/hidden by pressing the **F11** key.

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

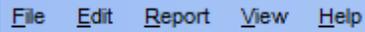
[Create Report Wizard](#)^[659]

[Report Viewer](#)^[677]

9.9.2.1 Basic elements

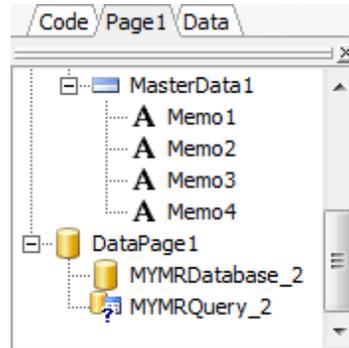
Report designer's working area consists of the following elements: [Main menu](#)^[666], [Report Tree](#)^[667], [Data Tree](#)^[667], [Workspace](#)^[667] and [Object inspector](#)^[668].

Main menu



Report Tree

This element is located by default in the top left part of the window. You can view report structure as a tree.



Report tree has the following tabs you can switch between: *Code*, *Data*, *Page* and *Dialog Page*.

Code

Allows working with the report script.

Data

Displays data structure of the report.

Page

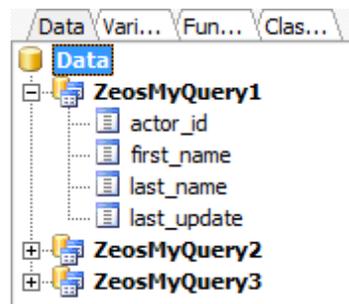
Displays printing form of the report.

Form

Displays dialog form of the report.

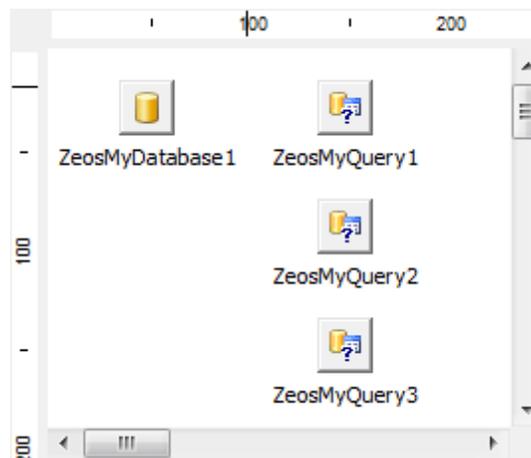
Data Tree

This element is located by default in the bottom left part of the window. Structure of the data defined with the  **ADOTable** and  **ADOQuery** is displayed here as a tree.



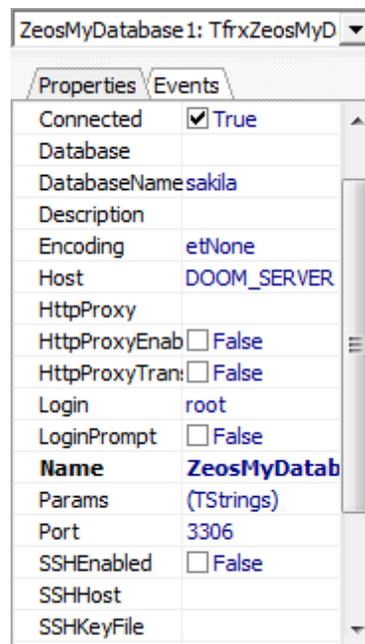
Workspace

Main working space is located in the center of the window.



Object Inspector

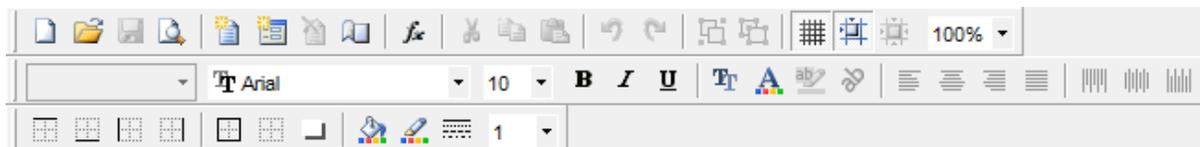
Allows viewing and changing properties of the selected object. By default this element is located in the right part of the window.



Note: Object Inspector can be opened by pressing the **F11** keyboard button.

9.9.2.1.1 Toolbars

Common toolbars are located in the top part of the window.

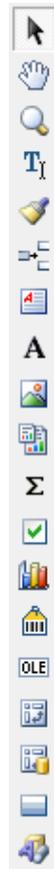


Depending on the tab selected in the [Report Tree](#) elements of the side toolbar can differ.

For **Data** tab:



For **Page** tab:

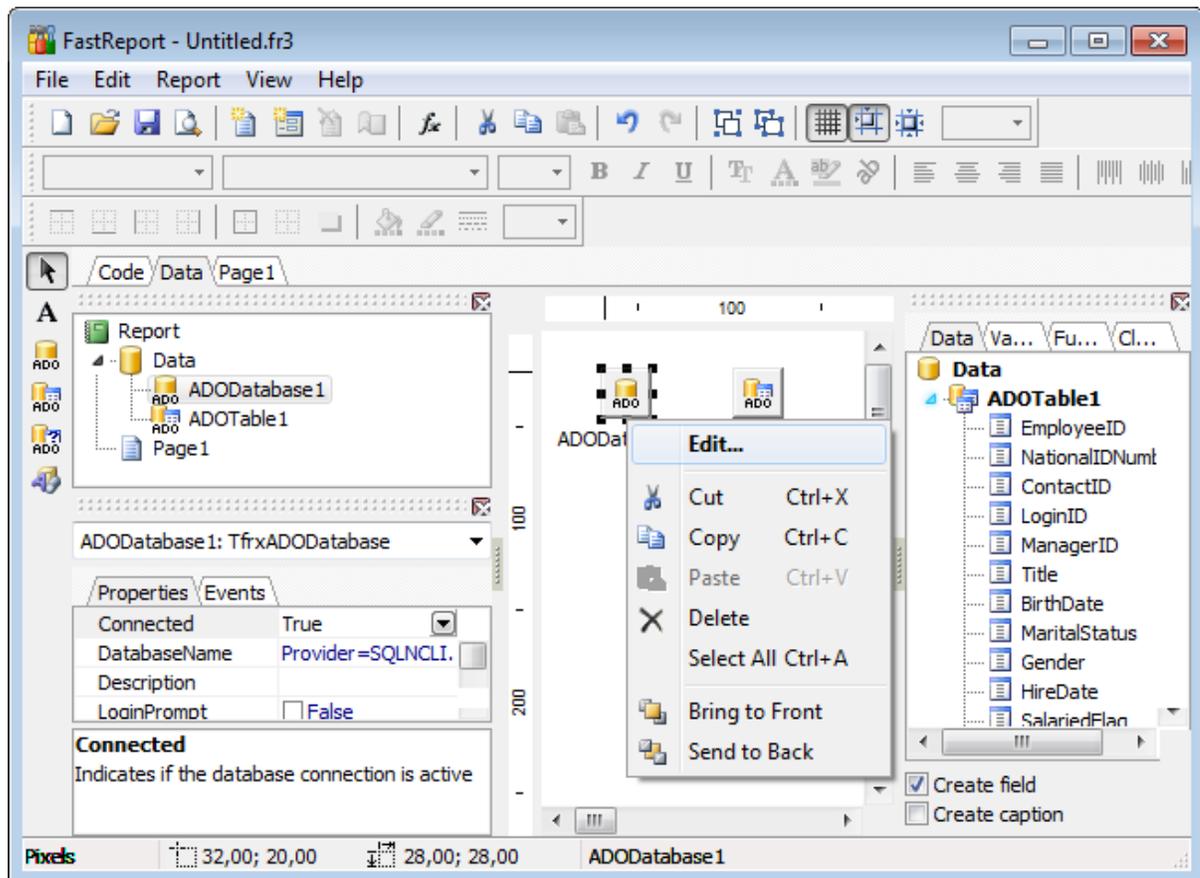


For **DialogPage** tab:



9.9.2.2 Adding database and query components

To start working with report you need to define data source.



Adding database component

In order to add the *Database* component:

- proceed to the **Data** tab of [Report tree](#)^[667];
- pick the **ADO Database** component on the toolbar (on the left);
- click within the working area - the corresponding *ADODatabase1* icon appears in the area;
- use the Edit item of the component context menu item;
- in the appeared window define database connection parameters using the connection string or the standard windows dialog window that can be opened by pressing the  button. **SQL Native Client** should be specified as data provider;
- make sure that the **Connected** property value in the [Object Inspector](#)^[666] is set to *True*.

Adding table component

In order to add the *Table* component:

- proceed to the **Data** tab of [Report tree](#)^[666];
- pick the **ADOTable** component on the toolbar (on the left);
- click within the working area - the corresponding *ADOTable1* icon appears in the area;
- Define the following options in the [Object Inspector](#)^[666]: *Database* (select any defined **ADODatabase**) and *TableName* (select a table from the connected database). Once *TableName* is specified, all columns from this table are displayed in the [Data Tree](#)^[666].

Adding query component

In order to add the *Query* component:

- proceed to the **Data** tab of [Report tree](#)^[666];
- pick the  **ADO Query** component on the toolbar (on the left);
- click within the working area - the corresponding *ADOQuery1* icon appears in the area;
- use the Object Inspector to define the following properties: **Database** (select any defined  **ADODatabase**) and **SQL** (press the  ellipsis button to open Query Data where you can define query text).

See also:

[Adding dialog form](#)^[676]

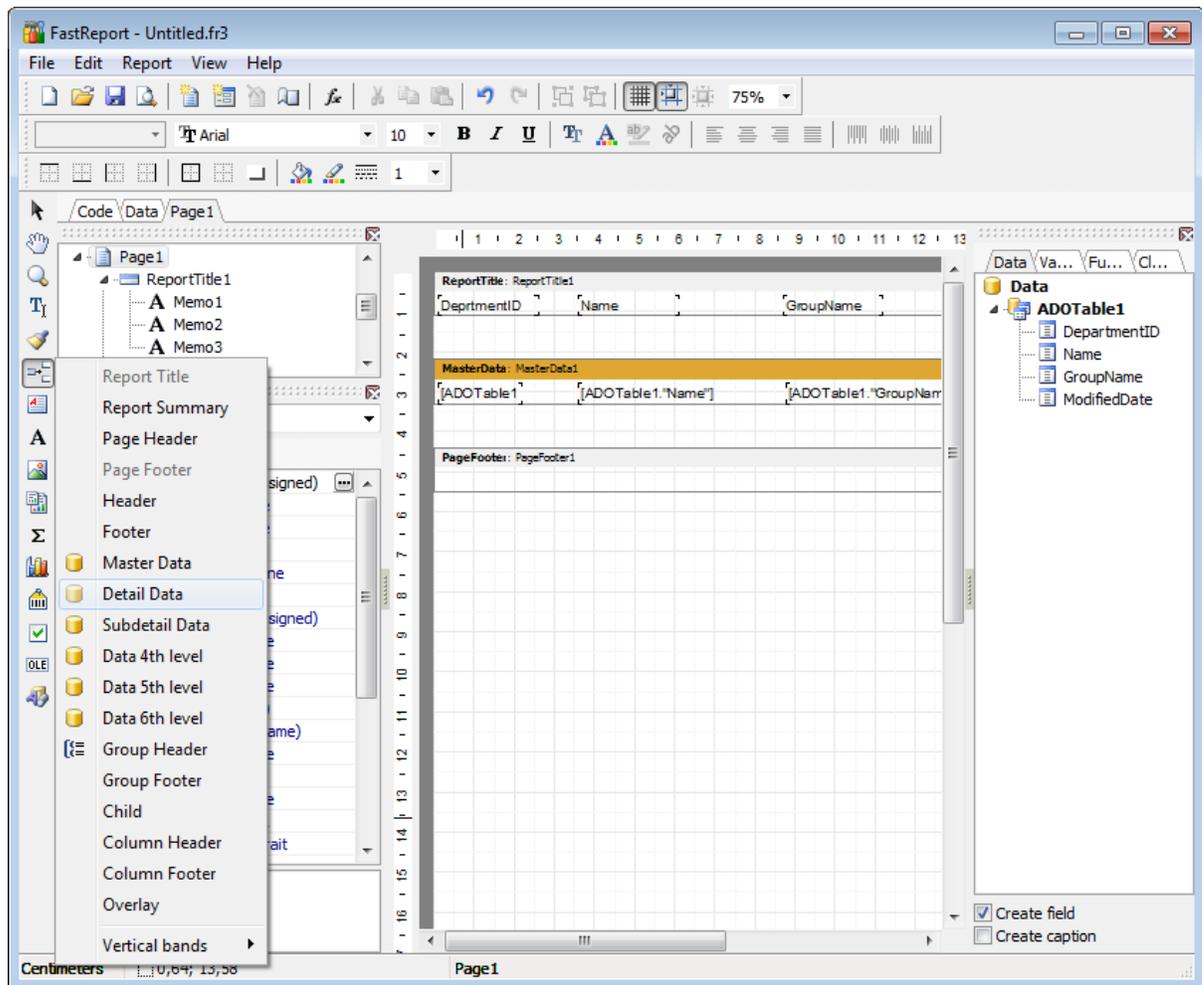
[Adding report data](#)^[672]

[Viewing the report](#)^[674]

[Saving the report](#)^[675]

9.9.2.3 Adding report components

To start working with the printing form of the report proceed to the **Page** tab of the [Report Tree](#)^[666].



You can customize report view using bands. Each band can define specified data.

Adding bands

In order to add a band to the report:

- proceed to the **Page1** tab of [Report Tree](#)^[666];
- pick the **Insert Band** component on the toolbar (on the left);
- select the band to be added to the report;
- click within the working area - the corresponding element appears in the area;
- set element properties within the **Properties Inspector**.

Each band appears in the [Report Tree](#)^[666] as a node.

Table and report data should be added as **Master Data** and column headers as **Group Header**.

Adding report data

In order to add data to the report:

- proceed to the **Data** tab within the panel on the right side of the window;

- pick a field within the  **Data** tree and drag it to the working area;
- add all necessary elements one by one using drag-and-drop operation for each of them.

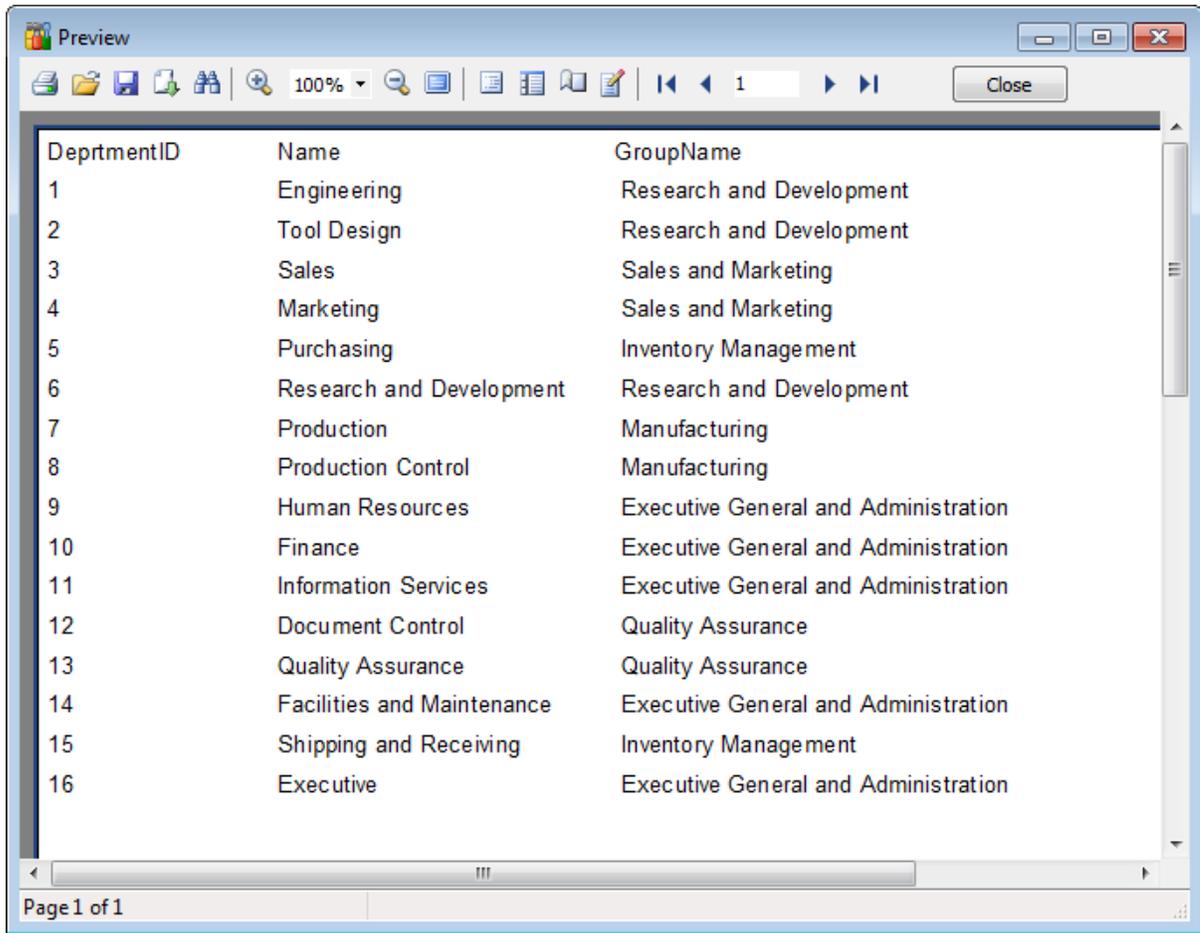
See also:[Adding dialog form](#)^[676][Adding database and query components](#)^[670][Viewing the report](#)^[674][Saving the report](#)^[675]

9.9.2.4 Viewing the report

Viewing the report

To preview the newly created report, select the **File | Preview** main menu item or use the corresponding  **Preview** toolbar button. You can also use the *Ctrl+P* [shortcut](#)^[952] for the same purpose. This mode allows you to view, edit and print the result report.

To print the report, use the  **Print** toolbar button or the corresponding context menu item.



The screenshot shows a 'Preview' window with a table containing 16 rows of data. The table has three columns: DepartmentID, Name, and GroupName. The data is as follows:

DepartmentID	Name	GroupName
1	Engineering	Research and Development
2	Tool Design	Research and Development
3	Sales	Sales and Marketing
4	Marketing	Sales and Marketing
5	Purchasing	Inventory Management
6	Research and Development	Research and Development
7	Production	Manufacturing
8	Production Control	Manufacturing
9	Human Resources	Executive General and Administration
10	Finance	Executive General and Administration
11	Information Services	Executive General and Administration
12	Document Control	Quality Assurance
13	Quality Assurance	Quality Assurance
14	Facilities and Maintenance	Executive General and Administration
15	Shipping and Receiving	Inventory Management
16	Executive	Executive General and Administration

The window includes a toolbar with various icons, a 'Close' button, and a status bar at the bottom indicating 'Page 1 of 1'.

It is also possible to preview/print the report using [Report Viewer](#)^[677].

To export report

- press the  **Export** button at the report viewer toolbar;
- select needed file format to export report into;
- specify file name and location in the appeared dialog.

See also:

[Adding dialog form](#)^[676]

[Adding database and query components](#)^[670]

[Adding report data](#)^[672]

[Saving the report](#)^[675]

9.9.2.5 Saving the report

When all report parameters are set, you can save the report to an external *.fr3 file on your local machine or on a machine in the LAN.

To save the report, select the **File | Save** main menu item or use the corresponding **Save Report** toolbar button. You can also use the *Ctrl+S* [shortcut](#)^[952] for the same purpose.

If necessary, you can add the report to the database using [Create Report Wizard](#)^[659] and perform preview/print operations using [Report Viewer](#)^[677].

See also:

[Adding dialog form](#)^[676]

[Adding database and query components](#)^[670]

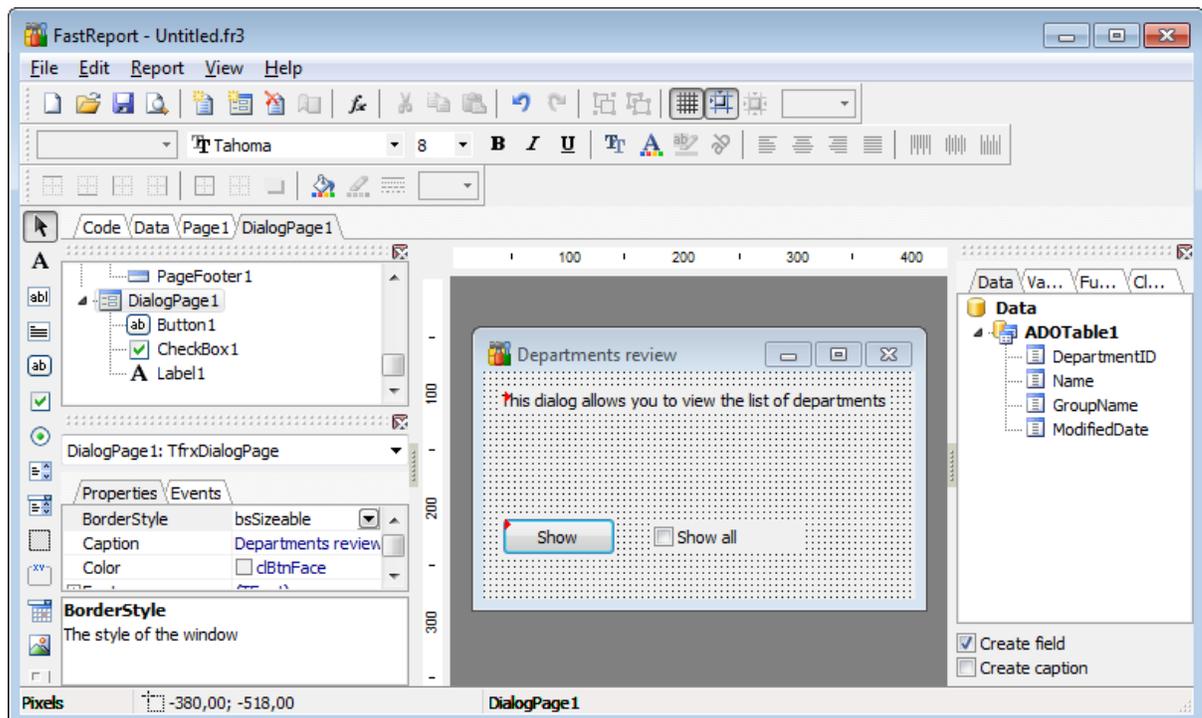
[Adding report data](#)^[672]

[Viewing the report](#)^[674]

9.9.2.6 Adding dialog form

To add a dialog form, select the **File | New Dialog** main menu item in **Report Designer**.

The new dialog appears within the *DialogPage1* tab of the designer. Use the available RAD tools to add necessary interface elements to the dialog.



To call the dialog, proceed to the **Code** tab and supply the corresponding statement (PascalScript), e.g.

```
begin
DialogPage1.ShowModal;
```

end.

Using the **Language** drop-down list you can select the script language to be used for the event handler: *PascalScript* (by default), *C++Script*, *BasicScript*, *JScript*.

For instance, the following C++ Script code can be used as the handler for the *OnClick* event of the 'Show' button to open [ADOQuery](#)^[672]:

```
{
ADOQuery1.Active = true;
}
```

See also:

[Adding database and query components](#)^[670]

[Adding report data](#)^[672]

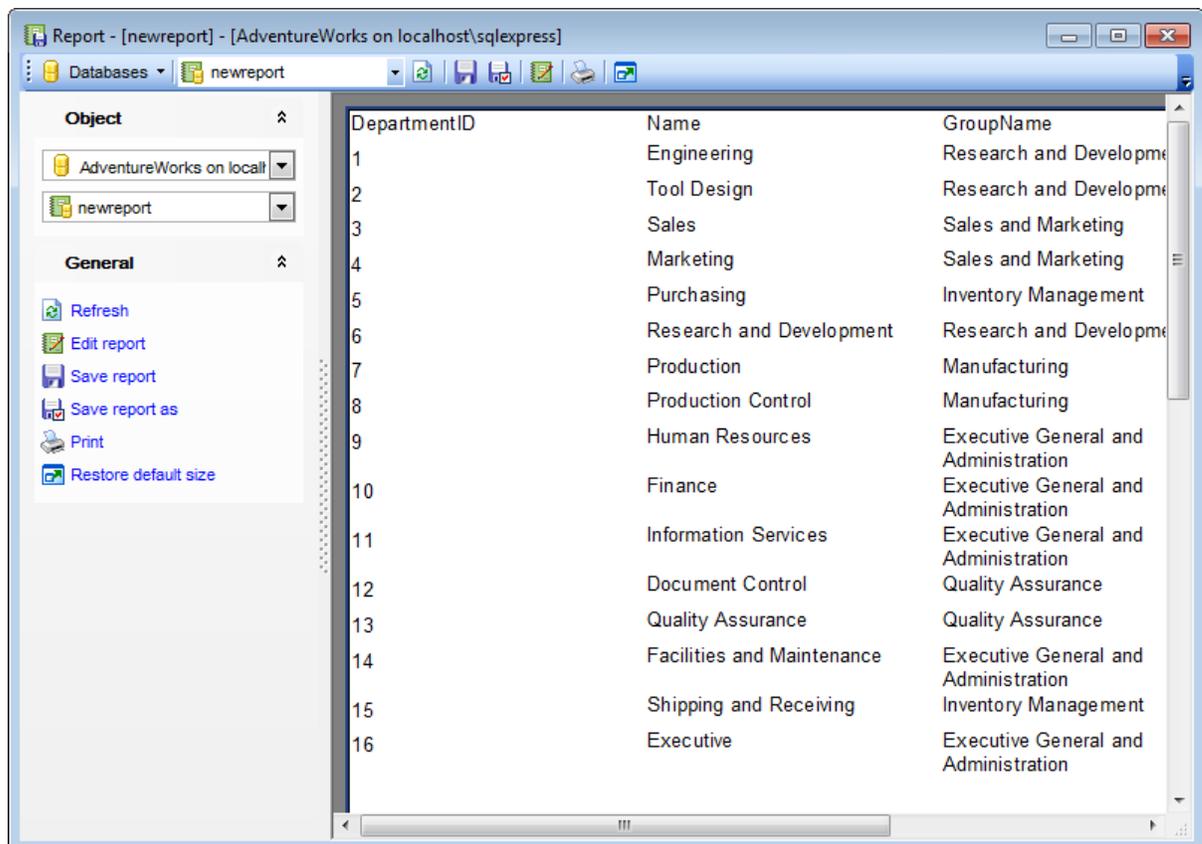
[Viewing the report](#)^[674]

[Saving the report](#)^[675]

9.9.3 Report Viewer

Using **Report Viewer** you can view, edit, save and print reports.

Possible report operations are described on the [Using Navigation bar and Toolbar](#)^[678] page.



Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

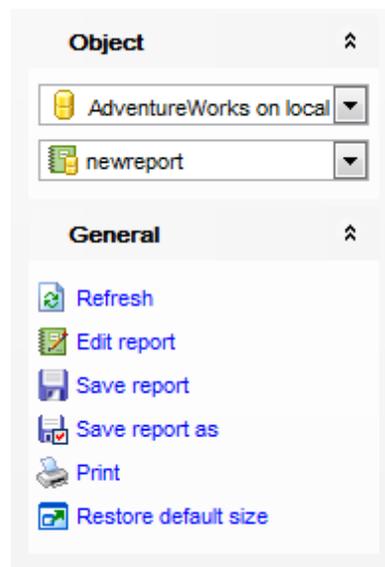
See also:

[Create Report Wizard](#)^[659]

[Report Designer](#)^[665]

9.9.3.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Report Viewer**.



The **Navigation bar** of **Report Viewer** allows you to:

Object

 select a database

 select a report for viewing

General

 refresh the content of the window

 edit report using [Report Designer](#)^[665]

 save the current report

-  save the report to a *.fr3 file using the **Save as...** dialog
-  print the report
-  restore the default size and position of the viewer window

Items of the **Navigation bar** are also available on the **ToolBar** of the **Report Viewer** window. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

9.10 Server-level principals

Principals are individuals, groups, and processes that can request SQL Server resources.

SQL Manager for SQL Server provides management tools for the following *server-level security principals*:

[Logins](#)^[681]

Allows you to manage SQL Server logins.

[Server Roles Manager](#)^[693]

Allows you to manage SQL Server roles.

Adding Logins

In order to add a new login:

- select the **Tools | Login Manager main menu**^[915] item or use the corresponding  toolbar button to open [Login Manager](#)^[681];
- select the **Add login...** item of the **context menu** or within the **Navigation bar**;
- define login properties and permissions using [Login Editor](#)^[354]

or

- right-click the **Logins** node (**Server Objects**) or any object within this node in [DB Explorer](#)^[63] and select the **New Login** context menu item, or use the *Ctrl+N* [shortcut](#)^[952];
- define login properties and permissions using [Login Editor](#)^[354].

Editing Login Properties

In order to edit an existing login:

- select the **Tools | Login Manager main menu**^[915] item or use the corresponding  toolbar button to open [Login Manager](#)^[681];
- select the **Edit login...** item of the **context menu** or within the **Navigation bar**;
- edit the login properties and permissions using [Login Editor](#)^[354]

or

- right-click the **Logins** node (**Server Objects**) or any object within this node in [DB Explorer](#)^[63] and select the **Edit Login <object_name>** context menu item, or use the *Ctrl+O* [shortcut](#)^[952];
- edit the login properties and permissions using [Login Editor](#)^[354].

Deleting Logins

In order to delete an existing login:

- select the **Tools | Login Manager main menu**^[915] item or use the corresponding  toolbar button to open [Login Manager](#)^[681];
- right-click the login to delete and select the **Delete Login** item of the **context menu** or within the **Navigation bar**;
- confirm deleting in the dialog window

or

- right-click the login to delete within the **Logins** node (**Server Objects**) in [DB Explorer](#)^[63] and select the **Drop Login <object_name>** context menu item, or use the *Shift+Del* [shortcut](#)^[952];

- confirm deleting in the dialog window

Allocating Server Roles

In order to allocate server roles to logins:

- select the **Tools | Server Roles** [main menu](#)^[915] item or use the corresponding  toolbar button;
- select a server role, and add logins to the Server Role Members list using [Server Roles Manager](#)^[693].

See also:

[Server Log Viewer](#)^[817]

[Activity Monitor](#)^[820]

[Resource Governor](#)^[813]

9.10.1 Logins

Microsoft® SQL Server™ uses two ways to validate connections to SQL Server databases:

Windows Authentication which uses Windows-level principals and

SQL Server Authentication which uses logins to validate the connection.

A **login** is an indivisible principal which is used to connect to the server and use its resources.

- [Login Manager](#)^[681]
- [Login Editor](#)^[354]

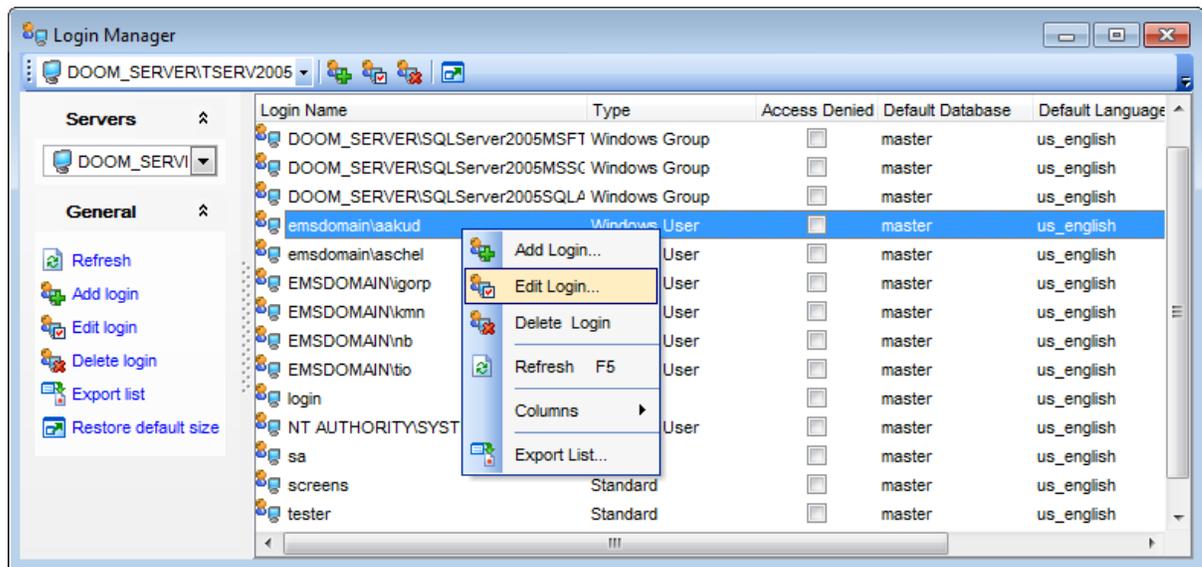
See also:

[Server Roles](#)^[693]

9.10.1.1 Login Manager

The **Login Manager** allows you to browse the list of existing logins on each of available instances of SQL Server, and manage them efficiently.

To launch the tool, select the **Tools | Login Manager** [main menu](#)^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Logins** item from the [context menu](#)^[53].



The list displays the existing logins as a grid with the following columns: *Login Name*, *Type*, *Access Denied*, *Default Database*, *Default Language*, *Create Date*, *Update Date*.

Right-click an item within the list to call the **context menu** allowing you to *create* a new server login and specify its properties using [Login Editor](#)^[354], *edit*, *delete* the selected login, *refresh* the list, or show/hide columns of the list. Using the context menu you can also [export](#)^[531] the list of logins to any of supported output file [formats](#)^[935].

Logins management tools are also available through the **Navigation bar** of the **Login Manager**.

See also:

[Login Editor](#)^[354]

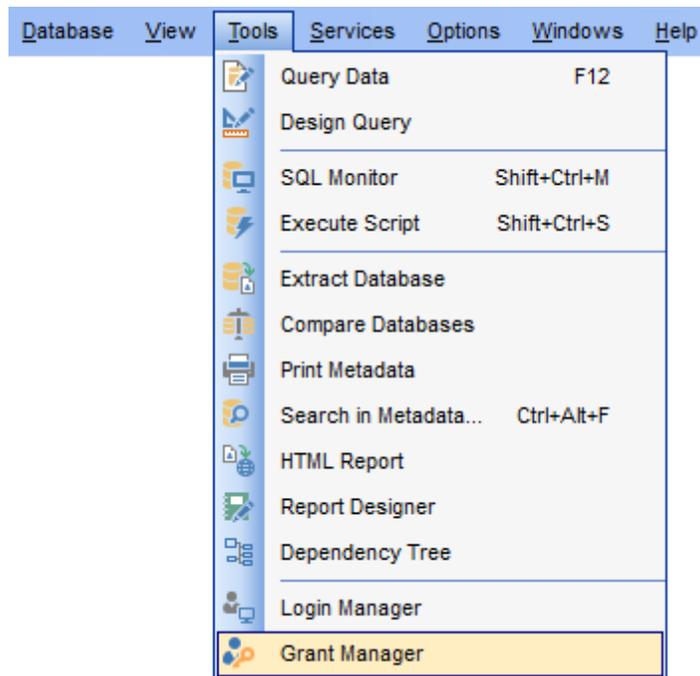
[Server Roles](#)^[693]

9.10.2 Grant Manager

Grant Manager allows you to set the user access grants for certain [database objects](#)^[178]: [schemas](#)^[189], [tables](#)^[192], [views](#)^[246], [procedures](#)^[253], [synonyms](#)^[275], [aggregates](#)^[278], [XML schema collections](#)^[281], [assemblies](#)^[304], etc.

'Global' user privileges define the user access rights to all the database objects on the server. Granting privileges on the selected database objects allows a user to perform the defined operation over the selected objects.

To open **Grant Manager**, select the **Tools | Grant Manager main menu**^[915] item.



- [Using Navigation bar, Toolbar and context menu](#)^[684]
- [Setting object permissions](#)^[686]
- [Managing column permissions](#)^[688]
- [Filtering objects in list](#)^[689]
- [Setting database permissions](#)^[690]
- [Viewing effective permissions](#)^[692]

Managing grants

To define grants on database objects:

- select the **Tools | Grant Manager main menu**^[915] item, or use the corresponding  toolbar button to open **Grant Manager**;
- select the object type using the drop-down list on the toolbar;
- select a [User](#)^[295] or [Role](#)^[301] from the **Privileges for** pane of the [Navigation bar](#)^[684];
- edit [user](#)^[295]/[role](#)^[301] privileges using **Grant Manager**

or

- right-click an object within the **Users/Roles** node in [DB Explorer](#)^[63] and select the **Grants for <object_name>** context menu item;
- edit [user](#)^[295]/[role](#)^[301] privileges using [Grant Manager](#)^[686]

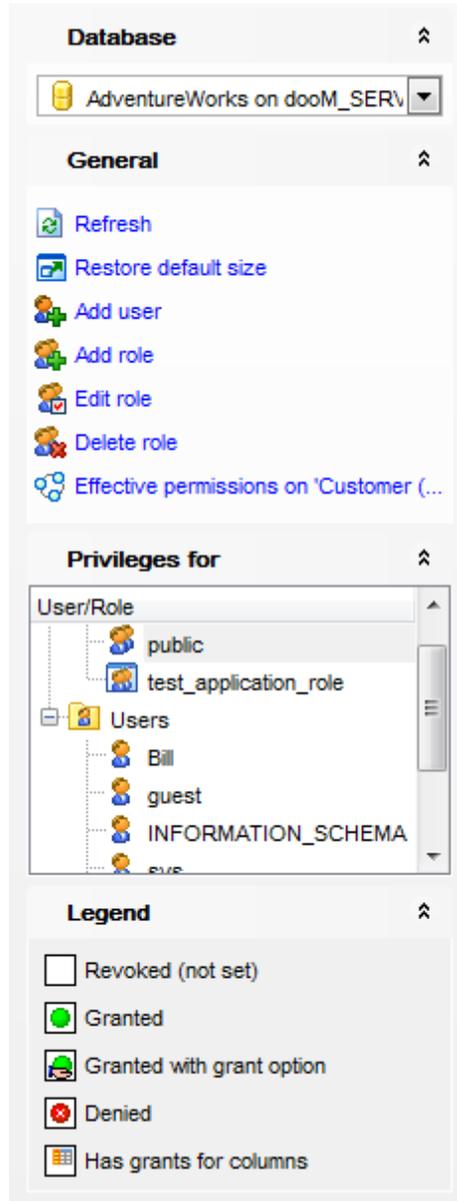
See also:

- [Login Manager](#)^[681]
- [Server Roles](#)^[693]
- [User Editor](#)^[295]
- [Role Editor](#)^[301]

[Login Editor](#)^[354]

9.10.2.1 Using Navigation bar, Toolbar and context menu

The **Navigation bar**, **Toolbar** and **context menu** provide quick access to tools implemented in **Grant Manager**.



The **Navigation bar** of **Grant Manager** allows you to:

Database

 select a database for grants management

General

-  refresh the content of the window
-  call [User Editor](#)^[295] to add a new database user
-  call [User Editor](#)^[295] to edit an existing user
-  delete a database user
-  call [Role Editor](#)^[301] to add a database role
-  call [Role Editor](#)^[301] to edit an existing database role
-  delete a database role
-  view [effective permissions](#)^[692] on the object
-  restore the default size and position of the window

Privileges for

-  select an existing database [user](#)^[295]/[role](#)^[301] to grant privileges to

Legend

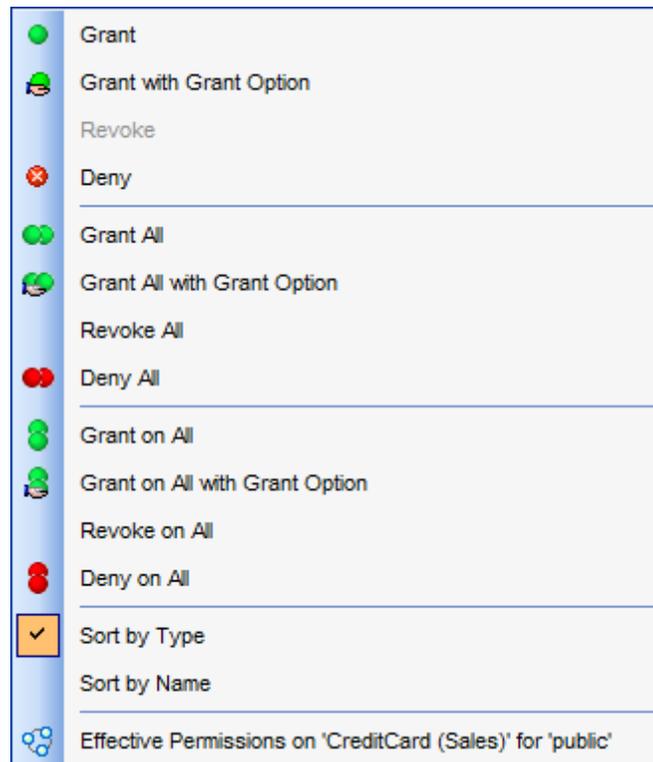
-  view the legend

Items of the **Navigation bar** are also available on the **ToolBar** of **Grant Manager**. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

The **context menu** is aimed at facilitating your work: you can perform a variety of operations using context menu items.

The **context menu** of **Grant Manager** allows you to:

- grant a permission on a securable to the selected principal;
- grant a permission (with Grant Option) on a securable to the selected principal;
- deny a permission on a securable to the selected principal;
- revoke a previously granted or denied permission;
- grant all permissions on a securable to the selected principal;
- grant all permissions (with Grant Option) on a securable to the selected principal;
- deny all permissions on a securable to the selected principal;
- revoke all previously granted or denied permissions on a securable;
- grant a permission on all objects to the selected principal;
- grant a permission (with Grant Option) on all objects to the selected principal;
- deny a permission on all objects to the selected principal;
- revoke a previously granted or denied permission on all objects;
- apply sorting of objects in grid (by type);
- apply sorting of objects in grid (by name);
- view [effective permissions](#)^[692] on the object.



See also:

[Setting object permissions](#)^[686]

[Managing column permissions](#)^[688]

[Filtering objects in list](#)^[689]

[Setting database permissions](#)^[690]

[Viewing effective permissions](#)^[692]

9.10.2.2 Managing database-specific privileges

9.10.2.2.1 Object permissions

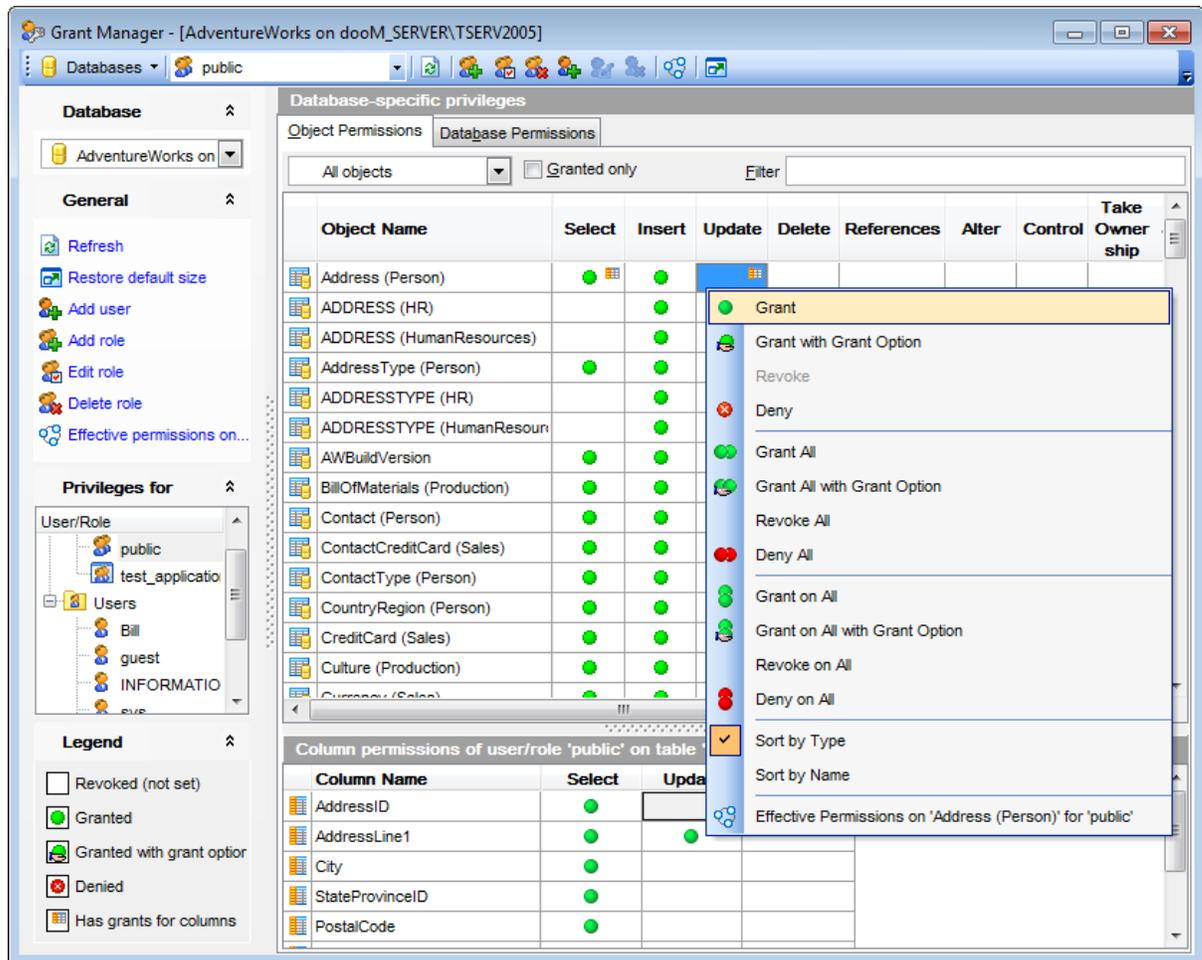
The **Object Permissions** tab allows you to define privileges on specified database objects.

To edit the privileges of a [user](#)^[295]/[role](#)^[301] on an object of a database, select the database using the **Database** panel of the [Navigation bar](#)^[684], then select a *user* or *role* from the **Privileges for** list available within the [Navigation bar](#)^[684] or [toolbar](#)^[685]. Then select the type of objects to be displayed in the main working window using the combo-box at the top.

The **Object Name** column contains the list of objects of the selected type; each subsequent column corresponds to the permission which can be granted on the selected object:

Select, Insert, Update, Delete, References, Alter, Control, Take ownership, View definition (for [tables](#)^[192], [views](#)^[246]);

Alter, Control, Take ownership, View definition, Execute (for [procedures](#)^[253]);
 References, Alter, Control, Take ownership, View definition, Execute (for [UDFs](#)^[259]);
 References, Control, Take ownership, View definition, Execute (for [UDTs](#)^[263]);
 Select, Insert, Update, Delete, Control, Take ownership, View definition, Execute (for [synonyms](#)^[275]);
 Alter, Control, Take ownership, View definition, Execute (for [aggregates](#)^[278], [XML schema collections](#)^[281]);
 Select, Insert, Update, Delete, References, Alter, Control, Take ownership, View definition, Execute (for [schemas](#)^[189]);
 Alter, Control, View definition, Impersonate (for [users](#)^[295]);
 Alter, Control, Take ownership, View definition (for [roles](#)^[301]);
 References, Alter, Control, Take ownership, View definition, Execute (for [assemblies](#)^[304]);
 References, Alter, Control, Take ownership, View definition (for [full-text catalogs](#)^[317], [symmetric keys](#)^[322], [asymmetric keys](#)^[325], [certificates](#)^[329], [message types](#)^[334], [contracts](#)^[337], [queues](#)^[289], [services](#)^[340], [routes](#)^[343], [remote service bindings](#)^[346]).



The list of objects can be configured in several ways: you can specify that [only granted objects](#)^[689] are displayed in the grid, or define an object name to [filter](#)^[689] the objects by that name.

Right-click a cell to grant a specific permission on a certain object. To grant a permission on an object, you should find the object in the **Object Name** list and the column with the corresponding permission. Note that the cells that are highlighted gray do not admit to setting grants for an obvious reason (e.g. you cannot execute a table). The [context menu](#)^[685] of a cell contains possible permissions that can be granted:

-  *Grant*
-  *Grant with Grant Option*
-  *Deny* (prevents the principal from inheriting the permission through its group or role memberships)
-  *Revoke* (removes a previously granted or denied permission)
-  *Grant All*
-  *Grant All with Grant Option*
-  *Deny All*
-  *Revoke All*
-  *Grant on All*
-  *Grant on All with Grant Option*
-  *Deny on All*
-  *Revoke on All*

Hint: You can also assign privileges by double-clicking the respective cell - in this case the grant status is changed in the following order: *Grant* -> *Grant with Grant Option* -> *Deny* -> *Revoke*.

See also:

[Using Navigation bar, Toolbar and context menu](#)^[684]

[Managing column permissions](#)^[688]

[Filtering objects in list](#)^[689]

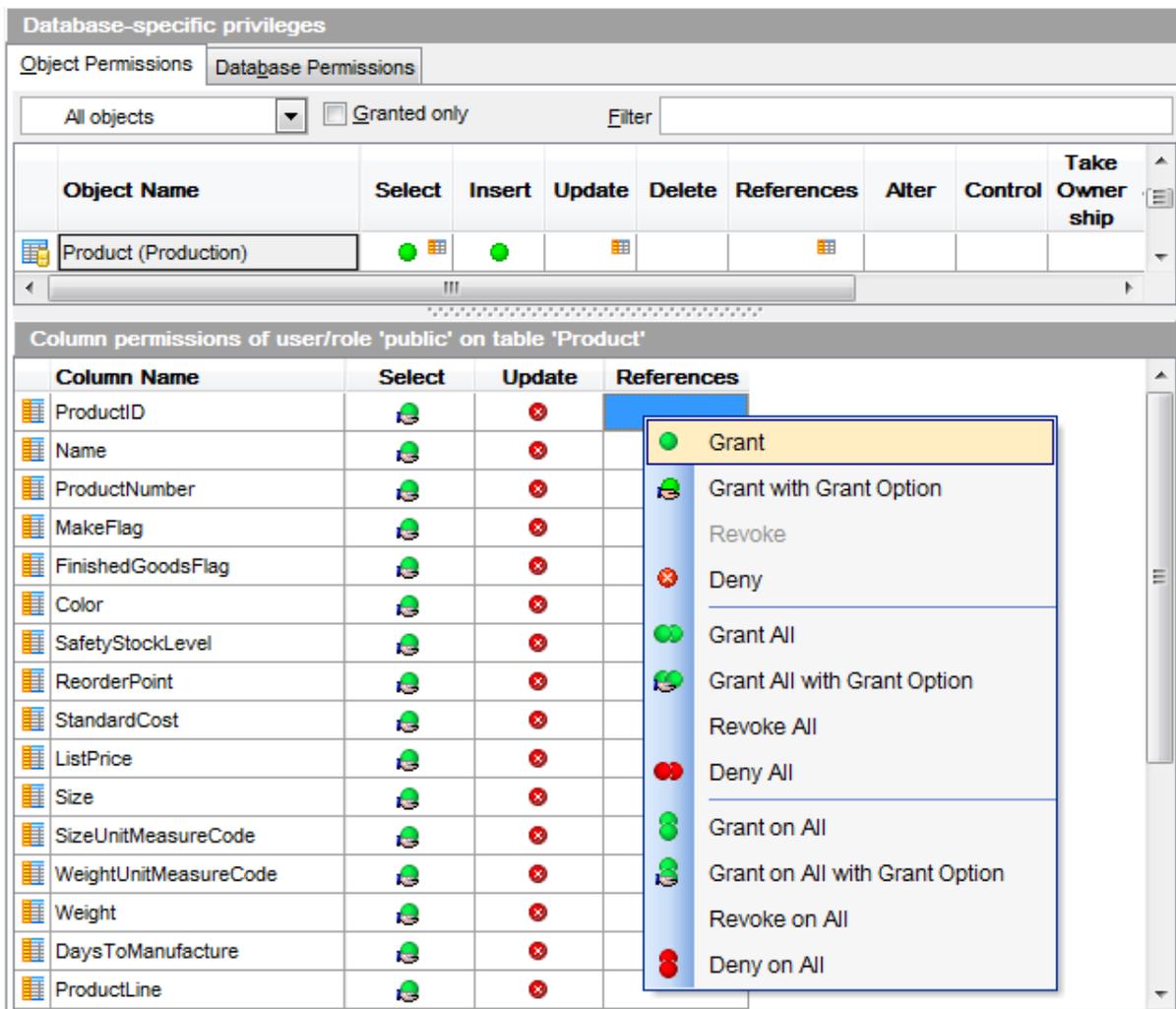
[Setting database permissions](#)^[690]

[Viewing effective permissions](#)^[692]

9.10.2.2.2 Managing column permissions

The **Column permissions of user/role <principal_name> on <securable_name>** area displays the grid with table/view columns and the privileges that can be granted to the selected [user](#)^[295] or [role](#)^[307].

Use items of the [context menu](#)^[685] to grant/deny/revoke permissions on columns.



If permissions on a column have been defined (for a *table* or *view*), the corresponding permission cell of the table/view contains a specific icon

See also:

[Using Navigation bar, Toolbar and context menu](#)^[684]

[Setting object permissions](#)^[686]

[Filtering objects in list](#)^[689]

[Setting database permissions](#)^[690]

[Viewing effective permissions](#)^[692]

9.10.2.2.3 Filtering objects in list

In large databases with huge amount of objects it may be difficult to find the required object. For this purpose you are provided with several tools for *filtering objects in list*:

- the **Object type** control: select the required object type from the drop-down list (e.

- g. *Tables*);
- the **Filter** panel: enter a character string to filter the object names by that string (note that the filter is case-sensitive);
- the **Granted only** option: check this option to display objects with at least one granted operation.

Database-specific privileges													
Object Permissions		Database Permissions											
All objects		<input checked="" type="checkbox"/> Granted only		Filter Co									
Object Name	Select	Insert	Update	Delete	References	Alter	Control	Take Ownership	View Definition	Execute	Impersonate		
Contact (Person)	●	●	●										
ContactCreditCard (Sales)	●	●	●										
ContactType (Person)	●	●	●										
CountryRegion (Person)	●	●											
CountryRegionCurrency (Sa	●	●	●	●	●	●	●	●	●				

See also:

[Using Navigation bar, Toolbar and context menu](#)^[684]

[Setting object permissions](#)^[686]

[Managing column permissions](#)^[688]

[Setting database permissions](#)^[690]

[Viewing effective permissions](#)^[692]

9.10.2.2.4 Database permissions

The **Database Permissions** tab allows you to define privileges on execution of statements within the specified database.

To edit the database permissions of a [user](#)^[295]/[role](#)^[301], select the database using the **Database** panel of the [Navigation bar](#)^[684], then select a *user* or *role* from the **Privileges for** list available within the [Navigation bar](#)^[684] or [toolbar](#)^[685].

Database-specific privileges	
Object Permissions	Database Permissions
Statement	Permission
ALTER ANY APPLICATION ROLE	
ALTER ANY ASSEMBLY	
ALTER ANY ASYMMETRIC KEY	
ALTER ANY CERTIFICATE	
ALTER ANY CONTRACT	
ALTER ANY DATABASE DDL TRIGGER	
ALTER ANY DATABASE EVENT NOTIFICATION	
ALTER ANY DATASPACE	
ALTER ANY FULLTEXT CATALOG	
ALTER ANY MESSAGE TYPE	
ALTER ANY REMOTE SERVICE BINDING	
ALTER ANY ROLE	
ALTER ANY ROUTE	
ALTER ANY SCHEMA	
ALTER ANY SERVICE	
ALTER ANY SYMMETRIC KEY	
ALTER ANY USER	

-  Grant
-  Grant with Grant Option
- Revoke
-  Deny

-  Grant All
-  Grant All with Grant Option
- Revoke All
-  Deny All

Right-click a cell next to the required statement to grant its execution privilege to the selected [user](#)^[295] or [role](#)^[301]. The [context menu](#)^[685] of a cell contains possible permissions that can be granted:

- *Grant*
- *Grant with Grant Option*
- *Revoke* (removes a previously granted permission)
- *Deny*
- *Grant All*
- *Grant All with Grant Option*
- *Revoke All*
- *Deny All*

See also:

[Using Navigation bar, Toolbar and context menu](#)^[684]

[Setting object permissions](#)^[686]

[Managing column permissions](#)^[688]

[Filtering objects in list](#)^[689]

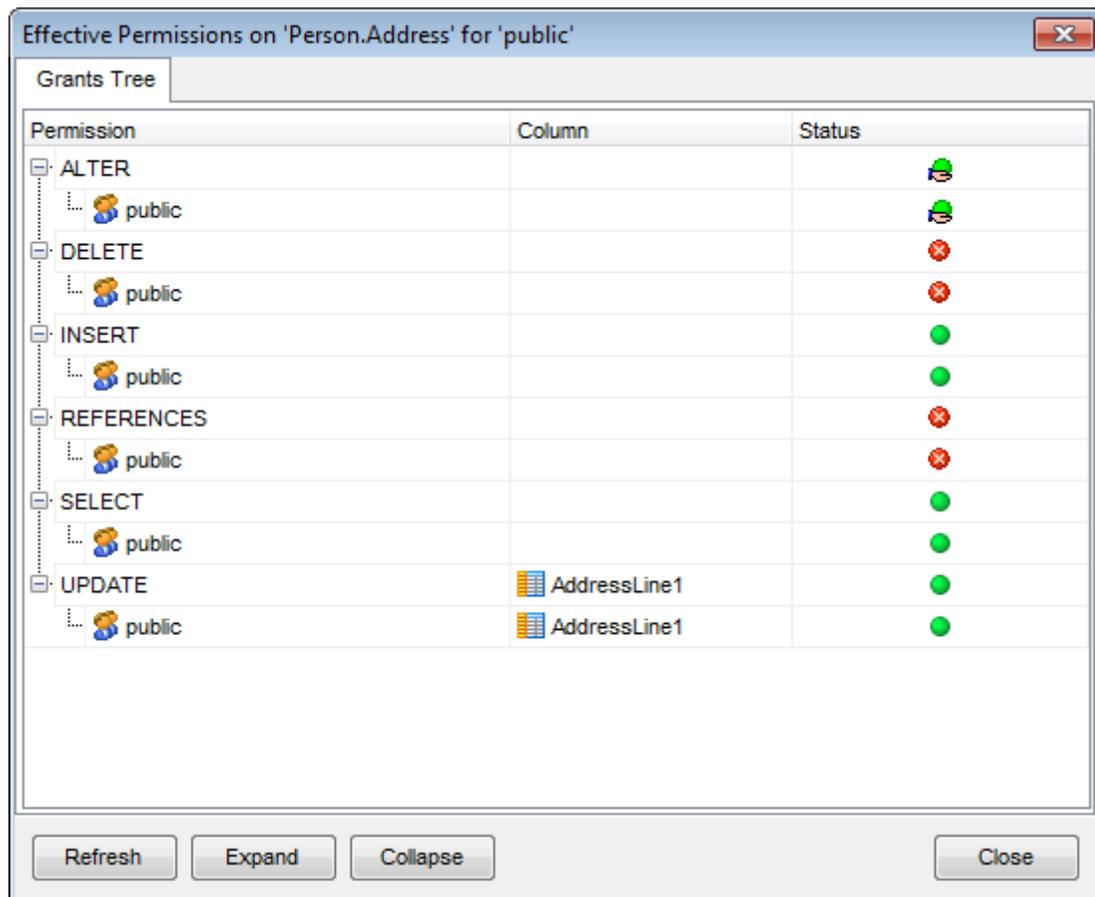
[Viewing effective permissions](#)^[692]

9.10.2.3 Viewing effective permissions

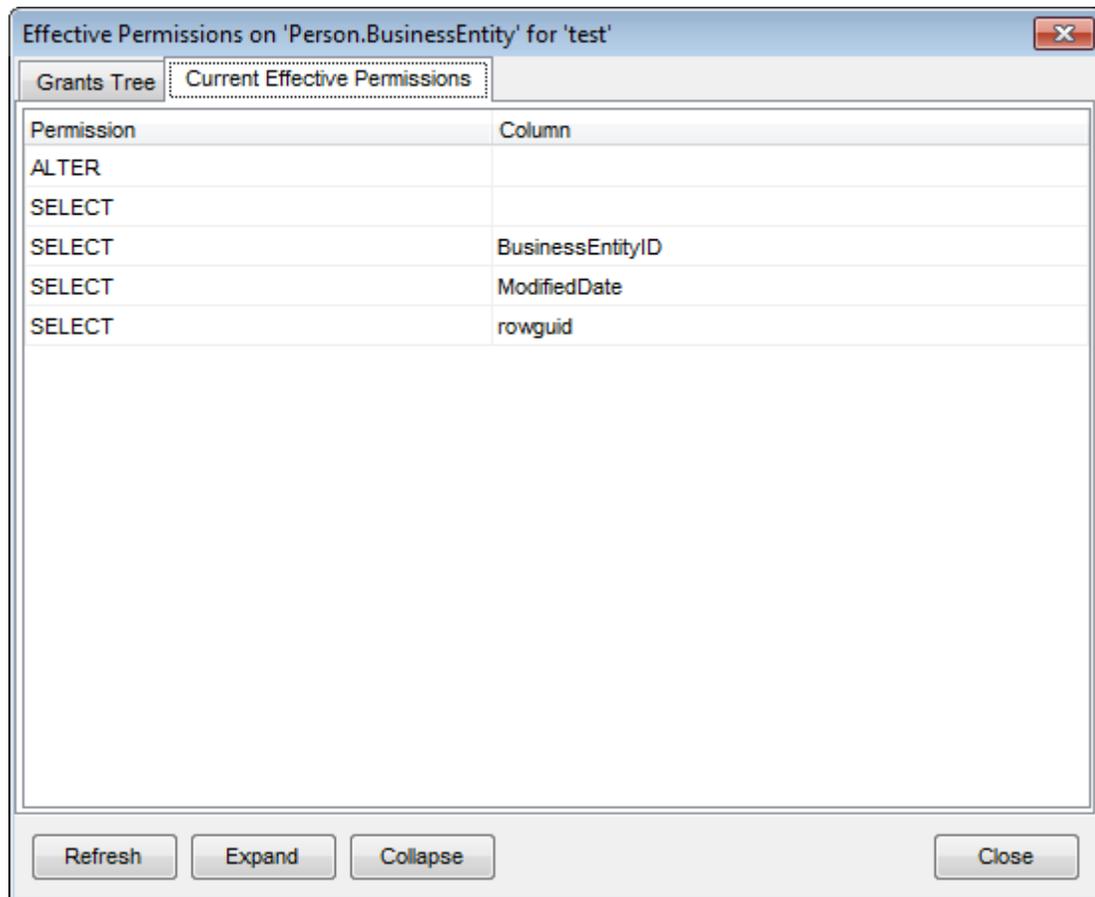
An **effective permission** is the one which is:

- granted directly to the principal, and not denied, or
- implied by a higher-level permission held by the principal and not denied, or
- granted to or held by, a [role](#) or group of which the principal is a member, and not denied.

The **Grants Tree** tab of the **Effective Permissions** dialog displays the entire list of permissions granted to the user and its role on a definite object in the form of a tree. For your convenience the **Refresh**, **Expand/Collapse** buttons are available at the bottom of the dialog window.



The **Current Effective Permissions** tab of the **Effective Permissions** dialog displays a list of the permissions effectively granted to the specified principal on a definite object.

**See also:**

[Using Navigation bar, Toolbar and context menu](#)^[684]

[Setting object permissions](#)^[686]

[Managing column permissions](#)^[688]

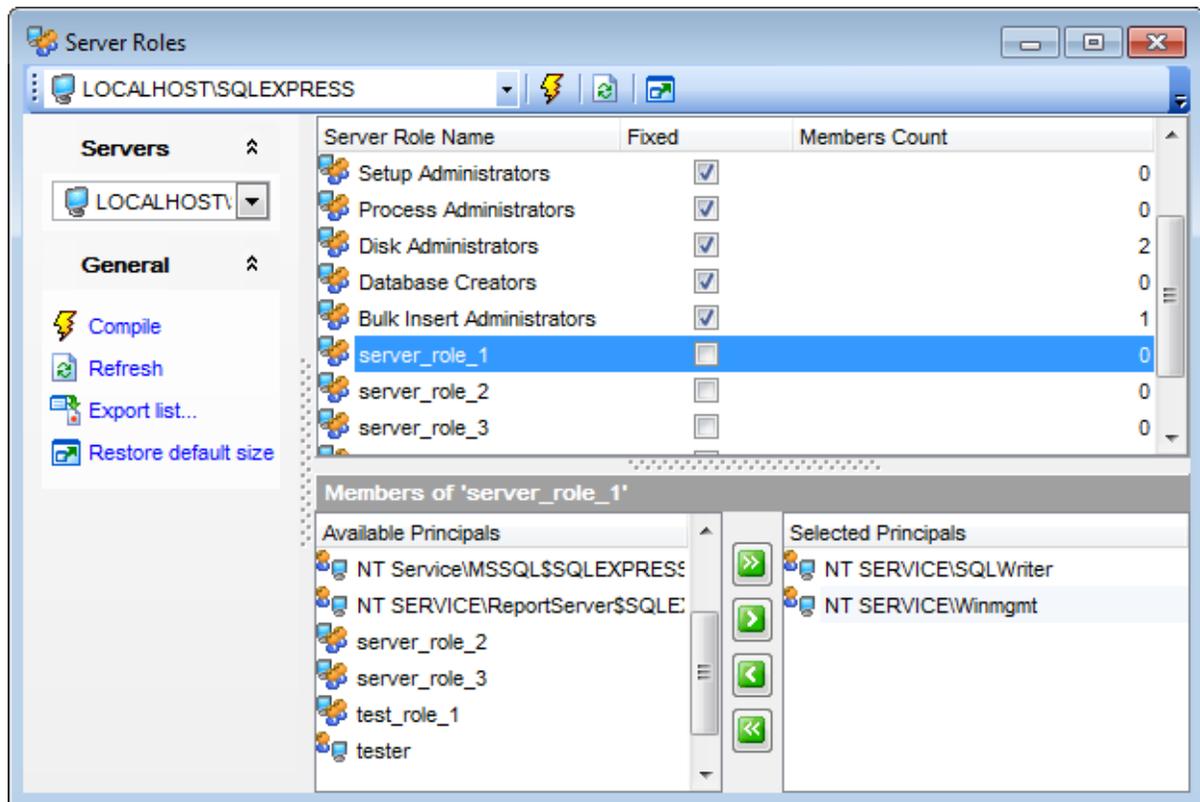
[Filtering objects in list](#)^[689]

[Setting database permissions](#)^[690]

9.10.3 Server Roles

The **Server Roles manager** allows you to browse the list of SQL Server **roles**, and to define [login membership](#)^[359] for each of the roles.

To launch the tool, select the **Tools | Server Roles main menu**^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Server Roles** item from the [context menu](#)^[53].



The upper list displays the server roles as a grid with the following columns: *Server Role Name*, *Members Count*.

Right-click an item within the list to call the **context menu** allowing you to *refresh* the list, or show/hide columns of the list. Using the context menu you can also [export](#)^[531] the list of server roles to any of supported output file [formats](#)^[935].

Server roles management tools are also available through the **Navigation bar** of the **Server Roles manager**.

The lower area allows you to define login membership, i.e. to select the [logins](#)^[681] that will belong to the selected server role. The server roles determine the tasks that can be performed through the selected [login](#)^[681].

To select a login, you need to move it from the **Available Logins** list to the **Server Role Members** list. Use the     buttons or drag-and-drop operations to move the logins from one list to another.

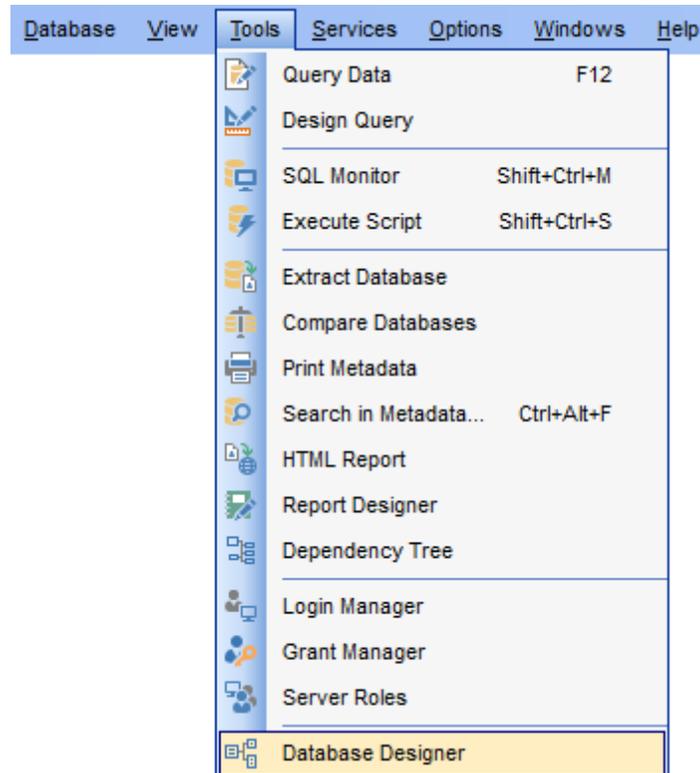
See also:

[Logins](#)^[681]

9.11 Database Designer

Database Designer is provided for visual presentation of databases, database objects and relations between objects. It also allows you to create, edit and drop tables and table columns, set relations between tables and perform other operations you may need to achieve your purpose.

To open the designer, select the **Tools** |  **Database Designer** [main menu](#)^[915] item, or use the  **Database Designer** button on the main [toolbar](#)^[917].



- [Using Navigation bar and Toolbars](#)^[696]
- [Using Diagram Navigator and DB Objects pane](#)^[700]
- [Using context menus](#)^[701]
- [Adding/removing objects to/from diagram](#)^[703]
- [Incremental search](#)^[704]
- [Creating new objects](#)^[704]
- [Creating relations](#)^[705]
- [Working with diagram pages](#)^[706]
- [Reverse engineering](#)^[707]
- [Printing diagram](#)^[708]
- [Saving/loading diagram](#)^[711]
- [Setting diagram options](#)^[712]

Availability:

Full version (for **Yes** Windows)

Lite version (for **No** Windows)

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

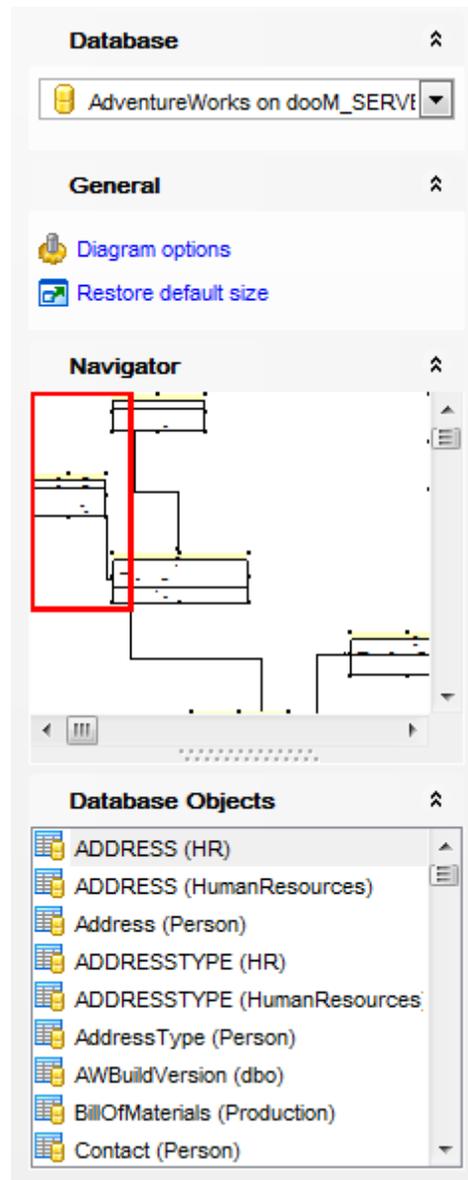
See also:

[Database Objects Management](#)^[178]

[Database Designer options](#)^[847]

9.11.1 Using Navigation bar and Toolbars

The **Navigation bar** and **Toolbars** provide quick access to tools implemented in **Visual Database Designer**.



The **Navigation bar** of **Visual Database Designer** allows you to:

Database

 select a database for building the diagram

General

 edit [diagram options](#)^[712]

 restore the default size and position of the [window](#)^[695]

 refresh objects in the diagram

Navigator

✓ use [Diagram Navigator](#)^[700]

Database Objects

-  [search](#)^[704] for objects in the diagram using the [Database Objects](#)^[700] pane
-  [add](#)^[703] objects to the diagram using the [Database Objects](#)^[700] pane

The **Toolbars** of **Visual Database Designer** provide quick access to most tools for working with diagrams.

To enable the [toolbars](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbars only) or *Both* (if you need both the toolbars and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

The **main toolbar** (by default, the toolbar is located at the top of the diagram area) contains a number of tools (including items of the **Navigation bar**, [context menu](#)^[701], tools for [printing diagram](#)^[708], etc.) allowing you to:

- select the database for building the diagram;
- create a new diagram;
- [open](#)^[711] an existing diagram;
- [save](#)^[711] the current diagram to a *.msd file;
- [save](#)^[711] the current diagram as an image;
- activate the [Incremental search](#)^[704] panel;
- adjust diagram zoom for optimal representation: *zoom in*, *zoom out*, *fit model*;
- switch cursor mode: *select / select rectangle to fit*;
- open the [Print Setup](#)^[709] dialog;
- [print](#)^[708] the diagram;
- show [Print Preview](#)^[708];
- arrange objects in the diagram;
- extract metadata of all objects in the diagram and load the script to [Execute Script](#)^[619];
- perform [Reverse Engineering](#)^[707];
- refresh objects in the diagram;
- view/edit [diagram options](#)^[712];
- specify a predefined zoom value;
- restore the default size and position of the window.



The **Pages** toolbar (by default, the toolbar is located at the top of the diagram area) contains tools for working with [diagram pages](#)^[706] allowing you to:

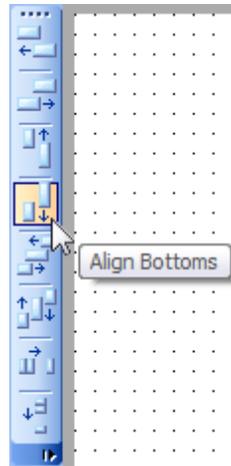
- *add* a new page;
- *delete* the current page;
- *delete all* pages.



The **Alignment Palette** (by default, the toolbar is located on the left side of the diagram area) allows you to:

- align left/right edges of selected objects;

- align tops/bottoms of selected objects;
- align horizontal/vertical centers of selected objects;
- space selected objects equally horizontal/vertical.



The **New object** toolbar (by default, the toolbar is located on the left side of the diagram area) allows you to:

- set the cursor mode to *Select*;
- create a [new object](#)^[704] (*table, view, function, procedure or comment*);
- create a new [relation](#)^[705].



See also:

[Using Diagram Navigator and DB Objects pane](#)^[700]

[Using context menus](#)^[701]

[Adding/removing objects to/from diagram](#)^[703]

[Incremental search](#)^[704]

[Creating new objects](#)^[704]

[Creating relations](#)^[705]

[Working with diagram pages](#)^[706]

[Reverse engineering](#)^[707]

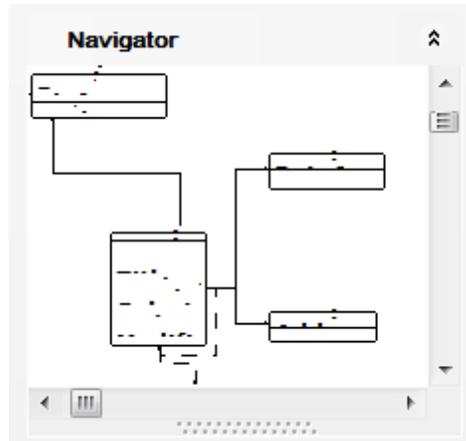
[Printing diagram](#)^[708]

[Saving/loading diagram](#)^[711]

[Setting diagram options](#)^[712]

9.11.2 Using Diagram Navigator and DB Objects pane

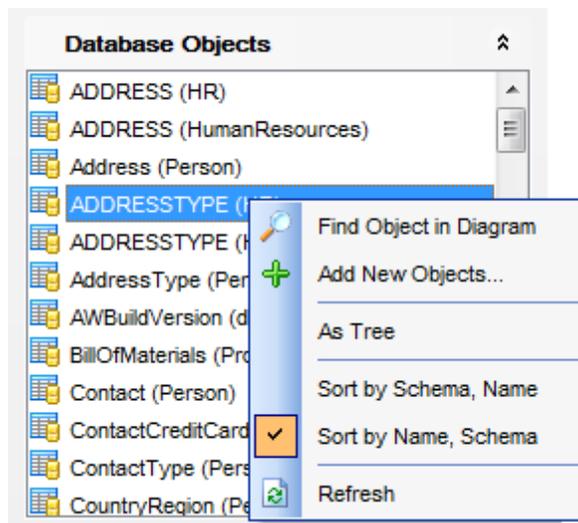
To navigate within the large diagram, use the **Navigator** tool available on the [Navigation bar](#)^[696]. It allows you to see the whole diagram in a reduced scale and to perform a number of operations over the diagram objects.



A mouse click in the **Navigator** area sets the center of the visible diagram area. The area currently visible in the main diagram area is outlined in a red bounding rectangle.

Using the **Navigator** you can work with the diagram objects in the same way as in the main diagram area: [add](#)^[703]/[remove](#)^[703], [create](#)^[704] new objects, move objects within the diagram and perform other operations.

The **Database Objects** pane available on the [Navigation bar](#)^[696] allows you to browse the list of available [database objects](#)^[178] that can be added to the diagram.



Select and drag an object to the diagram area or double-click it to [add](#)^[703] the object to the diagram.

Right-click an item within the list to call the **context menu** allowing you to:

-  find the selected object in the diagram (if the object is found, it will be highlighted in the diagram area);
-  add new objects to the diagram by [Reverse engineering](#)^[707];
- ✓ toggle objects representation mode: *as a tree / as a list*;
- ✓ select the sorting mode applied to the objects in the list: *by schema, name / by name, schema*;
-  refresh the list.

See also:

[Using Navigation bar and Toolbars](#)^[696]

[Adding/removing objects to/from diagram](#)^[703]

[Creating new objects](#)^[704]

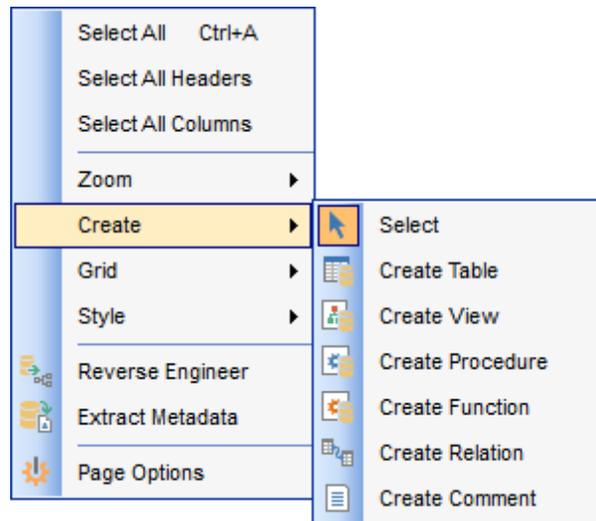
[Creating relations](#)^[705]

[Working with diagram pages](#)^[706]

9.11.3 Using context menus

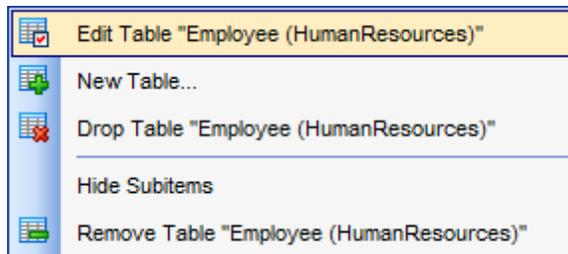
The **context menu** of the diagram area contains a number of items available in the [Navigation bar](#)^[696] and [toolbars](#)^[698] and allows you to:

- select all objects in the diagram area;
- select headers of all objects;
- select all columns of all objects;
- adjust diagram zoom for optimal representation: *zoom in, zoom out, select rectangle to fit, fit model*, specify a predefined zoom value;
- set the cursor mode to *Select* or create a new [table](#)^[704], [view](#)^[246], [procedure](#)^[253], [function](#)^[259], [relation](#)^[705], or [comment](#)^[704];
- configure the [grid](#)^[712]: *draw grid, snap to grid*;
- adjust the diagram [style](#)^[712]: *draw primary key columns separately, draw entities icons, draw attributes icons, draw only names of entities, draw foreign key names*;
- perform [Reverse Engineering](#)^[707];
- extract metadata of the diagram objects to [Execute Script](#)^[619];
- view/edit [diagram options](#)^[712].



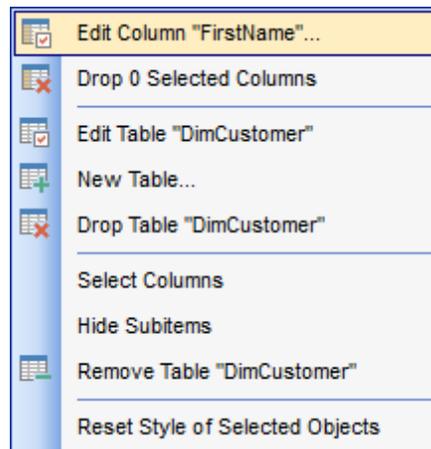
The **context menu** of an entity contains items for working with the object and allows you to:

- [edit](#)^[178] the object using its editor;
- [create](#)^[704] a new object using its editor;
- [drop](#)^[178] the object from the database;
- show/hide object subitems;
- [remove](#)^[703] the object from the diagram.



The **context menu** of a column contains items for working with the object and its columns and allows you to:

- [edit](#)^[213] the selected column using its editor ([Column Editor](#)^[214]);
- [create](#)^[213] a new column;
- [drop](#)^[213] the selected column;
- [edit](#)^[178] the object using its editor;
- [create](#)^[704] a new object using its editor;
- [drop](#)^[178] the object from the database;
- show/hide object subitems;
- [remove](#)^[703] the object from the diagram.



See also:

[Using Navigation bar and Toolbars](#)^[696]

[Adding/removing objects to/from diagram](#)^[703]

[Incremental search](#)^[704]

[Creating new objects](#)^[704]

[Creating relations](#)^[705]

9.11.4 Working with diagram objects

9.11.4.1 Adding/removing objects to/from diagram

To *add* an object to the diagram:

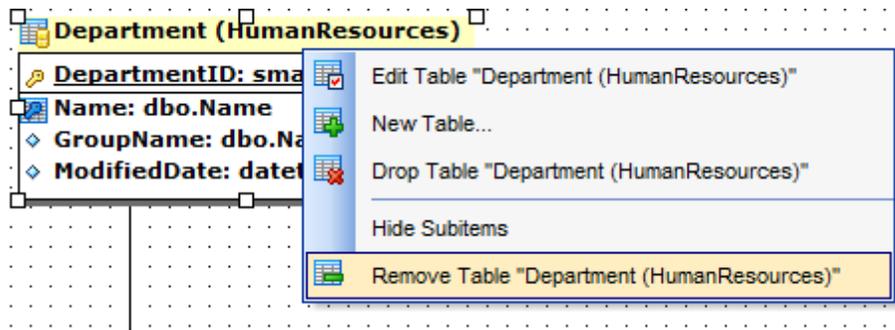
- drag it from the [Database Explorer](#)^[63] tree to the diagram area (the whole schema can be dragged)

or

- drag it from the [Database Objects](#)^[700] pane (available on the [Navigation bar](#)^[696]) to the diagram area or simply double-click this object in the list.

To add objects by [Reverse engineering](#)^[707], you can right-click within the **Database Objects** list and select the **+ Add new objects...** context menu item.

To remove an object from the diagram, select it in the diagram area, then right-click its title and choose the **Remove <object_name>** item from the [context menu](#)^[702], or just press the **Del** key.



See also:

[Using Navigation bar and Toolbars](#)^[696]

[Using Diagram Navigator and DB Objects pane](#)^[700]

[Using context menus](#)^[701]

[Creating new objects](#)^[704]

[Creating relations](#)^[705]

[Reverse engineering](#)^[707]

[Database Objects Management](#)^[178]

9.11.4.2 Incremental search

To **search** for an object within the diagram:

- right-click the required object in the [Database Objects](#)^[700] pane and select the  **Find Object in Diagram** item from the context menu

or

- click the  **Incremental Search** button on the main [toolbar](#)^[698] or use the *Ctrl+F* [shortcut](#)^[952] to activate the [Incremental Search](#)^[917] panel in the status bar area of the designer window.



Type a string in the edit-box, and the object having the name with the closest match will be highlighted in the diagram area.

See also:

[Using Diagram Navigator and DB Objects pane](#)^[700]

9.11.4.3 Creating objects

To [create](#)^[178] a new object using Visual Database Designer:

- press on of the **Create** buttons: **Create table**, **Create view**, **Create function**, **Create procedure** on the [New object toolbar](#)^[699];
- click the desired point on the diagram to place the new object at;
- specify object properties using its editor.



Hint: To create a new object, you can also select the corresponding item from the [context menu](#)^[701]. The context menus also allow you to [edit](#)^[178] and [drop](#)^[178] database objects.

See also:

[Using Diagram Navigator and DB Objects pane](#)^[700]

[Adding/removing objects to/from diagram](#)^[703]

[Incremental search](#)^[704]

[Creating relations](#)^[705]

9.11.4.4 Creating relations

To establish a new relation (which is the [foreign key](#)^[221] in terms of database management):

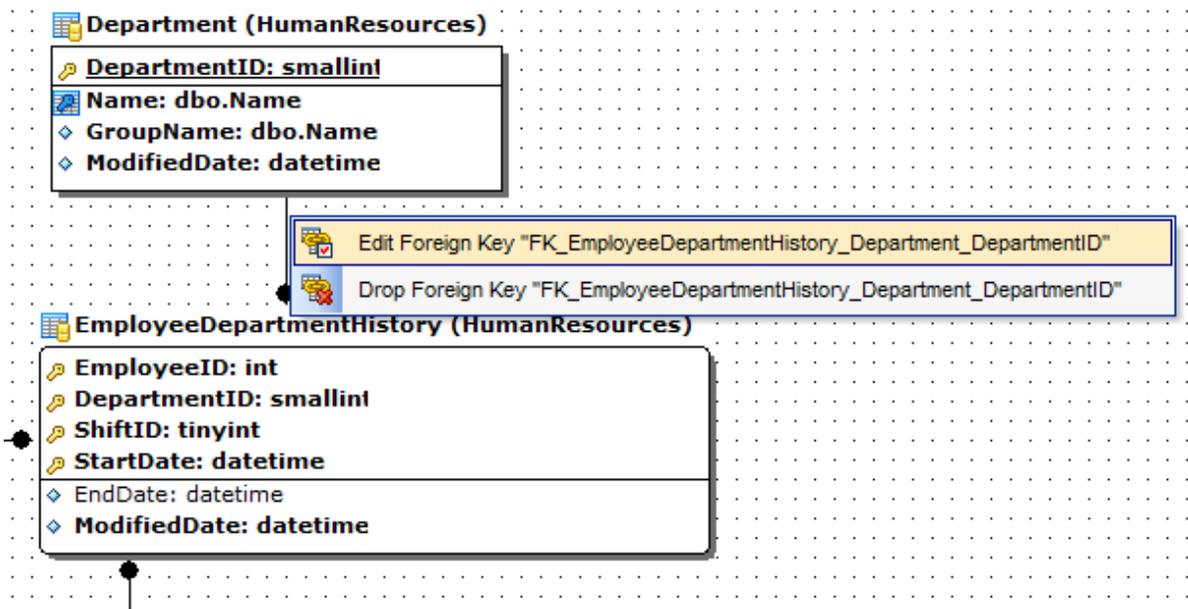
- press the **Create relation** button on the [New object toolbar](#)^[699];
- click the entity where the referential constraint should be created;
- click the referred entity;
- specify new foreign key properties using [Foreign key Editor](#)^[222].



Hint: To create a relation, you can also use the corresponding item of the [context menu](#)^[701].

Once the relation is created, it is displayed as a line between two entities in the diagram area. The style the line is drawn is determined by the diagram notation.

The **context menu** of this line allows you to [edit](#)^[221] the foreign key using [Foreign key Editor](#)^[222] or [drop](#)^[222] the foreign key from the database.



See also:

[Using Diagram Navigator and DB Objects pane](#)^[700]

[Adding/removing objects to/from diagram](#)^[703]

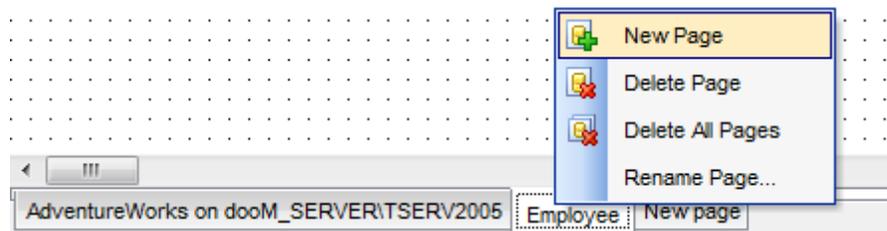
[Incremental search](#)^[704]

[Creating new objects](#)^[704]

9.11.5 Working with diagram pages

You can create several **pages** in one diagram to split the model into several subject groups, e.g. for better comprehension.

To manage diagram pages, right-click on the tabs at the bottom of the diagram area and select the required popup menu items for *adding*, *deleting* and *renaming* pages.



Hint: Page management items are also available on the [Pages toolbar](#)^[698] of Visual Database Designer.

See also:

[Using Diagram Navigator and DB Objects pane](#)^[700]
[Adding/removing objects to/from diagram](#)^[703]

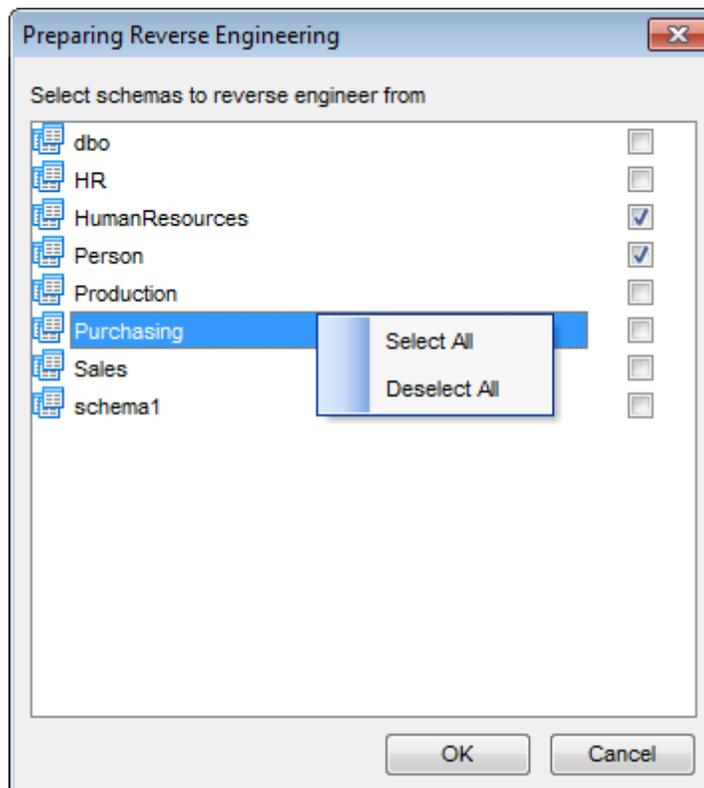
9.11.6 Reverse engineering

The **reverse engineering** operation builds relationship diagram on the basis of the current database's structure. The objects are arranged automatically within the diagram model.

To start the reverse engineering process, press the  **Reverse Engineer** button on the [main toolbar](#)^[698], or use the corresponding item of the [context menu](#)^[701].



The **Preparing Reverse Engineering** dialog allows you to select [schemas](#)^[189] containing objects to reverse engineer.



For your convenience the *Select All* and *Deselect All* items are available in the context menu of the schemas list.

See also:[Using Navigation bar and Toolbars](#)^[696][Using Diagram Navigator and DB Objects pane](#)^[701][Adding/removing objects to/from diagram](#)^[703]

9.11.7 Printing diagram

Visual Database Designer allows you to print and preview the diagram.

To preview the diagram:

- press the **Print Preview**  button on the [toolbar](#)^[698];
- preview the diagram using the [Print Preview](#)^[708] window.

To setup print options:

- press the  **Print Setup** button on the [toolbar](#)^[698], or use the corresponding link on the [Navigation bar](#)^[696];
- set printing options using the [Print Setup](#)^[709] dialog and press **OK**.

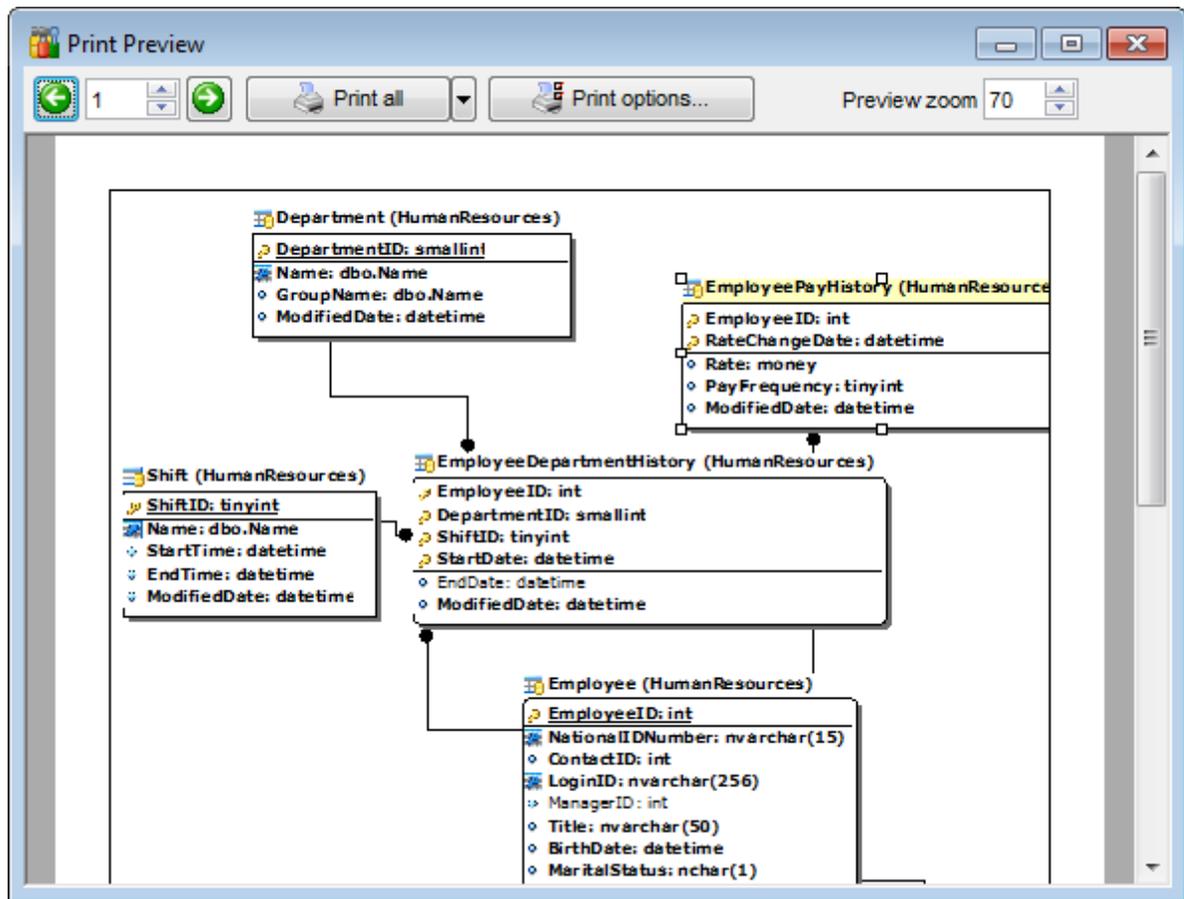
To print the diagram:

- press the  **Print** button on the [toolbar](#)^[698];
- set printing options using the [Print Setup](#)^[709] dialog and press the **Print** button.

9.11.7.1 Print Preview

The **Print Preview** dialog allows you to see the diagram layout in WYCIWYG mode before it will be printed.

Use the navigation buttons or the spinner control to navigate within the preview pages. Click the **Print options...** button to call the [Print Setup](#)^[709] dialog. If necessary, specify the **preview zoom** according to your preferences. Click the **Print all** button to start printing.



See also:

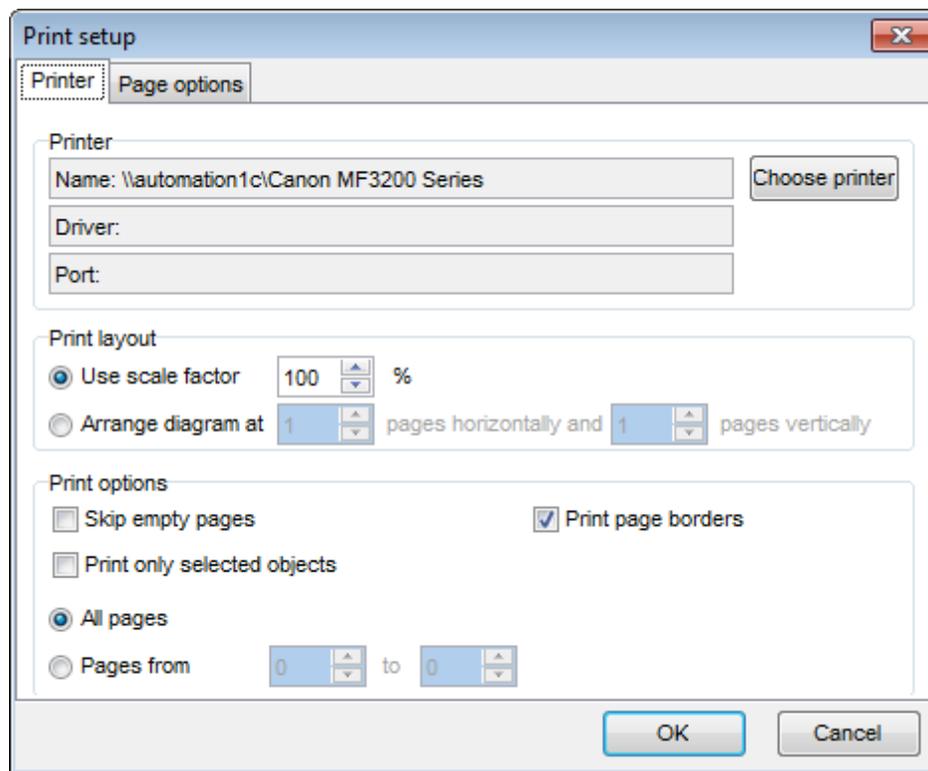
[Print Setup dialog](#)^[709]

9.11.7.2 Print Setup dialog

The **Print Setup** dialog of **Visual Database Designer** provides two tabs for setting printing options: **Printer** and **Page options**.

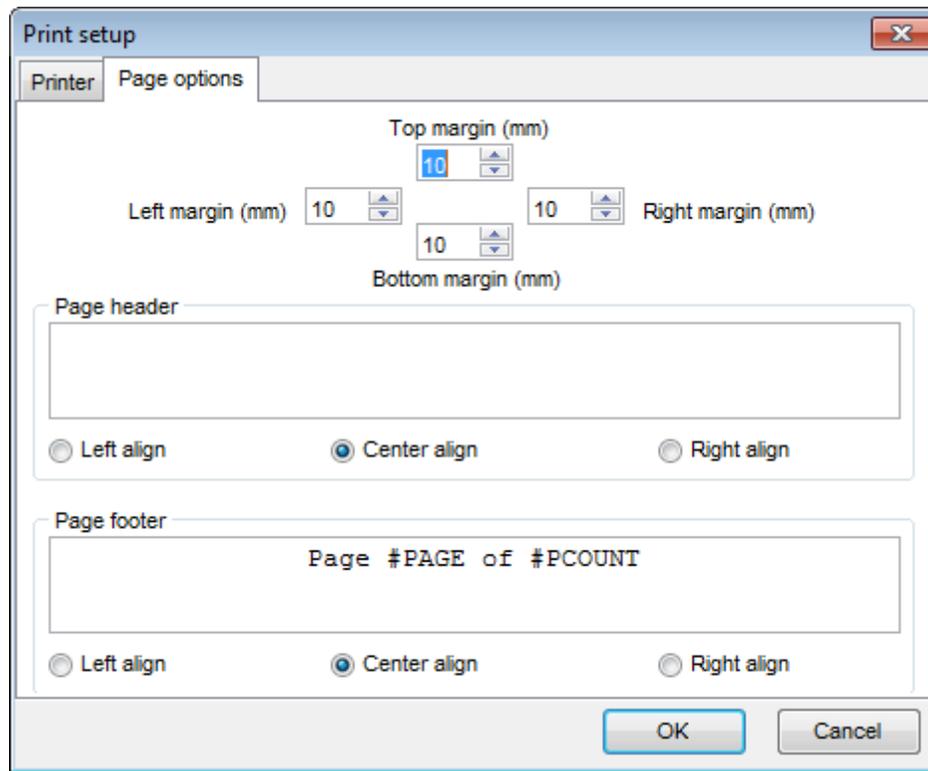
The **Printer** tab of the **Print Setup** dialog allows you to:

- specify the printer (use the **Choose printer** button to select a printer which is not set by default on your system; the *name*, *driver*, *port* fields display the selected printer details);
- specify print layout: print using a defined *scale factor* or arrange diagram at a defined number of pages horizontally and vertically;
- set other print options.



The **Page options** tab of the **Print Setup** dialog allows you to:

- specify page margins (in millimeters): *Top margin, Bottom margin, Left margin, Right margin*;
- specify **Page header** and **Page footer**: enter the header/footer running titles *text*, set left/center/right *align*.



Hint: It is also possible to set macros in the **Page header** and **Page footer** fields:
 #PCOUNT stands for the quantity of pages;
 #PAGE - the number of the current page;
 #DATE denotes the current date;
 #TIME denotes the current time.

See also:

[Print Preview](#)^[708]

9.11.8 Saving/loading diagram

Use the  **Save Diagram** and the  **Open Diagram** buttons on the [main toolbar](#)^[698] to save the diagram as a *.msd file for future use or to load the previously saved diagram.



If necessary, you can save the diagram as an image: click the  **Save as Picture** button on the [main toolbar](#)^[698].

See also:

[Using Navigation bar and Toolbars](#)^[696]

[Using Diagram Navigator and DB Objects pane](#)^[700]

[Using context menus](#)^[701]

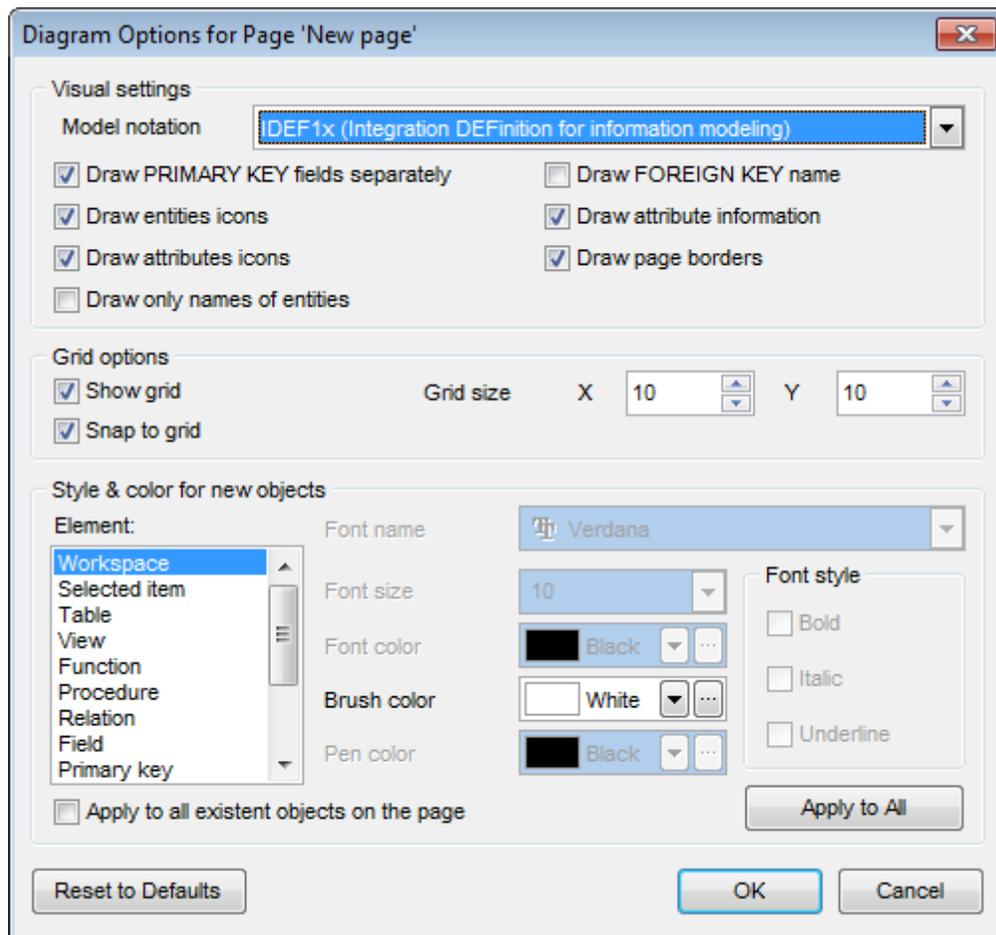
[Adding/removing objects to/from diagram](#)^[703]

9.11.9 Setting diagram options

Using the **Diagram Options** dialog you can setup the behavior and look of each diagram page.

To open this dialog, use the  **Page options** item of the [Navigation bar](#)^[696] or on the [main toolbar](#)^[698], or select the corresponding item from the [context menu](#)^[701].

See detailed description of each option on the [Database Designer](#)^[847] page of the [Environment Options](#)^[825] dialog.

 **Apply changes to all existent objects on the page**

If this option is selected, the current settings will be applied to all objects of the page.

See also:

[Using Diagram Navigator and DB Objects pane](#)^[700]

[Database Designer options](#)^[847]

Part



10 Services

SQL Manager for SQL Server provides a number of powerful tools for working with your database server.

[Server-level principals](#)^[680]

Tools for managing server-level security principals

[Server Log Viewer](#)^[817]

A convenient tool to browse the server logs

[Activity Monitor](#)^[820]

A convenient tool to get information about connections and the locks that they hold

[Resource Governor](#)^[813]

A tool for managing SQL Server workload and resources

SQL Manager for SQL Server provides graphical user interface for most SQL Server objects and native services.

The following *tools for SQL Server objects and services management* are available in SQL Manager for SQL Server:

[Backup Devices](#)^[743]

Provides tools for working with backup devices: [Backup devices manager](#)^[743], [Backup Device properties](#)^[745].

[Database Snapshots](#)^[804]

Provides tools for working with database snapshots: [Snapshots manager](#)^[804], [Snapshot properties](#)^[805].

[Linked Servers](#)^[807]

Provides tools for working with linked servers: [Linked servers manager](#)^[808], [Linked Server Editor](#)^[398].

[DTS Packages](#)^[810]

Provides tools for working with DTS packages: [DTS Packages manager](#)^[811], [DTS Package properties](#)^[427].

[Jobs](#)^[782]

Provides tools for working with jobs: [Jobs manager](#)^[784], [Job Editor](#)^[368].

[Job History](#)^[785]

Provides a convenient tool to browse the list of recent jobs: [Job History](#)^[786].

[Alerts](#)^[788]

Provides tools for working with alerts: [Alerts manager](#)^[790], [Alert Editor](#)^[380].

[Operators](#)^[791]

Provides tools for working with operators: [Operators manager](#)^[793], [Operator Editor](#)^[386].

[Shared Schedules](#)^[794]

Provides tools for working with schedules: [Shared schedules manager](#)^[796], [Schedule Editor](#)^[376].

Proxies^[797]

Provides tools for working with proxies: [Proxies manager](#)^[800], [Proxy Editor](#)^[391].

Credentials^[395]

Provides a powerful tool for working with credentials: [Credential Editor](#)^[395].

Endpoints^[402]

Provides a powerful tool for working with endpoints: [Endpoint Editor](#)^[402].

DDL Triggers^[412]

Provides a powerful tool for working with DDL triggers: [DDL Trigger Editor](#)^[412].

Target Servers^[801]

Provides a convenient tool for target servers management: [Target Servers manager](#)^[802]

SQL Manager for SQL Server provides graphical interface for a number of database maintenance operations. The following *specific database tools* are available in SQL Manager:

Attach Database Wizard^[747]

Allows you to attach an existing database to the instance of Microsoft® SQL Server™.

Detach Database Wizard^[751]

Allows you to detach a database from the instance of Microsoft® SQL Server™.

Backup Database Wizard^[718]

Creates backup copies of entire databases, transaction logs and files/filegroups.

Restore Database Wizard^[732]

Restores entire databases, transaction logs and files/filegroups from previously created backups.

Shrink Database Wizard^[755]

Reduces data and transaction log files.

Indices Management Wizard^[760]

Allows you to reorganize, rebuild, and disable indexes.

Statistics Update Wizard^[766]

Updates database statistics.

Check Database Wizard^[773]

Checks the allocation, structural, and logical integrity of all database objects.

Grant Manager^[682]

Allows you to grant/revoke privileges on database objects.

Using templates^[934]

Facilitates using SQL Manager wizards.

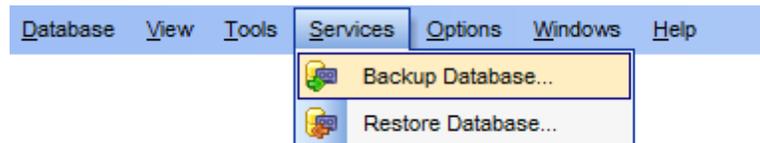
See also:[Getting Started](#) ^[41][Database Explorer](#) ^[63][Database Management](#) ^[94][Database Objects Management](#) ^[178][Query Management Tools](#) ^[424][Data Management](#) ^[462][Import/Export Tools](#) ^[530][Database Tools](#) ^[61][Personalization](#) ^[824][External Tools](#) ^[909][How To...](#) ^[957]

10.1 Backup Database

Backup Database Wizard allows you to perform the database backup operation on your SQL Server system (the *BACKUP DATABASE* Transact-SQL statement is issued).

This operation is used to create a backup copy of an entire database, transaction log or files/filegroups.

To run the wizard, select the **Services | Backup Database...** [main menu](#)^[915] item, or right-click the database alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Backup Database...** item of the [context menu](#)^[54].



- [Selecting database to backup](#)^[718]
- [Setting backup type and options](#)^[719]
- [Selecting database files to backup](#)^[721]
- [Selecting backup devices](#)^[721]
- [Setting schedule options](#)^[729]
- [Setting media options](#)^[723]
- [Setting advanced backup options](#)^[726]
- [Setting data transfer and/or transaction log backup options](#)^[727]
- [Running database backup](#)^[730]

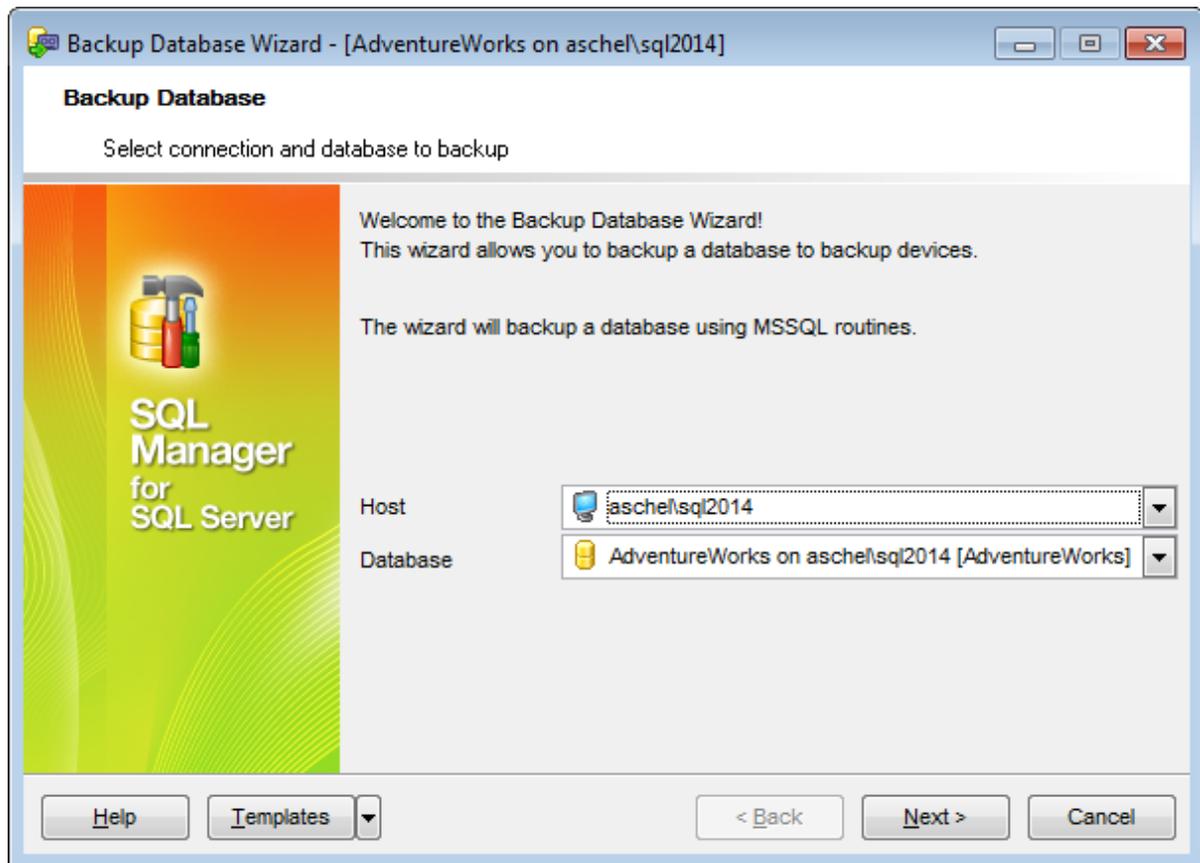
See also:

[Restore Database](#)^[732]

[Using templates](#)^[934]

10.1.1 Selecting database to backup

This step of the wizard allows you to specify the **host/instance** containing the database for backup.

**Host**

Type in or use the drop-down list to select the host/instance where the database resides.

Database

Use the drop-down list of all registered databases on the selected host to specify the database to backup.

Click the **Next** button to proceed to the [Setting backup type and options](#)⁷¹⁹ step of the wizard.

10.1.2 Setting backup type and options

This step of the wizard allows you to set up basic **options** pertaining to the database backup operation.

Database recovery model

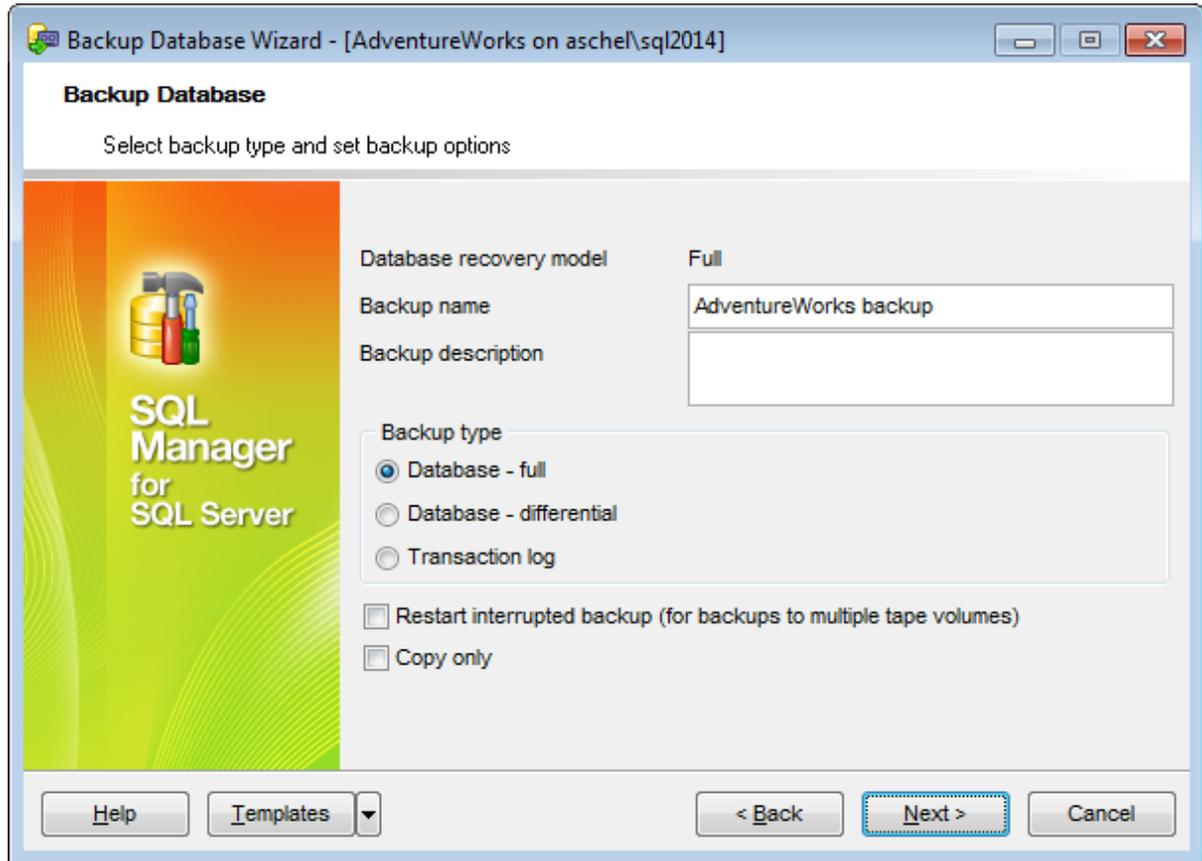
This label displays the recovery model defined for the database.

Backup name

Enter a name for the current backup.

Backup description

Enter any optional text to describe the backup operation.



Backup type

Use this parameter to define the backup type:

- Database - full* (a full database backup which backs up the entire database including the transaction log)
- Database - differential* (a differential backup which records only the changes made to the data in the database after the last full database backup)
- Transaction log* (a sequence of log backups provided for a continuous chain of transaction information to support recovery forward from database, differential, or file backups)

Restart interrupted backup

Specifies that SQL Server restarts an interrupted backup operation. This option may save time because it restarts the backup operation from the point it was last interrupted.

Note: This option can only be used for backups directed to tape media and for backups that span multiple tape volumes. A restart operation never occurs on the first volume of the backup.

Copy only

This option specifies that the backup does not affect the normal sequence of backups. A copy-only backup does not affect the overall backup and restore procedures for the database. You can create a copy-only backup for any type of backup.

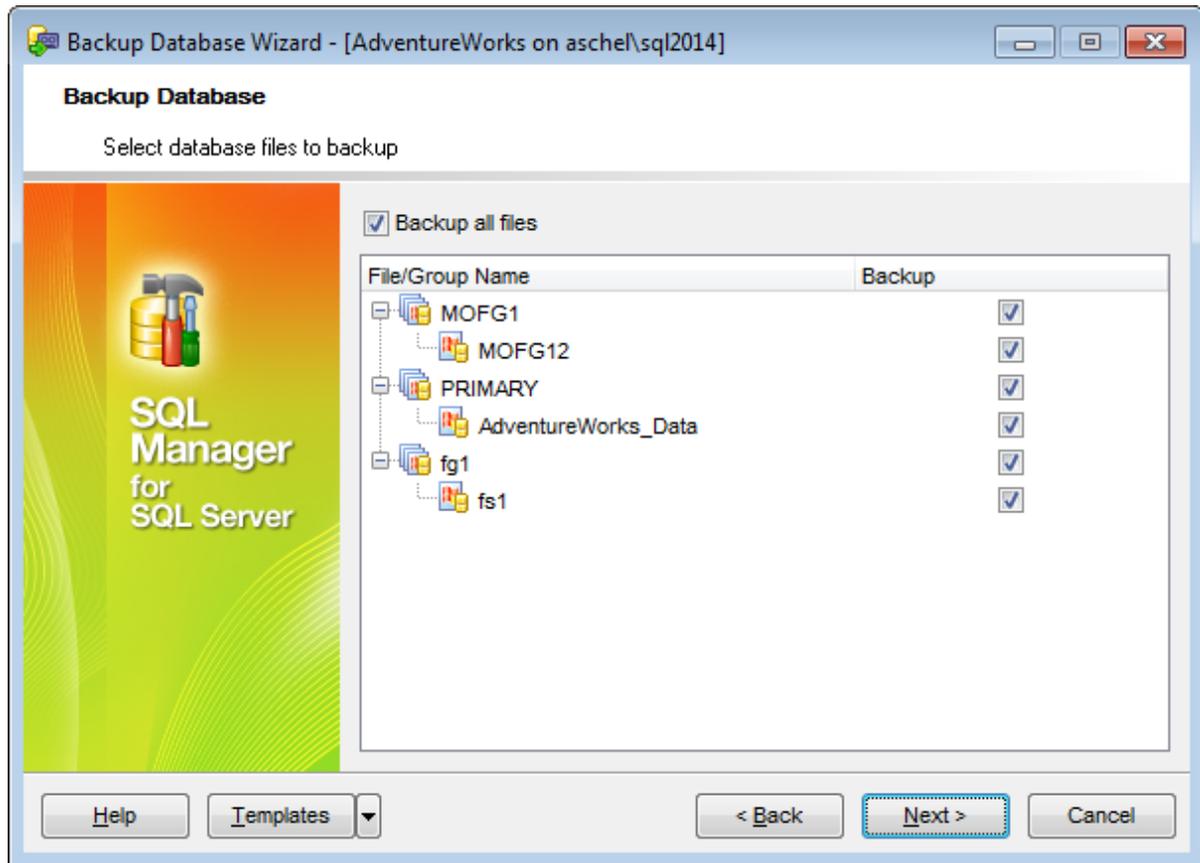
Click the **Next** button to proceed to the [Selecting database files to backup](#)^[721] step of the wizard.

10.1.3 Selecting database files to backup

This step allows you to **select files** of the database to backup.

*To add a file to the backup, select it in the list and set the respective flag in the **Backup** column.*

*To add all files to the backup, check the **Backup all files** option.*



Click the **Next** button to proceed to the [Selecting backup devices](#)^[721] step of the wizard.

10.1.4 Selecting backup devices

Use this step of the wizard to specify the **devices** to backup the database to. Note that all the selected backup devices must be of the same type.

*To add a device, click the **Add Item** button and select a media type from the menu. Alternatively, you can use the context menu of the **Backup Device** list area for the same*

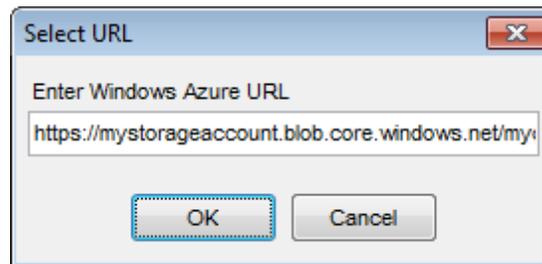
purpose. Select the required backup device using the corresponding dialog.

To *remove* a device from the list, select it and click the **Delete Item** button.

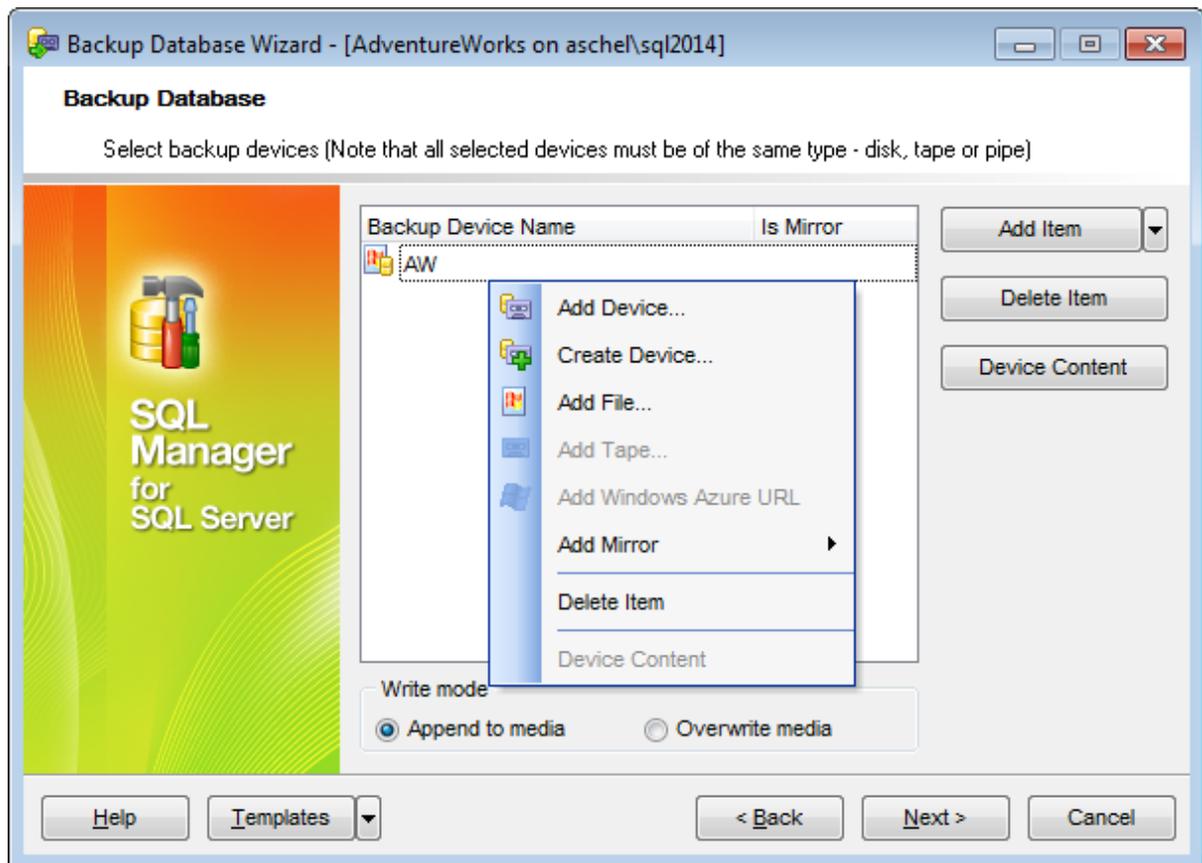
To *browse* the selected device, click the **Device Content** button.

Using the **Add Item** menu and items of the context menu you can also *create a new device* and specify its properties using the [New Logical Backup Device](#) dialog, *add a file*, *a tape* or *set mirroring* of backup media.

For backups performed on the SQL Server 2014 adding *Windows Azure URL* is possible as well.



The URL format is used for creating backups to the Windows Azure Blob storage service.



Disk backup devices are files on hard disks or other disk storage media are the same as regular operating system files. Referring to a disk backup device is the same as referring to any other operating system file. You can define disk backup devices on a local disk of a server, or on a remote disk on a shared network resource, and they can be as large or as small as needed. The maximum file size is the free disk space available on the disk.

Tape backup devices are used in the same way as disk devices, but the tape device must be connected physically to the computer running an instance of SQL Server, and if a tape backup device is filled during the backup operation, but more data still needs to be written, SQL Server prompts for a new tape and continues the backup operation. To back up SQL Server data to tape, use a tape backup device or tape drive supported by the Microsoft Windows platform. Additionally, use only the tapes recommended by the drive manufacturer for the specific tape drive.

Write mode

Append to media / Overwrite media

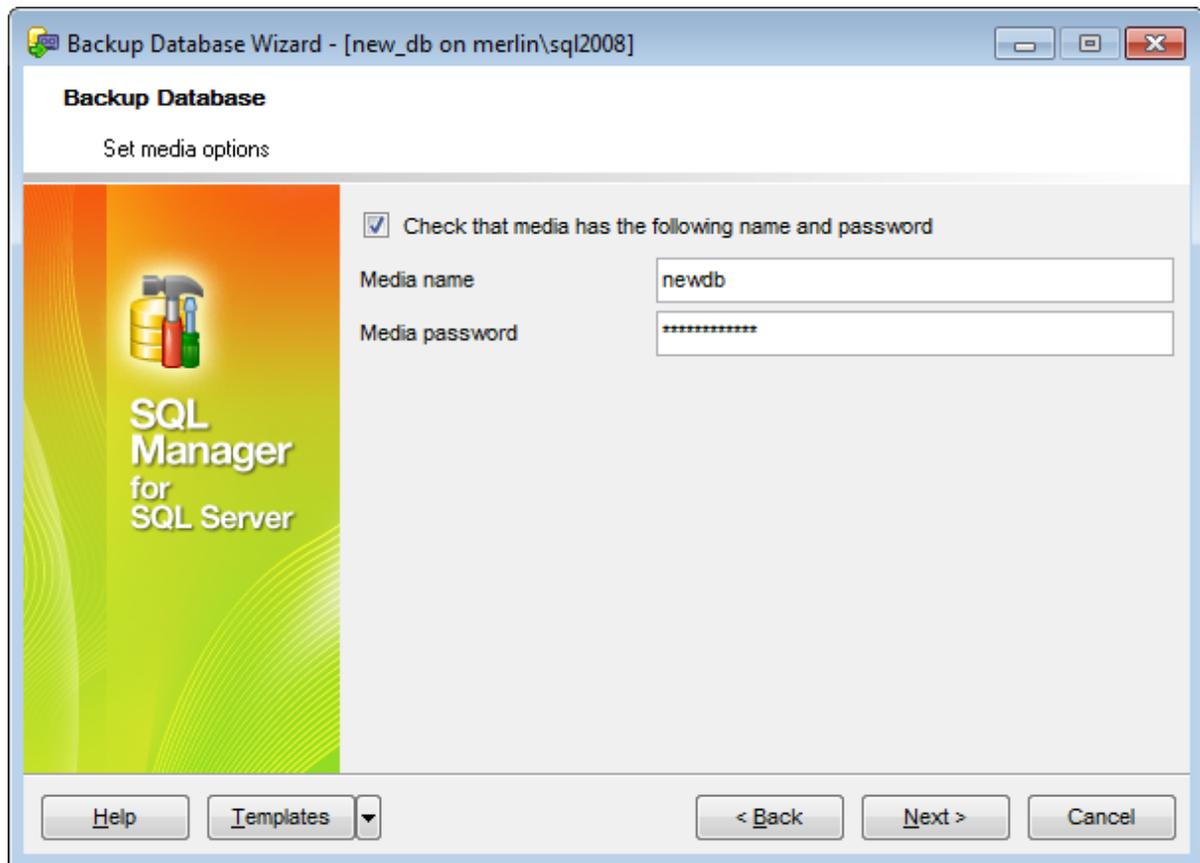
Select whether the media should be appended or overwritten during the backup operation.

Click the **Next** button to proceed to the [Setting schedule options](#)^[729] step of the wizard.

10.1.5 Setting media options

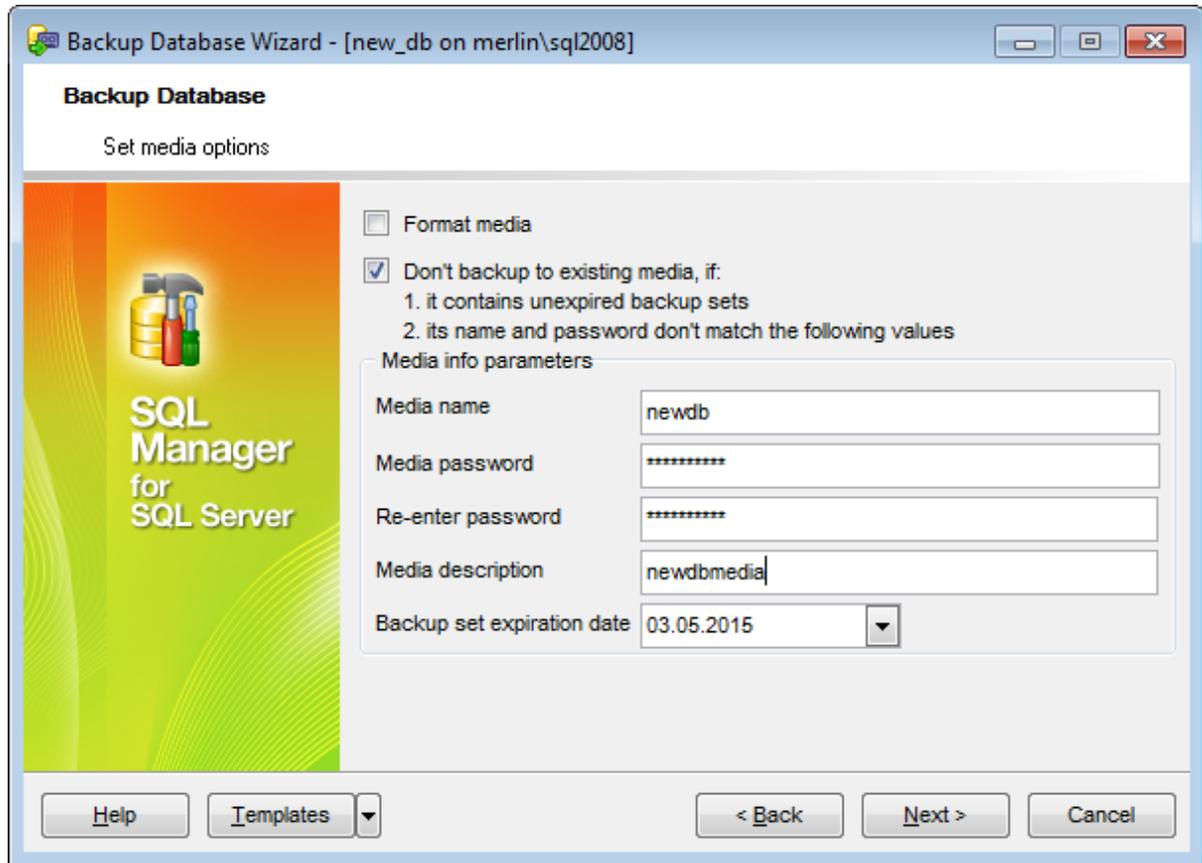
This step is only available if the **Append to media** option was selected on the [Setting backup type and options](#)^[719] step of the wizard.

At this step you can specify whether the application should check the name and password combination for the media. To enable this feature, check the corresponding option and enter a **name** and a **password** for the media.



The following step is only available if the **Overwrite media** option is selected on the [Setting backup type and options](#)^[719] step of the wizard.

At this step you can set a number of options pertaining to the media being overwritten.



Format media

Specifies that the media header should be written on all volumes used for this backup operation. Any existing media header is overwritten. This option invalidates the entire media contents, ignoring any existing content.

NB: Use this option carefully. Formatting one backup device or medium renders the entire media set unusable. For example, if a single tape belonging to an existing striped media set is initialized, the entire media set is rendered useless.

Don't backup to existing media if...

If the option is selected, the media will be first examined for any existing unexpired backup sets and for the correctness of the password. If the password is incorrect or the media contains any unexpired backup sets, the current media will not be used for backup.

Media name

Enter the name of the media.

Media password

Enter the password for the media.

Re-enter password

Repeat the password to avoid misprints.

Media description

Supply any optional text to describe the media.

Backup set expiration date

Define expiration date for the current backup set.

Click the **Next** button to proceed to the [Setting advanced backup options](#) ^[726] step of the wizard.

10.1.6 Setting advanced media options

This step offers **advanced options** that may be useful for the database backup operation.

Block size

Define the size of a data block. Possible values are: *Default*, *To restore from CD (2048)*, *Other* (i.e. you can specify an arbitrary value).

Tape after backup

Specify whether the tape should be *rewound*, *rewound and unloaded*, or *kept open* when the backup operation is completed.

If necessary, you can set a password for the backup: enter the password twice in the respective edit fields.

Verify backup when finished

Check this option to enable backup verification.

 Perform checksum before writing to media

This option enables/disables checksum verification before writing to the backup media.

 Continue on error

This option determines whether the backup operation will be stopped or forced to continue if an error occurs.

 Backup compression

Defines the values that are used to specify the backup compression option.

For backups performed on SQL Server 2014 and higher the following options are available as well.

Credential for Windows Azure	CR1	▼
Encryption	AES-128	▼
Encryptor	MasterC	▼

Encryption is allowed if Format option is set. Encryptor is a protected by master key certificate or an EKM asymmetric key from master database.

Credential for Windows Azure

This field is available only when creating a backup to the Windows Azure Blob storage service. Use the drop-down list to select the [credential](#)^[395] for accessing the Windows Azure storage.

Encryption

Use this drop-down list to specify encryption for a backup. You can specify an encryption algorithm to encrypt the backup with or specify <No encryption> to not have the backup encrypted.

Note: Encryption option is allowed only if the **Format media** option has been set on the [previous step](#)^[723].

Encryptor

If you choose to encrypt you also have to specify the encryptor. Encryptors can be a master key [certificate](#)^[329] or an EKM [asymmetric key](#)^[325] from a master database.

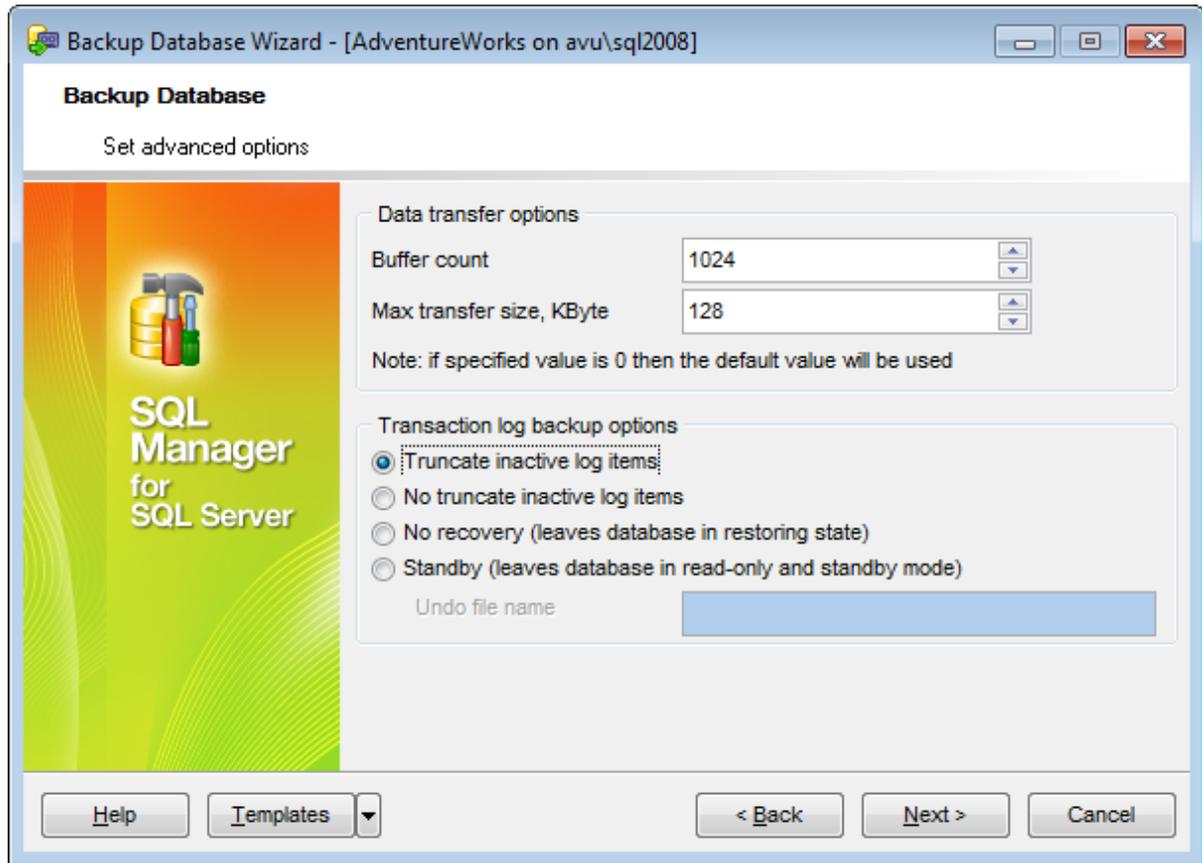
When you are done, click the **Next** button to proceed to the [Setting data transfer and/or transaction log backup options](#)^[727] step of the wizard.

10.1.7 Setting data transfer and/or transaction log backup options

This step offers some **additional options** that may be useful for setting up database backup operation: *data transfer options* and/or *transaction log backup options*.

Data transfer options

(only displayed for SQL Server 2008 and higher)



Buffer count

Specifies the total number of I/O buffers to be used for the backup operation.

Max transfer size

Specifies the largest unit of transfer in bytes to be used between SQL Server and the backup media.

Note: If 0 is specified (by default), the default values will be used.

Transaction log backup options

(only displayed if the *Transaction log* is selected at the [Setting backup type and options](#) step).

Truncate inactive log items

The log is truncated after all the records within one or more virtual log files become inactive.

No truncate inactive log items

Specifies that the log not be truncated and causes the Database Engine to attempt the backup regardless of the state of the database. This option allows backing up the log in situations where the database is damaged.

No recovery (leaves database in restoring state)

Backs up the tail of the log and leaves the database in the RESTORING state. This is useful when failing over to a secondary database or when saving the tail of the log before a restore operation.

Standby (leaves database in read-only and standby mode)

Backs up the tail of the log and leaves the database in a read-only and STANDBY state. Using standby mode requires a standby file, specified by **Undo file name**.

When you are done, click the **Next** button to proceed to the [last step](#)^[730] of the wizard.

10.1.8 Setting schedule options

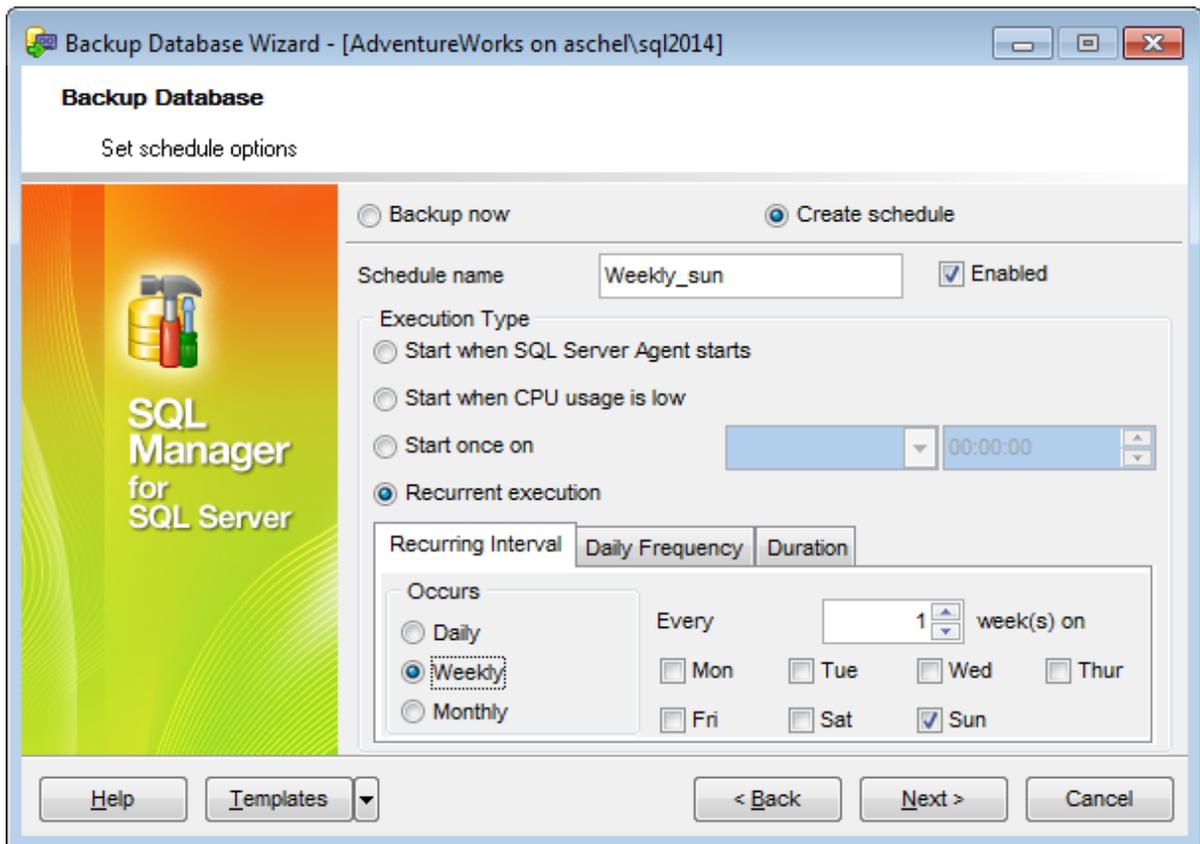
Using this step you can create a **scheduled** backup by selecting the **Create schedule** option and defining the scheduling parameters.

Schedule name

Enter a name of the new backup schedule.

Enabled

Check this option to enable the scheduled backup immediately after its creation.



Execution Type

This panel allows you to define the execution behavior of the schedule:

Start when SQL Server Agent starts

The scheduled backup operation will be started each time upon the SQL Server Agent startup.

Start when CPU usage is low

The scheduled backup operation will be started each time when the CPU usage is low.

Start once on...

The scheduled backup operation will be started only once on the defined date at the specified time.

Recurrent Execution

The scheduled backup operation will be started recurrently.

The following tabs allow you to setup the schedule routine:

Recurring Interval

This tab allows you to set the schedule recurrence periodicity in days: you can run your schedule *daily*, *weekly*, *monthly*, every several days, or on a certain day(s) of the week.

Daily Frequency

This tab allows you to set the schedule recurrence periodicity in hours: you can run your schedule once at a specified time, or run it every few hours or minutes after the specified interval.

Duration

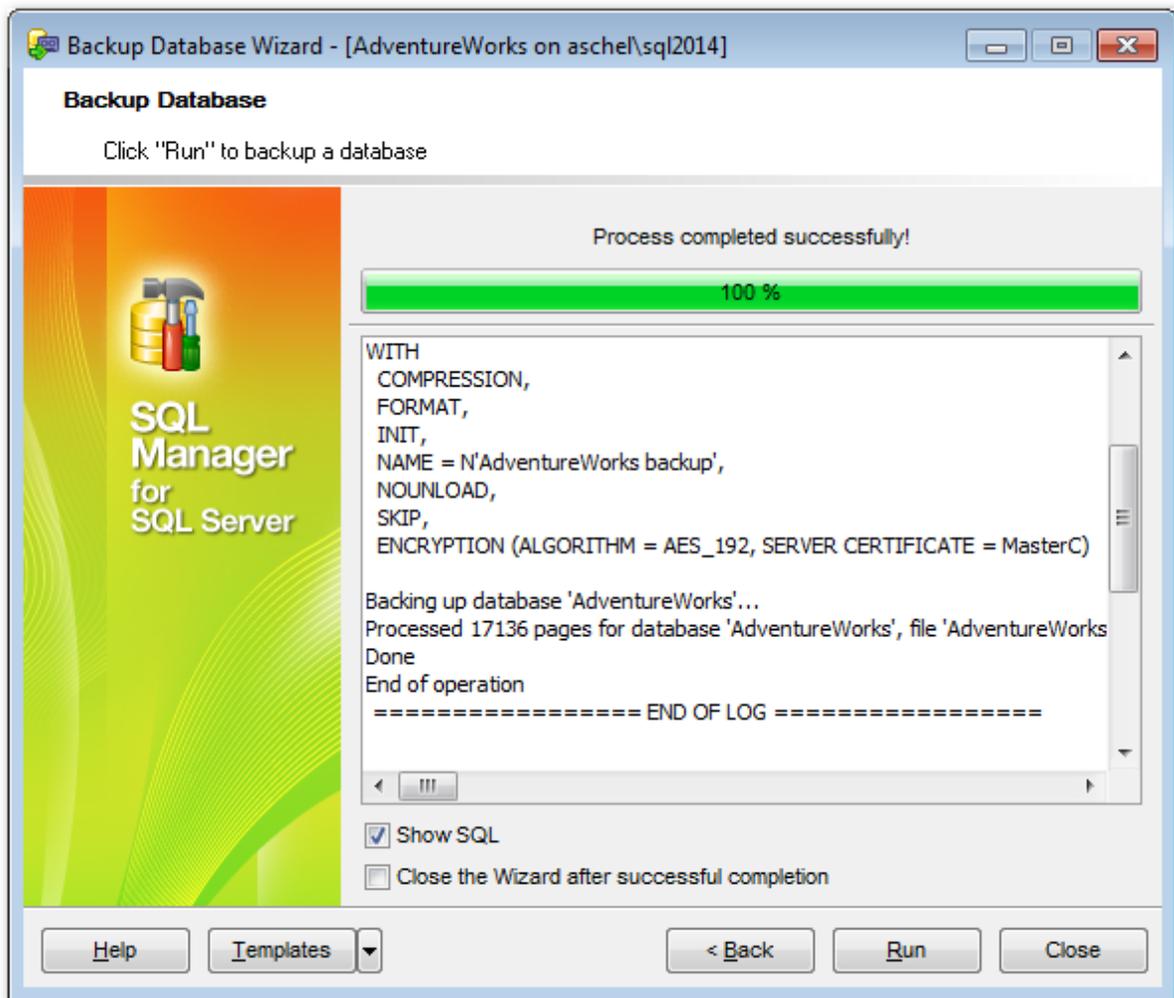
This tab allows you to set the schedule lifetime: you can set the schedule start date and the expiration date in the respective edit fields.

Click the **Next** button to proceed to the [Setting media options](#)^[723] step of the wizard.

10.1.9 Running database backup

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the backup database process.

The log area allows you to view the log of operations and errors (if any).



Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

Show SQL

This option enables/disables SQL statements displayed within the **Operations** tab.

If necessary, you can save a [template](#)^[934] for future use.

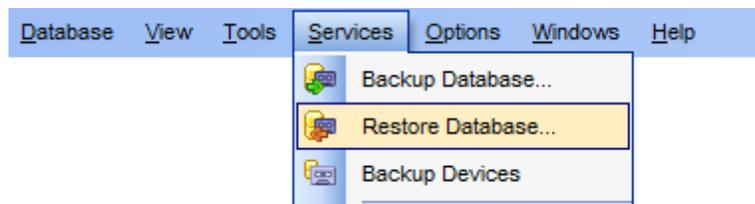
Click the **Finish** button to run the backup database operation.

10.2 Restore Database

Restore Database Wizard allows you to perform the database restore operation on your SQL Server system (the *RESTORE DATABASE* Transact-SQL statement is issued).

This operation is used to rebuild a damaged or corrupted database that has been backed up using [Backup Database Wizard](#)^[718]. You can restore an entire database, part of a database, specific files and filegroups, transaction logs.

To run the wizard, select the **Services |  Restore Database... main menu**^[915] item, or right-click the database alias in the [DB Explorer](#)^[63] tree and select the **Tasks |  Restore Database... item of the context menu**^[54]. Alternatively, you can right-click the **Databases** node and select the **Tasks |  Restore Database... context menu item**.



- [Selecting destination database](#)^[732]
- [Setting restore type and recovery options](#)^[734]
- [Selecting backup set to restore](#)^[736]
- [Selecting files to restore](#)^[739]
- [Setting advanced restore options](#)^[740]
- [Running database restore](#)^[741]

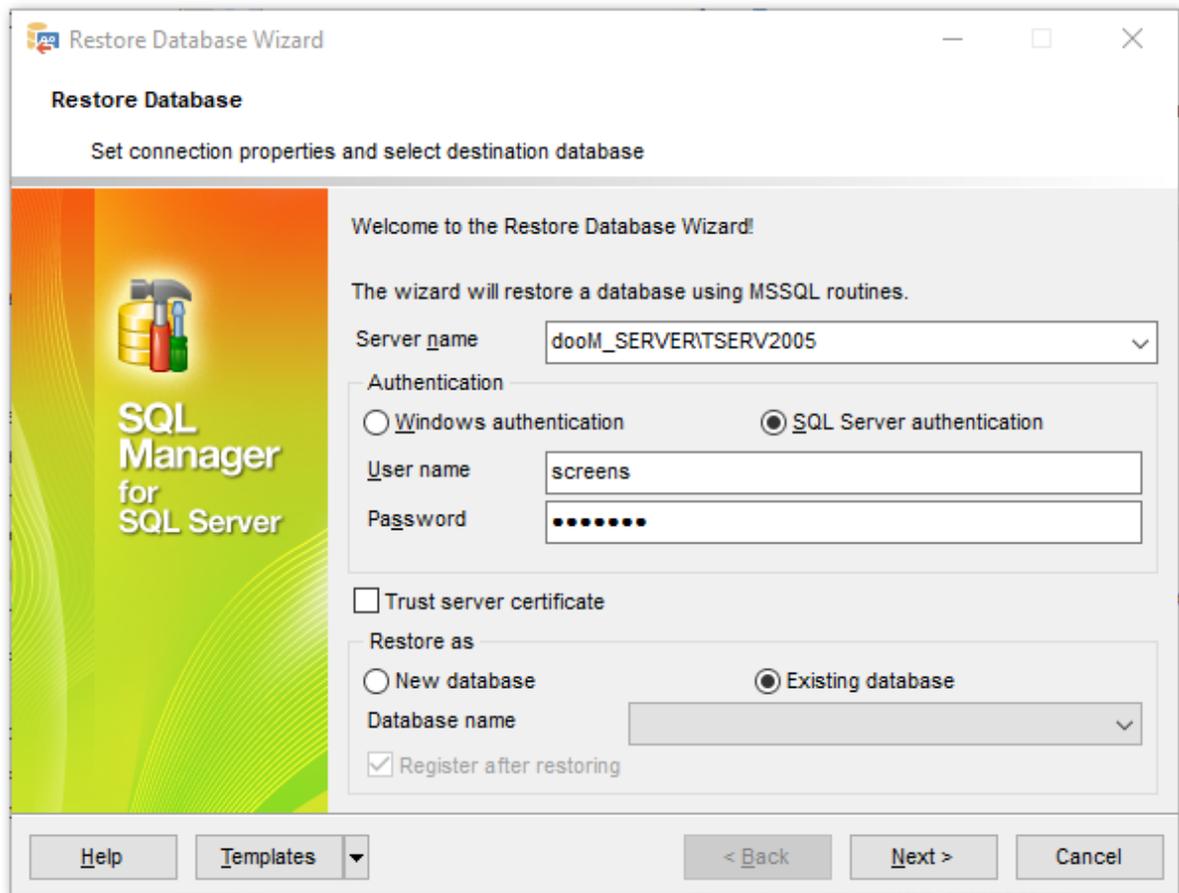
See also:

[Backup Database](#)^[718]

[Using templates](#)^[934]

10.2.1 Selecting destination database

This step of the wizard allows you to specify the **host/instance** to restore database, and to provide **authentication** parameters.



Server name

Type in or use the drop-down list to select the host/instance name to restore database to.

Authentication

Specify the type of Microsoft® SQL Server™ authentication to be used for the connection: the built-in **Windows authentication** or **SQL Server authentication**.

If 'SQL Server' has been selected as the *authentication type*, you should also provide *authorization* settings: **User name** and **Password**.

Trust server certificate

If you use this option, the connection process skips the trust chain validation. In this case, the application connects even if the certificate can't be verified.

Restore as

Select *New database* if you want to create a new database, or select *Existing database* to restore to an existing database.

Database name

Enter a name for the new database or select the database to restore to from the drop-

down list of all available databases on the specified host.

Register after restoring

This option indicates that the [Database Registration Info](#)^[116] dialog for the newly restored database will appear immediately after restoring the database (you need to register the database to start working with it in SQL Manager). If you intend to register the database later, uncheck this option.

Click the **Next** button to proceed to the [Setting restore type and recovery options](#)^[734] step of the wizard.

10.2.2 Setting restore type and recovery options

Use this step of the wizard to define a **restore type** and set **recovery options**.

Restore type

This group of options allows you to specify the restore type to be used for the restore operation.

Database

Full restore or differential restore of entire database or individual files and filegroups. Files and filegroups can be restored either from a file or filegroup backup operation, or from a full database backup operation.

Transaction log

Specifies that a transaction log backup will be used to restore this database. SQL Server checks the backed up transaction log to ensure that the transactions are being loaded into the correct database and in the appropriate sequence.

Recovery without restore

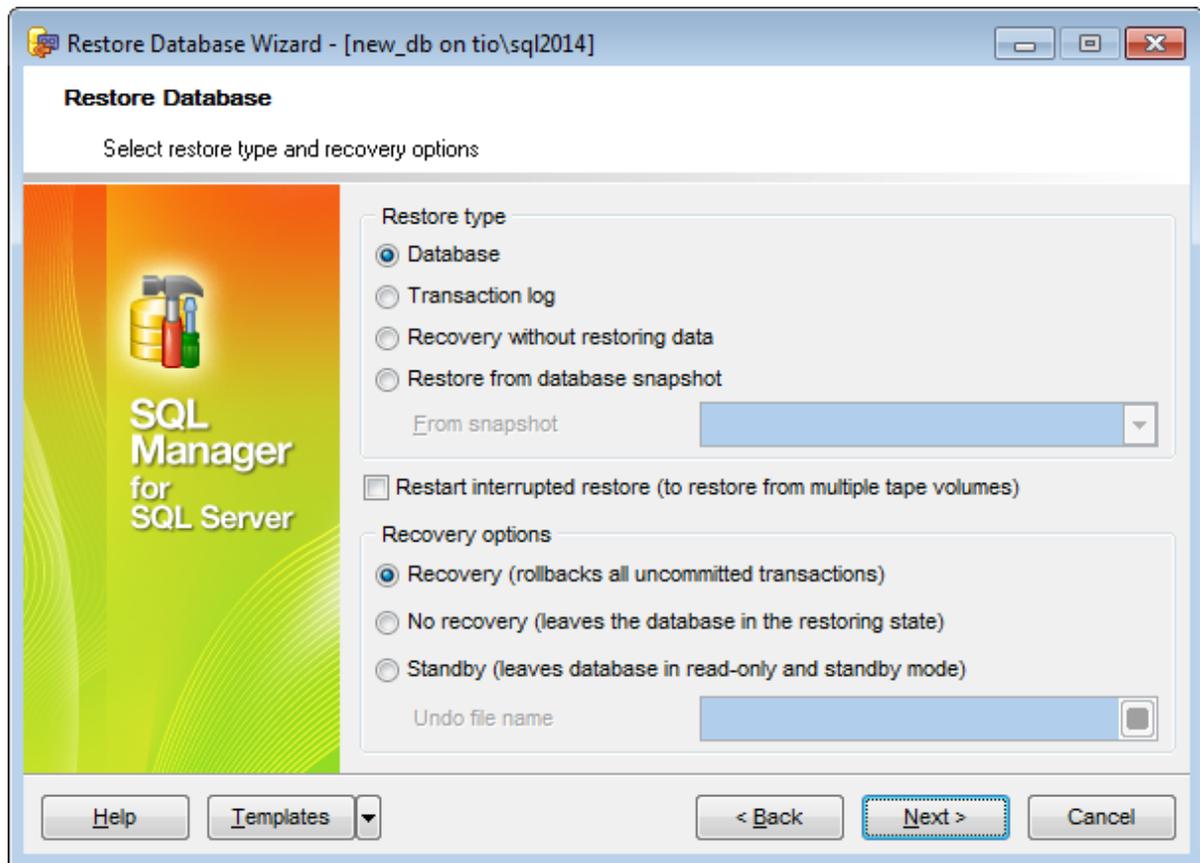
Select this option to execute the database recovery only.

Recovery from database snapshot

Select this option to restore the database from a previously saved [snapshot](#)^[804].

Restart interrupted restore

This option specifies that SQL Server should restart a restore operation that has been interrupted. The restore operation is restarted from the point it was interrupted.



Recovery options

This group of options allows you to specify the recovery options to be applied to the restore operation.

Recovery

This option specifies that the restore operation rolls back any uncommitted transactions. After the recovery process the database is ready for use.

No recovery

This option specifies that the restore operation does not roll back any uncommitted transactions.

Note: When this option is selected, the database is not usable in this intermediate, non-recovered state.

When used with a file or filegroup restore operation, this option forces the database to remain in the restoring state after the restore operation. This is useful in either of the following situations:

- a restore script is being run and the log is always being applied;
- a sequence of file restores is used and the database is not intended to be usable between two of the restore operations.

Standby

This option allows the database to be brought up for read-only access between transaction log restores and can be used with either warm standby server situations or

special recovery situations in which it is useful to inspect the database between log restores.

Undo file name

Specify the undo file name, so that the recovery effects can be undone. The size required for the undo file depends on the volume of undo actions resulting from uncommitted transactions. The same undo file can be used for consecutive restores of the same database.

NB: If free disk space is exhausted on the drive containing the specified undo file name, the restore operation stops.

Click the **Next** button to proceed to the [Selecting backup set to restore](#)⁷³⁶ step of the wizard.

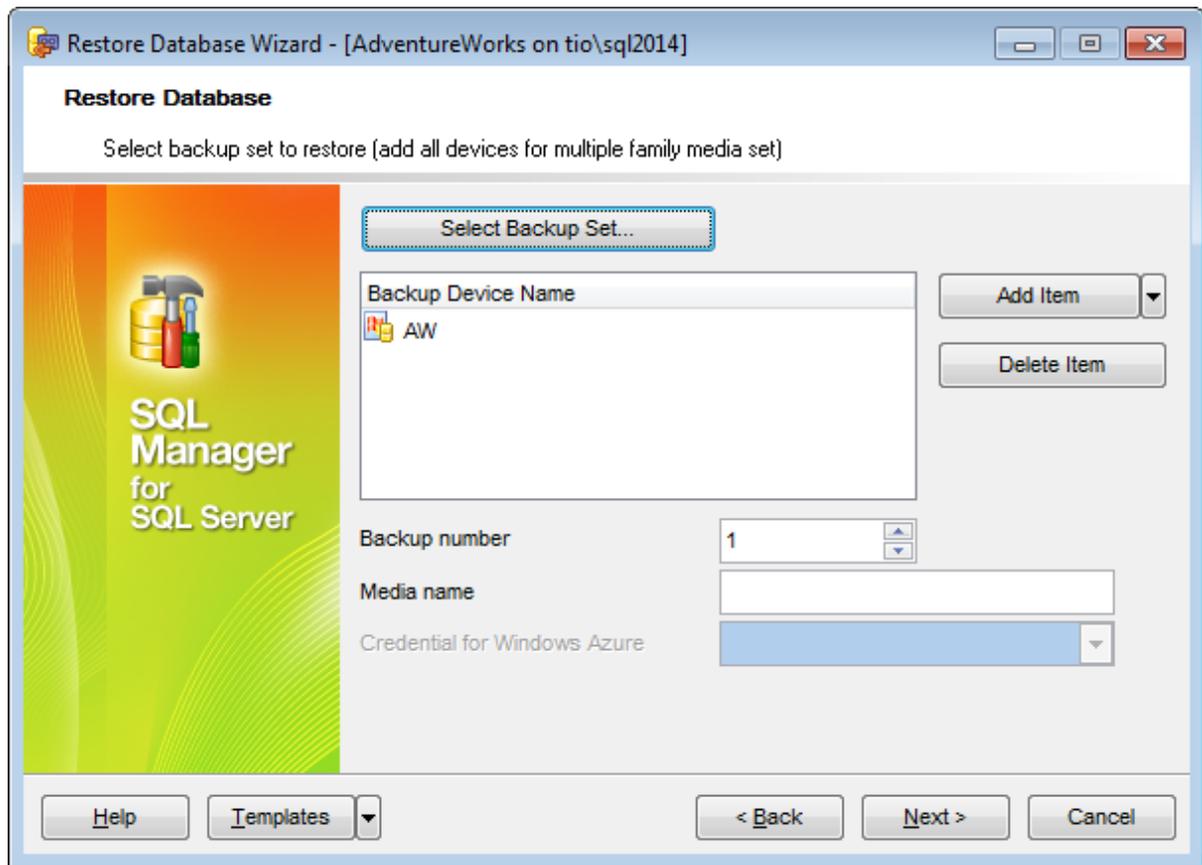
10.2.3 Selecting backup set to restore

At this step of the wizard you need to **select a backup media** to restore the database from.

You can specify a backup set manually by adding devices to the device list.

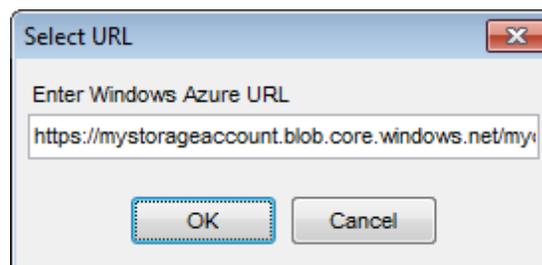
To add a device, click the **Add Item** button and select a media type from the menu. Select the required backup device using the corresponding dialog.

To remove a device from the list, select it and click the **Delete Item** button.



Using the **Add Item** menu you can add a *logical device*, a *file*, or a *tape*.

For restoring performed on the SQL Server 2014 adding *Windows Azure URL* is possible as well.



Specify the location and the file name for the Windows Azure Blob in the URL format.

Also you need to specify **Credential for Windows Azure** which is the [credential](#)^[395] to access the storage.

Backup number

Identifies the backup set to be restored. For example, *1* indicates the first backup set on the backup medium and *2* indicates the second backup set.

Media name

Specify the name for the media. If provided, the media name must match the [media name](#) [723] on the backup volume(s); otherwise, the restore operation terminates. If no media name is given, no check for matching media name on the backup volume(s) is performed.

NB: Consistently using media names in backup and restore operations provides an extra safety check for the media selected for the restore operation.

Media password

Supply the password for the media set. If a [password](#) [723] was provided when the media set was formatted, that password must be supplied to access any backup set on that media set.

Backup password

Provide the password for the backup set. If a [password](#) [726] was provided when the backup set was [created](#) [721], the password must be supplied to perform any restore operation from the backup set.

To select a whole backup set, click the **Select Backup Set...** button and select a set in the corresponding dialog.

Finished on Backup Type Database Name Size (KB) Number Backup Name Backup

23.05.2014 10:07:39	Transaction Log	AdventureWorks	2084	2	AdventureWorks backup	
22.05.2014 17:47:58	Database	AdventureWorks	1851698	1	AdventureWorks backup	

Click the **Next** button to proceed to the [Selecting files to restore](#)^[739] step of the wizard.

10.2.4 Selecting files to restore

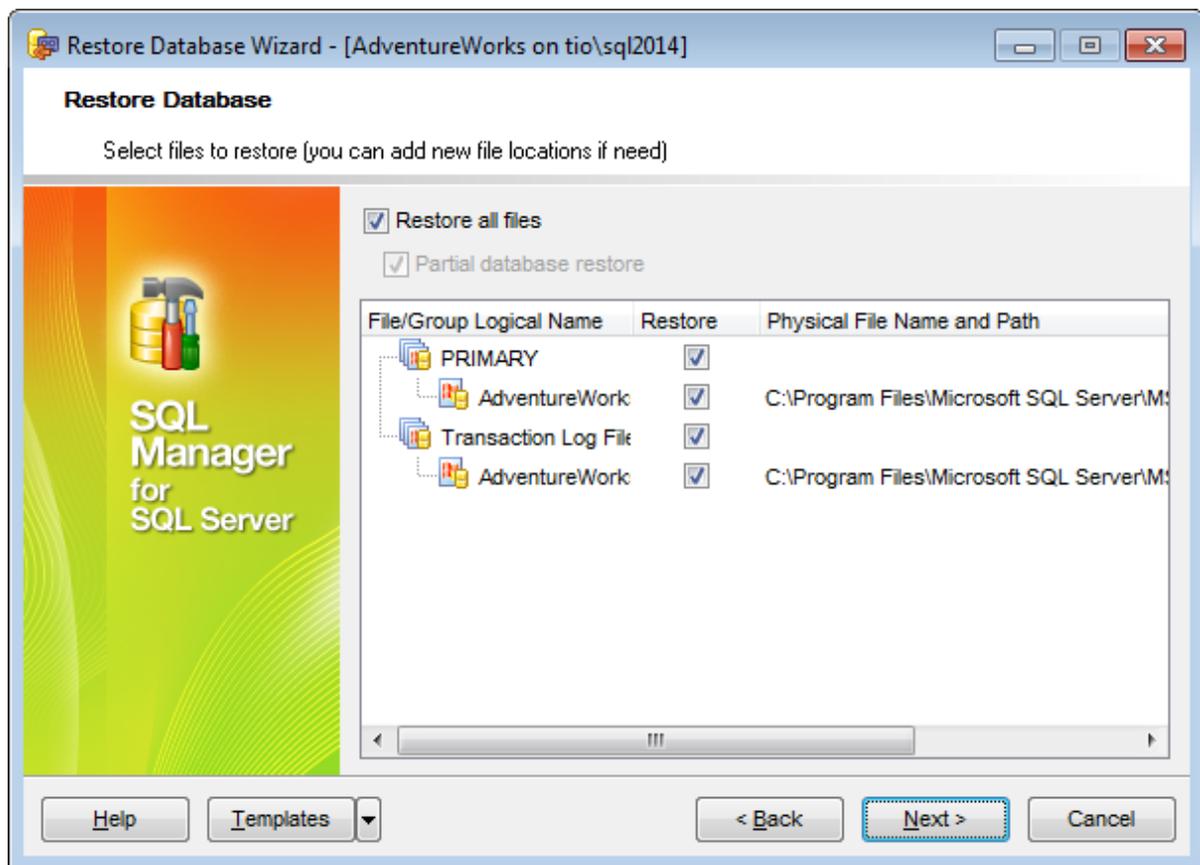
This step allows you to **select files** that will be used to restore the database.

By default the application restores all files. It is indicated by the **Restore all files** option selected. To select files manually, you should uncheck this option.

To add a file to the restore, select it in the list and set the respective flag in the **Restore** column.

To add all files to the restore, check the **Restore all files** option.

You can also edit file paths by clicking the corresponding rows of the **Physical File Name and Path** column.



Partial database restore

This option specifies a partial restore operation. Application or user errors often affect an isolated portion of the database, such as a table. Examples of this type of error include an invalid update or a table dropped by mistake. To support recovery from these events, SQL Server provides a mechanism to restore part of the database to another location so that the damaged or missing data can be copied back to the original database.

The granularity of the partial restore operation is the database filegroup. The primary file and filegroup are always restored, along with the files that you specify and their corresponding filegroups.

Click the **Next** button to proceed to the [Setting advanced restore options](#)^[740] step of the wizard.

10.2.5 Setting advanced restore options

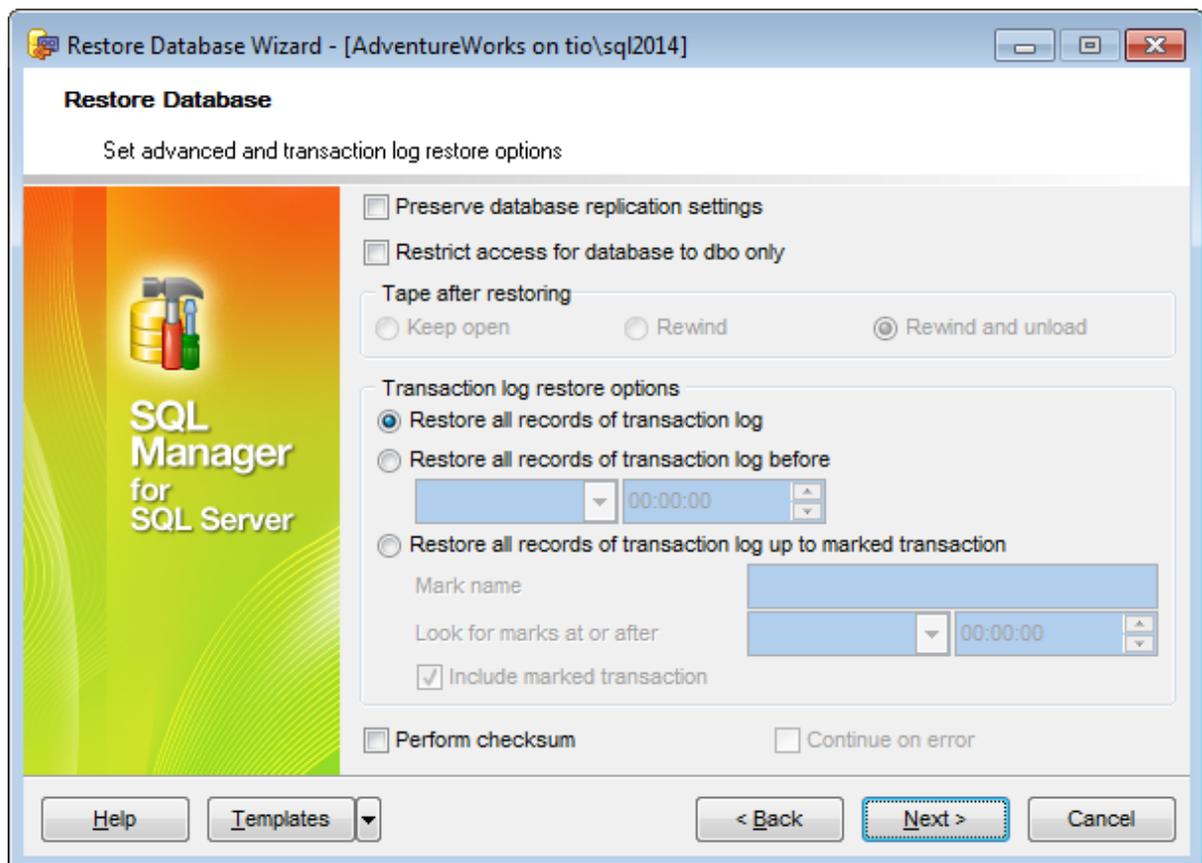
This step offers some **additional options** that are specific for each restoration mode.

Preserve database replication settings

This option specifies that the replication settings are preserved upon restoration of a published database to a server other than that on which it was created. It prevents replication settings from being removed when a database or log backup is restored on a warm standby server and the database is recovered.

Restrict access for database to dbo only

This option restricts access to the newly restored database to members of the *db_owner*, *dbcreator*, or *sysadmin* roles.



Tape after restoring

Specify whether the tape should be *rewound*, *rewound and unloaded*, or *kept open* when the restoration is completed.

Transaction log restore options

This section is available only if the **Transaction log** restore type was selected at the [Setting restore type and recovery options](#)^[734] step.

Restore all records of transaction log

Select this option to make a complete restore from transaction log backup.

Restore all records of transaction log before

This option indicates that database restore is based on the transaction log records added before specified date. Pick date and specify time in the fields below.

Restore all records of transaction log up to marked transaction

Use this option to restore database to the state when marked transaction was committed.

Mark name

Specify the needed mark in the field.

Look for marks at or after

You need to define the start date time point to search for the marked transaction from.

Perform checksum

This option enables/disables checksum verification before restoring from the backup media.

Continue on error

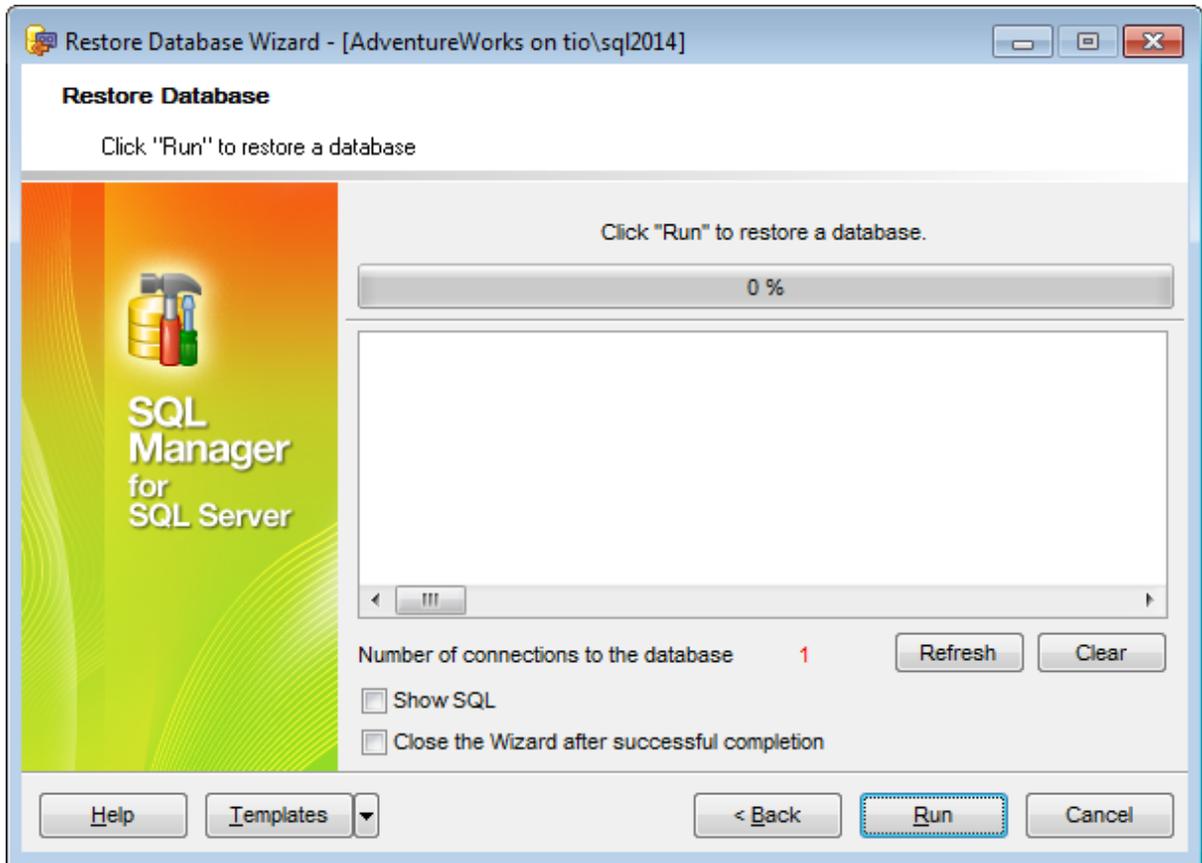
This option determines whether the restore operation will be stopped or forced to continue if an error occurs.

When you are done, click the **Next** button to proceed to the [last step](#)^[741] of the wizard.

10.2.6 Running database restore

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the restore database process.

The log area allows you to view the log of operations and errors (if any).



At this step of the wizard you are provided with an ability to view the **number of connections to the database**.

Click the **Refresh** button to update the number of connections to the database. Click the **Clear** button to kill all connections to the database you need to restore.

Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

Show SQL

This option enables/disables SQL statements displayed within the **Operations** tab when [running database restore](#)^[74].

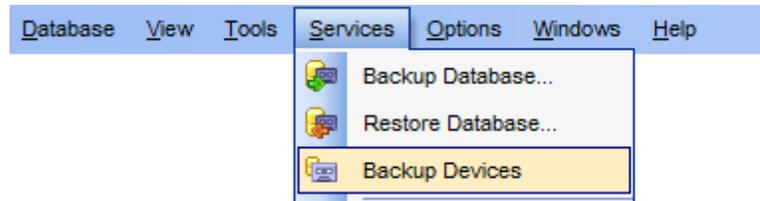
If necessary, you can save a [template](#)^[934] for future use.

Click the **Finish** button to run the restore database operation.

10.3 Backup Devices

A **Backup device** is a tape drive or a disk drive used in [backup](#)^[718] and [restore](#)^[732] operations. When creating a backup, you must [select a backup device](#)^[721] where the data will be written. Microsoft SQL Server 2005 (and higher) can back up databases, transaction logs, and files to disk and tape devices.

To open a list of backup devices on a server select the **Services | Backup Devices...** [main menu](#)^[915] item



- [Backup devices manager](#)^[743]
- [Backup Device properties](#)^[745]

See also:

[Backup Database](#)^[718]

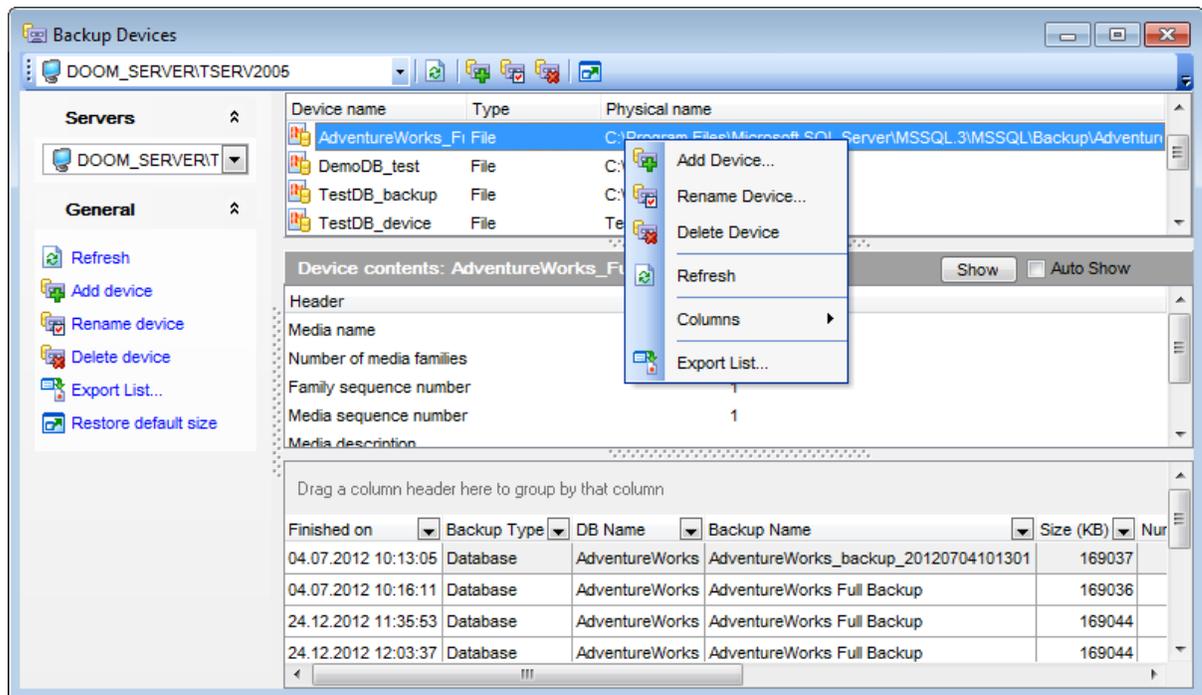
[Restore Database](#)^[732]

[Backup Devices](#)^[366]

10.3.1 Backup devices manager

The **Backup devices manager** allows you to browse the list of SQL Server **backup devices** and manage them efficiently.

To launch the tool, select the **Services | Backup Devices** [main menu](#)^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Backup Devices** item from the [context menu](#)^[53].



The list displays the existing backup devices as a grid with the following columns: *Device name*, *Type*, *Physical name*.

Right-click an item within the list to call the **context menu** allowing you to *create* a new backup device and specify its properties using the [New Logical Backup Device](#)^[367] dialog, *rename*, *delete* the selected backup device, *refresh* the list, or show/hide columns of the list. Using the context menu you can also [export](#)^[531] the list of backup devices to any of supported output file [formats](#)^[935].

Backup devices management tools are also available through the **Navigation bar** of the **Backup devices manager**.

The **Device contents** area allows you to view the contents of the selected backup device: *Media name*, *Number of media families*, *Family sequence number*, *Media description*.

To display the actual contents, press the **Show** button. If necessary, you can check the **Auto show** option - in this case the contents of each backup device will be retrieved upon the backup device selection in the list.

The lower list displays the [backup](#)^[718] operation(s) with the following attributes:

Finished on
Backup type
DB Name
Backup Name
Size (KB)
Number
Expire on

Backup description

Device Type

Created on

Created by

If more convenient, you can [change the order](#)^[467] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

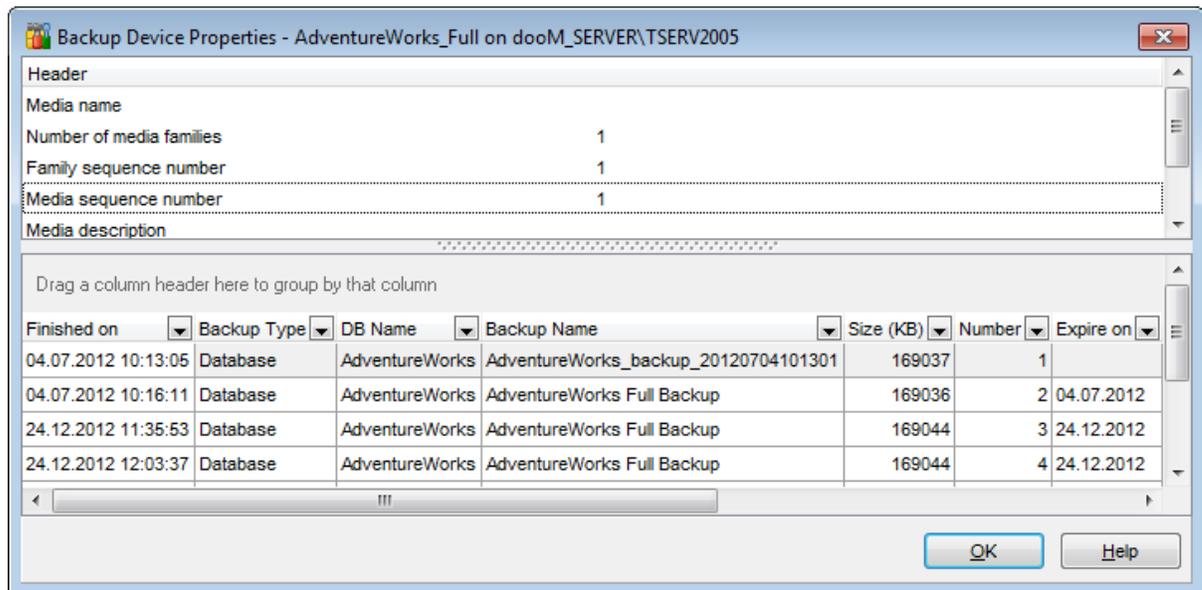
If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray "**Group by**" box area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Hint: These properties are also available within the modal [Backup Device Properties](#)^[745] dialog which is called through the **Backup Device Contents...** context menu item of the backup device alias in [DB Explorer](#)^[63].

10.3.2 Backup Device properties

The **Backup Device Properties** dialog allows you to browse the **backup device** contents and the [backup](#)^[718] operation(s) with this backup device used.

To open the dialog, right-click the backup device in [DB Explorer](#)^[63] and select the **Backup Device Contents...** context menu item.



The **Device contents** area allows you to view the contents of the backup device: *Media name*, *Number of media families*, *Family sequence number*, *Media description*.

The lower list displays the [backup](#)^[718] operation(s) as a grid with the following columns: *Finished on, Backup type, DB Name, Backup Name, Size (KB), Number, Expire on, Backup description, Device Type, Created on, Created by*. If more convenient, you can [change the order](#)^[467] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

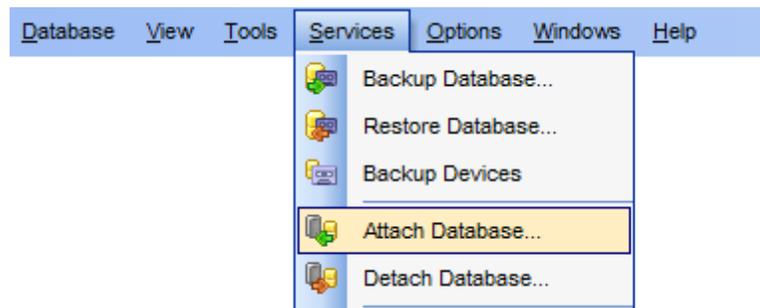
If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by" box** area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

10.4 Attach Database

Attach Database Wizard allows you to attach an existing database that is made up of one or more files to the instance of Microsoft® SQL Server™ (with SQL Server routines used).

This operation is used to attach a database with the specified name and using the specified data files.

To run the wizard, select the **Services** |  **Attach Database...** [main menu](#)^[915] item, or right-click the **Databases** node in the [DB Explorer](#)^[637] tree and select the **Tasks** |  **Attach Database...** context menu item.



- [Setting connection properties](#)^[747]
- [Defining database files and general options](#)^[748]
- [Attaching database](#)^[749]

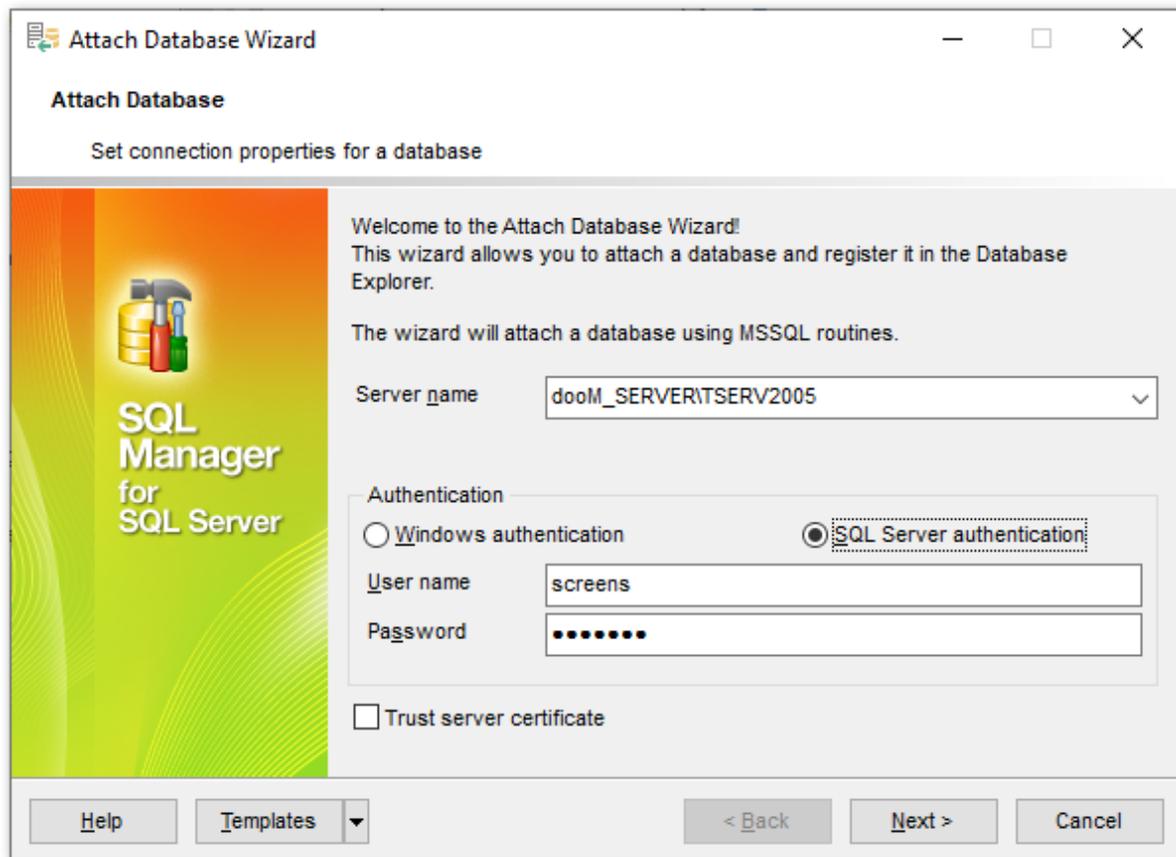
See also:

[Detach Database](#)^[751]

[Using templates](#)^[934]

10.4.1 Setting connection properties

This step of the wizard allows you to specify the **host/instance** to attach database to, and to provide **authentication** parameters.



Server name

Type in or use the drop-down list to select the host/instance name to attach database to.

Authentication

Specify the type of Microsoft® SQL Server™ authentication to be used for the connection: the built-in **Windows authentication** or **SQL Server authentication**.

If 'SQL Server' has been selected as the *authentication type*, you should also provide *authorization* settings: **User name** and **Password**.

Trust server certificate

If you use this option, the connection process skips the trust chain validation. In this case, the application connects even if the certificate can't be verified.

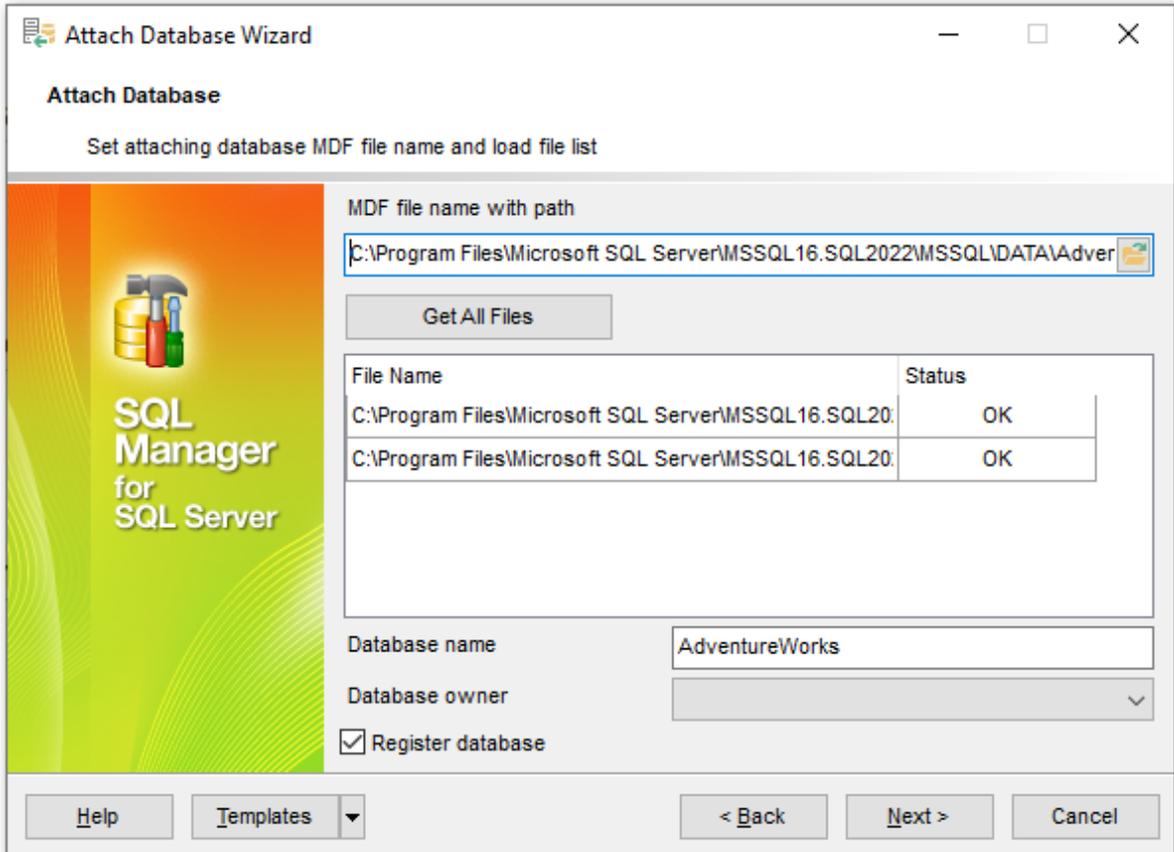
Click the **Next** button to proceed to the [Defining database files and general options](#)^[748] step of the wizard.

10.4.2 Defining database files and general options

Use this step of the wizard to **select the files** to attach to the server as a database.

MDF file name with path

Use the  button to specify the path and name of the file to attach to the server. Then press the **Get All Files** button to add the database files to the file list.



Attach Database Wizard

Attach Database

Set attaching database MDF file name and load file list

MDF file name with path
 

File Name	Status
C:\Program Files\Microsoft SQL Server\MSSQL16.SQL2022\MSSQL\DATA\Adver	OK
C:\Program Files\Microsoft SQL Server\MSSQL16.SQL2022\MSSQL\DATA\Adver	OK

Database name:

Database owner:

Register database

Database name

Enter the name of the database to be attached.

Database owner

Use the drop-down list to select the database owner.

Register Database

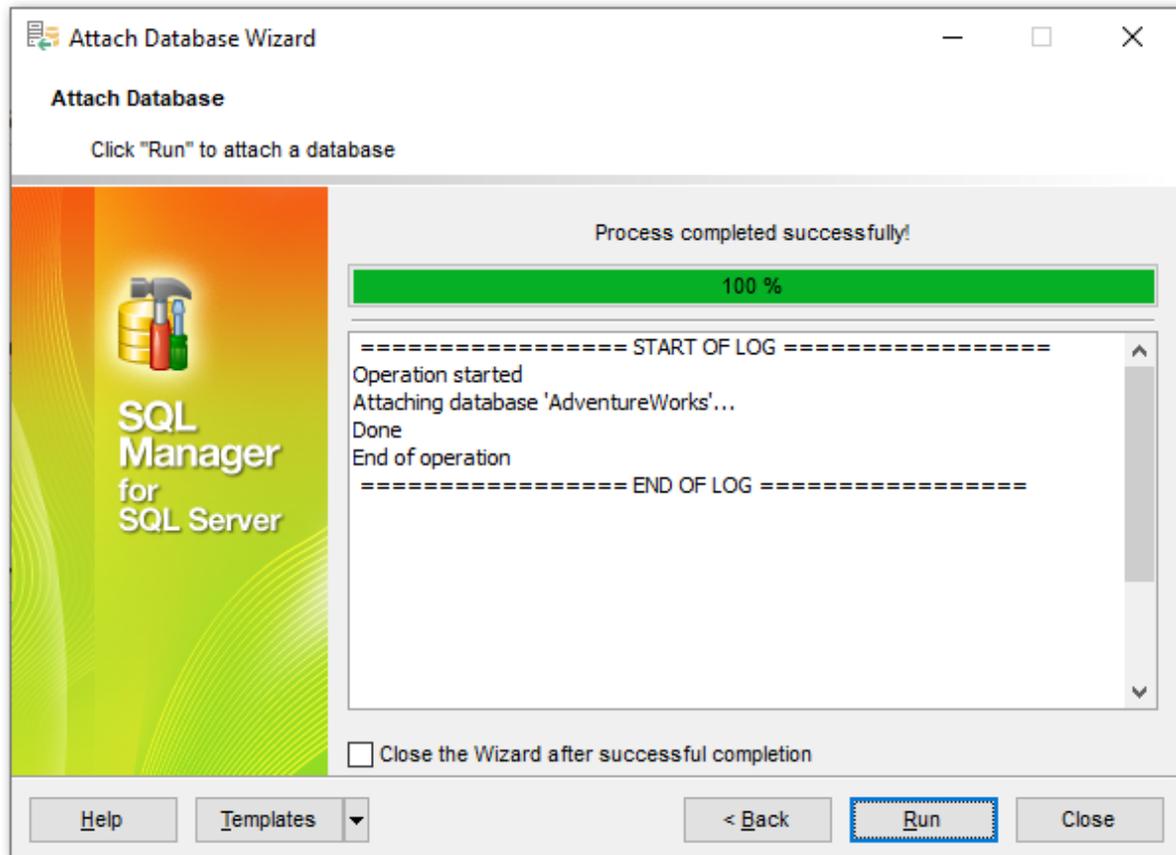
This option indicates that the [Database Registration Info](#)^[16] dialog for the new database will appear immediately after attaching the database (you need to register the database to start working with it in SQL Manager). If you intend to register the database later, uncheck this option.

When you are done, click the **Next** button to proceed to the [Attaching database](#)^[749] step of the wizard.

10.4.3 Attaching database

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the attach database process.

The log area allows you to view the log of operations and errors (if any).



Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

If necessary, you can save a [template](#)⁹³⁴ for future use.

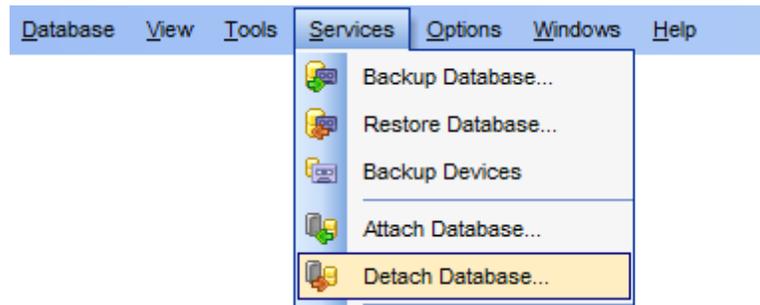
Click the **Finish** button to complete the operation.

10.5 Detach Database

Detach Database Wizard allows you to detach a database from the instance of Microsoft® SQL Server™ (with SQL Server routines used).

This operation is used to detach the specified database with or without updating statistics before the database is detached.

To run the wizard, select the **Services** |  **Detach Database...** [main menu](#)^[915] item, or right-click the database alias in the [DB Explorer](#)^[63] tree and select the **Tasks** |  **Detach Database...** item of the [context menu](#)^[54].



- [Setting connection properties](#)^[751]
- [Selecting the database](#)^[752]
- [Detaching database](#)^[753]

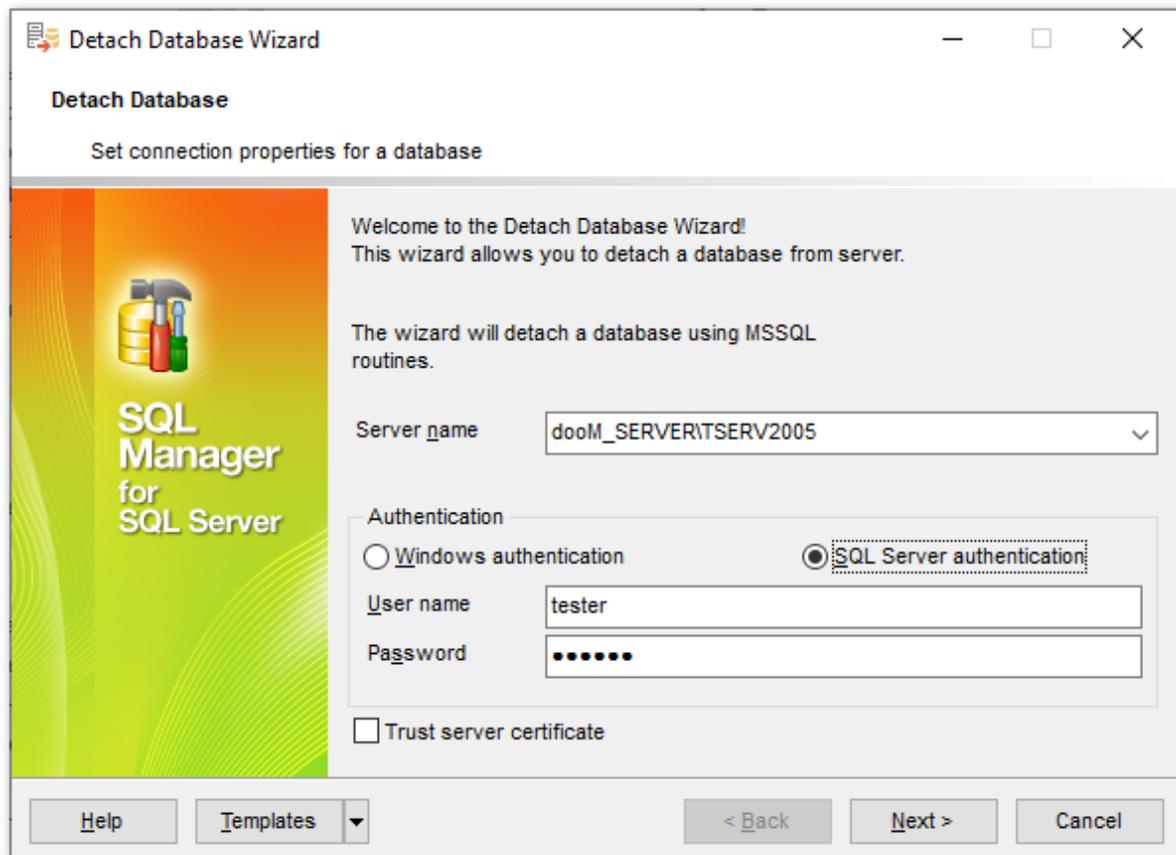
See also:

[Attach Database](#)^[747]

[Using templates](#)^[934]

10.5.1 Setting connection properties

This step of the wizard allows you to specify the **host/instance** to detach database from, and to provide **authentication** parameters.



Server name

Type in or use the drop-down list to select the host/instance name to detach database from.

Authentication

Specify the type of Microsoft® SQL Server™ authentication to be used for the connection: the built-in **Windows authentication** or **SQL Server authentication**.

If 'SQL Server' has been selected as the *authentication type*, you should also provide *authorization* settings: **User name** and **Password**.

Trust server certificate

If you use this option, the connection process skips the trust chain validation. In this case, the application connects even if the certificate can't be verified.

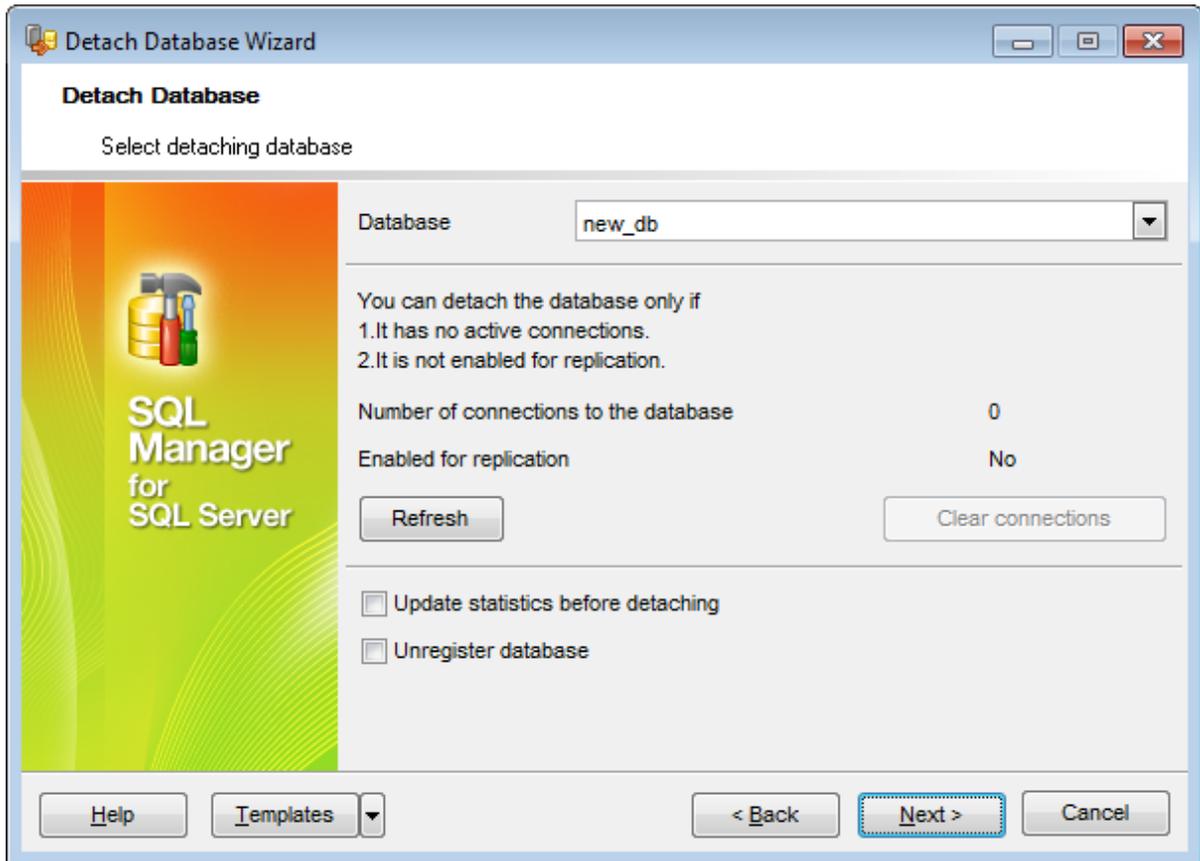
Click the **Next** button to proceed to the [Selecting the database](#)⁷⁵² step of the wizard.

10.5.2 Selecting the database

At this step of the wizard you should **specify the database** to be detached from the instance of SQL Server.

Use the **Database** drop-down list to select the database to be detached. Note that you can detach a database only if it has no active connections and it is not enabled for replication. To clear the current connections to the database, use the corresponding **Clear connections** button.

Press the **Refresh** button to get the current status of the selected database.



Update statistics before detaching

Check this option to update the database statistics before detaching the database.

Unregister database

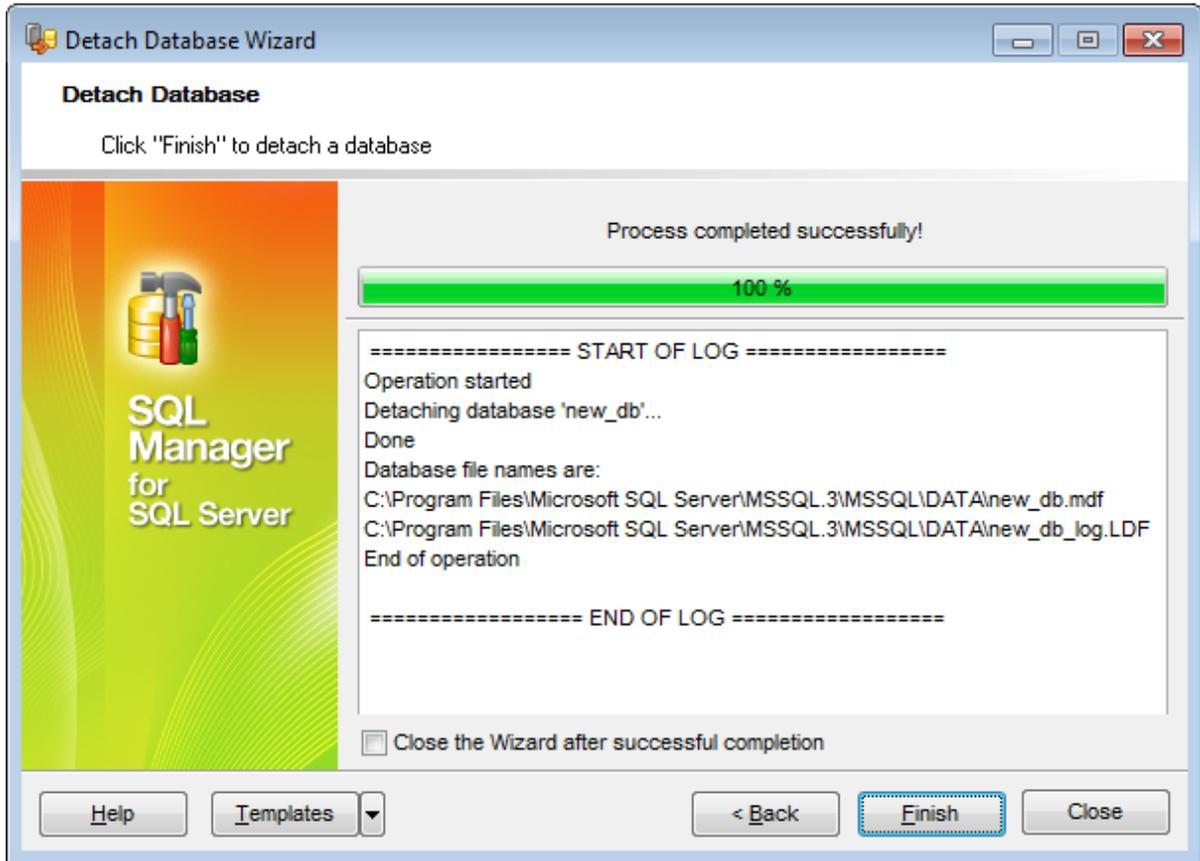
Using this option you can unregister the database (if it has been [registered](#)^[111] in SQL Manager).

When you are done, click the **Next** button to proceed to the [Detaching database](#)^[753] step of the wizard.

10.5.3 Detaching database

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the detach database process.

The log area allows you to view the log of operations and errors (if any).



Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the process is completed.

If necessary, you can save a [template](#)⁹³⁴ for future use.

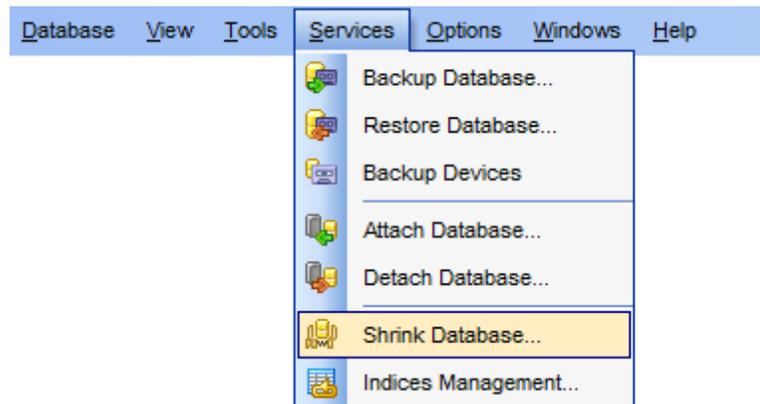
Click the **Finish** button to complete the operation.

10.6 Shrink Database

Shrink Database Wizard allows you to perform database shrinking on your SQL Server system (the *DBCC SHRINKDATABASE* and *SHRINKFILE* Transact-SQL statements are issued).

This operation is used to reduce any file within the database to remove unused pages. Both data and transaction log files can be reduced, or shrunk.

To run the wizard, select the **Services |  Shrink Database... main menu^[915]** item, or right-click the database alias in the **DB Explorer^[63]** tree and select the **Tasks |  Shrink Database... item of the context menu^[54]**.



- [Selecting database and setting shrink mode^{\[755\]}](#)
- [Defining shrink action for database^{\[756\]}](#)
- [Defining shrink action for files^{\[757\]}](#)
- [Shrinking database^{\[758\]}](#)

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

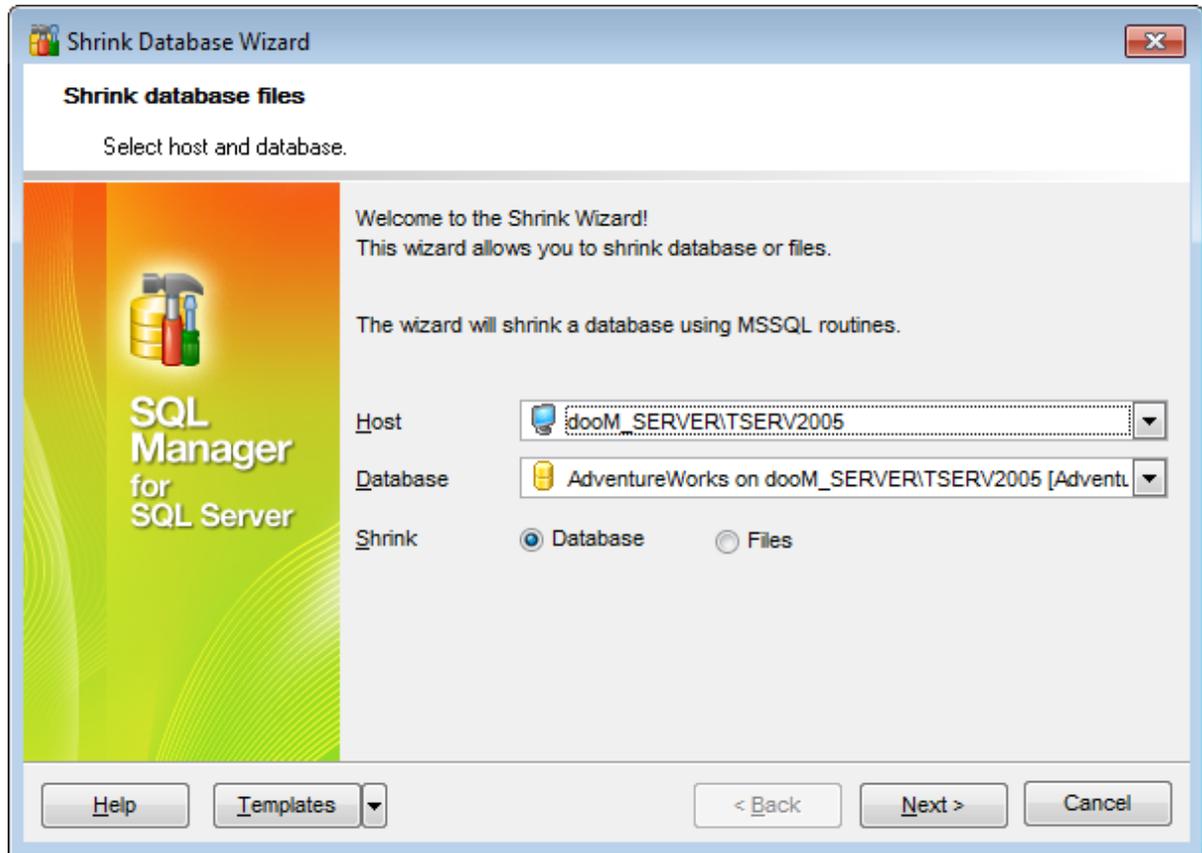
Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix^{\[23\]}](#) page.

See also:

[Using templates^{\[934\]}](#)

10.6.1 Selecting database and setting shrink mode

This step of the wizard allows you to specify the **host/instance** containing the database for shrinking, and to select the **shrink mode**.



Host

Type in or use the drop-down list to select the host/instance where the database resides.

Database

Use the drop-down list of all registered databases on the selected host to specify the database to shrink.

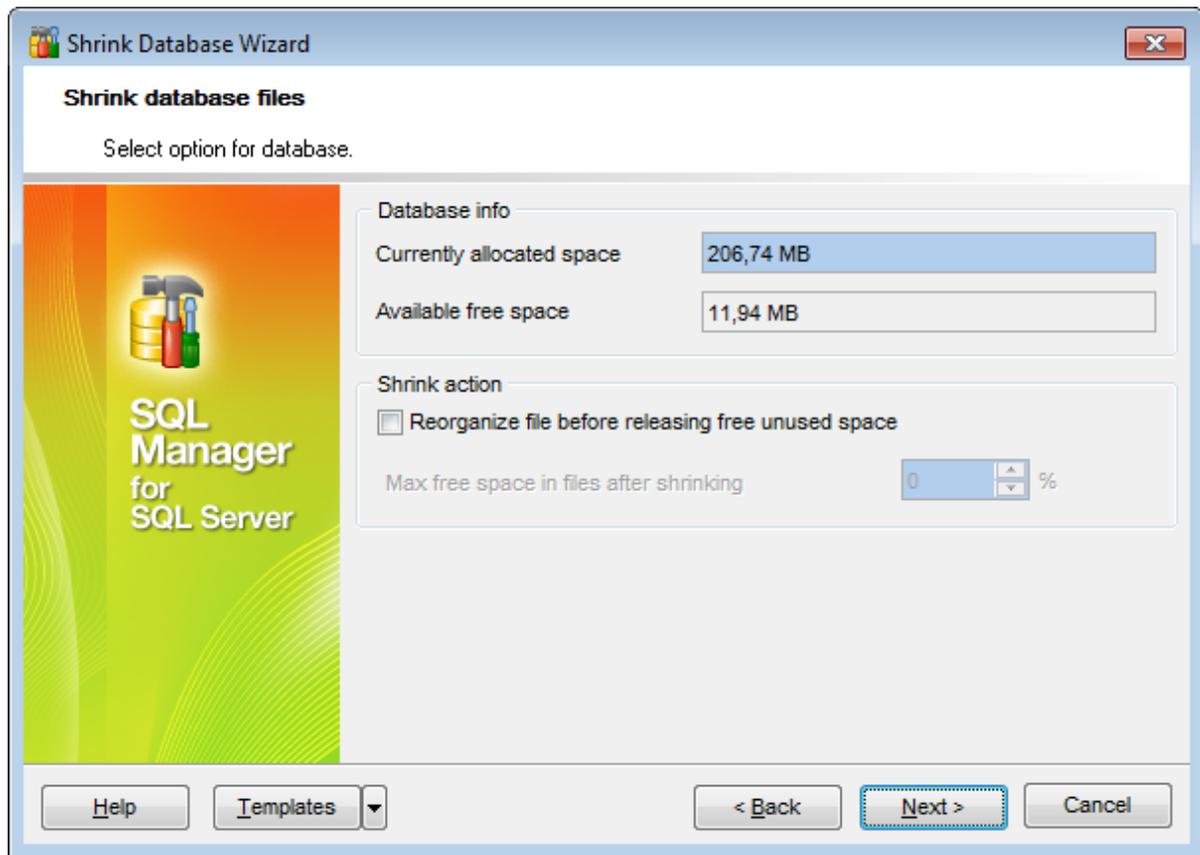
Shrink

Select the preferable shrink mode: **Database** (*SHRINKDATABASE*) or **Files** (*SHRINKFILE*).

Click the **Next** button to proceed to the [Defining shrink action for database](#)^[756] step of the wizard (if you have selected the *Database* shrink mode), or to the [Defining shrink action for files](#)^[757] step (if you have selected the *Files* shrink mode).

10.6.2 Defining shrink action for database

This step of the wizard provides you with information on the **allocated** and **free space**, and allows you to specify the **shrink action** for the database.



Database info

This group displays the *currently allocated space* and the *available free space* values pertaining to the database being shrunk.

Shrink action

Reorganize file before releasing free unused space

This action causes the file to be reorganized before free space is released.

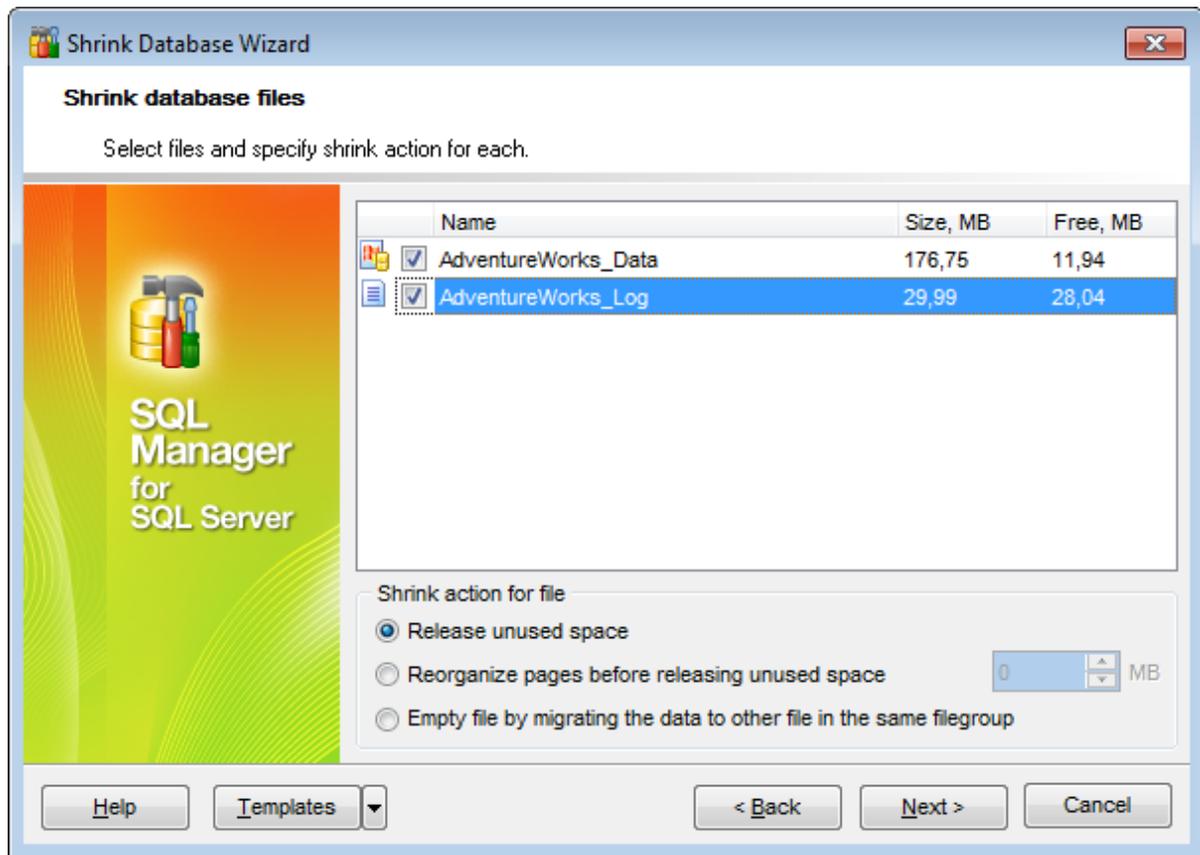
Max free space in files after shrinking

Specify the percentage of free space that will be left in the database file after the database is shrunk.

When you are done, click the **Next** button to proceed to the [Shrinking database](#)^[758] step of the wizard.

10.6.3 Defining shrink action for files

This step of the wizard provides you with information on the **allocated** and **free space**, and allows you to specify the **shrink action** for each of the database files.



Shrink action for file

- Release unused space*

The free unused space is released explicitly (default).

- Reorganize pages before releasing unused space*

This action causes the pages to be reorganized before unused space is released.

- Empty file by migrating the data to other file in the same filegroup*

This action migrates all data from the selected file to other files in the same filegroup. In this case placing data on the file is not allowed.

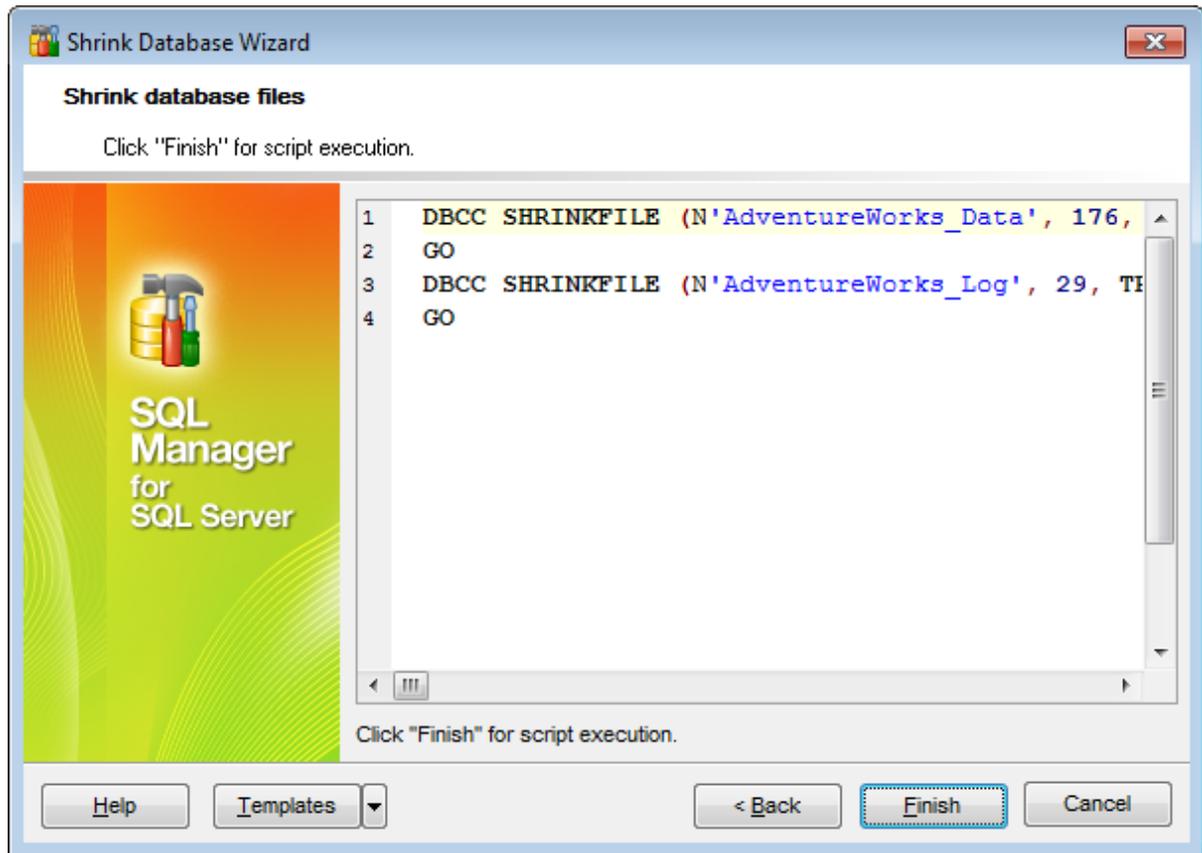
If necessary, you can change the default value of the *target_size* edit-box to enforce shrinking the file to the specified size.

When you are done, click the **Next** button to proceed to the [Shrinking database](#)⁷⁵⁸ step of the wizard.

10.6.4 Shrinking database

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the shrink database/files process.

If necessary, you can edit the result script before execution.



If necessary, you can save a [template](#)⁹³⁴ for future use.

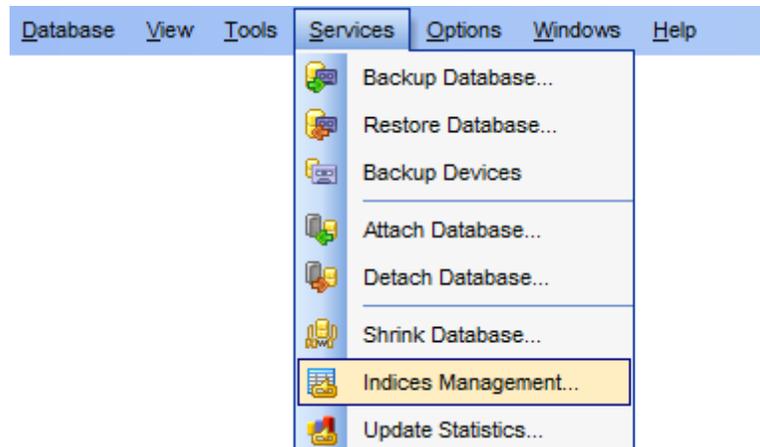
Click the **Finish** button to execute the result script and complete the operation.

10.7 Indices Management

Indices Management Wizard allows you to perform index management operations in your SQL Server database: *reorganizing, rebuilding, disabling* (the `ALTER INDEX REORGANIZE ... REBUILD ... DISABLE` Transact-SQL statements are issued).

When indexes have pages in which the logical ordering based on the key value, does not match the physical ordering inside the data file, these indexes are called *fragmented*. Highly fragmented indexes may considerably decrease query performance. Index fragmentation is remedied by either reorganizing or by rebuilding an index.

To run the wizard, select the **Services | Indices Management...** [main menu](#)^[915] item, or right-click the database alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Indices Management...** item of the [context menu](#)^[54].



- [Selecting database for indices management](#)^[718]
- [Selecting tables that contain indexes](#)^[719]
- [Specifying actions and setting options](#)^[721]
- [Editing and executing the result script](#)^[721]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

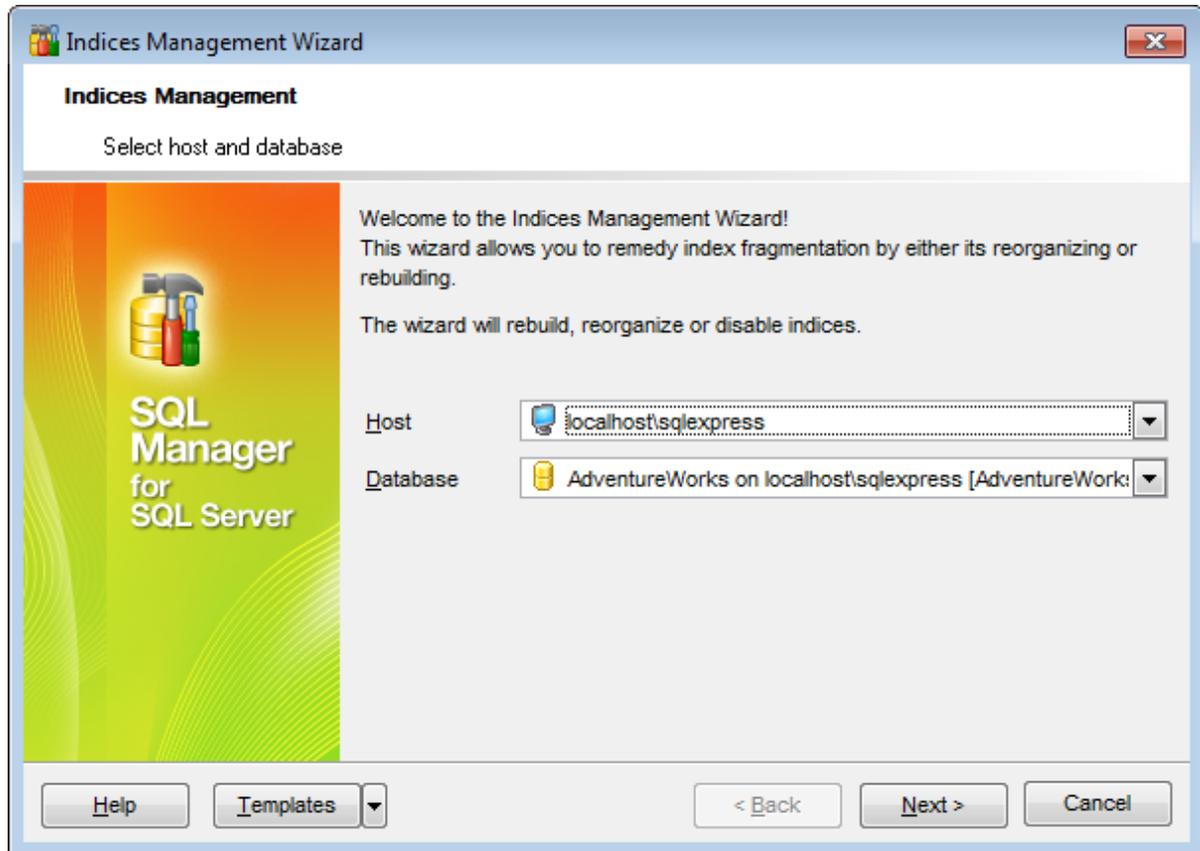
See also:

[Indices](#)^[228]

[Using templates](#)^[934]

10.7.1 Selecting database for indices management

This step of the wizard allows you to specify the **host/instance** containing the database for indexes management.



Host

Type in or use the drop-down list to select the host/instance where the database resides.

Database

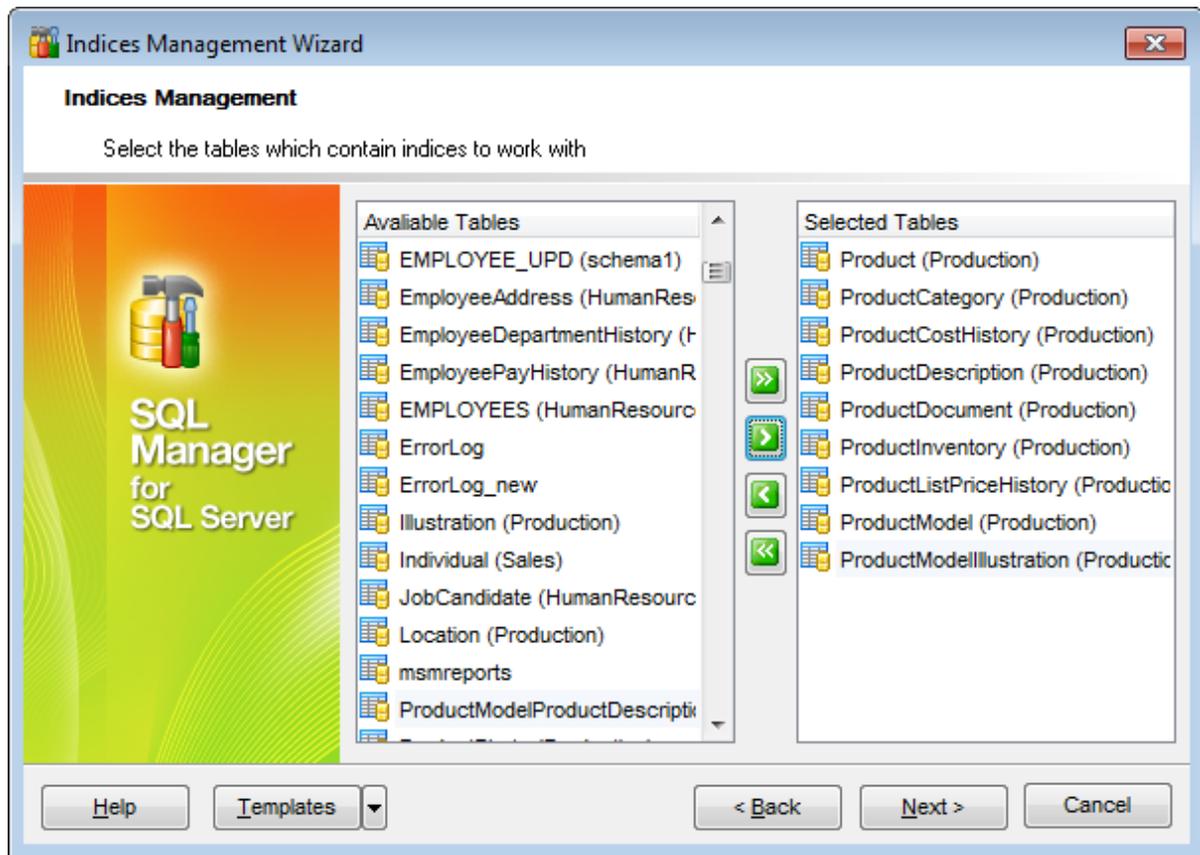
Use the drop-down list of all registered databases on the selected host to specify the database to manage indexes in.

Click the **Next** button to proceed to the [Selecting tables](#)⁷⁶¹ step of the wizard.

10.7.2 Selecting tables

This step of the wizard allows you to **select tables** containing indexes.

To select a table, you need to move it from the **Available Tables** list to the **Selected Tables** list. Use the     buttons or drag-and-drop operations to move the tables from one list to another.



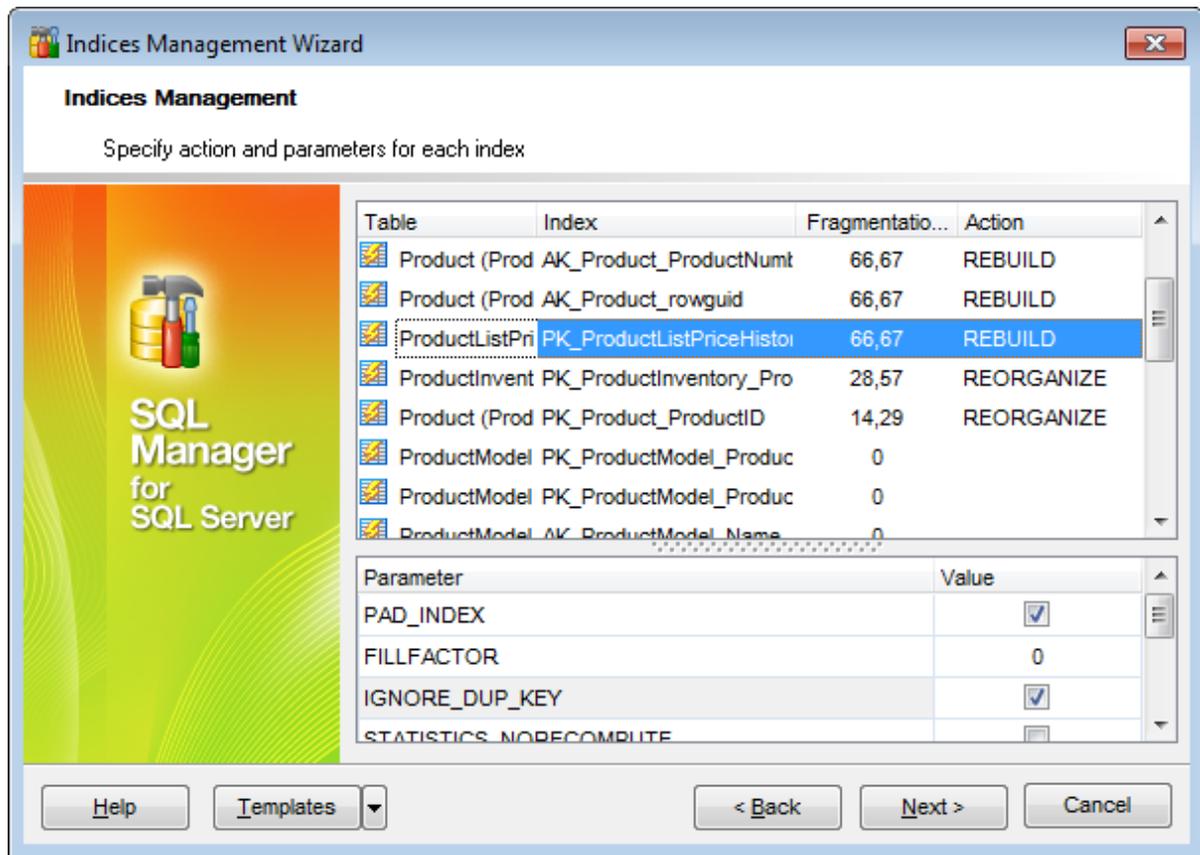
Click the **Next** button to proceed to the [Specifying actions and setting options](#)^[762] step of the wizard.

10.7.3 Specifying actions and setting options

Use this step of the wizard to specify an **action** for each index and set the respective **parameters**.

The upper area lists all **indexes** of the tables selected at the [previous step](#)^[761].

The **Fragmentation** column indicates the current fragmentation percentage of each index (*avg_fragmentation_in_percent*); the **Action** column allows you to specify one of the available actions to be performed over the selected index: *REBUILD*, *REORGANIZE*, *DISABLE*.



The lower area lists the **parameters** that can be defined for the specified action (except for *DISABLE*).

- **REBUILD:**

PAD_INDEX

This parameter sets the percentage of free space in the intermediate level pages during index creation.

FILLFACTOR

This parameter sets the percentage of free space in the leaf level of each index page during index creation.

STATISTICS_NORECOMPUTE

This option specifies whether out-of-date index statistics should be automatically recomputed.

ONLINE

This option determines whether concurrent user access to the underlying table or clustered index data and any associated non-clustered indexes is allowed during index operations.

ALLOW_ROW_LOCKS

This option determines whether row locks are used in accessing index data.

ALLOW_PAGE_LOCKS

This option determines whether page locks are used in accessing index data.

MAXDOP

This parameter sets the maximum number of processors the query processor can use to execute a single index statement. Fewer processors may be used depending on the current system workload.

- **REORGANIZE:**

LOB_COMPARISON

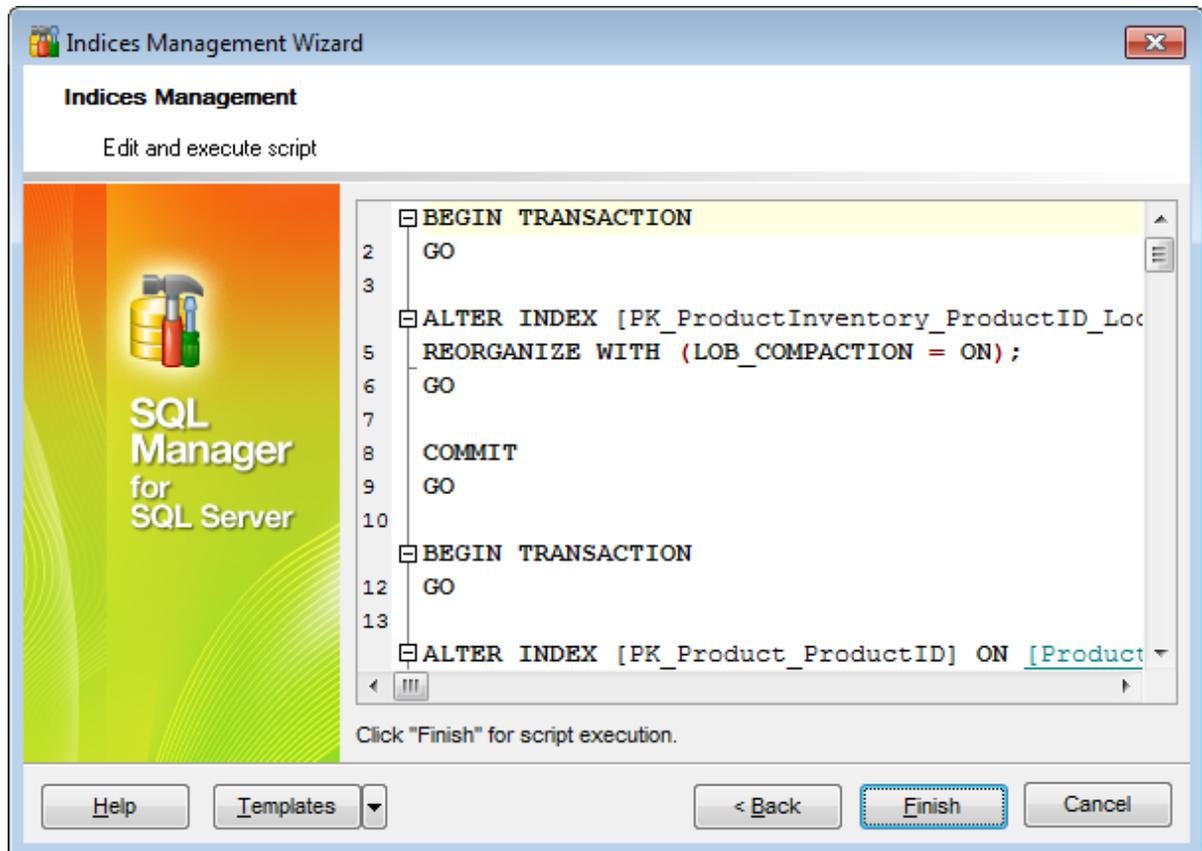
Besides reorganizing one or more indexes, large object data types (LOBs) that are contained in the clustered index or underlying table can be compacted when an index is reorganized. The data types *image*, *text*, *ntext*, *varchar(max)*, *nvarchar(max)*, *varbinary(max)*, and *xml* are large object data types. Compacting this data can cause better disk space use.

When you are done, click the **Next** button to proceed to [Editing and executing the result script](#)^[764].

10.7.4 Editing and executing the result script

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the indexes management process.

If necessary, you can edit the result script before execution.



If necessary, you can save a [template](#)⁹³⁴ for future use.

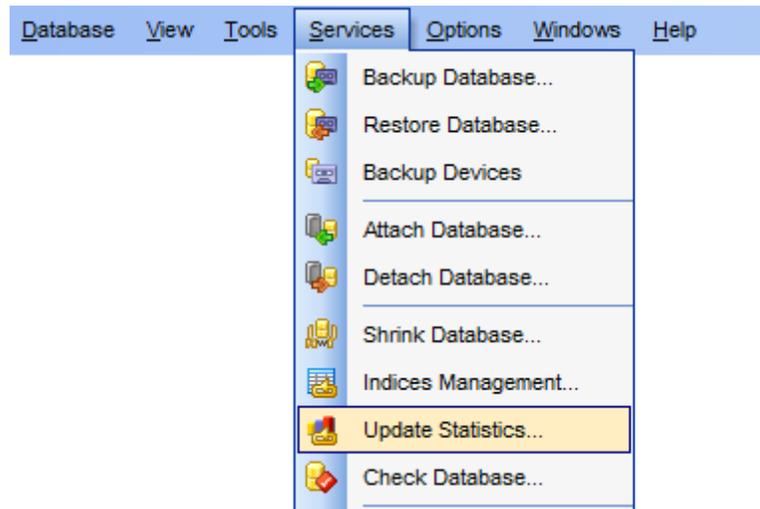
Click the **Finish** button to execute the result script and complete the operation.

10.8 Update Statistics

Statistics Update Wizard allows you to perform the update statistics operation in your SQL Server database (the `UPDATE STATISTICS` statement is issued).

This operation is used to updates the statistics for the specified table(s) and view(s).

To run the wizard, select the **Services | Update Statistics...** [main menu](#)^[915] item, or right-click the database alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Update Statistics...** item of the [context menu](#)^[54].



- [Selecting database for statistics update](#)^[767]
- [Selecting tables and views](#)^[767]
- [Specifying update statistics options](#)^[768]
- [Editing and executing the result script](#)^[771]
-

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

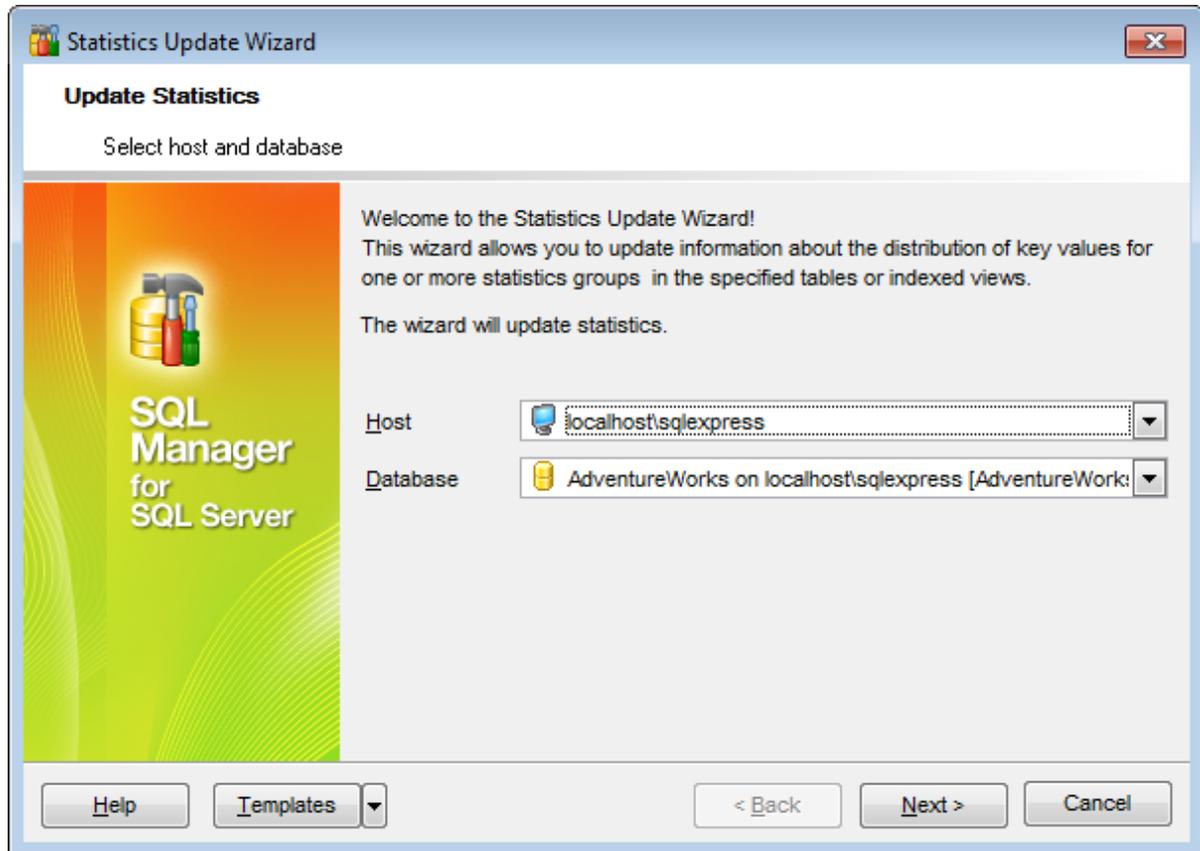
[Tables](#)^[192]

[Indices](#)^[228]

[Using templates](#)^[934]

10.8.1 Selecting database for statistics update

This step of the wizard allows you to specify the **host/instance** containing the database for statistics update.



Host

Type in or use the drop-down list to select the host/instance where the database resides.

Database

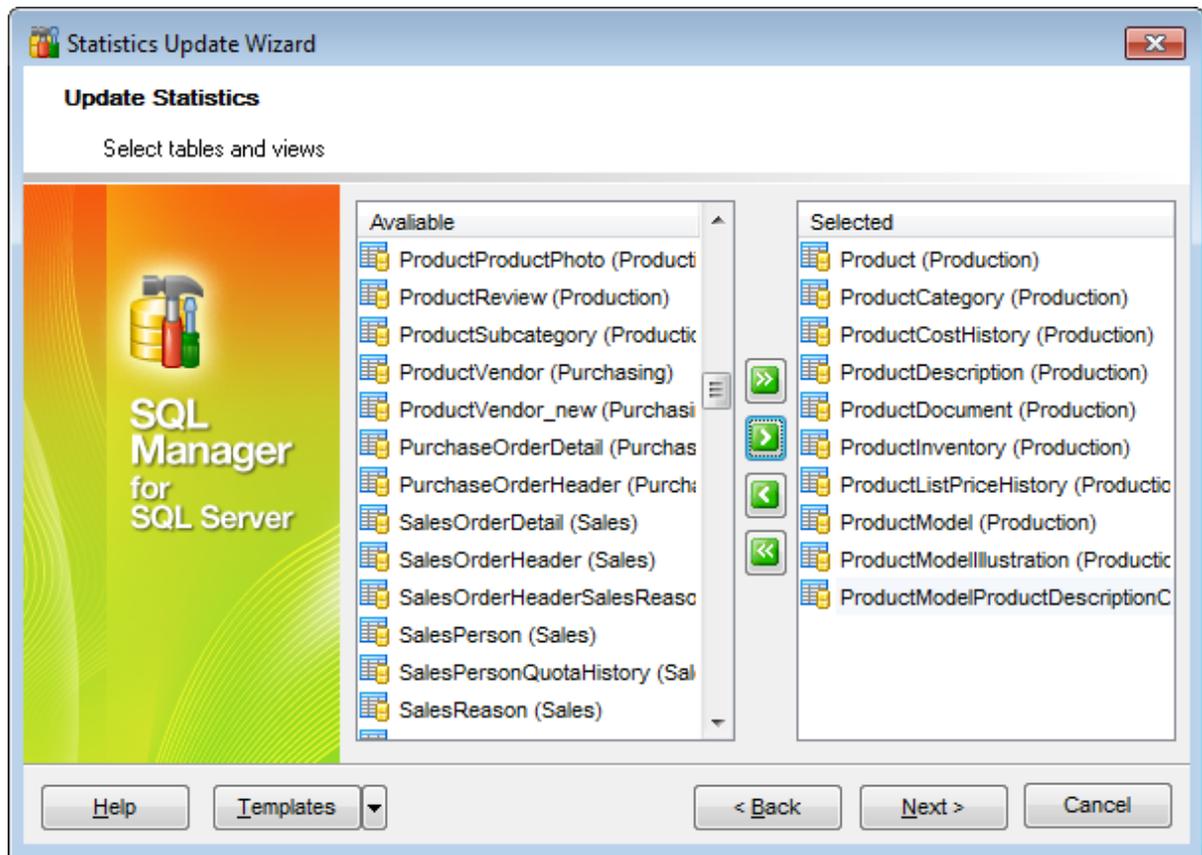
Use the drop-down list of all registered databases on the selected host to specify the database to update statistics.

Click the **Next** button to proceed to the [Selecting tables and views](#) step of the wizard.

10.8.2 Selecting tables and views

This step of the wizard allows you to **select tables and views** to update statistics for.

To select a table/view, you need to move it from the **Available** list to the **Selected** list. Use the     buttons or drag-and-drop operations to move the objects from one list to another.



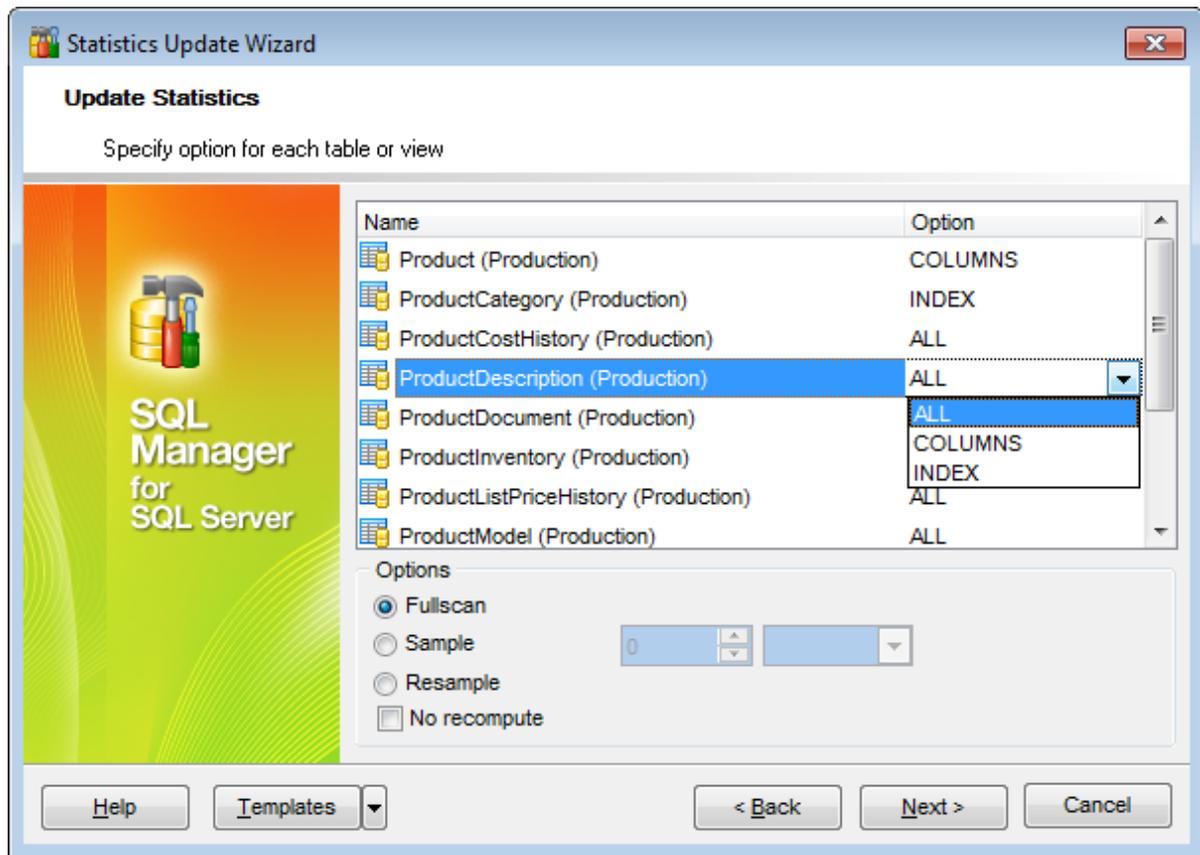
Click the **Next** button to proceed to the [Specifying update statistics options](#)^[768] step of the wizard.

10.8.3 Specifying update statistics options

Use this step of the wizard to set **options** for each table/view.

The main area lists all **tables** and **views** selected at the [previous step](#)^[767].

The **Option** column allows you to specify one of the available options to be applied to the selected object: *ALL*, *COLUMNS*, *INDEX*.



Options

This group allows you to set update statistics options for tables.

Fullscan

Use this option to specify that all table rows should be read to gather the statistics. This option provides the same behavior as *SAMPLE 100 PERCENT*.

Sample

This option allows you to specify the percentage of the table, or the number of rows to sample when collecting statistics for each table. When *0 PERCENT* or *ROWS* is specified, the result is an empty statistics set.

Resample

Select this option to specify that statistics will be gathered using an inherited sampling ratio for all existing statistics including indexes. If the sampling ratio creates too few rows being sampled, the Database Engine automatically corrects the sampling based on the number of existing rows in the table.

No recompute

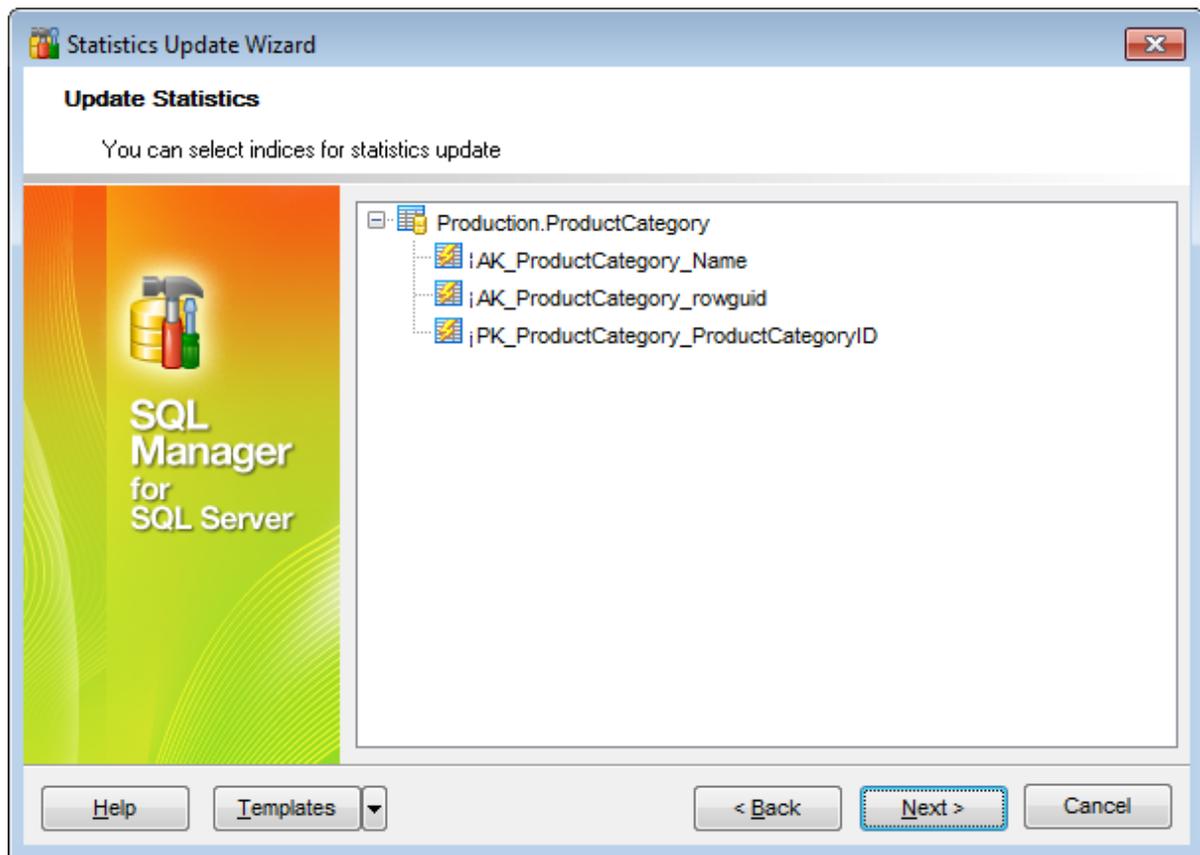
This option specifies that automatic recomputation of the statistics that become out of date will be disabled.

Click the **Next** button to proceed to the [Selecting indexes](#)^[770] step of the wizard.

10.8.4 Browsing indices

This step of the wizard allows you to **browse indexes** to be included into the `UPDATE STATISTICS` statement. This step appears only if INDEX option was selected on the [Specifying update statistics options](#)^[768] step at least for one table.

For your convenience the indexes are represented in the form of a tree with objects-containers as tree nodes.

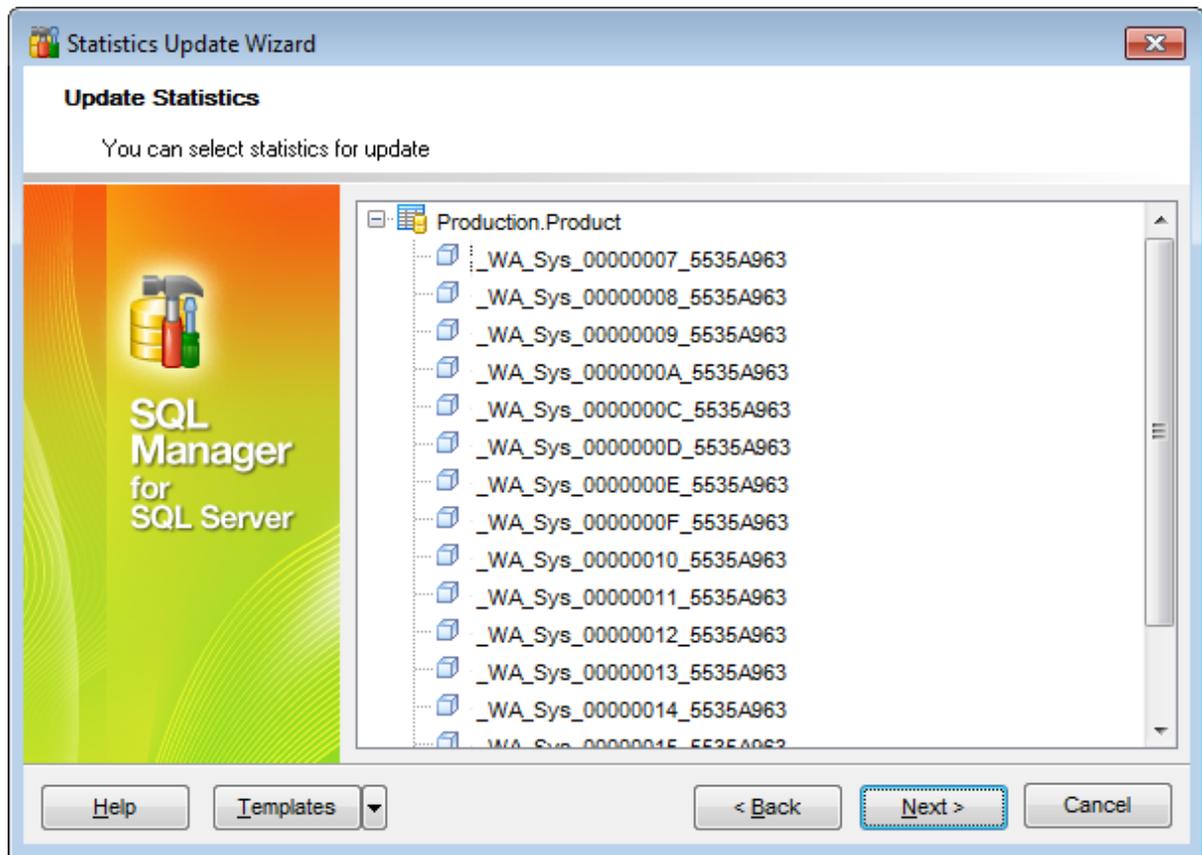


When you are done, click the **Next** button to proceed to [Selecting statistics](#)^[770] step.

10.8.5 Browsing statistics

This step of the wizard allows you to **browse statistics** to be included into the `UPDATE STATISTICS` statement. This step appears only if COLUMN option was selected on the [Specifying update statistics options](#)^[768] step at least for one table.

For your convenience the statistics are represented in the form of a tree with objects-containers as tree nodes.

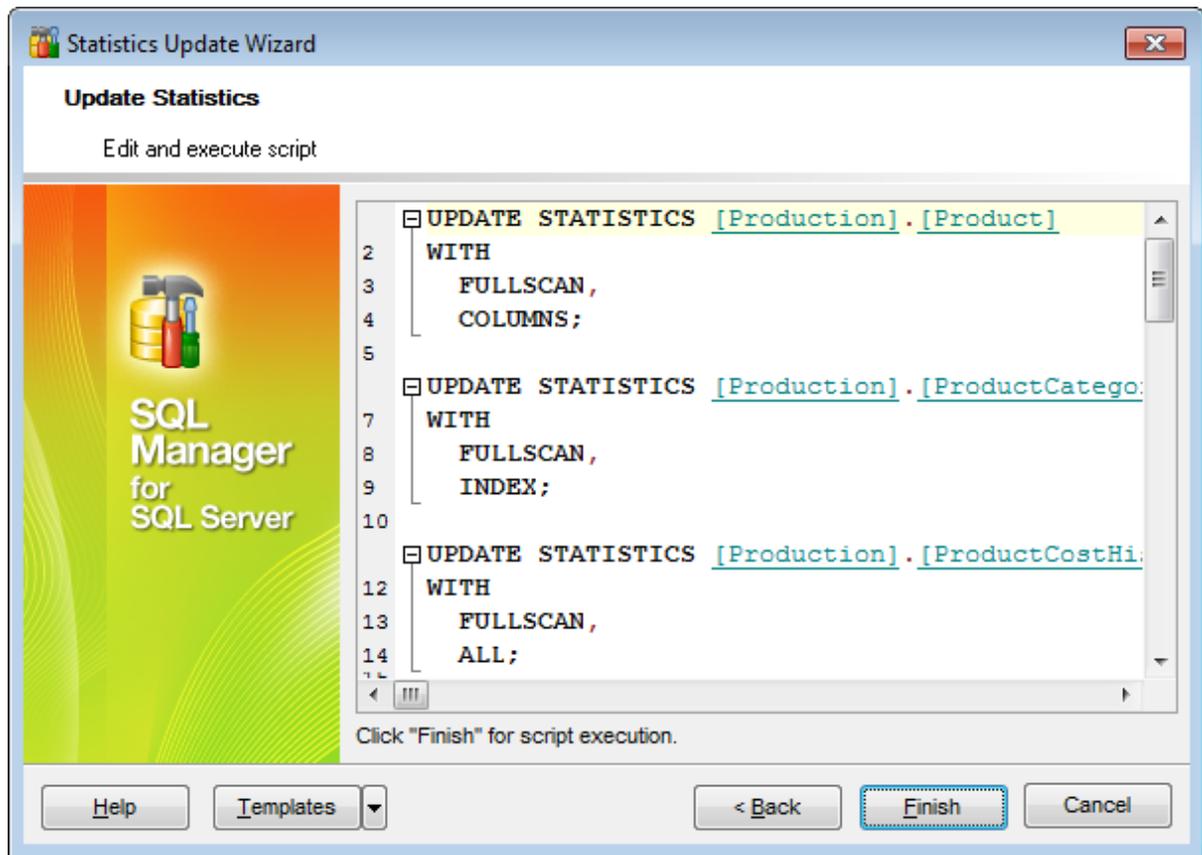


When you are done, click the **Next** button to proceed to [Editing and executing the result script](#)^[771].

10.8.6 Editing and executing the result script

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the update statistics process.

If necessary, you can edit the result script before execution.



If necessary, you can save a [template](#)⁹³⁴ for future use.

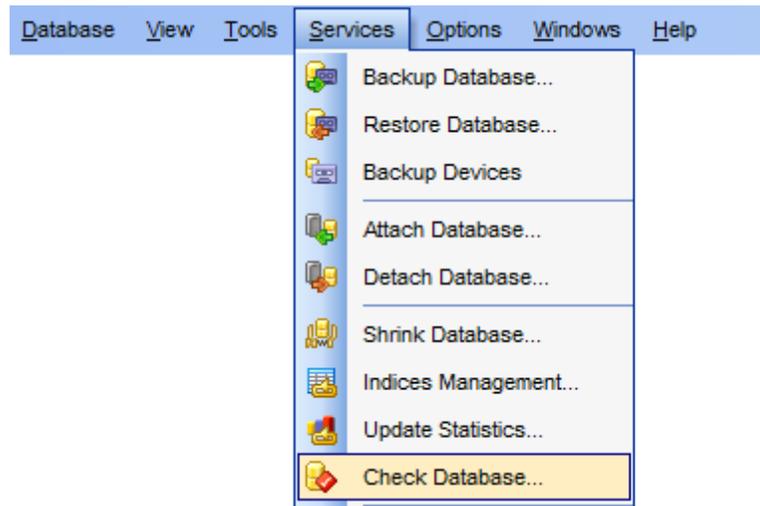
Click the **Finish** button to execute the result script and complete the operation.

10.9 Check Database

Check Database Wizard allows you to perform the check database operation on your SQL Server system (the *DBCC CHECKDB* Transact-SQL statement is issued).

This operation is used to check the allocation, structural, and logical integrity of all the objects in the specified database.

To run the wizard, select the **Services |  Check Database...** [main menu](#)^[915] item, or right-click the database alias in the [DB Explorer](#)^[63] tree and select the **Tasks |  Check Database...** item of the [context menu](#)^[54].



- [Selecting database to check](#)^[774]
- [Specifying arguments and options](#)^[774]
- [Editing and executing the result script](#)^[776]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

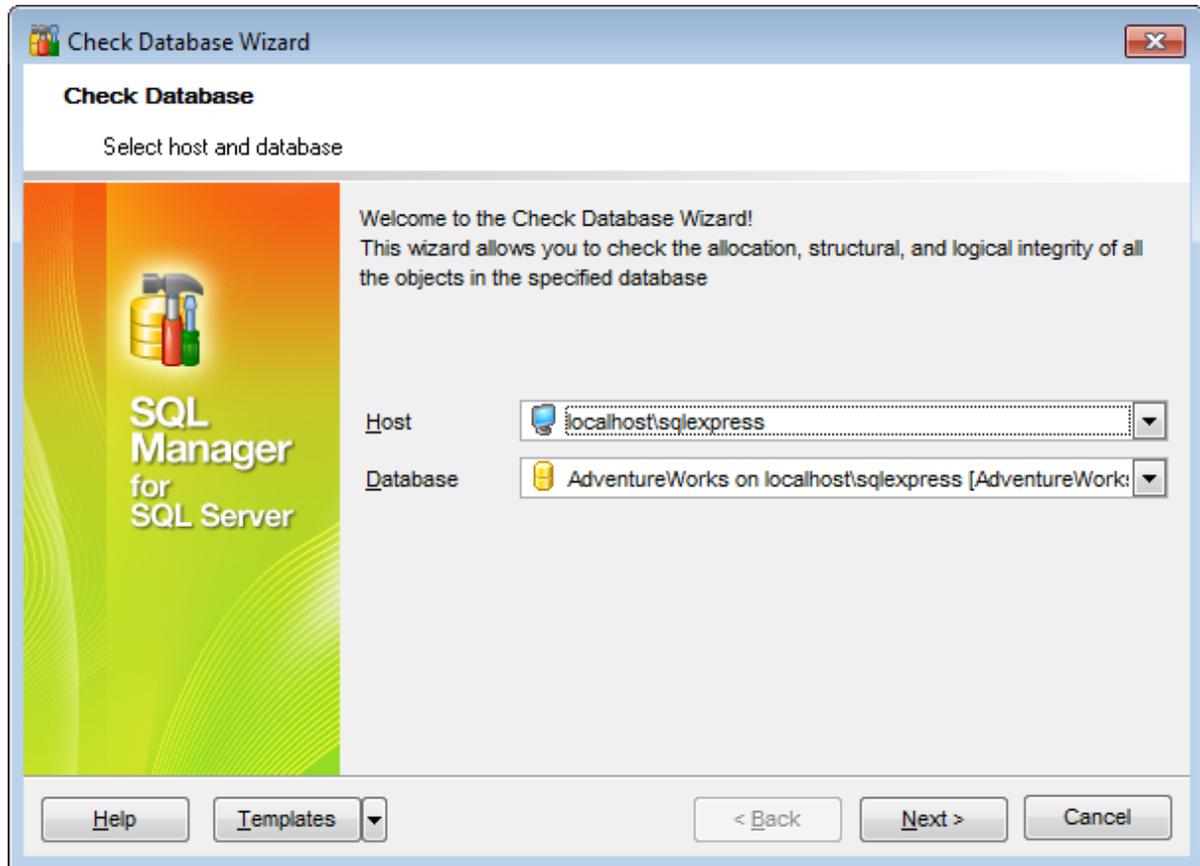
Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

[Using templates](#)^[934]

10.9.1 Selecting database to check

This step of the wizard allows you to select the **host/instance** containing the database for checking.



Host

Type in or use the drop-down list to select the host/instance where the database resides.

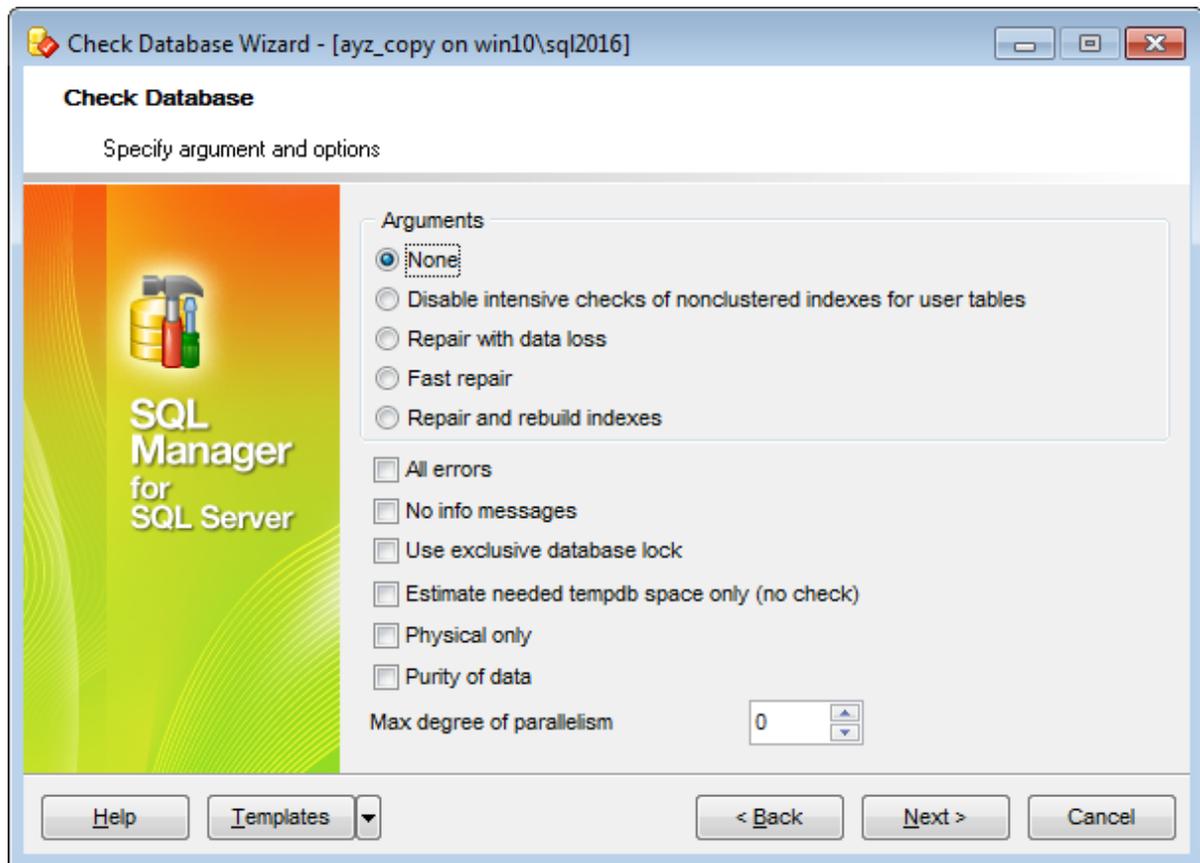
Database

Use the drop-down list of all registered databases on the selected host to specify the database to run integrity checks for.

Click the **Next** button to proceed to the [Specifying arguments and options](#)⁷⁷⁴ step of the wizard.

10.9.2 Specifying arguments and options

Use this step of the wizard to **specify arguments** and **options** for the check database operation.



Arguments

Disable intensive checks of nonclustered indexes for user tables

This argument (*NOINDEX*) specifies that intensive checks of non-clustered indexes for user tables should not be performed; therefore, the overall execution time is decreased.

Repair with data loss

When this argument (*REPAIR_ALLOW_DATA_LOSS*) is used, all reported errors are repaired. These repairs can cause data loss.

Fast repair

This argument (*REPAIR_FAST*) enables fast repair of errors which is maintained for backward compatibility.

Repair and rebuild indexes

This argument (*REPAIR_REBUILD*) performs all repairs performed by *REPAIR_FAST* and includes time-consuming repairs such as rebuilding indexes. These repairs can be performed without risk of data loss.

Options

All errors

This option (*ALL_ERRORMSGs*) displays an unlimited number of errors per object.

No info messages

This option (*NO_INFOMSGS*) suppresses all informational messages.

Use exclusive database lock

If this option (*TABLOCK*) is used, the *DBCC CHECKDB* statement obtains locks instead of using an internal database snapshot. This includes a short-term database exclusive lock.

Estimate only

This option (*ESTIMATEONLY*) displays the estimated amount of *tempdb* space that is required to run *DBCC CHECKDB* with all the other specified options. The actual database check is not performed in this case.

Physical only

This option (*PHYSICAL_ONLY*) limits the checking operation to the integrity of the physical structure of the page and record headers, the physical structure of B-trees and the allocation consistency of the database. Designed to provide a small overhead check of the physical consistency of the database, this check can also detect torn pages, checksum failures, and common hardware failures that can compromise a user's data.

Purity of data

If this option (*DATA_PURITY*) is enabled, the *DBCC CHECKDB* statement checks the database for column values that are not valid or out-of-range.

Max degree of parallelism

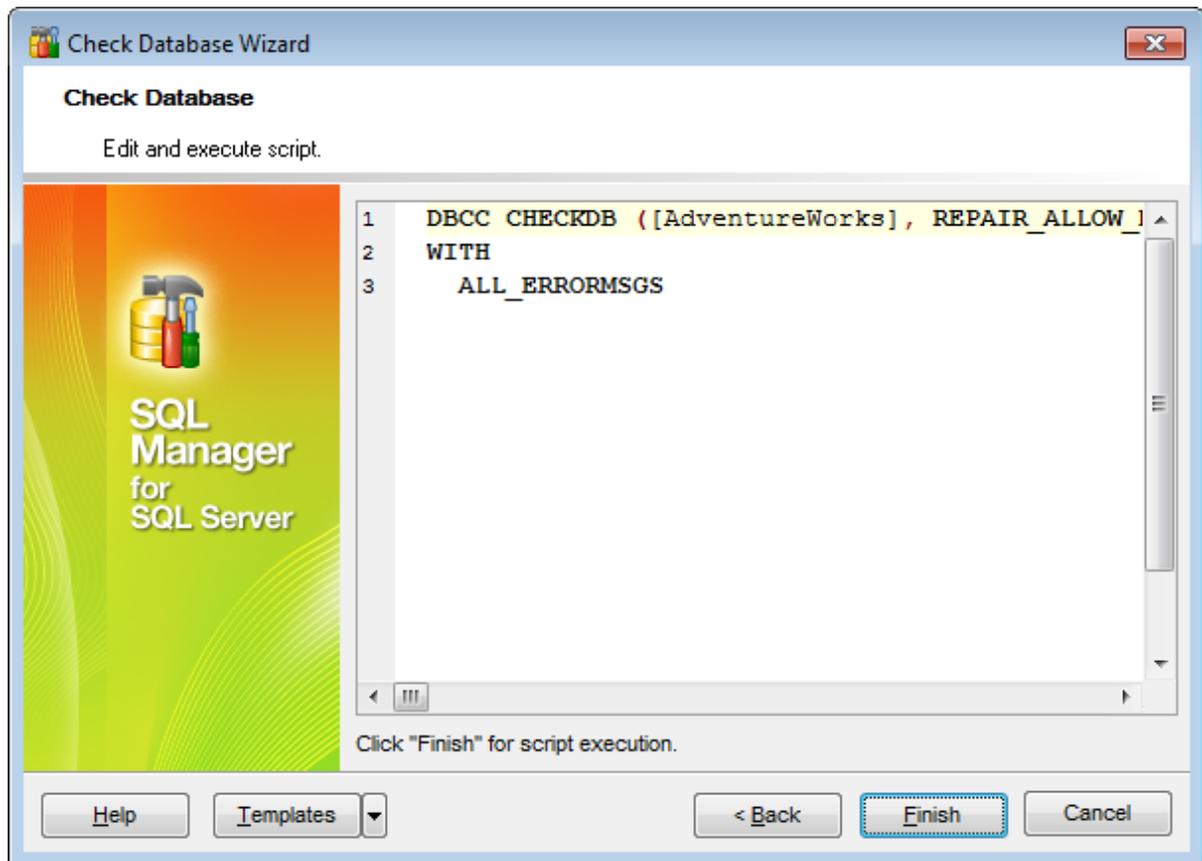
Use this option to set the degree of threads per execution. The default value for Max degree of parallelism is set to 0, this means there is no limit to the number of processors.

When you are done, click the **Next** button to proceed to [Editing and executing the result script](#)^[776].

10.9.3 Editing and executing the result script

This step of the wizard is intended to inform you that all necessary options have been set, and you can start the check database process.

If necessary, you can edit the result script before execution.



If necessary, you can save a [template](#)^[934] for future use.

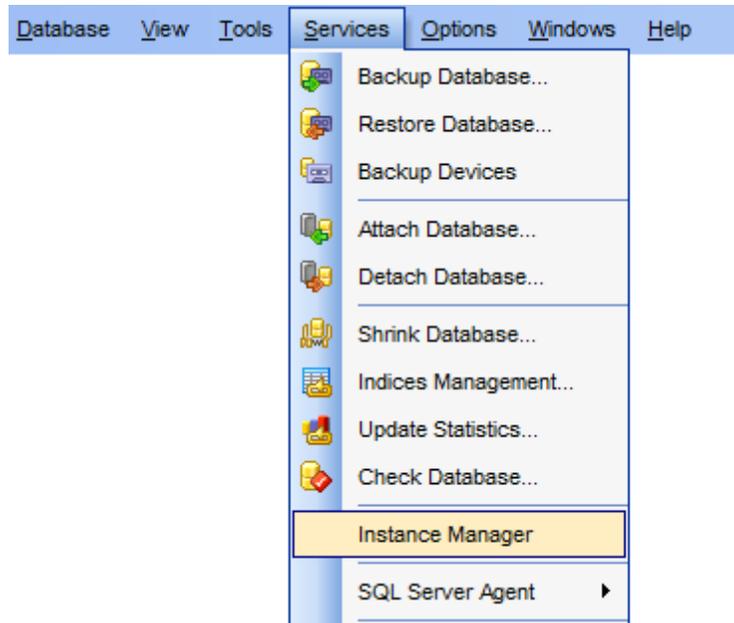
Click the **Finish** button to execute the result script and complete the operation.

10.10 Instance Manager

The **Instance Manager** tool allows you to check *SQL Server* services statuses on local and remote servers, stop or start them and configure some properties.

Note: To manage an instance you must have *Local Administrator* privileges on the host where the SQL Server service is running.

To launch this tool use the **Services | Instance Manager** item of [main menu](#)^[915].



- [Using Navigation bar and Toolbar](#)^[778]
- [Start/Stop service](#)^[779]
- [Configure service](#)^[780]

Availability:

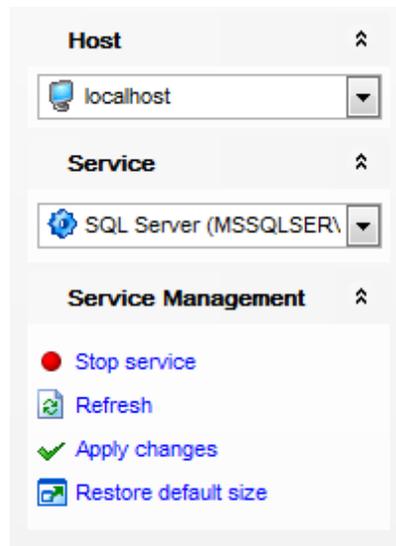
Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

10.10.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Instance Manager**.



The **Navigation bar** of **Instance Manager** allows you to:

Host

 select a server instance for managing services

Service

 select a service for configuring

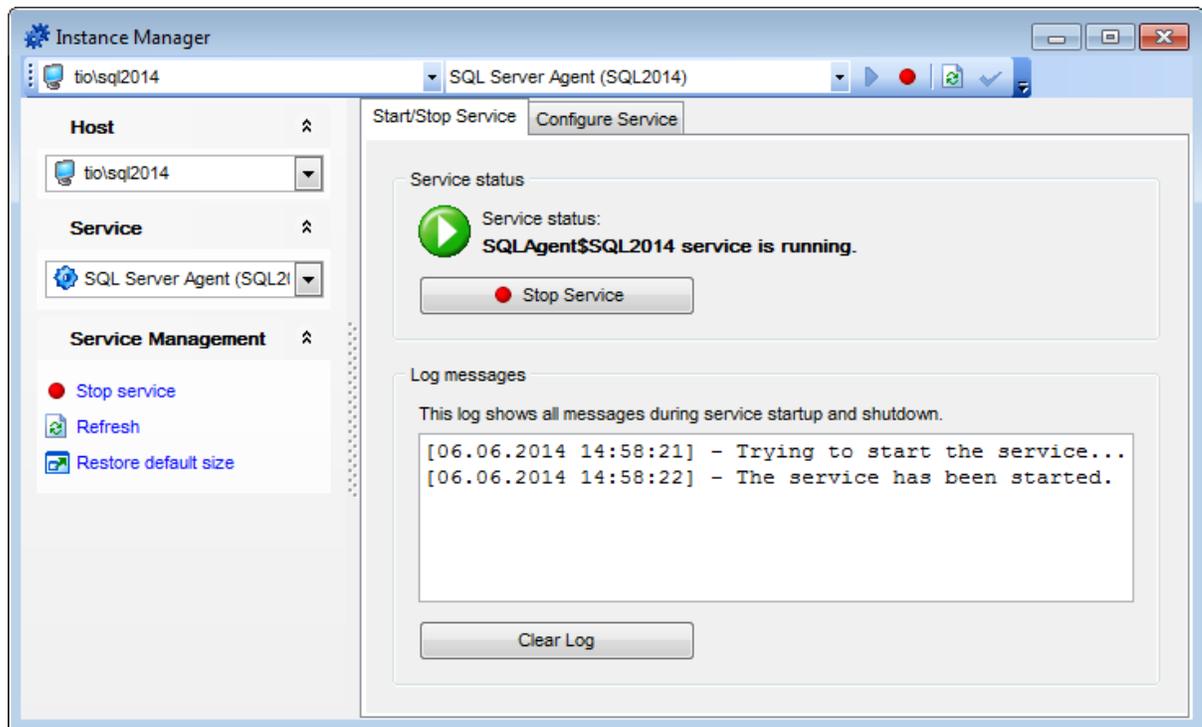
Service Management

-  start the selected service
-  stop the selected service
-  refresh the content of the window
-  apply changes
-  restore the default size and position of the window

Items of the **Navigation bar** are also available on the **ToolBar** of the **Resource Governor** window. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

10.10.2 Start/Stop Service

Use this tab to start/stop the selected service.



To stop/start the service click the **Stop/Start Service** button. Be aware that all users connected to the databases will be disconnected on stopping the server.

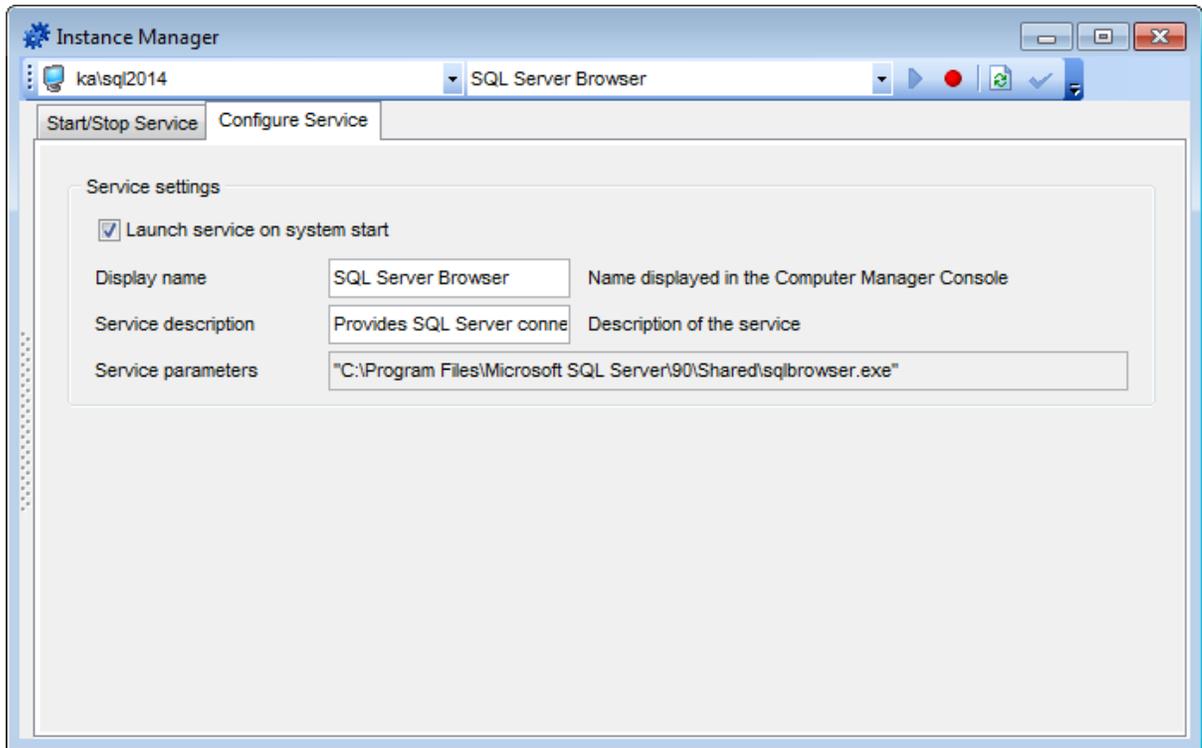
Log messages

This log shows all messages during server startup and shutdown.

Click the **Clear Log** button to clean all messages.

10.10.3 Configure Service

On the **Configure Service** tab you can set some service parameters.



Service Settings

Launch service on system start

Check this option to set the *Automatic* launch type of the selected service. If this option is unchecked then the launch type is *Manual*.

Display name

Specify the service name displayed in the Computer Management Console.

Service description

Provide the description for the selected service. This description will be displayed in the Computer Management Console.

Service parameters

In this field you can view the path to the service executable file.

To apply changes click the  button on the toolbar or navigation bar.

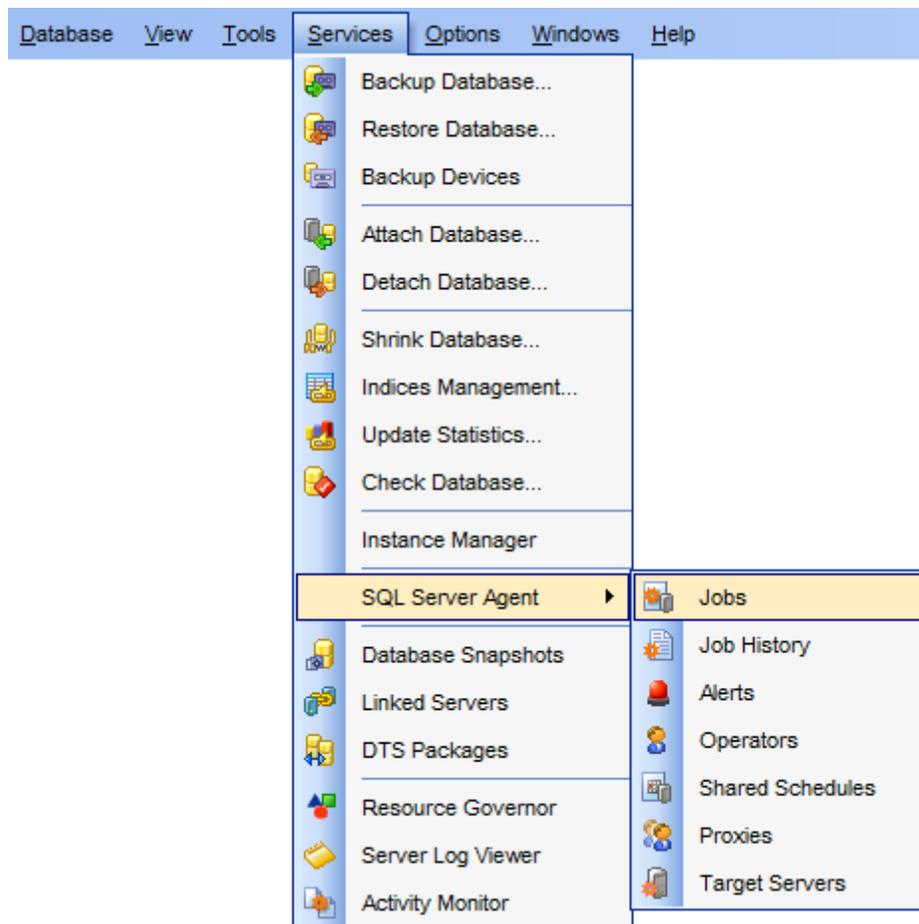
10.11 SQL Server Agent services

10.11.1 Jobs

A **job** is a specified set of operations performed sequentially by SQL Server Agent. A job can perform a wide range of activities, including running Transact-SQL scripts, command-line applications, Microsoft ActiveX scripts, Integration Services packages, Analysis Services commands and queries, or Replication tasks. Jobs can run repetitive or [scheduled](#) ^[794] tasks, and they can automatically notify [operators](#) ^[791] of job status by generating [alerts](#) ^[788].

SQL Server Agent **jobs** can be used to simplify SQL Server administration and make it more efficient by automating routine administrative tasks.

Before using SQL Server jobs, make sure that the **SQL Server Agent** service is running.



- [Jobs manager](#) ^[784]
- [Job Editor](#) ^[368]

Creating Jobs

To create a new job:

- right-click the **Jobs** node (within the **Server Objects** branch) or any object within this node in the [DB Explorer](#)^[63] tree and select the **New Job** item from the [context menu](#)^[56];
- define job properties using the appropriate tabs of [Job Editor](#)^[368].

or

- select the **Database | New Object...** [main menu](#)^[915] item;
- select **Job** in the [Create New Object](#)^[180] dialog;
- define job properties using [Job Editor](#)^[368].

Hint: To create a new job, you can also select the **Services | SQL Server Agent | Jobs** [main menu](#)^[915] item to open the **Jobs manager** and select the **Add Job...** item from the context menu or on the Navigation bar.

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

- select the **Database | Duplicate Object...** menu item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click a job in the [DB Explorer](#)^[63] tree and select the **Duplicate Job <job_name>...** context menu item.

[Duplicate Object Wizard](#)^[182] allows you to select the server to create a new job and to edit the result SQL statement for creating the job.

Editing Jobs

To edit an existing job:

- select the job for editing in the [DB Explorer](#)^[63] tree (type the first letters of the job name for quick [search](#)^[83]);
- right-click the object and select the **Edit Job <job_name>** context menu item, or simply double-click the job;
- edit job properties using the appropriate tabs of [Job Editor](#)^[368].

To change the name of a job:

- select the Job to rename in the [DB Explorer](#)^[63] tree;
- right-click the job alias and select the **Rename Job <job_name>...** item from the [context menu](#)^[56];
- edit the job name using the **Rename Object...** dialog.

Dropping Jobs

To drop a job:

- select the job to drop in the [DB Explorer](#)^[63] tree;
- right-click the object and select the **Drop Job <job_name>...** context menu item;
- confirm dropping in the dialog window.

Note: If more convenient, you can also use the following [shortcuts](#)^[952]:

Ctrl+N to create a new job;

Ctrl+O to edit the selected job;

Ctrl+R to rename the job;

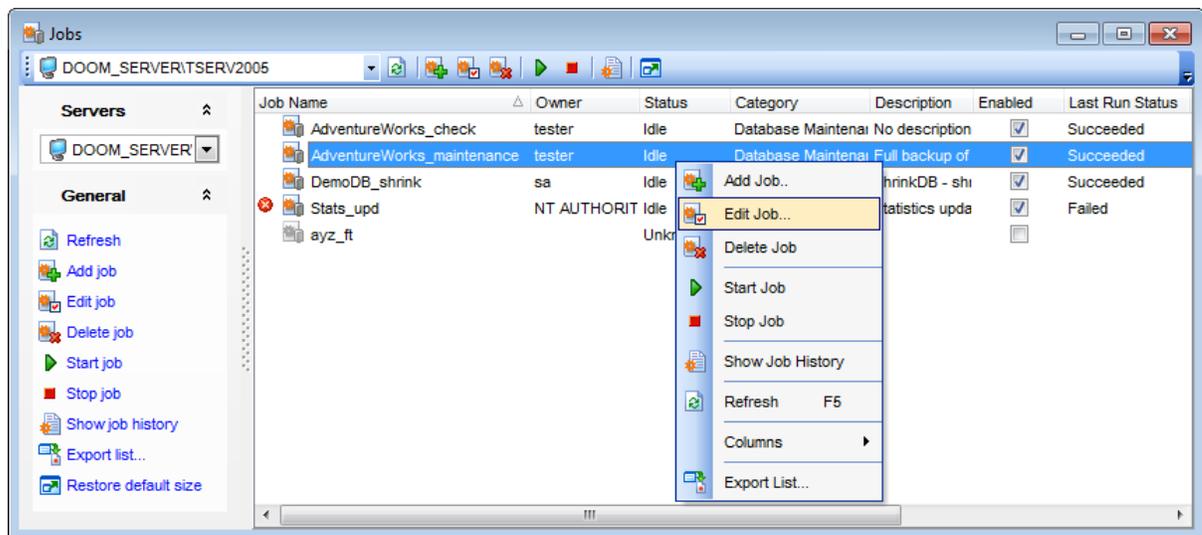
Shift+Del to drop the object.

To create, edit, rename and drop jobs, you can also use the **context menu** and the **Navigation bar** of [Jobs manager](#)^[784].

See also:[Job History](#)^[785][Job Editor](#)^[368]**10.11.1.1 Jobs manager**

The **Jobs manager** allows you to browse the list of **jobs** and manage them efficiently.

To launch the tool, select the **Services | SQL Server Agent | Jobs main menu**^[915] item, or right-click the host alias in the **DB Explorer**^[63] tree and select the **Tasks | Jobs** item from the **context menu**^[53].



The list displays the existing jobs as a grid with the following columns: *Job Name*, *Owner*, *Status*, *Category*, *Description*, *Enabled*, *Last Run Status*, *Last Run Date*, *Next Run Date*, *Schedules*.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Hint: Enabled/disabled jobs are differentiated in the list by their icons: icons for disabled jobs are grayed out.

Note: Job events and properties are partially listed within the **Job**^[369] tab of **Job Editor**^[368].

Right-click an item within the list to call the **context menu** allowing you to *create* a new job and specify its properties using **Job Editor**^[368], *start* an idle job, *stop* a running job, *edit*, *delete* the selected job, show **job history**^[785], *refresh* the list, or show/hide columns of the list. Using the context menu you can also **export**^[53] the list of jobs to any of supported output file **formats**^[935].

Jobs management tools are also available through the **Navigation bar** of the **Jobs manager**.

Availability:

Full version (for Windows) **Yes**

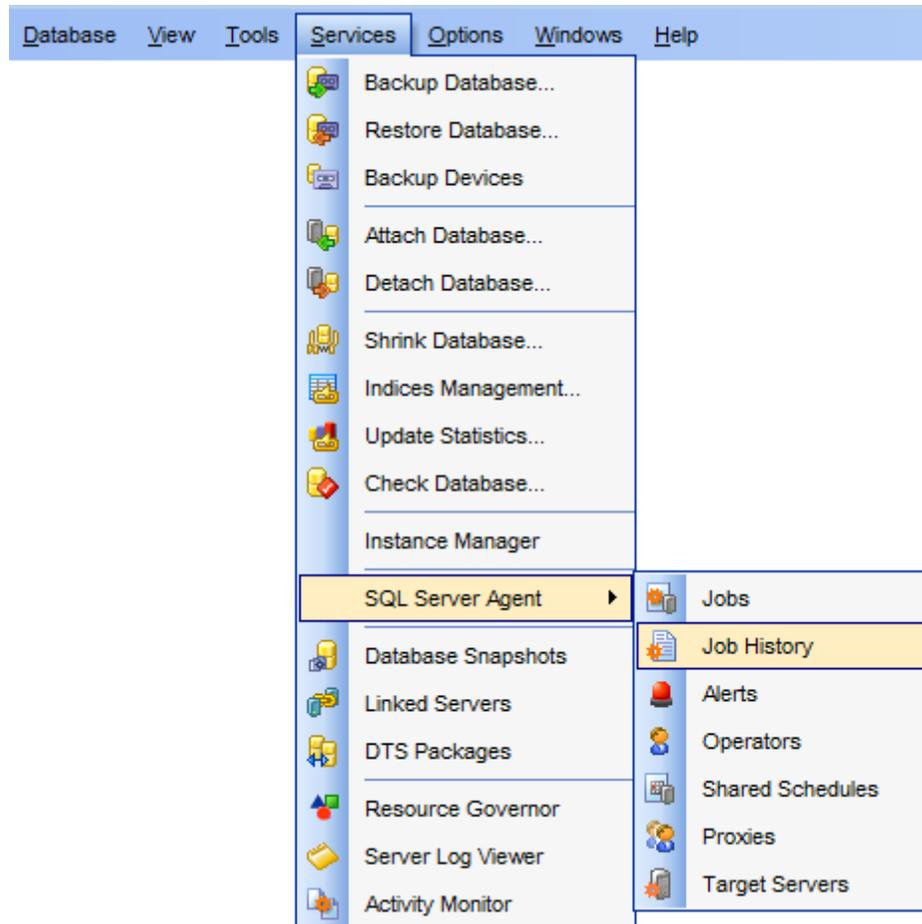
Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

10.11.2 Job History

The **Job History** window allows you to view the list of recent [jobs](#)^[782] and the results of their execution.

Before using job history, make sure that the **SQL Server Agent** service is running.



- [Viewing job history](#)^[786]

- [Filtering job history list](#)^[787]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

See also:

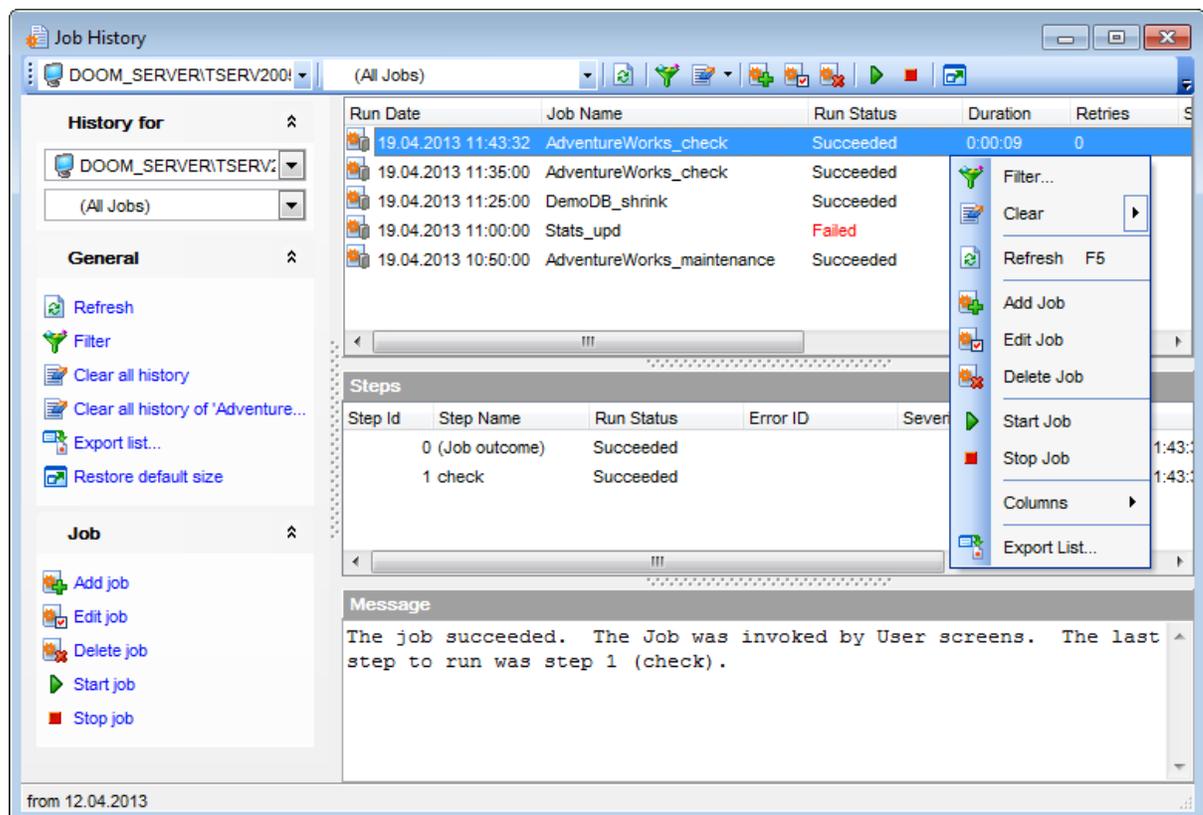
[Jobs manager](#)^[784]

[Jobs Editor](#)^[368]

10.11.2.1 Viewing job history

The **Job History** window allows you to browse the list of recently tried **jobs** and manage this list efficiently.

To launch the tool, select the **Services | SQL Server Agent | Job History** [main menu](#)^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Job History** item from the [context menu](#)^[53].



The list displays the recent jobs as a grid with the following columns: *Run Date, Job Name, Run Status, Duration, Retries, Sent Email, Sent Pager, Net Sent, Server.*

Right-click an item within the list to call the **context menu** allowing you to [filter jobs](#)^[787] in list, *clear* the history of all jobs or of the selected job, *refresh* the list, or show/hide columns of the list. Using the context menu you can also [export](#)^[531] the job history list to any of supported output file [formats](#)^[935], add, edit and delete jobs.

Job history list management tools are also available through the **Navigation bar** of the **Job History** window.

The **Steps** area displays the list of steps defined for the selected job, with the following attributes pertaining to each step: *Step ID, Step Name, Run Status, Error ID, Severity, Run Date, Duration, Retries.*

At the bottom of the **Job History** window the **Message** area is located. It allows you to view the details of the selected step execution.

10.11.2.2 Filtering job history list

The **Job History Filter** dialog is a filtering facility implemented in **Job History** list for your convenience.

To open the dialog, right-click within the **Job History** list and select the **Filter...** context menu item, or use the corresponding item of the **Navigation bar**.

The **Job History Filter** dialog provides the following options for flexible **Job History** list

filtering:

Execution Date Interval

From ... To ...

Set the date interval criteria using the **date editor** which is activated when you click the Arrow-Down element of the combo-box.

Execution Day Time

From ... To ...

Set the day time interval criteria using the spinner controls.

Running

Minimum Run Duration

Minimum Number of Retries

Specify the minimum duration and number of job retries criteria using the spinner controls.

Run Status

Select the job run status criterion:

- Any*
- Failed*
- Succeeded*
- Canceled*
- In-progress message*
- Unknown*

Execution Error

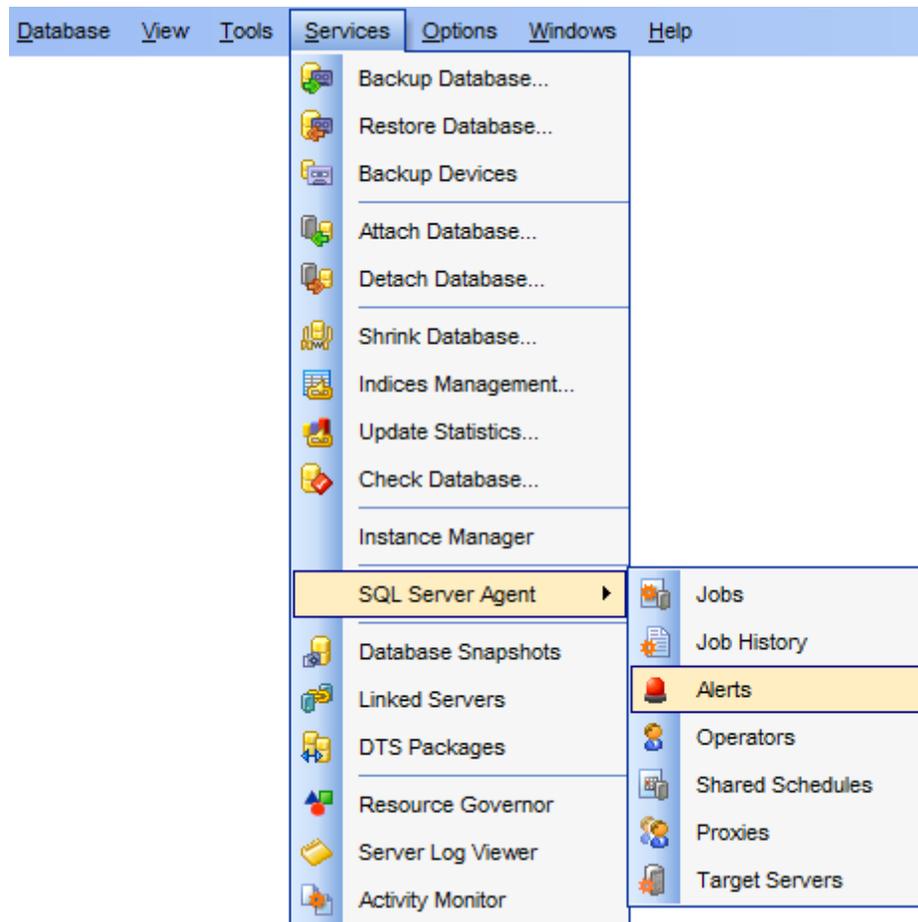
This group allows you to specify criteria for the jobs that have been run with errors: *Error ID, Error message, Error Severity*.

Hint: If necessary, you can reset the current filter criteria using the **Clear** button.

10.11.3 Alerts

An **alert** is as an automated response to one or more events. You can define an alert to specify how SQL Server Agent should respond to their occurrence. An alert can respond to an event by notifying an administrator or running a [job](#)^[782], or both. An alert can also forward an event to the Microsoft Windows application log on a different computer. By defining alerts, database administrators can monitor and manage SQL Server more effectively.

Before using SQL Server alerts, make sure that the **SQL Server Agent** service is running.



- [Alerts manager](#)^[790]
- [Alert Editor](#)^[380]

Creating Alerts

To create a new alert:

- right-click the **Alerts** node (within the **Server Objects** branch) or any object within this node in the [DB Explorer](#)^[63] tree and select the **New Alert** item from the [context menu](#)^[56];
- define alert properties using the appropriate tabs of [Alert Editor](#)^[380].

or

- select the **Database | New Object...** [main menu](#)^[915] item;
- select **Alert** in the [Create New Object](#)^[180] dialog;
- define alert properties using [Alert Editor](#)^[380].

Hint: To create a new alert, you can also select the **Services | SQL Server Agent | Alerts** [main menu](#)^[915] item to open the **Alerts manager** and select the **Add Alert...** item from the context menu or on the Navigation bar.

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

- select the **Database | Duplicate Object...** menu item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click an alert in the [DB Explorer](#)^[63] tree and select the

Duplicate Alert <alert_name>... context menu item.

[Duplicate Object Wizard](#)^[182] allows you to select the server to create a new alert and to edit the result SQL statement for creating the alert.

Editing Alerts

To edit an existing alert:

- select the alert for editing in the [DB Explorer](#)^[63] tree (type the first letters of the alert name for quick [search](#)^[83]);
- right-click the object and select the **Edit Alert <alert_name>** context menu item, or simply double-click the alert;
- edit alert properties using the appropriate tabs of [Alert Editor](#)^[380].

To change the name of an alert:

- select the alert to rename in the [DB Explorer](#)^[63] tree;
- right-click the alert alias and select the **Rename Alert <alert_name>...** item from the [context menu](#)^[56];
- edit the alert name using the **Rename Object...** dialog.

Dropping Alerts

To drop an alert:

- select the alert to drop in the [DB Explorer](#)^[63] tree;
- right-click the object and select the **Drop Alert <alert_name>...** context menu item;
- confirm dropping in the dialog window.

Note: If more convenient, you can also use the following [shortcuts](#)^[952]:

Ctrl+N to create a new alert;

Ctrl+O to edit the selected alert;

Ctrl+R to rename the alert;

Shift+Del to drop the object.

To create, edit, rename and drop alerts, you can also use the **context menu** and the **Navigation bar** of [Alerts manager](#)^[790].

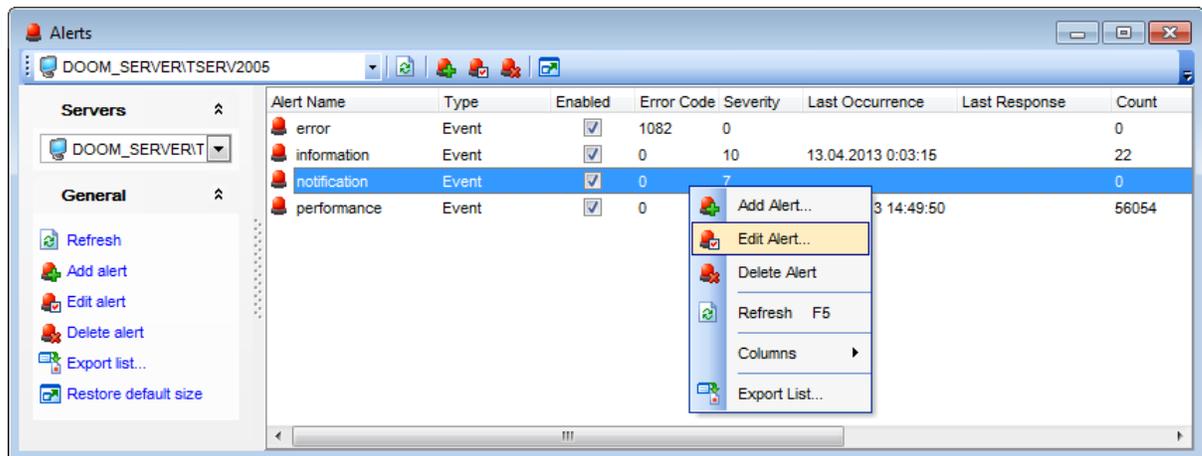
See also:

[Alert Editor](#)^[380]

10.11.3.1 Alerts manager

The **Alerts manager** allows you to browse the list of **alerts** and manage them efficiently.

To launch the tool, select the **Services | SQL Server Agent | Alerts main menu**^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Alerts** item from the [context menu](#)^[53].



The list displays the alerts as a grid with the following columns: *Alert Name*, *Type*, *Enabled*, *Error Code*, *Severity*, *Last Occurrence*, *Sent Pager*, *Net Sent*, *Server*.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Hint: Enabled/disabled alerts are differentiated in the list by their icons: icons for disabled alerts are grayed out.

Right-click an item within the list to call the **context menu** allowing you to *create* a new alert and specify its properties using [Alert Editor](#)^[380], *edit*, *delete* the selected alert, *refresh* the list, or show/hide columns of the list. Using the context menu you can also [export](#)^[531] the list of alerts to any of supported output file [formats](#)^[935].

Alerts management tools are also available through the **Navigation bar** of the **Alerts manager**.

Availability:

Full version (for Windows) **Yes**

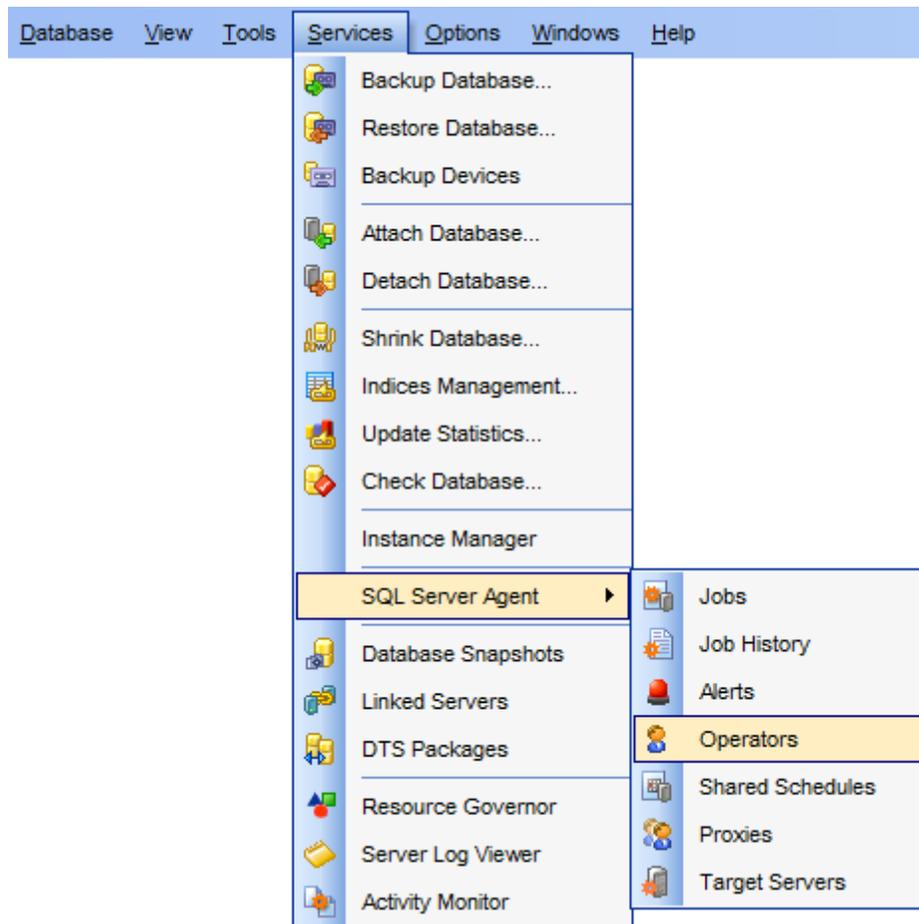
Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[231] page.

10.11.4 Operators

An **operator** is the object that represents a single SQL Server operator. SQL Server operators receive [alert](#)^[788] and [job](#)^[782] status notification in response to events generated by the server. You can assign [alert notifications](#)^[386] and [job notifications](#)^[374] for any operator defined for the instance of SQL Server.

Before using SQL Server operators, make sure that the **SQL Server Agent** service is running.



- [Operators manager](#)^[793]
- [Operator Editor](#)^[386]

Creating Operators

To create a new operator:

- right-click the **Operators** node (within the **Server Objects** branch) or any object within this node in the [DB Explorer](#)^[63] tree and select the **New Operator** item from the [context menu](#)^[56];
- define operator properties using the appropriate tabs of [Operator Editor](#)^[386].

or

- select the **Database | New Object...** [main menu](#)^[915] item;
- select **Operator** in the [Create New Object](#)^[180] dialog;
- define operator properties using [Operator Editor](#)^[386].

Hint: To create a new operator, you can also select the **Services | SQL Server Agent | Operators** [main menu](#)^[915] item to open the **Operators manager** and select the **Add Operator...** item from the context menu or on the Navigation bar.

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

- select the **Database | Duplicate Object...** menu item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click an operator in the [DB Explorer](#)^[63] tree and select the

Duplicate Operator <operator_name>... context menu item.

[Duplicate Object Wizard](#)^[182] allows you to select the server to create a new operator and to edit the result SQL statement for creating the operator.

Editing Operators

To edit an existing operator:

- select the operator for editing in the [DB Explorer](#)^[63] tree (type the first letters of the operator name for quick [search](#)^[83]);
- right-click the object and select the **Edit Operator <operator_name>** context menu item, or simply double-click the operator;
- edit operator properties using the appropriate tabs of [Operator Editor](#)^[386].

To change the name of an operator:

- select the operator to rename in the [DB Explorer](#)^[63] tree;
- right-click the operator alias and select the **Rename Operator <operator_name>...** item from the [context menu](#)^[56];
- edit the operator name using the **Rename Object...** dialog.

Dropping Operators

To drop an operator:

- select the operator to drop in the [DB Explorer](#)^[63] tree;
- right-click the object and select the **Drop Operator <operator_name>...** context menu item;
- confirm dropping in the dialog window.

Note: If more convenient, you can also use the following [shortcuts](#)^[952]:

Ctrl+N to create a new operator;
Ctrl+O to edit the selected operator;
Ctrl+R to rename the operator;
Shift+Del to drop the object.

To create, edit, rename and drop operators, you can also use the **context menu** and the **Navigation bar** of [Operators manager](#)^[793].

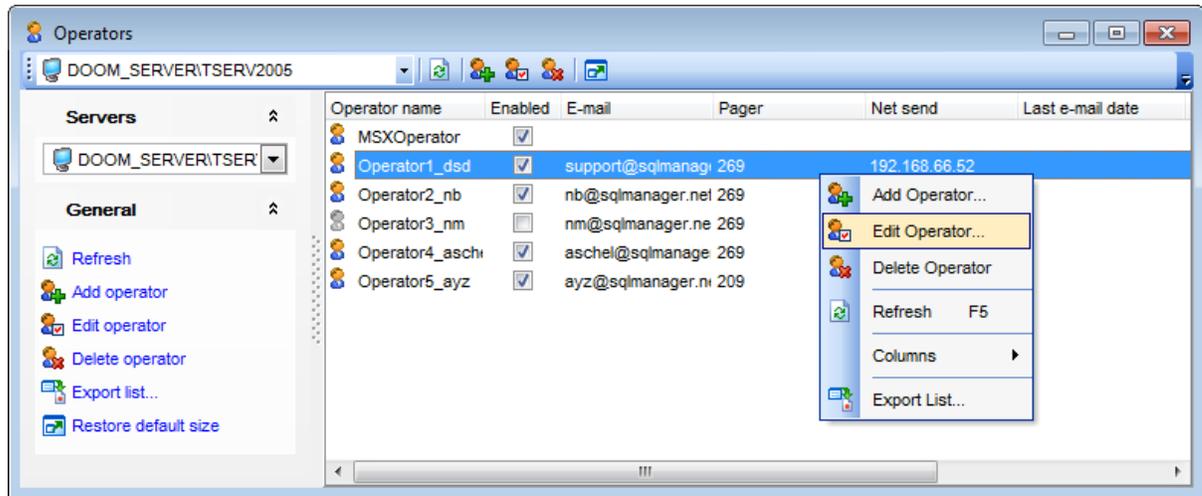
See also:

[Operator Editor](#)^[386]

10.11.4.1 Operators manager

The **Operators manager** allows you to browse the list of **operators** and manage them efficiently.

To launch the tool, select the **Services | SQL Server Agent | Operators main menu**^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Operators** item from the [context menu](#)^[53].



The list displays the operators as a grid with the following columns: *Operator name*, *Enabled*, *E-mail*, *Pager*, *Net send*, *Last e-mail date*, *Last pager date*, *Last net send date*.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Hint: Enabled/disabled operators are differentiated in the list by their icons: icons for disabled operators are grayed out.

Right-click an item within the list to call the **context menu** allowing you to *create* a new operator and specify its properties using [Operator Editor](#)^[386], *edit*, *delete* the selected operator, *refresh* the list, or show/hide columns of the list. Using the context menu you can also [export](#)^[537] the list of operators to any of supported output file [formats](#)^[935].

Operators management tools are also available through the **Navigation bar** of the **Operators manager**.

Availability:

Full version (for Windows) **Yes**

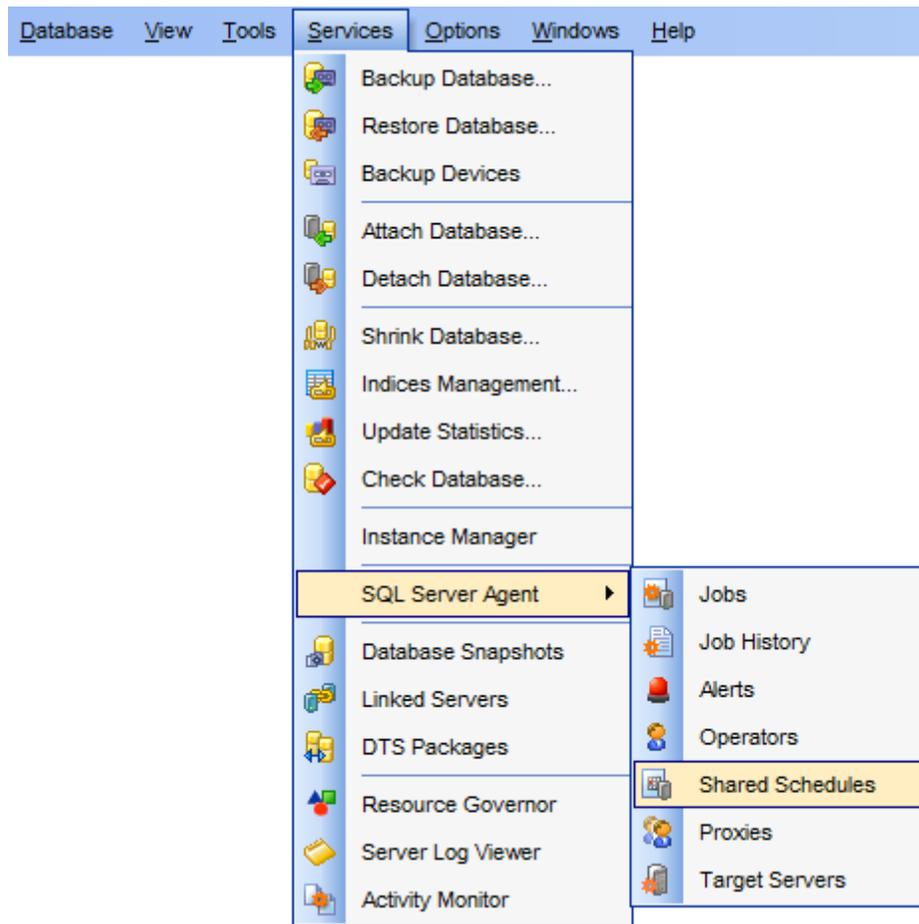
Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[237] page.

10.11.5 Schedules

Shared schedules are multipurpose items that contain ready-to-use schedule information. You can create a shared schedule once, and then reference it in a subscription or property page when you need to specify schedule information.

Before using SQL Server schedules, make sure that the **SQL Server Agent** service is running.



- [Shared schedules manager](#)^[796]
- [Schedule Editor](#)^[376]

Creating Schedules

To create a new schedule:

- right-click the **Schedules** node (within the **Server Objects** branch) or any object within this node in the [DB Explorer](#)^[63] tree and select the **New Schedule** item from the [context menu](#)^[56];
- define schedule properties using the appropriate tabs of [Schedule Editor](#)^[376].

or

- select the **Database | New Object...** [main menu](#)^[915] item;
- select **Schedule** in the [Create New Object](#)^[180] dialog;
- define schedule properties using [Schedule Editor](#)^[376].

Hint: To create a new schedule, you can also select the **Services | SQL Server Agent | Shared Schedules** [main menu](#)^[915] item to open the **Schedules manager** and select the **Add Schedule** item from the context menu or on the Navigation bar.

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

- select the **Database | Duplicate Object...** menu item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click a schedule in the [DB Explorer](#)^[63] tree and select the **Duplicate Schedule <schedule_name>...** context menu item.

[Duplicate Object Wizard](#)^[182] allows you to select the server to create a new schedule and to edit the result SQL statement for creating the schedule.

Editing Schedules

To edit an existing schedule:

- select the schedule for editing in the [DB Explorer](#)^[63] tree (type the first letters of the schedule name for quick [search](#)^[83]);
- right-click the object and select the **Edit Schedule <schedule_name>** context menu item, or simply double-click the schedule;
- edit schedule properties using the appropriate tabs of [Schedule Editor](#)^[376].

To change the name of a schedule:

- select the schedule to rename in the [DB Explorer](#)^[63] tree;
- right-click the schedule alias and select the **Rename Schedule <schedule_name>...** item from the [context menu](#)^[56];
- edit the schedule name using the **Rename Object...** dialog.

Dropping Schedules

To drop a schedule:

- select the schedule to drop in the [DB Explorer](#)^[63] tree;
- right-click the object and select the **Drop Schedule <schedule_name>...** context menu item;
- confirm dropping in the dialog window.

Note: If more convenient, you can also use the following [shortcuts](#)^[952]:

Ctrl+N to create a new schedule;

Ctrl+O to edit the selected schedule;

Ctrl+R to rename the schedule;

Shift+Del to drop the object.

To create, edit and drop schedules, you can also use the **context menu** and the **Navigation bar** of [Shared schedules manager](#)^[796].

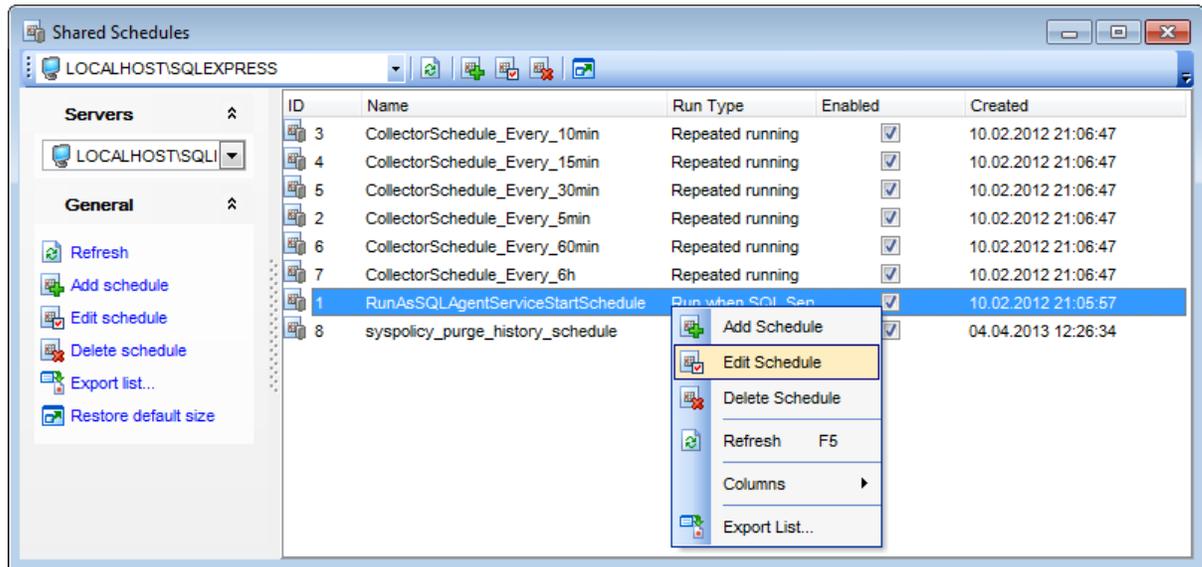
See also:

[Schedule Editor](#)^[376]

10.11.5.1 Shared schedules manager

The **Schedules manager** allows you to browse the list of **shared schedules** and manage them efficiently.

To launch the tool, select the **Services | SQL Server Agent | Shared Schedules** [main menu](#)^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Shared Schedules** item from the [context menu](#)^[53].



The list displays the shared schedules as a grid with the following columns: *ID*, *Name*, *Run Type*, *Enabled*, *Created*.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Hint: Enabled/disabled schedules are differentiated in the list by their icons: icons for disabled schedules are grayed out.

Right-click an item within the list to call the **context menu** allowing you to *create* a new schedule and specify its properties using [Schedule Editor](#)^[376], *edit*, *delete* the selected schedule, *refresh* the list, or show/hide columns of the list. Using the context menu you can also [export](#)^[537] the list of schedules to any of supported output file [formats](#)^[935].

Schedules management tools are also available through the **Navigation bar** of the **Schedules manager**.

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

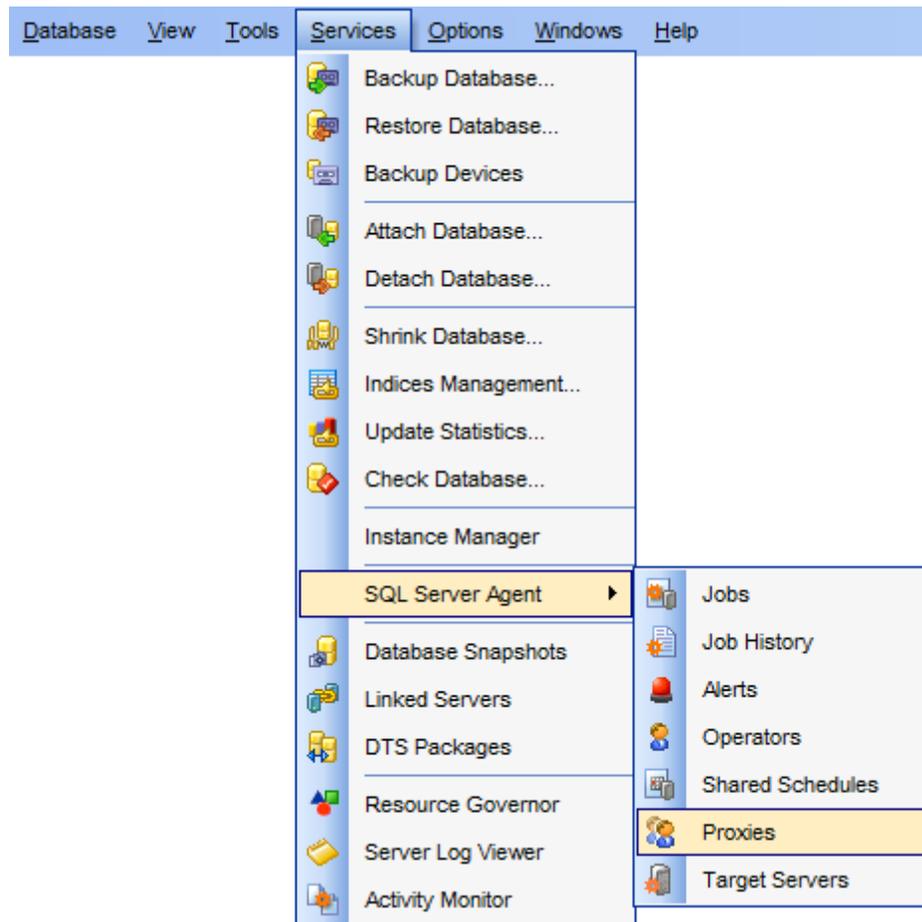
10.11.6 Proxies

A Microsoft® SQL Server Agent **proxy** defines the security context for a [job](#)^[782] step. A proxy provides SQL Server Agent with access to the security [credentials](#)^[395] for a Microsoft Windows user. Each proxy can be associated with one or more subsystems. A

[job step](#)^[370] that uses the proxy can access the specified subsystems by using the security context of the Windows user. Before SQL Server Agent runs a [job step](#)^[370] that uses a proxy, SQL Server Agent impersonates the [credentials](#)^[395] defined in the proxy, and then runs the job step by using that security context.

SQL Server **proxies** can be used to help database administrators ensure that each job step runs with the minimum permissions required to perform its task.

Before using SQL Server proxies, make sure that the **SQL Server Agent** service is running.



- [Proxies manager](#)^[800]
- [Proxy Editor](#)^[391]

Creating Proxies

To create a new proxy:

- right-click the **Proxies** node (within the **Server Objects** branch) or any object within this node in the [DB Explorer](#)^[63] tree and select the **New Proxy** item from the [context menu](#)^[56];
- define proxy properties using the appropriate tabs of [Proxy Editor](#)^[391].

or

- select the **Database | New Object...** [main menu](#)^[915] item;
- select **Proxy** in the [Create New Object](#)^[180] dialog;
- define proxy properties using [Proxy Editor](#)^[391].

Hint: To create a new proxy, you can also select the **Services | SQL Server Agent | Proxies** [main menu](#)^[915] item to open the **Proxies manager** and select the **Add Proxy...** item from the context menu or on the Navigation bar.

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

- select the **Database | Duplicate Object...** menu item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click a proxy in the [DB Explorer](#)^[63] tree and select the **Duplicate Proxy <proxy_name>...** context menu item.

[Duplicate Object Wizard](#)^[182] allows you to select the server to create a new proxy and to edit the result SQL statement for creating the proxy.

Editing Proxies

To edit an existing proxy:

- select the proxy for editing in the [DB Explorer](#)^[63] tree (type the first letters of the proxy name for quick [search](#)^[83]);
- right-click the object and select the **Edit Proxy <proxy_name>** context menu item, or simply double-click the proxy;
- edit proxy properties using the appropriate tabs of [Proxy Editor](#)^[391].

To change the name of a proxy:

- select the proxy to rename in the [DB Explorer](#)^[63] tree;
- right-click the proxy alias and select the **Rename Proxy <proxy_name>...** item from the [context menu](#)^[56];
- edit the proxy name using the **Rename Object...** dialog.

Dropping Proxies

To drop a proxy:

- select the proxy to drop in the [DB Explorer](#)^[63] tree;
- right-click the object and select the **Drop Proxy <proxy_name>...** context menu item;
- confirm dropping in the dialog window.

Note: If more convenient, you can also use the following [shortcuts](#)^[952]:

Ctrl+N to create a new proxy;
Ctrl+O to edit the selected proxy;
Ctrl+R to rename the proxy;
Shift+Del to drop the object.

To create, edit and drop proxies, you can also use the **context menu** and the **Navigation bar** of [Proxies manager](#)^[800].

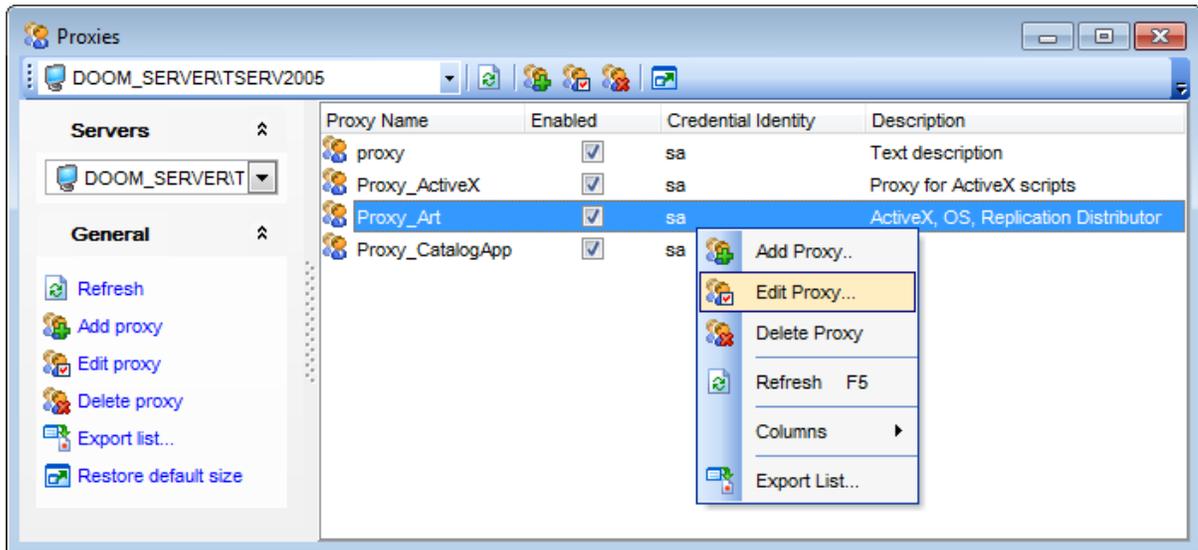
See also:

[Proxy Editor](#)^[39]

10.11.6.1 Proxies manager

The **Proxies manager** allows you to browse the list of **proxies** and manage them efficiently.

To launch the tool, select the **Services | SQL Server Agent | Proxies main menu**^[915] item, or right-click the host alias in the **DB Explorer**^[63] tree and select the **Tasks | Proxies** item from the **context menu**^[53].



The list displays the proxies as a grid with the following columns: *Proxy Name*, *Enabled*, *Description*, *Credential Identity*.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Hint: Enabled/disabled proxies are differentiated in the list by their icons: icons for disabled proxies are grayed out.

Right-click an item within the list to call the **context menu** allowing you to *create* a new proxy and specify its properties using [Proxy Editor](#)^[39], *edit*, *delete* the selected proxy, *refresh* the list, or show/hide columns of the list. Using the context menu you can also [export](#)^[53] the list of proxies to any of supported output file [formats](#)^[935].

Proxies management tools are also available through the **Navigation bar** of the **Proxies manager**.

Availability:

Full version (for Windows) **Yes**

Lite version (for **No**

Windows)

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

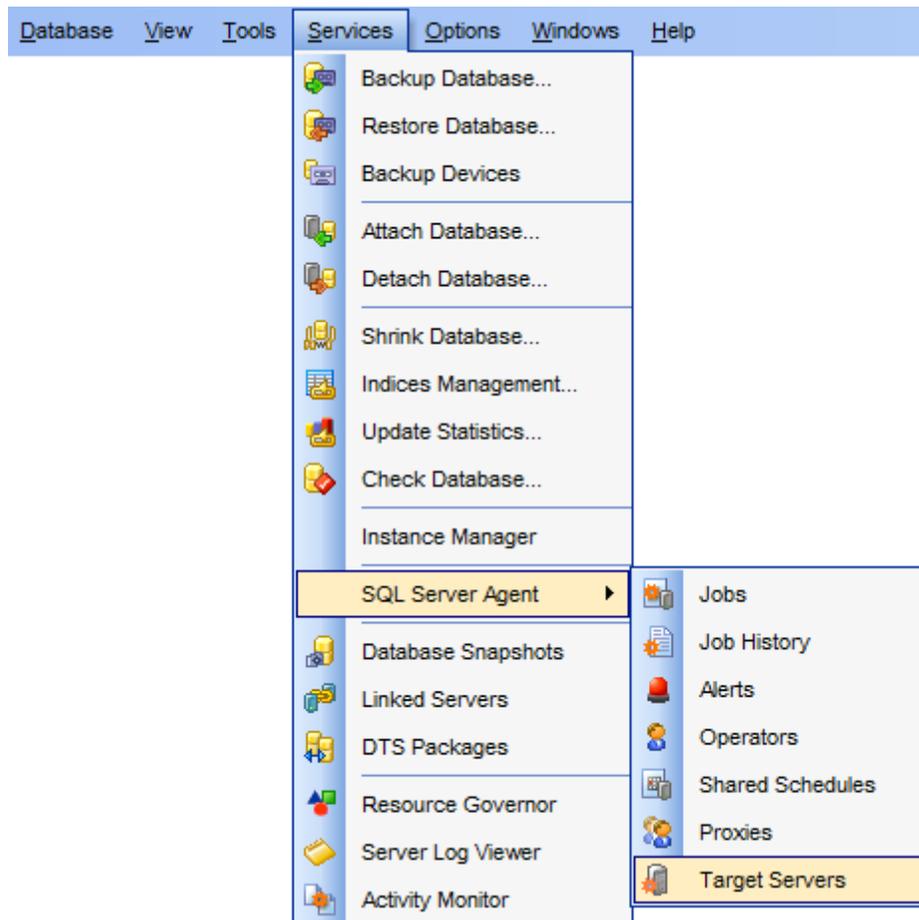
10.11.7 Target Servers

Multiserver administration which consists in automating administration across multiple instances of SQL Server is performed when there is a necessity to manage two or more servers and to schedule information flows between enterprise servers for data warehousing.

In a multiserver system, there is at least one **master server** and at least one **target server**.

A *master server* distributes [jobs](#)^[782] to *target servers*, and receives events from them. A master server also stores the central copy of job definitions for jobs that are run on target servers. Target servers connect periodically to the master server to update their [schedule](#)^[794] of jobs. If a new job exists on the master server, the target server downloads the job. After the target server completes the job, it reconnects to the master server and reports the status of the job.

Before using target servers, make sure that the **SQL Server Agent** service is running.



- [Working with Target Servers manager](#)^[802]

Availability:

Full version (for Windows) **Yes**

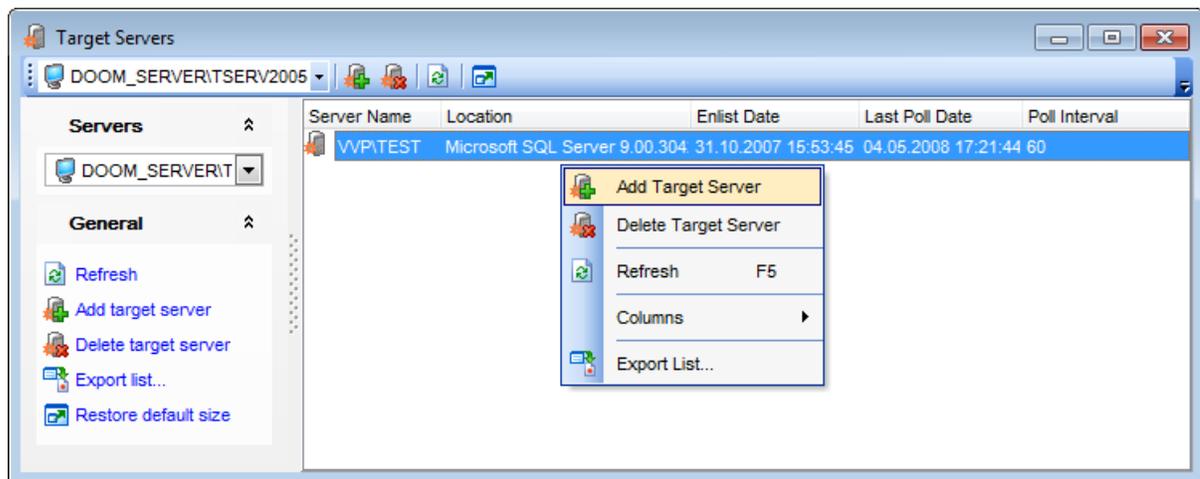
Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

10.11.7.1 Target Servers manager

The **Target Servers manager** is intended for easy and efficient management of target servers when multiserver administration is performed. The **Target Servers manager** allows you to browse the list of **target servers** and manage them efficiently.

To launch the tool, select the **Services | SQL Server Agent | Target Servers main menu**^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Target Servers** item from the [context menu](#)^[53].



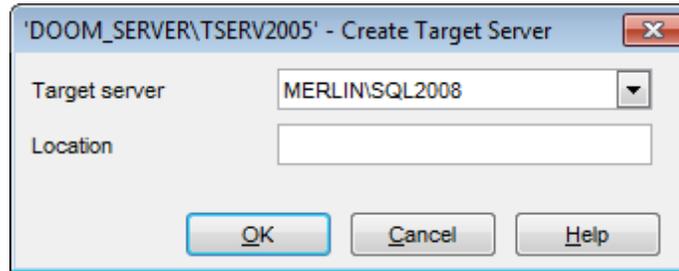
The list displays the target servers as a grid with the following columns: *Server Name*, *Location*, *Enlist Date*, *Last Poll Date*, *Poll Interval*.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Right-click an item within the list to call the **context menu** allowing you to *create* a new target server using the **Add New Target Server** dialog, *delete* the selected target server, *refresh* the list, or show/hide columns of the list. Using the context menu you can also [export](#)^[53] the list of target servers to any of supported output file [formats](#)^[935].

Target servers management tools are also available through the **Navigation bar** of the **Target Servers manager**.

The **Add New Target Server** dialog allows you to register a new target server.

**Target server**

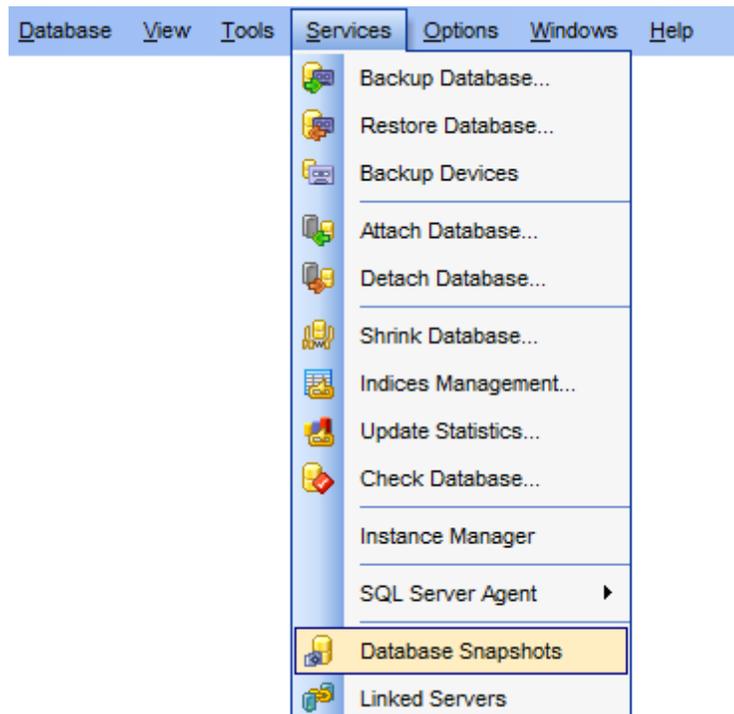
Type in or use the drop-down list to select the server instance to be registered.

Location

Specify the target server location.

10.12 Database Snapshots

Database snapshots were implemented in Microsoft® SQL Server 2005, and they are available only in the Enterprise Edition of Microsoft® SQL Server 2005 and higher. A **Database snapshot** is a read-only, static view of a database (the source database). Multiple snapshots can exist on a source database and always reside on the same server instance as the database. Each database snapshot is transactionally consistent with the source database as of the moment of the snapshot's creation. Snapshots can be used for reporting purposes. Also, in the event of a user error on a source database, you can revert the source database to the state it was in when the snapshot was created. Data loss is confined to updates to the database since the snapshot's creation.

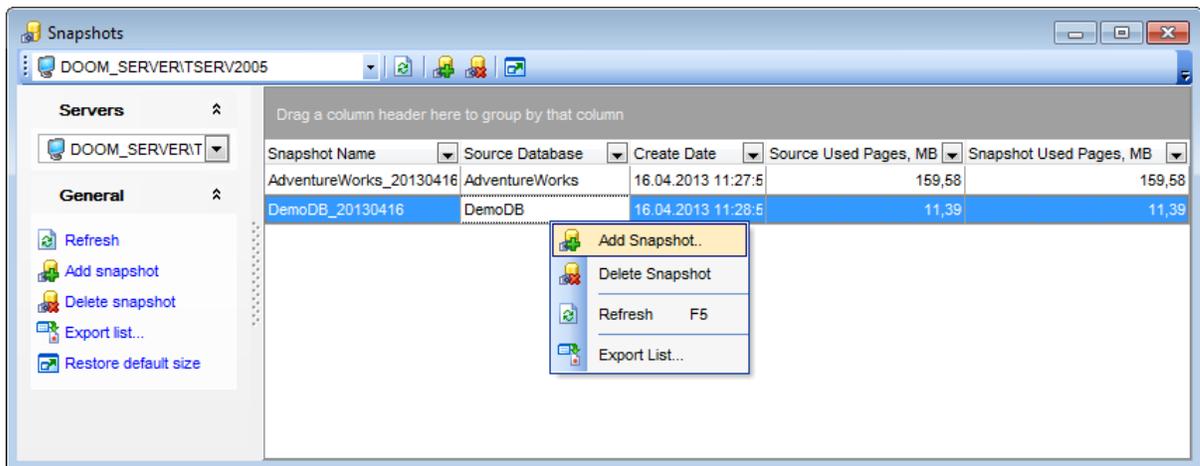


- [Managing database snapshots](#)^[804]

10.12.1 Managing database snapshots

The **Snapshots manager** allows you to browse the list of **database snapshots** and manage them efficiently.

To launch the tool, select the **Services | Database Snapshots** [main menu](#)^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Database Snapshots** item from the [context menu](#)^[53].



The list displays the existing database snapshots as a grid with the following columns: *Snapshot Name*, *Source Database*, *Create Date*, *Source Used Pages (MB)*, *Snapshot Used Pages (MB)*. If more convenient, you can [change the order](#)^[467] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray "**Group by**" box area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *create* a new snapshot and specify its properties using the [Add New Database Snapshot](#)^[805] dialog, *delete* the selected snapshot, or *refresh* the list. Using the context menu you can also [export](#)^[53] the list of database snapshots to any of supported output file [formats](#)^[935].

Database snapshots management tools are also available through the **Navigation bar** of the **Snapshots manager**.

Availability:

Full version (for Windows) **Yes**

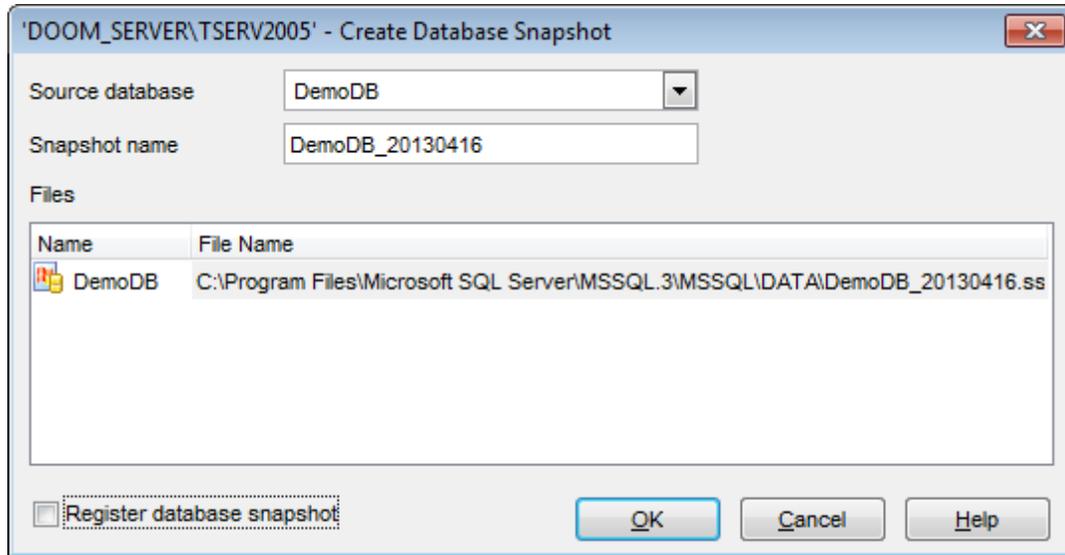
Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

10.12.2 Database snapshot properties

The **Add New Database Snapshot** dialog opens automatically when you create a new database snapshot and allows you to define the new snapshot parameters.

To call the dialog, right-click within the snapshots list in the [Snapshots manager](#)^[804] and select the **Add Snapshot...** context menu item.



Source database

Use the drop-down list to select the source database for the new snapshot.

Snapshot name

By default, the snapshot name is generated by the application automatically on the basis of the source database name and the snapshot creation date. You can modify the name for the new snapshot, or leave the name unchanged. Note that each database snapshot requires a unique database name.

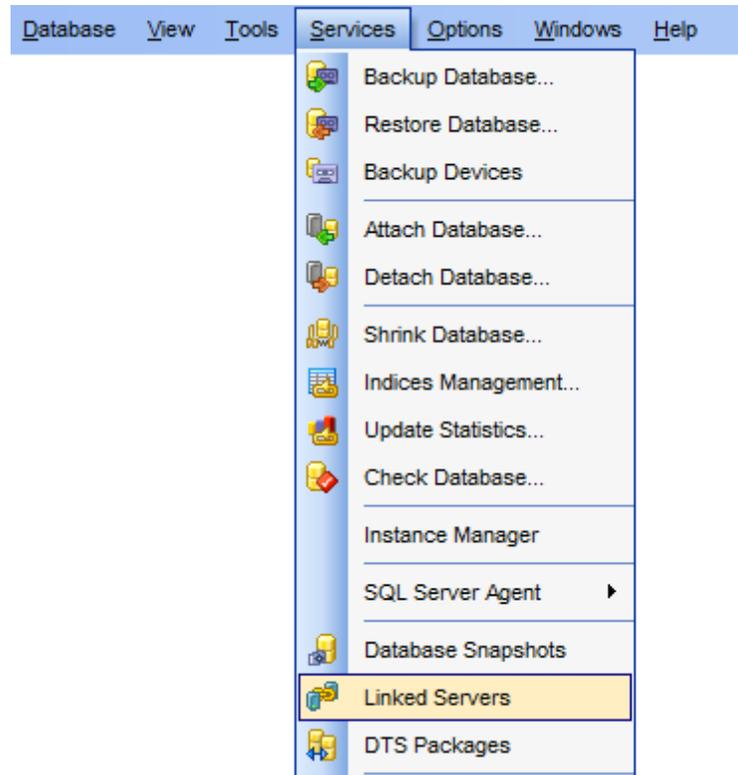
The **Files** area lists the database file(s) of the new database snapshot. The file name contains the name of the source database file and the snapshot creation date.

Register database

This option indicates that the [Database Registration Info](#)^[116] dialog for the new database will appear immediately after the database snapshot is created (you need to register the database to start working with it in SQL Manager). If you intend to register the database later, uncheck this option.

10.13 Linked Servers

A **Linked server** is a virtual server that can be defined to SQL Server 2005 (and higher) with all the information required to access an OLE DB data source. A **Linked server** configuration enables SQL Server to execute commands against OLE DB data sources on remote servers. **Linked servers** provide a number of features: remote server access; the ability to issue distributed queries, updates, commands and transactions on heterogeneous data sources; the ability to address diverse data sources universally.



- [Linked servers manager](#)^[808]
- [Linked Server Editor](#)^[398]

Creating Linked Servers

To create a new linked server:

- right-click the **Linked Servers** node (within the **Server Objects** branch) or any object within this node in the [DB Explorer](#)^[63] tree and select the **New Linked Server** item from the [context menu](#)^[56];
- define linked server properties using the appropriate tabs of [Linked Server Editor](#)^[398].

or

- select the **Database | New Object...** [main menu](#)^[915] item;
- select **Linked Server** in the [Create New Object](#)^[180] dialog;
- define linked server properties using [Linked Server Editor](#)^[398].

Hint: To create a new linked server, you can also select the **Services | Linked Servers** [main menu](#)^[915] item to open the **Linked servers manager** and select the **Add Linked Server** item from the context menu or on the Navigation bar.

To create a new linked server with the same properties as one of existing linked servers has:

- select the **Database | Duplicate Object...** menu item;
- follow the instructions of [Duplicate Object Wizard](#)^[182].

Alternatively, you can right-click a linked server in the [DB Explorer](#)^[63] tree and select the **Duplicate Linked Server <linked_server_name>...** context menu item.

[Duplicate Object Wizard](#)^[182] allows you to select the server to create a new linked server and to edit the result SQL statement for creating the linked server.

Editing Linked Servers

To edit an existing linked server:

- select the linked server for editing in the [DB Explorer](#)^[63] tree (type the first letters of the Linked Server name for quick [search](#)^[83]);
- right-click the object and select the **Edit Linked Server <linked_server_name>** context menu item, or simply double-click the linked server;
- edit linked server properties using the appropriate tabs of [Linked Server Editor](#)^[398].

Dropping Linked Servers

To drop a linked server:

- select the linked server to drop in the [DB Explorer](#)^[63] tree;
- right-click the object and select the **Drop Linked Server <linked_server_name>...** context menu item;
- confirm dropping in the dialog window.

Note: If more convenient, you can also use the following [shortcuts](#)^[952]:

Ctrl+N to create a new linked server;

Ctrl+O to edit the selected linked server;

Shift+Del to drop the object.

To create, edit and drop linked servers, you can also use the **context menu** and the **Navigation bar** of [Linked servers manager](#)^[808].

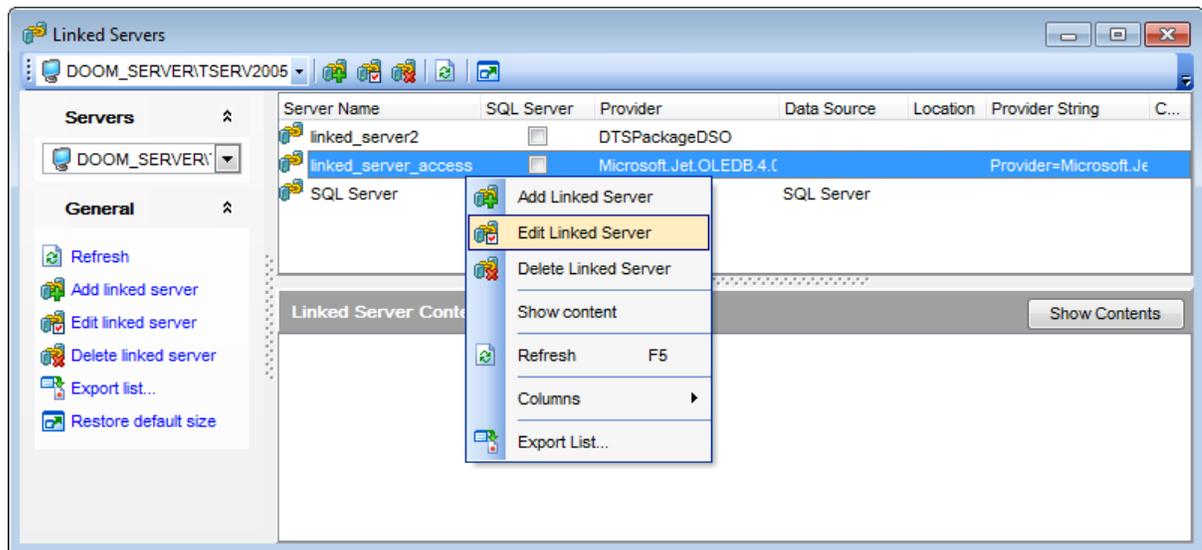
See also:

[Linked Server Editor](#)^[398]

10.13.1 Linked servers manager

The **Linked servers manager** allows you to browse the list of **linked servers** and manage them efficiently.

To launch the tool, select the **Services | Linked Servers main menu**^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Linked Servers** item from the [context menu](#)^[53].



The list displays the existing linked servers as a grid with the following columns: *Server Name*, *SQL Server*, *Provider*, *Data Source*, *Location*, *Provider String*, *Catalog*.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Right-click an item within the list to call the **context menu** allowing you to *create* a new linked server and specify its properties using [Linked Server Editor](#)^[398], *edit*, *delete* the selected linked server, retrieve its *content*, *refresh* the list, or show/hide columns of the list. Using the context menu you can also *export*^[531] the list of linked servers to any of supported output file [formats](#)^[935].

Linked servers management tools are also available through the **Navigation bar** of the **Linked servers manager**.

To display the actual linked server contents, press the **Show Contents** button.

Hint: Linked server contents are also available within the [Content](#)^[402] tab of [Linked Server Editor](#)^[398].

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

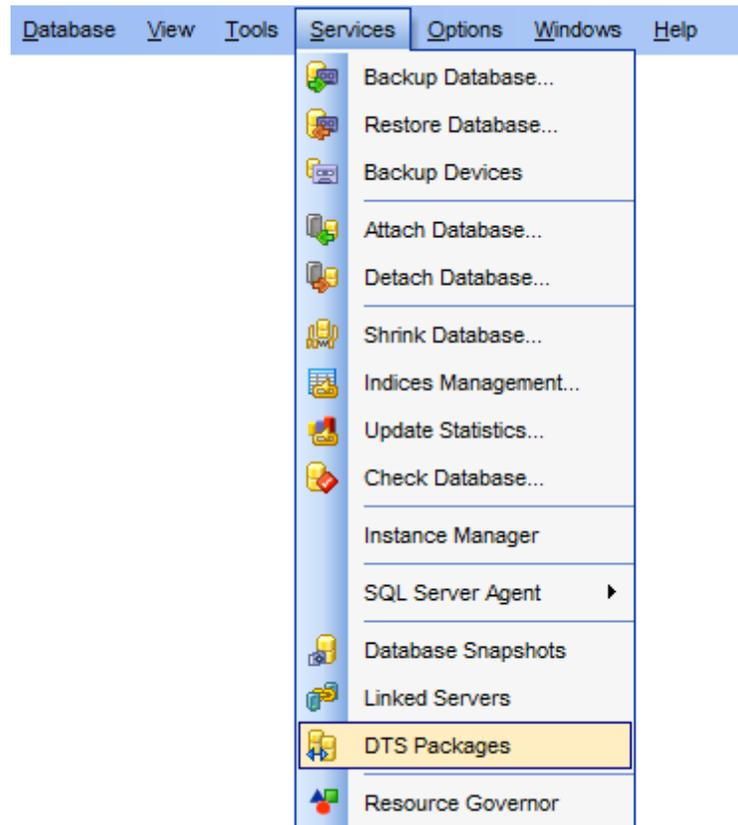
Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[231] page.

10.14 DTS Packages

In SQL Server 2000, **Data Transformation Services (DTS)** is a component built to take data from one OLE DB data source, perform certain operations and store it in a destination OLE DB data source. DTS consists of **packages** which define a particular set of work that forms a logical work item. **DTS Packages** contain multiple connections to data sources, tasks to be performed, workflows. Examples of tasks include copying data from source to destination connections, transforming data from a source connection and placing the transformed data in the destination connection, executing a set of Microsoft ActiveX scripts or Transact-SQL statements against a connection.

In SQL Server 2005 (and higher), **Integration Services (SSIS)** packages are provided for data warehousing purposes.

SQL Manager for SQL Server provides running **Data Transformation Services (DTS)** packages that were developed by using SQL Server 2000 tools. These can be run in SQL Server 2005 and higher, alongside **Integration Services (SSIS)** packages.



- [DTS packages manager](#)^{81↑}
- [DTS package properties](#)^{42↑}

See also:

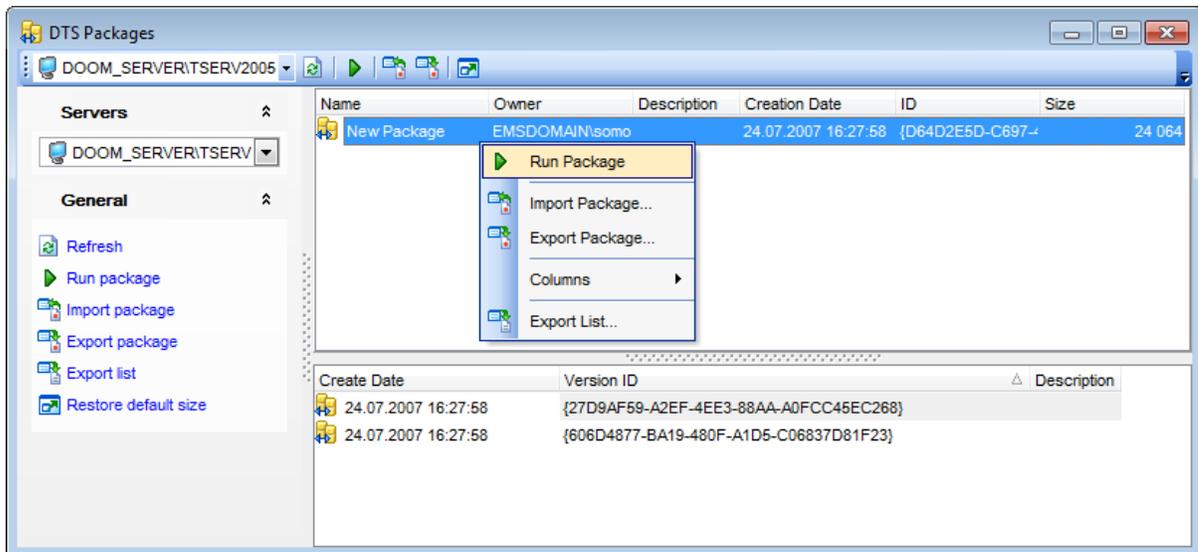
[DTS Packages Editor](#)^{42↑}

10.14.1 DTS Packages manager

The **DTS Packages manager** allows you to browse the list of **DTS packages** and manage them efficiently.

Using this tool you can include SQL Server 2000 DTS packages in SQL Server 2005 (and higher) data transformation solutions. A package can include both Execute Package tasks and Execute DTS 2000 Package tasks because each type of task uses a different version of the run-time engine.

To launch the tool, select the **Services | DTS Packages main menu** [\[915\]](#) item, or right-click the host alias in the **DB Explorer** [\[631\]](#) tree and select the **Tasks | DTS Packages** item from the **context menu** [\[53\]](#).



The list displays the existing DTS packages as a grid with the following columns: *Name*, *Owner*, *Description*, *Create Date*, *ID*, *Size*.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Right-click an item within the list to call the **context menu** allowing you to *run* a package, *import* a package, *export* the selected DTS package, or show/hide columns of the list. Using the context menu you can also **export** [\[531\]](#) the list of DTS packages to any of supported output file **formats** [\[935\]](#).

DTS packages management tools are also available through the **Navigation bar** of the **DTS Packages manager**.

At the bottom of the **DTS Packages manager** window the info area is located. It displays common information pertaining to the selected package: *creation date*, *version ID* and *description*.

Hint: These properties are also available within the modal [DTS Package properties](#)^[42] dialog which is called through the **DTS Package Properties...** context menu item of the DTS package alias in [DB Explorer](#)^[63].

If you need to remove a package, right-click the package in the information area and select the **Delete** popup menu item.

Availability:

Full version (for Windows) **Yes**

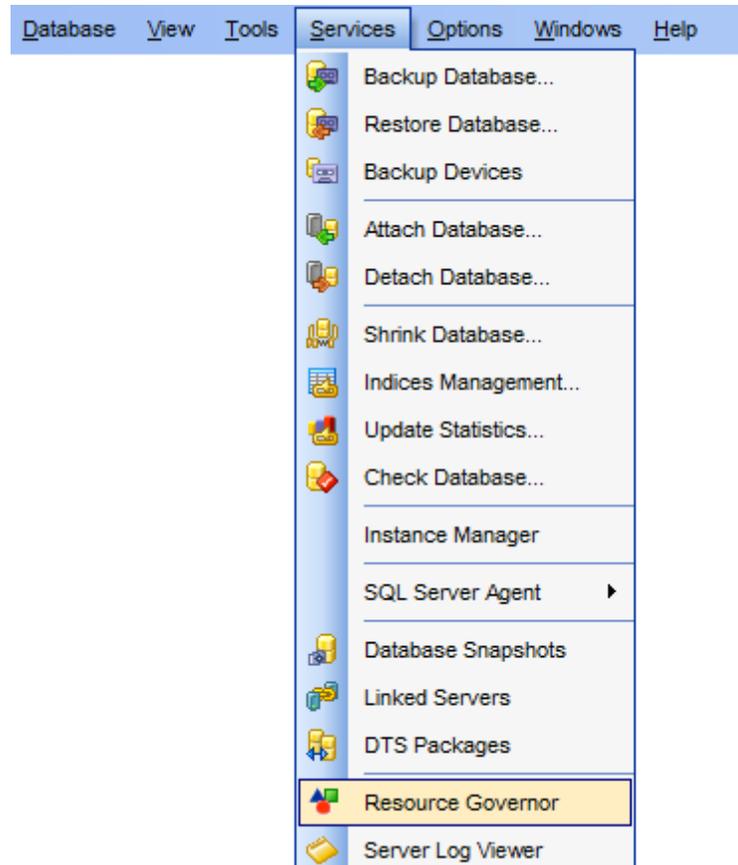
Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

10.15 Resource Governor

Resource Governor is a tool that implements the *Resource Governor* technology introduced in SQL Server 2008 which enables you to manage SQL Server workload and resources by specifying limits on resource consumption by incoming requests.

To launch the tool, select the **Services | Resource Governor** [main menu](#)^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Resource Governor** item from the [context menu](#)^[53].



- [Using Navigation bar and Toolbar](#)^[814]
- [Working with Resource Governor](#)^[814]

Availability:

Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

10.15.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Resource Governor**.



The **Navigation bar** of **Resource Governor** allows you to:

Servers

 select a server instance for managing resources

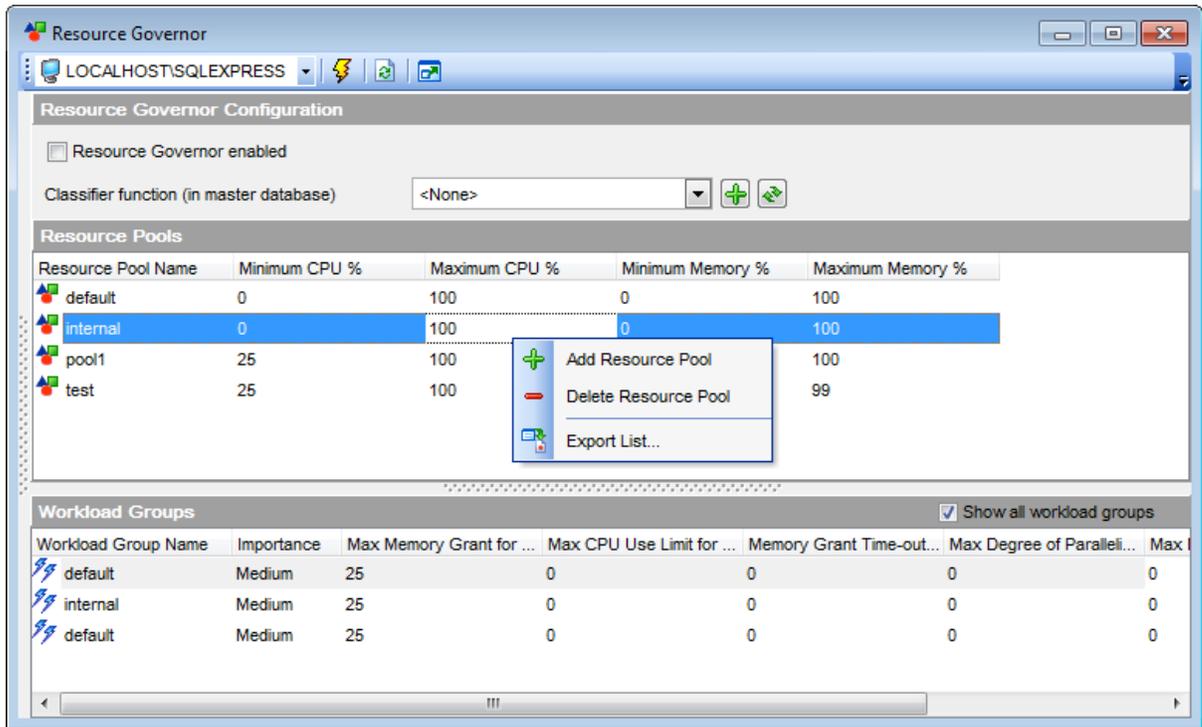
General

-  compile changes
-  refresh the content of the window
-  restore the default size and position of the window

Items of the **Navigation bar** are also available on the **ToolBar** of the **Resource Governor** window. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

10.15.2 Working with Resource Governor

The **Resource Governor** window consists of three basic areas: **Resource Governor Configuration**, **Resource Pools** and **Workload Groups**.



Resource Governor Configuration

Resource Governor enabled

This option enables/disables Resource Governor.

Classifier function

Use the drop-down list to select the [user-defined function](#)^[259] whose return values will be used for classifying sessions that are then routed to the appropriate workload group.

To create a new function, click the  button. To refresh the function list, click the  button.

Note: If there are pending changes in Resource Governor configuration, you will need to reconfigure Resource Governor to apply these changes using the corresponding **Reconfigure** button.

The **Resource Pools** list displays the resource pools as a grid with the following columns: *Resource Pool Name*, *Minimum CPU (%)*, *Maximum CPU (%)*, *Minimum Memory (%)*, *Maximum Memory (%)*. If more convenient, you can [change the order](#)^[467] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

To set a value, click in the cell you need, and type in the required value, or use the spinner control for this purpose.

Right-click an item within the **Resource Pools** list to call the **context menu** allowing you to  *add* a new resource pool,  *delete* the selected resource pool, or [export](#)^[531] the list to any of supported output file [formats](#)^[935].

The **Workload Groups** list displays the workload groups as a grid with the following columns: *Workload Group Name*, *Importance*, *Max Memory Grant for Request (%)*, *Max CPU Use Limit for Request (sec)*, *Memory Grant Time-out for Request (sec)*, *Max Degree of Parallelism*, *Max Number of Requests*, *Resource Pool*. If more convenient, you can [change the order](#)^[467] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

Show all workload groups

If this option is selected, all workload groups are displayed in the list, otherwise only those associated with the currently selected resource pool.

To set a value, click in the cell you need, and type in the required value, or use the spinner control for this purpose.

To associate a workload group with a resource pool, click in a cell of the *Resource Pool* column and select the resource pool you need from the drop-down list.

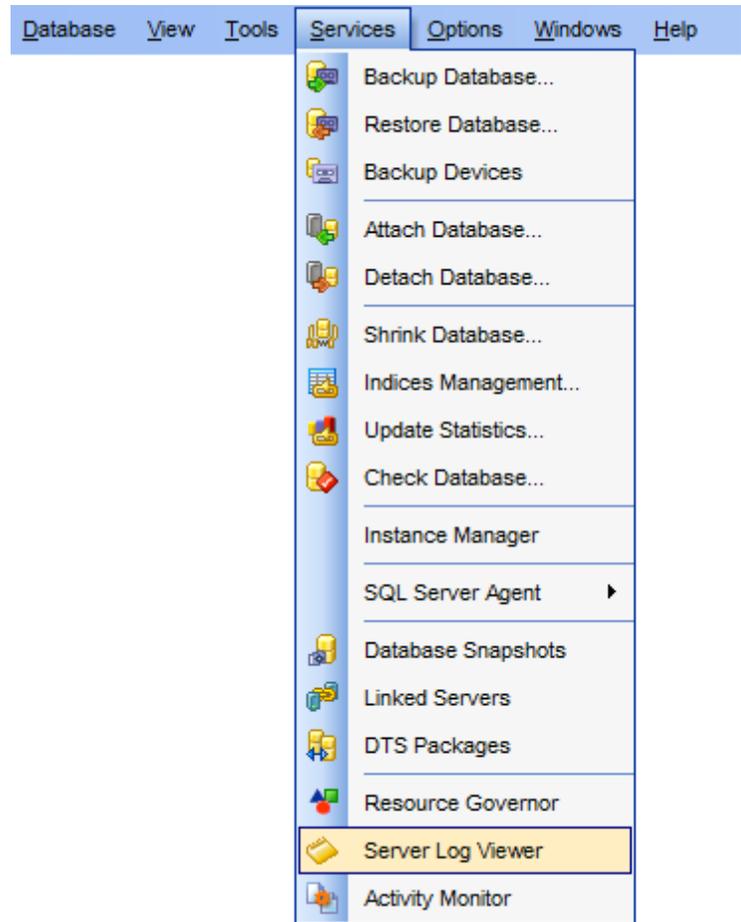
Right-click an item within the **Workload Groups** list to call the **context menu** allowing you to  *add* a new workload group,  *delete* the selected workload group, or [export](#)^[531] the list to any of supported output file [formats](#)^[935].

To apply changes, use the  **Compile** item available within the [Navigation bar](#)^[814] and [toolbar](#)^[814].

10.16 Server Log Viewer

Server Log Viewer allows you to analyze SQL Server server logs in a simple way, providing the ability to sort, filter and group log statements.

To launch the tool, select the **Services | Server Log Viewer** [main menu](#)^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Server Log Viewer** item from the [context menu](#)^[53].



- [Using Navigation bar and Toolbar](#)^[818]
- [Working with Server Log Viewer](#)^[818]

Availability:

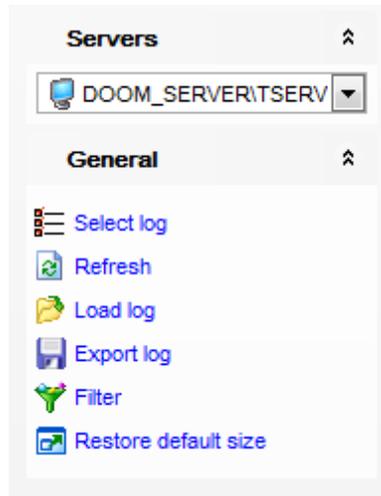
Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

10.16.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Server Log Viewer**.



The **Navigation bar** of **Server Log Viewer** allows you to:

Servers

 select a server instance to view server logs

General

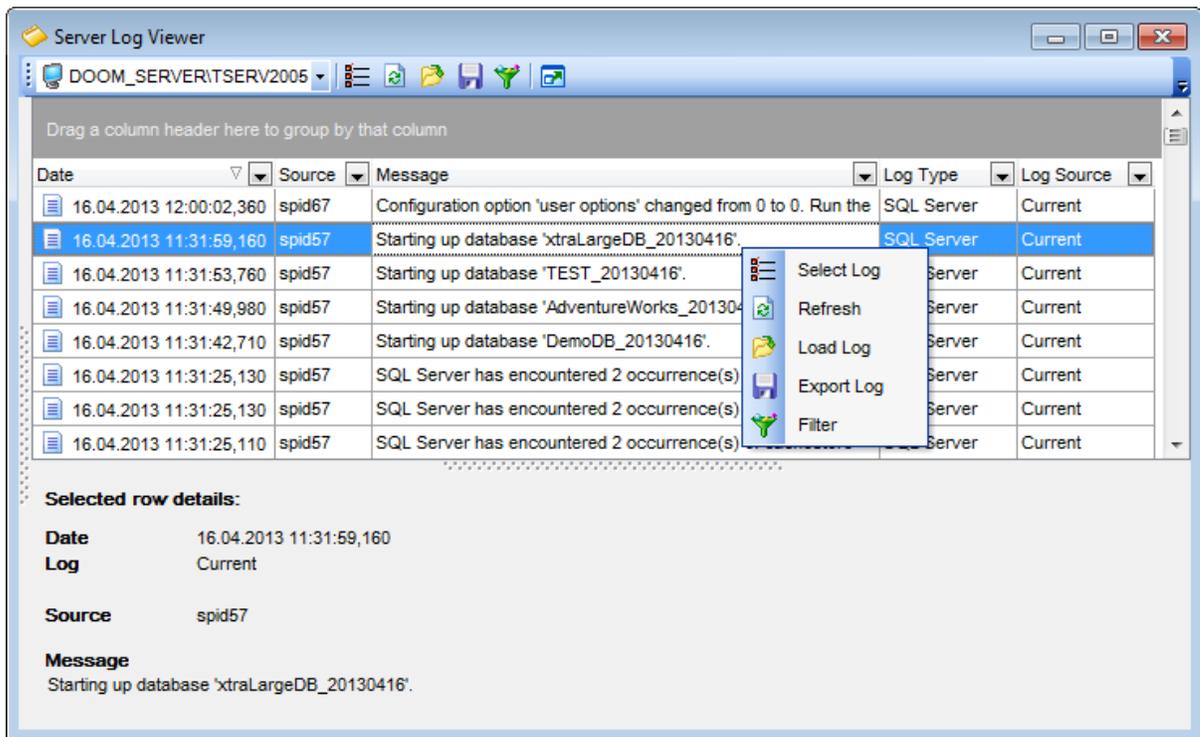
-  select a log
-  refresh the content of the window
-  load a log from an external *.txt file
-  export log to an external *.txt file
-  filter logs in the list
-  restore the default size and position of the window

Items of the **Navigation bar** are also available on the **ToolBar** of the **Server Log Viewer** window. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *ToolBar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

Hint: Items of the **General** pane of the **Navigation bar** are also available in the *context menu* of the **Server Log Viewer** area.

10.16.2 Working with Server Log Viewer

The **Server Log Viewer** window displays the list of server logs as a grid, and allows you to manage them efficiently.



The list displays the server logs as a grid with the following columns: *Date*, *Source*, *Message*, *Log Type*, *Log Source*. If more convenient, you can [change the order](#)^[467] of the columns by dragging their headers horizontally.

Click a column caption to **sort** items by values of this column in the ascending or the descending mode.

If necessary, you can **group the data in grid** by any of the columns. This operation is performed by dragging the column header to the gray **"Group by"** box area at the top. When grouping by a column is applied to the grid, all the rows are displayed as subnodes to the grouping row value. To reverse grouping, just drag the column header back.

Right-click an item within the list to call the **context menu** allowing you to *select* a log, *refresh* the list, *load* a log, *export* log and *filter* the logs in the grid.

Server logs management tools are also available through the [Navigation bar](#)^[818] and [toolbar](#)^[818] of **Server Log Viewer**.

The lower area displays the following server log details:

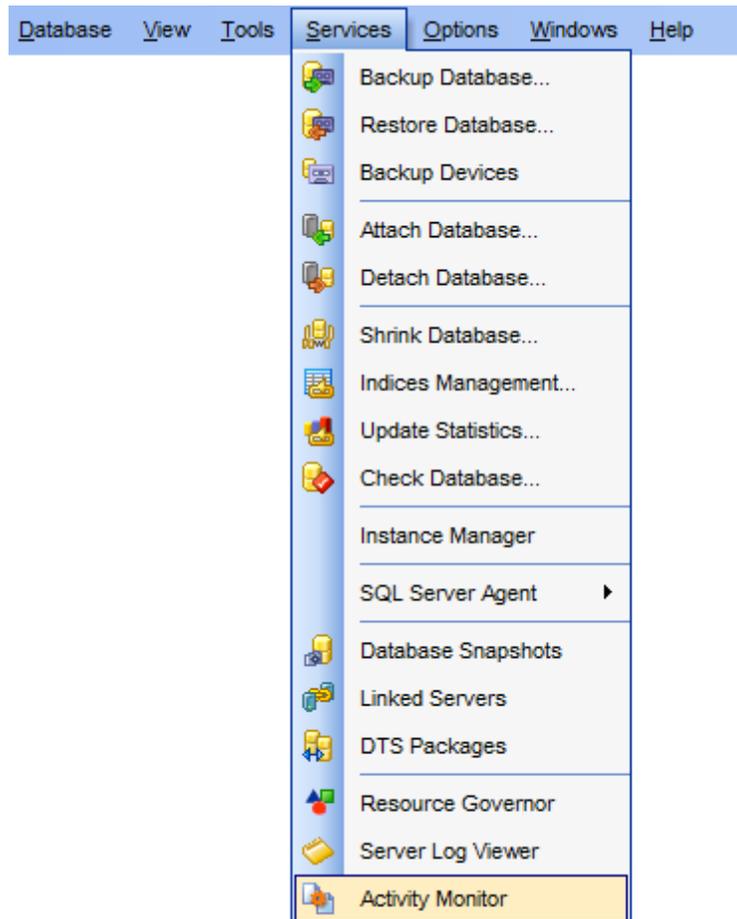
Date
Log
Source
Message

10.17 Activity Monitor

Activity Monitor allows you to get information about users connections to the Database Engine and the locks that they hold.

Use **Activity Monitor** when troubleshooting database locking issues, and to terminate a deadlocked or otherwise unresponsive process.

To launch the tool, select the **Services | Activity Monitor** [main menu](#)^[915] item, or right-click the host alias in the [DB Explorer](#)^[63] tree and select the **Tasks | Activity Monitor** item from the [context menu](#)^[53].



- [Using Navigation bar and Toolbar](#)^[82]
- [Working with Activity Monitor](#)^[82]

Availability:

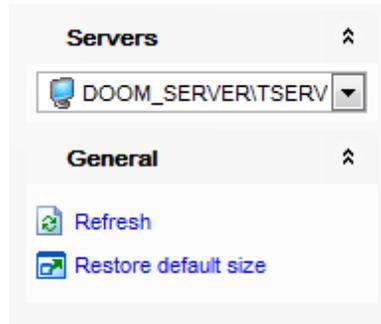
Full version (for Windows) **Yes**

Lite version (for Windows) **No**

Note: To compare all features of the **Full** and the **Lite** versions of SQL Manager, refer to the [Feature Matrix](#)^[23] page.

10.17.1 Using Navigation bar and Toolbar

The **Navigation bar** and **Toolbar** provide quick access to tools implemented in **Activity Monitor**.



The **Navigation bar** of **Activity Monitor** allows you to:

Servers

 select a server instance for monitoring activity

General

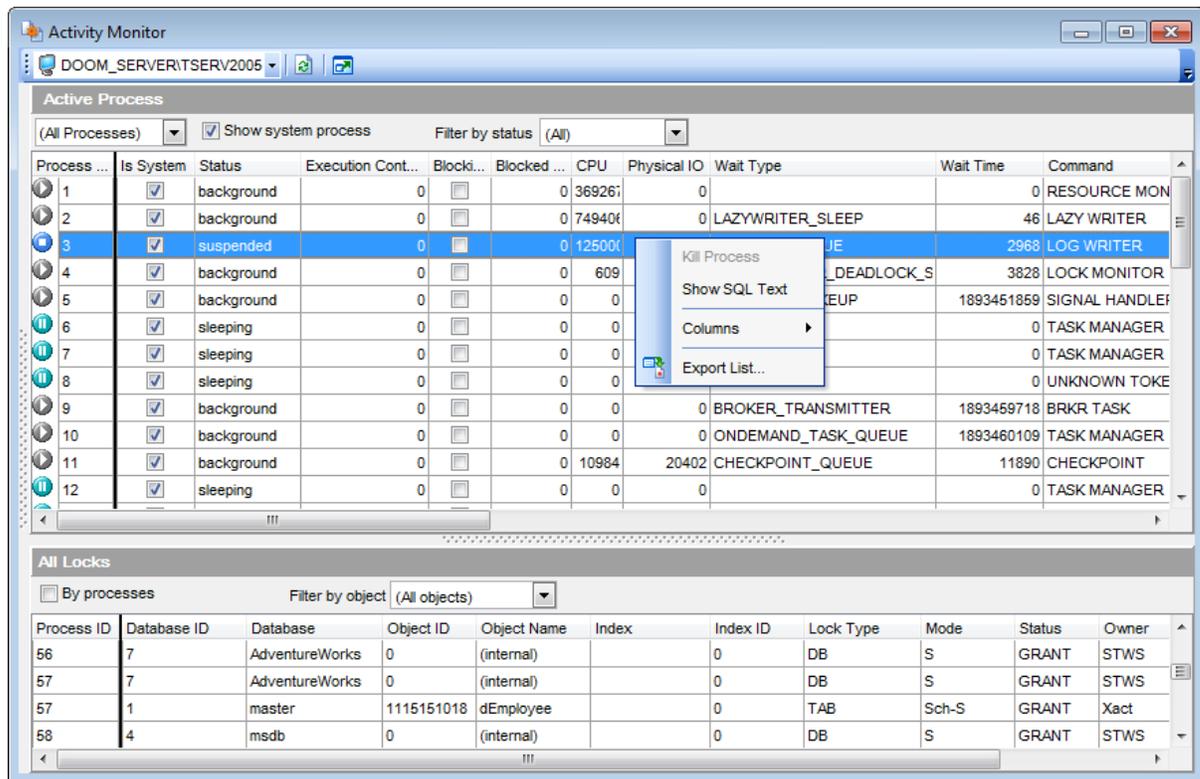
 refresh the content of the window

 restore the default size and position of the window

Items of the **Navigation bar** are also available on the **ToolBar** of the **Activity Monitor** window. To enable the [toolbar](#)^[917], open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

10.17.2 Working with Activity Monitor

The **Activity Monitor** window consists of two basic areas: **Active Process** and **All Locks**



Hint: Background/suspended/sleeping processes are differentiated in the list by their icons next to the *Process ID* values.

The **Active Process** list displays the processes as a grid with the following columns: *Process ID*, *Is System*, *Status*, *ExecutionContext*, *Blocking*, *Blocked By*, *CPU*, *Physical IO*, *Wait Type*, *Wait Time*, *Command*, *Application*, *Open Transactions*, *Database*, *User*, *Net Address*, *Net Library*, *Host*, *Memory Usage*, *Login Time*, *Last Batch*.

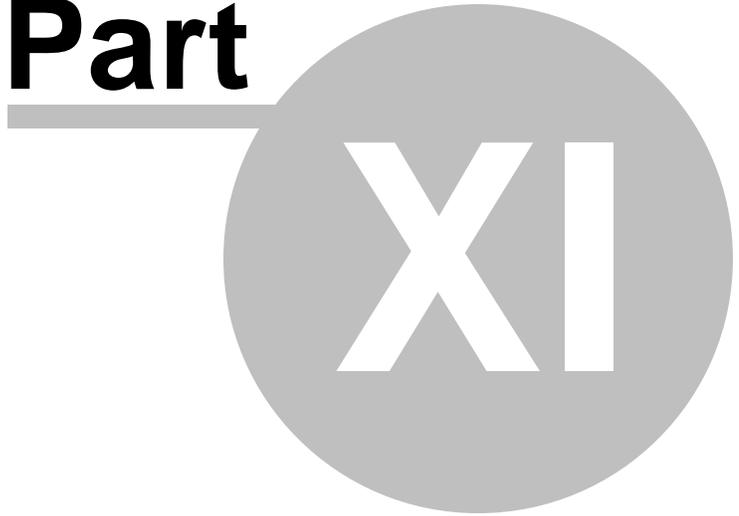
For your convenience several filtering facilities are implemented: you can filter the rows in the **Active Process** list by process ID, by system/non-system attribute, or by status (*background*, *suspended*, *sleeping*, *running*). Use the corresponding controls in the upper area.

The **All Locks** list provides the following attributes of each lock: *Process ID*, *Database ID*, *Database*, *Object ID*, *Object name*, *Index*, *Index ID*, *Lock type*, *Mode*, *Status*, *Owner*, *Resource*.

If necessary, you can filter the rows in the **All Locks** list by processes or display all objects/internal.

Right-click an item within the **Active Process** or **All Locks** lists to call the **context menu** allowing you to *kill* a process, *show SQL text*, or show/hide columns of the list. Using the context menu you can also [export](#) ^[531] the list of processes to any of supported output file [formats](#) ^[935].

Part



11 Options

SQL Manager for SQL Server provides you with capabilities for flexible personalization of the application.

Please see the chapters below to learn how to use personalization tools effectively.

- [Environment Options](#)^[825]
- [Editor Options](#)^[869]
- [Save Settings](#)^[885]
- [Localization](#)^[890]
- [Keyboard Templates](#)^[894]
- [Find Option dialog](#)^[906]

The **Options** menu allows you to export all program settings to a *.reg file for future use, e.g. when you need to move the settings to another machine (see [Save Settings](#)^[885] for details).

Hint: Each of the SQL Manager Options dialogs is provided with the **Reset to defaults button**. You can use it either to **Reset current category** or to **Reset all categories**.

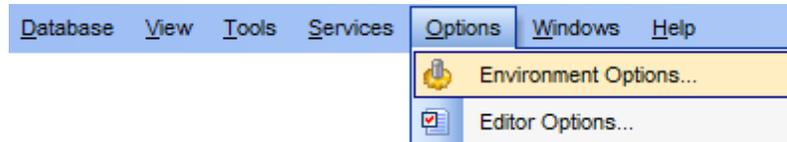
See also:

- [Getting Started](#)^[41]
- [Database Explorer](#)^[63]
- [Database Management](#)^[94]
- [Database Objects Management](#)^[178]
- [Query Management Tools](#)^[424]
- [Data Management](#)^[462]
- [Import/Export Tools](#)^[530]
- [Database Tools](#)^[611]
- [Server Tools](#)^[715]
- [External Tools](#)^[909]
- [How To...](#)^[957]

11.1 Environment Options

Environment Options allow you to customize general options of the SQL Manager application.

To open the **Environment Options** window, select the **Options | Environment Options...** [main menu](#)^[915] item, or use the **Environment Options** button on the main [toolbar](#)^[917].



[Preferences](#)^[826]
 [Full mode activation](#)^[827]
[Confirmations](#)^[827]
[Appearance](#)^[829]
[Tools](#)^[830]
 [Timeouts](#)^[831]
 [DB Explorer](#)^[832]
 [Search](#)^[833]
 [Object Editors](#)^[835]
 [Query Data](#)^[837]
 [SQL Monitor](#)^[838]
 [Execute Script](#)^[839]
 [Design Query](#)^[841]
 [Style & Color Palette](#)^[842]
 [Default Data Options](#)^[846]
 [Database Designer](#)^[847]
 [Print Metadata](#)^[851]
 [Data Export](#)^[851]
 [SQL Server Reference](#)^[852]
[Fonts](#)^[853]
[Grid](#)^[855]
 [Data Options](#)^[857]
 [Print Data](#)^[859]
 [Color & Formats](#)^[860]
 [Advanced](#)^[862]
 [Column Options](#)^[864]
[Localization](#)^[865]
[Global Shortcuts](#)^[866]
[Find Option](#)^[867]

See also:

[Editor Options](#)^[869]

Visual Options

11.1.1 Preferences

Show splash screen at startup

Displays the splash screen of SQL Manager for SQL Server at the application startup.

Restore desktop on connect (for refreshed on connect databases)

This option determines whether the previously opened windows and their positions should be restored upon connection to the database.

Do not restore if 'Refresh objects on connection' database registration option is off

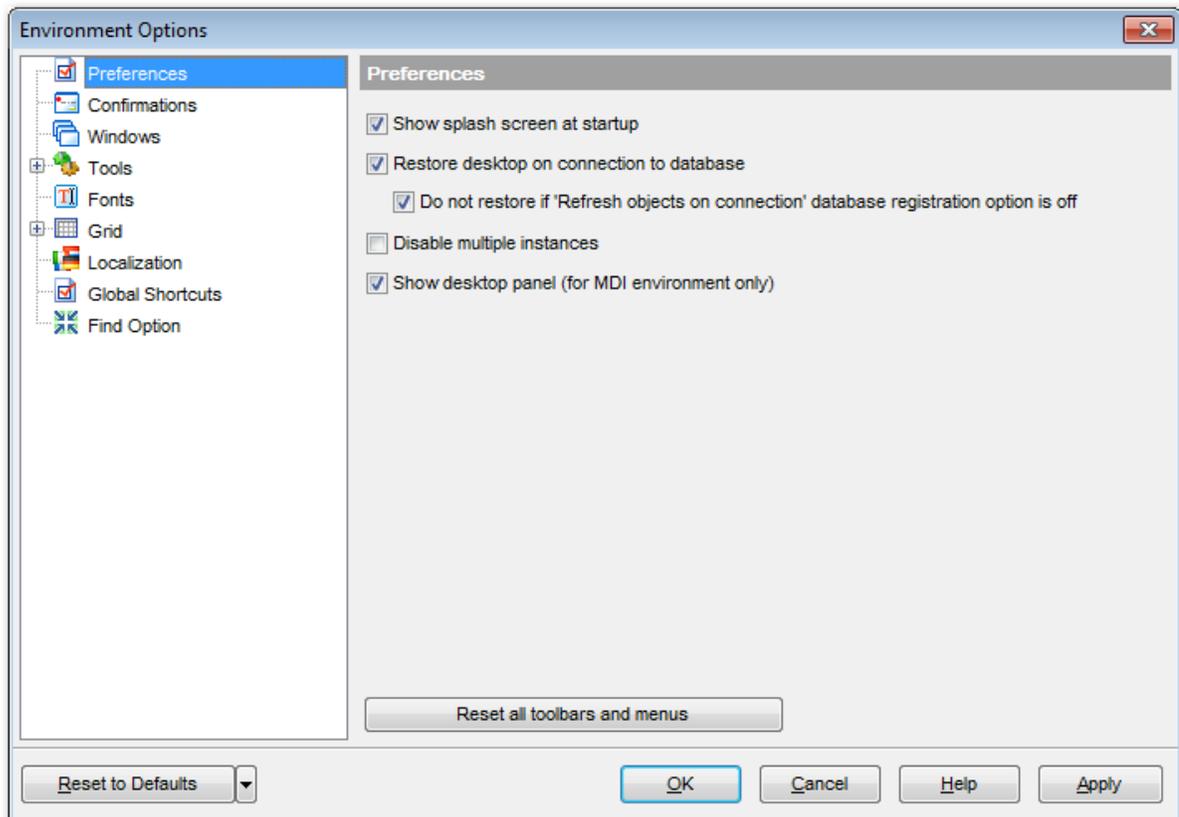
Check this option to perform restoring desktop operation if the 'Refresh objects on connection' option of the [Database registration info](#)^[118] is on.

Disable multiple instances

Checking this option prevents one from running multiple instances of SQL Manager for SQL Server.

Show desktop panel (for MDI Environment style only)

Displays [Desktop Panel](#)^[47] when no child windows are open.

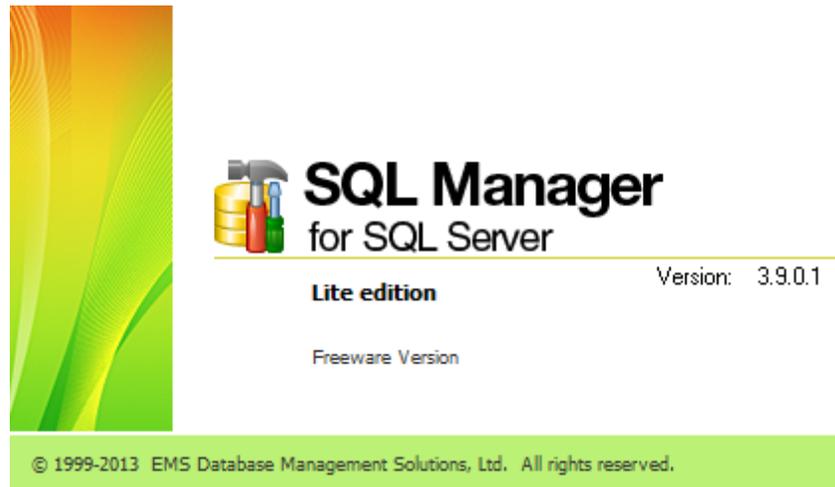


If necessary, you can **reset all toolbars and menus** of the application using the corresponding button.

Hint: The **Reset to Defaults** button which is common for all sections of the **Environment Options** dialog opens a menu with items allowing you to discard all changes and reset options of the *current category* or of *all categories* to their defaults.

11.1.1.1 Full mode activation

Note that when using **the FREE Lite version of SQL Manager for SQL Server** (which contains functional limitations) you can activate a 30-day period of fully-functional usage. During this period you will get the splash screen displaying the number of days left every time you start the application. After the period expires, you will be able to continue using the Lite version.



To activate *the 30-day Full version mode*, please enable the **Show Full Version features** option available on the [Preferences](#) ^[826] page of the **Environment Options** dialog (note that this option is only available in the Lite version of SQL Manager).

11.1.2 Confirmations

Confirm saving the object (or document) upon closing the editor

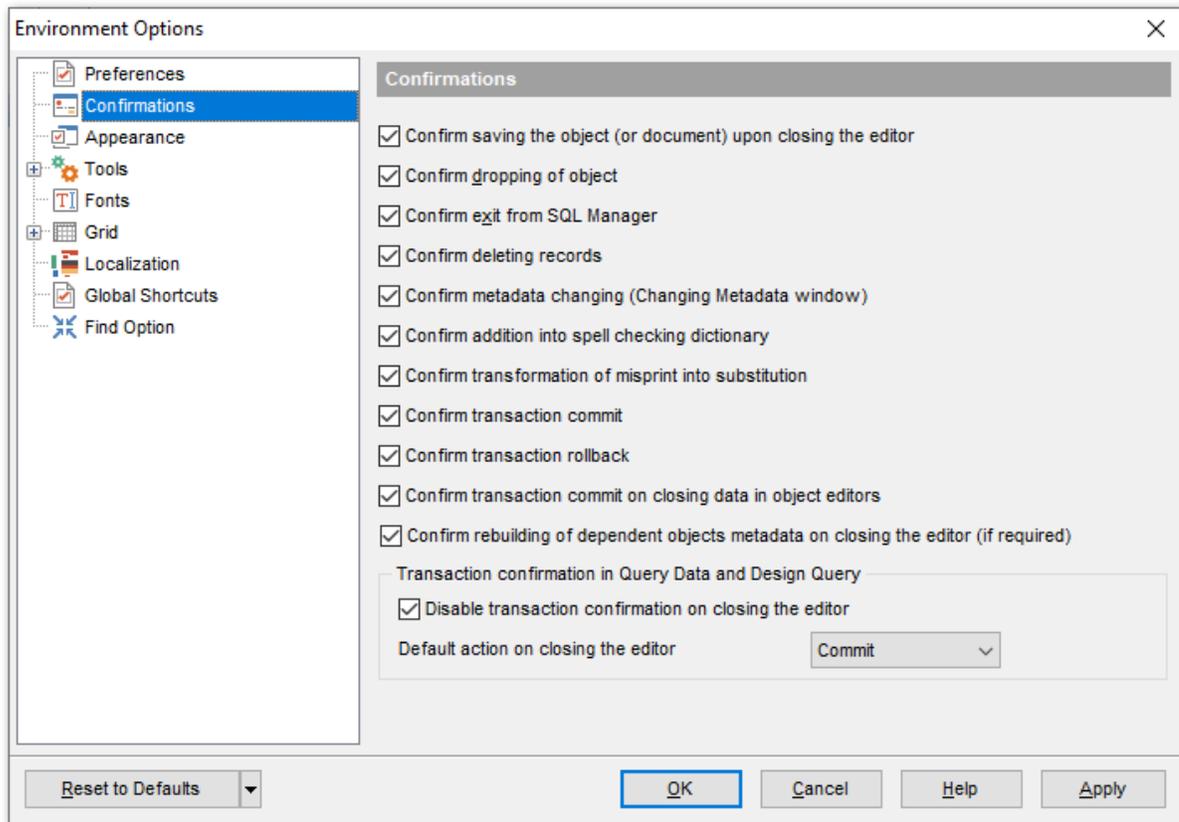
If this option is selected, the program requires confirmation each time you want to save changes in a database object or document.

Confirm dropping of object

If this option is selected, the program requires confirmation of [dropping](#) ^[178] a database object.

Confirm exit from SQL Manager

If this option is selected, you are prompted for confirmation each time when you exit the application.



Confirm deleting records

This option enables/disables a confirmation dialog for deleting records.

Confirm metadata changing (Changing Metadata Window)

This option enables/disables the [Changing Metadata](#)^[923] window.

Confirm addition into spell checking dictionary

Enable this option if you wish to be prompted for adding a word to the dictionary which is used for checking words spelling (see [Spell Checking](#)^[882]).

Confirm transformation of misprint into substitution

If this option is selected, you need to confirm replacing a misprinted word with a corresponding substitution word (see [Spell Checking](#)^[882]).

Confirm transaction commit

If this option is selected, the program requires confirmation on attempt to commit a transaction.

Confirm transaction rollback

If this option is selected, the program requires confirmation on attempt to rollback a transaction.

Confirm transaction commit on closing data in object editors

If this option is selected, the program prompts to commit the transaction upon closing the 'Data' tab in object editors.

Confirm rebuilding of dependent objects metadata on closing the editor (if required)

This option enables/disables a confirmation dialog for rebuilding the dependent objects after compiling.

Transaction confirmation in Query Data and Design Query

Disable transaction confirmation on closing the editor

If this option is checked, no transaction confirmation will be required on closing [Query Data](#)^[426] and [Design Query](#)^[442]. Specify the **default action** (*Commit* or *Rollback*) and this action will be performed automatically each time when you exit **Design Query** or **Query Data**.

11.1.3 Appearance

Theme

Select the main color theme for the application: *Light, Blue or Dark*.

Environment style

This group allows you to define the basic window environment - *MDI* (like Microsoft® Office) or *Floating windows* (like Borland® Delphi IDE).

Windows restrictions

This option allows you to set the number of editors ([Table Editor](#)^[200], [Query Data](#)^[426], etc.) that can be opened simultaneously.

Zoom options

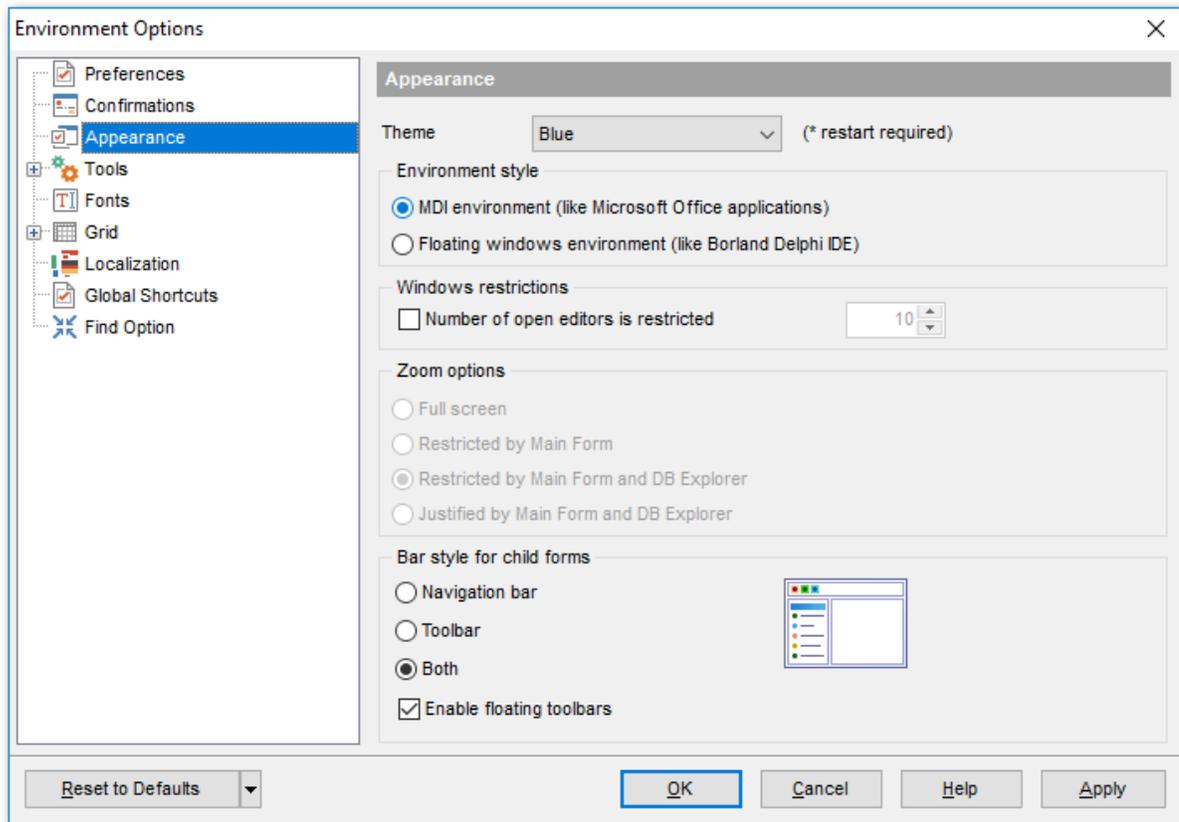
This group of options is only available if **Environment Style** is set to *Floating windows environment*. It allows you to set maximization size for child windows:

- Full screen*
- Restricted by Main Form*
- Restricted by Main Form and DB Explorer*
- Justified my Main Form and DB Explorer*

Bar style for child forms

Here you can define the location of action buttons: within the *Navigation bar* (on the left) and/or on the *Toolbar*.

If necessary, you can also **Enable floating toolbars** for your application.



11.1.4 Tools

Miscellaneous

Show only connected databases in drop-down menu

If this option is checked, only [connected](#)^[68] databases are displayed in drop-down menus of such tools as [Design Query](#)^[442], [Execute Script](#)^[619], etc.

Don't fill server lists in connection forms

If this option is checked, the server list will be filled up with the names of most recently used servers that are stored locally in the Windows registry. Otherwise, SQL Manager will scan the network to fill in the server lists in connection forms.

Allow using parameters in query text

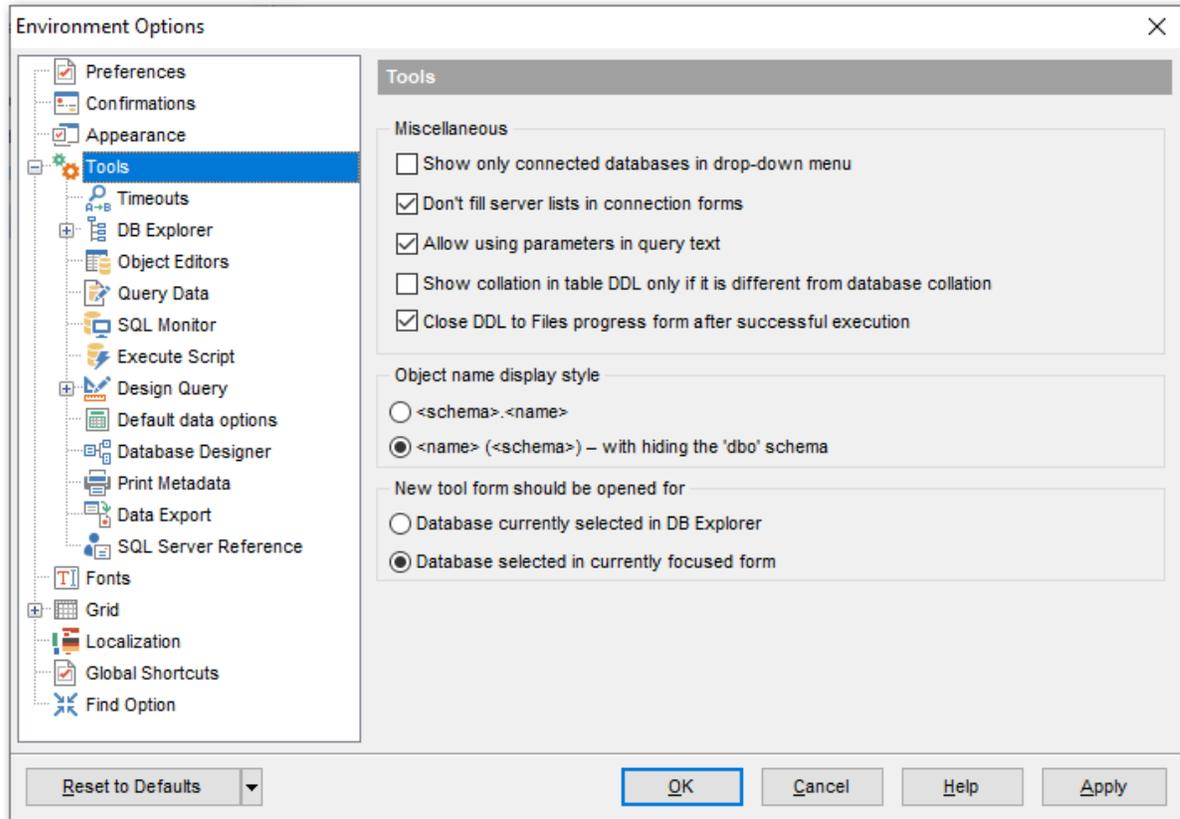
This feature allows you to specify different values within a query in a [popup dialog](#)^[459] just before the query execution. Use the colon (':') character before an identifier (e.g. :P1) to specify a parameter within the query.

Show collation in table DDL only if it is different from database collation

If this option is selected then collation in table DDL is not displayed in case it is equal to database collation.

Close DDL to Files progress form after successful execution

If this option is checked the Apply Changes dialog (that indicates the writing DDL to files process) is closed automatically if operation is succeeded.



Object name display style

Here you can select the format in which object names will be displayed in some object editors, headers of object editors, [Select Object dialog](#)^[951], [Print metadata](#)^[643].

<schema>.<name>

Display object name in the "<schema_name>.<object_name>" format.

<name> (<schema>) with hiding the 'dbo' schema

Display object name in the "<object_name> (<schema_name>)" format. 'dbo' schema name is omitted.

New tool form should be opened for

This option defines which database should be selected in the launched tool.

Database currently selected in DB Explorer

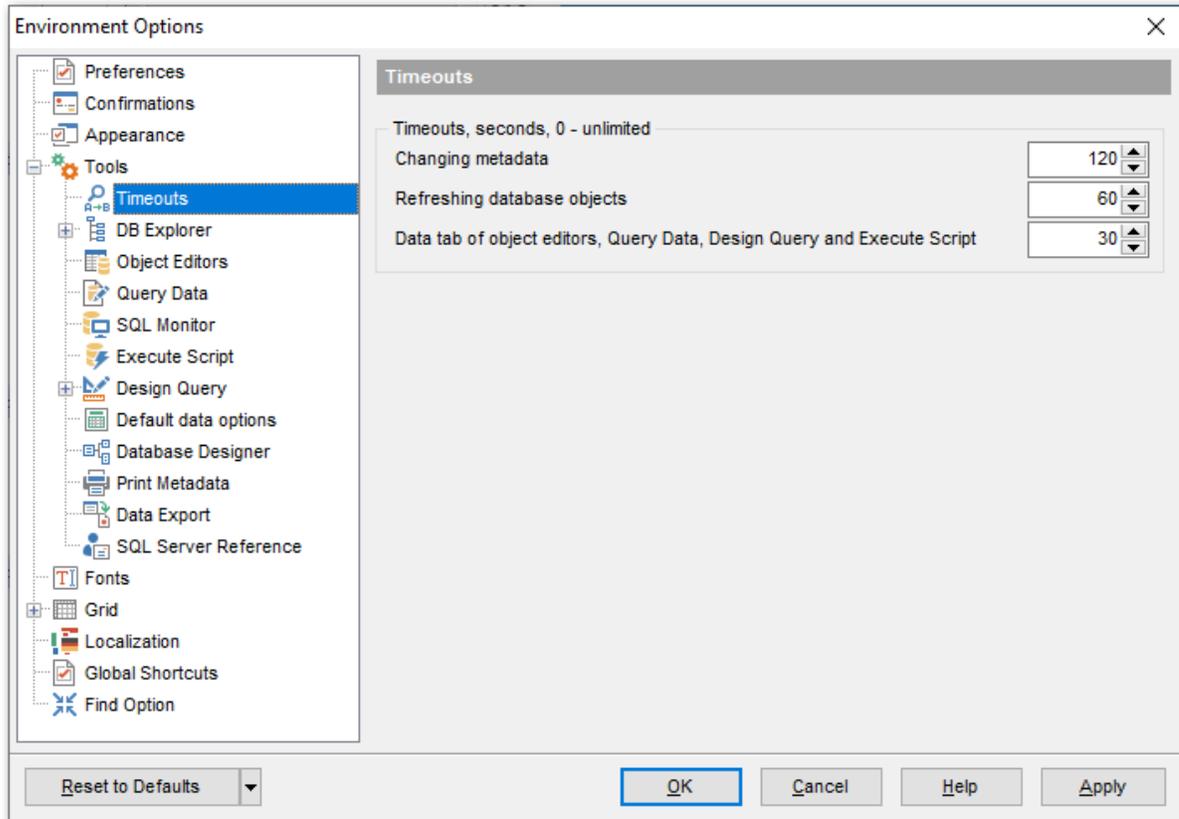
Tool will be opened with the database focused in the DB Explorer selected.

Database selected in currently focused form

Tool will be opened with the database which is selected in the current form.

11.1.4.1 Timeouts

This page allows you to set timeouts for some operations performed in SQL Manager. Timeouts are necessary for preventing program hang-up upon execution of a SQL statement due to transaction interlocking. You can set timeouts for *changing metadata*, *refreshing database objects* and *data tabs*.



Refresh of objects can also be terminated after timeout expiration if there is an active transaction that has made any changes to metadata.

11.1.4.2 DB Explorer

General options

Show hosts in DB Explorer

Shows/hides database hosts in the [DB Explorer](#)^[63] tree.

Show table subobjects

Shows/hides [table](#)^[192] subobjects (columns, indexes, etc.) in the [DB Explorer](#)^[63] tree.

Sort by aliases

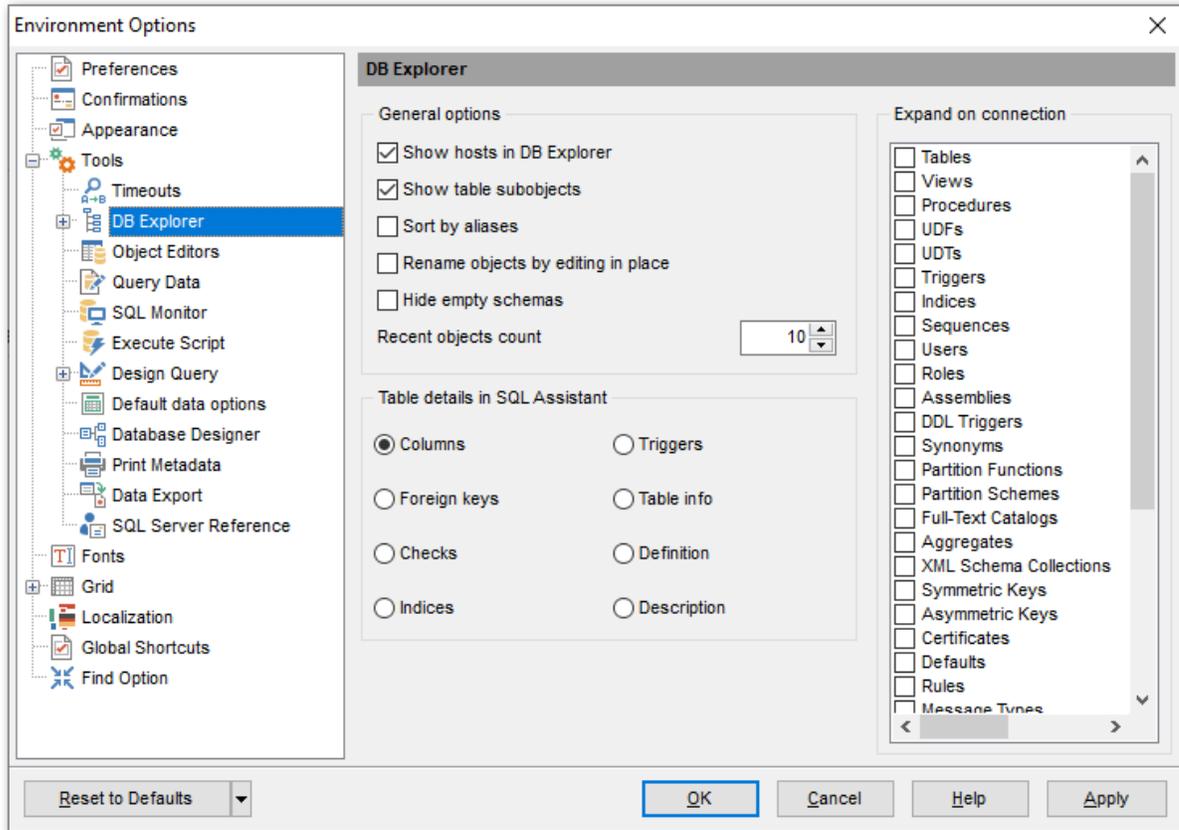
Use this option to apply sorting registered hosts and databases by their aliases in the [DB Explorer](#)^[63] tree.

Rename objects by editing in place

Allows you to edit object names in [DB Explorer](#)^[63] by selecting any object and clicking its alias one more time.

Hide empty schemas

This option allows you to specify whether [schemas](#)^[189] containing no objects will be displayed in the [DB Explorer](#)^[63] tree.



Recent objects count

Defines the number of objects displayed within the [Recent](#)^[80] menu of the [DB Explorer](#)^[63].

Table details in SQL Assistant

These options switch the [SQL Assistant](#)^[85] mode for displaying [table](#)^[192] details (*columns*, *Foreign keys*, *checks*, *indexes*, *triggers*, *table info*, *definition* or *description*).

Expand on connection

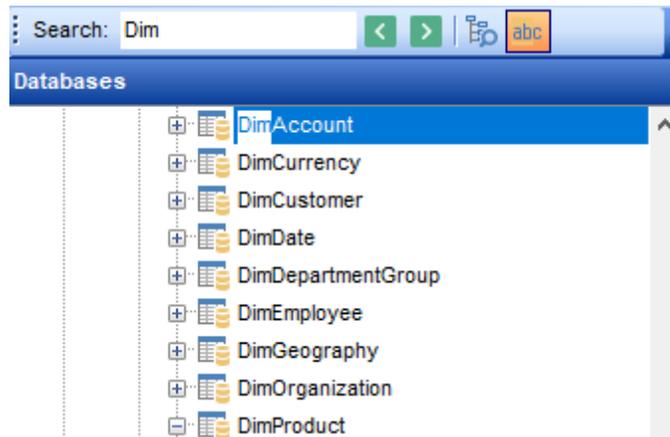
This group of options allows you to specify the node(s) indicating type(s) of objects that will be expanded within [DB Explorer](#)^[63] upon successful connection to the database.

See also:

[Database Explorer](#)^[63]

11.1.4.2.1 Search

Here you can set search options for DB Explorer search string:

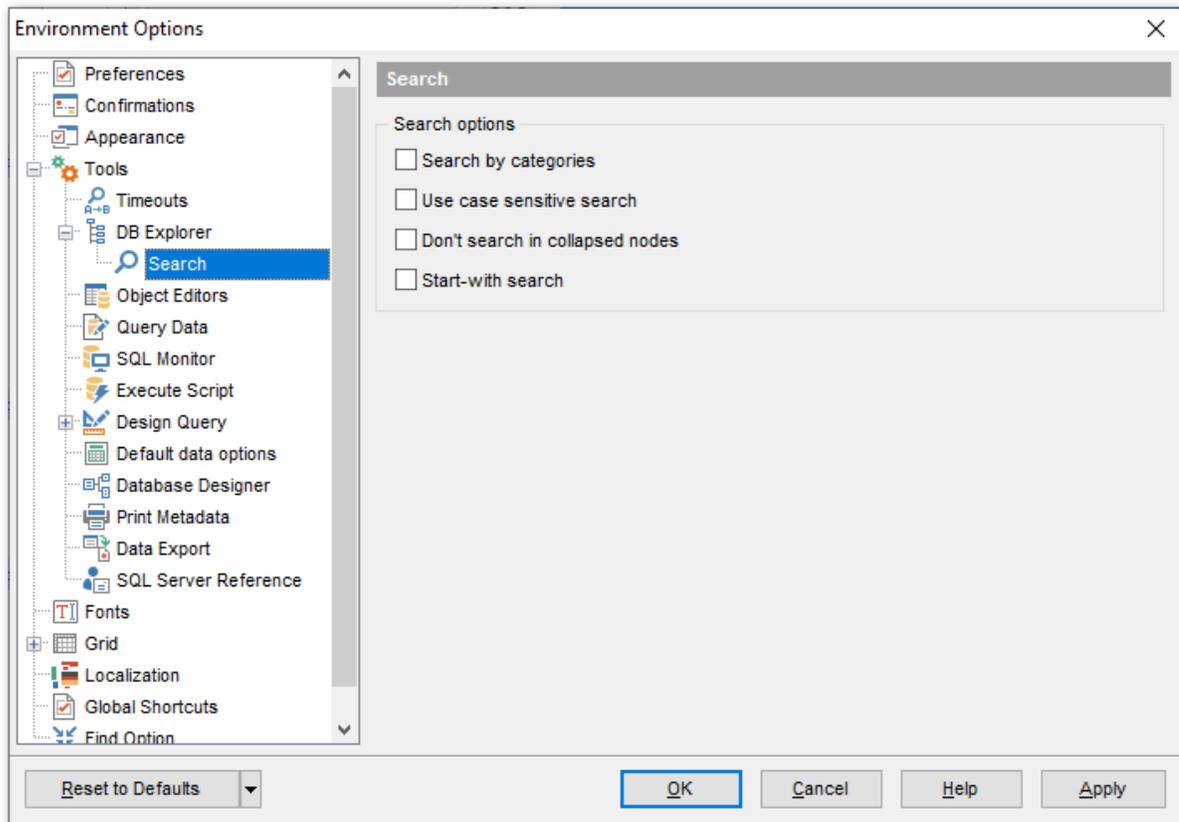


Search by categories

This option determines the search scope when the Find Item feature is used: if this option is selected, the search is performed within the currently selected category (node in the tree) only.

Use case sensitive search

If this option is selected, the search string case is considered when using the Search Panel.



Don't search in collapsed nodes

Enable the option to search within the expanded nodes only.

Start-with search

Check this option to search for objects those names begin with the defined searched string.

11.1.4.3 Object Editors

All

Convert created objects' names to lower case

Enable this option if you need to convert the names of all newly created objects to the lower case automatically.

Always open the first tab

If this option is checked, the first tab is activated by default on opening an object in its editor.

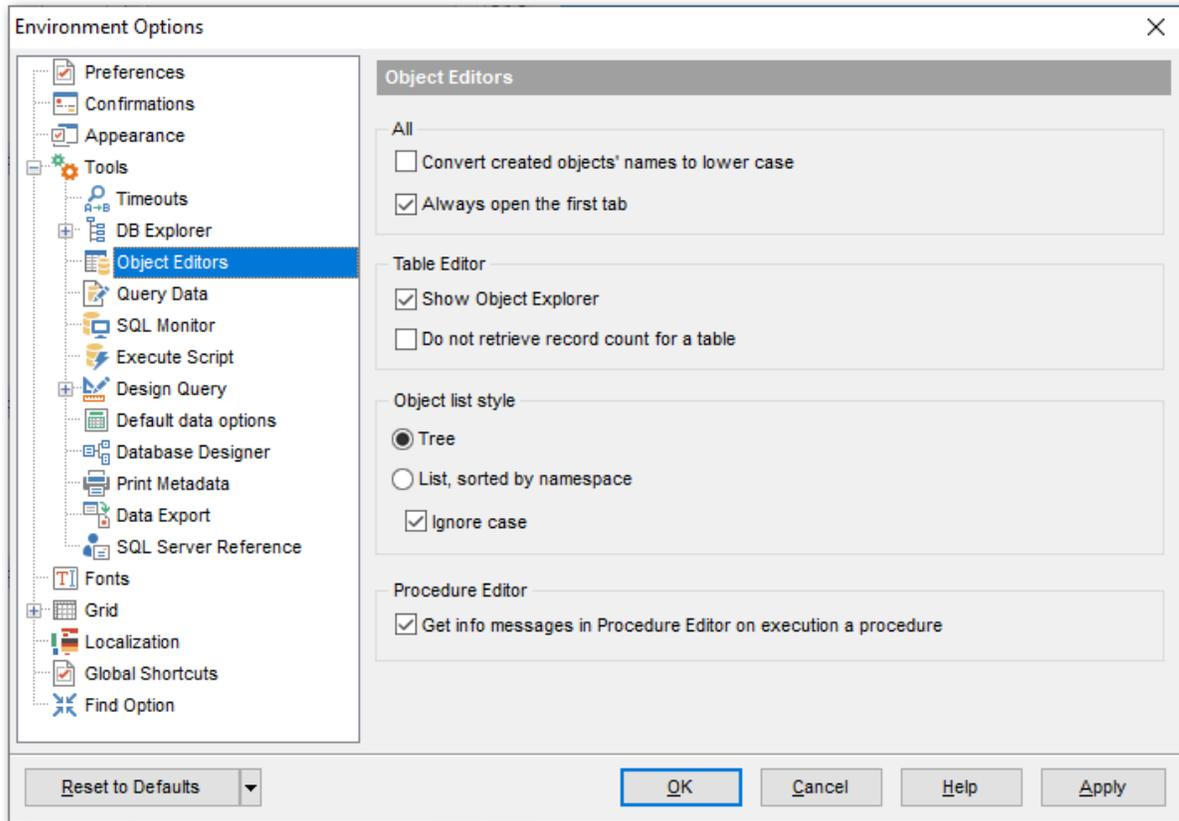
Table Editor

Show Object Explorer

Enables/disables the Object Explorer panel within the [Navigation bar](#)^[201] of [Table Editor](#)^[200].

Do not retrieve record count for a table

Check this option to disable retrieving record count for tables (with this feature enabled, opening large tables may take much time).



Object list style

These options allow you to define the style of the combo-boxes used to select database objects (e.g. *Table or view* in [Trigger Editor](#)^[237]). Objects can be represented as a *tree*, a *list sorted by namespace* or a *list sorted by name*. Use the **Ignore case** option to enable/disable case sensitive sorting.

Procedure Editor

Get info messages in Procedure Editor on execution of a procedure

This option enables/disables information messages returned upon [procedure execution](#)^[258] in [Procedure Editor](#)^[253].

See also:

[Database and Server Objects Management](#)

[178]

11.1.4.4 Query Data

Show actual execution plan on query execution

If this option is checked, the [query plan](#)^[432] is displayed automatically upon query execution in [Query Data](#)^[426].

Show result for each query

With this option checked, when you [execute](#)^[434] two or more queries (divided by "GO"), the result of each query will be displayed one by one. Otherwise, only the result of the last query will be displayed.

Show results on Edit tab

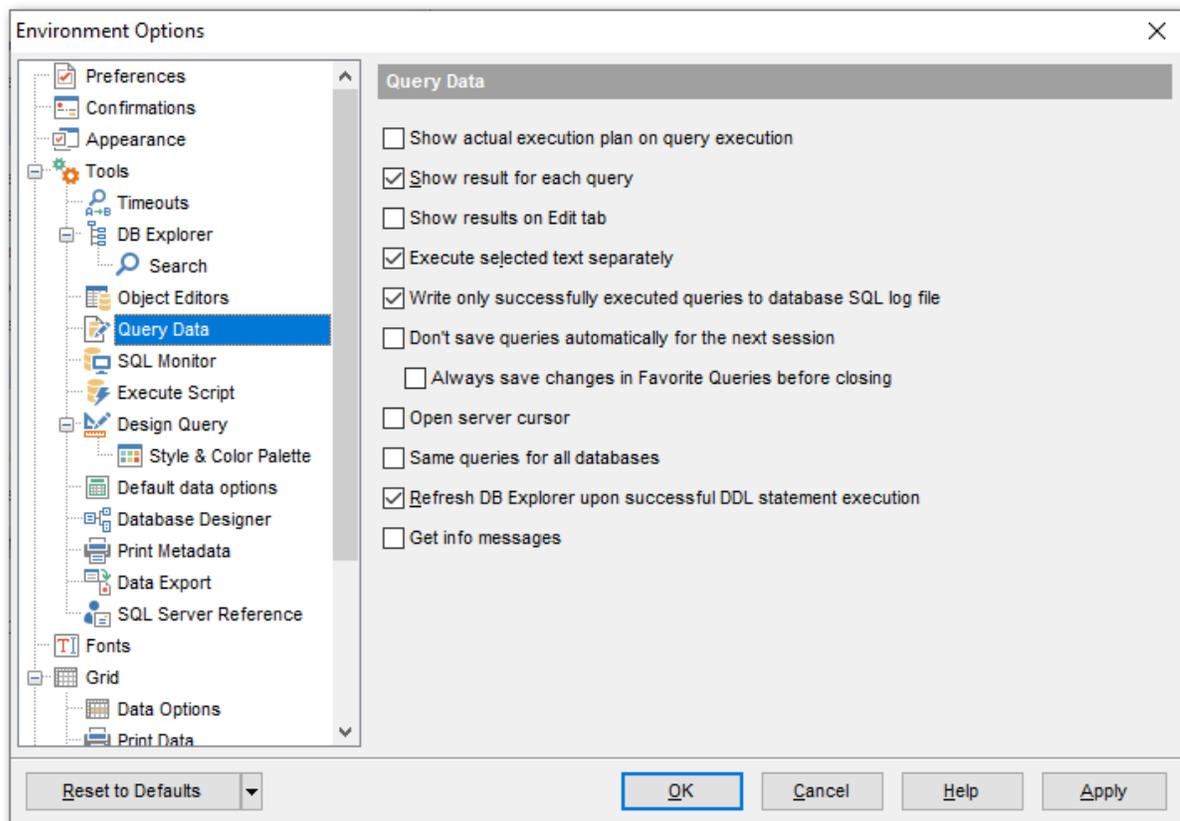
If this option is checked, the **Results** tab is displayed as a separate tab.

Execute selected text separately

Check this option to allow [execution](#)^[434] of the selected statement separately.

Write only successfully executed queries to database SQL log file

If this option is checked, unsuccessful queries will not be saved to the Query Data log file (see [Setting log options](#)^[127] in the [Database Registration Info](#)^[116] dialog).



Don't save queries automatically for the next session

If this option is checked, the SQL query text will not be saved. Otherwise, it will be saved in Windows registry and will be therefore available in the next application sessions.

Always save changes in Favorite Queries before closing

This option enables/disables saving changes in SQL queries marked as [Favorite](#)^[90] automatically upon closing the editor.

Same queries for all databases

With this option enabled, [Query Data](#)^[426] stores all queries in a shared repository, so that switching to another database does not cause loading queries of that database (applying this option does not affect currently opened copies of Query Data). The value of the option can be changed freely without any risk to lose the query repository content.

Refresh DB Explorer upon successful DDL statement execution

If this option is selected, the content of [DB Explorer](#)^[63] is refreshed each time a DDL statement is [executed](#)^[434] successfully in [Query Data](#)^[426].

Open server cursor

This option determines whether the application should attempt to open server cursor. If this option is ON, the result dataset is processed with server resources, otherwise it's processed on the client side.

Get info messages

This options enables receiving of server messages and PRINT command results.

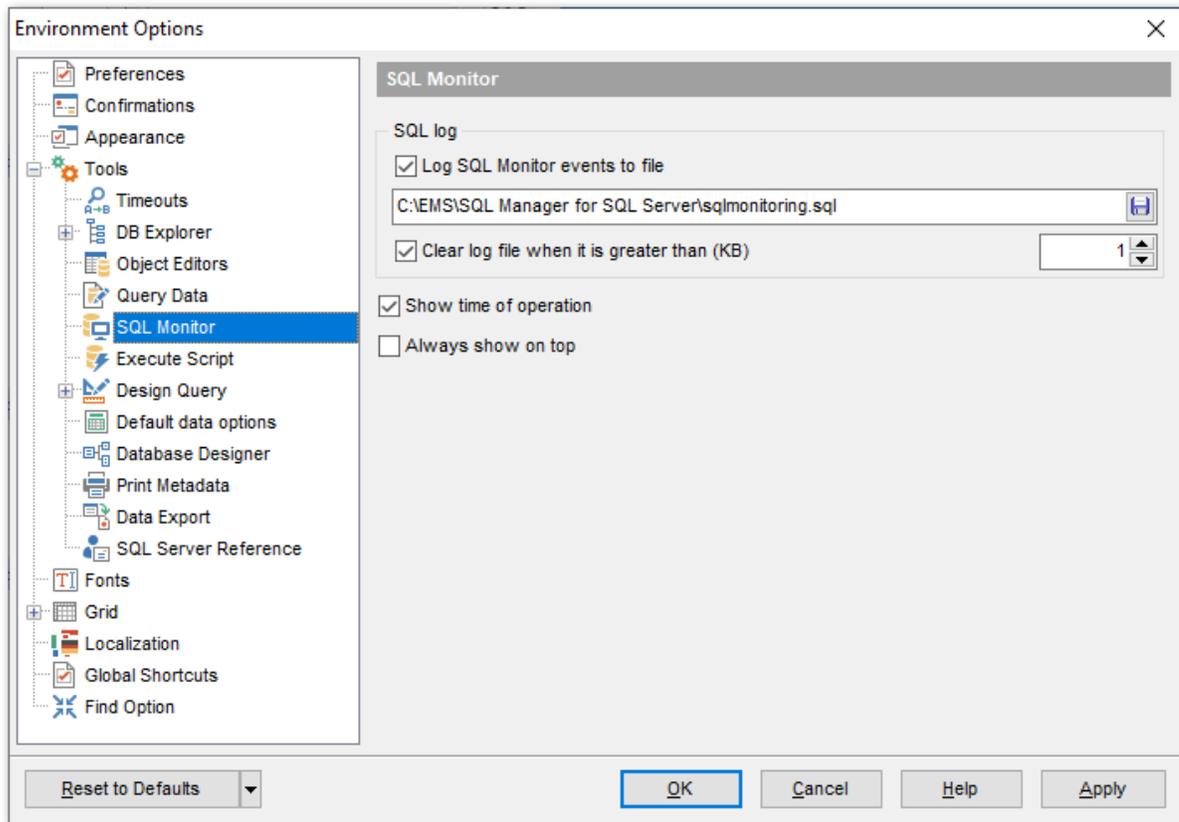
See also:

[Query Data](#)^[426]

11.1.4.5 SQL Monitor

SQL log

This group of options allows you to enable logging of all [SQL Monitor](#)^[616] events to a file. Check the **Log SQL Monitor events to file** option, specify the path to the log file using the  button, and enter a name for the *.sql file. To clear the log file after it reaches some definite size, check the **Clear log file when it is greater than...** option and set the maximum file size (in Kilobytes).



Show time of operation

If this option is checked, the execution time of logged operations is added.

Always show on top

Select this option if you want to display the [SQL Monitor](#)^[616] window in the foreground permanently.

See also:

[SQL Monitor](#)^[616]

11.1.4.6 Execute Script

Abort script execution on error

If this option is checked, script execution is aborted if an error occurs.

Show statements explorer

With this option checked, [Execute Script](#)^[619] parses the loaded script to enable fast navigation in the [Script Explorer](#)^[623] tool.

Show message when done

Displays a message box on finishing script execution.

Show info messages (slower execution)

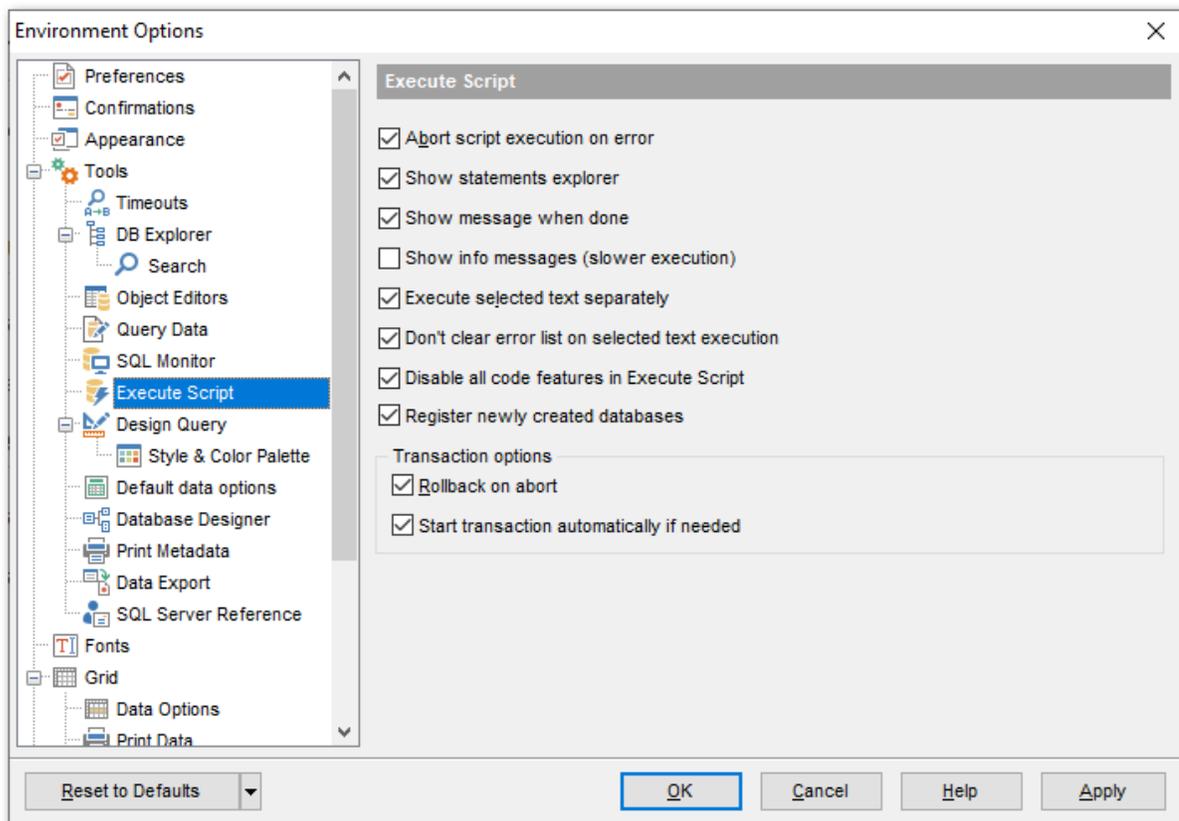
Select this option to enable information messages when working with scripts. This causes slower script execution.

Execute selected text separately

If a text fragment is currently selected in Execute Script, only this fragment is executed when you click *Execute script* on the [Navigation bar](#)^[619] or press *F9*. If this option is disabled, the whole script is executed, but you can still execute the selected fragment using the corresponding *Execute Selected Only* item of the [context menu](#)^[621] or by pressing *Ctrl+F9*.

Don't clear error list on selected text execution

If this option is checked, the error list is not cleared upon execution of the selected statement.



Register newly created databases

If a script contains the CREATE DATABASE statement, it will be registered after script execution.

Disable all code features in Execute Script

This option disables code completion, code folding, highlight and all options that are set on the [Quick Code](#)^[876] page in Execute Script. For options that are set on the [Highlight](#)^[875] page, the defaults will be applied.

Transaction options

Rollback on abort

This option is only available if the Abort script on error option is checked. This option evokes automatic rollback when script execution is aborted.

 Start transaction automatically if needed

If the option is enabled then transaction starts automatically after statements is executed. Otherwise, the BEGIN statement is required for transaction to start.

See also:

[Execute Script](#)^[619]

11.1.4.7 Design Query

General options

 Allow SELECT queries only

When this option is checked, the *INSERT*, *UPDATE* and *DELETE* statements are not allowed in [Design Query](#)^[442].

 Select condition row

Displays the selected condition in different rows on the **Criteria** and **Grouping Criteria** tabs of [Design Query](#)^[442].

 Drag column name

Displays the dragged column name in the editor area.

 Hide selection when inactive

Hides the selection when the [Design Query](#)^[442] window is inactive.

 Show column types

Displays the column data type next to the column name in the table box.

 Union all by default

Check this option to use the *UNION ALL* expression in [Design Query](#)^[442] by default. The *UNION* keyword allows you to include the results of two *SELECT* statements in one resulting table.

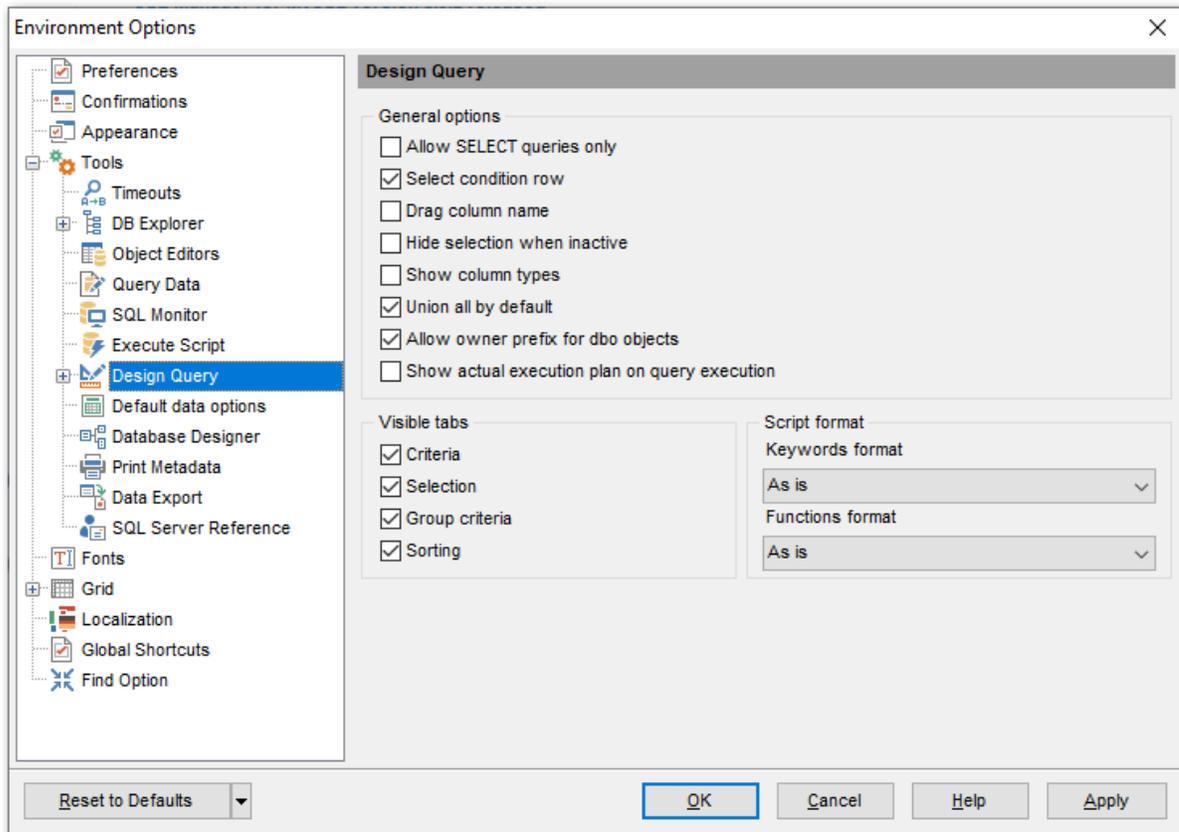
The *ALL* parameter incorporates all rows into the results, including duplicates. If not specified, duplicate rows are removed.

 Allow owner prefix for dbo objects

Adds the schema name to the table name in the 'Table' box caption (for *[dbo]* schema objects)

 Show actual execution plan on query execution

If this option is checked, the [query plan](#)^[457] is displayed within the corresponding tab of the [Design Query](#)^[442] window.



Visible tabs

These options specify which [Design Query](#)^[442] tabs are available and which are not. Use the check boxes to make the corresponding tabs visible/invisible.

Script format

These options specify case formatting of keywords and functions in query text within the [Edit](#)^[454] tab: *As is* keeps the original case, *Uppercase* sets all the keywords/functions to the upper case, *Lowercase* sets all the keywords/functions to the lower case, and *First upper* sets the first letters of all keywords/functions to the upper case.

Additionally, you can set styles and color for all **Design Query** objects by using [Style & Color Palette](#)^[842].

See also:

[Design Query](#)^[442]

11.1.4.7.1 Style & Color Palette

Style

These options specify the way various [Design Query](#)^[442] elements look: the **Condition button**: *Flat*, *3DLook*, *Raised*; **object borders**: *Bump*, *Etched*, *Raised*, *Sunken*. If necessary, you can also specify **flatness** for objects and buttons using the corresponding

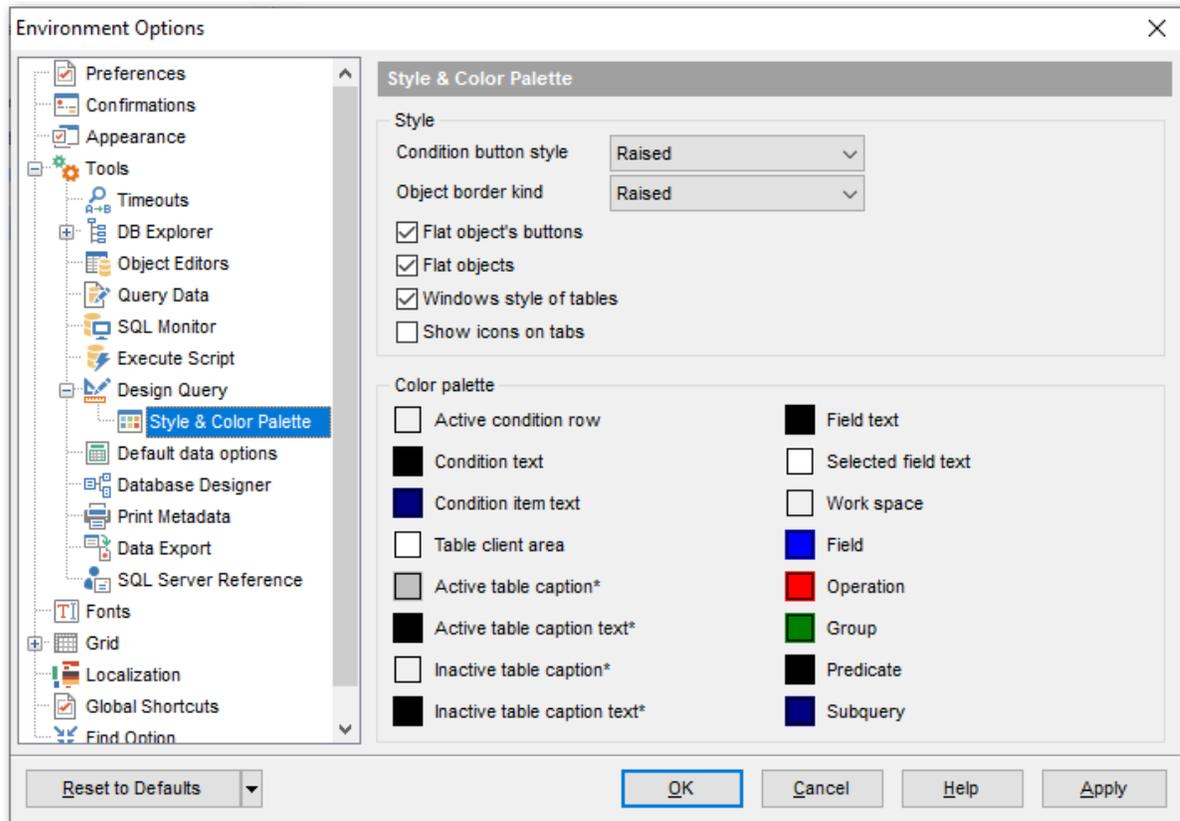
options.

XP tables style

This option determines the appearance of non-client areas of tables in [Design Query](#)^[442].

Show icons on tabs

With this option selected, you can see icons next to the tab names in [Design Query](#)^[442].



Color palette

These options define the colors of various [Design Query](#)^[442] elements.

Active condition row (at the [Criteria](#)^[448] and [Grouping criteria](#)^[452] tabs):



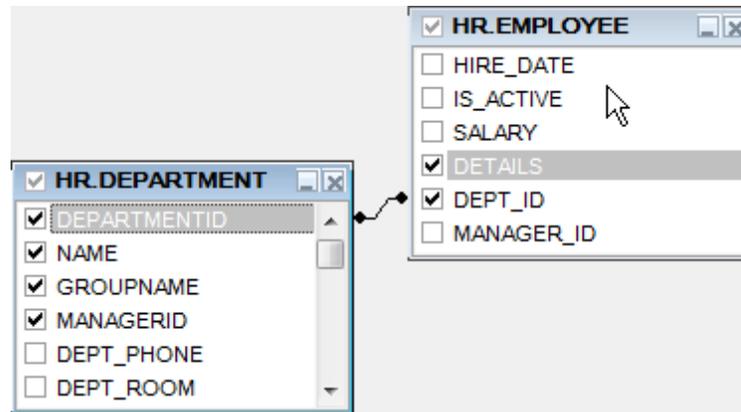
Condition text (at the [Criteria](#)^[448] and [Grouping criteria](#)^[452] tabs):



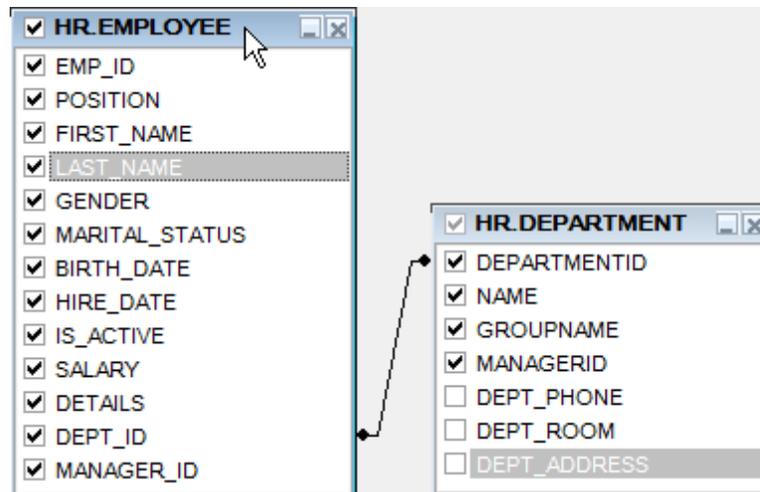
Condition item text (at the [Criteria](#)⁴⁴⁸ and [Grouping criteria](#)⁴⁵² tabs):



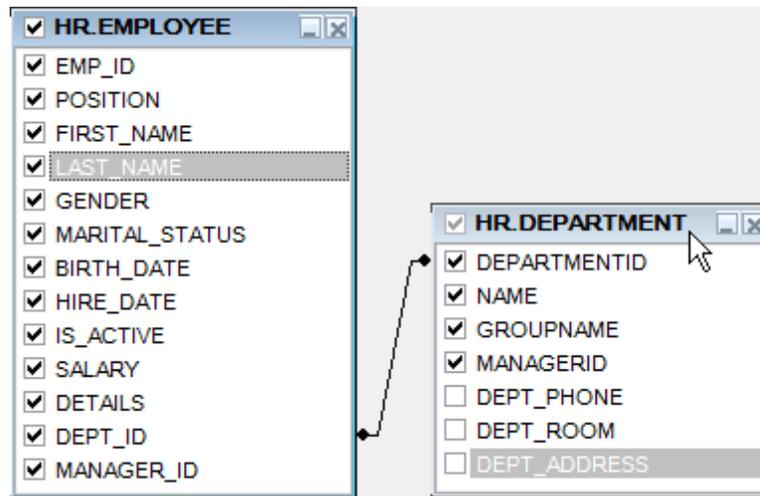
Table client area (in the [diagram area](#)⁴⁴⁴):



Active table caption (in the [diagram area](#)⁴⁴⁴):



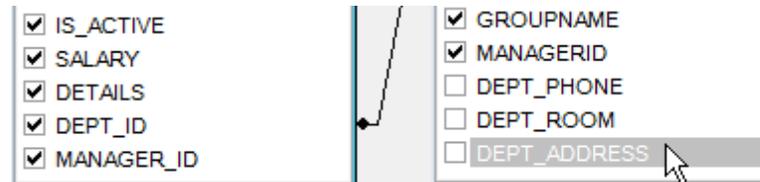
Inactive table caption (in the [diagram area](#)⁴⁴⁴):



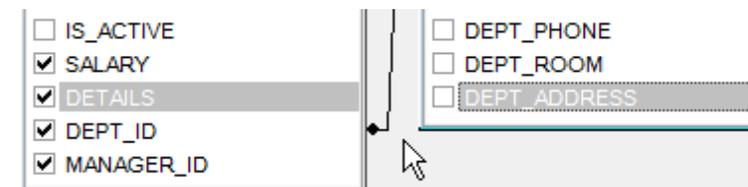
Column text (in the [diagram area](#)^[444]):



Selected column text (in the [diagram area](#)^[444]):



Work space (in the [diagram area](#)^[444]):



Column (at the [Criteria](#)^[448] and [Grouping criteria](#)^[452] tabs):



Operation (at the [Criteria](#)^[448] and [Grouping criteria](#)^[452] tabs):



Group (at the [Grouping criteria](#)^[452] tab):



Predicate (at the [Criteria](#)^[448] and [Grouping criteria](#)^[452] tabs when a [subquery](#)^[445] is used):



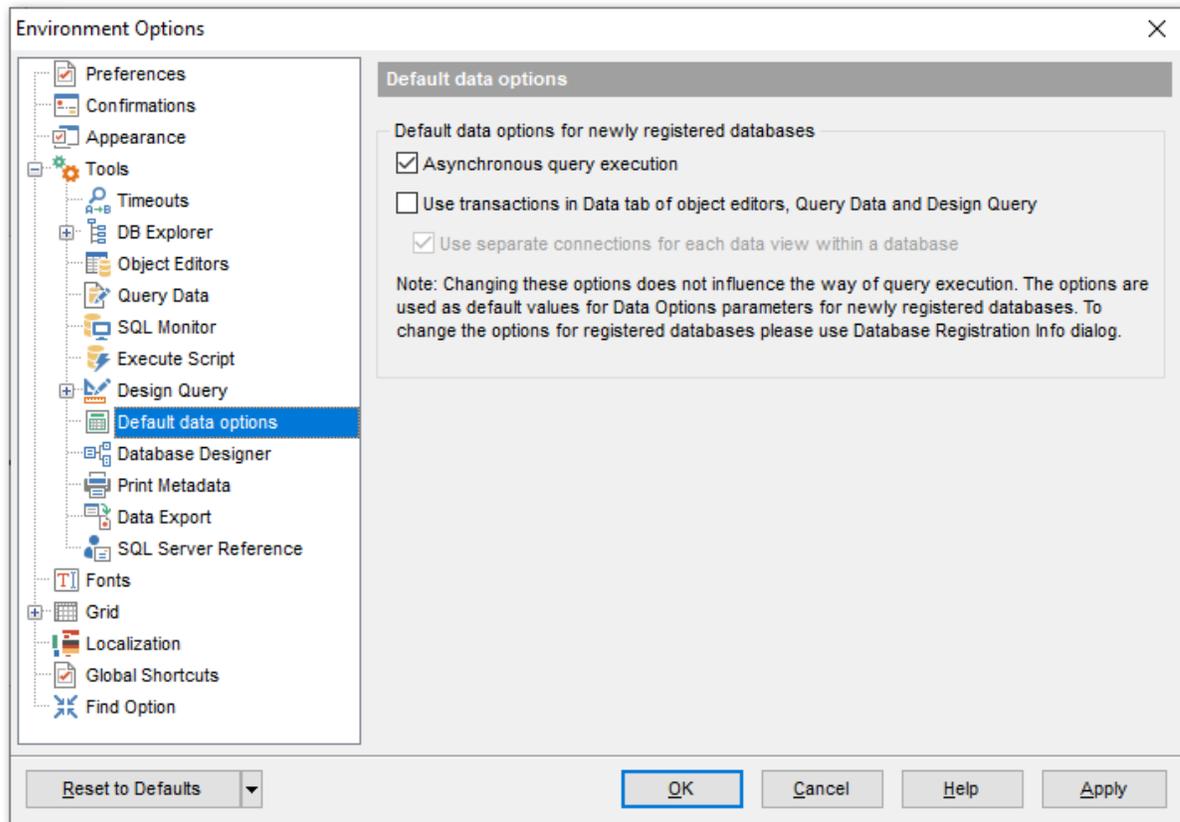
Subquery (at the [Criteria](#)^[448] and [Grouping criteria](#)^[452] tabs when a [subquery](#)^[445] is used):



Click an item to select a color for the corresponding element using the **Color** dialog where you can specify the required color from the palette.

11.1.4.8 Default Data Options

Default data options for newly registered databases



Asynchronous query execution

Check this option to allow executing queries in background mode (asynchronously).

Use transactions in Data tab of object editors, Query Data and Design Query

If this option is enabled, a transaction is active until the 'Data' tab is closed or the 'Commit' button is pressed; all edited records are blocked until the transaction is committed. If this option is disabled, the transaction starts and is immediately committed (autocommit) on saving each record which is blocked only for a short period of time.

Use separate connections for each data view within a database

Uncheck this option to use separate connection for each data view within a database. Note that this option is only available when the *Use transactions in Data tab of object editors, Query Data and Design Query* option is enabled.

11.1.4.9 Database Designer

Visual settings

Automaticalliy open last diagram file

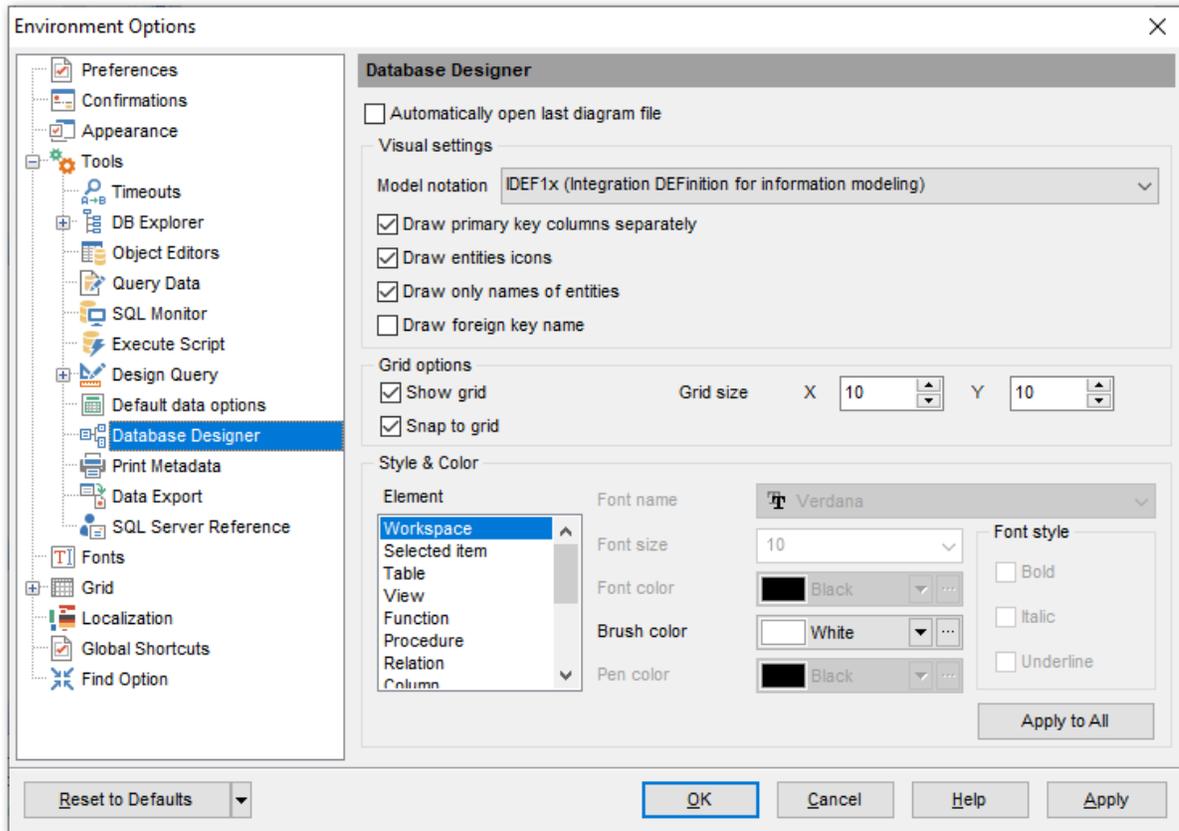
Allows to load the diagram from last loaded file.

Model notation

When you work in [Database Designer](#)⁶⁹⁵, you can choose one of the following modeling notations:

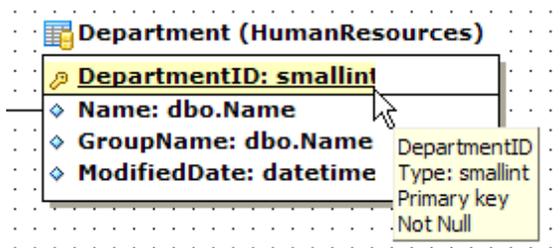
- Integration DEFinition for Information Modeling (IDEF1X);
- Information Engineering (IE).

The *IDEF1X* and *IE* notations use different symbols to represent relationships between entities (and tables).



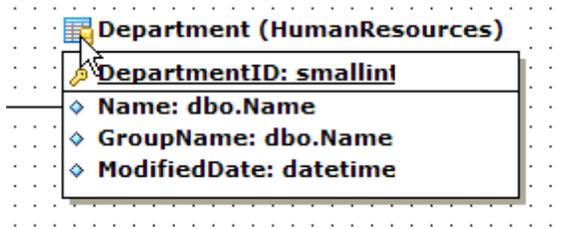
Draw PRIMARY KEY columns separately

Separates Primary key columns from other columns with a horizontal line.



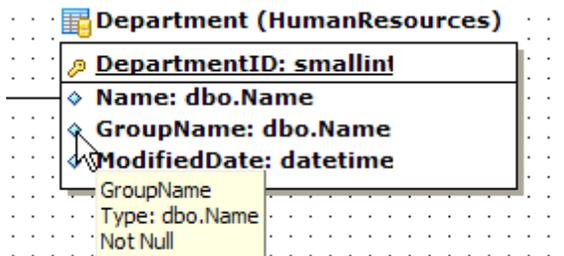
Draw entities icons

Displays icons at the left of each entity header according to its type.



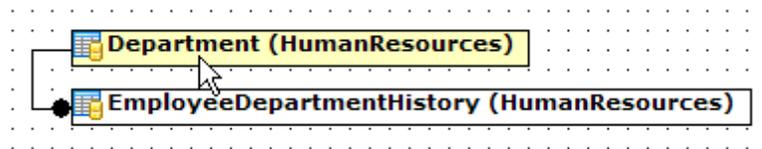
Draw attributes icons

Displays icons at the left of each attribute according to its type (Primary key, Foreign key, ordinary column).



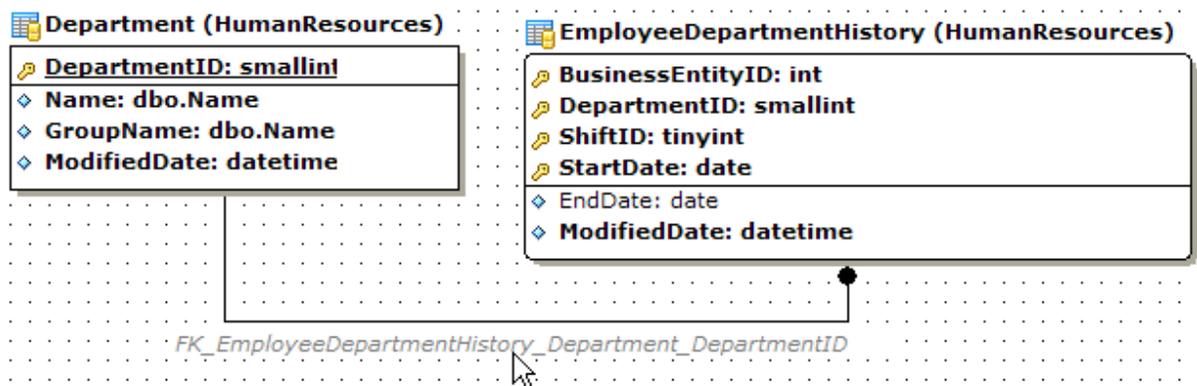
Draw only names of entities

Displays only entity headers, columns are hidden.



Draw FOREIGN KEY name

Displays foreign key names for the corresponding relations.



Draw page borders

Displays borders on the diagram page which are the borders used when printing pages with the diagram.

Grid options

Show grid

Displays dots in the diagram area to make the grid visible.

 Snap to grid

Automatically aligns entities on the form with the nearest grid line. You cannot place an entity in between grid lines.

Grid size

Sets grid spacing in pixels along the x- and y-axes. Specify a higher number to increase grid spacing.

Entity header font

Select a font type and size to display entity headers.

Attributes font

Select a font type and size to display attributes.

Additionally, you can set color for all [VDBD⁶⁹⁵](#) diagram objects using the **Style and Color** section.

This section allows you to customize the default appearance of the diagram.

Select a diagram element from the list:

- Workspace
- Selected item
- Table
- View
- Function
- Procedure
- Relation
- Column
- Primary key
- Unique column
- Foreign key
- Autoincrement column
- Not null column
- Comment

Then you can specify the following style settings for each element:

- *Font name*
- *Font style*
- *Font size*
- *Font color*
- *Brush color*
- *Pen color*

See also:

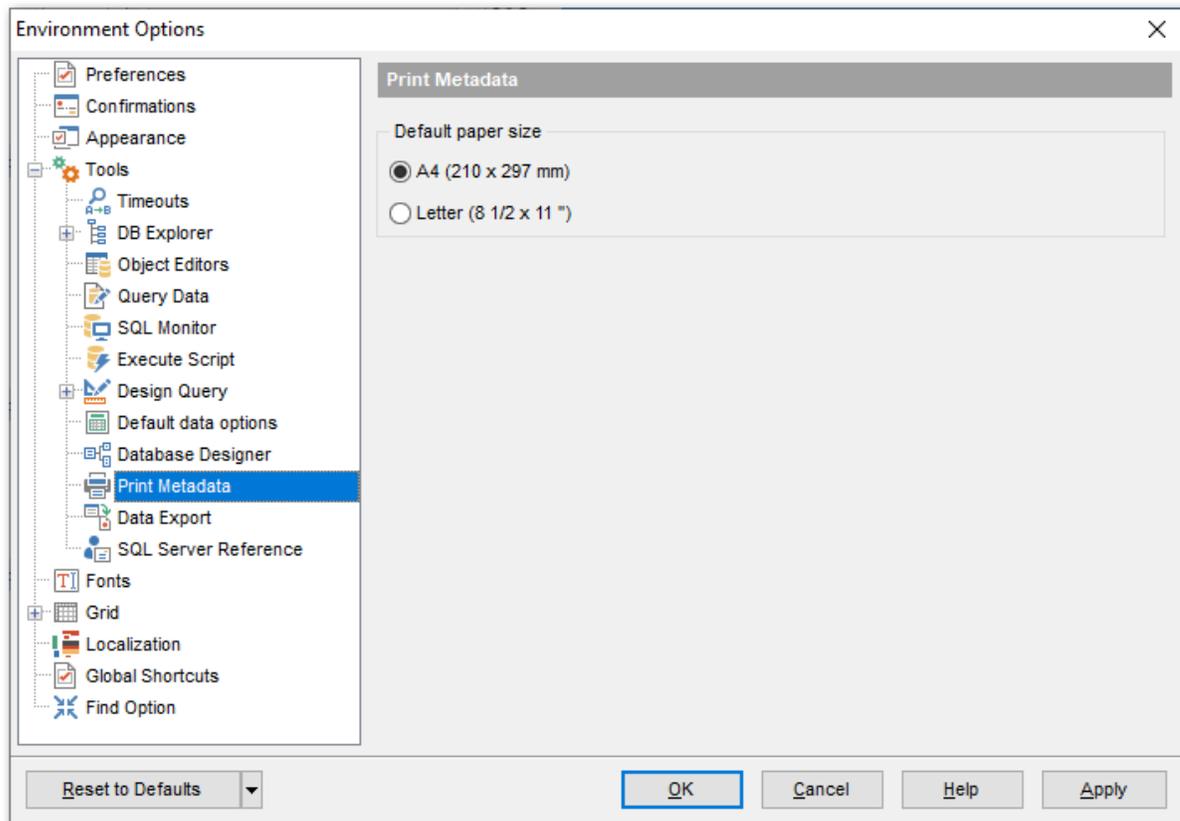
[Visual Database Designer⁶⁹⁵](#)

11.1.4.10 Print Metadata

Default paper size

Define the default paper size for reports created with the [Print Metadata](#)^[643] tool used:

- A4 (210 x 297 mm)
- Letter (8 1/2 x 11 ")

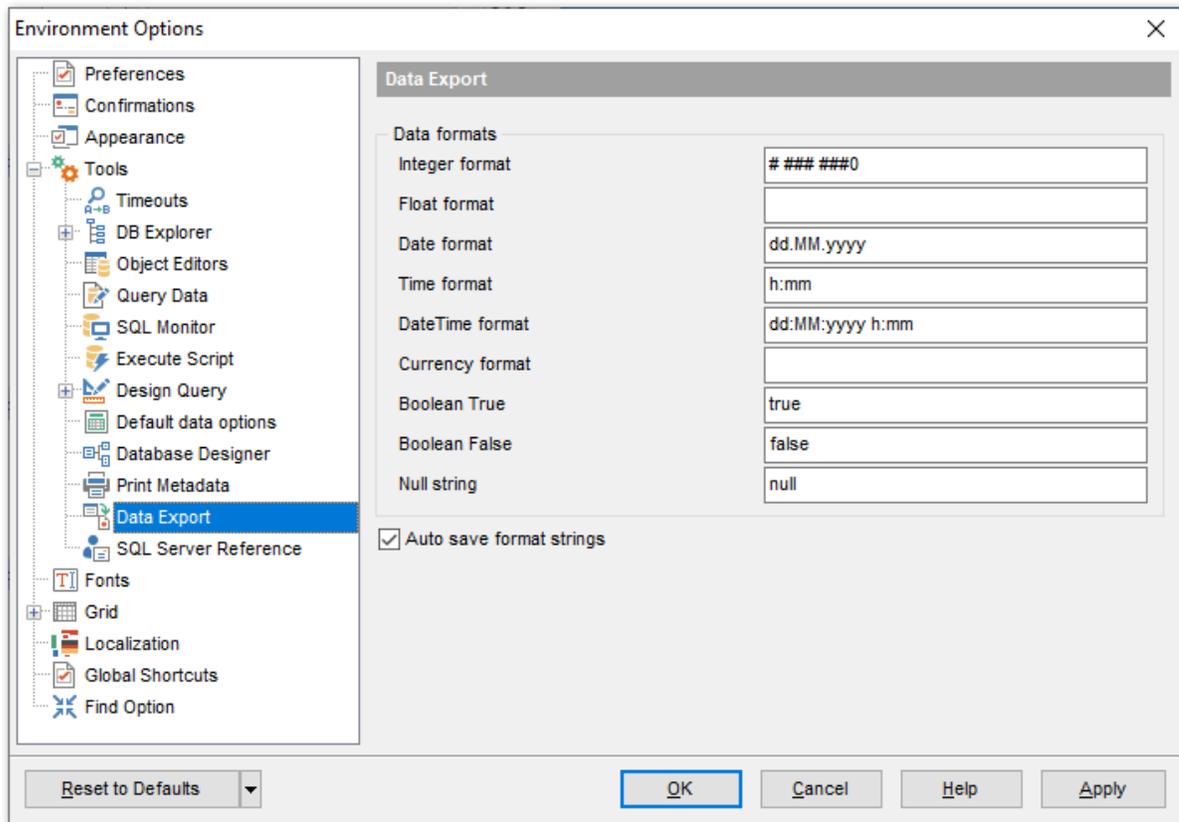


See also:

[Print Metadata](#)^[643]

11.1.4.11 Data Export

This page allows you to customize formats applied to [exported](#)^[537] data.



Data formats

Edit the format masks to adjust the result format in the way you need: *Integer format*, *Float format*, *Date format*, *Time format*, *DateTime format*, *Currency format*, *Boolean True*, *Boolean False*, *Null string*.

Auto save format strings

Select this option to save specified format strings automatically.

These settings can also be specified at the [Adjusting data formats](#)^[534] step of [Export Data Wizard](#)^[531].

For more details see [Format specifiers](#)^[930].

See also:

[Export Data Wizard](#)^[531]

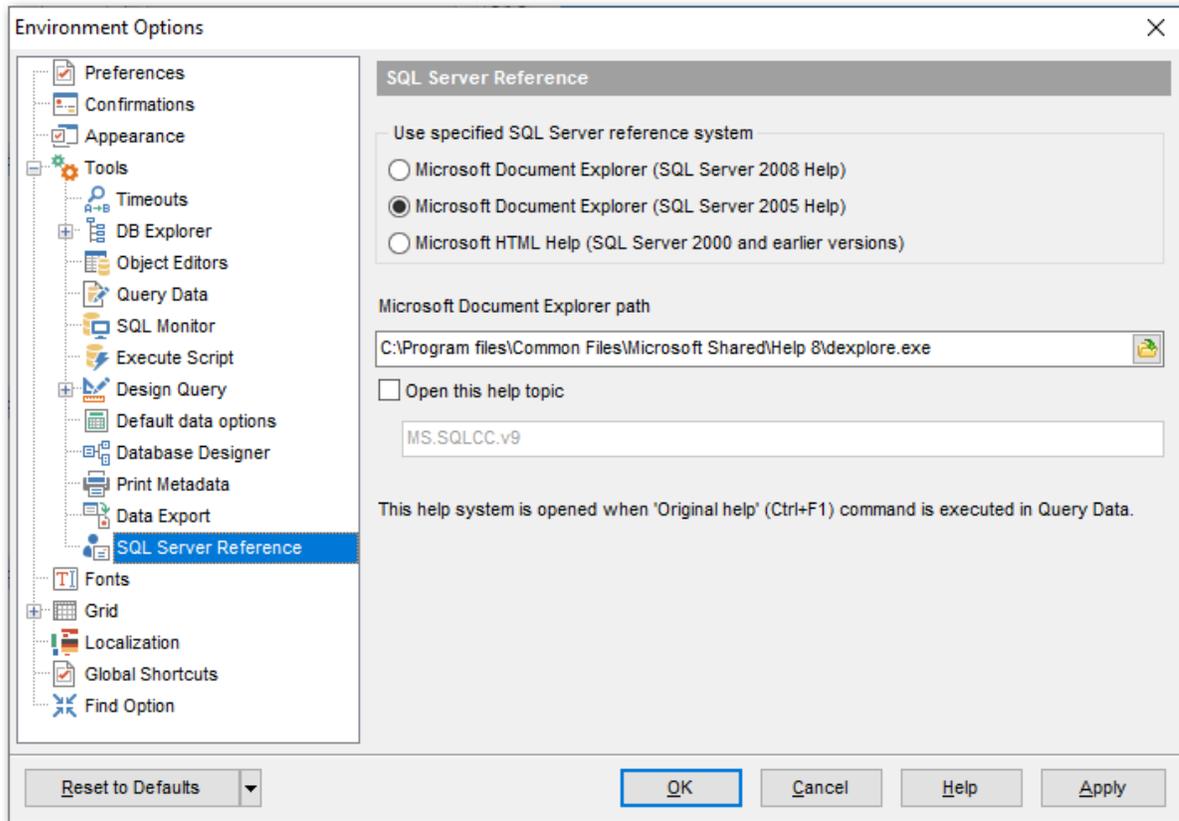
11.1.4.12 SQL Server Reference

Using this page you can set which Microsoft® SQL Server™ reference system will be further used in SQL Manager for SQL Server:

- Microsoft Document Explorer (SQL Server 2008 Help)*
- Microsoft Document Explorer (SQL Server 2005 Help)*

- Microsoft HTML Help (SQL Server 2000 and earlier versions)

For SQL Server 2005/2008 documentation you should also specify the location of **Microsoft Document Explorer**: use the  button to browse for the file on your hard disk.

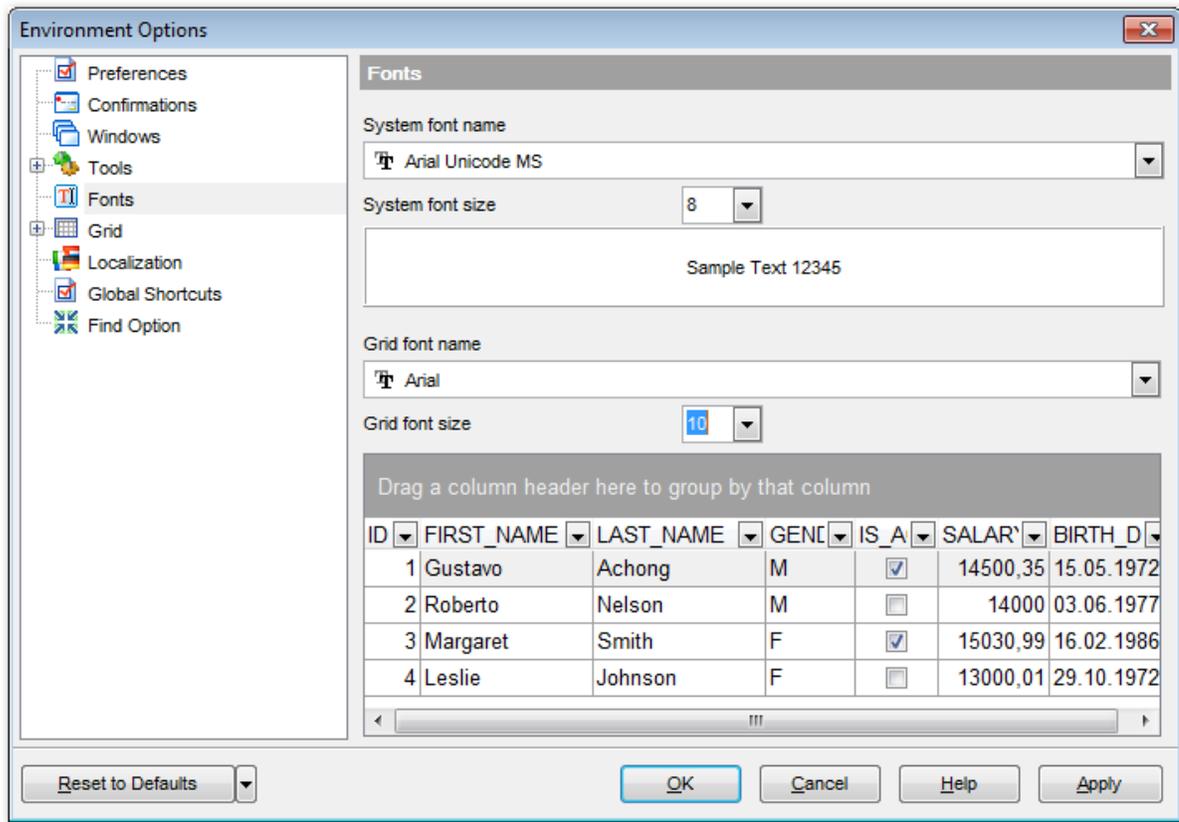


Optionally you can set the help topic to be opened by default at the help system startup. To do so, check **Open this help topic** and enter the help topic identifier in the editable area below.

11.1.5 Fonts

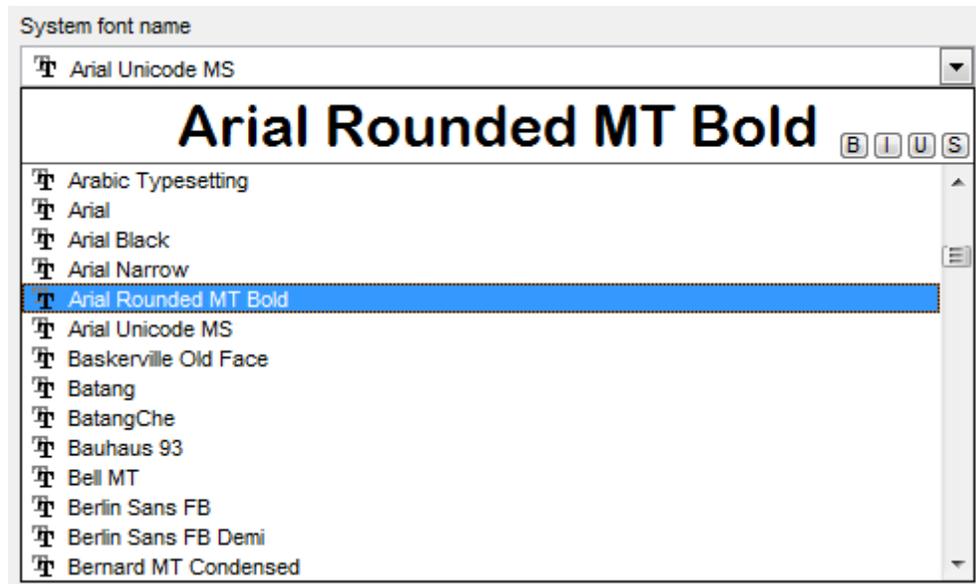
This section of the **Environment Options** dialog allows you to specify fonts used in the application.

The box below displays the *sample text* with the selected font applied.



System font name

Defines the font used by SQL Manager for SQL Server. Select the font name from the drop-down list of available system fonts.



System font size

Defines the font size used by SQL Manager for SQL Server. Type in or use the drop-down list to select the required value.

Grid font name

Defines the font used for displaying data in the [Data Grid](#)^[465]. Select the font name from the drop-down list of available system fonts.

Grid font size

Defines the font size used for displaying data in the [Data Grid](#)^[465]. Type in or use the drop-down list to select the required value.

In the sample grid you can view how the data grid will look like with the configured font.

11.1.6 Grid

General options

 Striped grids

Displays the odd grid rows in a different color defined by the **Strip** option available on the [Color & Formats](#)^[860] page.

 Show editor immediately

Allows editing the cell value right after the cell is clicked.

 Always show editor

Set this option to make the cell editors always active.

 Enable auto-search in grid

If this option is checked, the cursor is automatically forwarded to the closest match when you start typing.

 Row multi-selection

With this option set, multiple rows can be selected in [grid](#)^[465].

 Invert selection

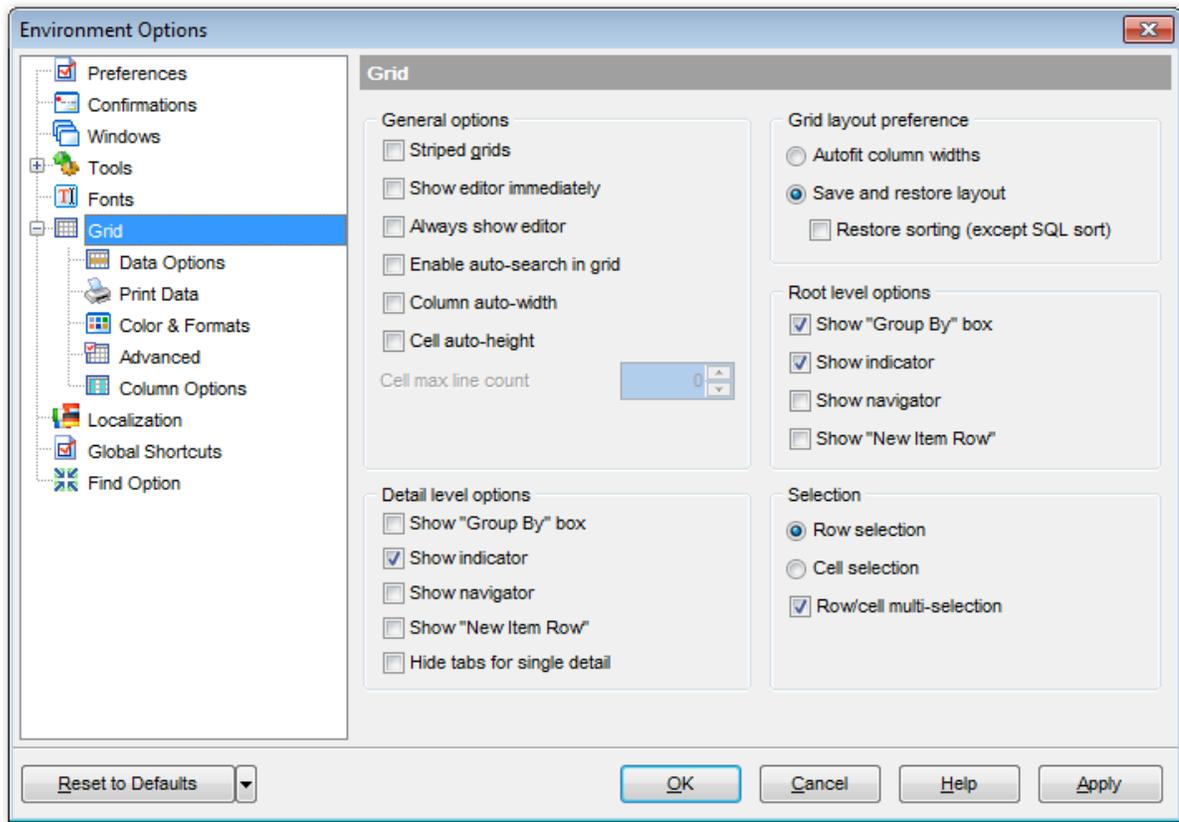
Determines whether a single cell within the focused row or the entire row is highlighted when focused.

 Column auto-width

With this option set, column widths are changed in order to display all columns without using the horizontal scroll bar. If the content a column is still too large to display without a need to resize the grid, then the column values are truncated and the hidden characters are replaced with an ellipsis at the end.

 Cell auto-height

If the widths of the columns are insufficient to display the full content, then text clipping occurs. Set this option to prevent this. If this option is set, the cell content is displayed in multiple lines where necessary. You can set the number of lines to display using the **Cell max line count** option.



Grid layout preference

Autofit column widths

Use this option to shrink the grid columns so that the longest visible column value fits.

Save and restore layout

Use this option to keep the original grid width. Check the **Restore sorting** option to apply defaults to sorting (except for SQL sorting) as well.

Root level options

These options are applied to the [main view](#)^[473] of the grid. See [Grid View](#)^[465] for details.

Detail level options

These options are applied to the [detail view](#)^[473] of the grid. See [Grid View](#)^[465] for details.

Show "Group by" box

Displays the gray area above the column caption allowing one to [group](#)^[467] data in the grid.

Show indicator

Activates/deactivates the row indicator pane at the left.

DEPAR	NAME	GROUPNAME	MANAG
1	Administration	Executive General and Administration	4
2	Marketing	Sales and Marketing	7
3	Purchasing	Sales and Marketing	12
4	Human Resources	Executive General and Administration	35

Show navigator

Activates/deactivates the data navigator similar to the [navigation pane](#)^[464] at the top of the grid. The navigator is available at the bottom of detail level view.

DEPAR	NAME	GROUPNAME	MANAG
1	Administration	Executive General and Administration	4
2	Marketing	Sales and Marketing	7
3	Purchasing	Sales and Marketing	12
4	Human Resources	Executive General and Administration	35

Show "New item row"

Displays an empty row at the bottom of a view which is a convenient way for adding data to the grid.

Hide tabs for single detail

This option is useful when only one view is present on the detail level. When the option is enabled, the view tab is hidden.

Selection

If the **Row selection** is selected then the whole record in the table is selected in the table on clicking the cell. Otherwise, only the clicked cell is selected (**Cell selection** option).

Check the **Row/cell multi-selection** option to enable the selection of multiple cells or rows in the grid with the *Shift* button.

See also:

[Grid View](#)^[465]

11.1.6.1 Data Options

Limit options in table and view editors

Define the number of records to be selected on opening the **Data** tab of [Table Editor](#)^[200] and [View Editor](#)^[246]:

- Select all records from a table**
- Select only ... records** (you should set the number of records using the corresponding spinner control)

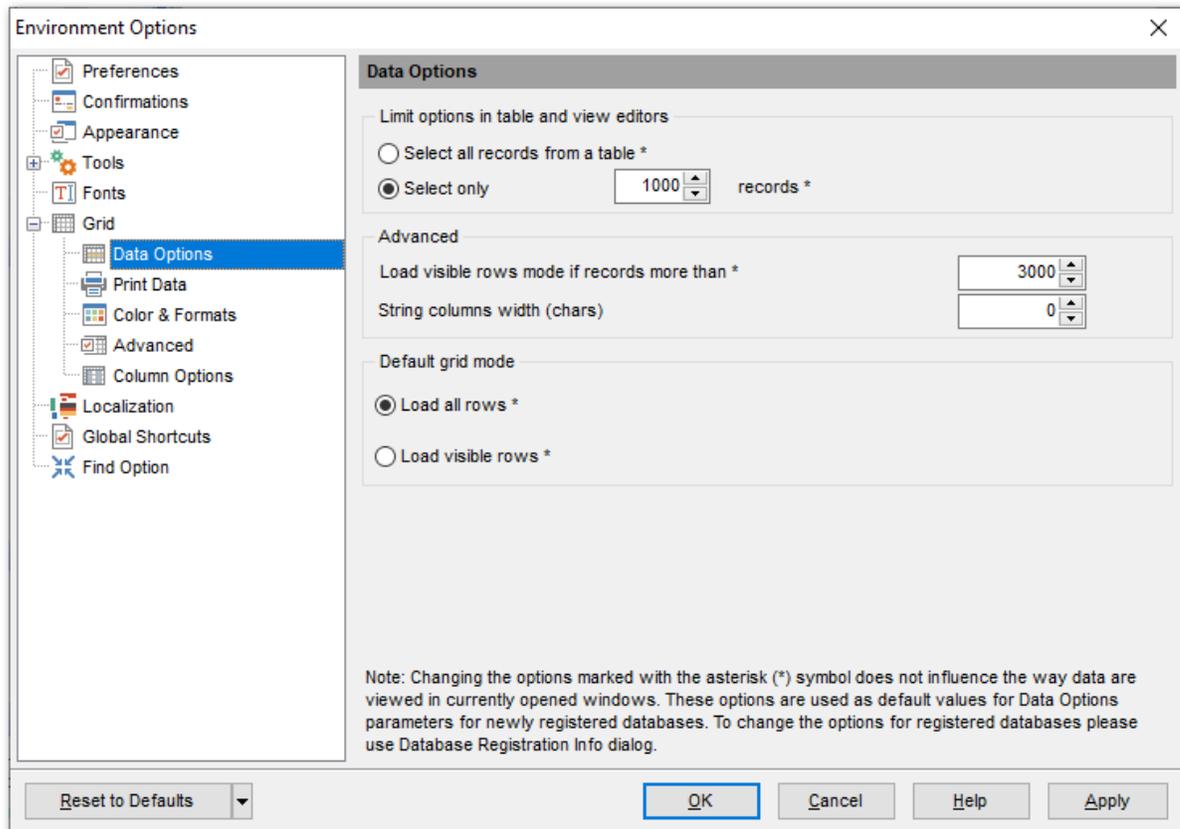
Advanced

Load visible rows mode if records more than...*

Set this option to switch to the **Load visible rows** mode when the number of records in the dataset exceeds the specified value.

String columns width (chars)

Using this option you can limit string columns width that may improve performance on large datasets.



Default grid mode

Load all rows*

The grid loads all records from a dataset. This option increases the grid performance by reloading only changed dataset records when updating. In this mode all features (automatic sorting, filtering and summary calculations) are available.

Load visible rows*

The grid loads only a fixed number of dataset records into memory. This option minimizes dataset loading time. Automatic sorting, filtering, summary calculations are not available in this mode.

The **Default grid mode** options allow you to define the grid mode which will be used by default.

With the **Load all rows** option enabled, when loading data, all the records are loaded into grid buffers. In this mode opening the tables with many records may take a considerable amount of time. But in this case you can make use of some advantages: in the filter drop-down list the column headers are displayed with the values for quick filtering; it is possible to open several sub-levels at the same time when viewing data in master-detail view, etc.

In case opening and other operations with an object consisting of many records takes sufficient time, the **Load visible rows** mode should be used instead. It can be set individually for each table and saved between sessions (can be set through the [context menu](#)^[472] of the grid).

Note: Changing the options marked with the asterisk (*) sign does not affect the way data are viewed in currently opened windows. These options are used as default values for Data Options parameters for newly registered databases. To change the options for registered databases, please use the [Database Registration Info](#)^[123] dialog.

See also:

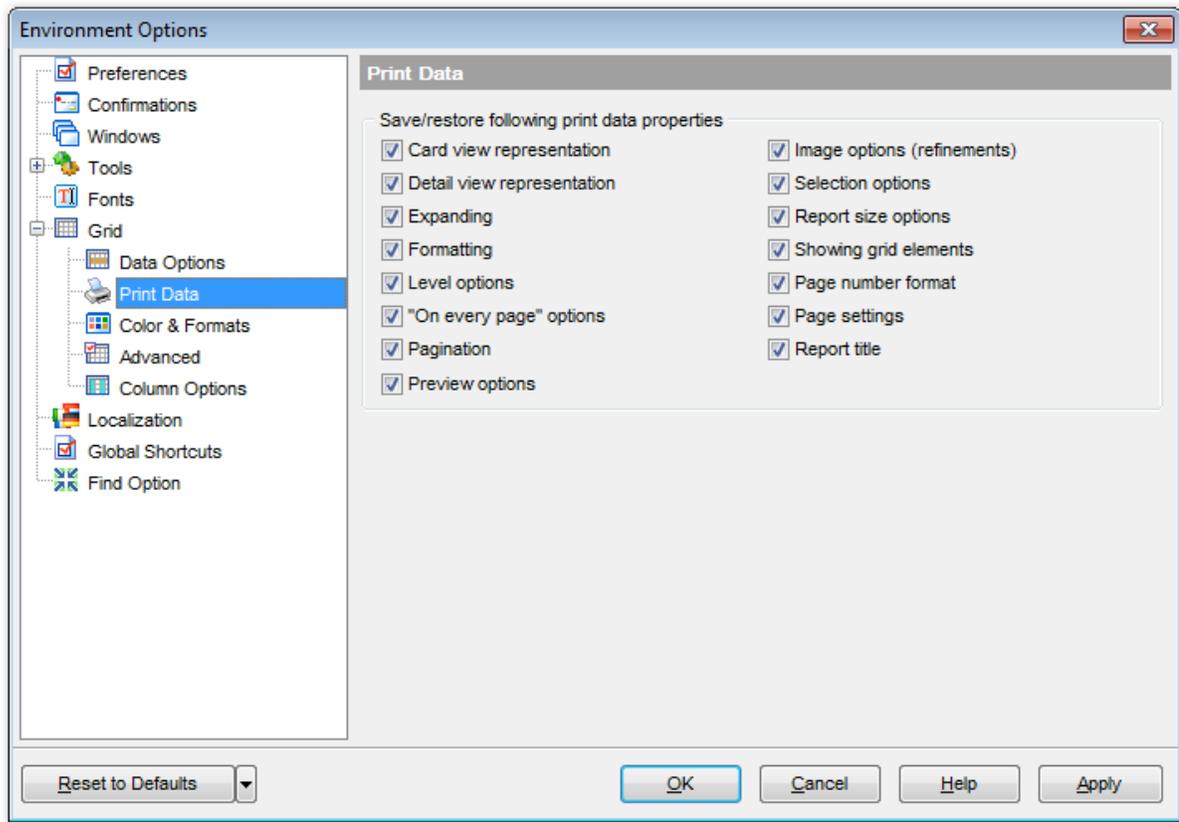
[EMS SQL Manager FAQ](#)^[31]

11.1.6.2 Print Data

Save/restore following print data properties

These options specify which [Print Data](#)^[485] properties will be saved between work sessions (e.g. if you tick off the *Page settings* item, those settings will be saved and stored between the sessions).

You can save/restore the following **Print Data properties**: *Card view representation, Detail view representation, Expanding, Formatting, Level options, "On every page" options, Pagination, Preview options, Image options, Selection options, Report size options, Showing grid elements, Page number format, Page settings, Report title.*



11.1.6.3 Color & Formats

Display formats

Integer columns

Defines the format for displaying *TINYINT*, *SMALLINT*, *INTEGER* and *BIGINT* columns.

Float columns

Defines the format for displaying *FLOAT*, *DOUBLE* and *DECIMAL* columns.

Datetime columns

Defines the format for displaying *DATETIME* columns.

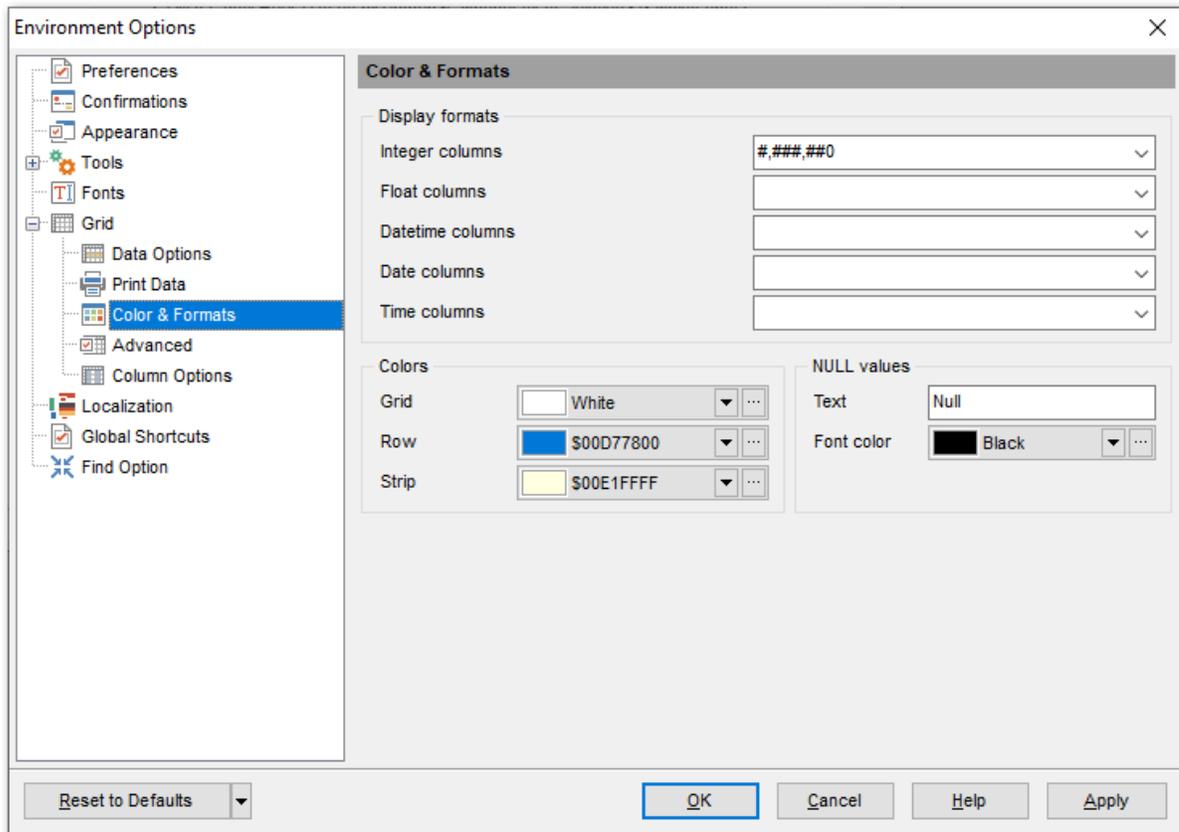
Date columns

Defines the format for displaying *DATE* columns.

Time columns

Defines the format for displaying *TIME* columns.

For more information refer to the [Format specifiers](#)^[930] page.



Colors

Options of this group allow you to set colors for basic [grid](#)^[465] elements. Use the ellipsis  button to open the **Color** dialog allowing you to select the required color from the palette.

Grid

Defines the background color of the data grid.

Row

Defines the color of the selected row in the data grid.

Strip

Defines the color of the odd rows (applied if the **Striped grids** option is set on the [Grid](#)^[855] page).

NULL values

Text

Defines the text that stands for NULL values in [grid](#)^[465].

Font color

Defines the font color for displaying NULL values in the [grid](#)^[465]. Use the ellipsis  button to open the **Color** dialog allowing you to select the required color from the palette.

11.1.6.4 Advanced

Advanced options

Cell hints for clipped text

Indicates whether a hint box is displayed when hovering over a cell containing clipped text.

Focus cell on cycle

Determines whether the focus moves to the next row after it reaches the right-most cell within the current row.

Focus first cell on new record

Determines whether the focus moves to the first cell of a newly created row.

Next cell on pressing Enter

Determines whether the current view columns can be navigated by using the **Enter** key.

Show navigator hints

Indicates whether a hint box is displayed when hovering over navigation buttons.

MRU list in column filter

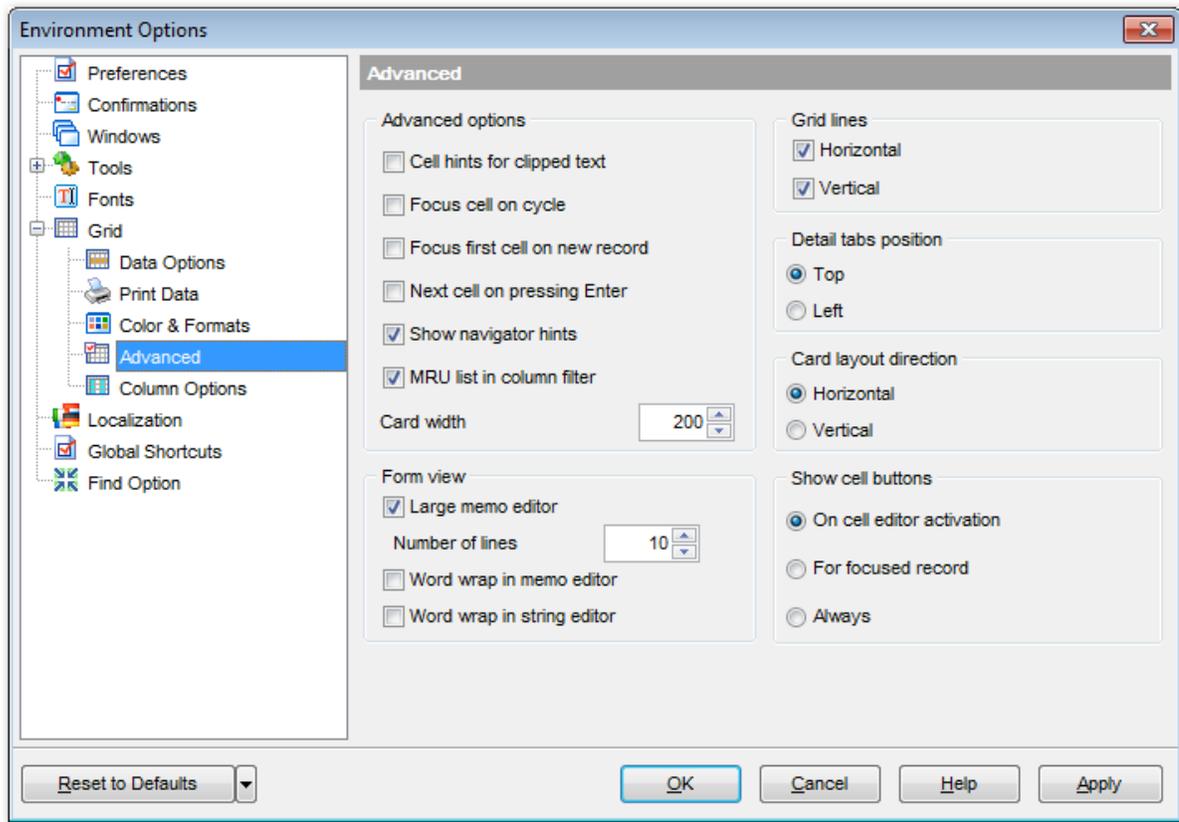
Enables showing of *Most Recently Used* items when filtering columns.

Expand buttons for empty details

Specifies whether to display expand buttons within master rows that do not have associated details.

Card width

Defines the width of the card used in [Card View](#)⁴⁸¹ mode.



Form view

Large memo editor

Sets the number of lines for text-typed columns when viewing data in [Form view](#)^[484].

Word wrap in memo editor

Determines whether long strings are wrapped within the memo editor area.

Word wrap in string editor

Determines whether long strings are wrapped within the string editor area.

Grid lines

Determines whether to display *vertical* and *horizontal* lines between cells.

Detail tabs position

Specifies the position of the tabs in detail level views: *top* or *left*.

Card layout direction

Specifies the direction of cards in Card View mode: *horizontal* or *vertical*.

Show edit buttons

Indicates when the edit buttons are displayed: *never*, *for focused record* or *always*.

11.1.6.5 Column Options

Common options

Auto-select text

Determines whether all text within an editor is automatically selected when the editor gets focus.

Hide selection on losing focus

Determines whether the visual indication of the selected text remains when the editor loses focus.

Memo editor options

Inserting Return characters

Specifies whether a user can insert return characters into text.

Inserting Tab characters

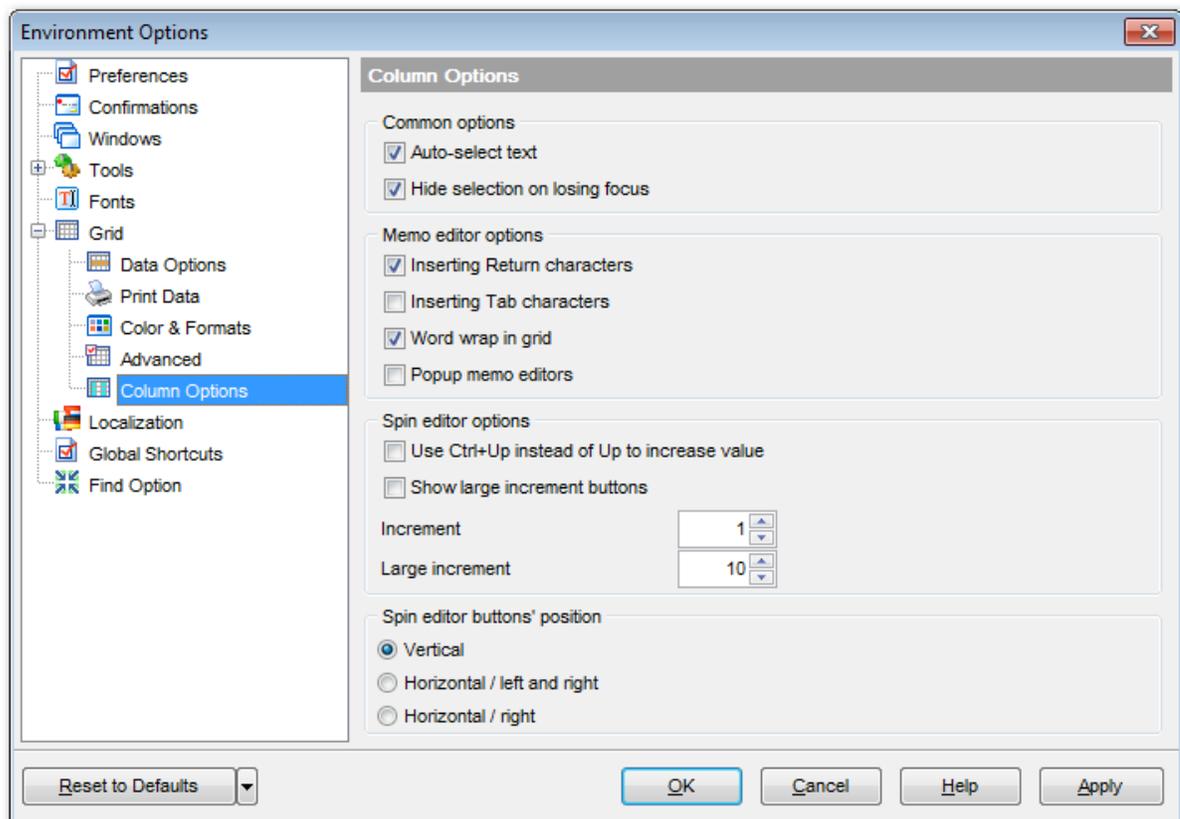
Specifies whether a user can insert tab characters into text.

Word wrap in grid

Determines whether long strings are wrapped in grid.

Popup memo editors

Turns on popup memo editors for text BLOB type fields.



Spin editor options

Use Ctrl+Up instead of Up to increase value

Allows you to use *Ctrl+Up* and *Ctrl+Down* key combinations for editing spinner values (for *INTEGER* column values).

Show large increment buttons

Determines whether fast buttons (for large increment) are visible within the editor.

Increment

Specifies the increment value for the spin editor (spinner control).

Large increment

Specifies the large increment value for the spin editor (spinner control).

Spin editor buttons' position

Specifies the position of spin editor (spinner control) buttons: *vertical, horizontal / left and right* or *horizontal / right*.

11.1.7 Localization

The **Localization** section of the **Environment Options** dialog is provided for managing the localization files of SQL Manager for SQL Server.

You can create your own **.lng* files similar to those available in the *%program_directory%\Languages* folder, add them to the list of available languages and set the new language as the program interface language.

Default directory

Use the  **Explorer** button to specify the directory where the **.lng* files are to be stored by default.

Choose program language

Use the drop-down list of available languages to select the interface language to be applied to the application.

Auto scan languages on startup

When checked, the directory with localization files will be scanned automatically at the application startup; all the languages found will be added to the list of available languages.

Available Languages

Lists all the languages available for localization and the corresponding **.lng* files. Double-click a language in the list to edit its name or the **.lng* file.

Add Defaults

This button is used to search for **.lng* files in the **Default directory** and add all of them to the **Available Languages** list.

Add

Opens the [Add language](#)  dialog where you can specify your own localization file and set

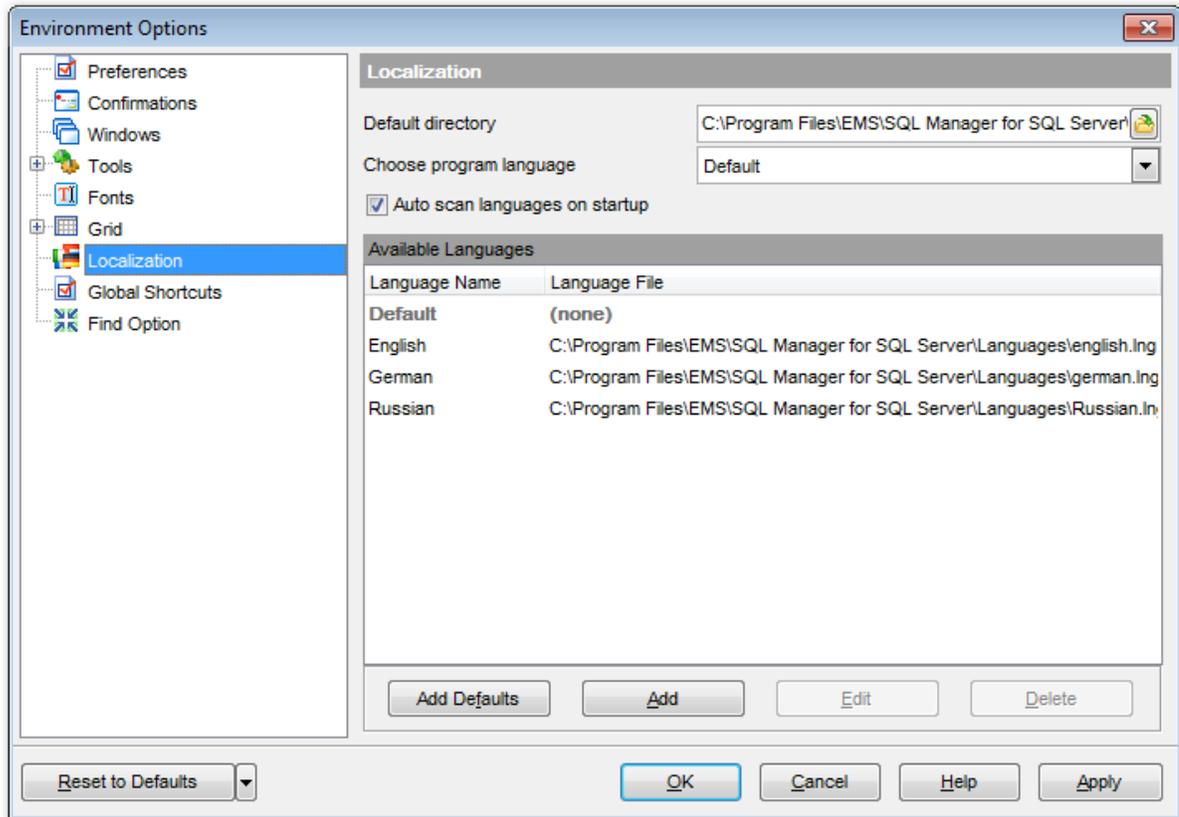
the language name.

Edit

Opens the [Edit language](#)^[833] dialog where you can change the language name or select another localization file for the specified language.

Delete

Removes the selected language from the **Available languages** list (without confirmation).

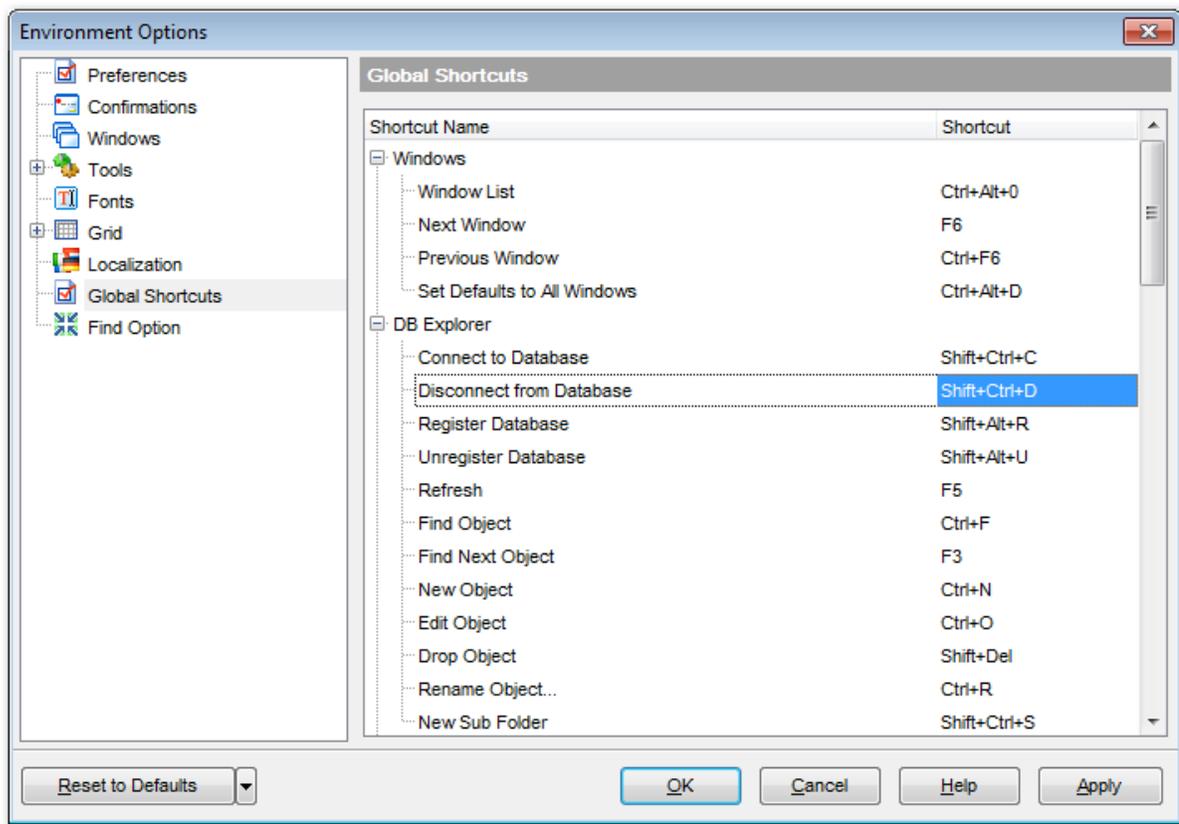


See also:

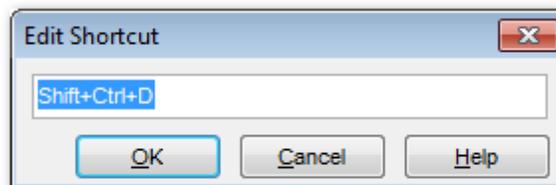
[Localization](#)^[890]

11.1.8 Global Shortcuts

This section allows you to view/edit shortcuts most needed actions when working with SQL Manager for SQL Server.



To edit shortcut, select the required action click the ellipsis button and press the preferred key combination to assign it with the action.



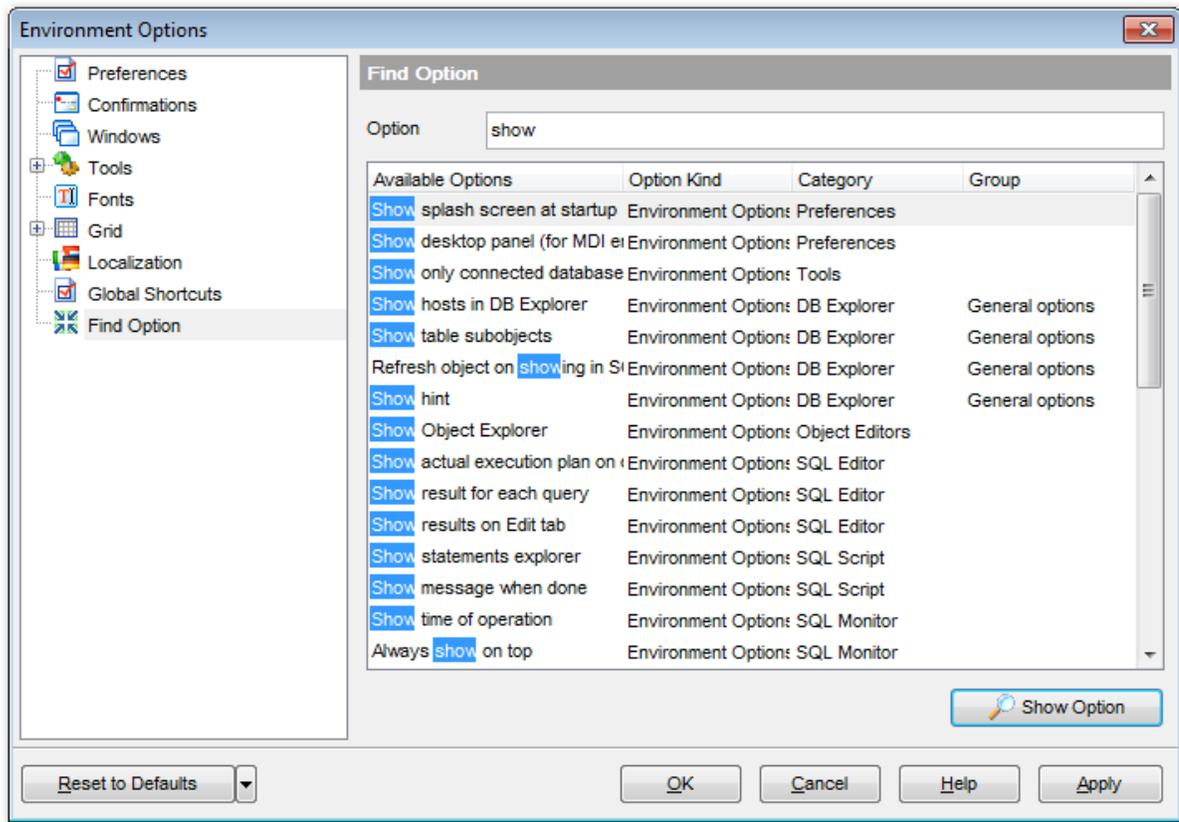
Common SQL Manager Shortcuts are listed in the [SQL Manager shortcuts](#) ^[952] section.

11.1.9 Find Option

The **Find Option** section allows you to search for options available within the **Environment Options** dialog easily and quickly.

Option

In this field you can enter the name of the option to search for within SQL Manager *Environment Options*.



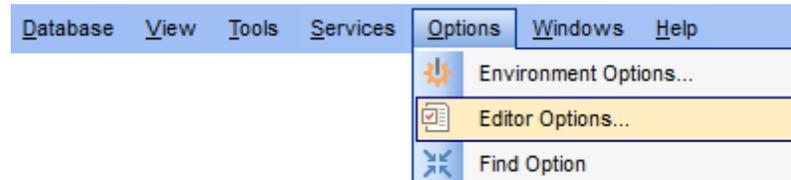
The **Available options** area lists all options of the *Environment Options* category according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location.

Select the required option in the list and click  **Show Option** to open the corresponding section where you can view/edit the value of this option. For your convenience the required option is marked with an animated .

11.2 Editor Options

Editor Options allow you to set the parameters of viewing and editing SQL statements within [Query Data](#) and other SQL editing tools of the SQL Manager application.

To open the **Editor Options** window, select the **Options | Editor Options...** [main menu](#) item, or use the **Editor Options** button on the main [toolbar](#).



- [General](#)
- [Display](#)
- [SQL Formatter](#)
- [Key Mapping](#)
- [Spell Checking](#)
- [Find Option](#)

See also:

[Environment Options](#)

Visual Options

11.2.1 General

Editor options

Auto indent

If this option is checked, each new indentation is the same as the previous one when editing SQL text.

Indents and outdents are used in the process of text editing to make the source code easier to read.

Insert mode

If this option is checked, the insert symbols mode is on by default.

Find text at cursor

If this option is checked, the **Text to find** field in the [Find Text](#) dialog is automatically filled with the text on which the cursor is set.

Always show hyperlinks

If this option is checked, hyperlinks are displayed in the editor window. To open a link, click it with the *Ctrl* key pressed.

Double click line

If this option is checked, double-clicking the line on which the cursor is set selects the

whole line.

Trim trailing spaces

If this option is checked, all spaces after the last symbol in line will be trimmed.

Fixed line height

Prevents line height calculation. If this option is checked, the default line height is taken.

Persistent blocks

Keeps marked blocks selected even when the cursor is moved with the arrow keys used, unless a new block is selected.

Fixed column move

If this option is checked, the caret keeps its horizontal position when moved between lines.

Optimal fill

Check this option to enable optimal algorithm of filling text content in the working area of the editor.

Unindent keep align

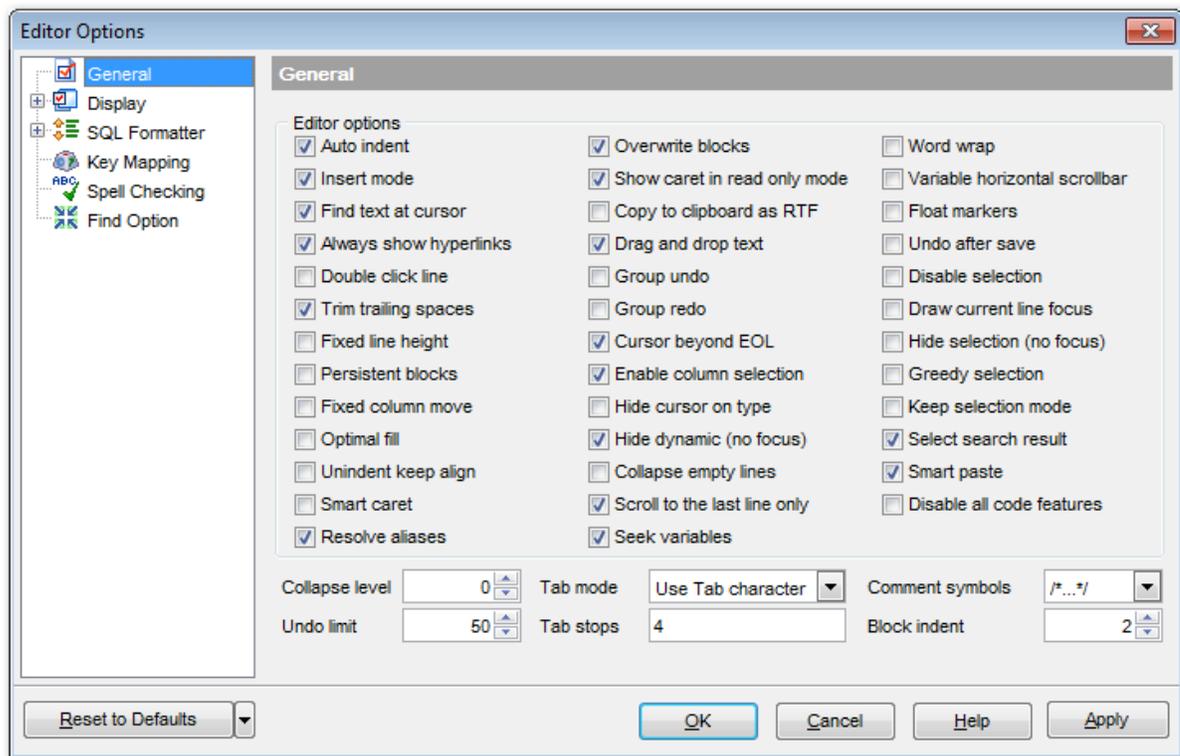
Keeps align for the lines that are not indented.

Smart caret

This option determines the caret movement (up, down, line start, line end). The caret is moved to the nearest position on the screen.

Resolve aliases

Enables/disables the syntax highlight and code completion features for aliases.



Overwrite blocks

Replaces a marked block of text with whatever is typed next. If **Persistent Blocks** is also selected, the text you enter is appended to the currently selected block.

Show caret in read only mode

Displays/hides the caret in read-only mode.

Copy to clipboard as RTF

If this option is checked, the selected text is copied in RTF format.

Drag and drop text

This option allows to drag and drop selected text.

Group undo

This option allows you to undo multiple actions of the same kind.

Group redo

This option allows you to redo multiple actions of the same kind.

Cursor beyond EOL

If this option is checked, the horizontal position of a cursor is kept. If you move the cursor (using the *Up* and *Down* arrow keys) onto a line having length less than the current cursor horizontal position, it will be positioned after the last symbol of the line.

Enable column selection

Enables/disables column selection mode.

Hide cursor on type

Hides/displays mouse cursor within the working area while a user is typing some text.

 Hide dynamic (no focus)

Hides dynamic highlights when an editor is not focused.

 Collapse empty lines

Collapses empty lines after a text range when this range has been collapsed.

 Scroll to the last line only

When the option is enabled, you can scroll to the last line of the text only, otherwise you can scroll to the end of the page.

 Seek variables

Disables code completion feature for variables.

 Word wrap

When on, text is wrapped at the right margin of the editor area to fit in the visible area.

 Variable horizontal scrollbar

If this option is checked, the horizontal scrollbar varies according to the current content of the editor.

 Float markers

When enabled, markers are linked to the text, and they will move with the text while the text is being edited; otherwise the markers are linked to the caret position, and stay unchanged while the text is being edited.

 Undo after save

Keeps undo buffer unchanged after saving.

 Disable selection

Disables any selection when editing.

 Draw current line focus

Draws the focus rectangle around the current line when the editor has focus.

 Hide selection (no focus)

Hides the selection when the editor loses focus.

 Greedy selection

Selects an extra column/line in column/line selection modes.

 Keep selection mode

Enables selection for caret movement commands (like in BRIEF).

 Select search result

Determines whether the search result should be selected.

 Smart paste

When this option is enabled, the editor gets both Unicode and ANSI content from the clipboard, converts them using the selected character set and selects the best text to be pasted. This allows getting correct text copied from both ANSI and Unicode applications

disregarding the currently selected keyboard language.

Disable all code features

This option disables code completion, code folding, highlight and all options that are set on the [Quick Code](#)^[876] page. For options that are set on the [Highlight](#)^[875] page, the defaults will be applied.

Collapse level

Specifies the level of text ranges that will be affected by the "Collapse all" command.

Undo limit

Defines the maximum number of changes possible to be undone.

Tab mode

Specifies the way the TAB key is processed. Possible values are: *Use tab character* (inserts a tab character); *Insert spaces* (inserts space characters); *Dialog behaviour* (when the edit control is in a dialog, the focus is switched to the next control); *Smart tab* (tabs to the first non-white space character in the preceding line).

Tab stops

Defines the tab length used when editing a text.

Comment symbols

Defines the symbols which will be used to comment code fragments.

Block indent

Specify the number of spaces to indent a marked block.

Hint: The **Reset to Defaults** button which is common for all sections of the **Editor Options** dialog opens a menu with items allowing you to discard all changes and reset options of the *current category* or of *all categories* to their defaults.

11.2.2 Display

Default editor fonts

Use these options to set the *fonts and size* used in the editor.

If the **Show only fixed-width fonts** option is checked, only fonts with fixed width are displayed in the **Font** dialog.

Gutter

Show line numbers

If this option is checked, line numbers are displayed in the SQL text editor window.

Gutter auto width

Enable this option to specify that the gutter width will be adjusted automatically.

Display line state

If this option is checked, a colored line indicating the state of all altered lines in the text is displayed at the gutter of the editor window.

Use code folding

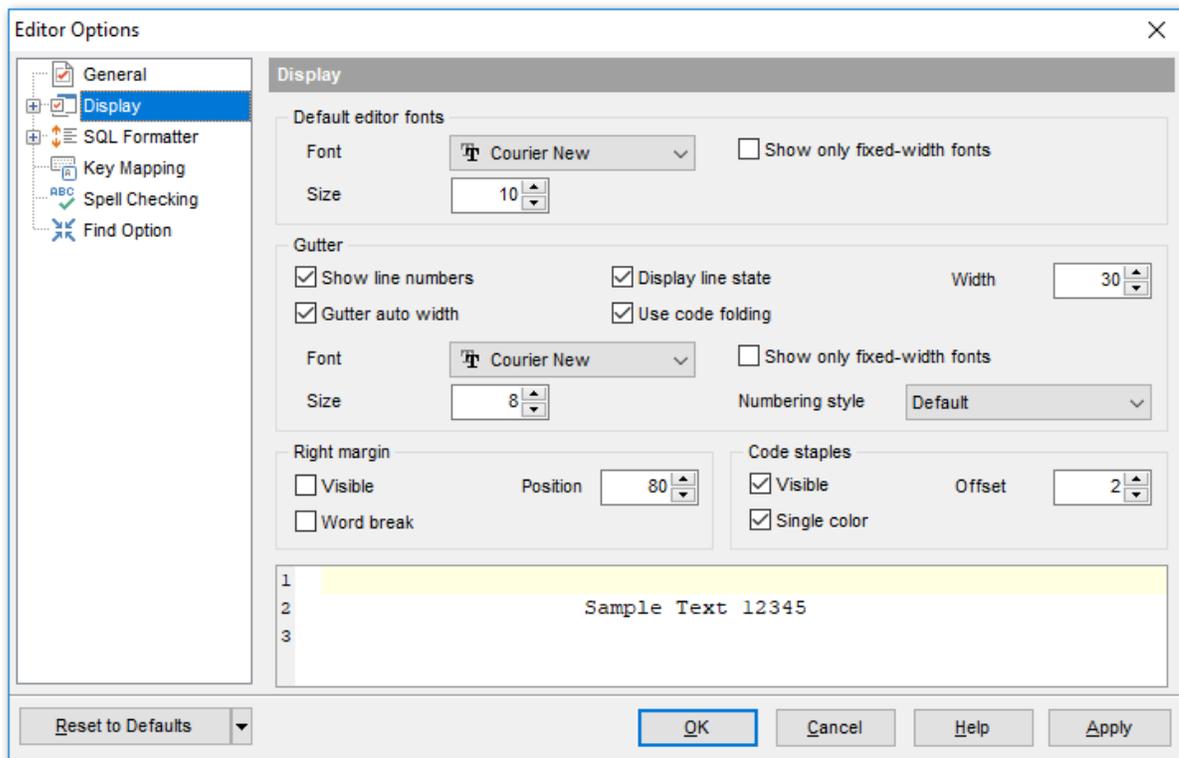
Check this option to enable to code folding feature of Query Data.

Width

Defines the gutter width in the editor window.

If the **Show only fixed-width fonts** option is checked, only fonts with fixed width are displayed in the **Font** dialog.

Select the appropriate **Numbering style** from the dropdown list.



Right margin

Visible

Makes the right text margin visible.

Word break

Allows breaking the words at the right margin.

Position

Defines the position of the right text margin in the editor window.

Code staples

Visible

Makes the code staples visible in the editor window.

 Single color

Check the option to apply a single color for code staples.

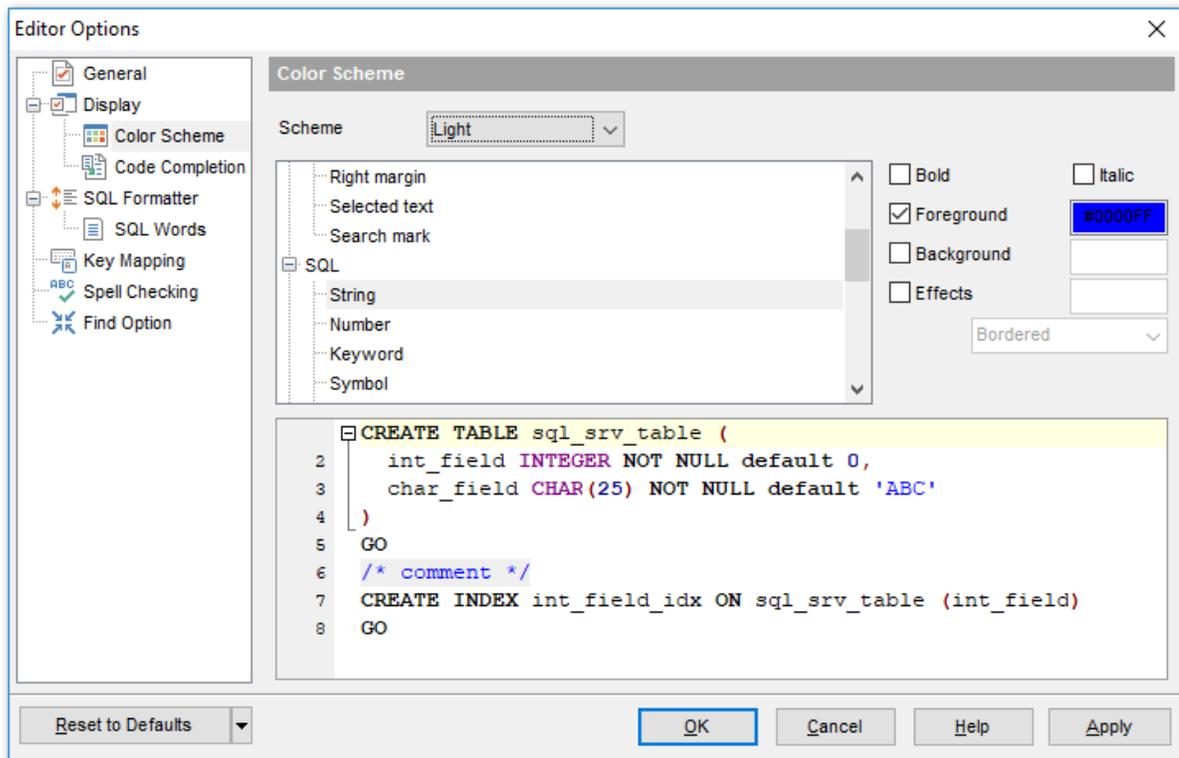
 Offset

Specify the offset value for code staples.

11.2.2.1 Color Scheme

Scheme

Select the default color scheme for all editors: Default (Light) or Dark.



The **Element list** contains all elements available in SQL editors of the program. For your convenience the preview area (located below the Element list) illustrates the changes being made to each of the elements

Controls for changing the properties of the item selected in the Element list are located on the right. Use the following instructions for each of the elements.

 Bold

Highlights the element with bold.

Italic

Makes the element text cursive.

 Foreground

Select the foreground color for the element.

 Background

Select the background color for the element.

 Effects

Enables additional effects for the element text.

See also:

[Code Completion](#)^[876]

11.2.2.2 Code Completion

Automatic features

 Code completion

If this option is checked, then on typing the first word characters in the SQL text editor you will be offered some variants for the word completion in a popup list (an analogue of the **Code Insight** feature in **Delphi IDE**).

Sensitivity

This option allows you to set the number of characters to be typed before code completion is activated.

Delay

Using this option you can change the time after which completion variants popup.

 Parameters completion

If this option is checked, the Delphi-like hint for key words is enabled.

 Group by type

If enabled, the items in the code completion list are sorted by type, otherwise they are sorted by name.

 Show information hints

This option enables/disables information hints.

Accept by Space key too

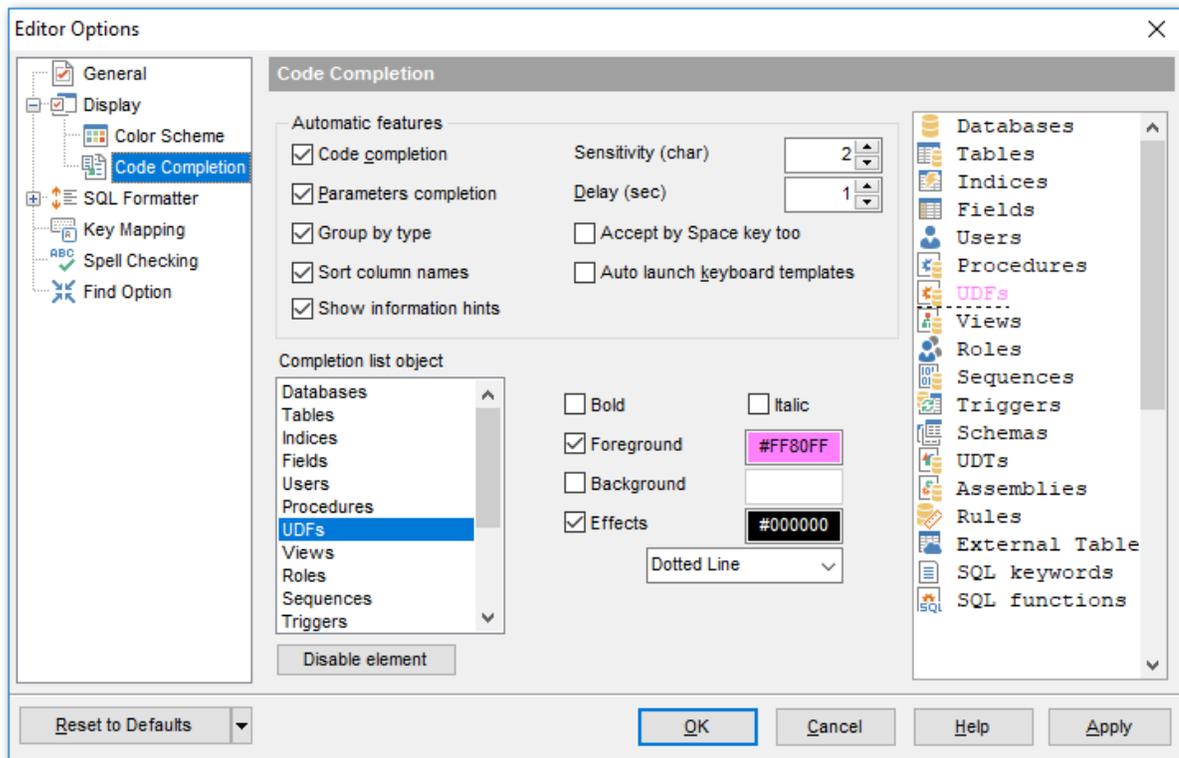
Check this option to enable Code Completion list to close with the selected item input when pressing the space bar.

Code parameters

If this option is checked, the Delphi-like hint for key words is enabled.

Auto launch keyboard templates

Allows you to use keyboard templates for faster typing frequently used expressions (see [Keyboard Templates](#)^[894]).



Completion list object

The list contains all objects for which you can set quick code parameters. For your convenience the preview area (located to the right of the Completion list object list) illustrates the changes being made to each of the objects.

If you press the Disable element button, the standard settings will be applied to this object; the button text will change to Enable element. If you press this button, you will be able to change font and color attributes for this object.

Controls for changing the properties of the item selected in the Completion list object list are located on the right.

See also:

[Color Scheme](#)^[875]

11.2.3 SQL Formatter

SQL Formatter is a feature implemented in SQL Manager for SQL Server and is a useful tool for formatting SQL queries and scripts, making SQL statements easy to read. SQL Formatter is introduced in [Query Data](#)^[426], [Execute Script](#)^[619] and some object editors.

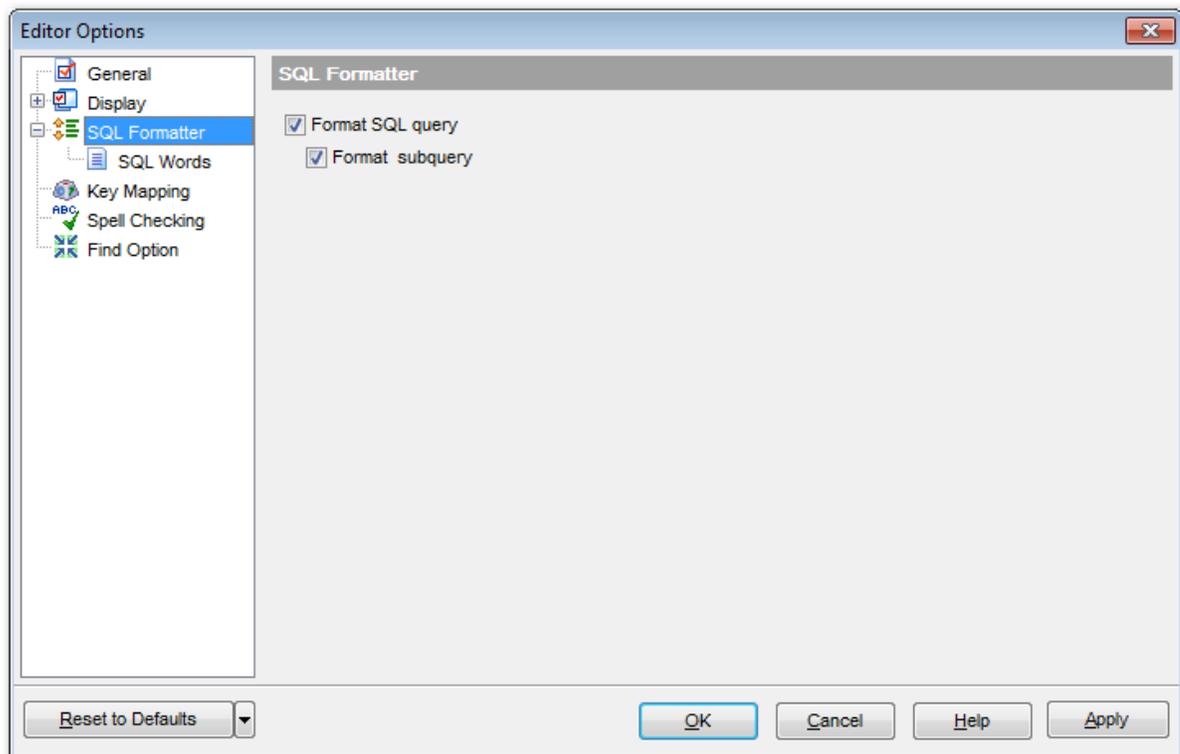
The **Settings** tab of the **SQL Formatter** section allows you to enable this feature and apply SQL formatting to subqueries, if necessary.

Format SQL query

Check this option to enable SQL formatting.

Format subquery

Enables SQL formatting for subqueries.



See also:

[Query Data](#)^[426]

11.2.3.1 SQL Words

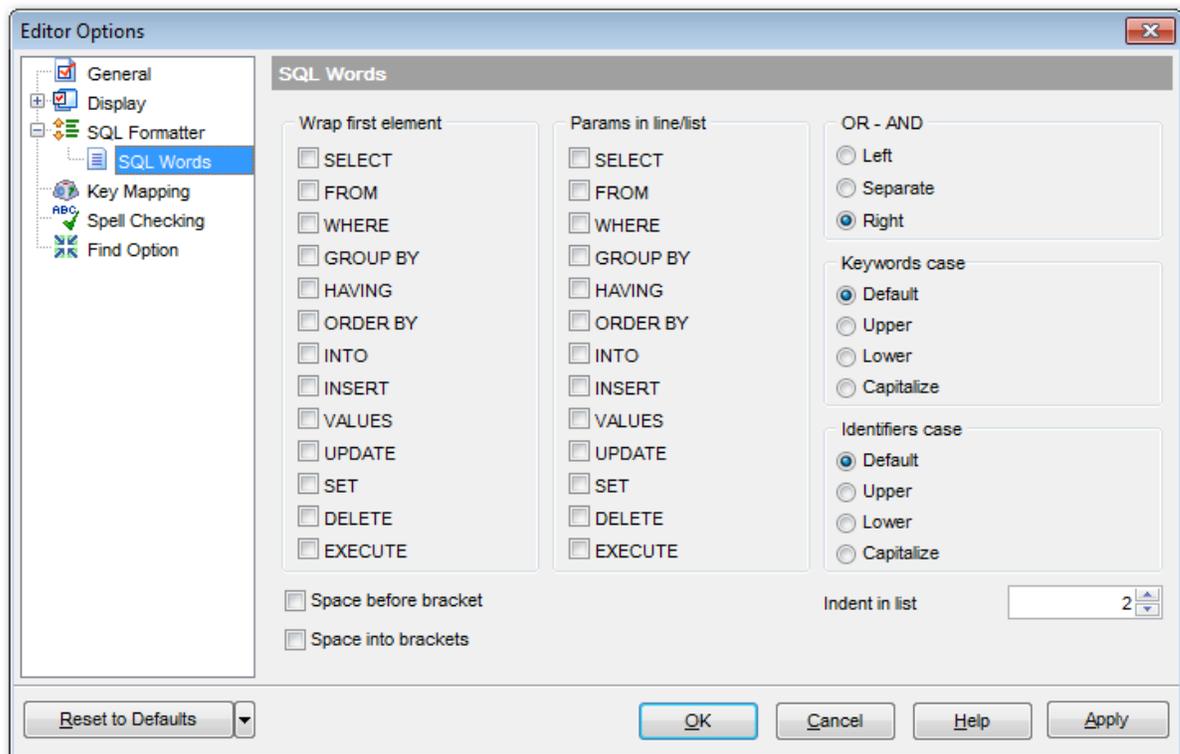
The **SQL words** page of the **SQL Formatter** section allows you to select the key words for each action of SQL formatter and to set formatting parameters.

Wrap first element

Wraps the selected text at a specific column. Select the SQL key words after which formatting should be applied.

Params in line/list

Allows you to display the parameters followed by the defined key words in list or in line.



OR - AND

Set the placement of the AND an OR operators according to the operands followed by them. See the example below.

Left

```
WHERE
    AND ...
    AND ...
    AND ...
```

Separate

```
WHERE
    ...
```

```
AND
...
AND
```

Right

```
WHERE
... AND
... AND
... AND
```

The **Keywords case** / **Identifiers case** options allow you to define the case of the corresponding items.

You can choose *UPPER*, *lower*, *Capitalize*.

Default case means that the name of the identifier/keyword remains "AS IS".

Space before bracket

Adds a "space" character before the opening bracket and after the closing one.

Space into brackets

Adds a "space" character after the opening bracket and before the closing one.

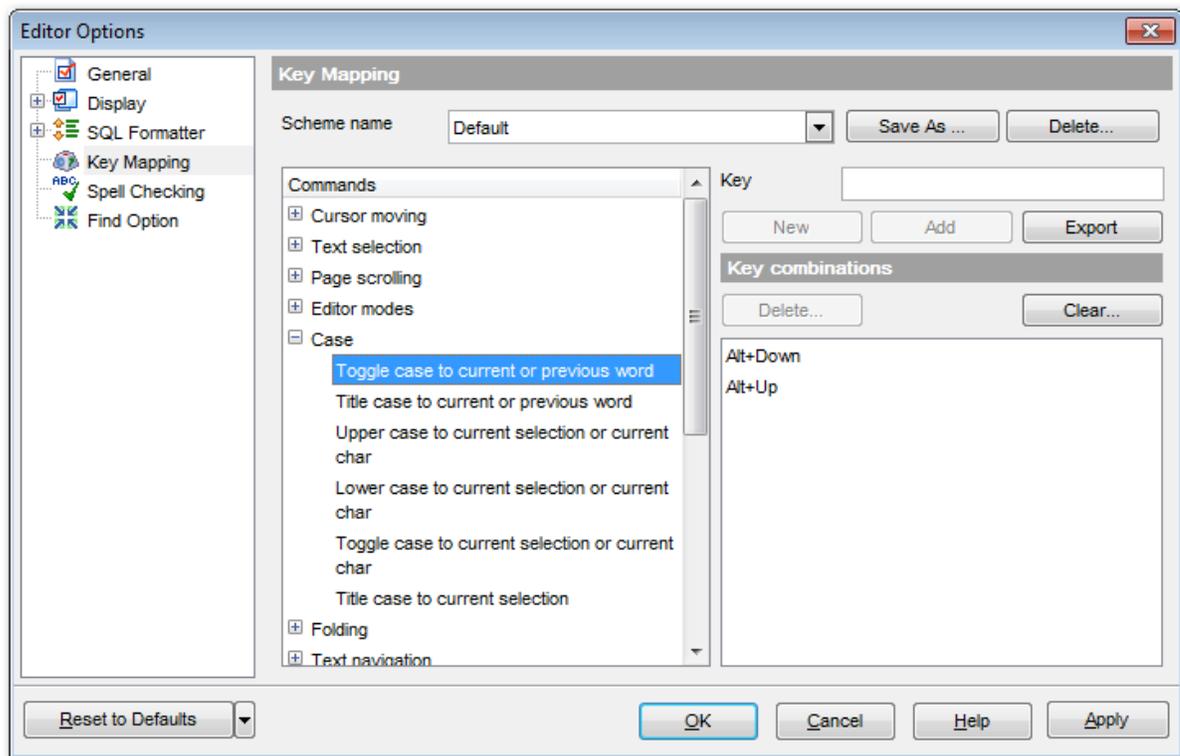
Indent in list

Sets the size of indent relatively to the previous string.

11.2.4 Key Mapping

For your convenience **key mapping** is provided in SQL Manager for SQL Server. On this page you can set the [shortcuts](#)^[952] for various commands/operations according to your needs.

Use the **Commands** list on the right to select the command for which you need to make a shortcut, then place cursor into the **Key** editor and press the key combination you find useful (use *Ctrl Alt Shift* buttons). After setting the shortcut, press the **New** button to add it to the list of existing **Key combinations**. If the specified shortcut is already assigned to another command/operation, an error message with the command/operation will be returned.



Note: It is possible to set more than one key combination for the same command/operation (e.g. *Ctrl-K*, *Ctrl-H*) using the **Add** button.

If necessary, you can export the current Key mapping list to an external file by pressing the **Export** button.

Manage the shortcuts within the Key combinations list using the **Delete** (to remove the selected item) and the **Clear** (to remove all shortcuts for this command/operation) buttons.

It is also possible to save a custom key mapping scheme, if necessary:

- set the shortcuts for the appropriate commands/operations;
- click the **Save As...** button;
- input the new scheme name in the corresponding dialog.

To delete a scheme, select it in the **Scheme name** drop-down list and press the **Delete** button.

See also:

[Query Data](#)^[426]

[SQL Manager shortcuts](#)^[952]

11.2.5 Spell Checking

Spell checking is a new feature implemented in SQL Manager for SQL Server for your convenience.

Set the necessary **Spell checker mode**:

● **Highlighting**

In this mode incorrectly spelled and misprinted words are highlighted in the editor.

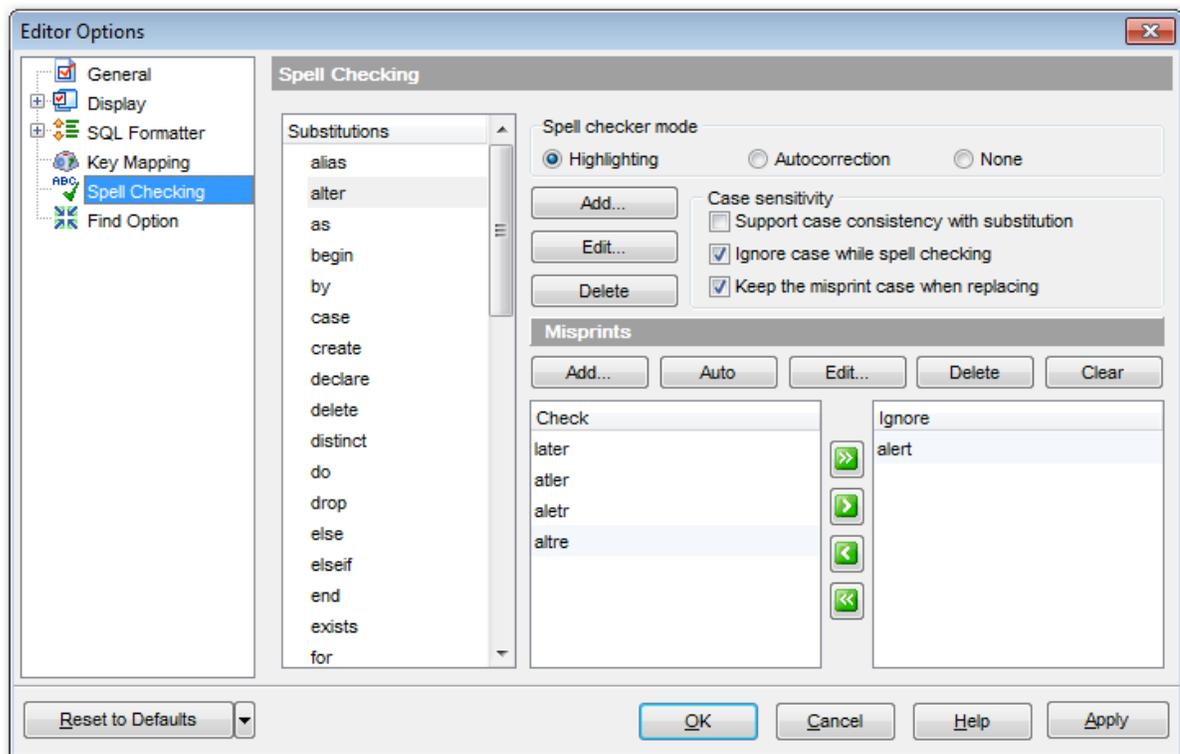
● **Autocorrection**

In this mode incorrectly spelled and misprinted words are replaced with the corresponding words from the **Substitutions** list automatically.

● **None**

In this mode the spelling checker is disabled.

Use the **Add...** button to add a new item to the **Substitutions** list, the **Edit...** button to alter the selected substitution, and the **Delete** button to remove the selected substitution from the spelling checker vocabulary.



Case sensitivity

Support case consistency with substitution

If this option is selected, the spelling checker uses the case of words-substitutions when performing a replacement.

Ignore case while spell checking

Check this option to disable case checking.

 Keep the misprint case when replacing

Check this option if you do not wish to change the case of the replaced word.

Misprints

Controls of this group allow you to manage the spelling checker vocabulary: use the **Add...** button to add a new misprint to the vocabulary, the **Auto** button to use the default list of misprints, the **Edit...** button to change the selected misprint, the **Delete** button to remove the selected misprint from the vocabulary, and the **Clear** button to empty the list of misprints for the currently selected substitution.

It is also possible to exclude a misprint from spell checking without deleting the misprint. This misprint will therefore remain in the vocabulary, but it will be ignored by the spelling checker.

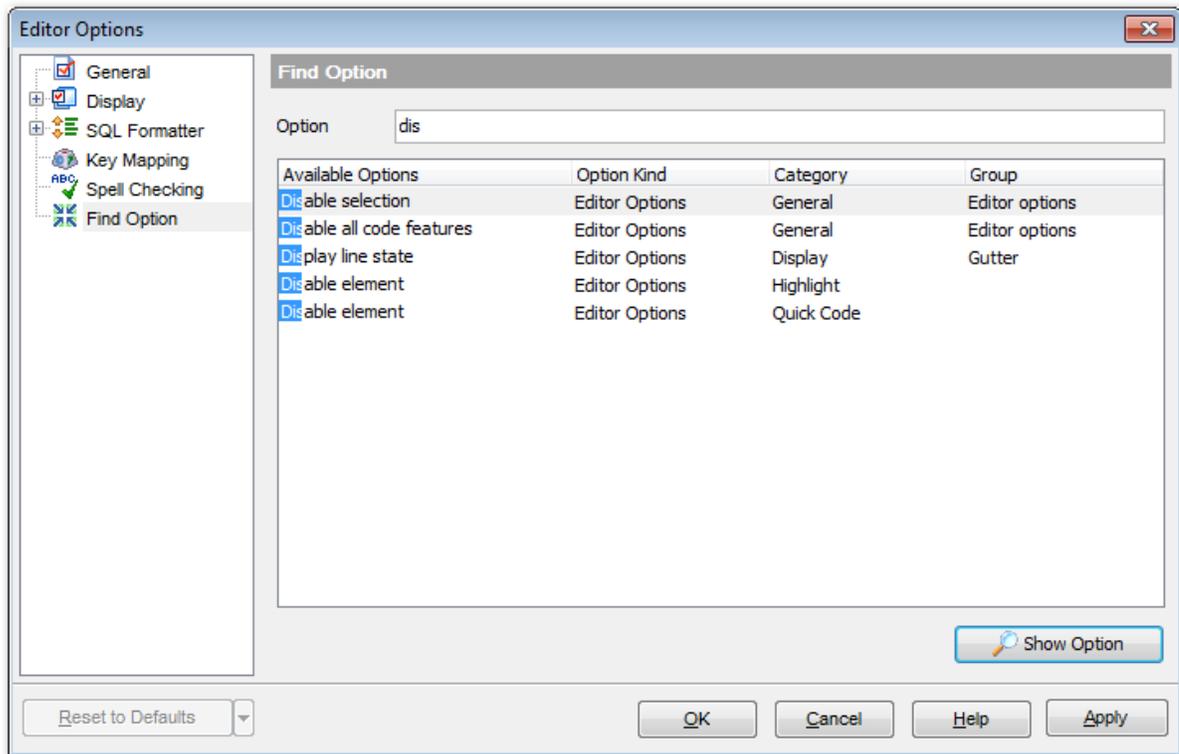
To mark a misprint as excluded, you need to move it from the **Check** list to the **Ignore** list. Use the     buttons or drag-and-drop operations to move the misprints from one list to another.

11.2.6 Find Option

The **Find Option** section allows you to search for options available within the **Editor Options** dialog easily and quickly.

Option

In this field you can enter the name of the option to search for within SQL Manager *Editor Options*.



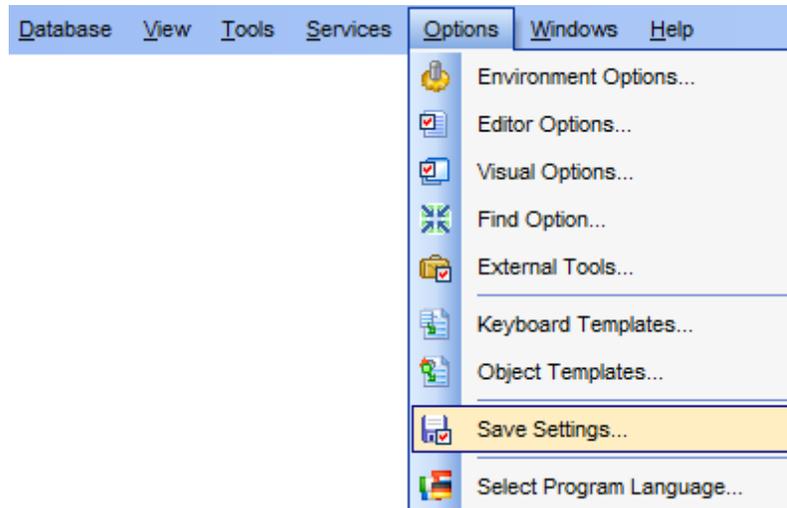
The **Available options** area lists all options of the *Editor Options* category according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location.

Select the required option in the list and click  **Show Option** to open the corresponding section where you can view/edit the value of this option. For your convenience the required option is marked with an animated  icon.

11.3 Save Settings

Save Settings Wizard allows you to export the settings of SQL Manager for SQL Server - wholly or partially - to a single *.reg file which can be applied afterwards to SQL Manager for SQL Server installed on another machine, or it can be used to backup previous settings.

To start the wizard, select the **Options | Save Settings** [main menu](#)^[915] item.



- [Specifying destination file](#)^[885]
- [Selecting settings](#)^[886]
- [Selecting databases](#)^[887]
- [Saving settings](#)^[888]

To apply saved settings you need to open the created *.reg file, then press the OK button in the window appeared. All settings will be applied automatically (they will be added in the Windows Registry).

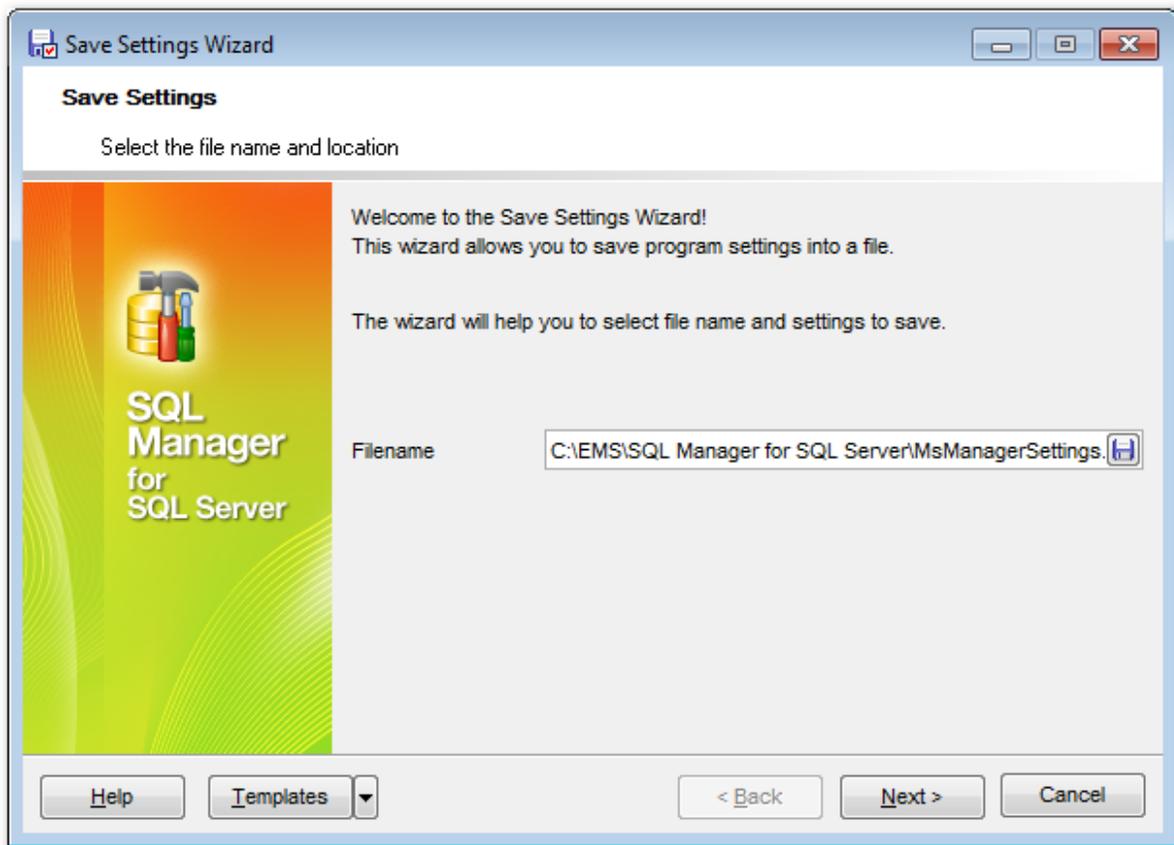
11.3.1 Specifying destination file

This step of the wizard allows you to specify the location of the destination file.

Filename

Use the  button to set the path to the *.reg file where the application settings are to be saved.

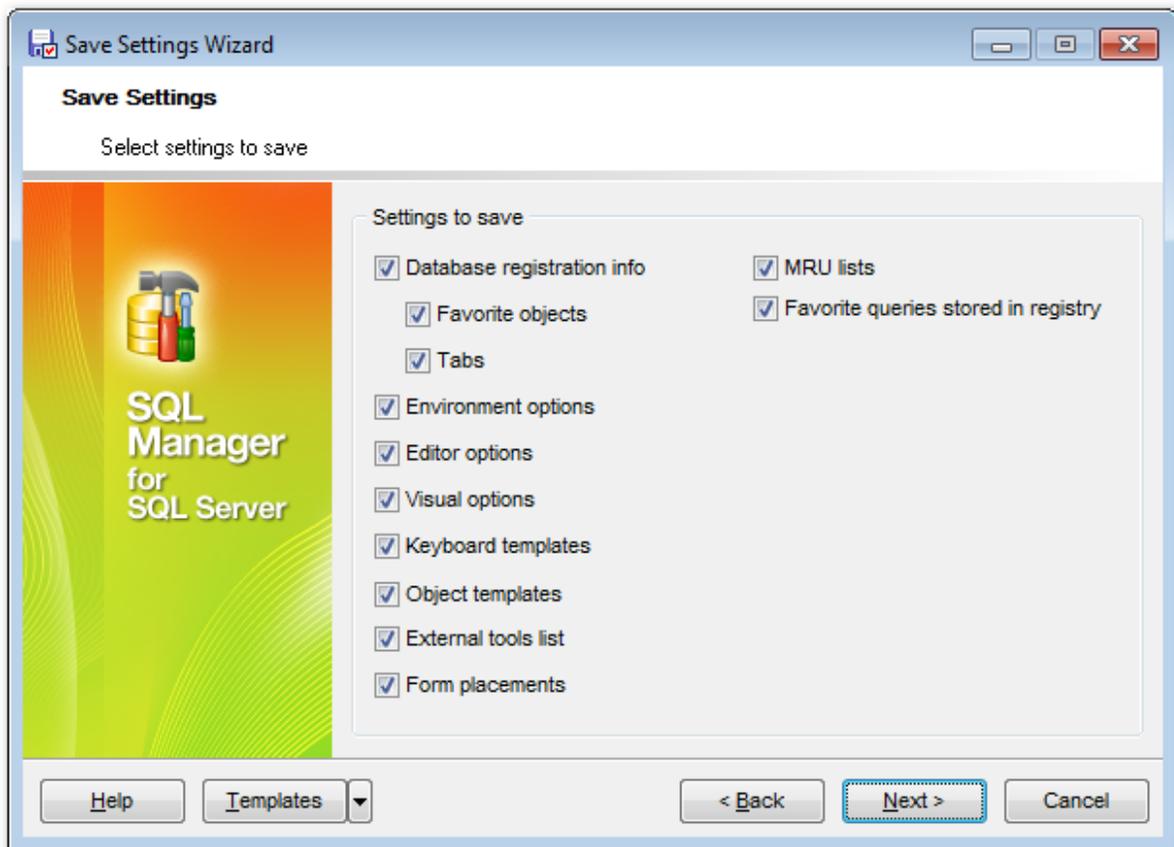
Note: If the target file already exists, the application will show a [warning](#)^[948] dialog where you can choose the action you need.



Press the **Next** button to proceed to the [next step](#)^[886] of the wizard.

11.3.2 Selecting settings

This step of the wizard allows you to specify the information you need to be saved to the result file: *Database registration info, Favorite objects, Tabs, Environment options, Editor options, Visual options, Keyboard templates, Object templates, External tools list, Form placements, MRU lists, Favorite queries stored in registry.*

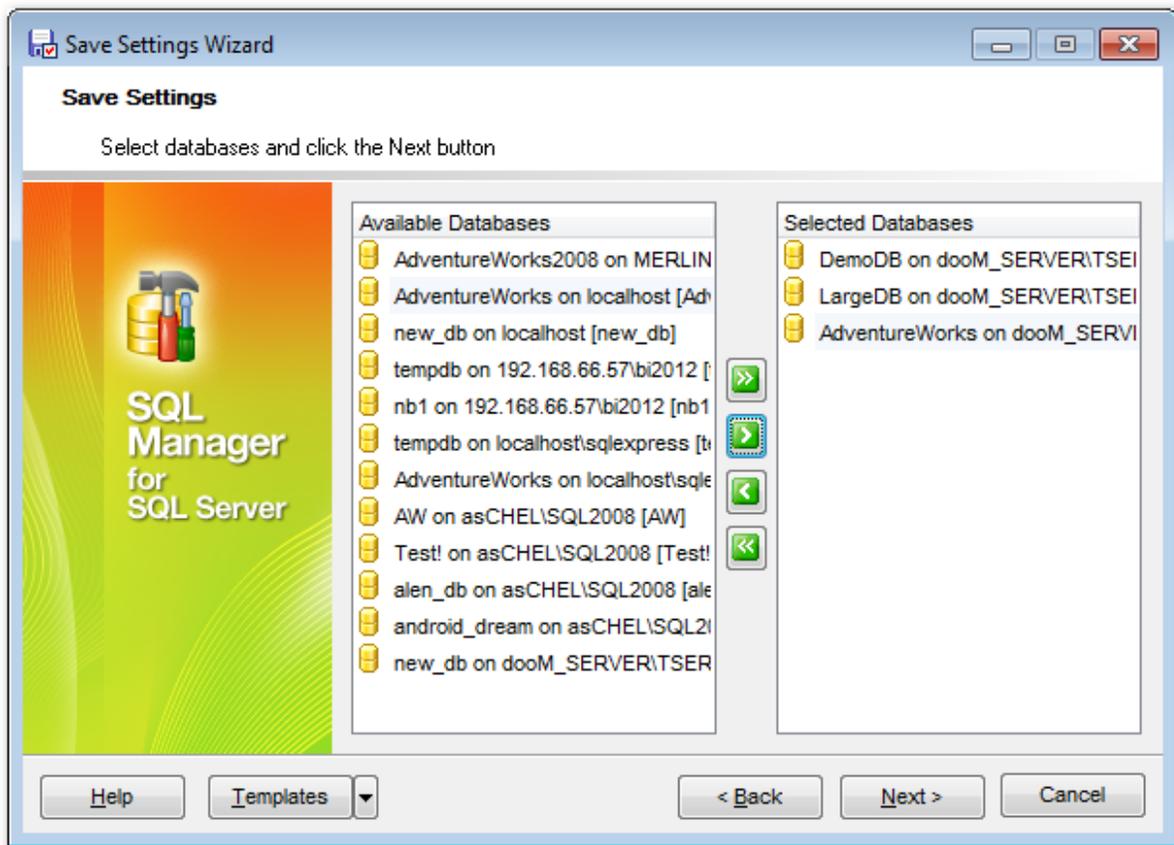


Press the **Next** button to proceed to the [next step](#)^[887] of the wizard.

11.3.3 Selecting databases

This step of the wizard allows you to select the database(s) to save the registration settings.

To select a database, you need to move its alias from the **Available Databases** list to the **Selected Databases** list. Use the     buttons or drag-and-drop operations to move the databases from one list to another.

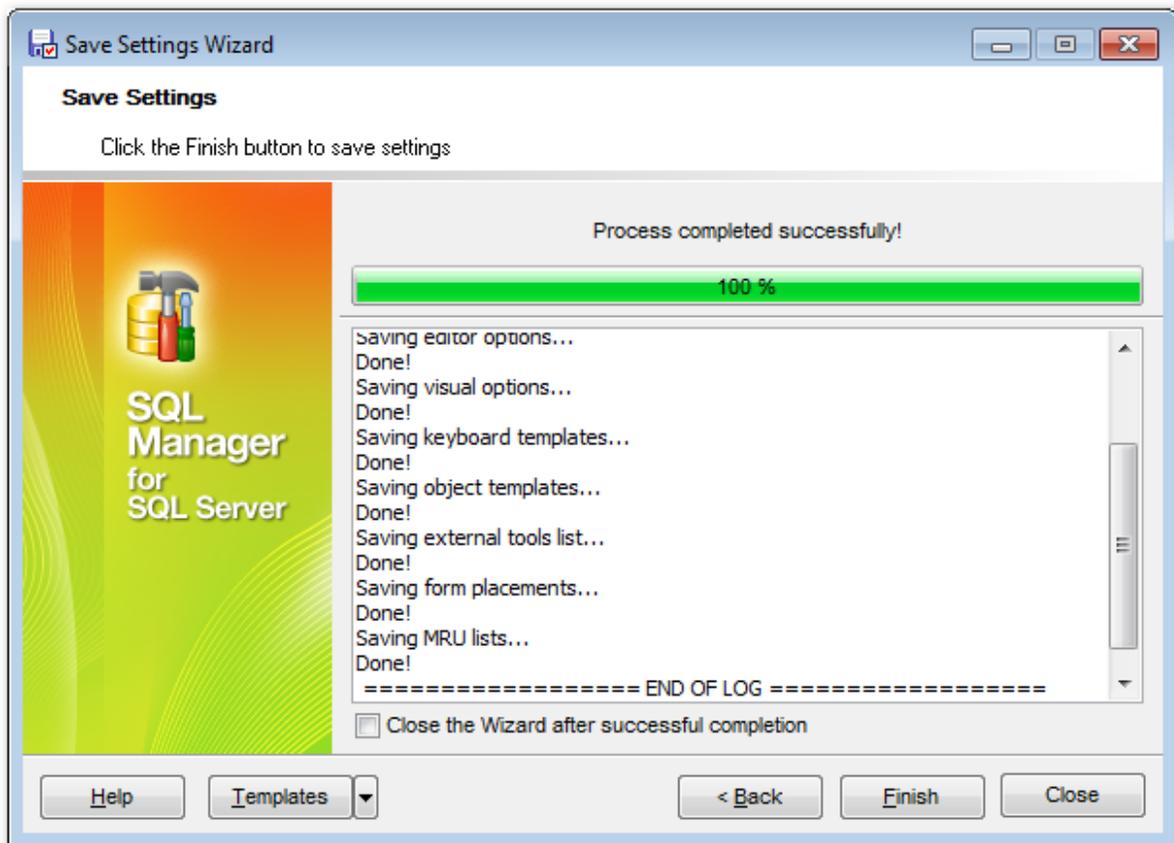


Press the **Next** button to proceed to the [last step](#)⁸⁸⁸ of the wizard.

11.3.4 Saving settings

This step of the wizard is intended to inform you that the saving settings operation has been configured, and the wizard is ready to save the application settings to the specified file.

The log area allows you to view the log of operations and errors (if any).



Close the Wizard after successful completion

If this option is selected, the wizard is closed automatically when the export process is completed.

If necessary, you can save a [template](#)⁹³⁴ for future use.

Click the **Finish** button to start saving settings.

11.4 Localization

When using SQL Manager for SQL Server, you are provided with multi-language interface support. You can change the program language, specify the directories for your localization files easily, edit existing localizations and create your own localization files.

Changing Program Language

In order to select the program interface language:

- select the **Options | Select Program Language...** [main menu](#)^[915] item;
- select the interface language in the [Select Language](#)^[892] dialog;
- click **OK** to apply the language and close the dialog.

Editing Program Localization

In order to edit the interface localization:

- open one of the program windows (e.g. [Table Editor](#)^[200], [Query Data](#)^[426]) where you wish to edit the localization of captions and hints;
- use the *Shift+Ctrl+L* keyboard [shortcut](#)^[952] to open the [Localization Editor](#)^[890] window;
- edit window captions and hints as necessary;
- click the **Save**  button on the [toolbar](#)^[917].

Note: The [Localization Editor](#)^[890] window is only available if the currently selected language is different from the default.

Creating New Localization Files

In order to create a new localization file:

- create a new localization file similar to those located in the `%program_directory%\Languages` folder;
- select the **Options | Environment Options** [main menu](#)^[915] item;
- proceed to the [Localization](#)^[865] section of the **Environment Options** dialog;
- click the **Add** button;
- set the language name and the path to the new `*.lng` file within the [Language Info Editor](#)^[933] dialog.

The new language is added to the list of available languages. Now you can set it as the interface language using the [Select Program Language](#)^[892] dialog or the [Localization](#)^[865] section of the [Environment Options](#)^[825] dialog.

See also:

[Localization](#)^[865]

[Language Info Editor](#)^[933]

11.4.1 Localization Editor

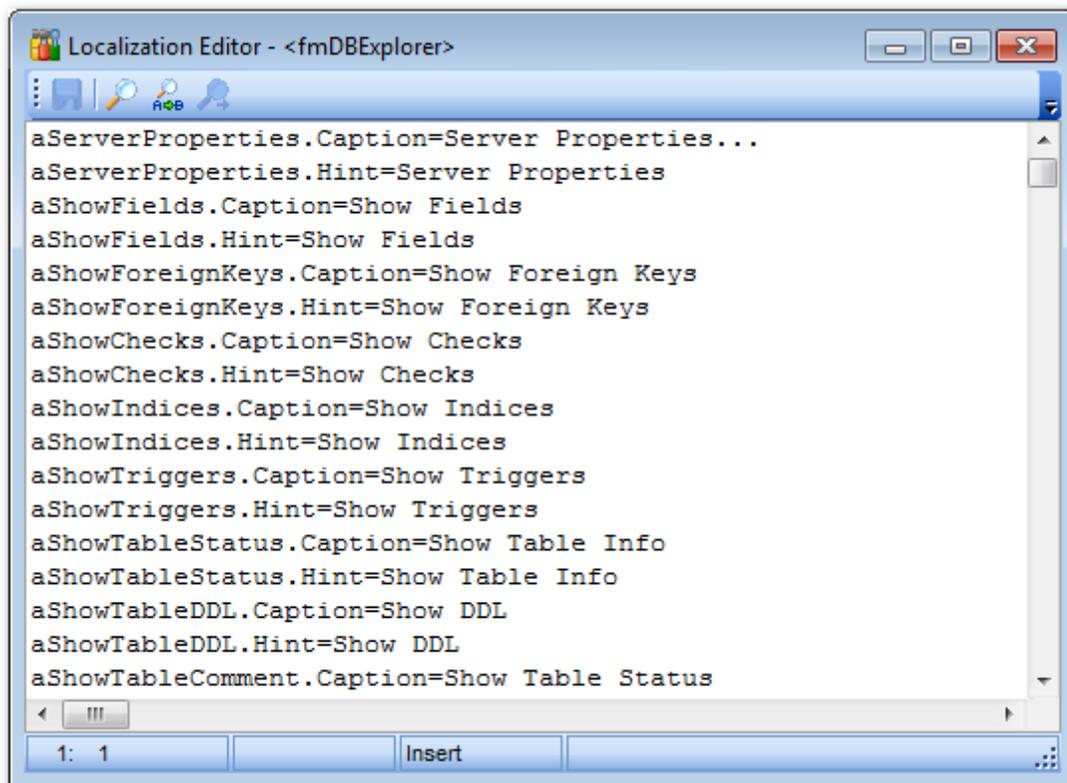
The **Localization Editor** window allows you to edit the captions and hints of any SQL Manager window, if the selected program language is different from the default one.

To call this window, use the *Shift+Ctrl+L* [shortcut](#)^[952] in any child window of SQL Manager

for SQL Server.

The working area of the window contains the element names and the corresponding strings divided by the "=" character. These strings are what you see in the program as menu items, window captions, button hints, etc. Edit them to change the program appearance. Be careful and do not edit the identifiers that stand before the "=" character - this will not produce any effect.

For your convenience the **Find** and **Replace** features are provided - the corresponding  [toolbar](#)^[917] buttons are used to call the [Find Text](#)^[925] dialog or the [Replace Text](#)^[927] dialog respectively. The **Search Again**  button enables the repeated search for the text that was last searched.



When you are done with editing, click the **Save**  button on the toolbar to apply the changes you have made.

See also:

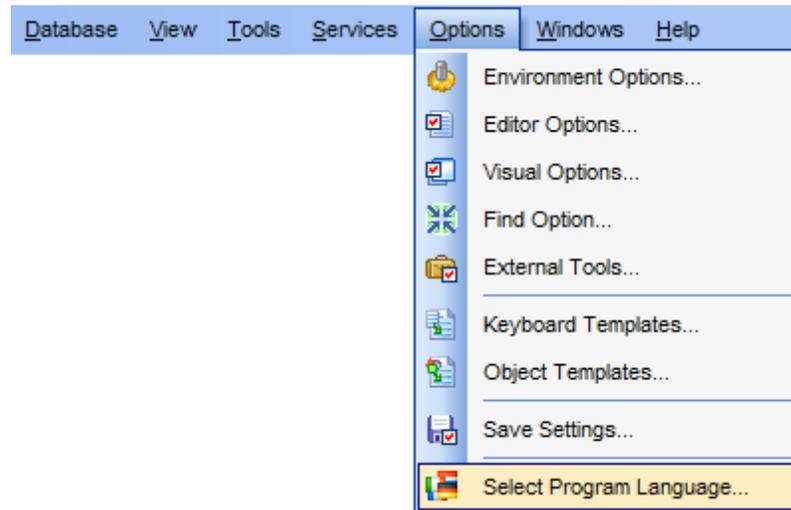
[Select Program Language](#)^[892]

[Localization](#)^[865]

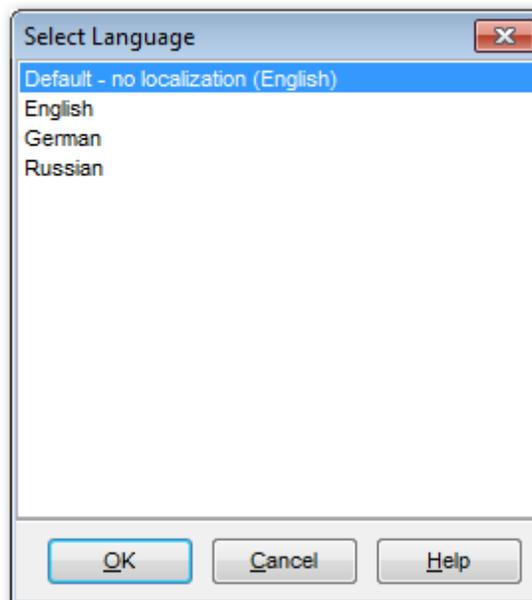
11.4.2 Select Program Language

The **Select Language** dialog allows you to select a language for SQL Manager for SQL Server localization.

To open this dialog, select the **Options |  Select Program Language...** [main menu](#) ^[915] item.



The dialog displays the list of available languages configured on the [Environment Options | Localization](#) ^[865] page. Select a language from the list and click **OK** to confirm your choice and close the dialog.

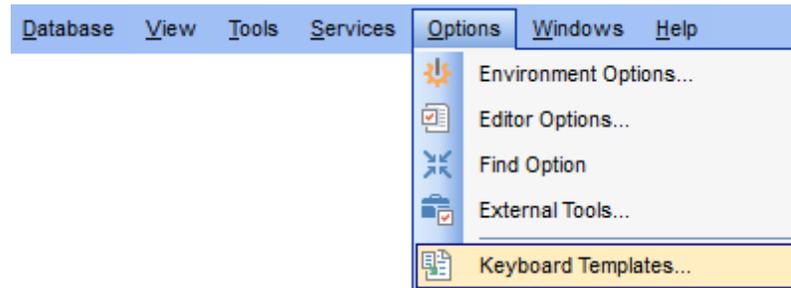


See also:[Localization Editor](#)⁸⁹⁰[Localization](#)⁸⁶⁵

11.5 Keyboard Templates

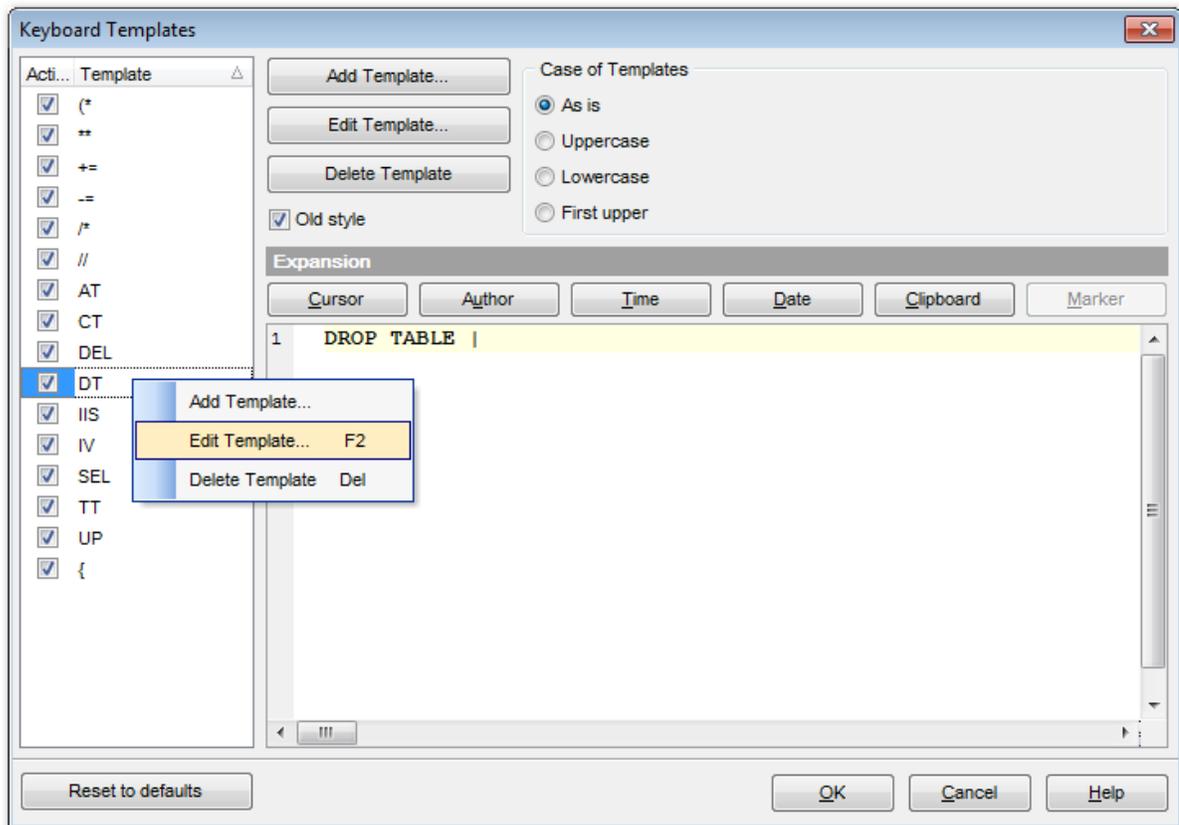
The **Keyboard Templates** window allows you to create new keyboard templates for quicker typing regularly used expressions and to edit the existing ones.

To open this window, select the **Options | Keyboard Templates...** [main menu](#) ⁹¹⁵ item.



To add a new keyboard template, click the **Add Template...** button, set the template name and define the template expression. In the upper right area of the window you can change the **case** of the template expression (*As is*, *Uppercase*, *Lowercase*, *First upper*).

You can deactivate an existing template by selecting it from the list on the left and removing the **Active** flag of the template.



If necessary, you can also edit the template name using the **Edit Template...** button, delete the template using the **Delete Template** button or edit the template expression within the **Expansion** area of the window. For faster editing you can use the *Cursor, Author, Time, Date, Clipboard, Marker* buttons.

Hint: Add/edit/delete template items are also available in the *context menu* of the template list on the right.

Old style

This option specifies whether the selected keyboard template expansion should conform to the template specifications used in the earlier versions of SQL Manager for SQL Server.

Once you have defined the templates, you can use them in [Query Data](#)^[426]. First of all, make sure that the **Auto launch keyboard templates** option is selected on the [Quick Code](#)^[876] page of the [Editor Options](#)^[869] dialog. When [editing SQL text](#)^[429] in Query Data, type a template name and use the *Ctrl+J* [shortcut](#)^[952]: the text associated with the template (**Expansion**) will be inserted automatically.

Hint: The **Reset to defaults** button which is available at the bottom of the **Keyboard Templates** dialog allows you to discard all changes and restore the settings to their defaults.

See also:

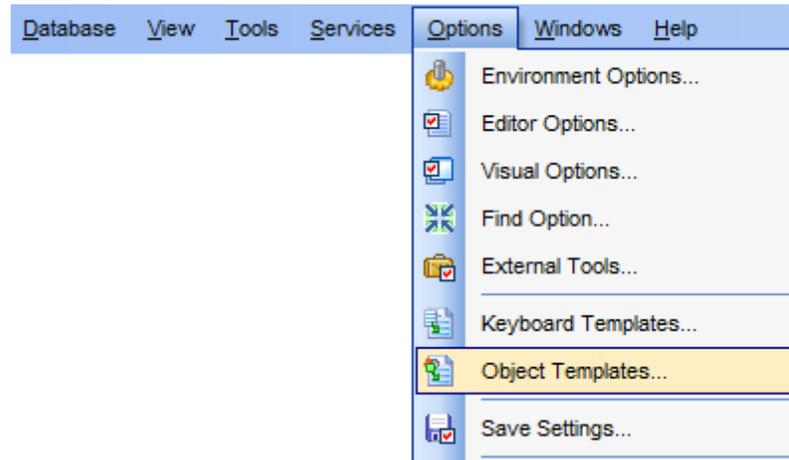
[Quick Code](#)^[876]

[SQL Manager shortcuts](#)^[952]

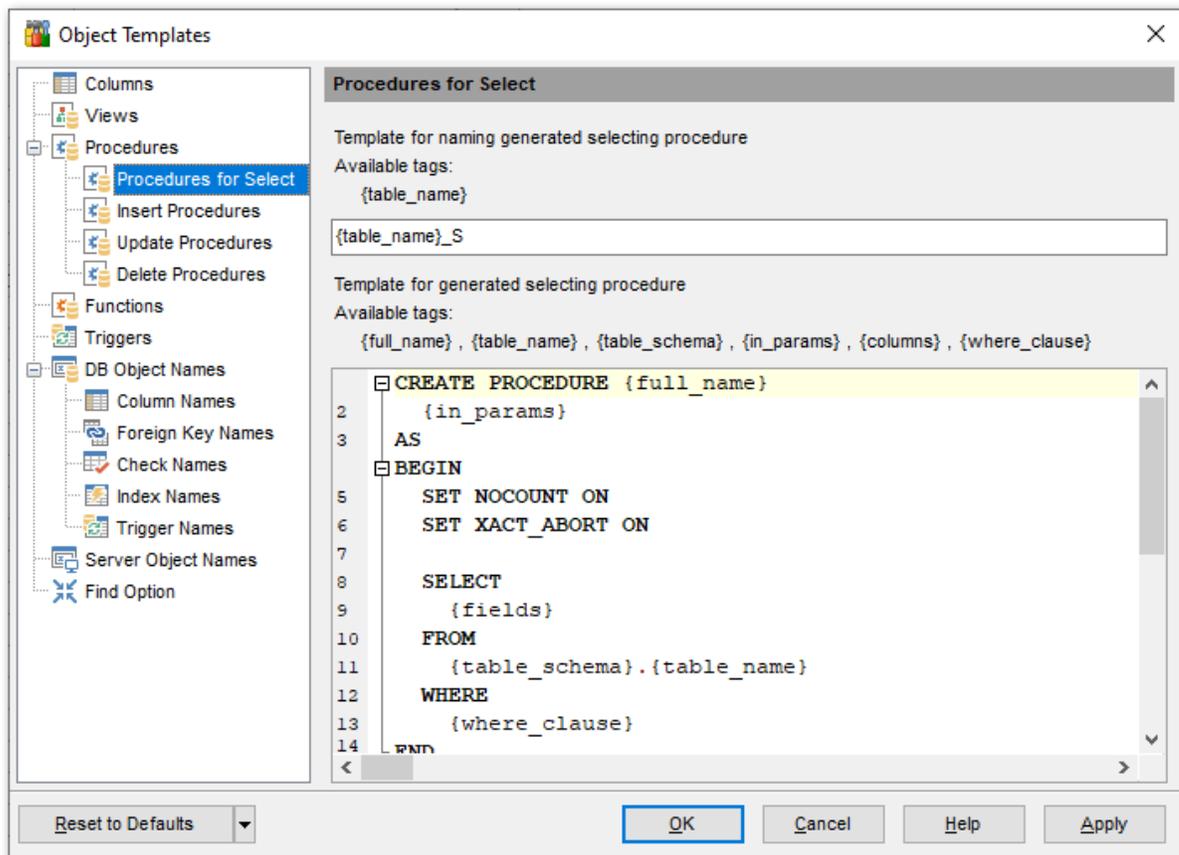
11.6 Object Templates

The **Object Templates** window allows you to preset the definition template for the name and/or body of an object to be created.

To open this window, select the **Options |  Object Templates...** [main menu](#)^[915] item.



Select an object in the tree and set its template using the editor area.



Columns - template is defined within the common form of the [Column Editor](#)^[214];

Views - set the template of a new [view](#)^[897];

Procedures - set the template of a new [procedure](#)^[897];

Procedures for Select - set the template for [select procedure](#)^[898] created from table;

Insert Procedures - set the template for [insert procedure](#)^[898] created from table;

Update Procedures - set the template for [update procedure](#)^[898] created from table;

Delete Procedures - set the template for [delete procedure](#)^[898] created from table;

Functions - set the template of a new [function](#)^[897];

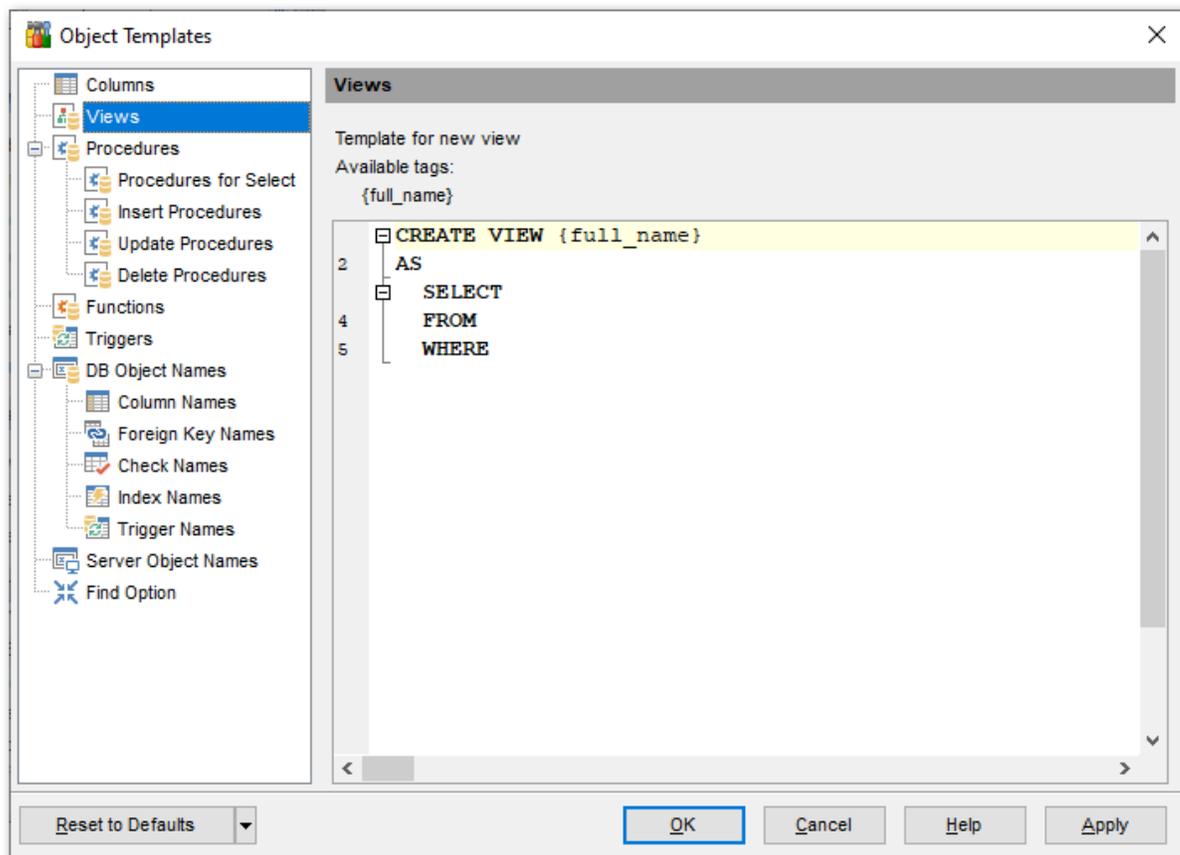
Triggers - template is defined within the common form of the [Trigger Editor](#)^[237];

DB Object Names - set the template for the name of a newly created [database object](#)^[899];

Server Object Names - set the template for the name of a newly created [server object](#)^[905].

11.6.1 Views/Functions/Procedures templates

For [Views](#)^[246], [Procedures](#)^[253] and [Functions](#)^[259] templates you can set the default definitions within the *Views*, *Procedures* and *Functions* tabs correspondingly.



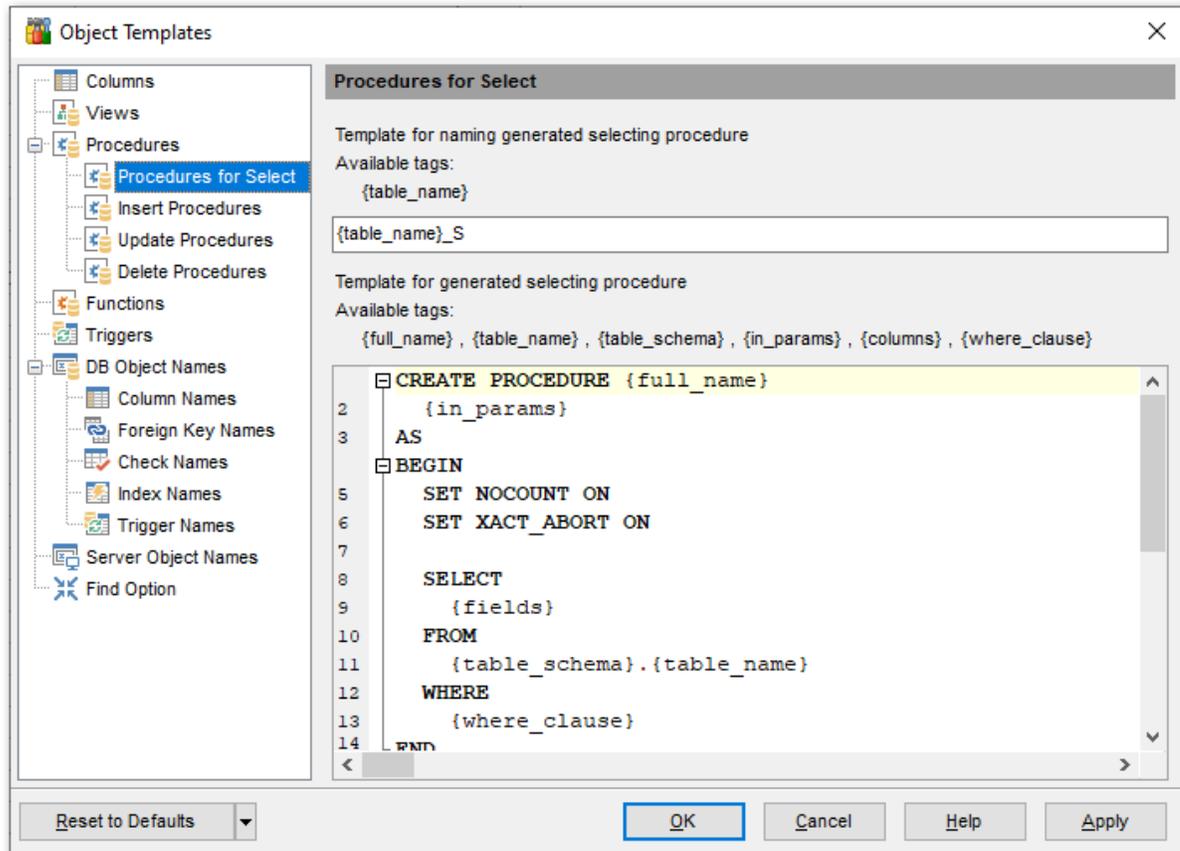
For the name of an object being created you can use the `{full_name}` tag which stands for the `[schema_name].[object_name]`.

Click the tag to insert it at the cursor position.

Object names templates are defined within the [DB Object Names](#)^[899] tab.

11.6.2 SIUD Procedures templates

For [Select](#)^[242], [Insert](#)^[243], [Update](#)^[244] and [Delete](#)^[245] procedures [created from table](#)^[240] templates can be defined within the corresponding tabs of the Object Templates window.



For each procedure type you can define the name template of the generated procedure. The available for naming `{table_name}` tag stands for the name of the table from which the procedure is being created.

Within the procedure editor window you are to specify the template for procedure definition. The following tags can be used:

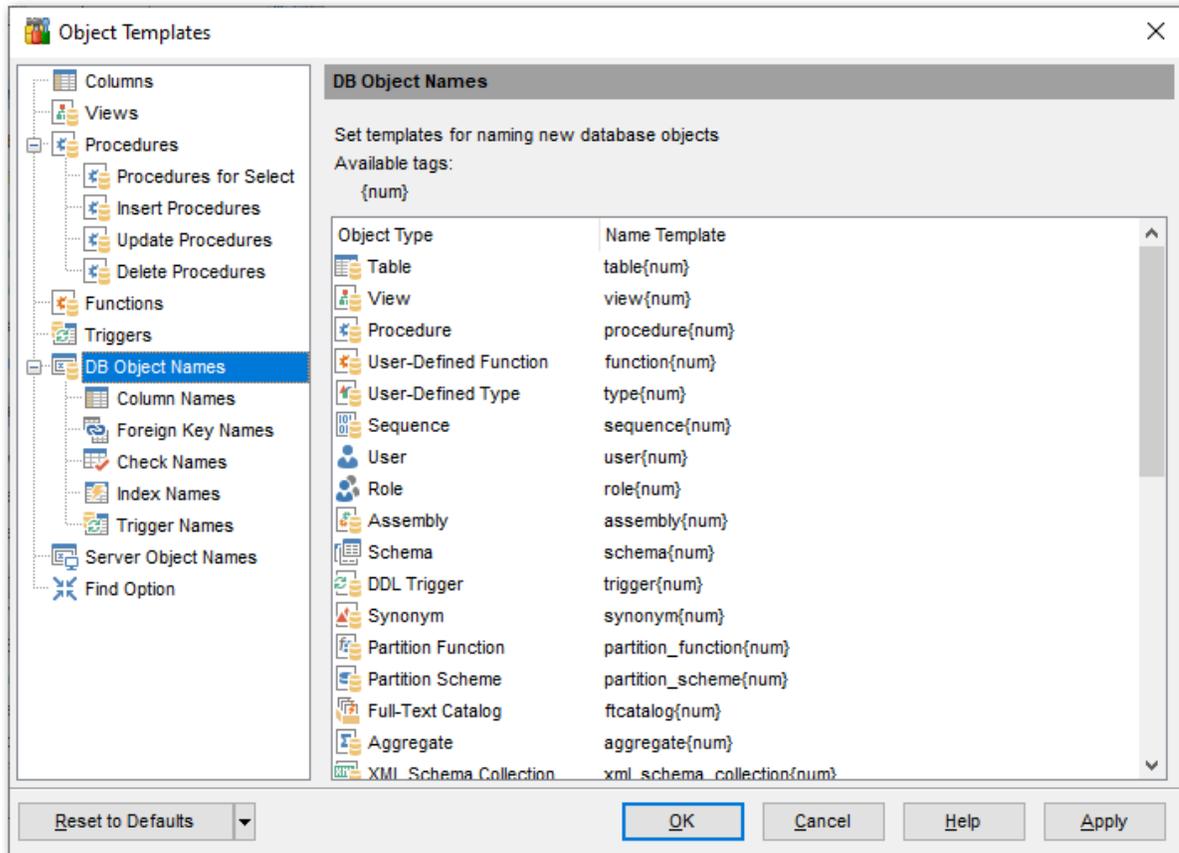
- `{full_name}` - stands for `[schema_name].[procedure_name]`;
- `{table_name}` - name of the table from which the procedure is being created;
- `{table_schema}` - schema which contains the table;
- `{in_params}` - input parameters of the procedure;
- `{columns}` (for select, insert procedures) - list of table *columns*;
- `{where_clause}` (for select, update, delete procedures) - where clause of the select/update/delete statement;
- `{values}` (for insert procedure) - values to be inserted in the table;
- `{set_clause}` (for update procedure) - set clause used in the update statement.

Click the tag to insert it at the cursor position.

Object names templates are defined within the [DB Object Names](#)^[899] tab.

11.6.3 Database Object Names

On the **DB Object Names** tab you can define templates for names of the newly created [database objects](#)^[187].

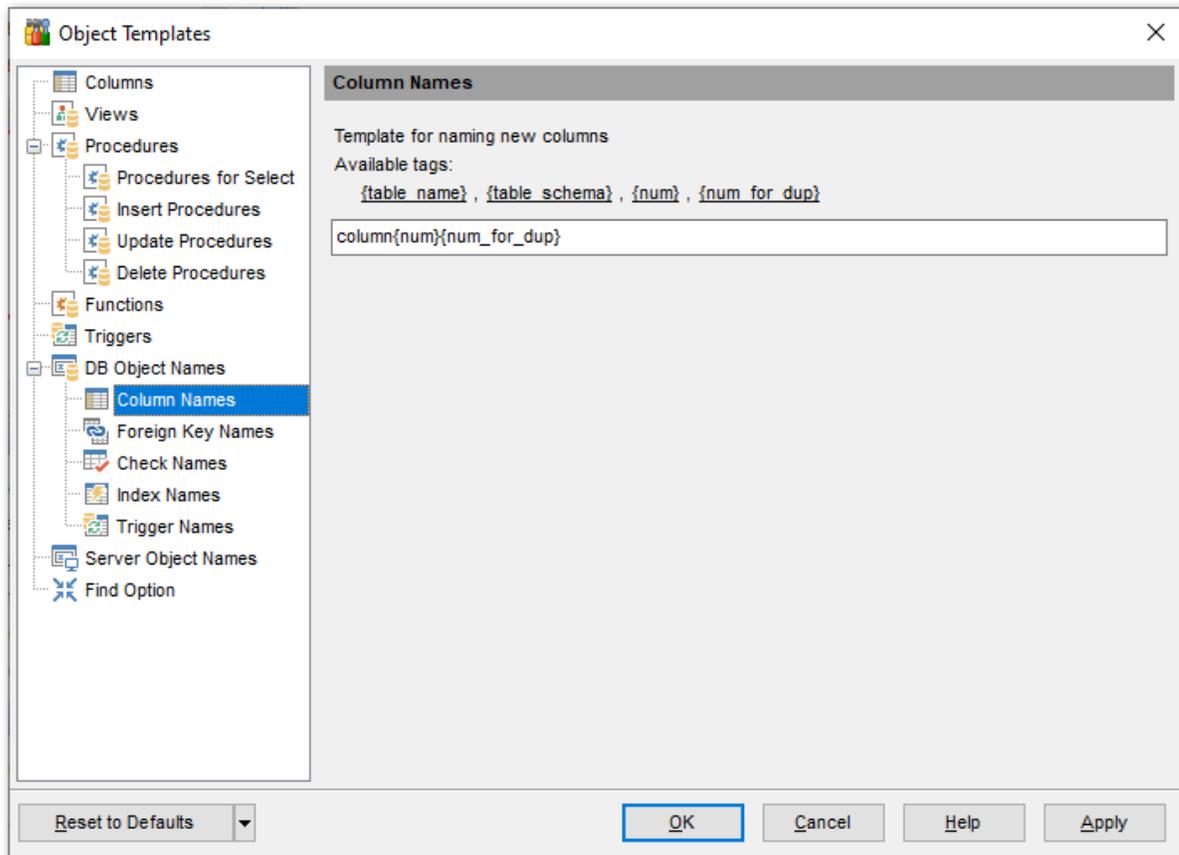


Select the **Object Type** and define its **Name Template**. You can use the `{num}` tag which stands for the ordinal number of the newly created object.

Click the tag to insert it at the cursor position.

11.6.3.1 Column Names

Use the **Column Names** tab to set the template for the name of the newly created [column](#)^[214].



The following tags are available:

`{table_name}` - the name of the table in which the column is created;

`{table_schema}` - the name of the schema that contains the table;

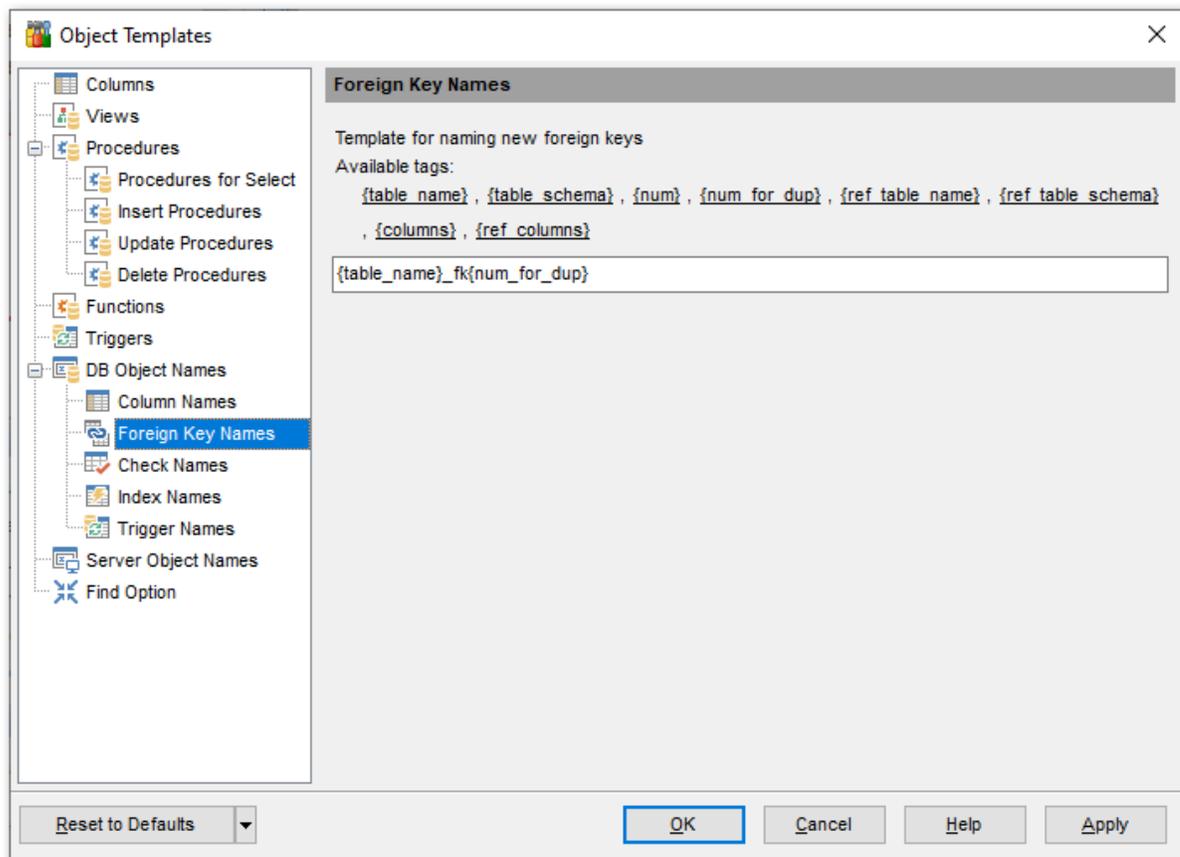
`{num}` - the ordinal number of a column with the same name;

`{num_for_dup}` - the number of a column which is applied if the column with the same name (without an ordinal number) already exists.

Click the tag to insert it at the cursor position.

11.6.3.2 Foreign Key Names

Use the **Foreign Key Names** tab to set the template for the name of the newly created [foreign key](#)^[222].



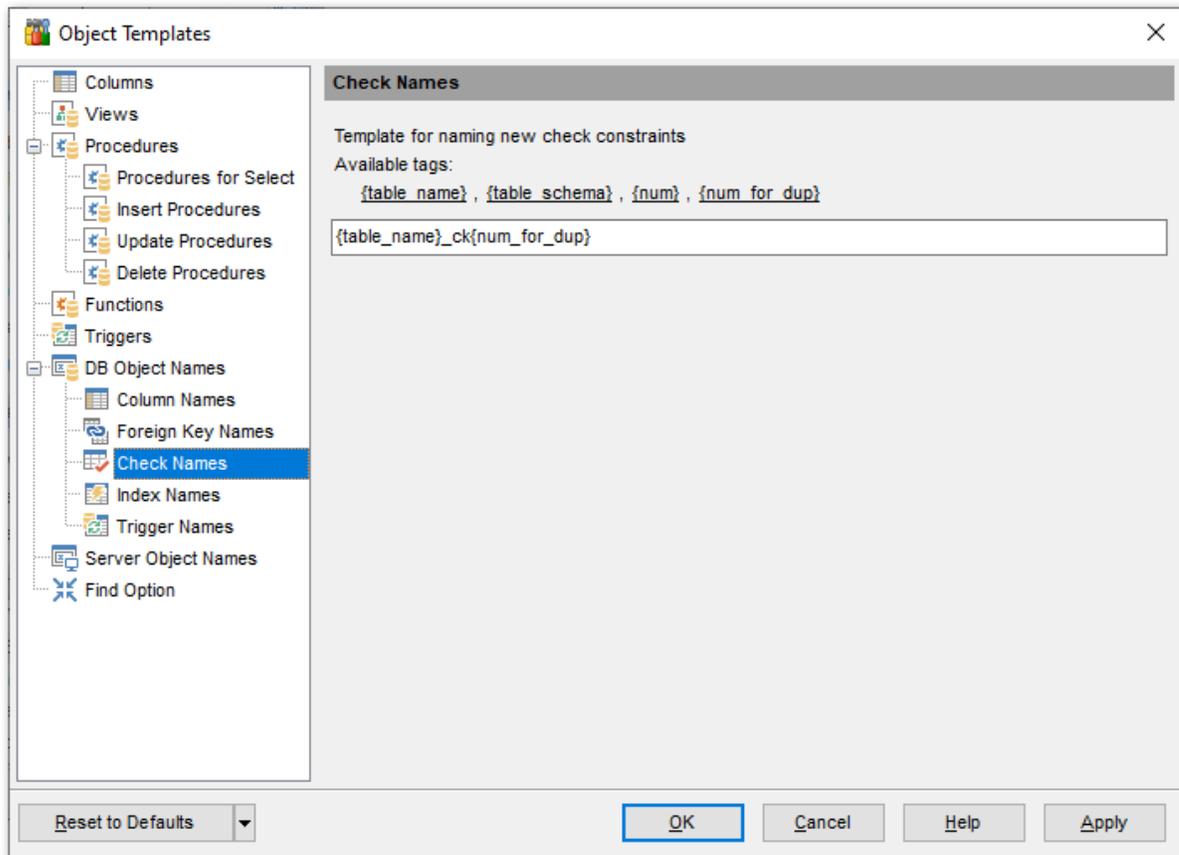
The following tags are available:

- `{table_name}` - the name of the table in which the foreign key is created;
- `{table_schema}` - the name of the schema that contains the table;
- `{num}` - the ordinal number of a foreign key with the same name;
- `{num_for_dup}` - the number of a foreign key which is applied if the foreign key with the same name (without an ordinal number) already exists;
- `{ref_table_name}` - the name of the table which is referenced using the foreign key (foreign table name);
- `{ref_table_schema}` - the name of the schema containing the table referenced by the foreign key;
- `{columns}` - names of columns on which the foreign key is created;
- `{ref_columns}` - the name of the column referenced by the foreign key.

Click the tag to insert it at the cursor position.

11.6.3.3 Check Names

Use the **Check Names** tab to set the template for the name of the newly created [check](#) ^[226].



The following tags are available:

`{table_name}` - the name of the table in which the check is created;

`{table_schema}` - the name of the schema that contains the table;

`{num}` - the ordinal number of a check with the same name;

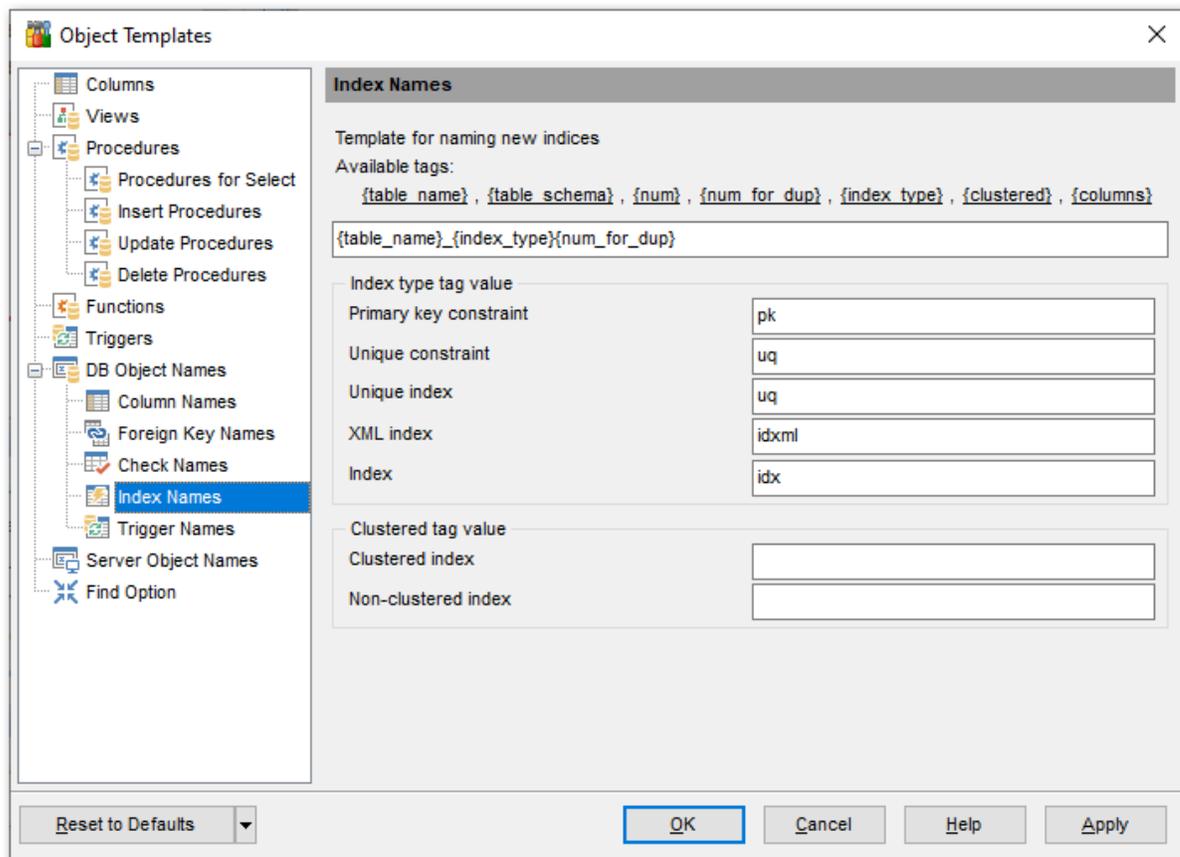
`{num_for_dup}` - the number of a check which is applied if the check with the same name (without an ordinal number) already exists.

Click the tag to insert it at the cursor position.

11.6.3.4 Index Names

Use the **Index Names** tab to set the template for the name of the newly created [index](#).

228.



The following tags are available:

{table_name} - the name of the table in which the index is created;

{table_schema} - the name of the schema that contains the table;

{num} - the ordinal number of an index with the same name;

{num_for_dup} - the number of an index which is applied if the index with the same name (without an ordinal number) already exists;

{index_type} - tag value of the index type which is defined in the **Index type tag value**;

{clustered} - tag value that which defines if the index is clustered (tag value is specified in the **Clustered tag value**);

{columns} - names of columns on which the index is created.

Click the tag to insert it at the cursor position.

Index type tag value

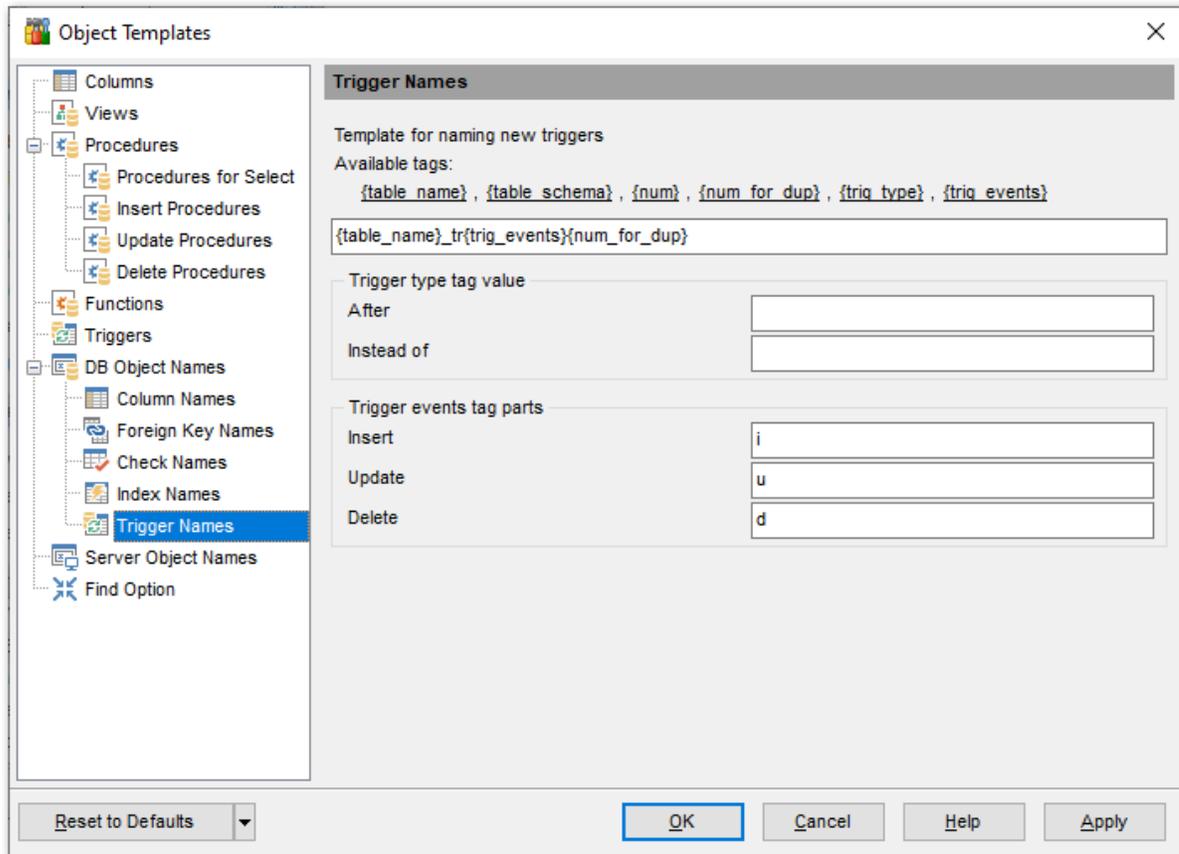
Here you can specify templates for **tags** added to default names of several index types: *Primary key constraint, Unique constraint, Unique index, XML index, Clustered, Index.*

Clustered tag value

Here you can specify templates which will be applied for *clustered* and *non-clustered* indices.

11.6.3.5 Trigger Names

Use the **Trigger Names** tab to set the template for the name of the newly created trigger^[237].



The following tags are available:

`{table_name}` - the name of the table in which the trigger is created;

`{table_schema}` - the name of the schema that contains the table;

`{num}` - the ordinal number of a trigger with the same name;

`{num_for_dup}` - the number of a trigger which is applied if the trigger with the same name (without an ordinal number) already exists;

`{trig_type}` - tag value of the trigger type which is defined in the **Trigger type tag value**;

`{trig_events}` - tag value of the trigger events which are defined in the **Trigger events tag parts**.

Click the tag to insert it at the cursor position.

Trigger type tag value

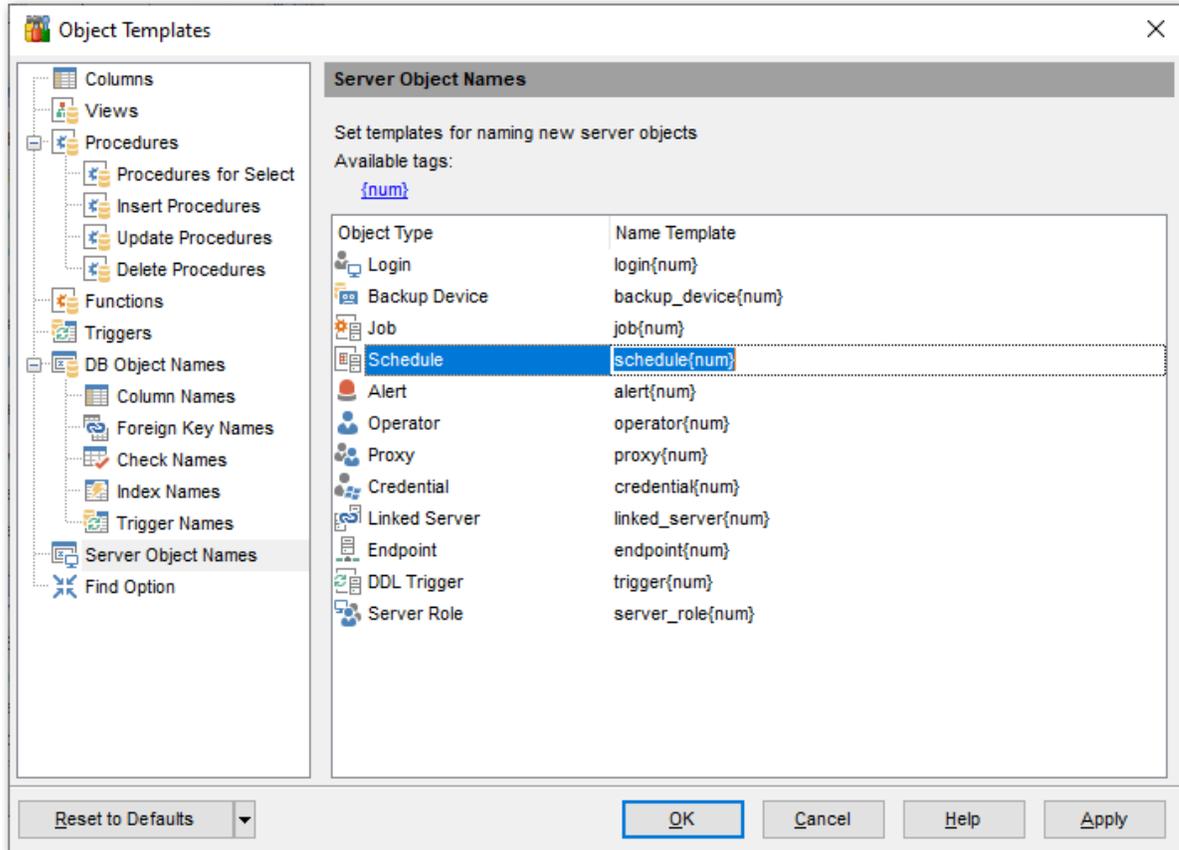
Here you can specify templates for trigger type tags added to default names of *After* and *Instead of* trigger types.

Trigger events tag parts

Here you can specify templates for trigger events tag parts added to trigger events: *Insert*, *Update*, *Delete*.

11.6.4 Server Object Names

On the **Server Object Names** tab you can define templates for names of the newly created [server objects](#) [353].



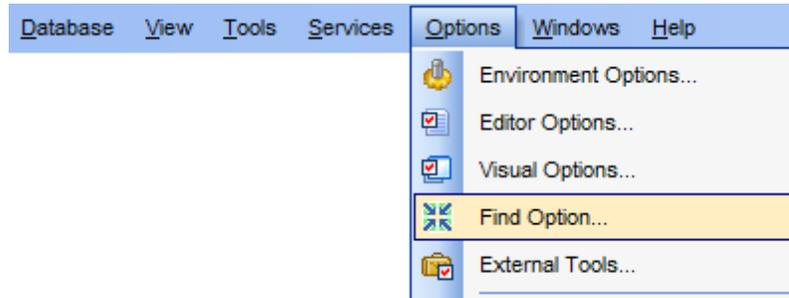
Select the **Object Type** and define its **Name Template**. You can use the `{num}` tag which stands for the ordinal number of the newly created object.

Click the tag to insert it at the cursor position.

11.7 Find Option dialog

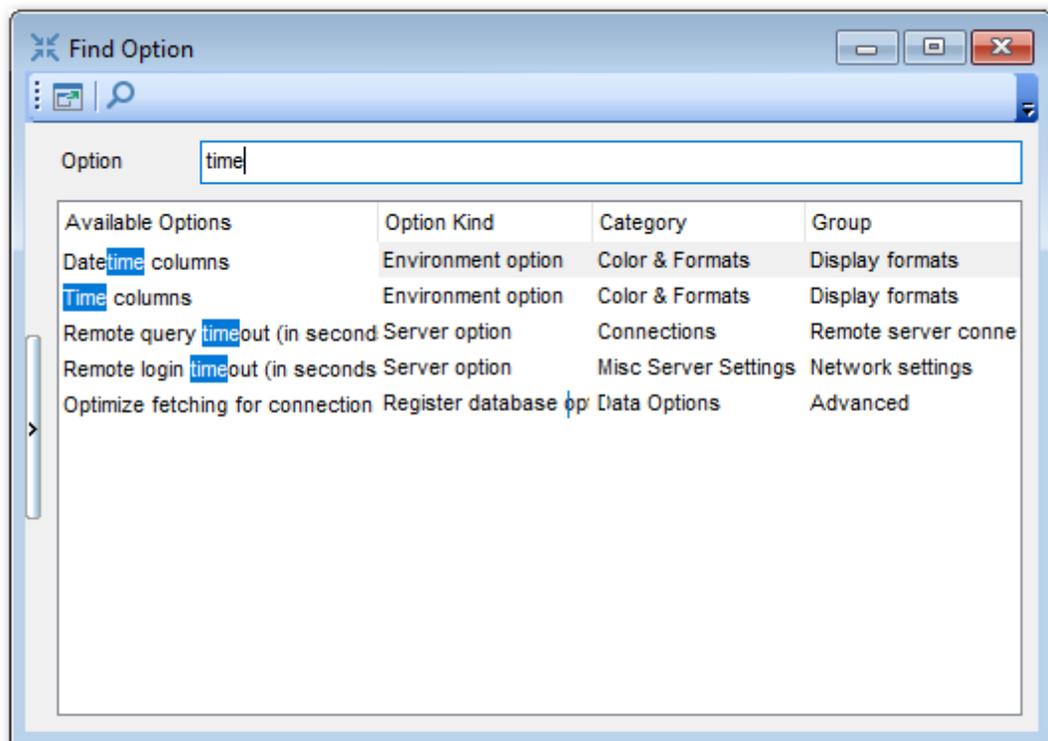
The **Find Option** dialog allows you to search for SQL Manager options easily.

To open this dialog, select the **Options | Find Option** [main menu](#) ⁽⁹¹⁵⁾ item.



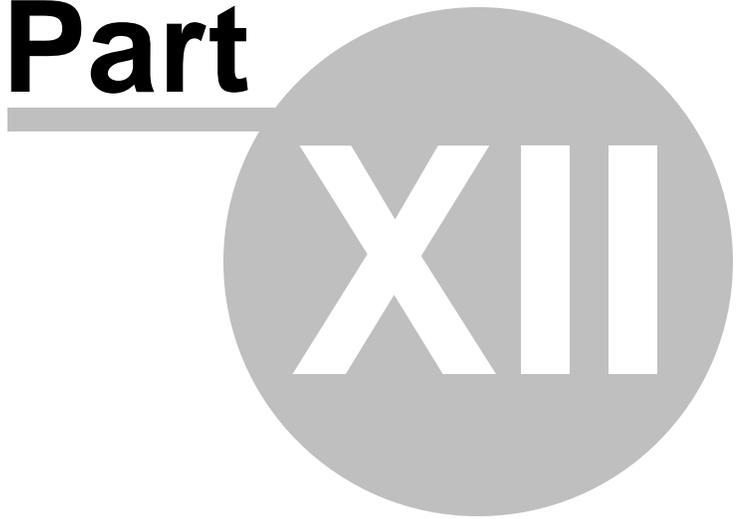
Option

In this field you can enter the name of the option to search for within the entire set of SQL Manager options.



The **Available options** area lists all options by categories according to the specified name. The **Option Kind**, **Category** and **Group** columns specify option type and location. Select the required option in the list and click  **Show Option** to open the corresponding dialog where you can view/edit the value of this option. For your convenience the required option is marked with an animated  icon.

Part

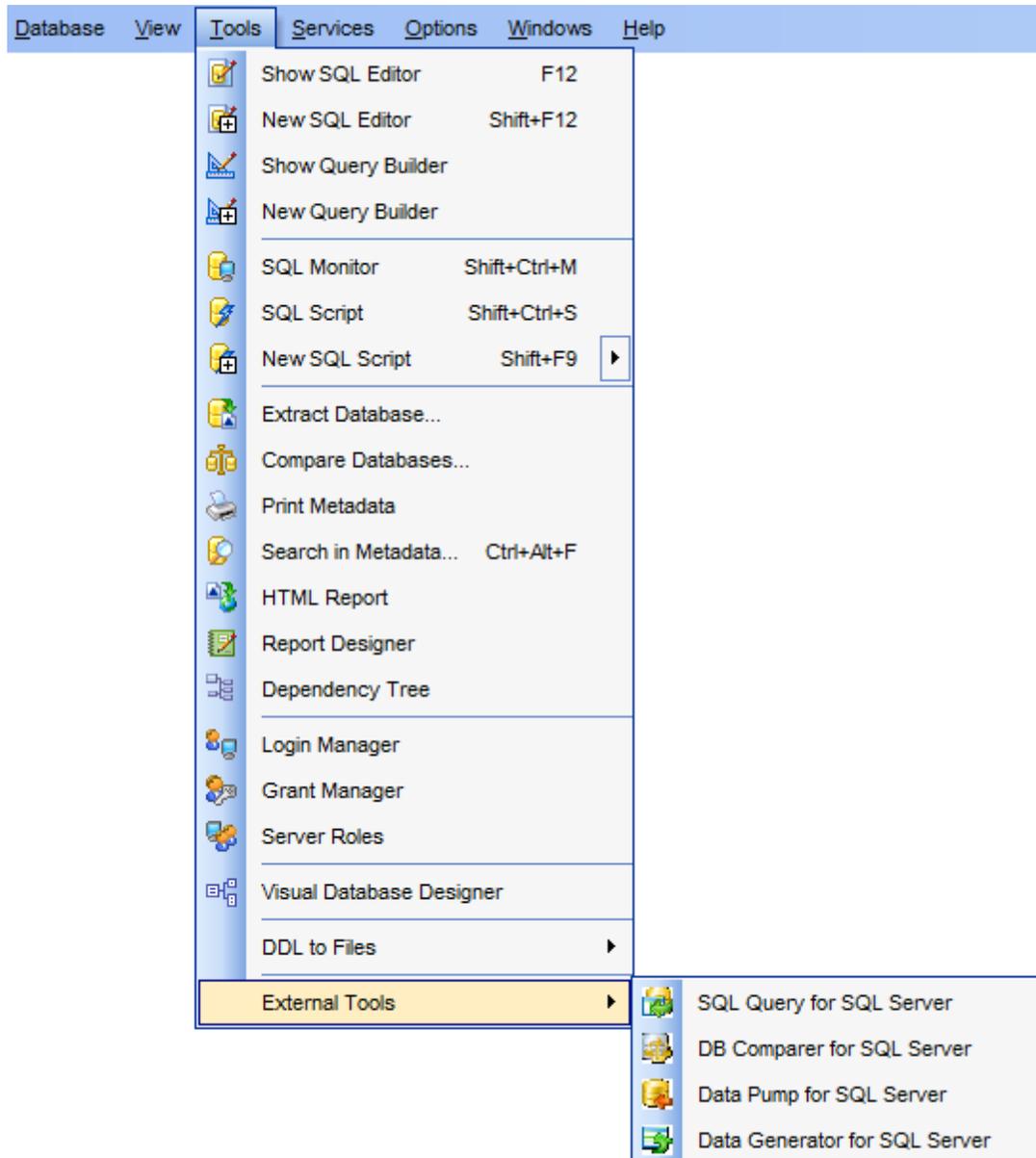


XII

12 External Tools

When using SQL Manager for SQL Server, you can add **external Windows applications** to make your work more efficient.

- [External Tools dialog](#)^[911]
- [External Tool Info editor](#)^[913]



Adding External Tools

In order to add an external program:

- select the **Options | External Tools...** [main menu](#)^[915] item;

- click the **Add...** button in the [External Tools](#) dialog;
- specify parameters of the new external tool within the [External Tool Info](#) editor;
- confirm adding the new external tool by clicking **OK** in the [External Tool Info](#) editor and the [External Tools](#) dialog.

This adds the icon and the title of the application you have selected to the **Tools | External Tools** submenu. Now you can run this tool quickly without closing SQL Manager.

Removing External Tools

In order to remove an external program:

- select the **Options | External Tools... main menu** item;
- select the tool to be removed in the **Tools** list of the [External Tools](#) dialog;
- press the **Del** key or click the **Delete** button within the dialog;
- click **OK** to confirm removing the tool and closing the dialog.

The selected tool has been removed and is no longer accessible from the **Tools | External Tools** submenu.

See also:

[Getting Started](#)

[Database Explorer](#)

[Database Management](#)

[Database Objects Management](#)

[Query Management Tools](#)

[Data Management](#)

[Import/Export Tools](#)

[Database Tools](#)

[Server Tools](#)

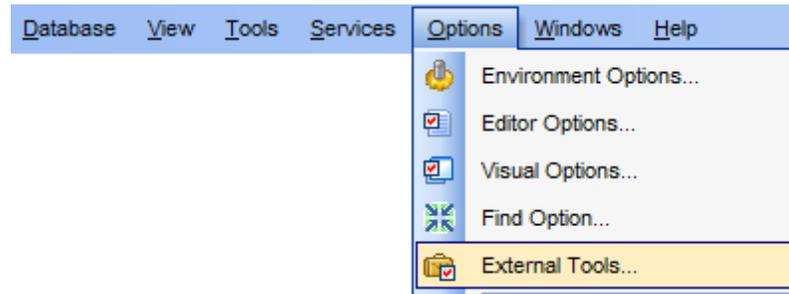
[Personalization](#)

[How To...](#)

12.1 External Tools dialog

The **External Tools** dialog allows you to manage the list of external applications which can be easily run from within SQL Manager environment.

To open this dialog, select the **Options | External Tools...** [main menu](#)^[915] item.



Tools

Lists all added external applications.

Add...

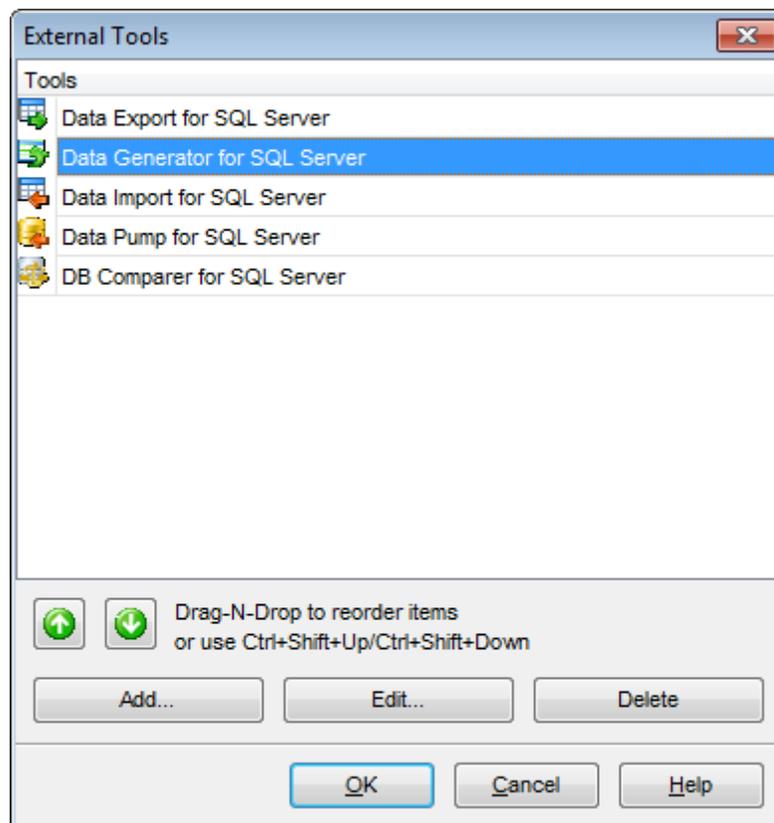
Opens the [External Tool Info](#)^[913] editor for adding a new tool to the **Tools | External Tools** submenu.

Edit...

Opens the [External Tool Info](#)^[913] editor for editing the title, the hot key, the path to the executable file, the working directory and execution parameters of the tool currently selected in the **Tools** list.

Delete

Removes the selected tool from the list of SQL Manager for SQL Server external tools.



To change the order of tools in the list, use the   arrow buttons at the bottom area of the dialog, or use the *Ctrl+Shift+Up* / *Ctrl+Shift+Down* [shortcuts](#)^[952]. You can also drag-and-drop items within the list box to change their positions.

See also:

[External Tool Info editor](#)^[913]

12.2 External Tool Info editor

The **External Tool Info** editor allows you to set common parameters of running added external programs from within SQL Manager environment. This dialog is used both when adding external tools and editing their parameters (see [Add External Tool](#)^[909] and [External Tools](#)^[911]).

Title

Enter the title to be displayed in the **Tools | External Tools** submenu of SQL Manager.

Hot Key

Press a key or a key combination to set it as a hot key for running the tool.

Program

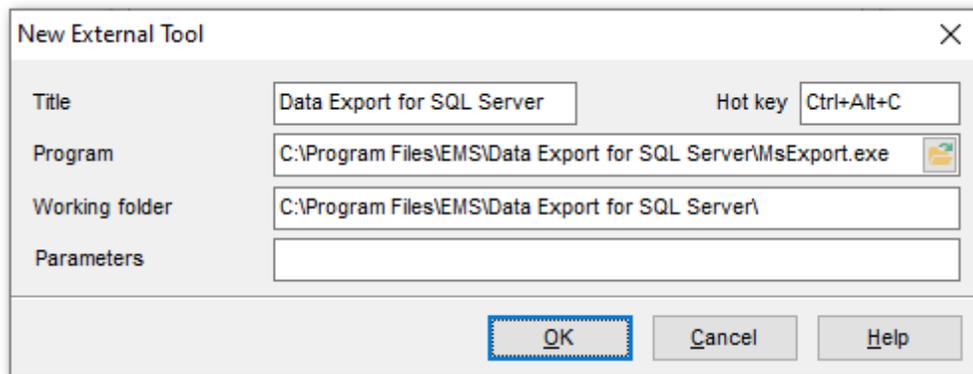
Use the  **Explorer** button to specify the path to the *.exe file of the external program.

Working Dir

Set the default working directory of the program.

Parameters

This box stores parameters for the program execution (if required).



See also:

[External Tools dialog](#)^[911]

Part



13 Appendix

13.1 Program interface

Main menu

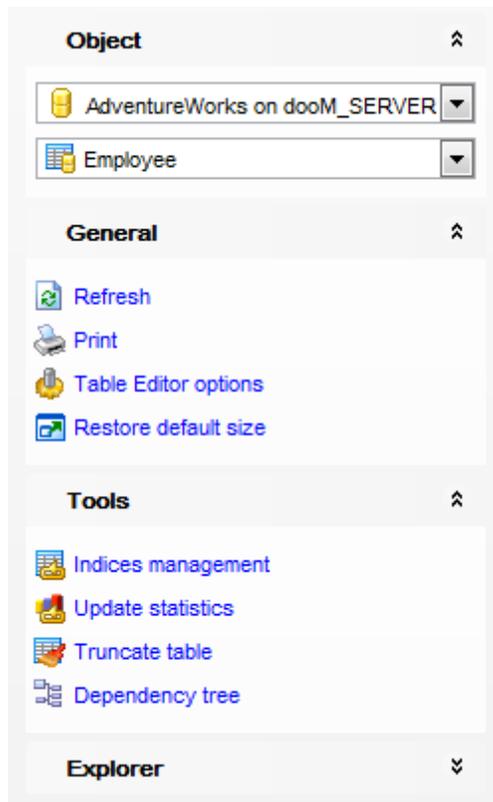
The main menu allows you to perform various **Database** operations, open [To-Do List](#)^[937] and activate/deactivate [Database Explorer](#)^[637], [SQL Assistant](#)^[857] and various [toolbars](#)^[917] within the **View** menu, manage your databases using items of the **Tools** and **Services** menus, [customize](#)^[824] the application using the **Options** menu, manage SQL Manager **Windows** using [Window List](#)^[939] and other tools, view the Tip of the Day and access [Registration](#)^[257] information and product documentation, [update](#)^[944] the product to the latest version using the corresponding items available within the **Help** menu.



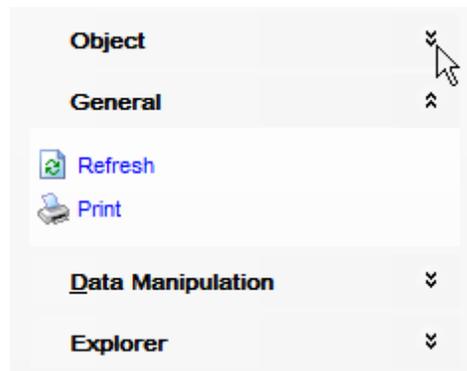
Note: To learn how to configure SQL Manager menus, refer to the [Customize toolbars and menus](#)^[940] page.

Navigation bars in object editors and program tools

Navigation bars are interface elements that enable users to quickly locate tools they need. Navigation bar items are displayed within a group with the help of links. A typical Navigation bar of SQL Manager contains links to commonly accessed tools (*refresh*, *print*, *restore default size* of the window), *options* pertaining to the editor or tool, and specific tools.



Navigation bar panes (groups) can be **expanded/collapsed**. When expanded, a pane provides access to its links; when collapsed, panes are displayed as headers only. To expand/collapse a pane, click the pane header. The \downarrow \uparrow icons indicate the current pane state (collapsed/expanded respectively).



Note: Depending on the current tab selection, Navigation bars in most of the program tools expand to one or more additional panes with tab-specific actions that can be useful for working with the object or service.

Note: To configure the Navigation bars, you can use the Navigation bar section of the Visual Options dialog.

Hint: Most items of the Navigation bars are also available on the [Toolbars](#)^[917].

Toolbars in the main program window, object editors and program tools

A **toolbar** is a horizontal row or vertical column of selectable image buttons that give the user a constantly visible reminder of and an easy way to select certain application functions. Most SQL Manager editors and tools are supplemented with toolbars.



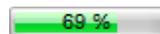
To enable the **toolbars** in SQL Manager for SQL Server, open the [Environment Options](#)^[825] dialog, proceed to the [Windows](#)^[829] section there and select *Toolbar* (if you need the toolbar only) or *Both* (if you need both the toolbar and the [Navigation bar](#)^[915]) in the **Bar style for child forms** group.

Hint: Most SQL Manager toolbars are dockable, i.e. you can place a toolbar to any available location within the parent window.

To learn how to configure toolbar items, refer to the [Customize toolbars and menus](#)^[940] page.

Progress bars

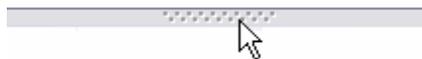
A **progress bar** is an interface element that conveys the progress of a task or service. Several SQL Manager editors (e.g. [Execute Script](#)^[619]), tools (e.g. [Dependency Tree](#)^[612]) and wizards (e.g. [Import Data Wizard](#)^[571]) are supplemented with progress bars indicating the progress of lengthy operations.



The graphic of SQL Manager progress bars is accompanied by a textual representation of the progress in the percent format.

Splitters

Splitter controls are used to resize docked controls at run time. In SQL Manager for SQL Server the splitter controls are used on the main form, [DB Explorer](#)^[631], and in program tools and editors as a separator between the working area and [Navigation bars](#)^[915], status bars, etc.



Incremental Search bar

Incremental search bar is the tool which is available in the status bar area of some SQL Manager tools. The bar is normally called through the *Ctrl+I* [shortcut](#)^[952]. Type in the first letters of the search string, and the corresponding string will be highlighted in the search scope.

Search:

13.2 Viewing object DDL structure

The **DDL** (Data Definition Language) tab displays the SQL statement for creating the object with all its subobjects, if any. 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 the [Query Data](#)^[426] or [Execute Script](#)^[619].

```

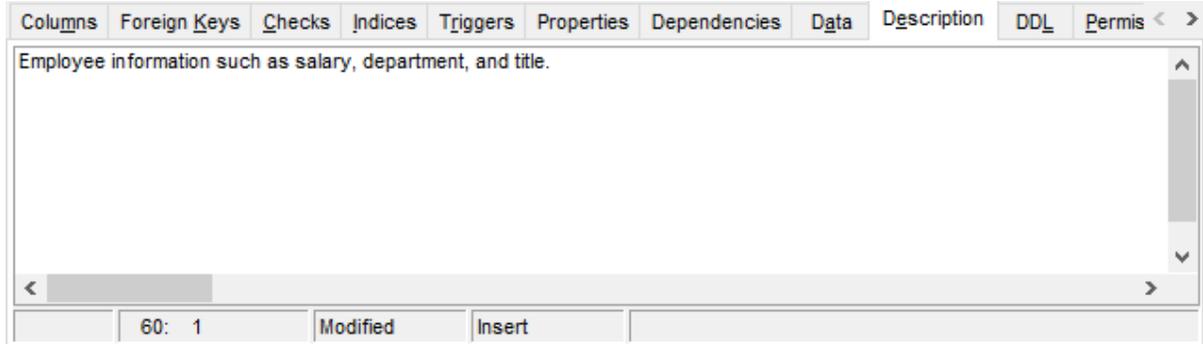
CREATE TABLE dbo.DimEmployee (
2  EmployeeKey int IDENTITY(1, 1) NOT NULL,
3  ParentEmployeeKey int NULL,
4  EmployeeNationalIDAlternateKey nvarchar(15) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
5  ParentEmployeeNationalIDAlternateKey nvarchar(15) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
6  SalesTerritoryKey int NULL,
7  FirstName nvarchar(50) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
8  LastName nvarchar(50) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
9  MiddleName nvarchar(50) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
10 NameStyle bit NOT NULL,
11 Title nvarchar(50) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
12 HireDate date NULL,
13 BirthDate date NULL,
14 LoginID nvarchar(256) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
15 EmailAddress nvarchar(50) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
16 Phone nvarchar(25) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
17 MaritalStatus nchar(1) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
18 EmergencyContactName nvarchar(50) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
19 EmergencyContactPhone nvarchar(25) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
20 SalariedFlag bit NULL,
21 Gender nchar(1) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
22 PayFrequency tinyint NULL,
23 BaseRate money NULL,
24 VacationHours smallint NULL,
25 SickLeaveHours smallint NULL,
26 CurrentFlag bit NOT NULL,
27 SalesPersonFlag bit NOT NULL,
28 DepartmentName nvarchar(50) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
29 StartDate date NULL,
30 EndDate date NULL,
31 Status nvarchar(50) COLLATE SQL_Latin1_General_CP1_CI_AS NULL,
32 EmployeePhoto varbinary(max) NULL,
33 DepartmentID int NULL,
34 CONSTRAINT PK_DimEmployee EmployeeKey PRIMARY KEY CLUSTERED (EmployeeKey)
35 WITH (
36     PAD_INDEX = OFF, IGNORE_DUP_KEY = OFF, STATISTICS_NORECOMPUTE = OFF,
37     ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON),
38 CONSTRAINT FK_DimEmployee_DimEmployee FOREIGN KEY (ParentEmployeeKey)
39 REFERENCES dbo.DimEmployee (EmployeeKey)
40 ON UPDATE NO ACTION
41 ON DELETE NO ACTION,

```

Hint: If more convenient, you can use the **Save DDL to file** and **Open DDL in Query Data** items available on the DDL pane within the [Navigation bar](#)^[915] of object editors.

13.3 Editing object description

The **Description** tab allows you to view and edit the comment for the object (optional).



You can save changes made in this area by clicking the **Save Description** item on the [Navigation bar](#)^[915].

If the changes have not been saved, on attempt to select another tab of the editor you will be prompted for an action whether changes in the object description should be saved or discarded.

Note: Changing object description is performed by means of *sp_updateextendedproperty 'MS_Description'*.

13.4 Browsing object dependencies

The **Dependencies** tab allows you to view objects that depend on the object being edited, and the objects that the edited object depends on.

The screenshot displays the SQL Server Enterprise Manager interface with the **Dependencies** tab selected. The interface is divided into three main sections:

- Top Left:** A tree view titled "Objects that depend on <Employee (HumanResources)>". It shows:
 - HumanResources
 - Views (1)
 - dEmployee
 - Procedures (1)
 - usp_GetLeaveReport
 - Indices (1)
 - PK_DimEmployee_EmployeeKey on Employee
- Top Right:** A tree view titled "Objects that <Employee (HumanResources)> depends on". It shows:
 - dbo
 - Tables (2)
 - DimEmployee
 - EmployeeKey
 - DimSalesTerritory
 - SalesTerritoryKey
- Bottom:** A SQL script editor window titled "[EmployeeKey on DimEmployee]". The script contains the following commands:


```

ALTER TABLE dbo.DimEmployee
2  ADD EmployeeKey int IDENTITY(1, 1) NOT NULL
3  GO
4
ALTER TABLE dbo.DimEmployee
6  ADD PRIMARY KEY (EmployeeKey)
7  GO
8
EXEC sp_addextendedproperty 'MS_Description', N'Primary key for EmployeeID',
9
10 GO
      
```

Hint: To open a dependent object or a depending object in its editor, you can simply double-click the object alias in the **Objects that <object_name> depends on** and **Objects that depend on <object_name>** lists.

See also:

[Dependency Tree](#)⁶¹²

13.5 Setting object permissions

The **Permissions** tab allows you to view the permissions currently allocated for this object, and to [grant permissions](#)^[686] on the object to any of the existing principals.

Grantee	Select	Insert	Update	Delete	References	Alter	Control	Take
Roles								
public	●							
test_application_role	●		●					
Users								
Bill								
guest	●							
INFORMATION_SCHEMA								
sys								
tester	●	●	●					

Column Name	Select	Update
EmployeeKey	●	●
ParentEmployeeKey	●	●
EmployeeNationalIDAlternateKey	●	●
ParentEmployeeNationalIDAlternat	●	●
SalesTerritoryKey	●	●
FirstName	●	●
LastName	●	●
MiddleName	●	●

For details see [Grant Manager](#)^[682].

13.6 Changing Metadata window

The **Changing Metadata** window is used to trace the errors and edit SQL statements during their compilation. The compilation window appears each time metadata is changed, both when the compilation is successful and when there are compilation errors. To hide this window for successful metadata changes, select the **Don't show this window on success** option.

Compile SQL

This area displays the SQL statement pending to be executed to perform metadata changing. In this area you can view and edit the SQL statement.

In case of a compilation error the **Error** tab also becomes visible - here you can view the error description returned by the server.

Commit

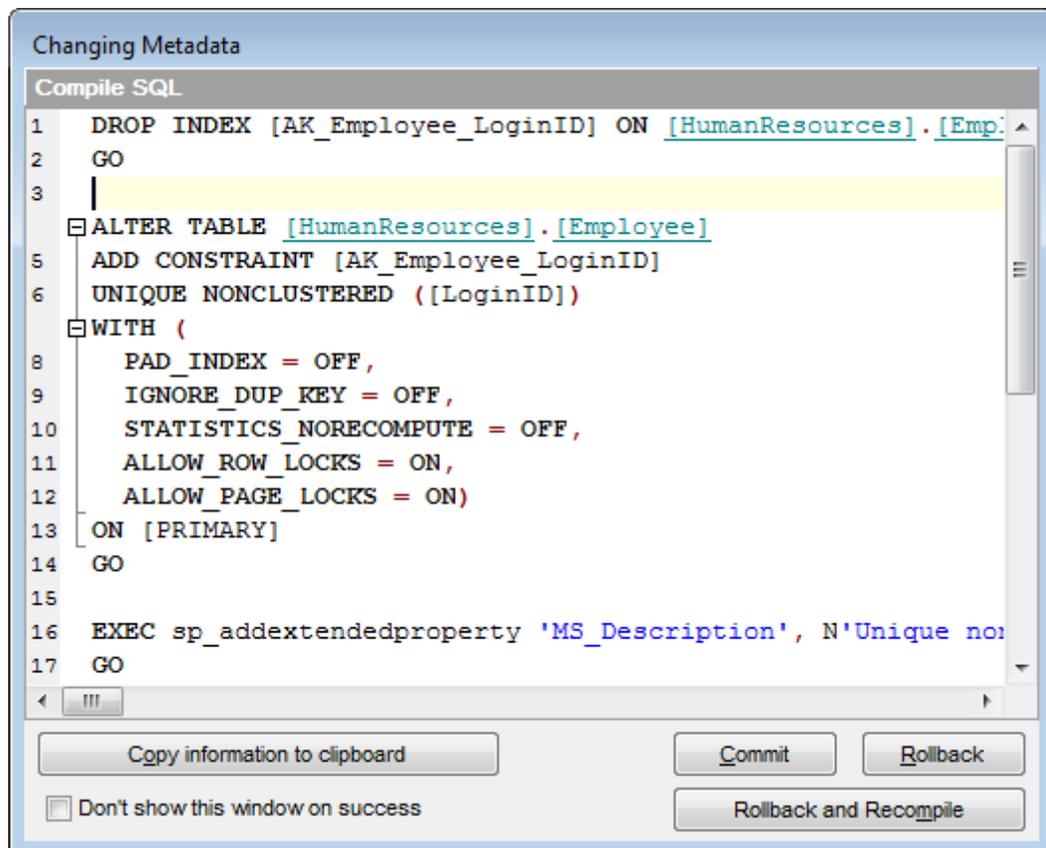
This button starts execution of the statement(s). Click it to commit the current transaction. This button is available only if there were no errors in compilation.

Rollback

This button cancels the script execution and allows you to return to the previous stage (editor window or [DB Explorer](#)^[63]).

Rollback and Recompile

This button calls for recompilation with the changes you made in the **Compile SQL** area. Use this button after correcting the SQL statement.



If necessary, you can **copy information to clipboard** and save it in a text editor afterwards (the button is only enabled when a compilation error occurs).

If you want this window to appear only in case of an error, uncheck the **Confirm metadata changing (Changing Metadata Window)** option (checked by default) available within the **Confirmations** section of the [Environment Options](#)^[825] dialog.

13.7 Find Text dialog

The **Find Text** dialog is provided for quick and flexible searching for specified text within the working area of SQL Manager editors.

Text to find

Enter a search string in this box. The Arrow-Down button which can be found next to the input box allows you to select any of the previously entered search strings.

Options

Case sensitive

This option can be used to differentiate uppercase characters from lowercase ones during the search process.

Whole words only

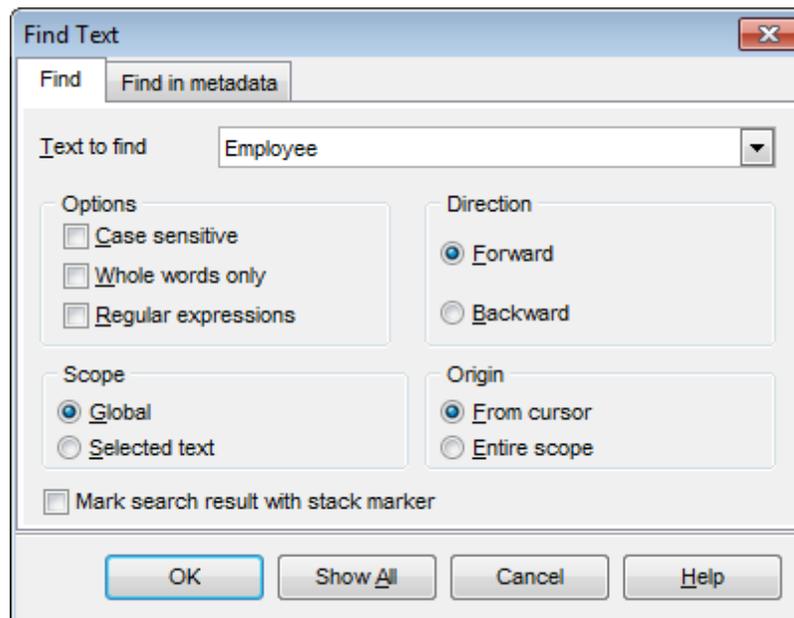
Use this option to search for words only (with this option off, the search string might be found within longer words.)

Regular expressions

Recognizes regular expressions in the **Text to find** field.

For example, you can type "empl*" to search for metadata containing the "empl" substring; enter "^emp" to search for words starting with "emp" or "^emp|emp\$" to search for the string "emp" at the beginning or at the end of the string.

Note: The syntax of regular expressions that can be used in the **Text to find** field is similar to that used in Perl regular expressions. Comprehensive information about it can be found at <http://perldoc.perl.org/perlre.html#Regular-Expressions>.



Direction

Forward

Searches from the current position to the end of the working area.

Backward

Searches from the current position to the beginning of the working area.

Scope

Global

Searches within the entire working area, in the direction specified by the *Direction* setting.

Selected text

Searches only within the currently selected text, in the direction specified by the *Direction* setting. You can use the mouse or block commands to select a block of text.

Origin

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.

Entire scope

The search covers either the entire block of selected text or the entire script (no matter where the cursor is in the Editor area) depending upon the *Scope* options.

Mark search result with stack marker

The option toggles marking search results. If this option is selected, stack markers are set at all search positions - this makes it possible to jump from one marker (search result) to another within the text.

Click the **Show All** button to highlight every occurrence of the search string.

13.8 Replace Text dialog

The **Replace Text** dialog is provided for searching and replacing text within the working area of SQL Manager editors.

Text to find

Enter a search string in this box. The Arrow-Down button which can be found next to the input box allows you to select any of the previously entered search strings.

Text to replace

This box allows you to enter a string to replace the search string. The Arrow-Down button which can be found next to the input box allows you to select any of the previously entered strings. To replace the search string with an empty string, leave this input box blank.

Options

Case sensitive

This option can be used to differentiate uppercase characters from lowercase ones during the search process.

Whole words only

Use this option to search for words only (with this option off, the search string might be found within longer words.)

Regular expressions

Recognizes regular expressions in the **Text to find** field.

Replace with template

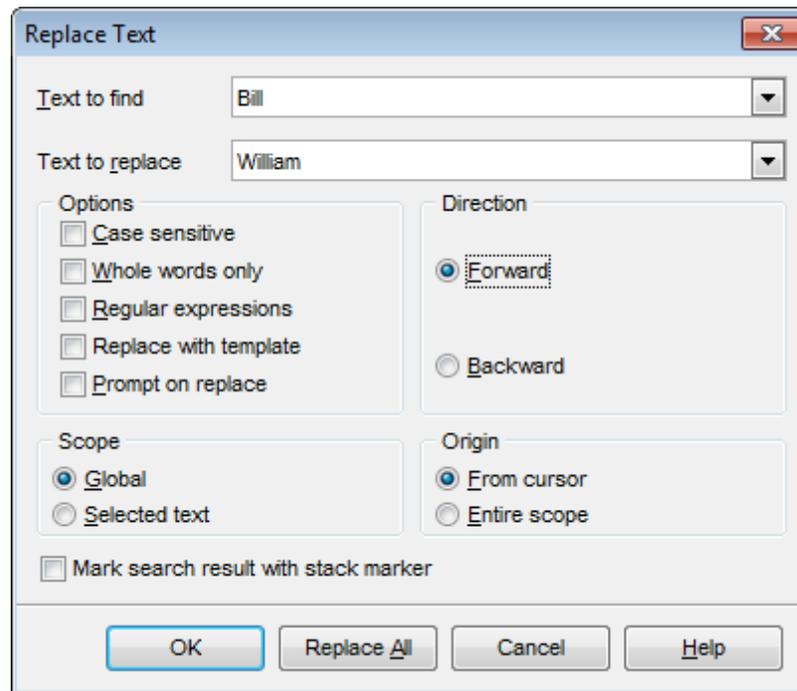
This option requires the **Regular expressions** option selection.

Enable this option to use regular expressions in the **Text to replace** field. Expression used in this field will be applied to each string that matches the **Text to find** expression.

Note: The syntax of regular expressions that can be used in the **Text to find** and the **Text to replace** fields is similar to that used in Perl regular expressions. Comprehensive information about it can be found at <http://perldoc.perl.org/perlre.html#Regular-Expressions>.

Prompt on replace

Check this option if you wish to be prompted before replacing upon each occurrence of the search string. When this option is off, the search string is replaced automatically.



Direction

Forward

Searches and replaces from the current position to the end of the working area.

Backward

Searches and replaces from the current position to the beginning of the working area.

Scope

Global

Searches and replaces within the entire working area, in the direction specified by the *Direction* setting.

Selected text

Searches and replaces only within the currently selected text, in the direction specified by the *Direction* setting. You can use the mouse or block commands to select a block of text.

Origin

From cursor

The search and replace process 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.

Entire scope

The search and replace process covers either the entire block of selected text or the entire script (no matter where the cursor is in the Editor area) depending upon the *Scope*

options.

Mark search result with stack marker

The option toggles marking search results. If this option is selected, stack markers are set at all search positions - this makes it possible to jump from one marker (search result) to another within the text.

Click the **Replace All** button to replace every occurrence of the search string. If you have checked the **Prompt on replace** option, the confirmation dialog box appears upon each occurrence of the search string.

13.9 Format specifiers

The following format specifiers are supported in the format string:

Float/Integer format

0

Digit place holder. If the value being formatted has a digit in the position where the '0' appears in the format string, then that digit is copied to the output string. Otherwise, a '0' is stored in that position in the output string.

#

Digit placeholder. If the value being formatted has a digit in the position where the '#' appears in the format string, then that digit is copied to the output string. Otherwise, nothing is stored in that position in the output string.

.

Decimal point. The first '.' character in the format string determines the location of the decimal separator in the formatted value; any additional '.' characters are ignored.

,

Thousand separator. If the format string contains one or more ',' characters, the output will have thousand separators inserted between each group of three digits to the left of the decimal point. The placement and number of ',' characters in the format string does not affect the output, except to indicate that thousand separators are wanted.

E+

Scientific notation. If any of the strings 'E+', 'E-', 'e+', or 'e-' are contained in the format string, the number is formatted using scientific notation. A group of up to four '0' characters can immediately follow the 'E+', 'E-', 'e+', or 'e-' to determine the minimum number of digits in the exponent. The 'E+' and 'e+' formats cause a plus sign to be output for positive exponents and a minus sign to be output for negative exponents. The 'E-' and 'e-' formats output a sign character only for negative exponents.

Date/Time format

c

Displays the date using the format using the Short Date Format, followed by the time using the Long Time Format. The time is not displayed if the date-time value indicates midnight precisely.

d

Displays the day as a number without a leading zero (1-31).

dd

Displays the day as a number with a leading zero (01-31).

ddd

Displays the day as an abbreviation (Sun-Sat) using the strings of the Short Day Names.

dddd

Displays the day as a full name (Sunday-Saturday) using the strings of the Long Day Names.

dddd

Displays the date using the Short Date Format.

dddddd

Displays the date using the Long Date Format.

e

Displays the year in the current period/era as a number without a leading zero (Japanese, Korean and Taiwanese locales only).

ee

Displays the year in the current period/era as a number with a leading zero (Japanese, Korean and Taiwanese locales only).

g

Displays the period/era as an abbreviation (Japanese and Taiwanese locales only).

gg

Displays the period/era as a full name. (Japanese and Taiwanese locales only).

m

Displays the month as a number without a leading zero (1-12). If the m specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.

mm

Displays the month as a number with a leading zero (01-12). If the mm specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.

mmm

Displays the month as an abbreviation (Jan-Dec) using the strings given of the Short Month Names.

mmmm

Displays the month as a full name (January-December) using the strings of the Long Month Names.

yy

Displays the year as a two-digit number (00-99).

yyyy

Displays the year as a four-digit number (0000-9999).

h

Displays the hour without a leading zero (0-23).

hh

Displays the hour with a leading zero (00-23).

n

Displays the minute without a leading zero (0-59).

nn

Displays the minute with a leading zero (00-59).

s

Displays the second without a leading zero (0-59).

ss

Displays the second with a leading zero (00-59).

z

Displays the millisecond without a leading zero (0-999).

zzz

Displays the millisecond with a leading zero (000-999).

t

Displays the time using the Short Time Format.

tt

Displays the time using the Long Time Format.

am/pm

Uses the 12-hour clock for the preceding h or hh specifier, and displays 'am' for any hour before noon, and 'pm' for any hour after noon. The am/pm specifier can use lower, upper, or mixed case, and the result is displayed accordingly.

a/p

Uses the 12-hour clock for the preceding h or hh specifier, and displays 'a' for any hour before noon, and 'p' for any hour after noon. The a/p specifier can use lower, upper, or mixed case, and the result is displayed accordingly.

ampm

Uses the 12-hour clock for the preceding h or hh specifier, and displays the contents of the TimeAMString global variable for any hour before noon, and the contents of the TimePMString global variable for any hour after noon.

/

Displays the date separator character using the Date Separator.

:

Displays the time separator character using the Time Separator.

'xx'/"xx"

Characters enclosed in single or double quotes are displayed as-is, and do not affect formatting.

13.10 Language Info Editor

The **Language Info Editor** dialog allows you to set the language name and specify the corresponding *.*lng* localization file. This dialog is opened when you add or edit a language (see [Environment Options | Localization](#)^[865]).

Language Name

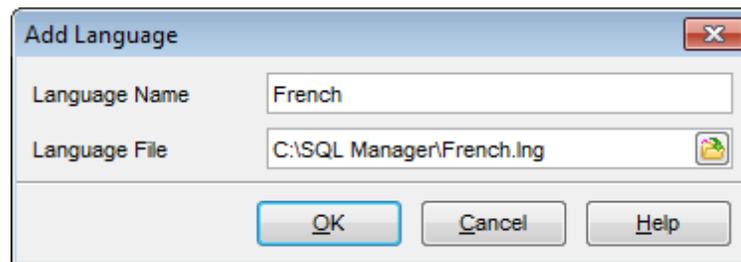
The name of the language that is displayed in the [Select Program Language](#)^[892] dialog and within the **Available Languages** list of the [Environment Options | Localization](#)^[865] section.

Language File

The *.*lng* file containing the translated string resources. See the *%program_directory%\Languages* folder to find already existing localization files.

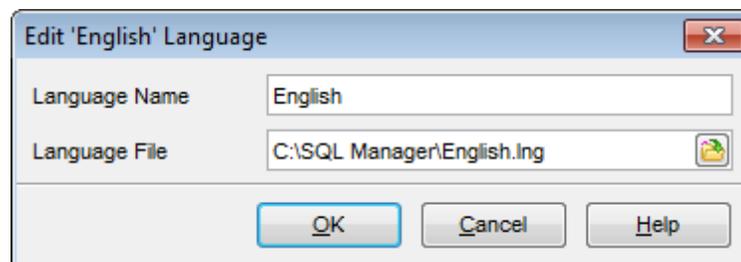
Adding a language

The *Add language* dialog allows you to specify your own localization file and set the language name.



Editing a language

The *Edit language* dialog allows you to change the language name or select another localization file for the specified language.



13.11 Using templates

For your convenience the ability to use templates is provided by SQL Manager for SQL Server. A template is a named collection of wizard options stored in a file.

Instead of performing a long chain of routine steps all the time you can save all the options of the wizard for future use as a template file. Select the **Templates | Save Template** drop-down menu item, specify the template file name and set an optional comment for the template file.

When starting the wizard next time, you can load the template by selecting the **Templates | Load Template** drop-down menu item.

Note that saving/loading of templates is possible at any step of the wizard.

13.12 Supported file formats

• **MS Excel 97-2003**

The most popular e-table format used by Microsoft® Excel (*.xls). The result files are fully compatible with Microsoft® Excel versions 97-2000, 2003 and XP.

• **MS Access 97-2003**

File of Microsoft® Access format (*.mdb) with an ADO connection used.

• **MS Word 97-2003**

One of the most popular text processing formats used by Microsoft® Word (*.doc). The result files are fully compatible with Microsoft® Word versions 97-2000, 2003 and XP.

• **RTF**

Rich Text Format (*.rtf) supported by many text processing programs (e.g. WordPad).

• **HTML**

Hyper Text Markup Language file format (*.html, *.htm), complete compatibility with HTML 4.0 specification.

• **PDF**

A standard format in electronic publishing (*.pdf).

• **Text file**

Plain text file format (*.txt).

• **CSV file**

Comma-Separated Value file format (*.csv).

• **DIF file**

Data Interchange File (*.dif) format.

• **SYLK**

Symbolic Links (*.slk) file format.

Note: all the text formats including *Text file*, *CSV*, *DIF*, *SYLK* are usually used as working or interchange formats.

• **LaTeX**

A specific file format (*.tex) which is a popular (especially among mathematicians and physicists) macroextension of *TeX* pack developed by D.Knut.

• **XML**

A markup language for documents containing structured information (*.xml).

• **DBF**

Database file format (*.dbf) used by dBASE and a number of xBASE applications.

• **MS Excel**

The contemporary e-table format used by Microsoft® Excel 2007 (*.xlsx). The result files are fully compatible with Microsoft® Excel 2007.

• **MS Access**

File of Microsoft® Access 2007 format (*.accdb) with an ADO connection used.

• **MS Word**

The contemporary text processing format used by Microsoft® Word 2007 (*.docx). The result files are fully compatible with Microsoft® Word 2007.

• **ODF Spreadsheets**

OASIS Open Document Format for Office Applications - open document file format for spreadsheets (*.ods) used by a number of applications including OpenOffice.org and KOffice.

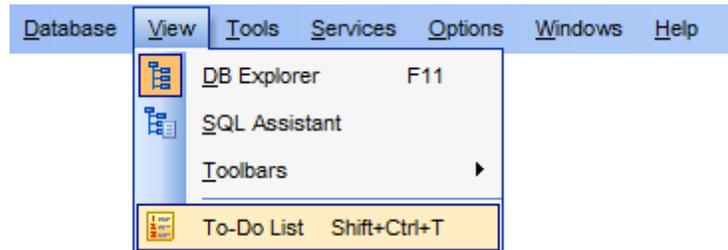
• **ODF text**

OASIS Open Document Format for Office Applications - open document file format for word processing (*.odt) documents used by a number of applications including OpenOffice.org and KOffice.

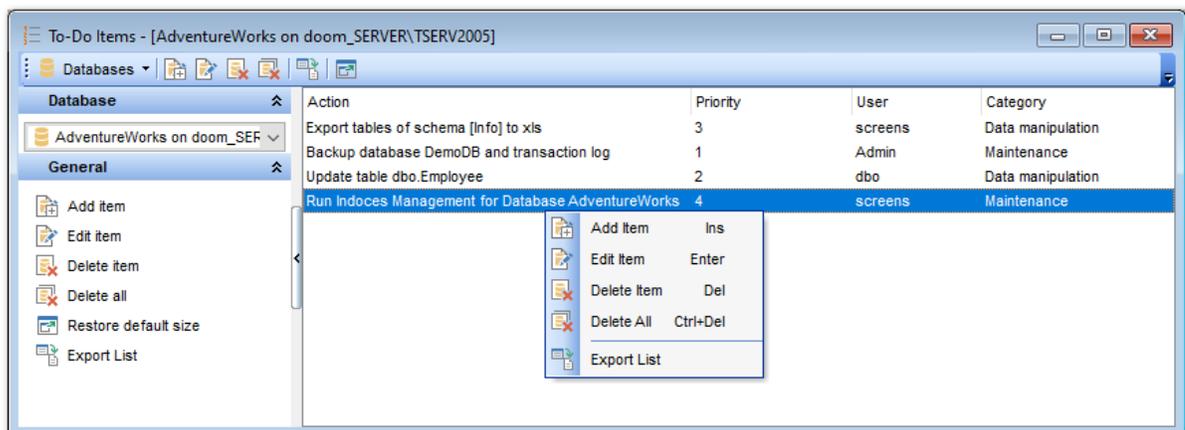
13.13 To-Do List

The **To-Do List** window allows you to make up a list of tasks for the database.

To call this window, select the **View | To-Do List** [main menu](#)^[915] item, or use the **Shift+Ctrl+T** [shortcut](#)^[952].



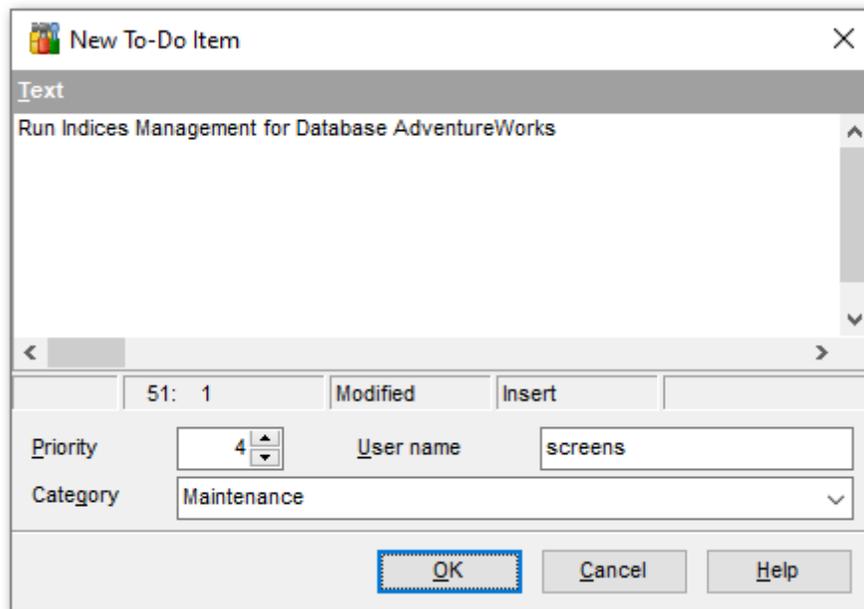
The task list is displayed in a form of a grid. Its columns (*Action, Priority, User, Category*) correspond to the task parameters. Click the column caption to sort the task list by the current parameter or change the sorting direction. Use the Navigation bar and context menu to *add, edit, and delete* to-do items.



Database

Select the database to apply the task list to. When switching between the databases you can view different task lists.

To **add** a task to this list, click the **Add Item** link on the Navigation bar, or select **Add Item** from the context menu. You can also use the **Ins** key for the same purpose. Define the task parameters and click **OK** to add the new task to the list.

**Text**

Optional text to describe the task.

Priority

Set a numeric value to indicate the priority of the task.

User Name

The database User name this task is applied to.

Category

Set a category for the task. Using categories may be useful for grouping tasks.

To modify a task, select the task in the list and click the **Edit Item** link of the Navigation bar, or select **Edit Item** in the context menu. You can also use the *Enter* key for the same purpose.

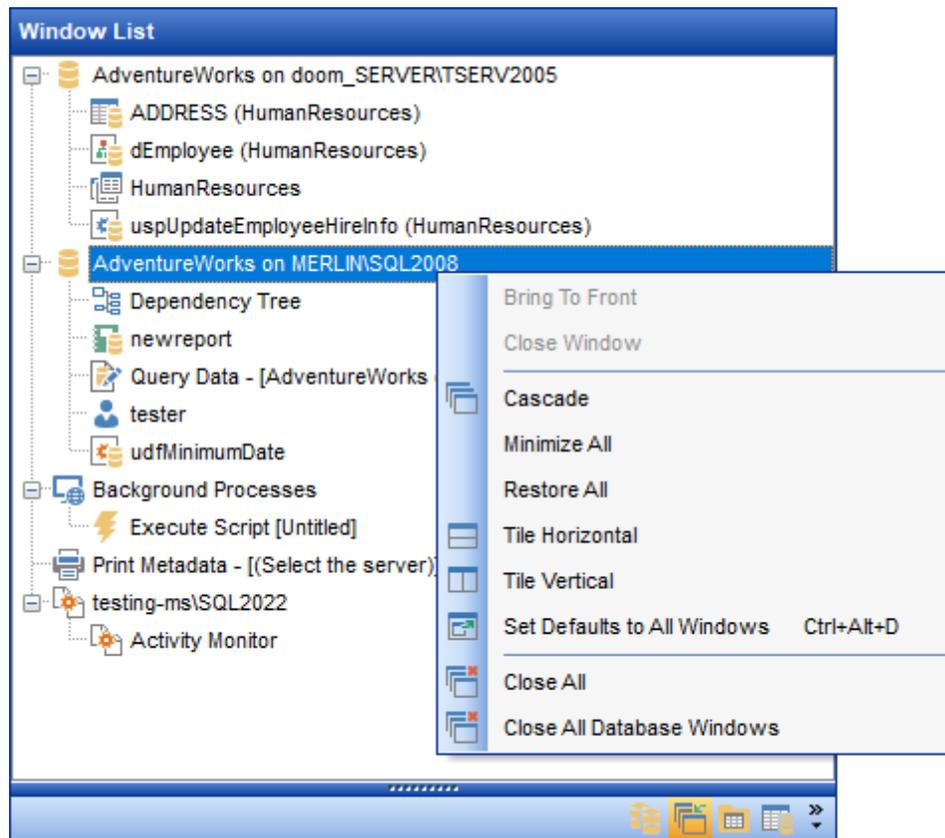
To remove a task, select the task in the list and click the **Delete Item** link of the Navigation bar, or select **Delete Item** in the context menu. You can also use the *Del* key for the same purpose.

To remove all tasks from To-Do List, click the **Delete all** link of the Navigation bar, or select **Delete all** in the context menu. You can also use the *Ctrl+Del* [shortcut](#)^[952] for the same purpose.

13.14 Windows List

The **Windows List** panel allows you to browse the list of windows that are currently opened within SQL Manager for SQL Server IDE.

To activate this panel as a DB Explorer [tab](#)^[77], select the **Windows | Window List** [main menu](#)^[915] item, or use the *Ctrl+Alt+O* [shortcut](#)^[955].



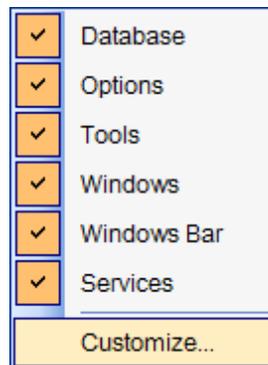
If necessary, you can right-click within the list area to call the **popup menu** which allows you to bring a window to foreground, close windows one by one or in groups, and to arrange the windows according to your preferences.

13.15 Customize toolbars and menus

For your convenience SQL Manager for SQL Server provides **toolbars** and **menus** that you can customize, so the commands you use frequently are readily available and easily identifiable.

The **Customize** dialog allows you to create and personalize SQL Manager menus and [toolbars](#).

To call this dialog, click **More buttons...** on the right side of any [toolbar](#), then click **Add or Remove Buttons** and select **Customize...** from the drop-down menu. Alternatively, you can right-click any toolbar and select the **Customize...** popup menu item.



Toolbars

Toolbars

This list displays all currently existing toolbars of SQL Manager (both *default* and *user-defined* toolbars). Check/uncheck the box at a toolbar name to show/hide the toolbar.

New...

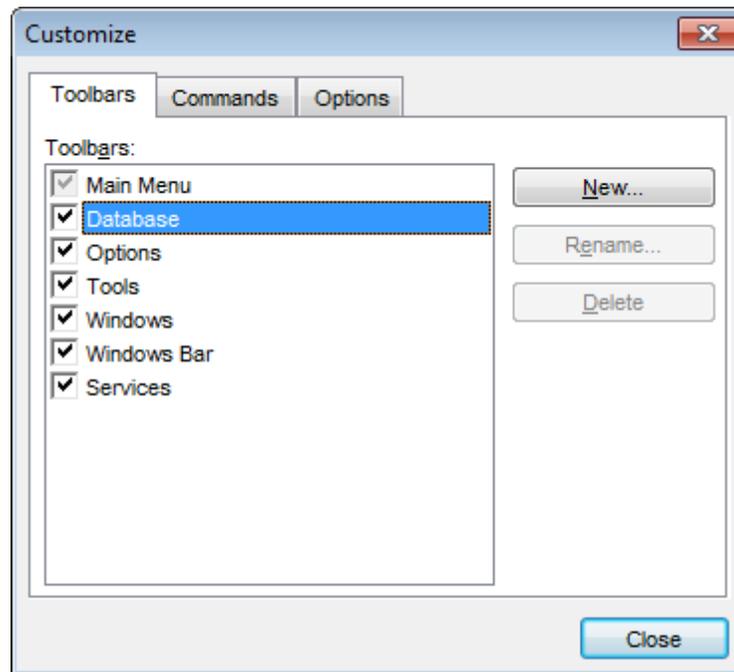
Use this button to add a new user-defined toolbar to the **Toolbars** list. Set a name for the newly created toolbar and dock it by dragging it to any permitted location within the application window.

Rename...

Use this button to rename the selected user-defined toolbar.

Delete

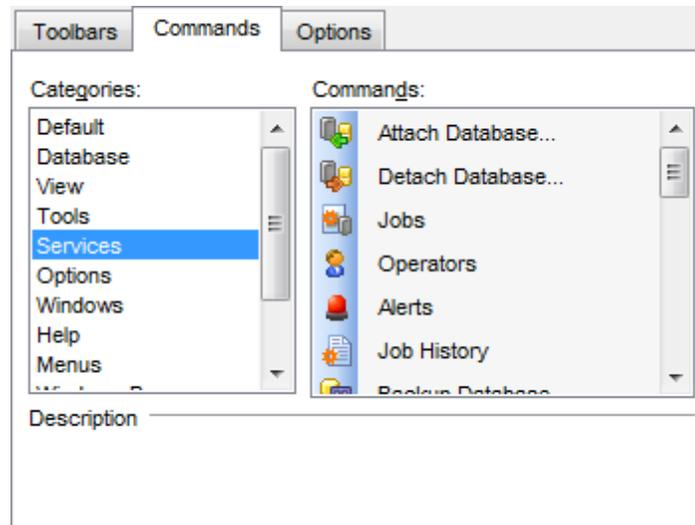
Use this button to delete the selected user-defined toolbar.



Commands

This tab allows you to browse the list of all commands available within the menus and toolbars of the application window. Selecting categories in the **Categories** list displays commands of the selected category (e.g. 'Database' or 'Tools') in the **Commands** list.

If necessary, you can pick a command and drag it to any [toolbar](#)^[917] to create a button for this command.



Options

Personalized Menus and Toolbars

Menus show recently used commands first

This option determines whether the most frequently used items will be placed in menus at first position.

If this option is enabled, frequently used menu items are "promoted" and displayed higher on the list. Unused and infrequently used menu items are visually suppressed and appear "collapsed".

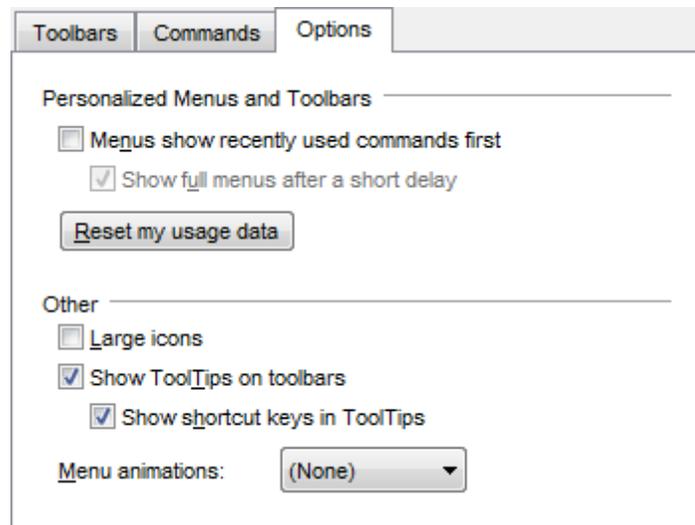
Show full menus after a short delay

This option is available only if the **Menus show recently used commands first** option is selected.

If this option is enabled, infrequently used menu items (if they appear "collapsed") will be automatically expanded after a delay upon setting mouse cursor (or upon selection with the *Up/Down* keys) on the bottom of the menu. Otherwise, the menu expands only after clicking its bottom-most button (or using the *Ctrl+Down* [shortcut](#)^[955]).

Reset my usage data

Resets the lists of recently used commands in the toolbars and menus.



Other

Large icons

This option displays larger icons on the parent window [toolbars](#)^[917].

Show ToolTips on toolbars

If this option is selected, ToolTips (hints) popup when the mouse cursor is positioned over a [toolbar](#)^[917] button.

Show shortcut keys in ToolTips

If this option is selected, the corresponding [shortcuts](#)^[952] are displayed in ToolTips (hints) for toolbar buttons.

Menu animations

Use the drop-down list to specify the menu animation effects:

None (no animation)

Random (random choice: *Unfold*, *Slide*, *Fade*)

Unfold (unfolding menus)

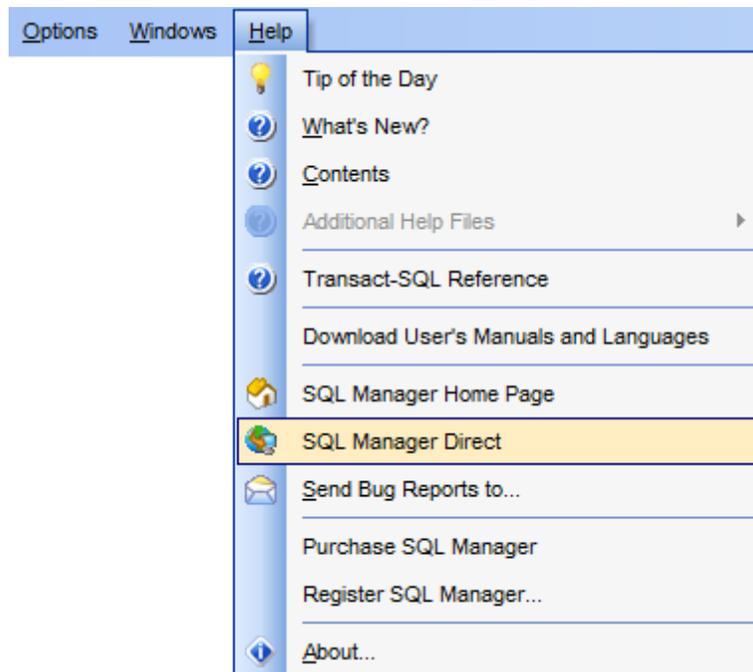
Slide (sliding menus)

Fade (menus fade in when appearing)

13.16 SQL Manager Direct

SQL Manager Direct is a feature of SQL Manager for SQL Server which provides you with quick access to the related Internet resources and allows you to keep your SQL Manager version up-to-date.

To open the **SQL Manager Direct** window, select the **Help | SQL Manager Direct** item from the [main menu](#)^[915].



Links to sqlmanager.net resources provided by the **SQL Manager Direct** window are grouped into several sections:

- *SQL Manager for SQL Server News*
- *General Information*
- *Downloads*
- *Related Products*

Upon a link selection you will be immediately forwarded to the corresponding resource.

SQL Manager for SQL Server News

This section takes you directly to the latest EMS news column. Using the links you can get up-to-date news, product information and downloads from sqlmanager.net.

General Information

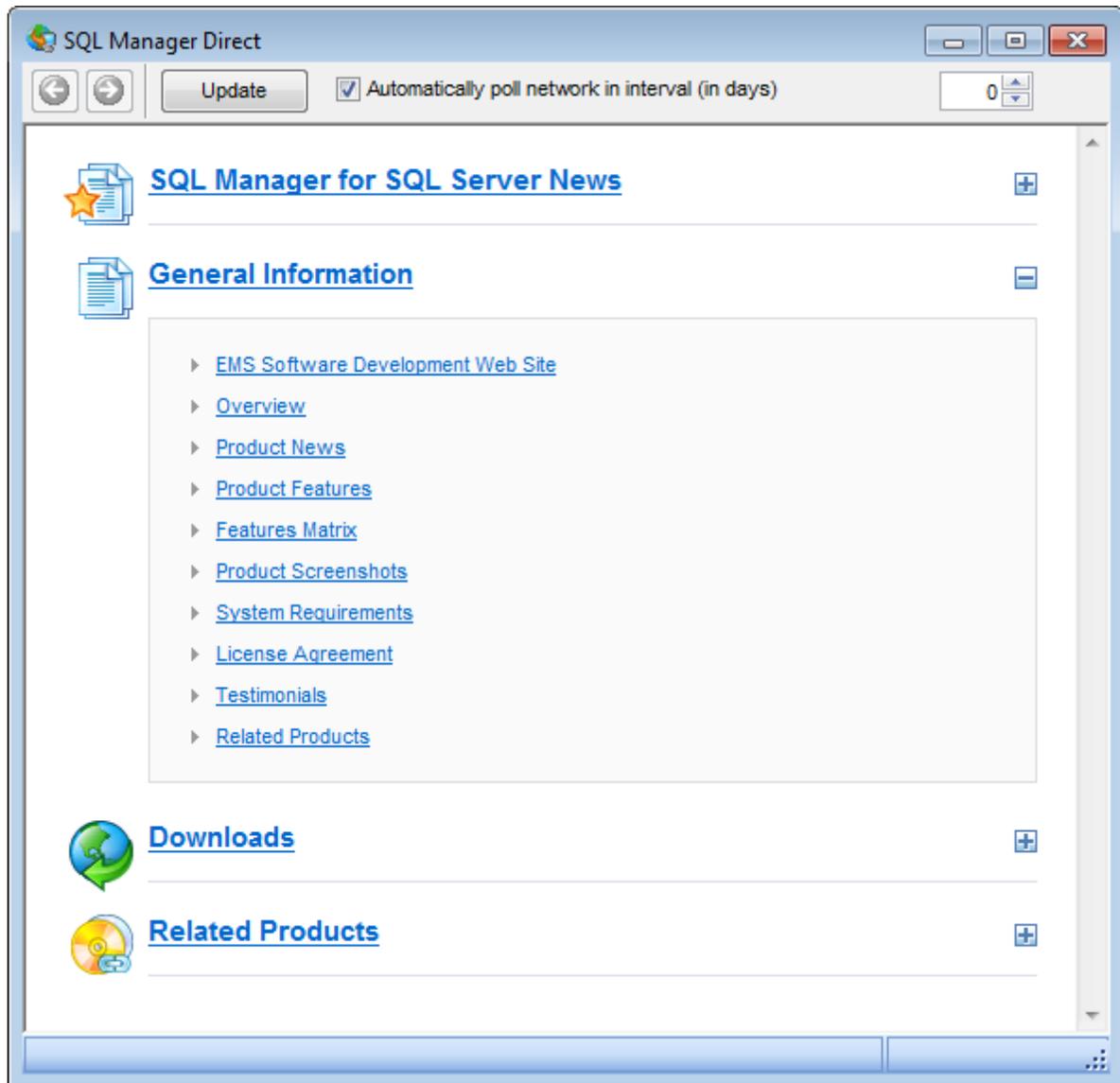
This section offers a number of links to product news, features, [Feature Matrix](#)^[23], [system requirements](#)^[22], testimonials and much more.

Downloads

Using links of this section you can download other product versions from the [download page](#).

Related Products

This section allows you to browse the list of related products developed by EMS Database Management Solutions, Inc.



Use the   buttons to navigate in the same way as you normally do it using a web browser.

Click the **Update** button to refresh the page.

Automatically poll network in interval (in days)

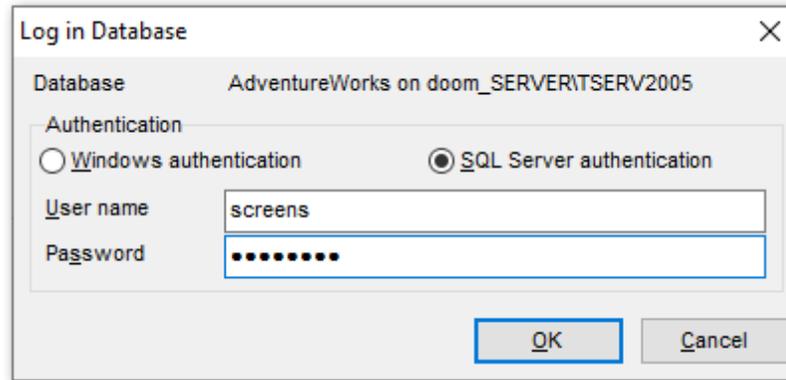
If this option is selected, the page is refreshed automatically after the specified time interval. Use the spinner control to set the interval (in days).

In the **Status** area at the bottom of the **SQL Manager Direct** window you can find the

status of your request to the sqlmanager.net website.

13.17 Database Login dialog

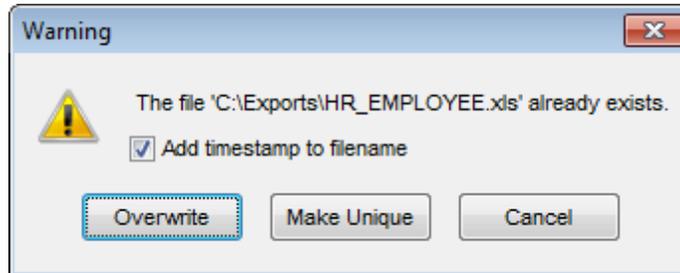
The **Log in Database** dialog appears on attempt to [connect](#)^[95] to a database if the **Login prompt before connection** option is enabled on the [Options](#)^[118] page of the [Database Registration Info](#)^[116] dialog.



Specify *authentication* type and *user name / password* (if necessary) and click **OK** to start working with the database.

13.18 Overwriting existing output file

If a file having the same name as specified for an output file generated by SQL Manager already exists, a warning dialog is displayed.

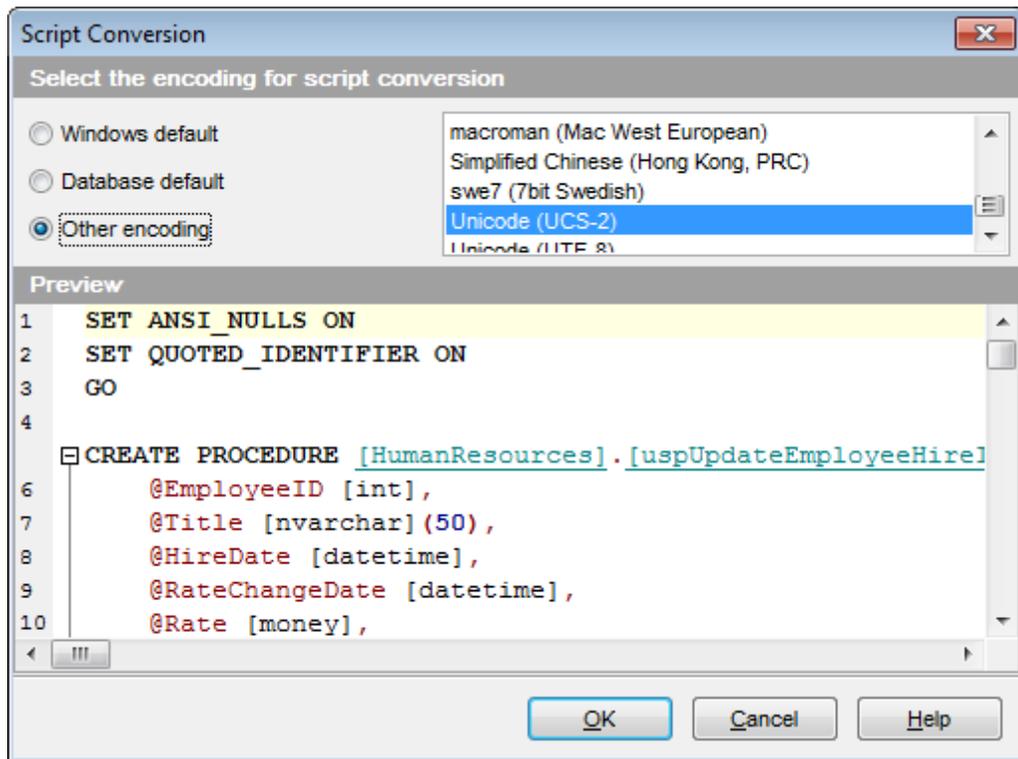


You can **Overwrite** the file, **Make it Unique**, or **Cancel** both and change the path or file name manually.

The application makes the file unique by adding the current timestamp to the specified file name if the **Add Timestamp to filename** option is enabled, or by adding a simple numeric postfix to the file name if this option is disabled.

13.19 Script conversion

The **Script conversion** dialog allows you to select encoding to be used for script conversion upon loading script to one of SQL Manager editors ([Query Data](#)^[426], [Execute Script](#)^[619]) from an external file.



Windows default

Specifies that the standard Windows encoding will be used for the script conversion.

Database default

Specifies that the default encoding of the database will be used for the script conversion.

Other encoding

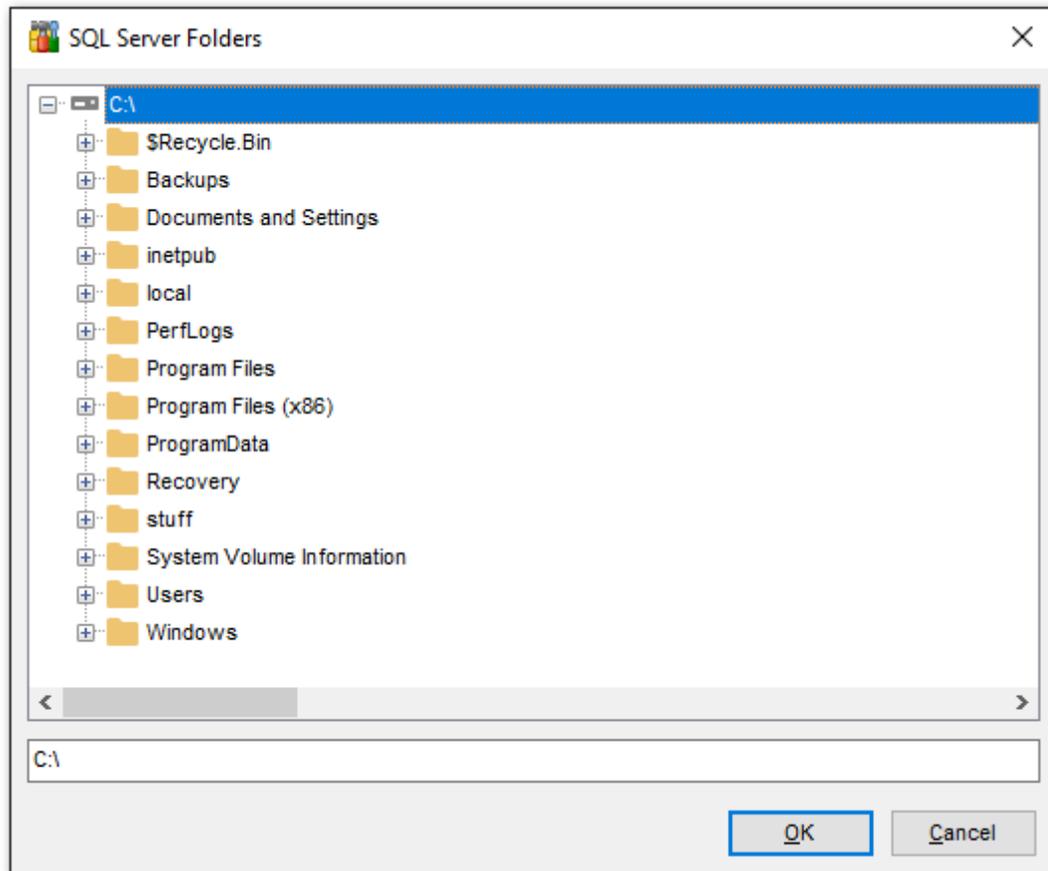
Allows you to select the encoding that will be used for the script conversion.

Preview

This area displays the script with the current encoding parameters applied.

13.20 SQL Server Folders

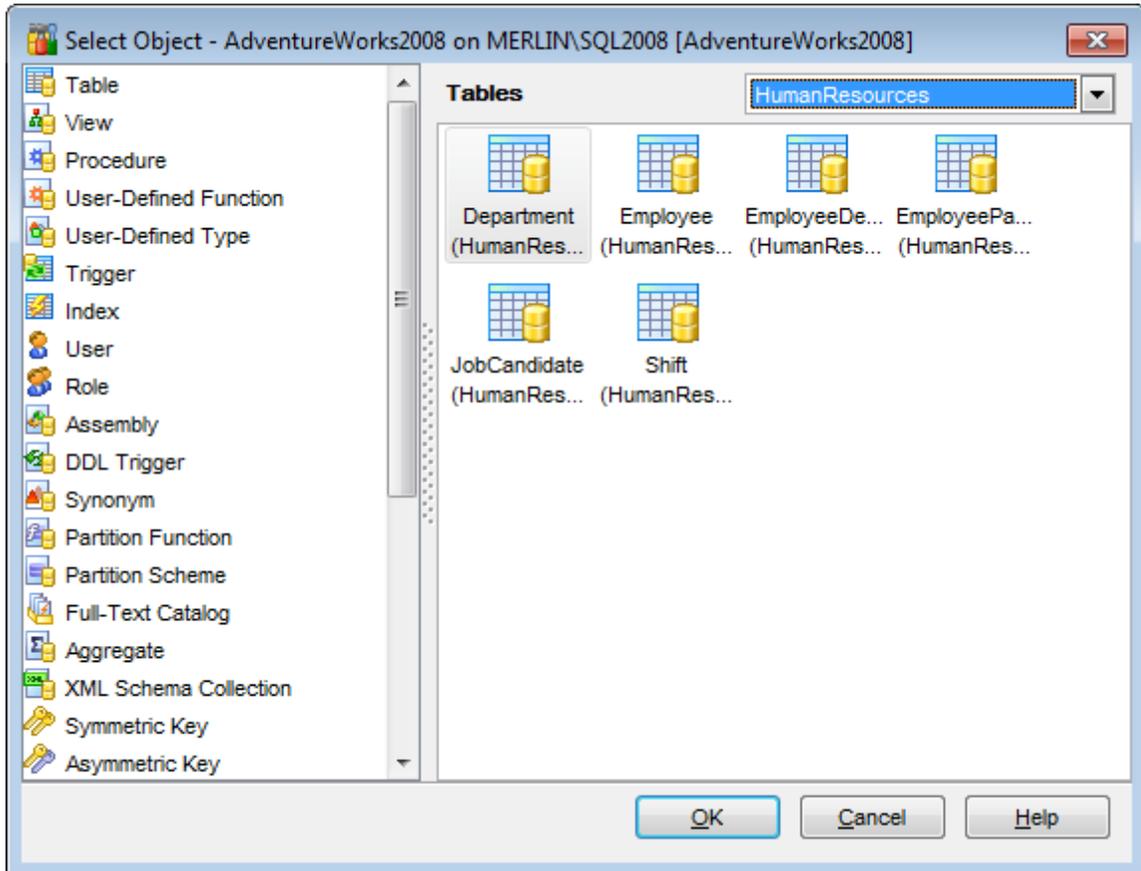
SQL Server Folders dialog allows you to browse directories on the server.



This dialog is accessible from the [Database properties | Filestream files and filegroups](#)^[154], [Server Properties | Database Settings](#)^[171] and [Full-text catalog editor](#)^[319].

13.21 Select Object dialog

The **Select Object** dialog appears each time the application requests a database object selection, e.g. upon a root object selection for the [Dependency Tree](#)^[612] tool, or when choosing an object to be added to a [project](#)^[817].



First select the object type in the list on the left-hand side of the window. Pick the object you need and click **OK** to apply your selection.

13.22 SQL Manager shortcuts

Database management:

Shift+Alt+R Register a database using [Register Database Wizard](#)^[111]
Shift+Alt+U Unregister the selected database
Shift+Ctrl+C [Connect](#)^[68] to a database
Shift+Ctrl+D Disconnect from a database

Database objects management:

Ctrl+N Create a new object (the object type depends on the current selection)
Ctrl+O Edit the selected object in its editor
Ctrl+R Rename the selected object
Shift+Del Drop the selected object
Ctrl+Shift+C Collapse the current [DB Explorer](#)^[63] tree branch and switch selection to the parent tree node

SQL Manager tools:

F11 View/hide [Database Explorer](#)^[63]
Ctrl+F Search for an item in the [DB Explorer](#)^[63] tree
Shift+Ctrl+T Open the [To-Do List](#)^[93] window
F12 Show [Query Data](#)^[426]
Shift+F12 Open a new instance of [Query Data](#)^[426]
Shift+Ctrl+M Open [SQL Monitor](#)^[616]
Shift+Ctrl+S Open [Execute Script](#)^[619]
Shift+Ctrl+L Open [Localization Editor](#)^[890]
Ins Add a new table subobject (the subobject type depends on the current tab selection)
Ctrl+I Start [incremental search](#)^[917]

Query Data and Execute Script (fixed and default):

F9 Execute query/script
Alt+F9 Execute selected only
Ctrl+Alt+F9 Execute under cursor
Ctrl+Alt+F2 Reset execution point (Query Data only)
Shift+Ctrl+<di> Toggle bookmark # <digit>
git>
Ctrl+<digit> Go to bookmark # <digit>
Ctrl+Q Go to next bookmark
F2 Drop marker to current position
Ctrl+Z; Undo
Alt+BkSp
Shift+Ctrl+Z; Redo
Shift+Alt+BkS
p
Ctrl+F Search for text using the [Find Text](#)^[925] dialog
Ctrl+R Replace text using the [Replace Text](#)^[927] dialog

F3 Search next
Ctrl+I Start incremental search
Alt+G Go to line number (an input number dialog prompts for the number)
Ctrl+L Load a script from an external file
Ctrl+S Save the script to an external file
Ctrl+F1 Show original help SQL Server Books Online
Shift+Ctrl+F Format the SQL text using SQL Formatter
Alt+<symbol> Switch to the query with <&symbol> in its name (Query Data only)
Ctrl+J Insert a [keyboard template](#)^[894]
Ctrl+D Toggle query results display mode (at the Edit tab or at a separate one)
Ctrl+Alt+Left Switch to the next tab of [Query Data](#)^[426]
Ctrl+Alt+Right Switch to the previous tab of [Query Data](#)^[426]
Ctrl+Alt+PgUp Switch to the last tab of [Query Data](#)^[426]
Ctrl+Alt+PgDown Switch to the first tab of [Query Data](#)^[426]
wn
Shift+Ctrl+Left Select the previous word
t
Shift+Ctrl+Right Select the next word
ht
Shift+Home Select text to the beginning of the line
Shift+End Select text to the end of the line
Shift+PageUp Select one page up
Shift+PageDown Select one page down
wn
Shift+Ctrl+PageUp Select text to the first line on the page
geUp
Shift+Ctrl+PageDown Select text to the last line on the page
geDown
Shift+Ctrl+Home Select text to the absolute beginning
me
Shift+Ctrl+End Select text to the absolute end
d
Shift+Alt+Left Select column symbol-by-symbol to the left
Shift+Alt+Right Select column symbol-by-symbol to the right
t
Shift+Alt+Up Select column upwards
Shift+Alt+Down Select column downwards
n
Shift+Ctrl+Alt+Left Select column word-by-word to the left
+Left
Shift+Ctrl+Alt+Right Select column word-by-word to the right
+Right
Shift+Alt+Home Select column to the first char of line
me
Shift+Alt+End Select column to the last char of line
Shift+Alt+PageUp Select column to the beginning of the page
eUp
Shift+Alt+PageDown Select column to the end of the page
eDown
Shift+Ctrl+Alt+Home Select column from the current cursor position to the beginning of the first
line
Shift+Ctrl+Alt+End Select column from the current cursor position to the beginning of the last
line
Ctrl+Up Scroll up one line with cursor position unchanged
Ctrl+Down Scroll down one line with cursor position unchanged

<i>Alt+Down,</i>	Toggle case of a current word
<i>Alt+Up</i>	
<i>Ctrl+Alt+Up</i>	Toggle case to upper of a current selection or char
<i>Ctrl+Alt+Dow</i>	Toggle case to lower of a current selection or char
<i>n</i>	
<i>Ctrl+G,Ctrl+F</i>	Collapse block at current line
<i>Ctrl+G,Ctrl+E</i>	Expand block at current line
<i>Ctrl+G,Ctrl+M</i>	Collapse all blocks in the text
<i>Ctrl+G,Ctrl+P</i>	Expand all blocks in the text
<i>Ctrl+=</i>	Collapse/expand the nearest block
<i>Esc</i>	Collect marker (jump back)
<i>Shift+Esc</i>	Swap marker to current position
<i>Shift+Ctrl+B</i>	Jump to matching bracket (change range side)
<i>Shift+Ctrl+I</i>	Indent selected block
<i>Shift+Ctrl+U;</i>	Unindent selected block
<i>Shift+Tab</i>	
<i>Ctrl+/</i>	Comment/uncomment selected block
<i>Ctrl+Space</i>	Show code completion
<i>Shift+Ctrl+Sp</i>	Show code parameters
<i>ace</i>	
<i>Ctrl+Alt+Spac</i>	Show character map
<i>e</i>	
<i>Ctrl+Alt+T</i>	Show tables
<i>Ctrl+Alt+V</i>	Show views
<i>Ctrl+Alt+M</i>	Show synonyms
<i>Ctrl+Alt+G</i>	Show defaults
<i>Ctrl+Alt+L</i>	Show rules
<i>Ctrl+Alt+H</i>	Show users
<i>Ctrl+Alt+A</i>	Show assemblies
<i>Ctrl+Alt+Y</i>	Show UDTs
<i>Ctrl+Alt+W</i>	Show SQL keywords
<i>Ctrl+Alt+N</i>	Show SQL functions
<i>Ctrl+C;</i>	Copy selection to Clipboard
<i>Ctrl+Ins</i>	
<i>Ctrl+X;</i>	Cut selection to Clipboard
<i>Shift+Del</i>	
<i>Ctrl+V;</i>	Paste Clipboard to current position
<i>Shift+Ins</i>	
<i>Ctrl+Del</i>	Delete current selection
<i>Ctrl+T</i>	Delete from cursor to the next word
<i>Ctrl+BkSp</i>	Delete from cursor to the beginning of the word
<i>Ctrl+B</i>	Delete from cursor to the beginning of the line
<i>Shift+Ctrl+Y</i>	Delete from cursor to the end of the line
<i>Ctrl+Y</i>	Delete the current line
<i>Ctrl+M;</i>	Break line at current position, move caret to a new line
<i>Enter;</i>	
<i>Shift+Enter</i>	
<i>Ctrl+Alt+I</i>	Insert Tab char
<i>Shift+Ctrl+P</i>	Play macro
<i>Shift+Ctrl+R</i>	Start macro recording
<i>Alt+End</i>	Skip misprint
<i>Ctrl+Alt+End</i>	Skip all misprints
<i>Alt+Home</i>	Correct all misprints

Print Data View:

<i>Ctrl+O</i>	Load a printing report from a file
<i>Ctrl+S</i>	Save the report to file
<i>Ctrl+P</i>	Open the Print ^[504] dialog
<i>Ctrl+Home</i>	Go to the first page
<i>Ctrl+Up</i>	Go to the previous page
<i>Ctrl+Down</i>	Go to the next page
<i>Ctrl+End</i>	Go to the last page
<i>Ctrl+D</i>	Open Report Formatter ^[491]
<i>Ctrl+\</i>	Zoom 100%
<i>Ctrl+0</i>	Zoom page width
<i>Ctrl+1</i>	Whole page
<i>Ctrl+2</i>	Two pages
<i>Ctrl+4</i>	Four pages
<i>Ctrl+W</i>	Widen to source width
<i>Ctrl+M</i>	Show/hide margins
<i>Ctrl+K</i>	Set background color for the report

Working with windows, menus and tabs:

<i>Ctrl+Tab</i>	Switch to the next tab ^[58]
<i>Ctrl+Alt+0</i>	Open Windows List ^[939]
<i>Ctrl+Alt+D</i>	Set defaults to all windows
<i>Ctrl+F6</i>	Switch to the previous window
<i>F6</i>	Switch to the next window
<i>Ctrl+W</i>	Close the active window
<i>Ctrl+Down</i>	Expand a collapsed menu
<i>Ctrl+Shift+N</i>	move to the next tab ^[77] in DB Explorer
<i>Ctrl+Shift+P</i>	move to the previous tab ^[77] in DB Explorer

Part



14 How To...

The succeeding pages of this chapter are intended to provide you with brief instructions on how to perform this or that operation correctly using **SQL Manager for SQL Server**.

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- [Create a database](#) ^[959]
- [Edit database connection parameters](#) ^[959]
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[Create a simple report in Report Designer](#)^[974]

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[Getting Started](#)^[41]

[Database Explorer](#)^[63]

[Database Management](#)^[94]

[Database Objects Management](#)^[178]

[Query Management Tools](#)^[424]

[Data Management](#)^[462]

[Import/Export Tools](#)^[530]

[Database Tools](#)^[61]

[Server Tools](#)^[715]

[Personalization](#)^[824]

[External Tools](#)^[909]

14.1 Work with Databases

14.1.1 Connect to a database

If you want to connect to a database that has not been registered yet then perform the following operations:

1. Launch the [Register Database wizard](#)^[117] by selecting the **Database |  Register Database... main menu^[915] item.**
2. If a host where the database is located has not been registered yet then type in its name in the **Server name** field on the [first step](#)^[117] of the wizard. Otherwise, select the necessary host from the drop-down list.

Note: To register several databases at once uncheck the **Register a single database** option. In this case you will proceed to the [Selecting databases](#)^[113] step of the wizard where you are to define databases you want to be registered.

3. On the [last step](#)^[113] of the wizard set database name and specify specific options.
4. The registered database(s) is/are now displayed in the [DB Explorer](#)^[63]. To connect to the database double-click its alias or select the  **Connect to Database** item of the database [context menu](#)^[54].

14.1.2 Create a database

To create a database on the registered server perform the following operations:

1. Launch the [Create Database wizard](#)^[97] by selecting **Database |  Create Database main menu^[915] item.**
2. On the [first step](#)^[97] specify a name for a newly created database.
3. On the [second step](#)^[98] set the necessary **connection parameters** for the database being created. Use the corresponding boxes and options: *Server name*, *Authentication*, *User name* and *Password*.
4. Define the data files and transaction log files on the [third](#)^[107] and the [fourth](#)^[107] steps correspondingly. The primary data file is the starting point of the database and points to the other files in the database. The recommended file name extension for primary data files is **.mdf*. Log files hold all the log information that is used to recover the database. The recommended file name extension for log files is **.ldf*. If you use the SQL Server 2008 (or higher) then define filestream files and filegroups on the [next step](#)^[104]. FILESTREAM enables the application to store unstructured data (such as text documents, images, videos, etc.) on the file system.
5. On the [next step](#)^[106] set recovery model and collation. A *recovery model* is a database property that controls the basic behavior of backup and restore operations for a database. Collation controls the way string values are sorted.
6. Click the **Finish** button to view the result SQL statement. If you have checked the **Register After Creating** box on the [first step of the wizard](#)^[97] then the [Database Registration Info](#)^[116] dialog will appear after creating a new database.

14.1.3 Edit database connection parameters

If you have made a mistake when [creating](#)^[97] and [registering](#)^[117] a database or the information provided is incomplete then it can be edited using the [Database Registration Info](#)^[116] dialog. You can view this information both for connected or disconnected database.

To open the dialog, select the database or any of its objects in the [DB Explorer](#)^[63] tree,

then select the **Database | Database Registration Info...** [main menu](#)^[915] item, or right-click the database alias in [DB Explorer](#)^[637] and use the **Database Registration Info...** [context menu](#)^[547] item.

The connection parameters can be changed on the **Connections** tab of the dialog. Here you can define or redefine the following properties in the corresponding boxes: *Server name, User name, Password, Database name, Database alias, Font charset and OLE DB Provider*.

14.1.4 Make work with a database faster

If your database contains too many objects or if a connection to the database is slow you can increase work speed by unchecking the **Refresh objects on connection** option when registering database or editing the [Database Registration Info](#)^[118]. Also you can uncheck the **Restore desktop on connect** option in the [Preferences](#)^[826] section of the [Environment Options](#)^[825].

14.1.5 Design a visual database structure

To design your database visually you may use the [Visual Database Designer](#)^[695]. It allows you to create, edit and drop tables and table columns, set relations between tables and perform other operations you may need to achieve your purpose.

To create a new object right-click within the diagram area and then choose the **Create** item of the context menu. After that a new object will appear on a diagram.

After you have finished designing your diagram you can click a **Compile** button to create this structure physically.

14.1.6 View an ER diagram

The relationship diagram is built using the [reverse engineering](#)^[707] operation.

To view an ER diagram of a scheme you should follow the steps:

1. Run [Visual Database Designer](#)^[695];
2. Click the  **Reverse Engineer** button on the [main toolbar](#)^[698] or use the corresponding item of the [context menu](#)^[701].
3. Choose schemas to reverse engineer from.

The created diagram can be saved as a *.msd file ( **Save Diagram** button) or as an image ( **Save as Picture** button).

14.1.7 Backup a database

A database backup is created by means of the [Backup Database Wizard](#)^[718]. To launch it choose **Services | Backup Database** [main menu](#)^[915] item.

Using this wizard you can define the necessary backup parameters and options, such as the database for backup, backup type (*Full, Differential or Transaction log*), files of the database to backup, physical or logical devices, media options (*append or overwrite media*), data transfer and/or transaction log options and others.

You can also choose to create a backup now or create a schedule to run a database backup automatically.

14.1.8 Restore a database from a backup

Use the [Restore Database Wizard](#)^[732] to restore a database from a backup. To launch the wizard and set restore options choose the **Services |  Restore Database** [main menu](#)^[915] item.

Using this wizard you can define the necessary restore parameters, such as database to restore, restore type (*Database, Transaction log, Recovery without restore* or *Recovery from database snapshot*), recovery options, backup media to restore a database from, database files, and some other options.

14.1.9 Create a database copy

In order to create a copy of the whole database or of separate objects you can:

1. Extract DB objects structure and data into SQL script using the [Extract Database Wizard](#)^[626]. The result script can be used to copy or restore your database. If the **Generate CREATE DATABASE statement** option was not checked while [customizing script options](#)^[633] then you need to create a database before performing the extract script. It is better to execute a script from file using the [Execute Script](#)^[619].
2. Create a database backup with the help of the [Backup Database Wizard](#)^[718]. Then run the [Restore Database Wizard](#)^[732] and select the *New database* as a destination database.
3. Create copies of separate database objects by using the [Duplicate Object Wizard](#)^[182].

14.1.10 Document a database

There are several ways to document a database:

1. You can generate a detailed HTML report of the selected database objects using [HTML Report Wizard](#)^[651].
2. You can generate and [print metadata](#)^[643] reports of any database object(s). Generated reports can be exported to any of the available formats: HTML file, Excel file, Text file, RTF file, CSV file, HTML file, BMP image, Excel table (OLE), JPEG image, TIFF image.
3. You can save the [Visual Database Designer](#)^[695] diagram as a *.msd file for future use. A diagram is saved with the objects XML files. If necessary, you can also save the diagram as an image.

14.1.11 Save metadata reports to file

To save a metadata report in a file of any supported format (*.txt, *.csv, *.pdf, *.html) you should do the following:

1. Open the [Print Metadata](#)^[643] window by selecting the **Tools |  Print Metadata** item of the [main menu](#)^[915].
2. Mark the needed objects and define printing settings and click the  **Preview** button on the [navigation bar or toolbar](#)^[643].
3. In the opened Preview window click  **Export** and select from the drop-down list the needed file format for report saving. When done, specify file name and location.

14.1.12 Log database changes

If you want to perform metadata changes logging and SQL query logging you need to:

1. Check the **Enable log of metadata changes** and specify the path to the *.sql file to store the metadata logs.
2. Check the **Enable log of Query Data queries** and specify the path to the *.sql file

to store the logs of SQL queries: date/time of query execution, SQL text, execution result or errors (if any).

This can be done in the [Database Registration Info | Logs](#) window.

14.1.13 Get an SQL dump

To get an SQL dump (an *.sql file) of your database use the [Extract Database Wizard](#) that will extract database objects and/or data to an SQL script, e.g. for backup purposes.

14.1.14 Reduce database size

Database size reducing can be done by means of the [Shrink Database Wizard](#). It allows reducing the size of data files and log files in the specified database. This operation is used to reduce any file within the database to remove unused pages. Both data and transaction log files can be reduced.

Note: You can shrink a database only if there are no active connections to this database and it is now involved in the replication.

14.1.15 Transfer database from one server to another

Source Server is a server where a database is located.

Target Server is a server to which the database should be moved.

If versions of the source and target servers are the same

You can transfer a database in one of the following ways:

1. Copy database files from the source server directory to the target server directory. This can be done without SQL Manager for SQL Server. Then attach to explore the complete list of the files for copying use the [Data files](#), [Log files](#) and [Filestream files and filegroups](#) sections of the [Database Properties](#) dialog.
2. Create a full backup of a database using the [Backup Database Wizard](#) and save it to the **file** (this option is set at the step of [selecting backup devices](#)), copy the backup file to any directory of the target server to which the server has read access and then restore the database to a new one using the [Restore Database Wizard](#) (this option is set at the step of [selecting destination database](#) step).

Note: To perform file copying you need to stop the server or perform the [detach database](#) operation and then the [attach database](#) operation. Both actions will cause the temporary database offline state.

If versions of the source and target servers are different

Extract database objects structure and data into Execute Script using the [Extract Database Wizard](#) and execute the script for the target server using [Execute Script](#).

Note: If you choose not to use the CREATE DATABASE statement during the script execution, you should create a new database before executing a script at the target server.

Note: If versions of the source and target servers are different, in most cases you will have to edit the script manually for it to be executed successfully.

Note: To transfer databases from other formats or servers to the SQL Server, use our

[EMS Data Pump for SQL Server](#) tool.

14.2 Work with Database Objects

14.2.1 Group objects

If you want to group objects you can do it in one of the following ways:

Using projects ^[81] (situated in the **DB Explorer** ^[63] tree):

1. Click create **New Sub Folder** in the **Favorite Objects** folder using the corresponding item of the context menu
2. Define its name and drag-and-drop necessary objects there or use the **Add Object** item of the created folder context menu. Pick the objects to add to folder from the appeared dialog.

Using **DB Explorer** ^[63] tabs:

1. Right-click the necessary object in the **DB Explorer** ^[63].
2. Choose the  **New Tab from Here** item of the **object context menu** ^[56] and define the name of the tab.
3. Now your objects are stored on the separate tab of a **DB Explorer** ^[63].

Note: If object is not a tree node, it cannot be placed on separate tab.

14.2.2 Find objects

In order to search for objects you need you can:

1. Call the **Find Object** dialog by right-clicking the **Database** alias, any database object group nodes or objects in the **DB Explorer** tree and select the **Find Object...** **context menu** ^[53] item.
2. Call the **Find Object** dialog by using the *Ctrl+F* **shortcut** ^[952].
3. Type in the first letters in the edit-box of the **Search Panel** ^[83], and the corresponding object will be highlighted in the tree, as displayed in the picture below.

Note: Objects among which the search is performed should be updated and the object node should be expanded.

14.2.3 View dependencies

If you want to view all the object dependencies then:

1. Use a **dependencies tab** ^[92] in the **Table Editor** ^[200].
2. Use the **Dependency Tree** ^[612] tool.

These tools may be useful when you can't find an object that prevents your from dropping a table.

14.2.4 Get an object DDL

Просмотреть DDL объекта можно одним из следующих способов:

1. Дважды щелкните по объекту, чтобы открыть редактор объекта, затем перейдите на вкладку **DDL** ^[919].
2. Выберите **Script to Query Data | Create** в контекстном меню объекта.

Для редактирования DDL объекта можно открыть в **редакторе запросов** ^[426], нажав на панели инструментов  **Open DDL in Query Data**.

14.2.5 Store objects definitions in VCS

If you want your objects to be under version control system, perform the following steps.

1. Proceed to the [DDL to Files](#)^[125] tab of the [Database Registration Info](#)^[116] dialog and enable the **Write object definition to a file after compilation** option.
2. Define the directory which will be used for storing object file names in the **Root folder for storing object definitions** field. In order to make files be under version control this directory must be a working copy.
3. Choose object types and add files for storing objects definitions using the [Options for storing object definitions](#)^[128] and [Object file names](#)^[129] correspondingly. These files can be added to version control system.
4. Use the following fields of the [DDL to Files](#)^[125] tab to define version control system commands on actions performed with objects files:

- **OS command after creating a file**

Enter any command that will be executed after a file with object definition is created.

If you are using version control system then, for example, the following command can be entered: `svn add {file_name}` (for Subversion revision control system) where `{file_name}` stands for the respective newly created name of a file with object definition.

- **OS command before updating a file**

Enter any command that will be executed before a file with object definition is updated.

If you are using version control system then, for example, the following command can be entered: `ss checkout {file_name} -C-` (for Visual Source Safe revision control system) where `{file_name}` stands for the respective name of a file with object definition being updated.

- **OS command after deleting a file**

Enter any command that will be executed after a file with object definition is deleted.

If you are using version control system then, for example, the following command can be entered: `svn del {file_name}` (for Subversion revision control system) where `{file_name}` stands for the respective name of a file with object definition being deleted.

14.3 Work with Data

14.3.1 View tables with many records

If your table contains a lot of records you can minimize dataset loading time by:

1. Setting the number of records to be selected;
2. Enabling **Load visible records** in order to load only a fixed number of dataset records into memory.

These options can be set only for the selected database on the [Data Options](#)^[123] page of the [Database Registration Info](#)^[116].

Default settings for newly registered databases can be defined on the [Grid | Data Options](#)^[857] page of the [Environment Options](#)^[825] dialog.

You can set the maximum number of visible records in the **Record Limit** counter



located on the Data View toolbar. Press **Enter** or click the data grid to apply changes.

If the number of records exceeds the maximum number, the  **Fetch all** button becomes active. It allows viewing all records in a table.

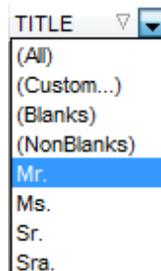
Use the Grid Mode tab of the [Data View context menu](#)^[472] to set the display mode. You can choose among the *Load All Rows*, *Load Visible Rows* and *Default* modes.

14.3.2 Set data filter

Quick Filtering (by the current value in a cell)

Open the context menu of the needed column and choose the **Quick Filter** item. Then choose a [filter condition](#)^[469] in the opened submenu.

Filtering by Column



Open the drop-down list on the column title and choose a filter condition from the list. You can set advanced conditions by using the **Custom...** menu item.

When choosing this item, the special [window for setting filter conditions](#)^[517] opens.

Advanced Filtering

You can set advanced filter options by pressing the button  on the [toolbar](#)^[463] of the Data View and set filter parameters in the [Filter Builder](#)^[519]. Apply the set conditions by pressing the **Apply** button.

If a filter is set for a table, the special bar appears in the lower part of the table where

you can see filter conditions and the history of filter changes opened by pressing the drop-down list.



Disable Filtering

To cancel filtering, open the context menu of the column and choose the **Disable filter** item.

Or press the  button on the filter toolbar.

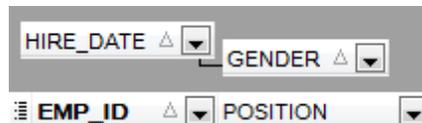
14.3.3 Sort and group data

In order to sort data, do the following:

1. Open data at the **Data** or **Results** tab.
2. Choose the column by which you need to sort data and click the column title.
3. If the column was not sorted, the first click will sort it in the ascending order and the second one - in the descending order.

Note: To cancel the sorting, open the context menu by right-clicking the necessary column and choose the **Clear Sorting** item, or press the *Ctrl* button and click the column title.

To enable grouping, drag the column title to the special grouping bar above the grid.



Note: To disable grouping, drag the column title from the group bar back to the table.

14.3.4 Export/import data

You can *export* data from a database table into an external [file of any supported format](#) ^[935] by means of the [Export Data Wizard](#) ^[531].

There are several ways to launch Export Data Wizard:

1. Open the **Data** or **Results** tab, press  **Export Data** on one of the Data View [toolbars](#) ^[463].
2. Open the **Data** or **Results** tab, choose **Data Manipulation |  Export Data** in the [Data Grid context menu](#) ^[472].
3. Open the [table context menu](#) ^[56] in the [DB Explorer](#) ^[63], choose the **Data Manipulation |  Export Data** item.
4. Open the **Data** or **Results** tab and use the shortcut **Shift+Ctrl+E**.

You can import data from external sources into a table or view using [Import Data Wizard](#) ^[571]:

1. Open the **Data** tab, press the  **Import Data** button on one of the Data View [toolbar](#) ^[463].
2. Open the **Data** tab, choose **Data Manipulation |  Import Data** in the [Data Grid](#)

[context menu](#)^[472].

3. Open the [table context menu](#)^[56] in the [DB Explorer](#)^[63], choose the  **Import Data** item.
4. Open the **Data** tab and use the shortcut **Ctrl+I**.

Note: Export and import data tools are available in full version of SQL Manager for SQL Server only.

14.3.5 Export data as SQL Script

You can export data from a database table into SQL script with INSERT INTO statements in one of the following ways:

1. Open the **Data** or **Results** tab, press the  **Export Data as SQL Script** on one of the **Data View toolbars**^[463] and set export parameters in the opened [Export as SQL Script Wizard](#)^[593].
2. Open the **Data** or **Results** tab, choose **Data Manipulation |  Export Data as SQL Script** in the [Data Grid context menu](#)^[472] and set export parameters in the opened [Export as SQL Script Wizard](#)^[593].
3. Open the [table context menu](#)^[56] in the [DB Explorer](#)^[63], choose the **Data Manipulation |  Export Data as SQL Script** item and set export parameters in the opened [Export as SQL Script Wizard](#)^[593].

Note: In order to extract table DDL (CREATE TABLE statement), check the **Add CREATE TABLE statement** box at the [Step 1](#)^[594].

14.3.6 Edit data of master-detail tables

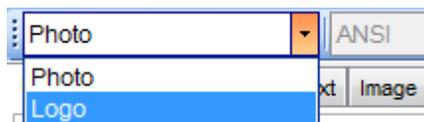
You can work with data in multi-level mode, that is you can view and modify it in several related tables simultaneously.

To manage grid levels, right-click the grid and select the **Grid Levels context menu**^[472] group. Click **Add Grid Level** in the menu to run the [Create Grid Level wizard](#)^[474]. After the level is added you can edit data of the related tables.

14.3.7 Add image to table

If you want to add an image to a table then do the following:

1. Open the table on the Data tab.
2. Go to the BLOB View section (the navigation buttons are located in the bottom part of the window) and then proceed to the Image tab.
3. If there are several BLOB fields, choose the required field from the Select BLOB Column drop-down list on the [toolbar of the Blob View tab](#)^[465] and press the  **Load from File** button on the same toolbar.
4. Choose the needed image file in the appeared dialog.



Note: Adding images to table is possible only if table contains at least one [BLOB field](#)^[505].

14.3.8 Set data display format

To set the format for displaying data open the **Options |  Environment Options** dialog from the [main program menu](#)^[915], proceed to the [Color & Formats](#)^[860] tab and define or choose the display format for some data types in the **Display formats** section.

14.4 Work with Queries and Scripts

14.4.1 Create SQL statements rapidly

There are two options for creating SQL queries rapidly:

In the DB Explorer

1. Right-click a table in the [DB Explorer](#)^[63]
2. Choose Script to New Query Data context menu item.
3. Select the necessary query type.

In the Design Query

1. Open [Design Query](#)^[442].
2. On the **Design Query** tab drag an object from the [DB Explorer](#)^[71] tree to the diagram area.
3. Choose necessary columns to include in the query by checking the corresponding box located to the left from the column name in the list, or just by double-clicking it. To include all columns of the table/view, check the box located to the left of the table/view caption.
4. [Associate two objects](#)^[446] by their columns. Drag a column from one object list to another. This will set a link between these objects by the selected columns. It is indicated by a bidirectional arrow between the linked columns.
5. [Edit link properties](#)^[446]. Double-click the linking arrow or right-click it and select the **Property** popup menu item. The **Link properties** dialog allows you to change the association condition by choosing it from the drop-down list.
6. You can view and edit your SQL statement on the **Edit** tab of the [Design Query](#)^[442].

14.4.2 Control a query productivity

You can view a query productivity on the [query plan](#)^[432]. It allows you to view the sequence of actions performed by the database server in the process of the query execution, and the amount of system resources used for the query execution.

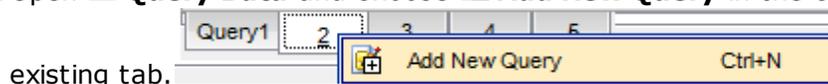
To view the **Plan** of a query, open the query in **Query Data** and use the  **Show estimated execution plan** item of the [Navigation bar](#)^[426] or [toolbar](#)^[428].

If necessary, you can specify that the **Plan** tab appears automatically upon query execution in [Query Data](#)^[426]: select the **Show actual execution plan on query execution** option available within the [Tools | Query Data](#)^[837] section of the [Environment Options](#)^[825] dialog.

14.4.3 Work with several queries at once

[Query Data](#)^[426] provides a possibility to open and edit several queries. You can create tabs in the lower part of the **Query Data**, each tab may contain a separate query. There are several ways for creating tabs:

1. Open  **Query Data** and choose  **Add New Query** on one of the [toolbars](#)^[426].
2. Open  **Query Data** and choose  **Add New Query** in the context menu^[430] of the



- existing tab.
3. Use the shortcut **Ctrl + N**.

Note: Each tab can be renamed and any query can be added to [Favorite Queries](#)^[90].

14.4.4 Save most frequently used queries

Use the [Favorite Queries](#)^[90] feature to store your most frequently used SQL queries. To access the list of your favorite queries you can use the **Favorite Queries** node of DB Explorer or create a separate tab for your Favorite queries.

Using the context menu you can create a new Favorite query or edit an existing one using [Favorites editor](#)^[439], open any of the existing queries in [Query Data](#)^[426] or remove a query if you don't need it any longer.

14.4.5 Execute queries with parameters

If you want to use queries with parameters then you should check **Allow using parameters in query text** option in the [Environment Options | Tools](#)^[830].

This feature allows you to specify different values within a query in a [popup dialog](#)^[459] just before the query execution. Use the colon (':') character before an identifier (e.g. :P1) to specify a parameter within the query.

14.4.6 Export query results into file

When executing queries, their results can be displayed on the **Edit** or **Results** tab in the [Data View](#)^[463].

You can copy data from database tables into an external [file of any supported format](#)^[935] in one of the following ways:

1. Open the **Data** or **Results** tab, press  **Export Data** on one of the Data View toolbars and define export parameters in the opened [Data Export Wizard](#)^[531].
2. Open the **Data** or **Results** tab, choose **Data Manipulation |  Export Data** in the [Data Grid context menu](#)^[472] and define export parameters in the opened [Data Export Wizard](#)^[531].
3. Open the [table context menu](#)^[56] in the [DB Explorer](#)^[63], choose the  **Export Data** item and define export parameters in the opened [Data Export Wizard](#)^[531].
4. Open the **Data** or **Results** tab and use the shortcut Ctrl+E.

14.4.7 Execute scripts

[Execute Script](#)^[619] allows you to create, view, edit and execute SQL scripts. To open Execute Script select the **Tools |  Execute Script...** [main menu](#)^[915] item. This tool is intended for work with a great number of SQL statements and with scripts that are stored in files. For instance, you can execute a script directly from a file without loading it to the Editor window. This reduces memory usage. However Execute Script allows just to estimate whether the execution of script statements will be successful, but it does not return query result.

Note: To execute SQL scripts you should use [Execute Script](#)^[619], not [Query Data](#)^[426]. The latter is intended for creating, editing and executing SQL statements. It also provides a possibility to view query result, perform various operations with it (data import, data export, etc.) and manage transactions.

14.4.8 Execute a large SQL script

If you need to execute a large SQL script it's not necessary to load it from file to the [Execute Script](#) window as it can take a lot of time. Instead you can execute script directly from *.sql, *.zsql or *.txt file. In order to do this click the  **Execute script from file** button of the [Navigation bar and Toolbar](#) in [Execute Script](#).

14.4.9 Make SQL script work faster

In order to make the SQL script work faster, you can disable some functions.

Parsing

Choose and disable the  **Hide explorer** item on [one of Execute Script toolbars](#).

Automatic Creation of Hierarchical Text Structure

Uncheck the **Use code folding** box in the [Display](#) section of the **Editor options**.

Syntax Highlight and Quick Code for Aliases

Choose **Options | Editor options** in the [main program menu](#), proceed to the [General](#) tab and uncheck the **Resolve aliases** box - the [syntax highlight](#) and [quick code](#) for aliases will be disabled.

14.4.10 Customize work with Query/Script text

To customize work with a query/script text you may:

Use Internal Link

This means that the name of the object existing on a database is highlighted in a query/script text. Such an object can be opened by holding the *Ctrl* key and clicking the object with a mouse.

Add Text Template

[Keyboard templates](#) allow you to type regularly used expressions and edit the existing ones quicker. Once you have defined the templates, you can use them in [Query Data](#). When [editing SQL text](#) in Query Data, type a template name and use the *Ctrl+J* [shortcut](#): the text associated with the template will be inserted automatically.

Use Automatic Completion (Object List)

You can call the autocompletion list by starting entering the first characters of the text and using the shortcut *Ctrl + Space*.

Customize Autocompletion List

Choose **Options | Editor** options in the [main program menu](#), proceed to the [Quick Code](#) tab and define the list and quick code parameters.

Apply Automatic Formatting of Query/Script

Choose **Quick Code | Format** in the Query Data/Execute Script [context menu](#) or the *Shift+Ctrl+F* shortcut to apply automatic formatting.

Set Font and Query/Script Format at the Display tab

Choose **Options | Editor Options** in the [main program menu](#), proceed to the [Display](#) tab and define common font and format parameters for Query Data/Execute Script.

Set Font and Query/Script Format at the Highlight tab

Choose **Options | Editor Options** in the [main program menu](#)^[915], proceed to the [Highlight](#)^[875] tab and define font options for each element.

Note: If some font parameters are defined on the **Highlight** tab, they will be applied to the query/script text and not the ones defined on the **Display** tab.

14.4.11 View executed queries and scripts

To view all queries and scripts sent to the server you need to launch [SQL Monitor](#)^[616]. It will show you the log of database operations and SQL queries as items, each consisting of 3 parts: *Executed* (the date and time of the operation), *Operation* (SQL statement sent to the server), *Result* (the result of the operation).

Note: SQL Monitor only displays scripts and queries executed in SQL Manager for SQL Server during current session.

14.5 Create a simple report in Report Designer

To create a report using [Report Designer](#)^[665]:

1. Select the **Tools** |  **Report Designer** main menu item.
2. In the opened **Report Designer** select the **File** |  **New Report** main menu item, or click the  **New Report** item of the navigation bar. The following objects will be added to the newly created report: **ReportTitle**, **MasterData** and **PageFooter**.
3. [Connect to data source](#)^[670].
4. Add [ADOTable](#)^[670] or [ADOQuery](#)^[670] object.
5. Link [ADOTable](#)^[670] or [ADOQuery](#)^[670] with [ADODatabase](#)^[670].
6. Place database fields on the Page1. Move the required fields from [Data Tree](#)^[667] to **Band MasterData**.

14.6 Create a scheduled job

SQL Server provides a possibility to run jobs automatically without user interaction, i.e. you can define event or date to start the job.

A job can be scheduled by creating a new schedule for the job, or by attaching an existing schedule to the job.

There are two ways to create a new schedule

- right-click the **Schedules** node (within the **Server Objects** branch) in the [DB Explorer](#)^[63] tree and select the **New Schedule** item from the [context menu](#)^[56] and configure schedule options in the [Schedule Editor](#)^[794].
- right-click the **Jobs** node (within the **Server Objects** branch) in the [DB Explorer](#)^[63] tree and select the **New Job** item from the [context menu](#)^[56]. In the [Job Editor](#)^[782] when [Managing job schedules](#)^[373] right-click within the work area to call the **context menu** and select the **Add Schedules...** item. Configure parameters of the new schedule in the **New Schedule** dialog.

To attach an existing schedule right-click the **Jobs** node (within the **Server Objects** branch) in the [DB Explorer](#)^[63] tree and select the **New Job** item from the [context menu](#)^[56]. In the [Job Editor](#)^[782] when [Managing job schedules](#)^[373] right-click within the work area to call the **context menu** and select the **Add Existing Schedule** item. Then choose the necessary schedule from the list.

14.7 Transfer program settings

If you want to apply current program settings (wholly or partially) to SQL Manager for SQL Server installed on another machine you can save them into a single *.reg file. This can be done by means of the [Save Settings Wizard](#)^[885].

Note: [Favorite Queries](#)^[90] are not saved in this case. To get access to your queries from another machine please [store](#)^[439] them in the database. To save a favorite query in a database select the *Database* from the drop-down list in the **Storage** field when creating or editing a favorite query.

14.8 Update SQL Manager

SQL Manager for SQL Server can be updated in the following ways:

1. Download the SQL Manager for SQL Server distribution package from the [download](#) page, then extract archive to the preferable directory (e.g. c:\unzipped). Close SQL Manager for SQL Server if it's opened and run *MsManagerFullSetup.exe* or *MsManagerLiteSetup.exe*.
2. Select the **Help | [SQL Manager Direct](#)**^[944], then press the **Update** button. If new SQL Manager for SQL Server version is released it will be offered for downloading. Click Yes in the dialog window to update SQL Manager for SQL Server automatically.

14.9 Report bugs and suggestions

1. Before reporting bugs and suggestions make sure you are using the latest version of the SQL Manager for SQL Server.
2. If so then you may contact us via Members Area on <http://www.sqlmanager.net/>, via **Help** main menu or by sending an email to support@sqlmanager.net.
3. Please, don't forget to mention your OS version, SQL Server version and program version.
4. Describe the steps to reproduce the bug in detail and illustrate them with screenshots.

Credits

Software Developers:

Alexander Zhiltsov

Alexey Butalov

Dmitry Goldobin

Dmitry Schastlivtsev

Nicolay Sezganov

Technical Writers:

Dmitry Doni

Semyon Slobodenyuk

Olga Ryabova

Cover Designer:

Tatyana Makurova

Translators:

Anna Shulkina

Sergey Fominykh

Team Coordinators:

Alexander Zhiltsov

Alexander Chelyadin

Roman Tkachenko