

# SQL Manager.net™

EMS® Software Development



## Data Generator for SQL Server User's Manual

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# Data Generator for SQL Server User's Manual

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This manual documents EMS Data Generator for SQL Server, version 3.0.x.x

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**Part**



# 1 Welcome to EMS Data Generator!

**EMS Data Generator for SQL Server** is a powerful utility for generating test data into one or several SQL Server database tables simultaneously, with script saving and editing capabilities. The wizard application allows you to define tables and columns for generating data, set value ranges, generate string values by mask, load values for BLOB columns directly from files, set lists of values manually, get sets of values from SQL queries and perform other operations with test data in a simple and direct way. The distribution of the utility also provides you with the console application which allows you to generate data in one-touch by using data generation templates.

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

## Key features

- Unicode support
- Localizable user-friendly wizard interface
- Ability to save and edit data generation script, without actual script execution
- Generating data into several tables of different databases at one host
- Support for all SQL Server data types including UNIQUEIDENTIFIER, BIT, SQL\_VARIANT and TIMESTAMP
- Various data generation modes for each data type including list, random, incremental data generation and more
- Ability to use SQL query results as the list of values for data generation
- Ability to get data from another column for data generation
- Ability to preview the data grid for each table
- Automatic control over referential integrity for data generation into linked tables
- Ability to disable triggers associated with the tables during data generation
- Wide variety of generation parameters for each data type
- Ability to set NULL values for a specified percent of cases
- Ability to empty tables before data generation
- Possibility of saving all the generation parameters specified within the current wizard session
- The command-line utility to generate data using the configuration file

## Product information

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

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

System:

Register online at: <https://www.sqlmanager.net/products/mssql/datagenerator/buy>

## 1.1 What's new

### Version

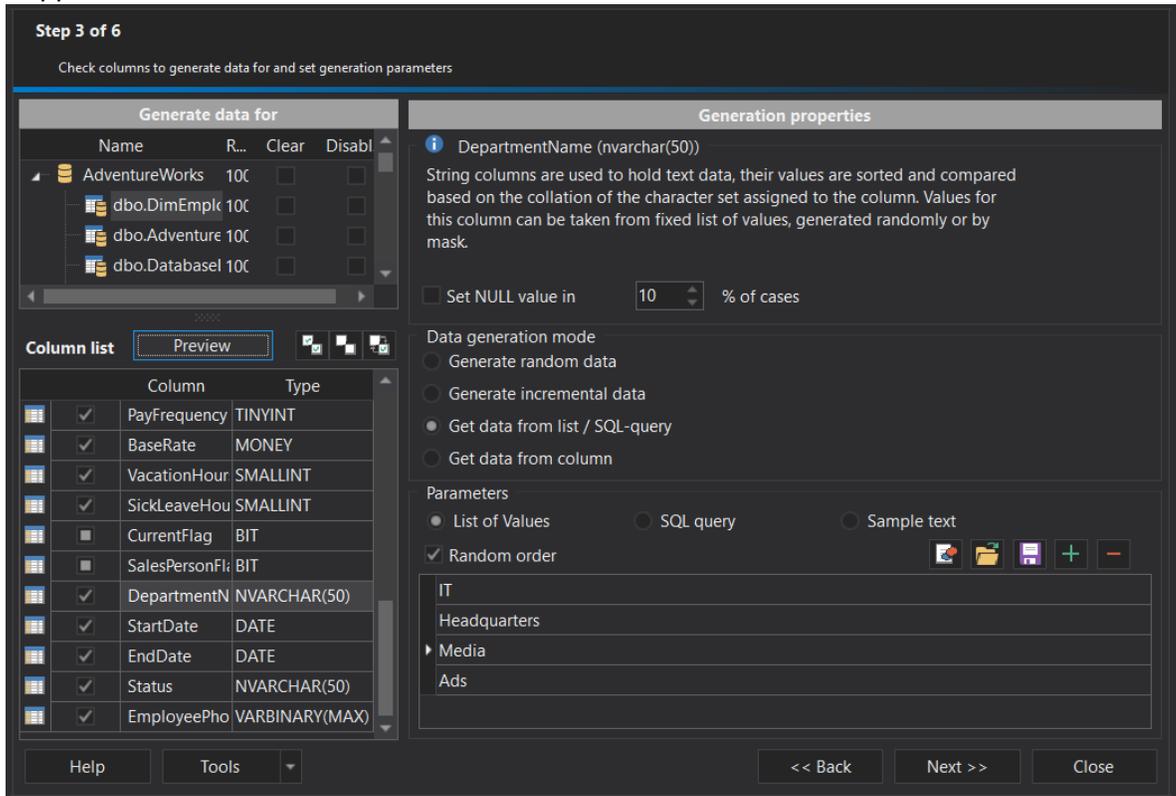
Data Generator for SQL Server 4.0

### Release Date

November 21, 2023

### What's new in EMS Data Generator 4.0?

- Support for dark visual theme added.



- Unicode names of objects are now supported.
- Support for the latest SQL Azure server version.
- Schema selection is now available.
- Encoding option for script file has been added.
- Files with test data are now supplied with the program installation pack.
- Many other improvements and fixes.

## 1.2 System requirements

### System requirements for Data Generator 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 Vista, Microsoft Windows 7, Microsoft Windows 8/8.1, Microsoft Windows 10, Microsoft Windows 11, Microsoft Windows 11 ARM
- 50MB 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 SQL Server™
- Supported MS SQL Server versions: from 7.0 up to 2022

## 1.3 Installation

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

- download the Data Generator 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 *MsDataGenSetup.exe* from the local directory and follow the instructions of the installation wizard;
- after the installation process is completed, find the Data Generator shortcut in the corresponding group of Windows Start menu.

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

- download the Data Generator 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 Data Generator application if it is running;
- run *MsDataGenSetup.exe* from the local directory and follow the instructions of the installation wizard.

---

**See also:**

[System requirements](#)

## 1.4 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](mailto:sales@sqlmanager.net).

To obtain **MORE INFORMATION** on this product, visit us at <https://www.sqlmanager.net/products/mssql/datagenerator>

| Product distribution   | PayPro Global                 |
|--|-------------------------------|
| EMS Data Generator for SQL Server (Business license) + 1-Year Maintenance*       | <a href="#">Register Now!</a> |
| EMS Data Generator for SQL Server (Business license) + 2-Year Maintenance*       |                               |
| EMS Data Generator for SQL Server (Business license) + 3-Year Maintenance*       |                               |
| EMS Data Generator for SQL Server (Non-commercial license) + 1-Year Maintenance* |                               |
| EMS Data Generator for SQL Server (Non-commercial license) + 2-Year Maintenance* |                               |
| EMS Data Generator for SQL Server (Non-commercial license) + 3-Year Maintenance* |                               |
| EMS Data Generator for SQL Server (Trial version)                                | <a href="#">Download Now!</a> |

\* **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.

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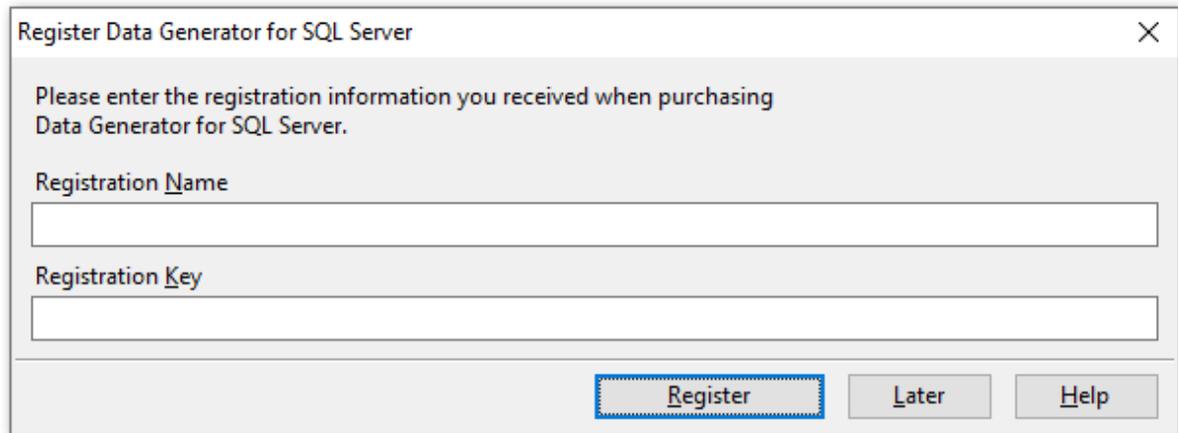
**See also:**

[How to register EMS Data Generator](#)

## 1.5 How to register Data Generator

To **register** your newly purchased copy of EMS **Data Generator for SQL Server**, perform the following:

- receive the notification letter from **PayPro Global** 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 at the [startup page](#).



Register Data Generator for SQL Server

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

Registration Name

Registration Key

Register Later Help

---

**See also:**

[Registration](#)

## 1.6 EMS Data Generator FAQ

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

### Table of contents

- [What is Data Generator for SQL Server?](#)
- [What do I need to start working with EMS Data Generator for SQL Server?](#)
- [What is the easiest way to configure the template files for the console application of Data Generator?](#)
- [How can I register the product?](#)
- [Are there any limitations implied in the trial version as compared with the full one?](#)

### Question/answer list

*Q: What is Data Generator for SQL Server?*

A: Data Generator for SQL Server is a powerful utility for generating test data to several SQL Server database tables at once. The wizard application allows you to define tables for generating data, set value ranges, generate char and BLOB values, and many other features to generate test data in a simple and direct way. The utility also provides you with the console application which allows you to generate data in one touch by using generation templates.

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

A: First of all you must have a possibility to connect to some local or remote SQL Server to work with Data Generator for SQL Server. You can use the following link to download the server: <https://www.microsoft.com/downloads/>. Besides, you need your computer to satisfy the [system requirements](#) for Data Generator for SQL Server.

*Q: What is the easiest way to configure the template files for the console application of Data Generator?*

A: You can configure the template files for each table or export type visually using the MS SQL Data Generator wizard. Set the required generation options at [Step 4](#) of the wizard, click the 'Tools' button and select the 'Save Template' popup menu item. All the options will be saved to the template file which can be used later in the [console application](#).

*Q: How can I register the product?*

A: If you have already purchased Data Generator for SQL Server, you can register the product by entering the appropriate registration information. Please refer to [Registration](#) and [How to register EMS Data Generator](#) for details.

*Q: Are there any limitations implied in the trial version as compared with the full one?*

A: The trial version of the utility admits to the maximum of 100 records to be generated at a time. In all other respects it does not differ from the full version as far as the functionality is concerned. That is, you can test all the features implemented in Data Generator for SQL Server within the 30-day trial period.

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

## 1.7 Other EMS Products

### Quick navigation



[MySQL](#)



[Microsoft SQL Server](#)



[PostgreSQL](#)



[InterBase / FireBird](#)



[Oracle](#)



[IBM DB2](#)



[Tools & components](#)

### 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.



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



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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.

[Scroll to top](#)

## **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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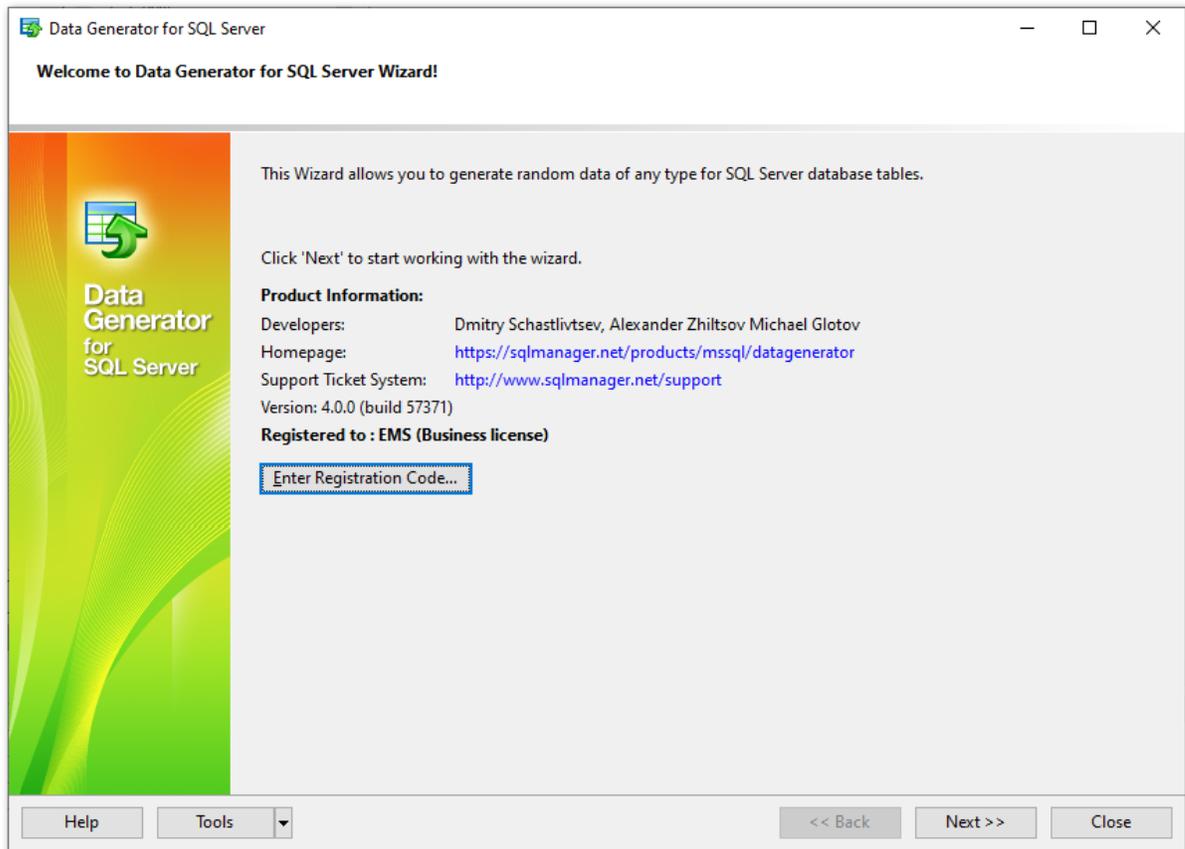
**Part**



## 2 Wizard Application

Data Generator for SQL Server wizard application provides easy-to-use wizard interface to set all data generation parameters visually.

- [Using wizard application](#)
- [Using configuration files](#)
- [Setting program preferences](#)



### See also:

[Console Application](#)

## 2.1 Using wizard application

Go through the steps of the wizard and follow the wizard instructions to generate test data for your needs.

- [Getting started](#)
- [Step 1 - Setting connection properties](#)
- [Step 2 - Selecting databases and tables](#)
- [Step 3 - Specifying generation parameters](#)
- [Step 4 - Setting generation options](#)
- [Step 5 - Start of data generation process](#)
- [Step 6 - Editing generation script](#)

---

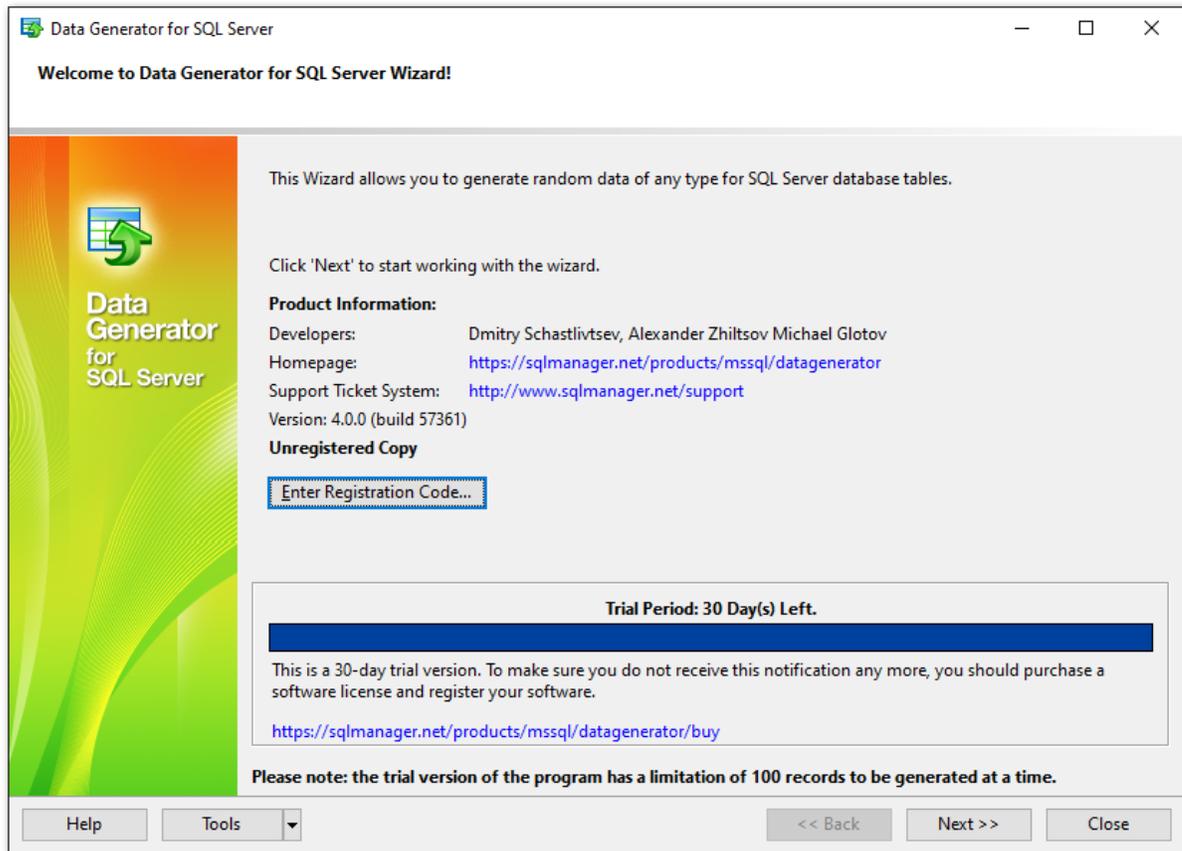
**See also:**

[Using console application](#)

## 2.1.1 Getting started

This is how Data Generator for SQL Server wizard application looks when you first start it.

This page allows you to view registration information. If you have not registered Data Generator for SQL Server yet, you can do it by pressing the **Enter Registration Code...** button and specifying your registration information.

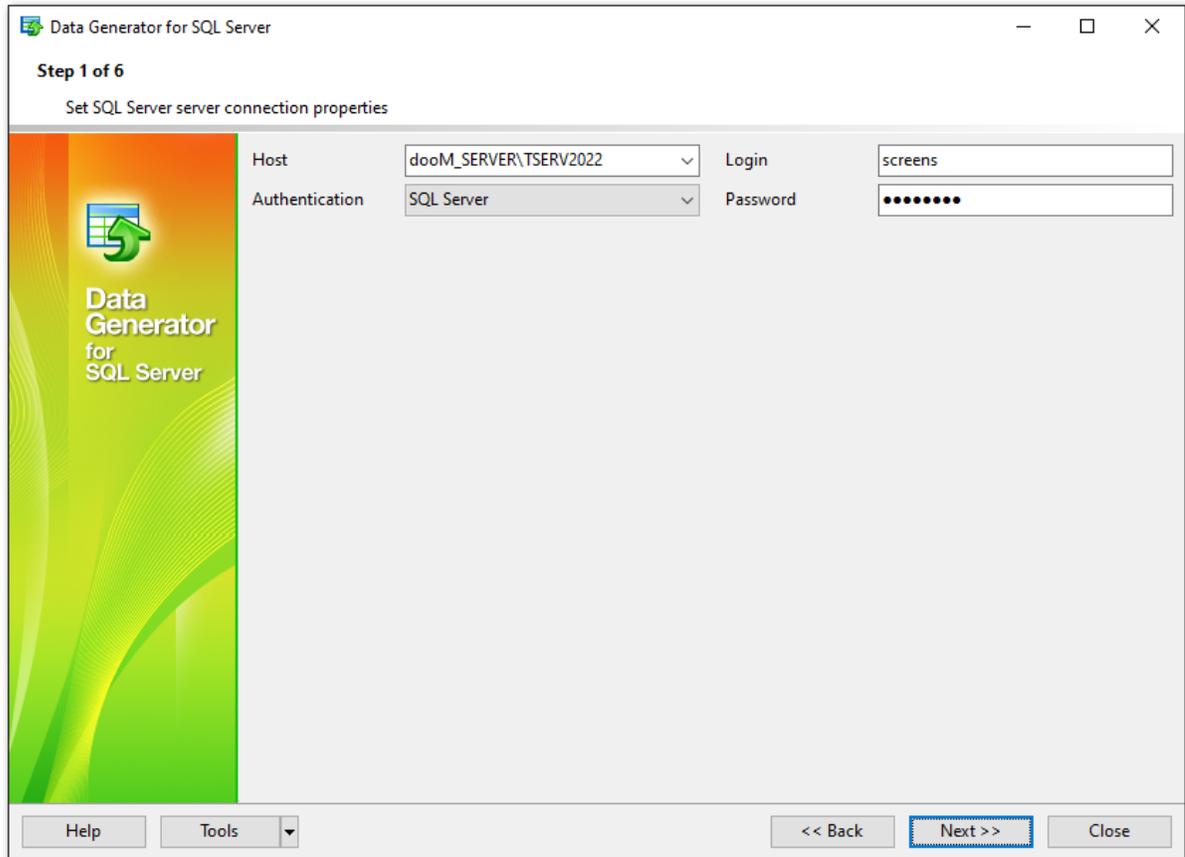


When you are done, press the **Next** button to proceed to [Step 1](#).

**See also:**  
[Registration](#)

## 2.1.2 Step 1 - Setting connection properties

At this step you should enter the necessary settings to establish connection to SQL Server.



For connection you should enter SQL Server host name in the **Host** field.

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' field in the following format: computer\_name\sqlserver\_instance\_name (e.g. "MYCOMPUTER\SQLEXPRESS").

### Authentication

Specify the type of SQL Server authentication to be used for the connection: *SQL Server* or *Windows* 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: **Login** and **Password**.

Please note that you should have sufficient privileges to write to the destination database on SQL Server.

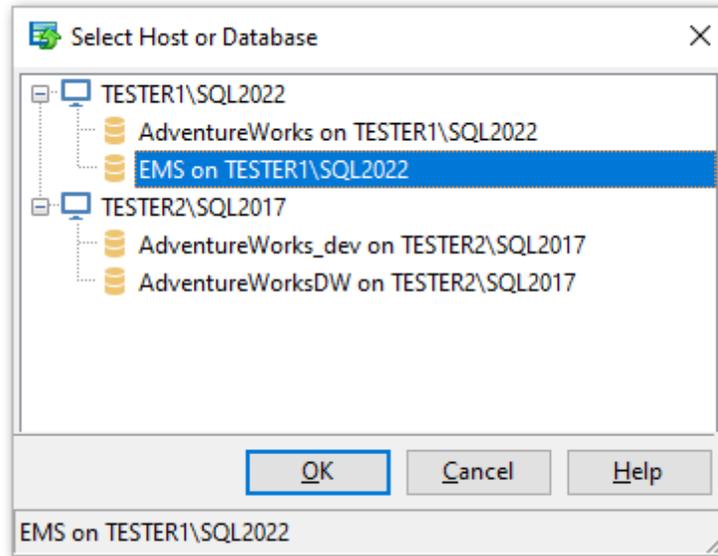
If you are using the EMS SQL Management Studio for SQL Server version of Data

Generator for SQL Server then the **Select registered database** button is available. Click this button to pick a database already registered in the EMS SQL Management Studio in the [Select Host or Database](#) dialog.

When you are done, press the **Next** button to proceed to the [next step](#).

### 2.1.2.1 Selecting registered database

Use this dialog to select a database for data generation. This dialog is available only in EMS SQL Management Studio version of Data Generator for SQL Server.



All databases registered in EMS SQL Management Studio for SQL Server are displayed in the list.

Select the necessary database and click the **OK** button.

Database registration information will be filled on the [first step](#) automatically.

### 2.1.3 Step 2 - Selecting databases and tables

At this step you should select tables for test data generation.

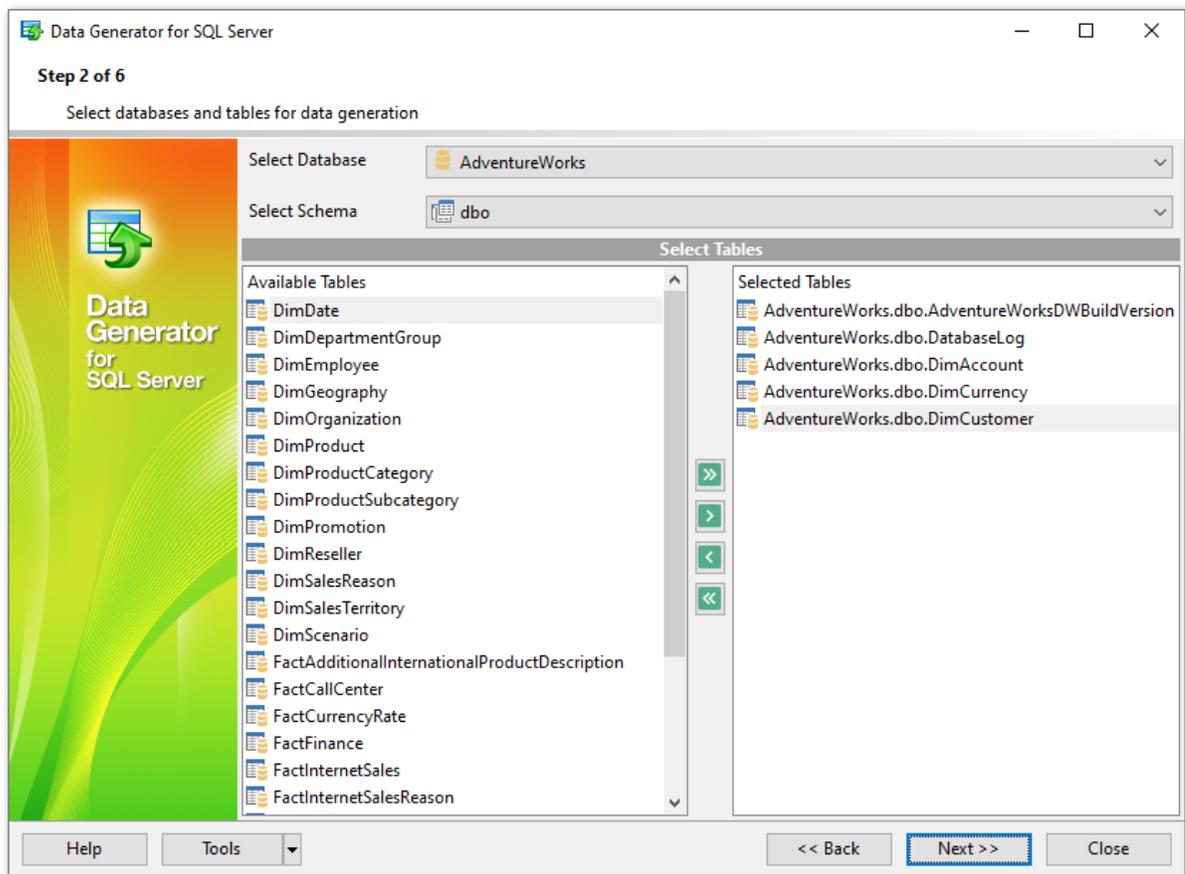
First you should select a database from the **Select Database** drop-down list at the top of the window.

Use the **Select Schema** drop-down list to select the schema in which the table should be created.

In the **Available Tables** list you can see all the tables belonging to the selected database. To select a table, you need to move it from the **Available Tables** list to the **Selected Tables** list. In this list tables are displayed with their full names: <database\_name>. <table\_name>. To cancel table selection, just remove it from the

**Selected Tables** list. Use the  buttons or drag-and-drop operations to move the tables from one list to another.

**Hint:** To select multiple tables, hold down the *Shift* or *Ctrl* key while selecting the table names.



Please note that the order of data generation for tables depends on their position in the **Selected Tables** list. This might be critical in case of generating data for linked tables. You can change their order by dragging tables across the list.

When you press the **Next** button at this step, Data Generator for SQL Server analyzes the order of data generation to avoid referential integrity conflicts and advises you to set a new order for data generation.

When you are done, press the **Next** button to proceed to the [next step](#).

### 2.1.4 Step 3 - Specifying generation parameters

At this step you can select columns for generating data and set various data generation parameters.

Selected tables are displayed in the **Generate data for** tree at the top-left side of the window. Table columns and their types are listed in the grid of the **Columns list** area below.

#### Records count

Set the number of data records to be generated for each table.

#### Clear

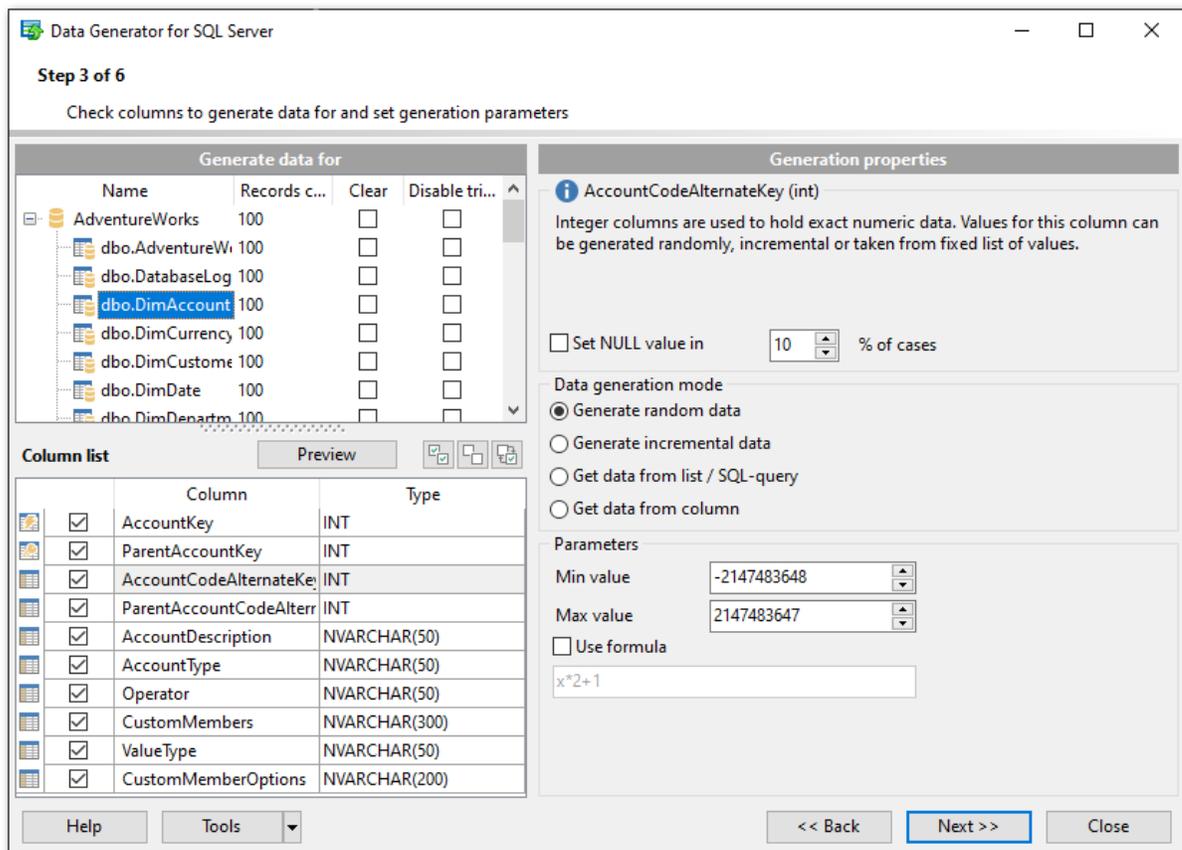
Set this flag for a table to empty the table before data generation.

#### Disable triggers

This column is visible if there are active triggers on one or more tables selected for data generation. Set a flag for a table to disable triggers associated with the table during data generation.

#### Preview

Click the **Preview** button to browse the selected table data in the [preview mode](#).



When you select a table in the **Generate data for** tree, you can set data generation parameters for each of its columns within the **Generation properties** area at the right

side of the window. Use the   and the  buttons to manage columns within the **Columns list** area. For each column you can set the following:

**Set NULL value in ... % of cases**

Check this option and specify the percentage of NULL values for the column data, if necessary.

Other generation parameters vary according to the data type of the selected column:

- [FLOAT type parameters](#)
- [INTEGER type parameters](#)
- [DATE type parameters](#)
- [STRING type parameters](#)
- [BLOB type parameters](#)
- [BIT type parameters](#)

If a column is part of a foreign key, you can select one of the following options for this column:

*Generate data from the dependent column*

Values for the column will be taken from the corresponding column(s) of the foreign table (s).

*Generate data from list / SQL-query*

*Ratio 1:N*

If this option is selected you should specify the *N* value using the spin-edit box below. Data will be generated into the column related as 1:N, i.e. *n* records will be generated into the foreign table for each record of the primary table.

**Data generation mode**

Generate data from the dependent column

Generate incremental data

Get data from list / SQL-query

Get data from column

---

**Parameters**

List of Values       SQL query       Ratio 1:N

For each record of the primary table *n* records will be generated into the foreign table.(NOTE: Changing this value will result in changing record count of the current table)

1

When you are done, press the **Next** button to proceed to the [next step](#) of the Wizard.

### 2.1.4.1 Setting type-specific properties

#### 2.1.4.1.1 INTEGER column parameters

Integer data types are used for exact numeric data storage. Values for this column can be generated *randomly*, *incrementally*, or they can be taken from a fixed *list* of values or *SQL query*, or from an existing table column of the same data type.

The **Generation properties** panel allows you to define preferences for generating values for integer types.

**Generation properties**

**i** BillValidationID (int)

Integer columns are used to hold exact numeric data. Values for this column can be generated randomly, incremental or taken from fixed list of values.

Set NULL value in  % of cases

Select [Data generation mode](#) as follows:

#### **Generate random data**

The value is generated randomly within the defined interval (the minimum and the maximum values).

**Data generation mode**

Generate random data

Generate incremental data

Get data from list / SQL-query

Get data from column

**Parameters**

Min value

Max value

Use formula

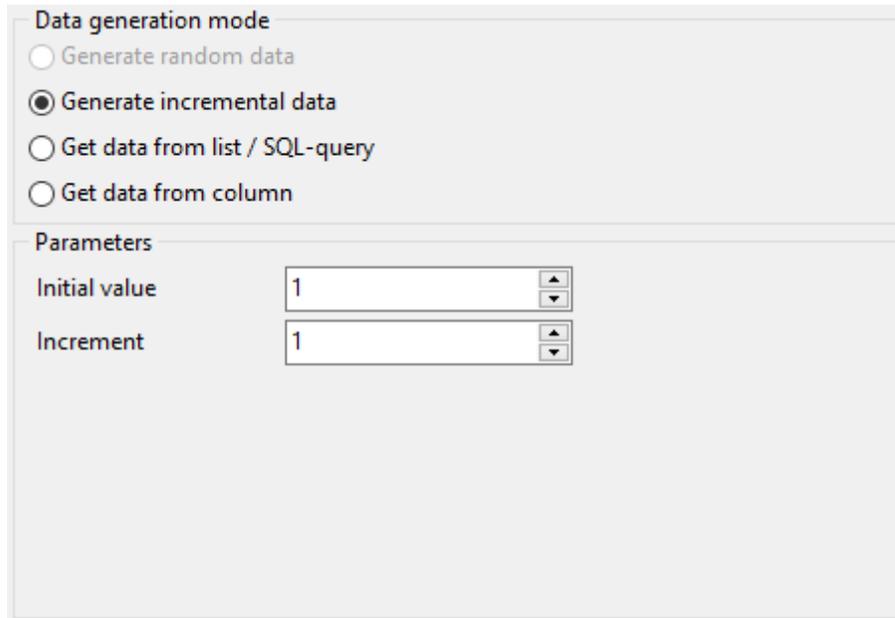
#### **Use formula**

This option allows you to correct your data according to a formula; x is a randomly generated value here. Addition, subtraction, multiplication, dividing and exponentiation

operations (+, -, \*, /, ^) can be used.

● **Generate incremental data**

Specify the **Initial value** and the **Increment** properties to generate an ordered incremented sequence of values.



The screenshot shows a software interface for data generation. It is divided into two main sections: 'Data generation mode' and 'Parameters'. In the 'Data generation mode' section, there are four radio buttons: 'Generate random data', 'Generate incremental data' (which is selected), 'Get data from list / SQL-query', and 'Get data from column'. In the 'Parameters' section, there are two input fields: 'Initial value' and 'Increment', both of which contain the number '1'. Each input field has small up and down arrow icons to its right, indicating they are spinners.

● **Get Data from List / SQL query**

This panel allows you to define the list of values to generate integer data from. You can enter these values directly into the editor by selecting the **List of Values** option.

To add a single value, use the  **Add Value** button.

To load a list of values from an existing external file, use the  **Load from file** button.

To save the list to an external file, use the  **Save to file** button.

To remove a single value, use the  **Delete Value** button.

To remove all items from the list, use the  **Clear** button.

You can also specify whether the values are to be taken in **random order** or in the order they have been inputted.

Alternatively, you can set the **SQL Query** option and input an SQL query into the editor, and the resulting dataset will be used as the list for data generation.

The screenshot shows a software interface for data generation. It is divided into two main sections: 'Data generation mode' and 'Parameters'.

**Data generation mode:**

- Generate random data
- Generate incremental data
- Get data from list / SQL-query
- Get data from column

**Parameters:**

- List of Values       SQL query
- Random order

Below the parameters, there is a list of values in a table-like structure with a vertical scrollbar on the right. The values are 1, 2, 3, 4, 5, and 6. The value '3' is currently selected, indicated by a small black triangle to its left.

**Get data from column**

This option allows you to specify a column to generate data from: use the **Table** and **Column** drop-down lists to select the source table and column that will be used to take data for generation.

The screenshot shows the same software interface as above, but with the 'Get data from column' option selected.

**Data generation mode:**

- Generate random data
- Generate incremental data
- Get data from list / SQL-query
- Get data from column

**Parameters:**

- Table: characters
- Column: base\_class

## 2.1.4.1.2 FLOAT column parameters

Float data are used for approximate numeric data storage. Values for this column can be generated *randomly*, *incrementally*, or they can be taken from a fixed *list* of values or *SQL query*, or from an existing table column of the same data type.

The **Generation properties** panel allows you to define preferences for generating values for floating point numeric types.

**Generation properties**

**SALARY (float)**

Float columns are used to hold approximate numeric data. Values for this column can be generated randomly, incremental or taken from fixed list of values.

Set NULL value in  % of cases

Select [Data generation mode](#) as follows:

**Generate random data**

Here you can define the number of precision and the scale for the result randomly generated values.

**Data generation mode**

Generate random data

Generate incremental data

Get data from list / SQL-query

Get data from column

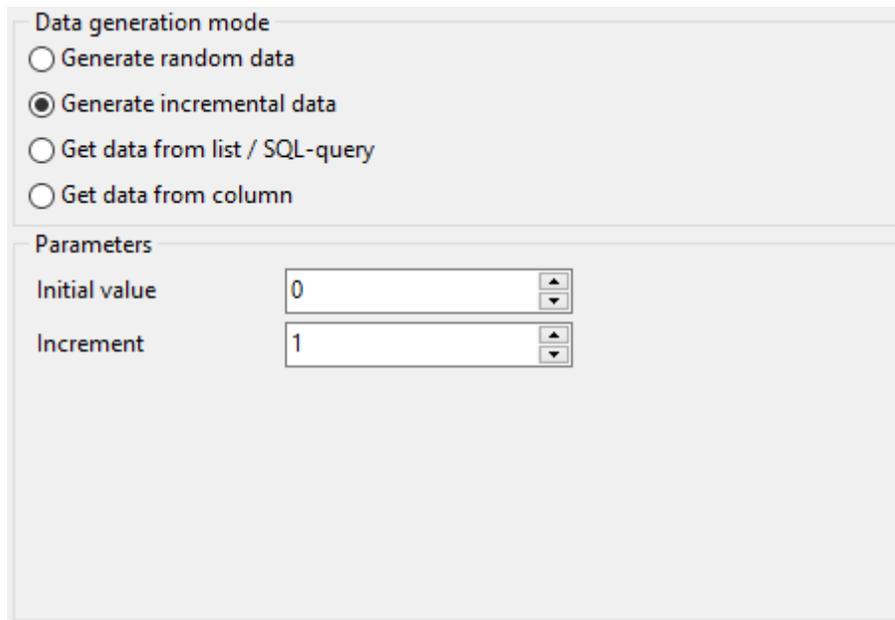
**Parameters**

Precision

Scale

**Generate incremental data**

Specify the **Initial value** and the **Increment** properties to generate an ordered incremented sequence of values.



The screenshot shows a software interface with two main sections. The top section, titled 'Data generation mode', contains four radio button options: 'Generate random data', 'Generate incremental data' (which is selected), 'Get data from list / SQL-query', and 'Get data from column'. The bottom section, titled 'Parameters', contains two input fields: 'Initial value' with the value '0' and 'Increment' with the value '1'. Each input field has small up and down arrow buttons on its right side.

#### **Get data from List / SQL query**

This panel allows you to define the list of values to generate floating point numeric data from. You can enter these values directly into the editor by selecting the **List of Values** option.

To add a single value, use the  **Add Value** button.

To load a list of values from an existing external file, use the  **Load from file** button.

To save the list to an external file, use the  **Save to file** button.

To remove a single value, use the  **Delete Value** button.

To remove all items from the list, use the  **Clear** button.

You can also specify whether the values are to be taken in **random order** or in the order they have been inputted.

Alternatively, you can set the **SQL Query** option and input an SQL query into the editor, and the resulting dataset will be used as the list for data generation.

Data generation mode

Generate random data  
 Generate incremental data  
 Get data from list / SQL-query  
 Get data from column

Parameters

List of Values       SQL query

Random order

|         |
|---------|
| -0,001  |
| ▶ -0,01 |
| -0,1    |
| 0,001   |
| 0,01    |
| 0,1     |

**Get data from column**

This option allows you to specify a column to generate data from: use the **Table** and **Column** drop-down lists to select the source table and column that will be used to take data for generation.

Data generation mode

Generate random data  
 Generate incremental data  
 Get data from list / SQL-query  
 Get data from column

Parameters

Table      publishing ▼

Column      subbrand ▼

## 2.1.4.1.3 DATE column parameters

Date are used for temporal values storage. Values for this type can be generated *randomly*, *incrementally*, or they can be taken from a fixed *list* of values or *SQL query*, or from an existing table column of the same data type.

The **Generation properties** panel allows you to define preferences for generating date values for date types.

**Generation properties**

**i** ModifiedDate (datetime)

The date columns are used for holding temporal values. Values for this column can be generated randomly or taken from list of values.

Set NULL value in  % of cases

Select [Data generation mode](#) as follows:

**Generate random data**

Set the date range by defining the minimum and the maximum values.

**Data generation mode**

Generate random data

Generate incremental data

Get data from list / SQL-query

Get data from column

**Parameters**

|     | Date       | Time     | Precision |
|-----|------------|----------|-----------|
| Min | 27.09.2012 | 00:00:00 | 0         |
| Max | 26.11.2012 | 23:59:59 | 999       |

**Generate incremental data**

Specify the **Start** and the **Increment** properties to generate an ordered incremented sequence of dates. The incremented value is day.

The screenshot shows a software interface for data generation. It is divided into two main sections: 'Data generation mode' and 'Parameters'.

**Data generation mode:** This section contains four radio buttons. The second option, 'Generate incremental data', is selected.

- Generate random data
- Generate incremental data
- Get data from list / SQL-query
- Get data from column

**Parameters:** This section contains a table of input fields for 'Start' and 'Increment' values, categorized by 'Date', 'Time', and 'Precision'.

|           | Date       | Time     | Precision |
|-----------|------------|----------|-----------|
| Start     | 02.11.2012 | 12:41:01 | 907       |
| Increment | 1          | 00:00:01 | 123       |

#### **Get data from list / SQL query**

This panel allows you to define the list of values to generate temporal data from. You can enter these values directly into the editor by selecting the **List of Values** option.

To add a single value, use the  **Add Value** button.

To load a list of values from an existing external file, use the  **Load from file** button.

To save the list to an external file, use the  **Save to file** button.

To remove a single value, use the  **Delete Value** button.

To remove all items from the list, use the  **Clear** button.

You can also specify whether the values are to be taken in **random order** or in the order they have been inputted.

Alternatively, you can set the **SQL Query** option and input an SQL query into the editor, and the resulting dataset will be used as the list for data generation.

Data generation mode

Generate random data  
 Generate incremental data  
 Get data from list / SQL-query  
 Get data from column

Parameters

List of Values       SQL query

Random order

|                       |
|-----------------------|
| 01.11.2023 12:00:00   |
| 02.11.2023 13:00:00   |
| ▶ 03.11.2023 14:00:00 |
| 04.11.2023 15:00:00   |
| 05.11.2023 16:00:00   |
| 06.11.2023 17:00:00   |

**Get data from column**

This option allows you to specify a column to generate data from: use the **Table** and **Column** drop-down lists to select the source table and column that will be used to take data for generation.

Data generation mode

Generate random data  
 Generate incremental data  
 Get data from list / SQL-query  
 Get data from column

Parameters

Table      orders

Column      ShipDate

## 2.1.4.1.4 STRING column parameters

Strings are used for text data storage. The values are sorted and compared on the basis of the collation of the character set assigned to the column. Values for this column can be generated *randomly* (with *constraints* or *mask* used), *incrementally*, or they can be taken from a fixed *list* of values or *SQL query*, or from an existing table column of the same data type.

The **Generation properties** panel allows you to define preferences for generating string values for string-based types.

**Generation properties**

**i** Name (varchar(40))

String columns are used to hold text data, their values are sorted and compared based on the collation of the character set assigned to the column. Values for this column can be taken from fixed list of values, generated randomly or by mask.

Set NULL value in  % of cases

Select [Data generation mode](#) as follows:

**Generate random data**

String random data can be generated in two ways - by using constraints or by typing the mask.

• **Using constraints**

Set the **Min length**, **Max length** values to define the minimum and the maximum length for generated values. You can also specify the **Start char** and the **End char** segments to be used for string values generation.

**Data generation mode**

Generate random data

Generate incremental data

Get data from list / SQL-query

Get data from column

**Parameters**

Using constraints  Using mask

Charset

Min length

Max length

Start char

End char

Include new line

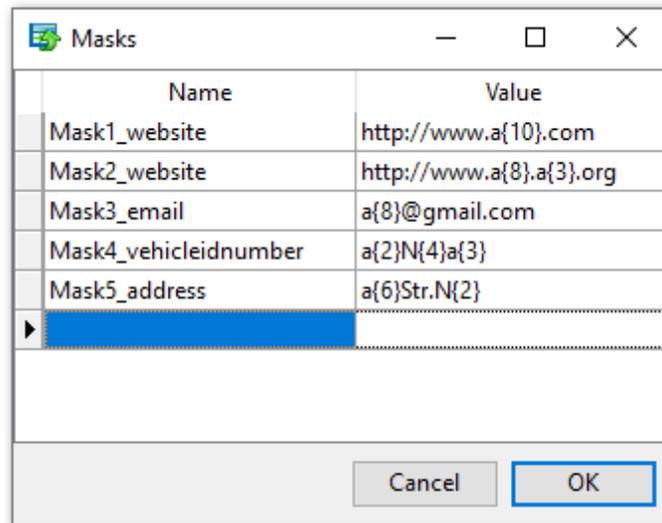
Windows new line

- **Using mask**

Check the option to generate values by mask. Use the **Masks** window to create and edit various masks for string data generation:

- the 'A' and the 'a' characters are replaced with a random letter (from 'A' to 'Z' and from 'a' to 'z');
- the 'N' character is replaced with a random digit;
- '{n}' results in iteration of the last sign n times;
- the character after the '\' symbol is interpreted as a common character.

All the rest of the mask characters will be moved to the result value without changes.



- **Generate incremental data**

Specify the **Initial value** and the **Increment** properties to generate an ordered incremented sequence of values.

|                                  |  |
|----------------------------------|--|
| Data generation mode             |  |
| <input type="radio"/>            | Generate random data                       |
| <input checked="" type="radio"/> | Generate incremental data                  |
| <input type="radio"/>            | Get data from list / SQL-query             |
| <input type="radio"/>            | Get data from column                       |
| Parameters                       |  |
| Initial value                    | <input type="text" value="A"/>             |
| Increment                        | <input type="text" value="1"/>             |
| Start char                       | <input type="text" value="A (65)"/>        |
| End char                         | <input type="text" value="Z (90)"/>        |
| Charset                          | <input type="text" value="ascii (ASCII)"/> |

#### **Get data from list / SQL query**

This panel allows you to define the list of values to generate string data from. You can enter these values directly into the editor by selecting the **List of Values** option.

To add a single value, use the  **Add Value** button.

To load a list of values from an existing external file, use the  **Load from file** button.

To save the list to an external file, use the  **Save to file** button.

To remove a single value, use the  **Delete Value** button.

To remove all items from the list, use the  **Clear** button.

You can also specify whether the values are to be taken in **random order** or in the order they have been inputted.

Alternatively, you can set the **SQL Query** option and input an SQL query into the editor, and the resulting dataset will be used as the list for data generation.

Use of the **Sample text** option allows you to generate fragments of previously defined text into the string type column. To define sample text used by default, see the [Default constraints](#) section of the [Preferences](#) dialog.

Data generation mode

Generate random data  
 Generate incremental data  
 Get data from list / SQL-query  
 Get data from column

Parameters

List of Values       SQL query       Sample text  
 Random order

|            |
|------------|
| Alabama    |
| Alaska     |
| Arizona    |
| Arkansas   |
| California |
| Colorado   |

**Get data from column**

This option allows you to specify a column to generate data from: use the **Table** and **Column** drop-down lists to select the source table and column that will be used to take data for generation.

Data generation mode

Generate random data  
 Generate incremental data  
 Get data from list / SQL-query  
 Get data from column

Parameters

Table      department ▼

Column      GroupName ▼

## 2.1.4.1.5 BLOB column parameters

A BLOB is a binary large object that can store a variable amount of data. You can generate values for this column *randomly* or choose to take them from a specified *list* of files or *SQL query*, or from an existing table column of the same data type.

The **Generation properties** panel allows you to define preferences for generating values for BLOB column type.

**Generation properties**

**i** Photo (image)

A BLOB is a binary large object that can hold a variable amount of data. You can generate values for this column randomly or choose several files to retrieve data from them.

Set NULL value in  % of cases

Select [Data generation mode](#) as follows:

**Generate random data**

Set the **Min length**, **Max length** values to define the minimum and the maximum length for generated values.

**Data generation mode**

Generate random data

Generate incremental data

Get data from files / SQL-query

Get data from column

**Parameters**

Min length

Max length

**Get data from files / SQL query**

This panel allows you to define the list of files to generate BLOB data from. You can specify the list of files to use their content as values for the BLOB column by selecting the **List of Files** option.

To add a file, use the  **Add Value** button.

To load a list of file paths from an existing external file, use the  **Load from file** button.

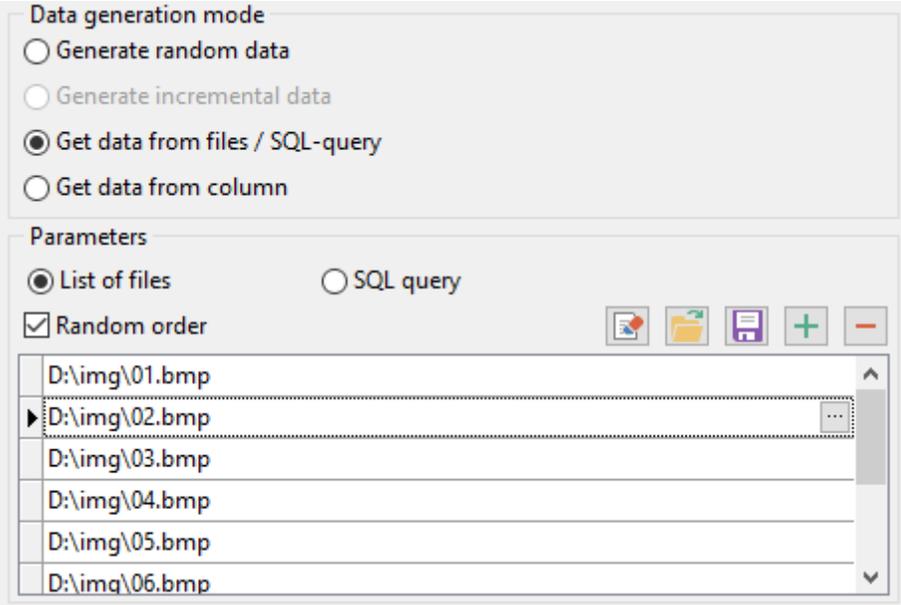
To save the list to an external file, use the  **Save to file** button.

To remove a single file, use the  **Delete Value** button.

To remove all items from the list, use the  **Clear** button.

You can also specify whether the files are to be taken in **random order** or in the order they have been inputted.

Alternatively, you can set the **SQL query** option and input an SQL query into the editor, and the resulting dataset will be used as the list for data generation.



The screenshot shows the 'Data generation mode' section with four radio buttons: 'Generate random data', 'Generate incremental data', 'Get data from files / SQL-query' (selected), and 'Get data from column'. Below this is the 'Parameters' section with two radio buttons: 'List of files' (selected) and 'SQL query'. A checkbox for 'Random order' is checked. To the right of the checkbox are five icons: a red arrow pointing to a document, a folder, a document with a checkmark, a plus sign, and a minus sign. Below these is a list of file paths: D:\img\01.bmp, D:\img\02.bmp (highlighted), D:\img\03.bmp, D:\img\04.bmp, D:\img\05.bmp, and D:\img\06.bmp.

#### **Get data from column**

This option allows you to specify a column to generate data from: use the **Table** and **Column** drop-down lists to select the source table and column that will be used to take data for generation.

Data generation mode

Generate random data

Generate incremental data

Get data from files / SQL-query

Get data from column

Parameters

Table  ▼

Column  ▼

## 2.1.4.1.6 BIT column parameters

SQL Server Bit columns can store either TRUE or FALSE values. You can generate values for this column *randomly* or choose to take them from a specified *list* of values or *SQL query*, or from an existing table column of the same data type.

The **Generation properties** panel allows you to define preferences for generating values for Bit column type.

Select [Data generation mode](#) as follows:

**Generate random data**

Specify the ratio between True and False values in randomly generated data.

**Get data from list / SQL query**

This panel allows you to define the list of values to generate bit data from. You can enter these values directly into the editor by selecting the **List of Values** option.

To add a single value, use the **Add Value** button.

To load a list of values from an existing external file, use the **Load from file** button.

To save the list to an external file, use the **Save to file** button.

To remove a single value, use the  **Delete Value** button.

To remove all items from the list, use the  **Clear** button.

You can also specify whether the values are to be taken in **random order** or in the order they have been inputted.

Alternatively, you can set the **SQL Query** option and input an SQL query into the editor, and the resulting dataset will be used as the list for data generation.

**Data generation mode**

Generate random data

Generate incremental data

Get data from list / SQL-query

Get data from column

---

**Parameters**

List of Values       SQL query

Random order     

|  |                                     |
|--|-------------------------------------|
|  | <input type="checkbox"/>            |
|  | <input checked="" type="checkbox"/> |
|  | <input type="checkbox"/>            |
|  | <input type="checkbox"/>            |
|  | <input type="checkbox"/>            |
|  | <input type="checkbox"/>            |

**Get data from column**

This option allows you to specify a column to generate data from: use the **Table** and **Column** drop-down lists to select the source table and column that will be used to take data for generation.

Data generation mode

Generate random data

Generate incremental data

Get data from list / SQL-query

Get data from column

Parameters

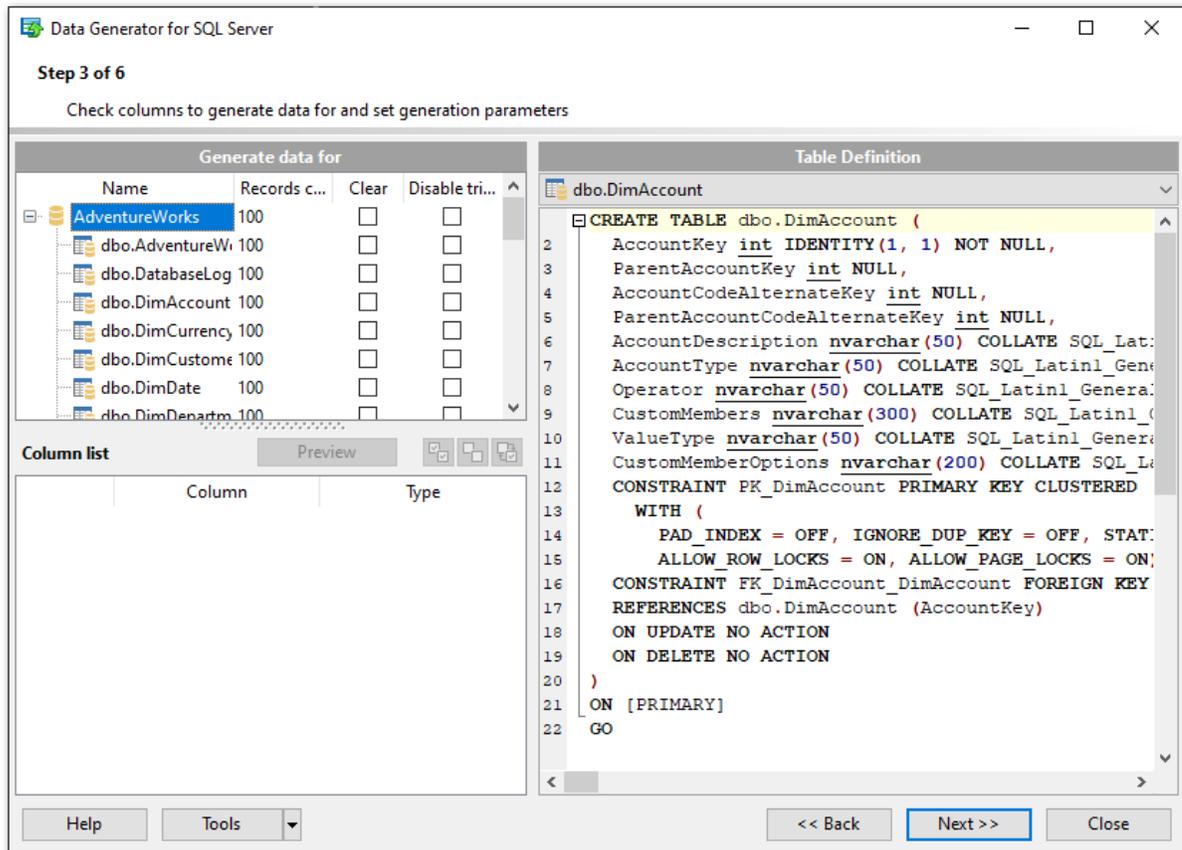
Table  ▾

Column  ▾

### 2.1.4.2 Viewing table DDL

When you select a database in the **Generate data for** tree, you can select a table belonging to the database and view its DDL structure within the **Table Definition** area at the right side of the window.

**Hint:** If more convenient, you can see the DDL of the tables in the hint that popup when the mouse cursor is positioned over the table names within the **Generate Data for** area.



#### Table Definition

The drop-down list at the top contains the tables that were selected for data generation at [Step 2](#). Select a table to view its DDL.

Right-click within the **Table Definition** area to call the **popup menu** allowing you to **copy** the DDL of the table to Windows clipboard.

### 2.1.4.3 Data Preview

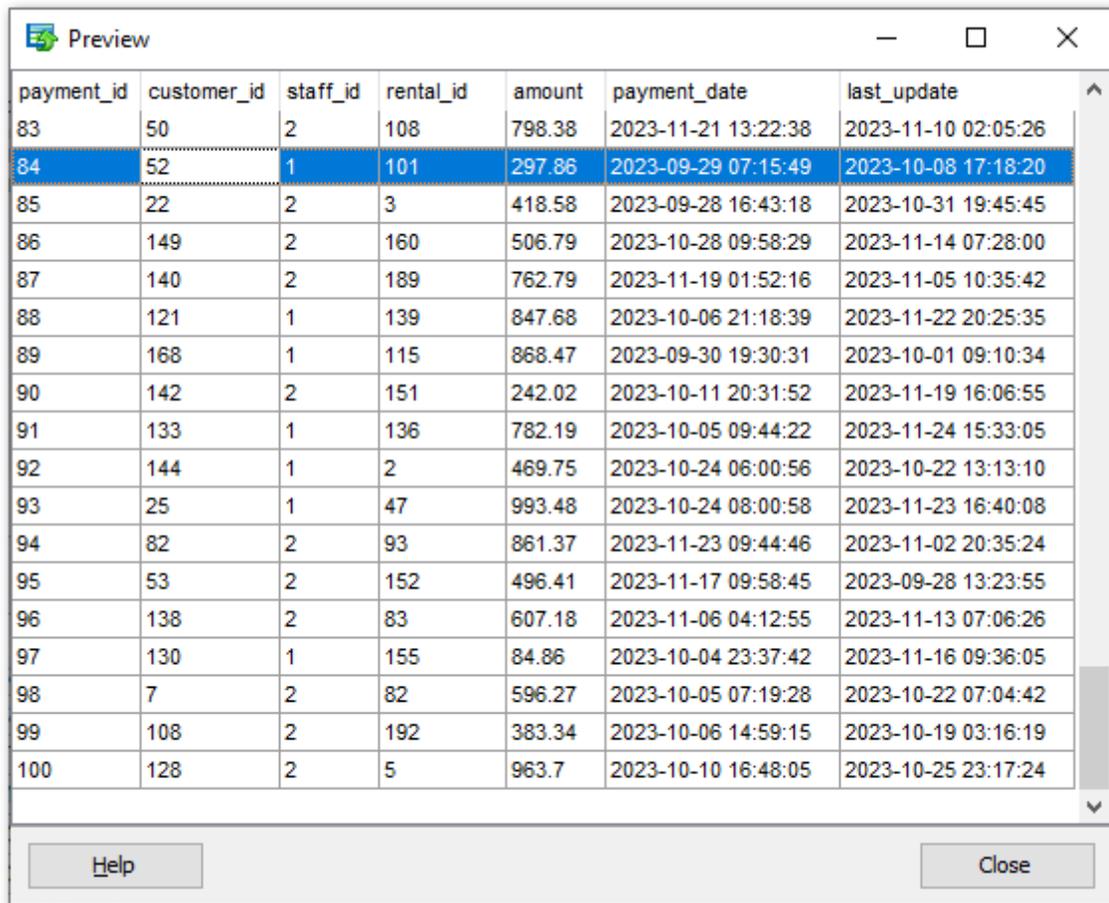
The **Preview** window allows you to browse the selected table data in the preview mode.

**Note:** The data in preview are selected randomly according to specified parameters and are not actually inserted into the table, i.e. a different set of values will be [generated](#) into the table.

To open the window, click the **Preview** button available at [Step 3](#).

The grid contains all selected columns with data that will be generated according to the parameters you have specified at [Step 3](#). If more convenient, you can **change the order** 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.



| payment_id | customer_id | staff_id | rental_id | amount | payment_date        | last_update         |
|------------|-------------|----------|-----------|--------|---------------------|---------------------|
| 83         | 50          | 2        | 108       | 798.38 | 2023-11-21 13:22:38 | 2023-11-10 02:05:26 |
| 84         | 52          | 1        | 101       | 297.86 | 2023-09-29 07:15:49 | 2023-10-08 17:18:20 |
| 85         | 22          | 2        | 3         | 418.58 | 2023-09-28 16:43:18 | 2023-10-31 19:45:45 |
| 86         | 149         | 2        | 160       | 506.79 | 2023-10-28 09:58:29 | 2023-11-14 07:28:00 |
| 87         | 140         | 2        | 189       | 762.79 | 2023-11-19 01:52:16 | 2023-11-05 10:35:42 |
| 88         | 121         | 1        | 139       | 847.68 | 2023-10-06 21:18:39 | 2023-11-22 20:25:35 |
| 89         | 168         | 1        | 115       | 868.47 | 2023-09-30 19:30:31 | 2023-10-01 09:10:34 |
| 90         | 142         | 2        | 151       | 242.02 | 2023-10-11 20:31:52 | 2023-11-19 16:06:55 |
| 91         | 133         | 1        | 136       | 782.19 | 2023-10-05 09:44:22 | 2023-11-24 15:33:05 |
| 92         | 144         | 1        | 2         | 469.75 | 2023-10-24 06:00:56 | 2023-10-22 13:13:10 |
| 93         | 25          | 1        | 47        | 993.48 | 2023-10-24 08:00:58 | 2023-11-23 16:40:08 |
| 94         | 82          | 2        | 93        | 861.37 | 2023-11-23 09:44:46 | 2023-11-02 20:35:24 |
| 95         | 53          | 2        | 152       | 496.41 | 2023-11-17 09:58:45 | 2023-09-28 13:23:55 |
| 96         | 138         | 2        | 83        | 607.18 | 2023-11-06 04:12:55 | 2023-11-13 07:06:26 |
| 97         | 130         | 1        | 155       | 84.86  | 2023-10-04 23:37:42 | 2023-11-16 09:36:05 |
| 98         | 7           | 2        | 82        | 596.27 | 2023-10-05 07:19:28 | 2023-10-22 07:04:42 |
| 99         | 108         | 2        | 192       | 383.34 | 2023-10-06 14:59:15 | 2023-10-19 03:16:19 |
| 100        | 128         | 2        | 5         | 963.7  | 2023-10-10 16:48:05 | 2023-10-25 23:17:24 |

If necessary, you can filter records in the grid in either of the following ways:

- 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;
- 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** dialog.

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.

Custom Filter

Show rows where:

DatabaseLogID \_\_\_\_\_

like \_\_\_\_\_

AND  OR

\_\_\_\_\_

Use % to represent any series of characters

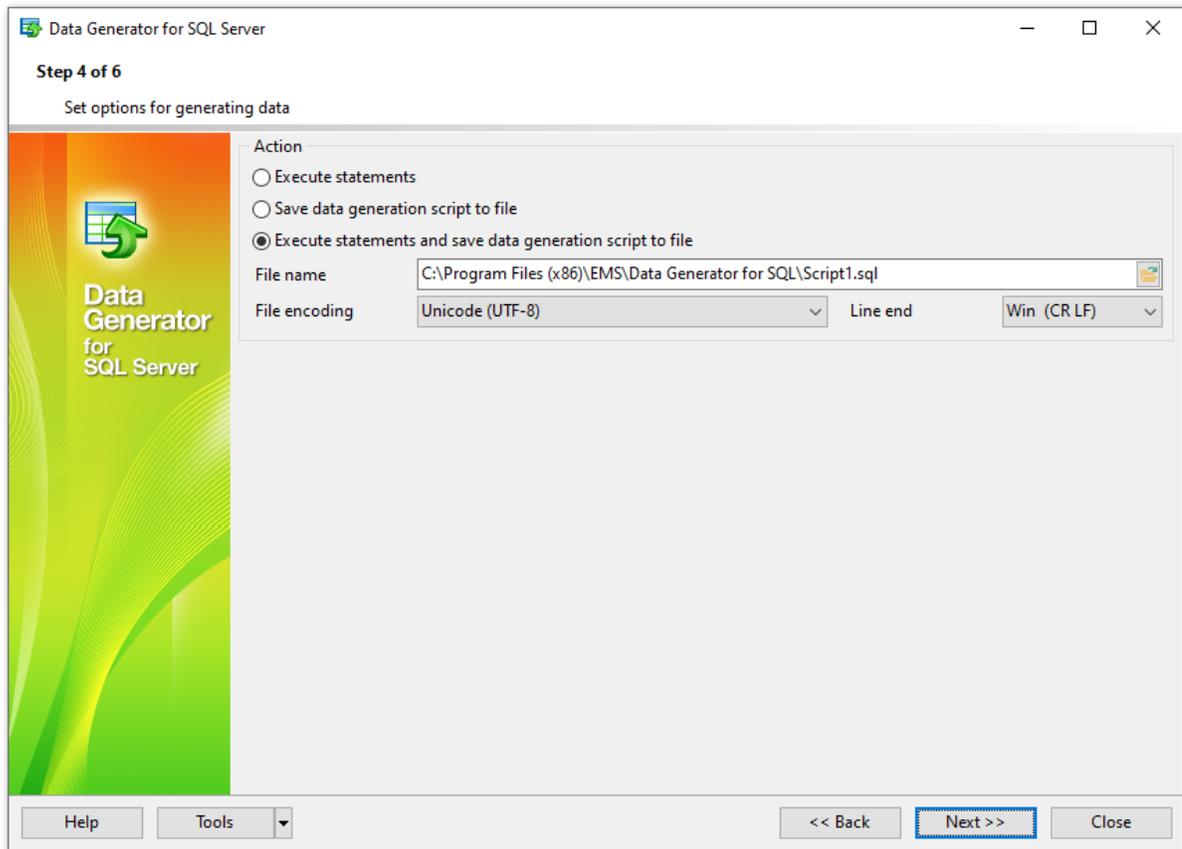
Use \_ to represent any single character

OK Cancel

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.

## 2.1.5 Step 4 - Setting generation options

At this step you can specify data generation options.



### Action

Specify the action to be taken at the [next step](#) of the wizard:

#### Execute statements

Select this option to execute the script for data generation.

#### Save data generation script to file

Select this option if you only need to save the script for data generation to a file, without the script execution.

#### Execute statements and save data generation script to file

Select this option to execute the script for data generation and save it to a file.

### File name

This box is enabled if the *Save data generation script to file* or *Execute statements and save data generation script to file* option is selected. Type in or use the  **Explorer** button to specify the path to the \*.sql file to store the SQL script.

### File encoding

Select target encoding for the file.

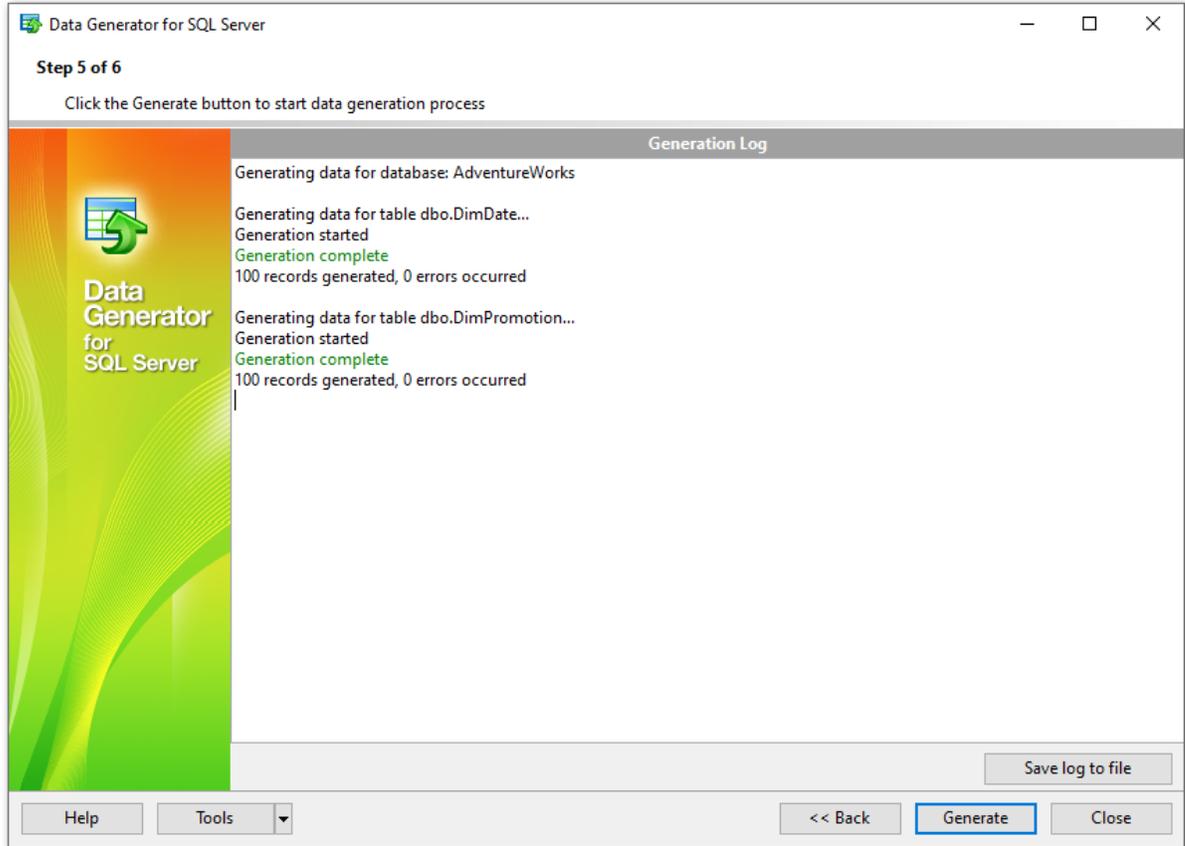
**Line end**

Select the required line end symbol for the file: CR LF for Windows OS, LF for Unix or CR for MacOS.

When you are done, press the **Next** button to proceed to the [next step](#) of the Wizard.

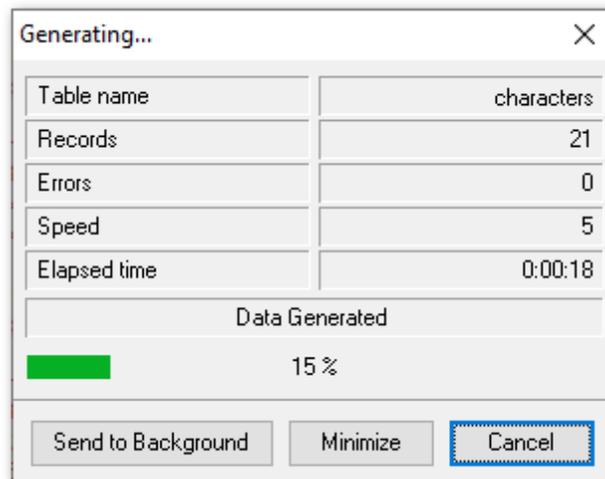
### 2.1.6 Step 5 - Start of data generation process

This step informs you that all data generation parameters are set, and you can start the generation process.



If everything is correct, press the **Generate** button to start the process. If you want to change something, you can return to any of the wizard steps using the **Back** button.

The **Generating...** dialog indicates the amount of generated *records*, elapsed *time*, the number of *errors* (if any) and visually represents the percentage of *data generated*.



Use the **Send to background** button to run the process in the background mode, the **Minimize** button to minimize the application to Windows Task bar, or the **Cancel** button to stop the generation process.

During data generation the **Generation Log** area displays the log of performed operations and errors (if any).

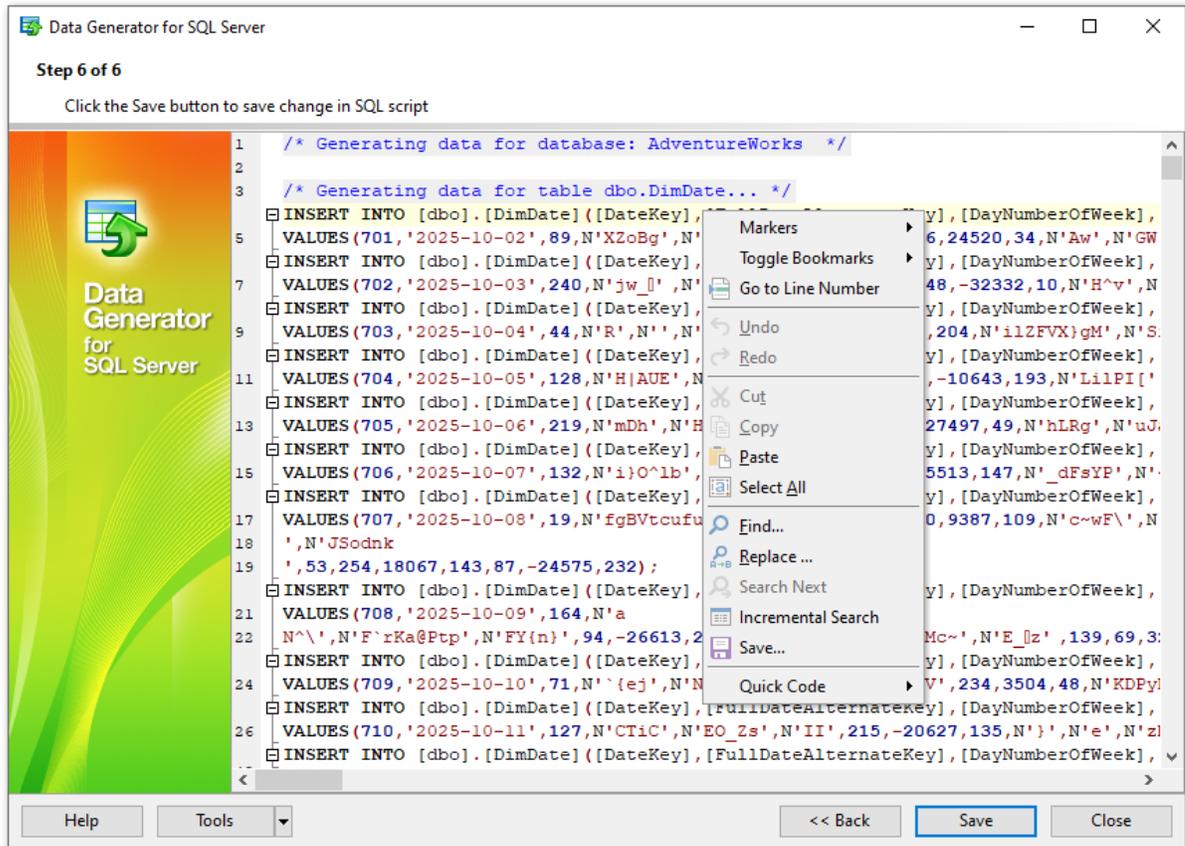
When the process is completed, you can use the **View SQL file in editor** and the **Save log to file** buttons to edit the data generation script at [Step 6](#) of the wizard and save the generation log content to an external text file respectively.

Do not forget to [save data generation options](#) if you need to repeat the generation process with the same (or similar) settings later.

## 2.1.7 Step 6 - Editing generation script

This step of the wizard allows you to edit the result script for data generation.

For your convenience the **code folding**, **syntax highlight** and a number of other features for efficient SQL editing are implemented.



The **context menu** of the editor area contains most of the standard text-processing functions (*Cut*, *Copy*, *Paste*, *Select All*) and functions for working with the script as a whole, e.g. you can *move the cursor to a particular line*, set *markers*, toggle *bookmarks*, etc.

Implementation of the [Find Text](#) and the [Replace Text](#) dialogs contributes to more efficient work with the SQL code.

Find the complete list of the context menu items below. The context menu allows you to:

- 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;
- go to a line with specified number;
- perform editing operations: *Undo/Redo*, *Cut*, *Copy*, *Paste*, *Select all*;
- perform [search](#) and [replace](#) operations;
- save the script to an external *\*.sql* file;
- format the selected code using *SQL Formatter* to make the code easier to read;
- use the Quick Code features: select a character, toggle a comment for a code

fragment, toggle case of the selected text, indent/unindent lines in the script.

Press the **Back** button to return to any of the previous steps (the content of the editor area will not be lost).

If you press the **Save** button, the script will be saved to an external file.

Pressing the **Close** button will result in closing the application (before closing Data Generator will prompt for saving changes).

## 2.2 Using configuration files

Data Generator for SQL Server allows you to store its settings in external `*.gtm` files if you need to repeat data generation process several times.

You can load previously saved configuration settings to the application wizard if you need to make some changes before data generation, or you can run it with the [console application](#) for quicker generation.

- [Saving configuration file](#)
- [Loading configuration file](#)

---

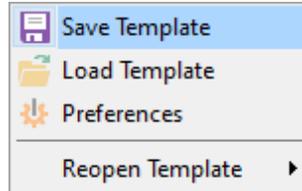
### See also:

[Using wizard application](#)

[Setting program preferences](#)

### 2.2.1 Saving configuration file

Data Generator templates are saved within the **Save template options** dialog. To open this dialog, press the **Tools** button and select the **Save Template** popup menu item.



Please note that you can save data generation options at the steps from [Specifying generation parameters](#) to the [last step](#) of Data Generator for SQL Server wizard.

- [Save Template options](#)
- [Loading configuration file](#)

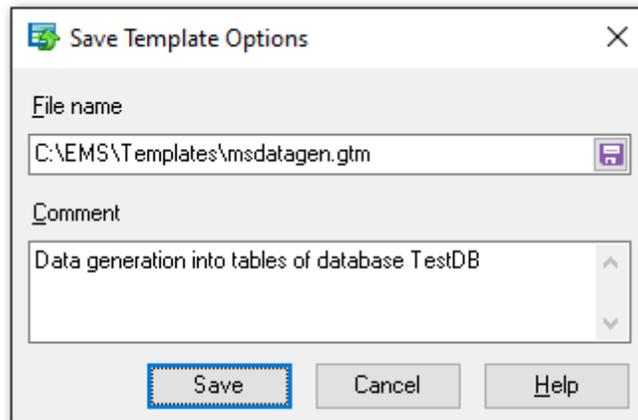
### 2.2.1.1 Save Template options

**File name**

Specify the template file name and select its location using the  button to open the **Save As...** dialog.

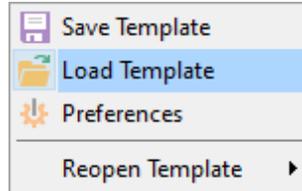
**Comment**

If necessary, set a comment for your template file in this field.



## 2.2.2 Loading configuration file

Data Generator templates are loaded within the **Open template** dialog. To open this dialog, press the **Tools** button and select the **Load template** popup menu item.



Please note that you can **reopen a template** at the steps from [starting](#) to [Specifying generation parameters](#) of the wizard using the corresponding popup menu item of the **Tools** menu.

- [Saving configuration file](#)
- [Save Template options](#)

## 2.3 Setting program preferences

Data Generator for SQL Server provides full customization of the program interface by setting various options within the **Preferences** dialog. This chapter is intended to inform you how to use these options.

### General

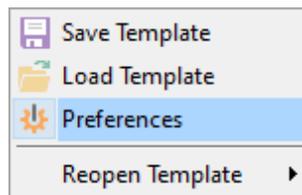
These options define general behavior of Data Generator for SQL Server

### Defaults

This page allows you to set the constraints for data values used by default in the generation process.

### Language

This page allows you to select a language to be applied for your copy of Data Generator for SQL Server.



---

### See also:

[Using wizard application](#)

[Using configuration files](#)

### 2.3.1 Setting general options

This page allows you to define general options of the application.

#### Theme

Select the main color theme for the application: Light or Dark.

#### Number of records to generate

Sets the quantity of records generated by default.

#### Commit every ... records

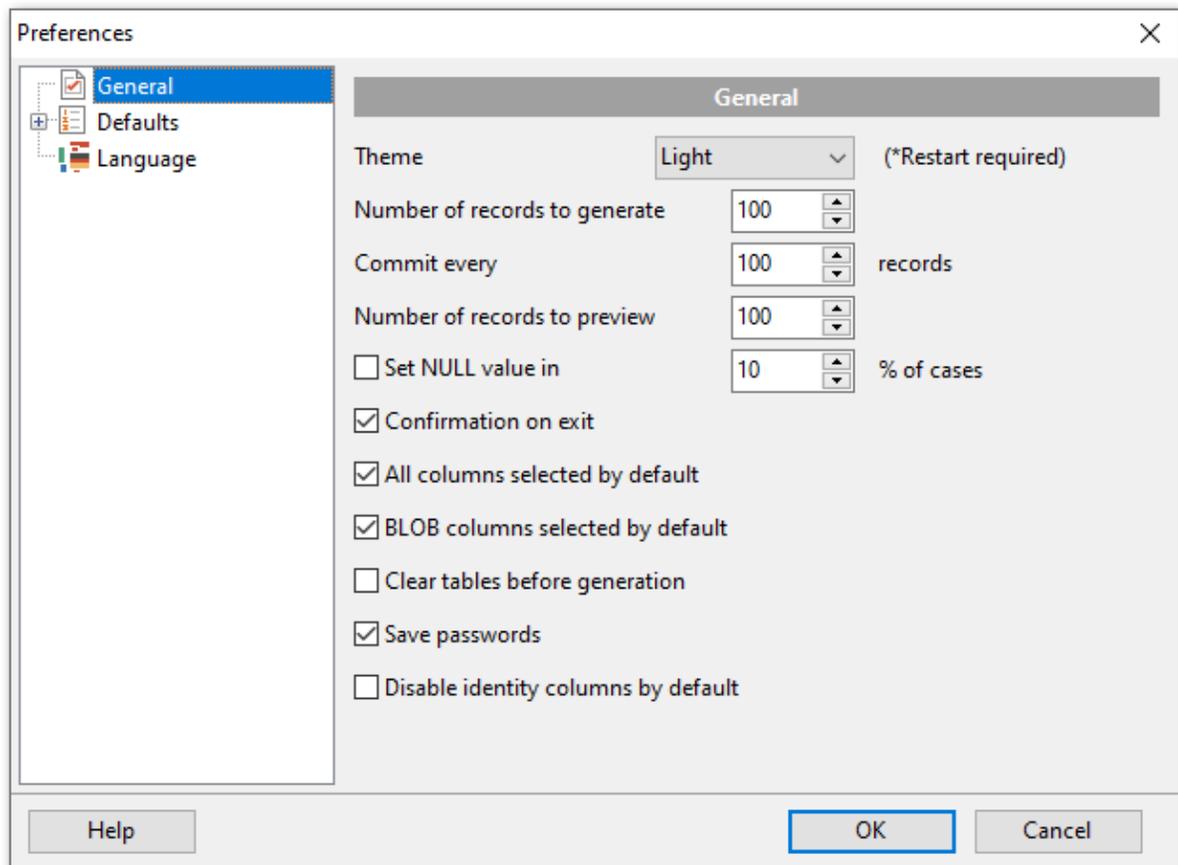
Specifies the number of records in each block of the generation script to be supplemented with the COMMIT statement.

#### Number of records to preview

Sets the quantity of records used in the [Data Preview](#) window by default.

#### Set NULL value in ... % of cases

This option allows you to specify the percentage of records that will remain *NULL* by default.



#### Confirmation on exit

Enables/disables confirmation upon exiting the program.

**All columns selected by default**

Check this option to include all columns into the data generation process by default.

 **BLOB columns selected by default**

Uncheck this option if you need to exclude BLOB columns from the generation process by default.

 **Clear tables before generation**

Set this option to empty tables before data generation.

 **Save passwords**

Setting this option allows you to save passwords used for access to the databases automatically upon closing the application. Please note that checking this option saves the latest password used for connection to the database.

 **Disable identity columns by default**

When this option is checked the SET IDENTITY\_INSERT OFF statement is generated on the server before data generation.

---

**See also:**

[Setting default constraints](#)

[Setting program language](#)

### 2.3.2 Setting default constraints

In this section you can define default constraints for all supported data types:

[Numeric types](#)

[Character types](#)

[Date/Time types](#)

Default values are used as initially set values for data range and can be modified at [Step 3](#).

---

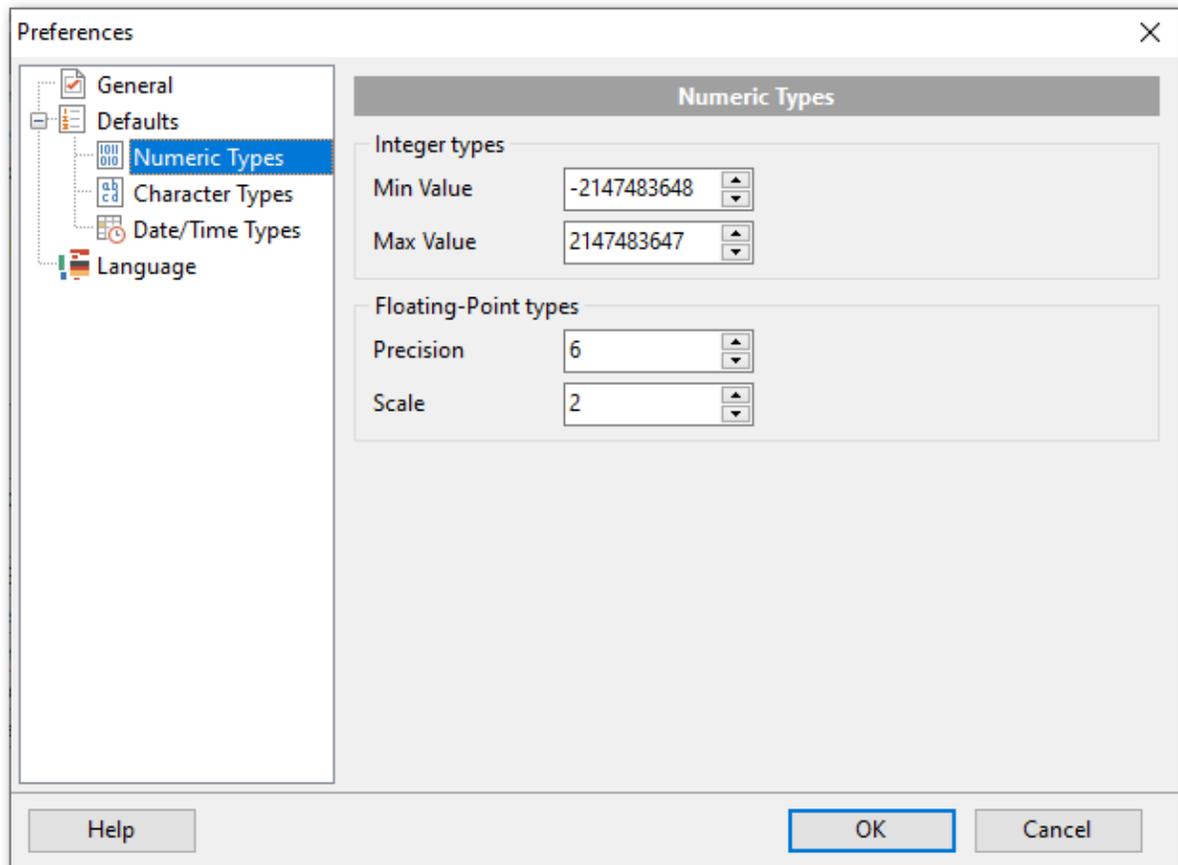
**See also:**

[Setting general options](#)

[Setting program language](#)

### 2.3.2.1 Numeric types

On this tab you can define default constraints for numeric types.



#### Integers types

Set the target minimum and maximum values set by default for integer types.

#### Floating-point types

Set the precision and scale values set by default for floating-point types.

### 2.3.2.2 Character types

On this tab you can define default constraints for character types.

#### Min Length

Set the minimum length of the generated value.

#### Max Length

Set the maximum length of the generated value.

#### Start Char

Select the start char for the range to be used for generation.

#### End Char

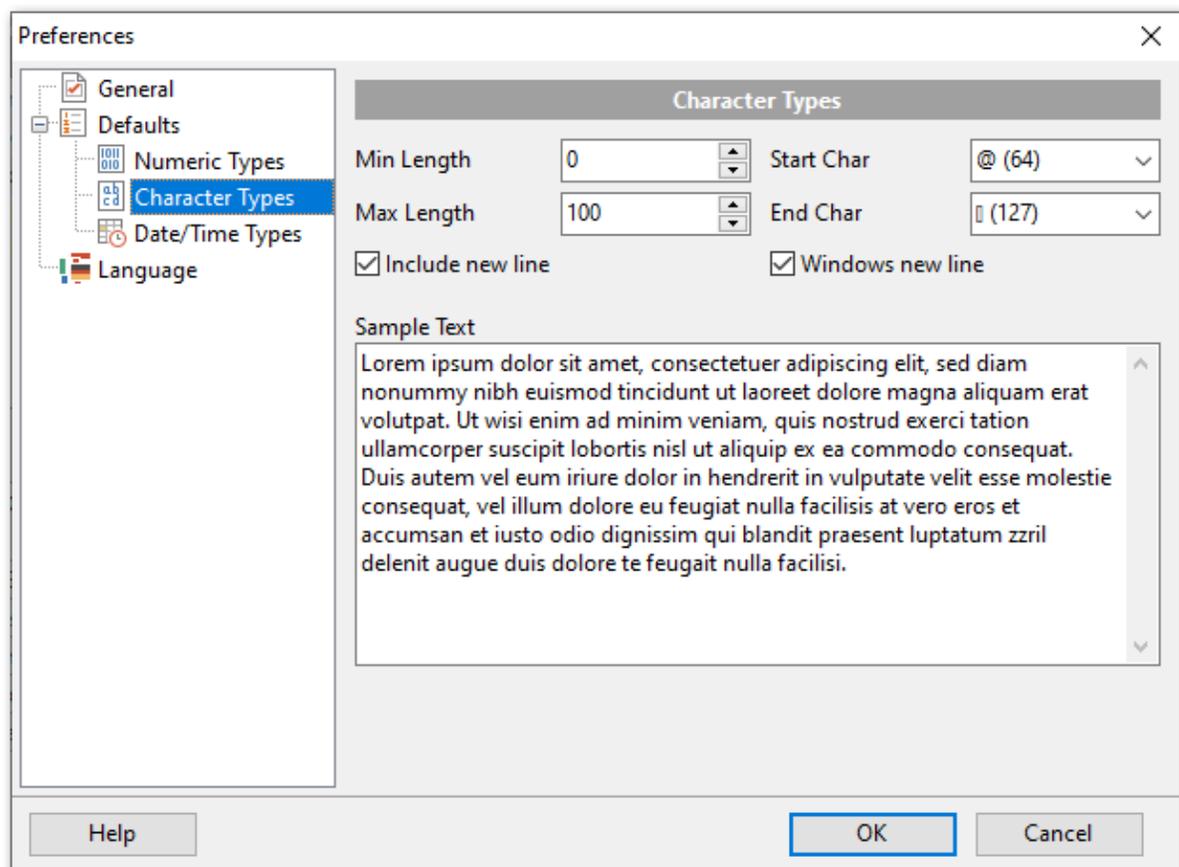
Select the end char for the range to be used for generation.

#### Include new line

Select this option to allow line feeds in generated string values.

#### Windows new line

Select this option to specify Windows-style line feeds.



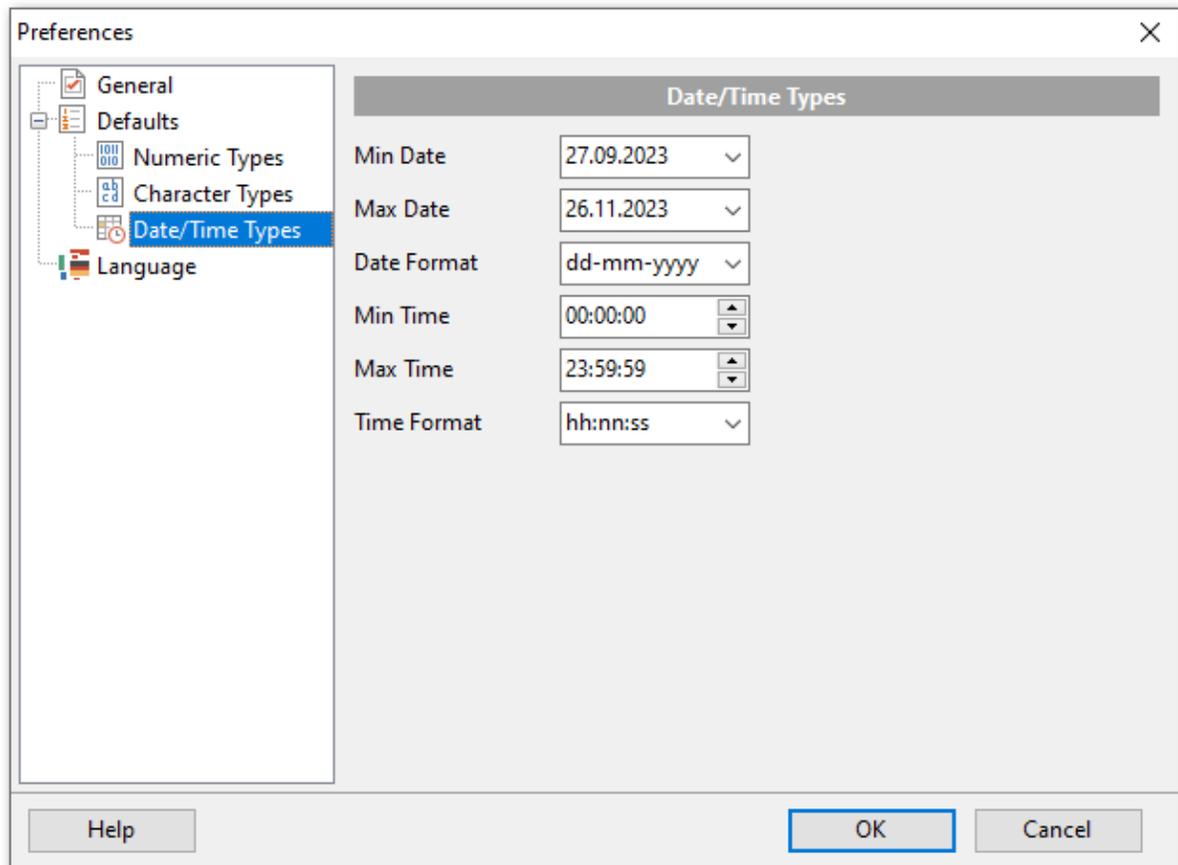
#### Sample Text

If more convenient, you can input any string that will be used as sample text. You can

choose to generate sample text when setting generation parameters for [strings](#).

### 2.3.2.3 Date/Time types

On this tab you can define default constraints for date and time types.

**Min Date**

Select the start date for generating date values.

**Max Date**

Select the end date for generating date values.

**Date format**

Type in or use the drop-down list to specify the preferable date format.

**Min Time**

Select the start range time for generating time values.

**Max Time**

Select the end range time for generating time values.

**Time format**

Type in or use the drop-down list to specify the preferable time format.

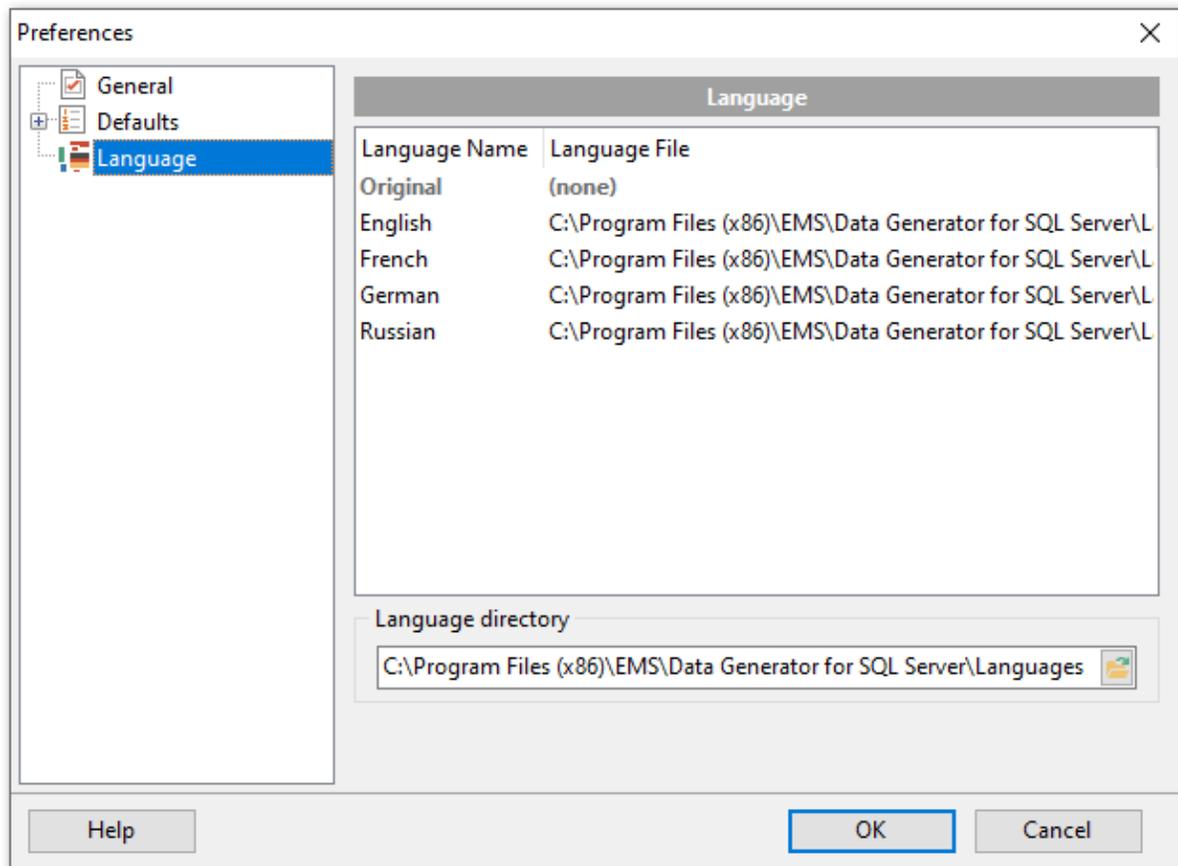
### 2.3.3 Setting program language

The **Language** page is provided for managing Data Generator localization files.

You can create your own \*.Ing 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.

#### Available languages

Lists all the languages available for localization and the corresponding \*.Ing files. Double-click a language in the list to edit its name or the \*.Ing file.



#### Language directory

Use the  button to specify the directory where the \*.Ing files are stored by default.

#### See also:

[Setting general options](#)

[Setting default constraints](#)

**Part**



### 3 Console Application

Additionally to **the GUI version** which is implemented in the form of a wizard application, the installation package of Data Generator for SQL Server includes **the console version** which is intended for being run from Windows command line with a template file name used as the execution parameter.

```
C:\Program Files\EMS\Data Generator for SQL Server>MSDataGenC.exe_
```

Data Generator for SQL Server command line utility is intended for quick and powerful data generation to SQL Server tables.

- [Using console application](#)

---

**See also:**

[Wizard Application](#)

## 3.1 Using console application

All the generation options are set in **template** (\*.gtm) files. A template can be also used in the **Console version** of Data Generator for SQL Server .

To create a template file, follow the instructions below:

- start Data Generator for SQL Server [Wizard Application](#);
- set all the required options in all steps of the wizard;
- test the generation process at the last step;
- [save all generation options in the template file](#).

The easiest way to start Data Generator for SQL Server console application is to double-click the generated \*.gtm template file. The other way is to enter the command line and type the appropriate command.

### Usage:

```
<path to Data Generator for SQL Server console application>\MsDataGenC.exe  
TemplateFile [-L] [-B]
```

### TemplateFile

Stands for the \*.gtm template file to be used as the console version execution parameter

### [-L]

Applies the current [localization](#) selected in [Wizard Application](#) (GUI)

### [-B]

Use this parameter in the command line to run the console version of **Data Generator for SQL Server** in background mode

### Example:

```
"C:\Program Files\EMS\Data Generator for SQL Server\MsDataGenC.exe" "C:  
\EMS\Templates\DataGenerator\Example.gtm" -L
```

**Note:** The following exit codes can be returned by Data Generator for SQL Server to the operating system after performing the latest task:

- 0 - successful completion;
- 1 - error(s) occurred during task performing;
- 2 - fatal error occurred. The task was not performed.

---

### See also:

[Using wizard application](#)

[Configuration file format](#)

**Part**



## 4 Appendix

### 4.1 Data generation mode

This option defines data generation mode - *random data generation, incremented values generation* or getting data from *list or SQL query*, or getting data from an existing table column.

Select the **Generate random data** option to generate random data within the defined range.

Another mode - **Generate incremental data** - allows one to set the initial value and the increment for generated values.

Select the **Get Data from List / SQL query** option to generate data by getting values from the user-defined list randomly or in the fixed order. This can be:

- a *list of values* (for numeric, string, date/time, boolean data types);
- a *list of files* (for BLOB data type);
- an *SQL query*;
- previously defined *sample text* (for string data types).

Select the **Get data from column** option to specify a column to generate data from: use the *Table* and *Column* drop-down lists to select the source table and column that will be used to take data for generation.

## 4.2 Configuration file format

The **configuration (template) file** used by Data Generator for SQL Server is divided into several sections, each corresponding to a particular group of settings specified at different steps of the [GUI application](#) wizard.

### [#General#]

This section stores general information about the utility:

| <i>Parameter</i> | <i>Description</i>    |
|------------------|-----------------------|
| <b>Product</b>   | internal product name |
| <b>Version</b>   | major version         |

### [#Comment#]

This section stores the template file comment as specified optionally in the [Save template options](#) dialog:

| <i>Parameter</i>     | <i>Description</i> |
|----------------------|--------------------|
| <b>Line&lt;N&gt;</b> | comment text       |

where *N* stands for the comment line identifier

### Example:

*Line0=Data Generator for SQL Server*  
*Line1=Template file*  
*Line2=Data generation #1*

### [CONNECTION]

This section stores connection parameters to SQL Server. The parameters correspond to the values entered at [Step 1](#) of the [Wizard application](#) and are obligatory.

| <i>Parameter</i>   | <i>Description</i>  |
|--------------------|---|
| <b>Host</b>        | host/instance where the database resides                                    |
| <b>Remote</b>      | 0 = local connection<br>1 = remote connection                               |
| <b>Login</b>       | SQL Server login (if <b>NTAuth</b> = 0)                                     |
| <b>Password</b>    | password to identify SQL Server login (encrypted)                           |
| <b>NTAuth</b>      | 0 = SQL Server authentication<br>1 = Windows authentication                 |
| <b>ConnTimeout</b> | connection timeout  |
| <b>Major</b>       | major version used to encrypt the passwords (the value must not be changed) |
| <b>Minor</b>       | minor version used to encrypt the passwords (the value must not be changed) |
| <b>PassPhrase</b>  | the parameter is not used by Data Generator for SQL Server                  |

### [ADDITIONAL]

The section contains additional settings specified at [Step 2](#) and [Step 4](#) of the [Wizard application](#).

| <i>Parameter</i>   | <i>Description</i>                            |
|--------------------|---|
| <b>TablesCount</b> | number of tables selected for data generation |

|                       |  |
|-----------------------|--|
| <b>SqlExecute</b>     | corresponds to the <i>Execute statements</i> option of the <b>Action</b> radio group available at <a href="#">Step 4</a> :<br>1 = enabled<br>0 = disabled                  |
| <b>SqlSave</b>        | corresponds to the <i>Save data generation script to file</i> option of the <b>Action</b> radio group available at <a href="#">Step 4</a> :<br>1 = enabled<br>0 = disabled |
| <b>SaveFile</b>       | path to the script file (if <b>SqlSave</b> = 1)  |
| <b>BlobFile</b>       | the parameter is not used by Data Generator for SQL Server   |
| <b>ExportBlobType</b> | the parameter is not used by Data Generator for SQL Server   |

**[TABLE\_XX]**

The section is repeated for all tables; the settings are specified at [Step 3](#) of the [Wizard application](#).

| <i>Parameter</i>             | <i>Description</i>   |
|------------------------------|--|
| <b>Database</b>              | indicates the name of the database where the table is located                    |
| <b>TableName</b>             | indicates the name of the table to generate data into                            |
| <b>RecordCount</b>           | number of records to be generated  |
| <b>ClearBeforeGeneration</b> | 1 leads to emptying table<br>0 leaves the table as it was before data generation |

**[TABLE\_XX\_FIELD\_YY]**

The section is created for each field of each table.

| <i>Parameter</i>    | <i>Description</i>   |
|---------------------|--|
| <b>DoGenerate</b>   | 0 indicates that the field is excluded<br>1 indicates that the field is included   |
| <b>IncludeNulls</b> | 1 specifies that the NULL values are set for certain percent of cases<br>0 disables this option  |
| <b>NumNulls</b>     | the percentage of field values to be set to NULL   |
| <b>GenMethod</b>    | defines <a href="#">Data generation mode</a> :<br>0 stands for incremental data generation<br>1 = random data generation<br>2 refers to <b>Get data from list / SQL query</b> option<br>3 = from another field |
| <b>GenFromSQL</b>   | 0 = the direct list of values is taken for data generation<br>1 = SQL query is used  |
| <b>SQL</b>          | text of the SQL query from which a list of values is taken for generation (as the result of the SQL query execution)   |
| <b>UsingMask</b>    | 0 = no mask is used for string field values<br>1 = generation of string field values by mask   |
| <b>Mask</b>         | mask for string field values generation  |
| <b>MinInt</b>       | minimal value for integer fields   |
| <b>MaxInt</b>       | maximal value for integer fields   |
| <b>UseFormula</b>   | 0 = no formula<br>1 = a formula is applied for data generation   |
| <b>Formula</b>      | formula for data generation, e.g. $x*2+1$  |
| <b>Digits</b>       | digits quantity for float fields   |
| <b>Precision</b>    | precision value for float fields   |
| <b>MinDate</b>      | minimum value for date fields  |

|                        |   |
|------------------------|---|
| <b>MaxDate</b>         | maximum value for date fields   |
| <b>IncludeTime</b>     | indicates whether time is added (for <i>DATETIME</i> fields)              |
| <b>MinTime</b>         | minimum value for time fields   |
| <b>MaxTime</b>         | maximum value for time fields   |
| <b>MinLength</b>       | minimum length for string fields  |
| <b>MaxLength</b>       | maximum length for string fields  |
| <b>StartChar</b>       | first char code for generating strings                                    |
| <b>EndChar</b>         | last char code for generating strings                                     |
| <b>Charset</b>         | field character set   |
| <b>InitialValue</b>    | the initial value for data generation into the field                      |
| <b>IncrementStep</b>   | specifies the step to increment values (for <b>GenMethod</b> = 0)         |
| <b>UseNewLine</b>      | 1 = a line feed is used for a new line<br>0 = no line feeds used          |
| <b>WinNewLineStyle</b> | style to be applied to line feeds:<br>1 = Windows style<br>0 = Unix style |
| <b>SampleText</b>      | sample text to be generated for a string field                            |

## 4.3 Find Text dialog

The **Find Text** dialog is provided for quick and flexible searching for specified text within the working area of the script editor.

### 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**

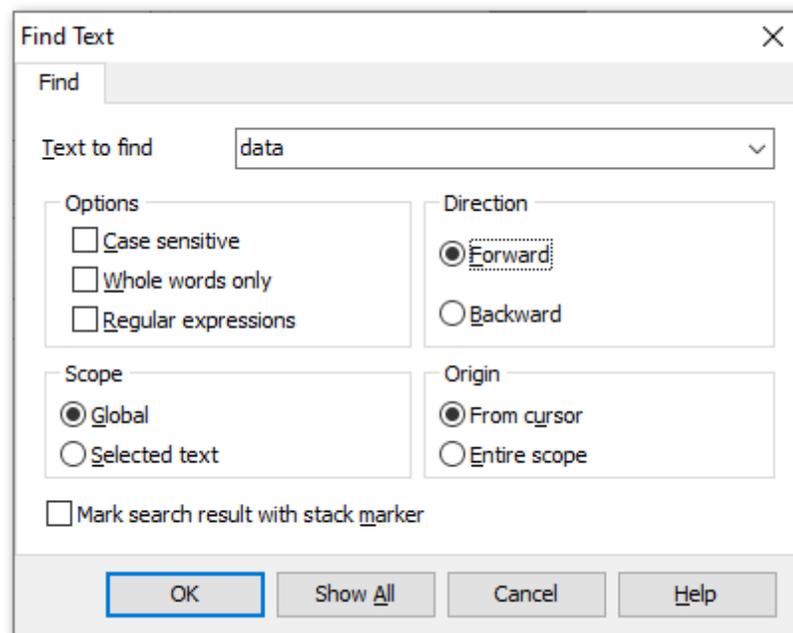
This option can be used to differentiate uppercase characters from lowercase ones during the search process.

#### **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 search string.



### 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.

## 4.4 Replace Text dialog

The **Replace Text** dialog is provided for searching and replacing text within the working area of the script editor.

### 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 search string.

**Replace with template**

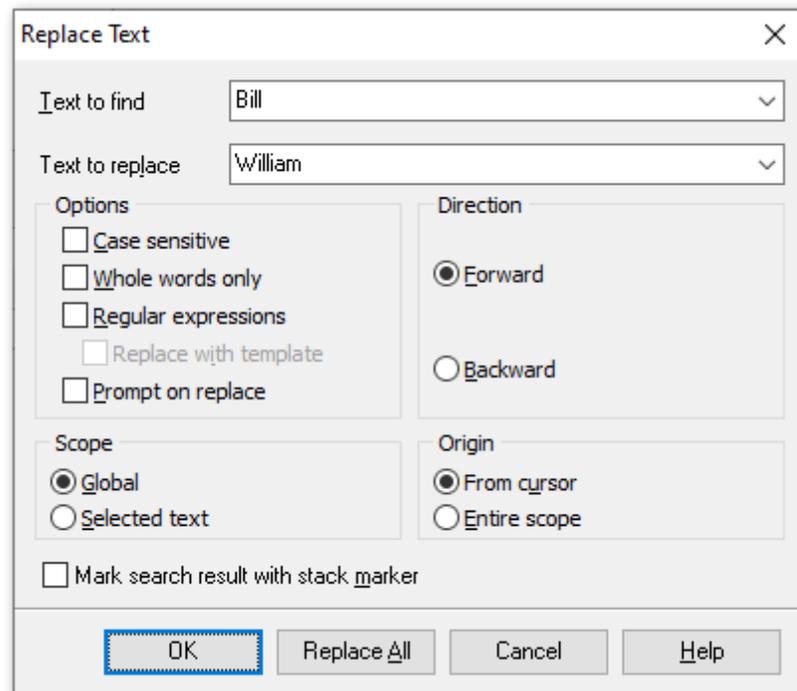
This option requires the **Regular expressions** option selection.

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.

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