

### About the template-based test file generator

DTM File Factory is a template based test file generator. It uses template file as a source and generates a few test files with same structure and various content:

```
Dear Lesley Mantele,

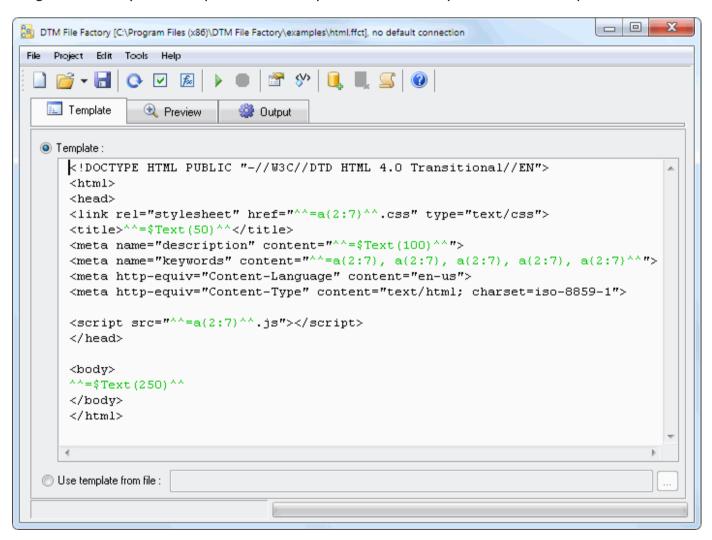
Thank you for being our customer from 14-SEP-1998.

Your subscription will exprire soon. We offer 20% discount if you renew it until 08-MAY-2015.

Dayle Chalaban, technical support
```

The software is suitable for IT departments and QA teams for test data generation purposes. It was designed to create thousands of test files fast and easy. The built in Data Generation Engine with about 50 internal functions and expression engine makes DTM File Factory flexible and suitable for most generation purposes. The Engine allows users to use external files, databases, Excel spreadsheets, XML documents and web-based files as a data sources in the test data creation process. Sample projects.

The user interface consists of three tabs: template editor, <u>preview</u> window, and <u>options</u> page. The preview windows is a one-click way to view sample generated file content. The target directory and output file name pattern can be specified at the options window.



The template is a text or binary source file that the program uses as a pattern. It contains three type of data: commands, labels, and static content:

- 1. The static content will be copied to the result file without any modifications.
- 2. The labels will be replaced with the content defined by the label.
- 3. The Commands define interpretation rule of the content.

#### **Labels**

There are three types of labels now:

- 1. Direct pattern engine call: ^^=<pattern>^^. Please refer to Pattern Engine manual (Ctrl+F1 hot key) for details.
- 2. ^^Counter^^ label will be replaced with a number of current file number starting 1.
- 3. ^^File^^ or ^^File full^^ label will be replaced with a current file name or with a path in the second case.

#### **Commands**

There are two commands available now:

- 1. ^^repeat N[ to M]\*^^ ... ^^end^^ will repeat the block of content N times or between N and M times in the second case.
- 2. ^^optional[ NN]^^ ... ^^end^^ defines the optional block of code. NN defines probability between 1 and 100%. Default probability is 50%.

All labels and commands are case sensitive. Extra spaces between label or command and optional parameter are prohibited.

#### **Template**

The user allowed entering the text of the template immediately as well as provide the external file name\*. The second way is only available for binary templates.



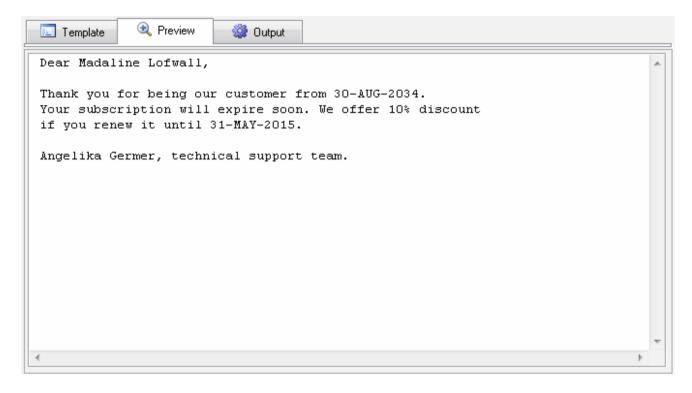
<sup>\*</sup> for professional edition of the software product only.

 $<sup>^</sup>st$ Pattern engine call acceptable as N and M values as well as constant integers.

Use template from file :		
_		1

 $^{\ast}$  - the following macros can be used as a part of the file name: %APPDATA%, % DOCUMENTS%, %USERPROFILE%, %ALLUSERSPROFILE%

The preview feature helps users to analyze results of the test file generation. It resolves all labels and commands and shows target view of the document.



Hint: you can switch to preview using Ctrl+F9 hot key and back to template editor by Ctrl+F8.

The professional edition offers four output models:

- 1. The software saves all generated files to user defined folder\*\*.
- 2. The tool writes generated file to standard output and can be used with redirection shell command '>' in console mode.
- 3. It executes an external program for each generated file and passes it as command line parameter\*
- 4. The generator performs REST API call for defined host/port and path with PUT or POST method. It will send generated file with "application/text" content type.

The standard edition of DTM File Factory supports the first model only.

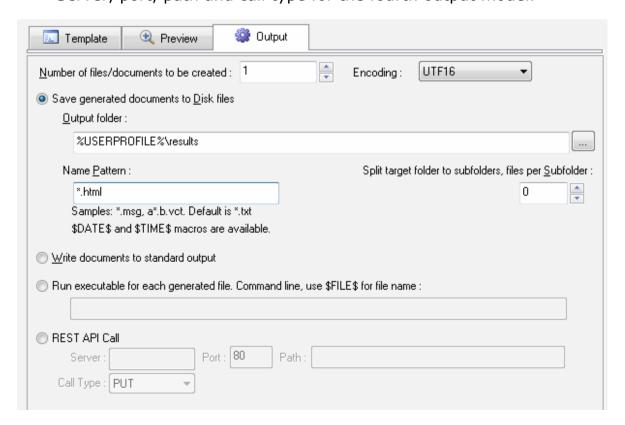
 $^st$  - the user have to provide correct quoting if necessary, e.g.

"C:\Program Files\My software\executable" "\$FILE\$"

\*\* - the following macros can be used as a part of the folder name: %APPDATA%, %DOCUMENTS%, %USERPROFILE%, %ALLUSERSPROFILE%

There are output options:

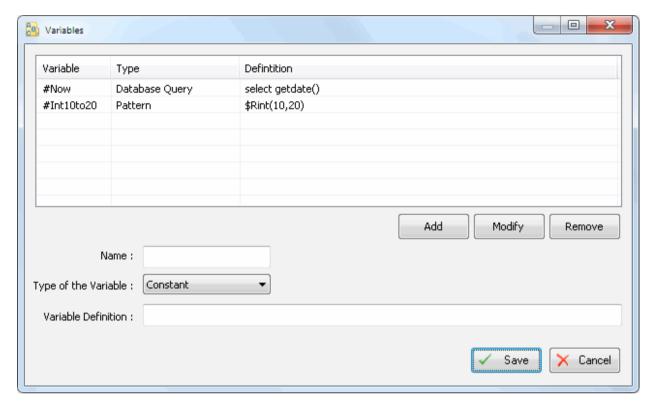
- A number of files to be generated.
- Output file encoding: UTF16, ANSI or UTF8.
- 'Output folder' defines the folder where generated files will be stored. The Professional edition can split the file set to a few subfolders '1','2',...'N'. It is recommended for a number of files more than 10000 by file system performance limitation.
- 'File pattern' defines the view of the file name. '\*' sign will be replaced with a current number of the file starting 1. \$DATE\$ and \$TIME\$ macros can be used as a part of the template in the Professional edition of the software.
- Command line for the third output model.
- Server, port, path and call type for the fourth output model.

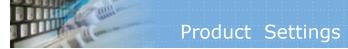




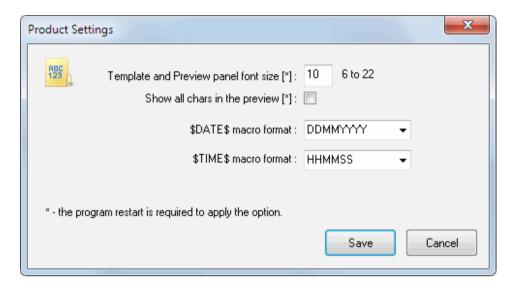
The variable is a way to define a common value for a few data generation rules. The \$Vars function call should be used to resolve the mentioned values. Also, a few data generation engine calls support the variables. Please, refer to Pattern Engine Manual for details.

This window allows the user to create, modify and remove variables:





- Font size for template editor and preview. The default is 11 pt.
- Show all symbols like spaces or line feed in the <u>preview</u> and <u>template</u> editor. The default is 'No'
- \$DATE\$ macro format. The default is DDMMYYYY.
- \$TIME\$ macro format. The default is HHMMSS.



# Sample Projects

You can find a few useful sample project in the "examples" sub-folder of the software installation directory.

#### Offer

This example generates sample message to the customer and demonstrates us of the following functions \$Rdate, \$Today and \$Lib. Also, you can see how to use expressions and list of values. The "optional" command with default probability is also used in the project.

#### Log

The "log" example generates a simple log with timestamp and mandatory and optional data. It shows \$Now function call, '[...]' and '<...>' features and "repeat" command.

#### **Configuration File**

This sample produces sample INI-style configuration files and demonstrates a use of \$Rint, \$Inc, \$Lib and \$Rdate functions, "file" label, "optional" command and 'N' pattern item.

#### File List

The example generates the list of files, one per line with a drive letter, path and file name. It deals with \$RString and \$IfR functions and "repeat" command.

#### **HTML**

This example creates the simple HTML file with random references to CSS and JS files, title, description, and content. It shows how to use \$Text function.

#### **Corporate Structure**

This example demonstrates nested "repeat" command use with a random number of iterations. Also, it shows \$RDate and \$Lib functions call.



# Shortcuts / Hot keys

## **Hot Keys**

Hotkey	Function or Option
Ctrl+1	Insert 'repeat' command in the current cursor position.
Ctrl+2	Insert 'optional' command in the current cursor position.
Ctrl+3	Insert pattern engine call in the current cursor position.
Ctrl+A	Open "About" window
Ctrl+L	View log file
Ctrl+N	Create new empty project file
Ctrl+O	Load Project file from the disk
Ctrl+R	Run the Project
Ctrl+S	Save Project file to the disk
F1	Open help
Ctrl+F1	Open help for Pattern Engine
Ctrl+F2	Establish default connection
Ctrl+F3	Disconnect from default database
Ctrl+F8	Switch to template page
Ctrl+F9	Switch to preview page



# Product Editions

There are two product editions and demo version. The following table describes differences between:

Option	Standard	Professional
Binary templates support	No, text only	Yes
Write to standard standard output mode	No	Yes
Execute external program for each generated file mode	No	Yes
Console mode	No	Yes
Split target folder to a few sub-directories	No	Yes
\$DATE\$ and \$TIME\$ macros support	No	Yes
Performance	Default mode	Optimized

# Command line options

DTM File Factory supports following command line switches:

- **-r** if project configured, run the project at program startup
- **-q** quit the program after project execution.
- -c console mode.

The console mode is a mode when the program doesn't open any dialogs and doesn't need any interference from the user. A project for the console mode must be prepared and tested beforehand.

Also, you can use project name as a command line parameter. Please note that you should use quotation for path or filename with spaces:

ffct.exe "D:\Projects And Files\messages.ffct"

The "Edit" menu provides the user with a fast way to insert most useful label and commands to the template. It inserts it in current cursor position. There are:

- Empty 'repeat' block.Empty 'optional' block.
- Empty data generation engine call.

The program's main toolbar has same 3 buttons for fast mentioned functions access. Hot keys are also available for these function.

# Pattern Engine Limitations

DTM File Factory has a few limitations for data generation engine calls. There are:

- The short form of the database related functions (\$Table, \$Query, etc) can not be used without default connection.
- Value-to-value reference (@) can be used with a number of entry only, not with a name: @2 is correct but @'name' is not.



## Questions and Answers

Q: Can I use the software product for JSON file generation?
A: Yes. Also, we offer DTM Data Generator for JSON software. It supports export and import structure operations and more suitable for.

**Q:** Can I use a binary template?

A: Yes, with Professional edition of DTM File Factory. However, you should use external template editor and be sure about file correctness after labels and commands resolution.

# Default Database Connection

There are functions require database connection (\$Table, \$Query, \$TableGroup, etc). The user allowed providing a connection for each function call or establish default database connection.

Please use related "Project" menu items to establish and drop default connection. Each project has own default connection. The program restores it after project opening.

There are five ways to connect to a database:

- 1. Direct connection
- 2. Connection to desktop files
- 3. Data source with ODBC, IDAPI or Oracle Call Interface (OCI)
- 4. DSN File connection
- 5. OLE DB connection



# Connection Quick Start Guide

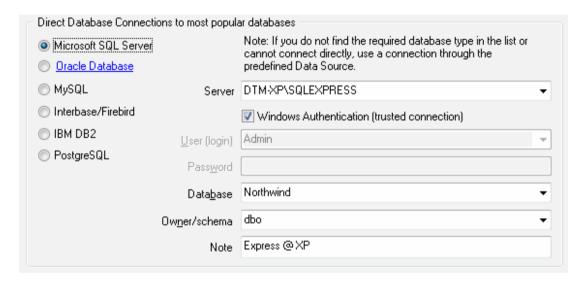
Database	How to connect	
MS SQL Server Enter or select server name at the direct connection panel		
Local SQL Server Express		
Oracle	1) Switch to data sources mode 2) select OCI as "Interface" 3) select your service name from data source drop-down menu	
DB2	Use direct connection panel or Use predefined ODBC DSN for custom connection settings	
MySQL	Install ODBC driver for MySQL from www.mysql.org Use direct connection panel or Use predefined ODBC DSN for custom connection settings	
PostgreSQL	Use direct connection panel or Use predefined ODBC DSN for custom connection settings	
Interbase/Firebird	Install ODBC driver Use direct connection panel or Use predefined ODBC DSN for custom connection settings	
Microsoft Access	<ol> <li>Switch to "Desktop File" panel</li> <li>Select "Access" as file type, enter or select file name</li> </ol>	
Microsoft Excel	<ol> <li>Switch to "Desktop File" panel</li> <li>Select "Excel" as file type, enter or select file name</li> </ol>	
Another database	<ol> <li>Install ODBC driver for your database system</li> <li>Create ODBC data source name using Windows ODBC Administrator</li> <li>Switch to data sources mode</li> <li>select your data source from drop down menu</li> </ol>	



The direct connection method allows you to connect to most popular databases (MS SQL Server, Oracle, Interbase/Firebird, MySQL, PostgreSQL and DB2).

Enter the server name and the database name, if required. The user name and password are optional. Their necessity depends on the settings of your database. The owner name (schema) is optional too. The list of visible database objects depends on the choice of the owner. If the owner is empty, you will access all objects. There is important that schema/owner name is case sensitive.

If you do not find the required database type in the list or cannot connect directly, use a connection through the predefined data source. If DBMS is in the list, but unavailable, it means that either the required ODBC driver is not installed or it is not configured properly. During its use, the program stores the entered values of server names, users and owners. You can select a value from the stored list using the corresponding combo box. For some DBMS types (MS SQL, for example), the program can fill the list of available databases. Use the button with two arrows for this purpose.



#### **DBMS-specific connection options**

#### Microsoft SQL Server

- "(local)", empty or "." server name means local server
- use <server name>\<instance name> syntax to identify instance. Example:
   .\SQLEXPRESS means SQL Express at the local system

#### Oracle

Use connect string for the Oracle Server that you want to access as a Server name.

Important: it is strongly recommended to use native Oracle Call Interface (OCI) instead of direct connection.

#### Interbase and Firebird

#### **Examples:**

- Server: localhost and Database c:\interbase\myDb.fdb connect to specified DB on local system.
- Server: 172.17.2.10/3051 and Database /usr/local/db/myDb.fdb connect to specified server with alternate port 3051 on remote system 172.17.2.10

#### MySQL

- Use **localhost** for local MySQL
- example.com; port=3306 means MySQL at example.com on 3306 port

#### DB2

**ServerName; port=5000; protocol=TCPIP** as a server name means connect to ServerName, use 5000 port and TCP/IP protocol.

#### **PostgreSQL**

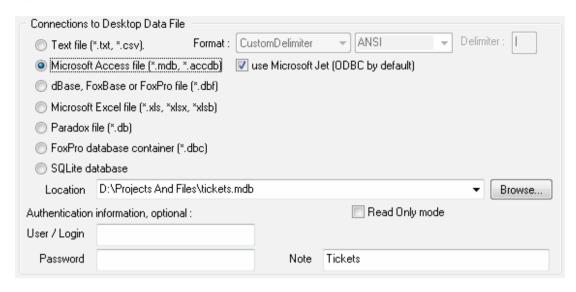
**ServerName** as a server name means connect to ServerName, use 5432 port and TCP/IP protocol. Database name is required. localhost as a server name is acceptable. To specify custom port you should add ";port=NNNN" string to server name. server\_name\_or\_ip-address;port=5432;DATABASE=dbname



# Desktop File Connection

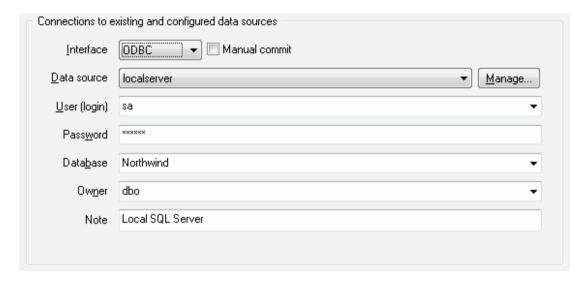
#### **Desktop Files**

The second way is designed for connecting to desktop data files. Select the required format and specify the file name or the directory where the data is located. Other parameters are optional.



#### Predefined data sources: ODBC, IDAPI, Oracle Call Interface

A connection with the use of a data source is the most universal. You can select ODBC, IDAPI or OCI (if installed) interface and the preconfigured data source name. In this case, other options are similar to those of a direct connection. The "Manage" button allows you to get access to the external configuration utility if it is available. When you want to access the tables belonging to the single database schema (or owner), you should fill the "owner" entry; otherwise, all tables will be accessed.





# File Data Source Name

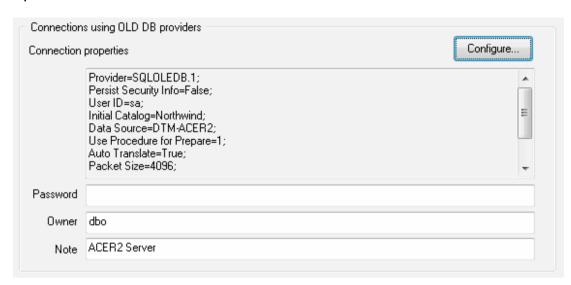
#### **DSN File**

The fourth way is using a DSN file. For this case, just select the file name with DSN definition.

Connections to existing and configured file DSN		
File DSN name	d:\sales_report.dsn	Browse
Note		

#### **OLE DB connection**

Use 'Configure' button to specify connection information. Password and owner fields are optional.



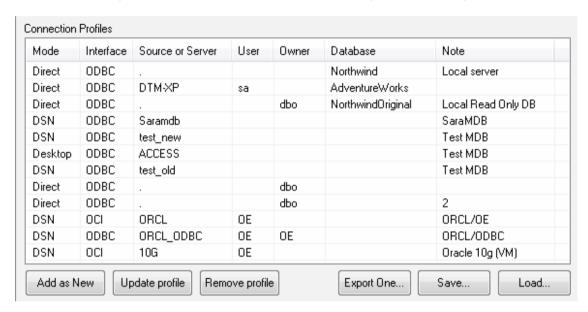
### Connection Profiles

Connection profile helps you to save information about your connection (interface, data source or alias name, user name (login), password and database name, etc) and get access it by the one click.

Please fill connection properties and press "Add as new" to add a new profile. To modify the profile you should select it from the list at the top of the window, modify properties and press "Update". "Delete" button works when you select the profile to be deleted in the list.

"Save" and "Load" buttons allow you to save profiles to the disk file or load them. The "Export one" button helps to save single currently selected profile.

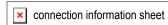
Important: all profiles are shared between all installed DTM soft products. That means once created profile can be used with any tool. At the other side if you remove the profile from the list you can't use it with DTM soft's products anymore.





# Connection Information

The program provides detailed database, connection and driver information and properties. The "Information" button at the connect window allows you to view it.





# Database Connection Troubleshooting Guide

# **Troubleshooting Guide**

Problem description	Possible reason	Solutions
Required database type not present in the list at Direct Connection and Desktop Connection pages		Switch to "data source" connection mode and select data source from the list or configure new one with "Manage" button.
Required format is in the direct connection list, but not available (disabled).	ODBC driver for your database does not installed or not configured properly.	Install required driver. If it is already present in the system, please contact our support staff.
Errors during direct connection.	Compatibility problems.	Try to create data source for your database connection.
Login error for correct user name and password.	Read-only desktop data file.	Try to change file mode to 'read and write'.
I can't see relationships, defaults, etc in my Access Database.	Access interface.	Try to switch on "Use Microsoft Jet" check box at the "Desktop File" page of the Connect Window.

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## What differences between the demo and full versions of the DTM File Factory?

#### **General Functions**

- Demo version allows user to generate one output file only.
- Demo version does not operate with templates lager 2000 bytes.
  Demo version does not support "repeat" command for more than 5 iterations.

No other demo limitations are present except nag-screen at program shutdown.

# Technical support

If you have some question or unusual problem feel free to contact the DTM File Factory technical support at <a href="mailto:support@sqledit.com">support@sqledit.com</a>

When you contact technical support, you should be prepared to provide the following information:

- DTM File Factory version (you can find this information from About menu item of Help menu).
- Type and version of the ODBC or IDAPI driver or OLE DB provider.
- DBMS version and operating system version (including service pack version, if applicable).
- DTM File Factory Log file.
- A description of what you do before the problem occurs.
- Error messages you see when the problem occurs.
- Your name, company name and how to contact you.

See Also: log\_file

#### Log file

When running the program, you have to select one of menu items from "**Tools->Log file**" in order to view or truncate your Log file. The log file contains the detailed description of any errors and other events that occurred while processing script.

Default log file location is product's directory and the name is ERROR.LOG. When the user has no enough permissions DTM File Factory saves log to typical path like C:\Documents and Settings\<username>\Application Data\ffct.log or C:\Users\<username>\AppData\Roaming\ffct.log

The log file is a text file that contains three type of records:

- 1. The software product identification block: product name version and operating system information.
- 2. Error records: wrong SQL statements, exceptions, etc.
- 3. Notification and statistics.

**Database catalog** - The collection of system tables, tables that store metadata about that specific database.

**Database record** - one row in a table (table can be a result of SQL-query).

**Database schema** - logically connected, usually owner-based, set of DBMS objects (tables, views, procedures etc).

**DBMS** - database management system.

**DBMS connection** - the fact that both client and DBMS server have signed a contract and ready to query and data communications.

**Drag-n-drop** - the file manipulation technique when the mouse is used to move the file from the place of storage to the program, which performs processing.

**SQL language** - the declarative language used to manipulate the data and its' structure in the modern DBMS and their client applications.

**IDAPI** - Integrated Database Application Program Interface, unified DBMS access interface.

**OCI** - Oracle Call Interface, access interface for Oracle Server.

**ODBC** - Open Database Connectivity, unified DBMS access interface.

Metadata - information about data. See also: database schema

**SQL statement** - single SQL operator having the complete role in a data manipulation script.

**SQL-server** - program or program complex, which is able to execute the SQL-queries.

# Program Installation

#### To run installation program:

- Open the windows Start menu and select "Run" item
- Select or enter installation file name and path (ffct.exe or ffct\_d.exe)\* and click OK
- $^{st}$  professional and enterprise editions of the tool may have another suffix.

#### Notes:

- Please be sure that existing version of the tool is not running when you install a new version.
- We recommend to <u>uninstalling</u> old version of the DTM File Factory before new version installation.
- Installation by administrator for another user is supported for most environments.



### Uninstall the Software

The Uninstall feature removes all installed DTM File Factory components and all records in the Windows registry made by the installation script. You can uninstall this program by selecting the "DTM File Factory" item in "Add/Remove Programs Dialog" in "Control Panel".

Another uninstallation way is to run "unins000.exe" from the product's folder directly.

**Important!** Uninstall feature of the program does not remove files and objects created by users such as configuration files, registry records etc.



# How to upgrade your copy of DTM File Factory?

The user can refer to "Check for Update" features to get information about available updates.

Please contact our support staff at <a href="mailto:support@sqledit.com">sqledit.com</a> to upgrade commercial version of the tool.

Demo version is available for download free of charge.

When you upgrade your copy of DTM File Factory please send us the following information:

- You name, company name and how to contact you
- Payment information (at least "ORDER No" and "Date")

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## Database utilities by DTM soft

DTM SQL Editor (www.sqledit.com/editor) is a set of powerful database management tools that allow you to achieve two goals - to have unified access to different types of databases and to have a set of solutions that makes processing your data easy. DTM SQL Editor gives database users, developers and administrators an ability to access different databases, whether desktop or client-server ones (provided you have ODBC driver installed). This is very convenient, since most organizations use several different types of databases installed and each stores data in different formats and with varying parameters. Having a program that can get data from various sources is often essential. Furthermore, in addition to letting you quickly switch between different data sources, DTM SQL Editor lets you see database schema and results of the query execution.

DTM Migration Kit (www.sqledit.com/mk) is a powerful yet simple data migration tool that comes in handy if you run multiple databases. Use it to import, export or migrate data between different data sources (ODBC, OLE DB, or Oracle Call Interface supported). The program is fully automatic and supports all popular database formats. Simple visual interface lets you set own transformation and flow control rules to give you added flexibility.

DTM Schema Reporter (www.sqledit.com/sr) is a reporting tool for database schema. The program creates reports in RTF, HTML, XML or plain text formats and supports all common database interfaces - ODBC, OLE DB, or even Oracle Call Interface. This utility helps technical writers and database administrators create a report of any complexity level within seconds. Also, you can alter table order in the report and manually add annotations to the individual tables.

DTM Data Generator (www.sqledit.com/dg) is a simple, powerful and fully customizable utility that generates data for database testing purposes. Currently, database developers and administrators often have to spend hours of dull work to create test data sets before examining database performance. This tool makes all this unnecessary by automatically creating database objects AND sets of SQL statements, if necessary.

DTM Data Editor (www.sqledit.com/de) is a data viewer and editor for database professionals who are tired of wasting their time on mundane tasks. The program uses form-based interface and works with any ODBC data source. SQL statements are generated automatically and can by modified later. For data that has foreign key - primary key relation, there are options to enter values manually or select them from a list, which is much faster.

DTM DB Stress (www.sqledit.com/stress) is a utility for stress testing the server parts of information systems and applications, as well as DBMSs and servers themselves. This tool allows you to create and configure a continuous set of requests to the server of the OLAP (query execution) and OLTP (adding, modifying and deleting data in the database) types. At the same time, the user can flexibly change both the number and the priority of this or that type of requests to a database or an application.

DTM Data Modeler (www.sqledit.com/dm) is a CASE tool for database developers that supports both forward and reverse engineering. It is an easy-to-use tool allowing you to work both with logical and physical data models in the form of an entity-relationship diagram. The product is intended for database architects and developers and works with data sources via the ODBC interface, which means compatibility with all modern DBMS. Along with basic model properties (sets of entities and relationships between them), the program allows you to create indexes and triggers on the physical level corresponding to the tables of the database that is modeled.

DTM Data Scrubber (www.sqledit.com/scr) is a set of intelligent tools for data verification (audit) and scrubbing (cleaning). Depending on user-defined rules and data properties, the program either creates a report about the actual state of affairs or performs database data correction.

DTM Data Comparer (www.sqledit.com/dcmp) is a visual tool for data compare and synchronization. The program successively views the contents of both tables basing on the order of ascending of unique key values and shows differences or creates synchronization script.

DTM Schema Comparer (www.sqledit.com/scmp) is a tool for database schemas comparison and synchronization. The comparison process supports tables, views, indexes, triggers and stored procedures. The visual representation of database schemas as a tree makes the comparison process more comfortable.

DTM Query Reporter (www.sqledit.com/qr) is a reporting tool for database query. This utility helps technical writers, developers and database administrators create a report based on database query within seconds.

DTM Schema Inspector (www.sqledit.com/si) is a database schema browsing and management tool that let you work with database schemas more effectively.

DTM DB Event (www.sqledit.com/event) is a database monitoring and management tool. This utility allows the user to define a few situations (events). For each event the user can define what the program should do if the event is occur.

DTM Flat File Generator. Easy to use tool that helps any developer or QA engineer to create test data file. It supports tab-delimited, CSV, fixed width and custom separated output files. The generator has powerful import and export file structure features.

DTM Test XML Generator. The tool is powerful generator for XML documents with structure defined by user and random but realistic data. More than 30 predefined generators with powerful pattern engine. The rich import XML structure options are available.

DTM Data Generator for Excel is a tool for text Excel spreadsheet population. Easy to use interface based on predefined generators, rich value library and high performance.

DTM Data Generator for JSON produces JSON files with defined structure in a bulk manner. Fast and easy structure editor and smart import options helps the user to generate test set in a few clicks only.

DTM Database Content Analyzer is a statistical tool for database content. It collects a few dozens of most interesting data: database objects size, value frequency, clusters, etc. This tool replaces and extends "Statistics" report of obsolete versions DTM Schema Reporter.

