



USER'S GUIDE

Ogma Inc.

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1. Introduction

The PowerDBTools (Power Database Tools) is a powerful tool which allows you to manage multiple databases (of the same or different type, such as MS Access, MS SQL Server, Oracle, MySQL, etc.) within one application.

In general, each type of database provides its own specific tools (such as MS Access Application, Microsoft SQL Server Enterprise Manager, etc.) to manage, which are too specific and require appropriate skills. PowerDBTools allows managing almost all types of databases in the same way (using the same user-friendly interfaces) as well as provides many additional new features (such as compare, convert, find, etc.) which can be very useful for database users and administrators.

PowerDBTools manages database in terms of database object and its properties (i.e. Table, View, Procedure, Function, Datatype, Sequence, Column, Index, Primary Key, Foreign Key, Trigger, Constraint) and based on Microsoft ADO (ActiveX Data Objects) and DAO (Data Access Objects) technologies. For more information about ADO and DAO technologies, refer to the appropriate manuals or online help.

Features in PowerDBTools:

PowerDBTools

- PowerDBTools is a database tool for developers and database administrators. It helps both to develop and maintain databases.
- PowerDBTools is based on Microsoft OLEDB technologies.
- All databases available via Microsoft Data Link (OLEDB) providers are supported.

Database Browser

- Navigation through all database objects (tables, columns, indexes, keys, etc.).
- Browsing object details and invoking management features (create/rename/delete).

Index Browser

- Navigation through all database indexes (including Primary and Foreign Keys).
- Checking and correcting indexes/keys names.
- Indexes/keys validation.

Relations Manager

- Visual relations (Foreign Keys) management tool.

Query Manager

- SQL editor (SQL templates, built in functions).
- Visual query builder.
- Hierarchy data support (shape recordset).

Data Management

- Showing and editing database data support (created via SQL statement).
- Showing and editing BLOB type columns data support (image, HTML, RTF).
- Column data statistics.

Find Engine

- Database objects (tables, columns, etc.) search by name.

- Columns search by their default values, descriptions, values and types.
- Unused columns search in the database.

Property Browser

- Navigation through all database object properties.

Tools

- Compare databases.
- Convert database (including data).
- Easy backup, restore, attach, detach databases (SQL Server only).
- Generate SQL script for database conversion.

Schema Browser

- Navigation through all database schema objects.

Reports

- View/Print database objects reports.

Additional features

- User options, layout customization, lookups creation, etc.

2. Installation Guide

This chapter contains step-by-step instructions on PowerDBTools application installation.

Upon basic installation, this software is licensed to the end-user under a limited use 21-day trial governed by the EULA.

When this period expires and you wish to get the full version license, please write to us at sales@powerdbtools.com or go to our secured [Online Store](#). The activation instructions are also described in this chapter.

2.1. System Requirements

To run PowerDBTools, the following system resources are required on your PC at minimum:

- Operating System – Microsoft Windows 98, 2000, XP, Vista, Windows7
- Available HDD memory - 300MB
- Available RAM - 256MB

2.2. Installing PowerDBTools

To install PowerDBTools, run setup.exe file from the installation package. InstallShield Wizard starts, follow instructions in it.



Figure 1 – PowerDBTools Installation Wizard- Step 1

Press **Next** on the first step to proceed with the PowerDBTools installation.

On the second step you need to accept the terms and conditions of the software agreement. Read it carefully through the end or you may print it using the **Print** button.



Figure 2 – PowerDBTools Installation Wizard- Step 2

Press **Next** if you accept the license agreement.

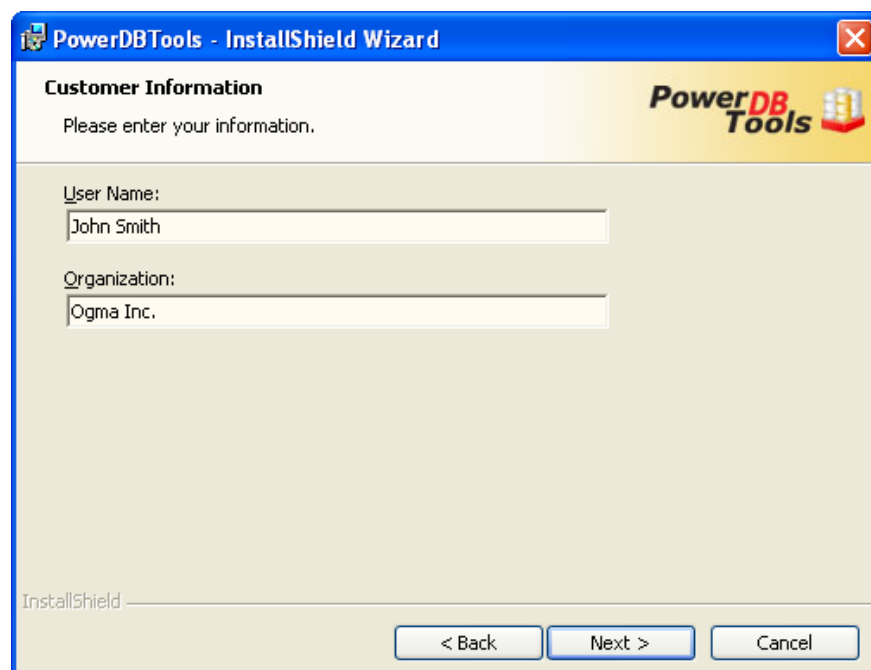


Figure 3 – PowerDBTools Installation Wizard- Step 3

In the third step of PowerDBTools installation, you should define customer information. Fill in the user name and organization name to the appropriate fields. Press **Next** to move forward.

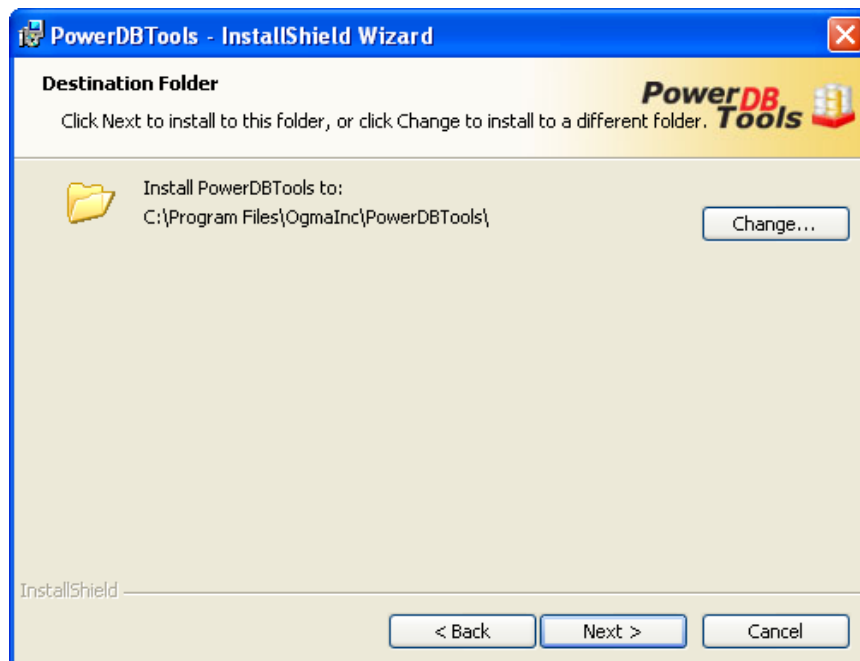


Figure 4 – PowerDBTools Installation Wizard- Step 4

In the fourth step, you should define the destination where PowerDBTools will be installed. If you need to change the default install destination, use **Change** button. Press **Next** to move forward.

Attention: Make sure there is enough free space on the disk you have selected, otherwise installation will be aborted. See [System Requirements](#).



Figure 5 – PowerDBTools Installation Wizard- Step 5

In the next step, you may verify the inserted data and press Install to start the installation.

Attention: Make sure another copy of PowerDBTools is not currently running on your PC, otherwise a warning appears where you can either **Ignore** the opened application and continue installation or close the opened application and **Retry** the installation.

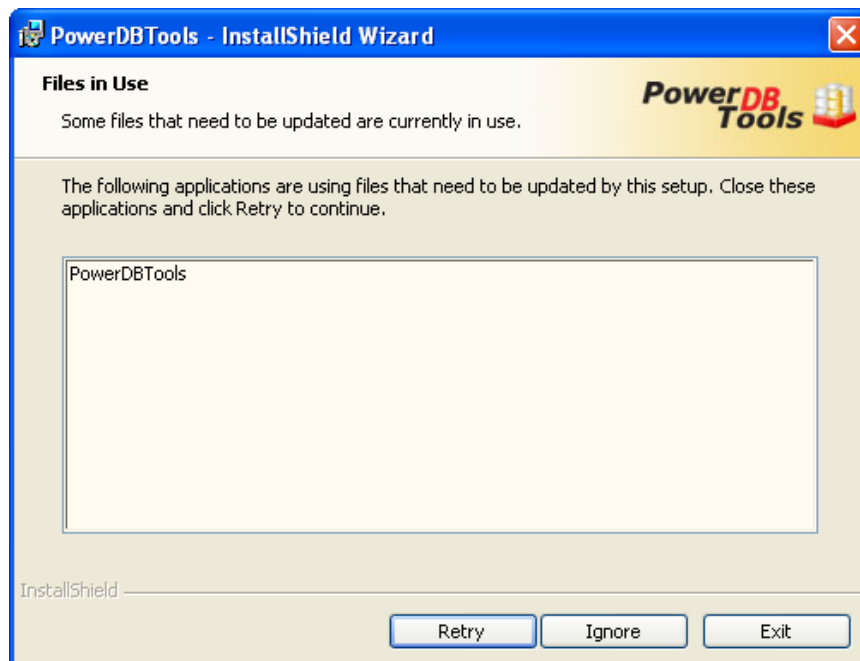


Figure 6 – PowerDBTools Installation Wizard- Step 6

Sit back until the installation will complete, it may take some time. When the installation is completed you will get a notification.

To launch PowerDBTools directly after installation, choose the **Launch the program** checkbox and press **Finish** to exit the InstallShield Wizard.



Figure 7 – PowerDBTools Installation Wizard- Step 7

Once installation is completed, you will get PowerDBTools icons on your desktop and the startup menu.

Attention: You should restart your system in order to installation take

2.3. Uninstalling PowerDBTools

You may uninstall PowerDBTools from your PC by using **Uninstall** option from PowerDBTools' startup menu.

2.4. Activating PowerDBTools

To activate your trial version of PowerDBTools you should enter the activation key which will be provided to you upon purchasing the PowerDBTools full version license. To purchase the PowerDBTools full version license, please write to us at sales@powerdbtools.com or go to our secured [Online Store](#).

When you get the activation key, you can insert it directly upon running PowerDBTools by clicking on the **Enter Key** button in the intermediate popup window which appears only when you run a trial version. This window will not appear anymore when you have registered your copy of PowerDBTools.

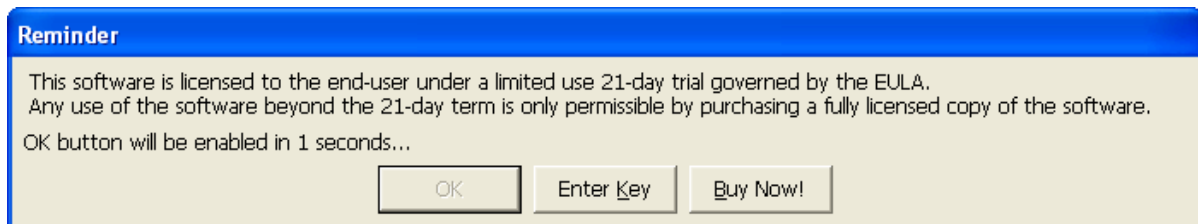


Figure 8 – PowerDBTools Trial Version Reminder Window

Otherwise, you can enter the activation key by choosing **Enter Activation Key** option from **Help** menu in Application's Toolbar.

Buy Now! button will take you to the product's website.

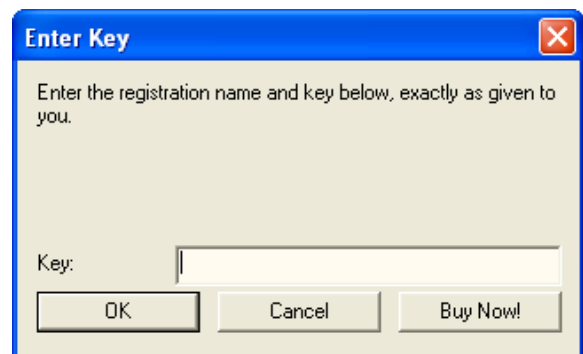


Figure 9 – PowerDBTools Registration Window

3. Connection Establishment

The **Connections** window appears by default right after the PowerDBTools startup. This window acts as a login stage to the selected database.

To connect to the database(s) with PowerDBTools you should first create appropriate connection(s), define the database server path, database name and other authentication parameters, if required.

When the connection is created and is listed in the **Connections** window, you should press **Connect** button to connect to the selected database or double click on appropriate connection row and opens connection in the PowerDBTools.

From that point forward you can manage the database directly from PowerDBTools.


3.1. Add/Edit New Connection

The **Connections** window is empty on the application's first startup. Further, when new connections are created, this window lists the existing database connections.

To create a new connection, press the **New Connection** button in **Connections** window. The **Data Link Properties** window appears. Similar to the Microsoft Windows OS database connection establishment, this window contains a list of providers installed on your computer and the related settings. Every provider requires an individual group of settings.

For more details on how to create a connection to the database, refer to the Microsoft Windows - Data Link Connection Establishment help.

You may also create a quick connection by drag and dropping the database file (like MS Access Database or Excel) directly into the Connections window.

To edit a connection, press the **Edit** () in the **Connections** window for the corresponding connection. This button opens the same window as **New Connection** does.

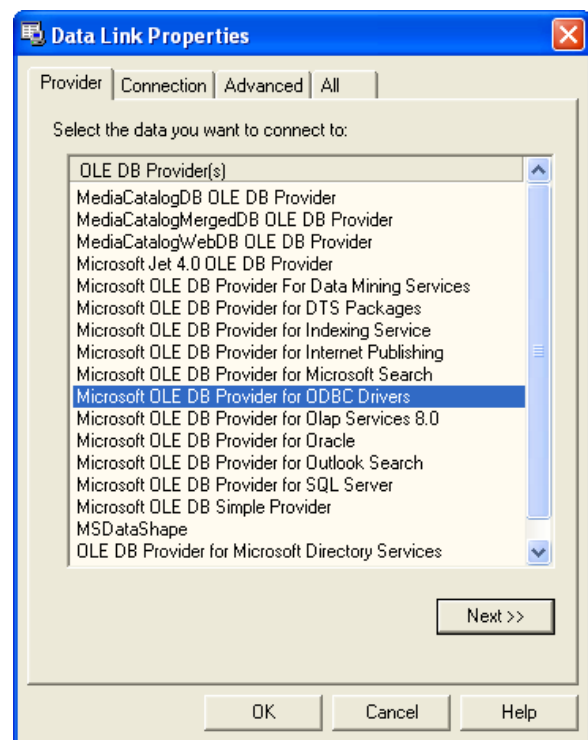


Figure 10 – Add/Edit Connection Window

3.2. Connections Window

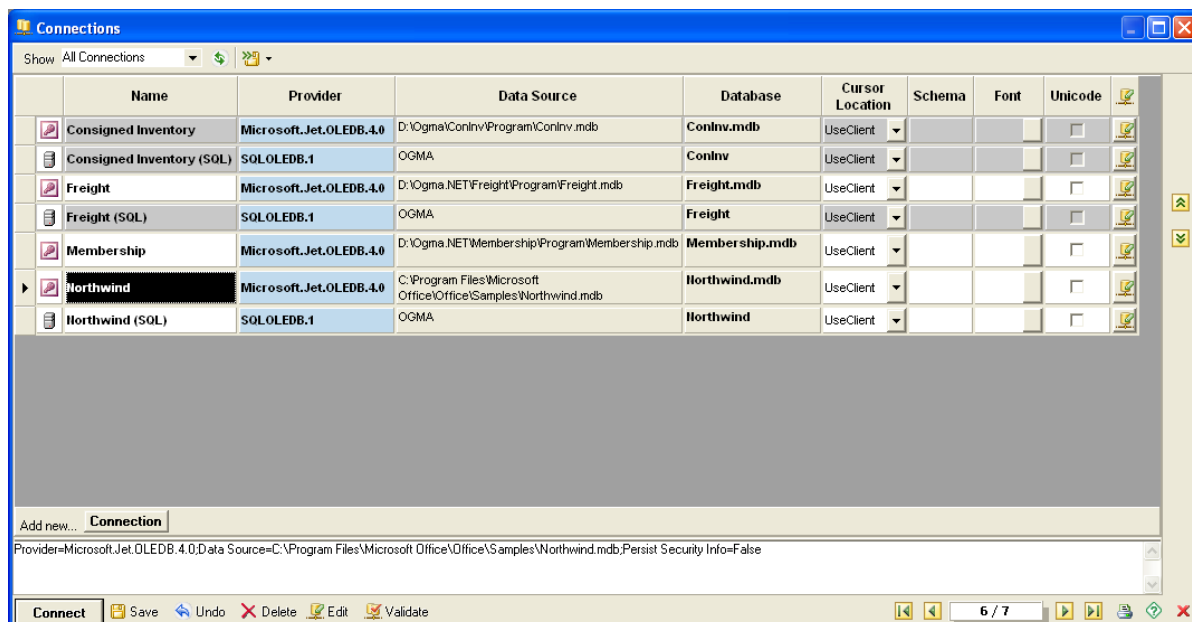



Figure 11 – Connections Window

Columns

Following columns are available in this window:

- **Name** – optional connection name or description define by the user
- **Provider** – connection provider name
- **Data Source** – connection data source (server name, file path etc.).
- **Database** – connection database name (database name, file name, etc.)
- **Cursor Location** – used to select whether the connection cursor points to the server (UseServer) or local client (UseClient).
- **Schema** – connection schema
- **Font** – indicates the font in which the connection's database content is viewed.
- **Unicode** – indicates whether the content in the connection's database is viewed in Unicode or not.
- **Edit Connection** () – used to edit the connection settings (see [Add/Edit New Connection](#)).



Description Pane

This pane displays the database connection string.

Toolbar

Following options are available in the toolbar of this window:

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Show	This option allows you to simplify the connections table preview by displaying only active connections or only inactive connections. This is helpful to hide inactive connections which are not frequently used to make the connections list simple. By selecting All Connections in this list, all connections will be displayed in the window.
	Load	This menu allows you to load a various format databases. Along with the standard option described in the PowerDBTools Common Actions chapter, the following custom option is available in this menu: Create Unbound Recordset – this option opens Unbound Recordset window where a new recordset may be created. For more details see Unbound Recordset .

Right Click Menu

This menu allows to easily access the most used options




For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.


- **Connect** – connects the PowerDBTools to the selected database.
- **Properties** – opens the [Properties Window](#).
- **Copy** – copies the connection to the clipboard
- **Paste** – pastes the connection from the clipboard.
Note: To be able to paste the copied connection, a new connection should be first created, and then by selecting a newly created connection, paste the copied connection. This works as a connection duplication.
- **Activate** – available on inactive connections only and is used to mark the inactive connection as active.
- **Inactivate** – available on active connections only and is used to mark the connection as inactive. This selection can be used to limit the connection display criteria from **Show** list.
- **Columns** – opens an intermediate window where columns to be displayed in the **Connections** window may be selected.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Connect	Connects the PowerDBTools to the selected database.
	Add New Connection	Adds a new connection (see Add/Edit New Connection).
	Edit	Edits the selected connection settings (see Add/Edit New Connection).

Icon Preview	Name	Description
 Validate	Validate	Checks the link with all connections listed in the Connections window. Those connections which have a broken link (database is missing or unable to connect) to the PowerDBTools will get a red mark.

3.3. Unbound Recordset Window

This window is used to create the custom recordset and provides templates and options to create new unbound recordsets. To start creating a recordset, you should first add recordset fields by pressing the **Add New Field** button.

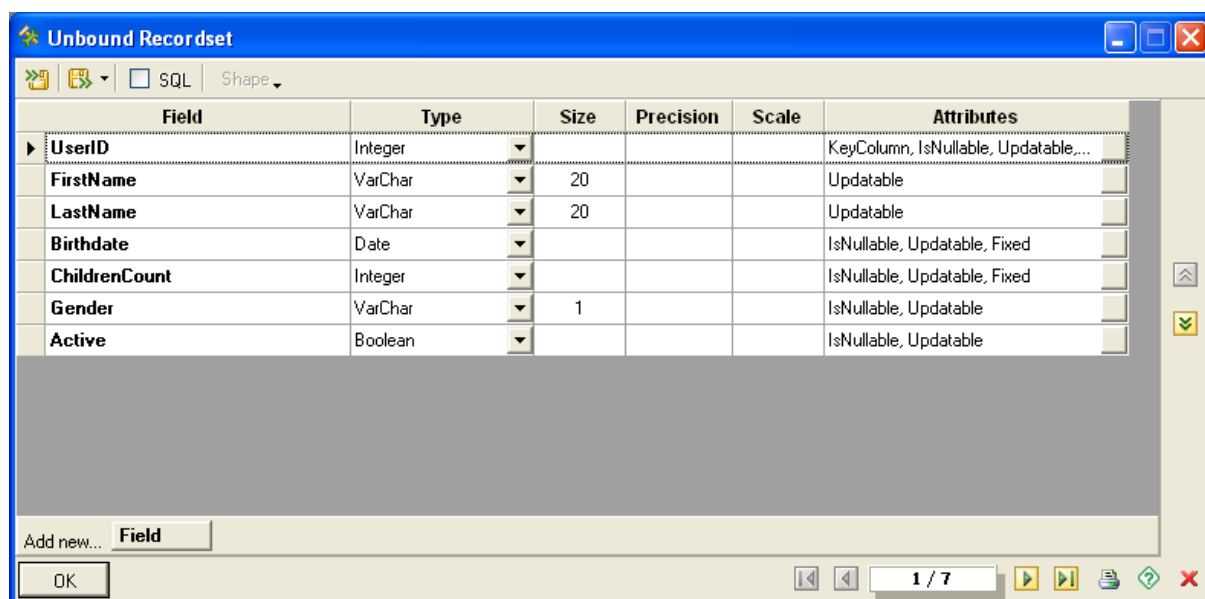


Figure 12 – Unbound Recordset Window

Columns

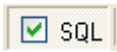
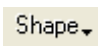
Following columns are available in this window:

- **Field** – indicates the name of the column in the table. This field cannot be empty; otherwise error message occurs when saving the recordset.
- **Type** – indicates the type of the column values (ADO field types are available in this list).
- **Size** – indicates the length of the column.
- **Precision** – in case if the value is numeric, this indicates the integer part of the number.
- **Scale** - in case if the value is numeric, this indicates the fractional part of the number.
- **Attributes** – indicates the attributes of the column and allows you to make changes to these settings. To do so, click on the small button at the end of the Attributes column. A list of attributes appears (KeyColumn, IsNullable, MayBeNull, MayDefer, UnknownUpdatable, Updatable, Fixed, Long, CacheDeferred, IsDefaultStream, IsRowURL, NegativeScale). Select the required attributes by ticking the checkbox beside the corresponding attribute. **OK** button in the small Attributes' window will apply the selected attributes to the field. The red-cross button in this window will cancel the selection.

Toolbar

Following options are available in the toolbar of this window:

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	SQL	When this button is pressed, the recordset may be defined in the SQL server specific markup language. Once the recordset is defined in the SQL language, you may see its table preview by pressing the SQL button again.
	Shape	This option is only available in the SQL mode. It provides options to select the newly encoded recordset's structure. This list defines a number of hierarchy templates. Choosing one of these templates will automatically insert the required keywords for the selected hierarchy to the SQL script so you will only need to add the field definitions. This is the only way to create the recordset hierarchy.


Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in the command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	OK	This button will convert the created recordset into the database preview and will display it.

4. Database Management

To open the **Database** window, press the **Database** button in the **PowerDBTools** connection toolbar. A list of all tables and views existing in the database appear in the **Database** window.

The **Database Management** is used to manage the database tables and preview its views, create new tables and modify existing ones, change components (columns, indexes, primary and foreign keys, triggers, etc.) of each table in the Database. You may also see the database hierarchy tree in the **Database Management** window. For each table, you may view a [Column Statistics](#) of each column in the table.

All actions and functions available in the **Database Management** window are described in the chapters below.

4.1. Database Window

The **Database** window consists of two panes: **Tables/Views** grid where a list of all tables and views of the database is displayed and the **Components** grid where the corresponding table details are displayed (columns, indexes, primary and foreign keys, triggers, etc.).

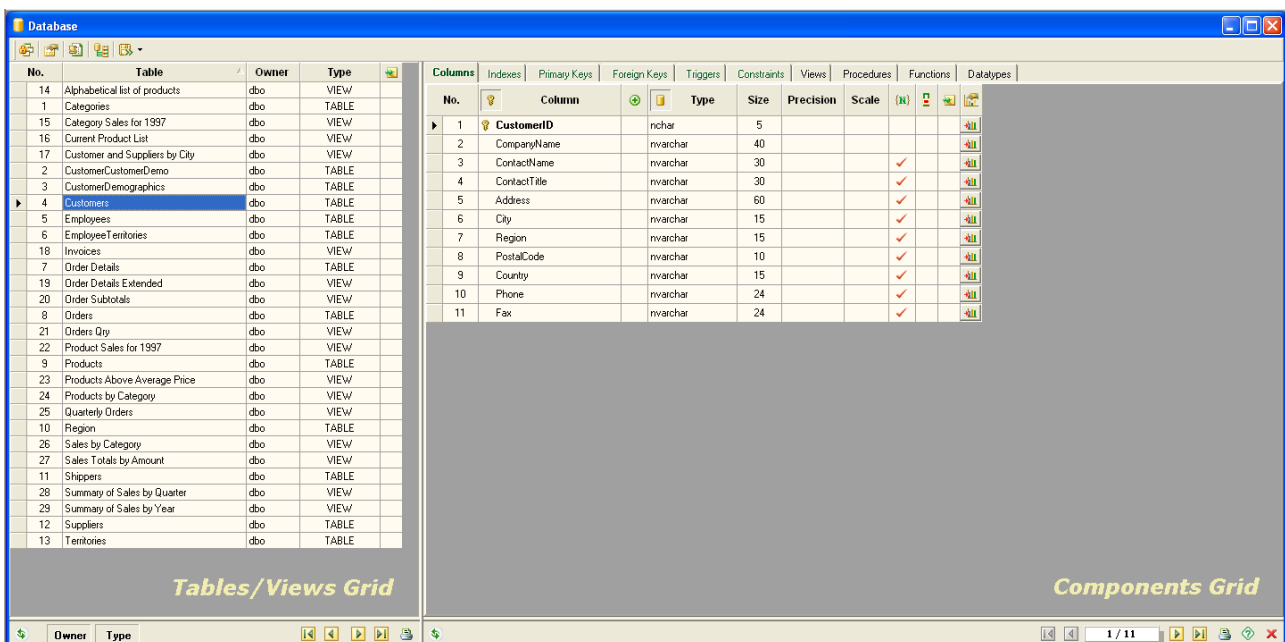



Figure 13 – Database Window





You may directly display the content of the table (or view) by double clicking on the table (or view) in the **Tables/Views** grid. For more details see [Data Output Window](#) chapter.

Toolbar

Following options are available in the toolbar of this window:

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Show System Objects	Shows the system tables and views of the database. System objects cannot be modified and are only present in read-only form.

Icon Preview	Name	Description
	Properties	Displays selected object (table, column, index, etc.) Properties where all characteristics and parameters of the selected object are presented. See Properties Window chapter.
	Show SQL Script	Opens a popup window and generates SQL script for the appropriate table. This window may be used for create, rename and delete operations depending on the radio buttons selection in the command bar of this popup window.
	Show Database Object Hierarchy	Displays read-only graphical presentation of the database objects hierarchy and its levels. Clicking on each enabled level in the Hierarchy window, sub-levels become also enable.
	Use Microsoft Access Objects	This button is only available when MS Access database is opened. With this option selected the application retrieves table/view detail objects using DAO (Data Access Object) components interface; otherwise when this option is not selected, the details are retrieved using ADO. For more information see DAO Interface chapter.

4.1.1. ADO Interface

The tabs and columns described in this chapter are dependent on the selected provider type. All tabs and columns that are used in PowerDBTools are described below.

4.1.1.1. Tables/Views Grid

This grid contains all tables and views of the database.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see below) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see below) is pressed.
- **Description** – indicates the description of the table. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a table description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Show Related Tables** – this option displays all child tables related to the selected table with any relation. See [Related Tables](#).

- **Open** – opens a content of the table or View. See [Data Output Window](#) chapter.
- **Create Table** – opens a Create Table window where a new table may be created in the database. See chapter [Create/Design Table Window](#).
- **Rename** – renames the selected table or view of the database. This option is not available for system tables.
- **Delete** - deletes the selected table of the database. This option is not available for system tables.
- **Design Table** - opens a Design Table window where allows you to modify the table structure. See [Create/Design Table Window](#) chapter. This option is not available for Views or system tables.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

- **Owner** – when this button is pressed, the grid contains an **Owner** column which indicates owners of the tables. Not available for MS Access databases.
- **Type** - when this button is pressed, the grid contains the **Type** column, which indicates whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not.

4.1.1.2. Components Grid

In this pane the corresponding table or view details (columns, indexes, primary and foreign keys, triggers) are displayed and database objects (Views, Procedures, Functions, Datatypes) are provided. Each of the database objects is grouped and displays in the separate tab.




Tabs and columns in this grid are dependent on the type of the opened database. However, below are described the most common tabs which are present here for most popular types of databases.

4.1.1.2.1. Table Columns





This tab of the **Components** grid contains a list of columns (fields) in the selected table and the related information. Here you may create new columns to the selected table. If you wish to edit the existing columns in the table, you should open the [Create/Design Table Window](#) from the right click menu on the selected table in the **Tables/Views** left grid.

Columns

Following columns are available in this window:

- **No** - indicates the number of the column in the table.
- **Column** - indicates the name of the column. The column which is the Primary Key or included in the compound key gets a yellow key sign.
 - **Show Key Column** () – this option displays or hides the yellow key sign next to the columns that act as Primary Key fields.
- **Identity** () - indicates whether the value in this column is automatically incremented identity or not.
- **Type** - indicates the type of the table column.
 - **Show Column Local Types** () - when this option is selected the Type column displays values as defined by the database,

otherwise when this option is not selected, values are displayed as defined by the provider.

- **Size** - indicates the length of the column.
- **Precision** – in case if the type is numeric, this indicates the integer part of the number.
- **Scale** - in case if the type is numeric, this indicates the fractional part of the number.
- **Nullable** () - indicates whether the Null value is allowed for this column.
- **Default** () – indicates the default value of this column. By double clicking on this column for the corresponding entry, you may apply a default value to the column. The appeared popup window contains a field for a default value. See [Input Window](#) chapter.
- **Description** () – indicates the description of this column. By double clicking on this column for the corresponding entry, you may insert a description for the column. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Statistics** () – this button opens the statistics over the values in the column. See details in [Column Statistics](#) chapter.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Create Column** – opens a **Create Column** window where a new column may be added to the table. See chapter [Create Columns Window](#). This option is not available for views and system tables.
- **Rename** – renames the selected column of the table. This option is not available for system tables.
- **Delete** - deletes the selected column from the table. This option is not available for system tables.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.1.2.2. Indexes

This tab of the **Components** grid contains a list of indexes in the selected table and the related information. Here you may create new indexes in the database. If you wish to edit an existing index, you should create a new one and then remove the old one; there is no way to directly edit the index properties. See [Create Indexes Window](#) chapter.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Index** - indicates the name of the index.
- **Unique** - indicates whether this index is unique in the table.
- **Primary** – indicates whether this index acts as a Primary Key in the table or not.
- **Foreign** – indicates whether this is a foreign index or not.

- **Index Nulls** – indicates whether the null values are allowed in the indexes.
- **Clustered** – indicates whether the selected index is clustered or not.

The +/- icon in front of the row is used to expand/collapse the columns which are presented in the index (for compound indexes multiple columns may be present in the index). In the index details the following information is provided:

- **Column** - indicates columns where the selected index is applied.
- **Sort Order** – indicates whether the index values are sorted in ascending or descending order in the index.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Create Index** – opens a **Create Index** window where a new index may be added to the table. See chapter [Create Indexes Window](#). This option is not available for views and system tables.
- **Rename** – renames the selected index of the table. This option is not available for system tables.
- **Delete** - deletes the selected index from the table. This option is not available for system tables.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.1.2.3. Primary Keys

This tab of the **Components** grid contains a list of Primary Keys in the selected table and the related information. You may also create new Primary Keys here. If you wish to edit an existing Primary Key, you should remove the old one and then create a new one; there is no way to directly edit the Primary Key properties. See [Create Primary Keys Window](#) chapter.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Primary Key** - indicates the name of the Primary Key.

The +/- icon in front of the row is used to expand/collapse all those columns to which the corresponding Primary Key is applied (for compound keys multiple columns may be present in the key). In the Primary Key details the following information is provided:

- **Column** - indicates columns where the selected Primary Key is applied.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Create Primary Key** – opens a **Create Primary Key** window where a new Primary Key may be added to the table. See chapter [Create Primary Keys Window](#). This option is not available for views and system tables.
- **Rename** – renames the selected Primary Key of the table. This option is not available for system tables.
- **Delete** – deletes the selected Primary Key from the table. This option is not available for system tables.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.1.2.4. Foreign Keys

This tab of the **Components** grid contains a list of Foreign Keys in the selected table and the related information. You may also create new Foreign Keys here. If you wish to edit an existing Foreign Key, you should create a new one and then remove the old one; there is no way to directly edit the Foreign Key properties. See [Create Foreign Keys Window](#) chapter.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Foreign Key** - indicates the name of the Foreign Key.
- **Primary Table** – indicates the primary source table where the Foreign Key is assigned.
- **Primary Key** – indicates the primary table's Primary Key index by which the Foreign Key is assigned to.
- **Enforce** – when this option (Enforce Referential Integrity) is selected, new row which do not match the primary table cannot be inserted to the related foreign table and rows cannot be deleted from the primary table if they are referred-to in the foreign table.
- **Update Rule** – when the **Cascade** option is selected here, Foreign Key of this relationship is automatically updated whenever the primary-key value is updated. This option is only available when **Enforce** is enabled.
- **Delete Rule** – when the **Cascade** option is selected here, rows of the foreign table is automatically deleted whenever the referred-to rows of the primary table are deleted. This option is only available when **Enforce** is enabled.

The +/- icon in front of the row is used to expand/collapse all those column pairs to which the corresponding Foreign Key is applied. In the Foreign Key details the following information is provided:

- **Foreign Column** - indicates columns in the selected foreign table where the selected Foreign Key is assigned.
- **Primary Column** – indicates the column in the primary table where the Foreign Key is assigned.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Create Foreign Key** – opens a **Create Foreign Key** window where a new Foreign Key may be added to the table. See chapter [Create Foreign Keys Window](#). This option is not available for views and system tables.
- **Rename** – renames the selected Foreign Key of the table. This option is not available for system tables.
- **Delete** - deletes the selected Foreign Key from the table. This option is not available for system tables.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.1.2.5. Triggers

This tab of the **Components** grid contains a list of triggers applied to the selected table and the related information. This tab is not present for databases that do not support triggering, for example MS Access.

You may create new triggers in this tab. If you wish to edit an existing trigger, you should create a new one and then remove the old one; there is no way to directly edit the triggers properties. See [Create Database Objects](#) chapter.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Trigger** - indicates the name of the trigger.
- **Type** – indicates when the trigger should be launched (upon delete, update, or insert new).
- **Instead Of** – indicates whether the trigger action should take place instead of the deletion, update or insert new procedure.
- **After** – indicates whether the trigger action should take place after the deletion, update or insert new procedure.
- **Definition** – displays the SQL definition of the trigger. By double clicking on this column the read-only SQL definition will be opened in a popup window.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Create Trigger** – opens a **Create Trigger** window where a new trigger may be added to the table. See chapter [Create Database Objects](#). This option is not available for views and system tables.
- **Rename** – renames the selected trigger of the table. This option is not available for system tables.
- **Delete** - deletes the selected trigger from the table. This option is not available for system tables.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.1.2.6. Constraints

This tab of the **Components** grid contains a list of constraints applied to the selected table and the related information. You may also create new constraints here. If you wish to edit an existing constraint, you should create a new one and then remove the old one; there is no way to directly edit the constraint properties. See [Create Database Objects](#) chapter.

Columns

Columns in this tab are dependent on the opened database type. Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Constraint** - indicates the name of the constraint. For MS Access databases, if the constraint is of the CHECK type the column name that has the constraint applied is also displayed here.
- **Checked** – indicates whether the constraint is a check constraint or not. This column is not available for MS Access databases.
- **Type** – indicates the type of the constraint (CHECK, PRIMARY KEY, UNIQUE, FOREIGN KEY, etc.). This column is not available for SQL Server database.
- **Update Rule** – indicates the update rule (NO ACTION, CASCADE) for FOREIGN KEY type constraints. This column is not available for SQL Server databases.
- **Delete Rule** – indicates the delete rule (NO ACTION, CASCADE) for FOREIGN KEY type constraints. This column is not available for SQL Server databases.
- **Definition** – indicates the SQL definition of the constraint. By double clicking on this column the read-only SQL definition will be opened in a popup window.
- **Description** – indicates the description of the constraint. This column is not available for SQL Server databases.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Create Constraint** – opens a **Create Constraint** window where a new constraint may be added to the table. See chapter [Create Database Objects](#). This option is not available for views, system tables and MS Access databases.
- **Rename** – renames the selected constraint of the table. This option is not available for system tables.
- **Delete** - deletes the selected constraint from the table. This option is not available for system tables.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.1.2.7. Views

This tab of the **Components** grid contains a list of views available in the database and the related information. You may also create new views here. If you wish to edit an existing view, you should create a new one and then remove the old one; there is no way to directly edit the view properties. See [Create Database Objects](#) chapter.

Columns

Columns in this tab are dependent on the opened database type. Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **View** - indicates the name of the view.
- **Owner** – indicates the owner of the table (the database it belongs to). This information is not available for MS Access databases.
- **Updatable** - indicates whether this view is updatable or not. This column is not available for SQL Server databases.
- **Definition** – indicates the SQL definition of the view. By double clicking on this column the read-only SQL definition will be opened in a popup window.
- **Description** – indicates the description of the View. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a view description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Open View** – opens the view output. See [Data Output Window](#) chapter.
- **Create View** – opens a Create View window where a new view may be added to the table. See chapter [Create/Design Table](#).
- **Rename** – renames the selected view of the table. This option is not available for system tables.
- **Delete** - deletes the selected view from the table. This option is not available for system tables.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.1.2.8. Procedures

This tab of the **Components** grid contains a list of procedures available in the database and the related information.

You may also create new procedures here. If you wish to edit an existing procedure, you should create a new one and then remove the old one; there is no way to directly edit the procedure properties. See [Create Database Objects](#) chapter.

To run the procedure, double click on the corresponding procedure in the list. Procedure output will appear. See [Data Output Window](#) chapter.

Columns

Columns in this tab are dependent on the opened database type. Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Procedure** - indicates the name of the procedure.
- **Owner** – indicates the owner of the procedure (the database it belongs to). This information is not available for MS Access databases.
- **Type** – indicates the type of the procedure.
- **Timeout** – indicates the timeout of the procedure. This column is not available for SQL Server databases.
- **Dialect** – indicates the dialect of the procedure. This column is not available for SQL Server databases.
- **Definition** – indicates the SQL definition of the procedure. By double clicking on this column the read-only SQL definition will be opened in a popup window.
- **Description** – indicates the Description of the procedure. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a procedure description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.

The +/- icon in front of the row is used to expand/collapse the procedure input/output parameters. In the procedure details the following information is provided:

- **Direction** – indicates whether the parameter is input or output.
- **#** - the number of parameter.
- **Parameter** – indicates the name of the parameter.
- **Type** – indicates the type of the parameter.
- **Size** – indicates the length of the parameter.
- **Precision** – in case if the type is numeric, this indicates the integer part of the parameter. This column is not available for SQL Server databases.
- **Scale** - in case if the type is numeric, this indicates the fractional part of the parameter. This column is not available for SQL Server databases.
- **Attributes** - indicates the attributes of the parameter. This column is not available for SQL Server databases.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Open Procedure** – opens the procedure output. See [Data Output Window](#) chapter.
- **Create Procedure** – opens a Create Procedure window where a new procedure may be added to the table. See chapter [Create Database Objects](#).
- **Rename** – renames the selected procedure of the table. This option is not available for system tables.
- **Delete** - deletes the selected procedure from the table. This option is not available for system tables.

Command Bar

For description of standard functions in this command bar, refer to PowerDBTools [Common Actions](#) chapter.

4.1.1.2.9. Functions

This tab of the **Components** grid contains a list of functions available in the database and the related information. This tab is not present for databases that do not support functions, for example MS Access.

You may create new functions in this tab. If you wish to edit an existing function, you should create a new one and then remove the old one; there is no way to directly edit the functions properties. See [Create Database Objects](#) chapter.

To run the function, double click on the corresponding procedure in the list. Function output will appear. See [Data Output Window](#) chapter.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Function** - indicates the name of the function.
- **Owner** – indicates the owner of the function (the database it belongs to).
- **Type** – indicates the type of the function output (scalar, inline, table, etc.).
- **Definition** – indicates the SQL definition of the function. By double clicking on this column the read-only SQL definition will be opened in a popup window.

The +/- icon in front of the row is used to expand/collapse the function input/output parameters. In the function details the following information is provided:

- **Direction** – indicates whether the parameter is input or output.
- **#** - the number of parameter.
- **Parameter** – indicates the name of the parameter.
- **Type** – indicates the type of the parameter.
- **Size** – indicates the length of the parameter.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Create Function** – opens a Create Function window where a new function may be added to the table. See chapter [Create/Design Table](#).
- **Rename** – renames the selected function of the table. This option is not available for system tables.
- **Delete** - deletes the selected function from the table. This option is not available for system tables.

Command Bar

For description of standard functions in this command bar, refer to PowerDBTools [Common Actions](#) chapter.

4.1.1.2.10. Datatypes

This tab of the **Components** grid contains a list of datatypes available in the database and the related information. This tab is not present for databases that do not support datatypes, for example MS Access.

You may create new datatypes in this tab. If you wish to edit an existing datatype, you should create a new one and then remove the old one; there is no way to directly edit the datatypes properties. See [Create Datatypes Window](#) chapter.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Datatype** - indicates the name of the datatype.
- **Base Type** – indicates the base type of the new datatype defined.
- **Length** – indicates the length of the datatype.
- **Allow Nulls** – indicates whether null value is allowed for this datatype or not.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Create Column** – opens a Create Datatype window where a new datatype may be added to the table. See chapter [Create/Design Table](#).
- **Rename** – renames the selected datatype of the table. This option is not available for system tables.
- **Delete** - deletes the selected datatype from the table. This option is not available for system tables.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.1.2.11. Sequences

This tab of the **Components** grid contains a list of sequences available in the database and the related information. This tab is present for Oracle databases only.

For more information about sequences see Oracle Help.

4.1.2. DAO Interface

The tabs and columns described in this chapter are only applicable to MS Access databases when **MS Access** button is pressed in the toolbar of the **Databases** window.

Note: All information displayed in **MS Access** mode is read-only and cannot be modified.

4.1.2.1. Tables/Views Grid

In this pane all tables of the database are listed.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Table Def** – displays the name of the table.
- **Attributes** - displays the table attributes (SystemObject, etc.).
- **Table Description** – indicates the description of the column.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Open Table Def** – opens a content of the table. See [Data Output Window](#) chapter.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

- **Type** - not functioning on DAO mode.

4.1.2.2. Components Grid

This pane displays the corresponding table details (fields, indexes) and provides database objects (query defs, relations) grabbed using DAO interface. Each of them is displayed in a separate tab.

4.1.2.2.1. Fields

This tab of the **Components** grid contains a list of fields in the selected table and the related information.

Columns

Following columns are available in this window:

- **No** - indicates the number of the field in the table.
- **Field** - indicates the name of the field (column). The field which has a Primary Key assigned gets a yellow key sign.
- **Type** - indicates the type of the field.
- **Size** - indicates the length of the field.
- **Required** – indicates whether the Null value is allowed for this column.
- **Allow Zero Length** – in case if the type is text, this field indicates whether the zero length string is allowed for this field or not.
- **Data Updatable** – indicates whether the data in this field is updatable or not.
- **Default Value** – indicates the default value for this field.

- **Validation Rule** – indicates any limitations for new data to be inserted in the table. This option acts as check constraint for the field.
- **Validation Text** – if the new data does not satisfy the rule specified above, an error text defined in this field appears.
- **Source Table** – if queries are designed on the views, this field indicates to which table the view belongs. Otherwise, this field always displays the actual table.
- **Source Field** – if queries are designed on the views, this field indicates to which column in the table the view belongs. Otherwise, this field always displays the same information as the **Field** field does.
- **Collating Order** – if queries are designed on the views, this field indicates whether this field is sorted in the ascending or descending order. The **General** value indicates this field is not ordered.
- **Ordinal Position** – indicates the number of the field (column) in the table.
- **Attributes** – indicates the attributes of the field (variable, auto incremented, hyperlink, etc.).

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.2.2.2. Indexes

This tab of the **Components** grid contains a list of indexes in the selected table and the related information.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Index** - indicates the name of the index.
- **Primary** –indicates whether this index acts as a Primary Key in the table or not.
- **Foreign** – indicates whether this is a foreign index or not.
- **Unique** - indicates whether this index is unique in the table.
- **Required** – indicates whether this index is mandatory or not.
- **Index Nulls** – indicates whether the null values are allowed in the indexes.
- **Clustered** – indicates whether the selected index is clustered or not.
- **Distinct Count** – indicates the number of unique values for the Index object.

The +/- icon in front of the row is used to expand/collapse the fields which are presented in the index (for compound index multiple fields can be present in the index). In the index details the following information is provided:

- **Field** - indicates fields (columns) where the selected index is applied.
- **Attributes** – indicates whether the index values are sorted in ascending or descending order in the column.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.2.2.3. Query Defs

This tab of the **Components** grid contains a list of views and procedures available in the database and the related information. By double clicking on the corresponding query def in the list, the view output will appear. See [Data Output Window](#) chapter. For erroneous queries execution, see chapter [Information Window](#).

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Query Def** - indicates the name of the view or procedure.
- **Type** – indicates the type of the query (select, update, append, delete, crosstab, etc).
- **SQL** – displays the SQL script for the query.
- **Max Records** - indicates the maximum number of records to be returned in the output data. If this field is "0", whole data will be returned.
- **Connect** – when the query is organized over other databases, this field indicates the remote database name.
- **ODBC Timeout** – indicates number of seconds to wait before a timeout error occurs when a QueryDef is executed on an ODBC database.
- **Records Affected** – indicates the number of records this query affects (for update, append, delete queries).
- **Returns Records** – indicates whether the query returns records.

The +/- icon in front of the row is used to expand/collapse the query def's input/output parameters. In the query details the following information is provided:

- **Parameter** – indicates the name of the parameter.
- **Type** – indicates the parameter type.
- **Direction** - indicates whether the parameter is input or output.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Open Query Def** – opens a content of the table. See [Data Output Window](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.1.2.2.4. Relations

This tab contains a list of relations between the tables in the database and the related information.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Relation** - indicates the name of the relation.
- **Table** – indicates on primary table where the relation is created.
- **Foreign Table** – indicates the foreign table.
- **Attributes** - indicates the attributes (update and delete rules, etc.) of the relation.

The +/- icon in front of the row is used to expand/collapse the columns pairs which are presented in the relation. In the relation details the following information is provided:

- **Field** – indicates the field (column) in the primary table used in the relation.
- **Foreign Name** – indicates the field (column) in the foreign table used in the relation.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.2. Create/Design Table Window

In this window you can create and design tables. When designing a table you can change database field names, sort order, change types, etc. To create or design table, right click on appropriate table row in [Database Management](#) window **Tables/Views Grid** or in the **Tables** window and elect the **Design Table** or **Create Table** menu option. The **Create/Design** table window will appear.

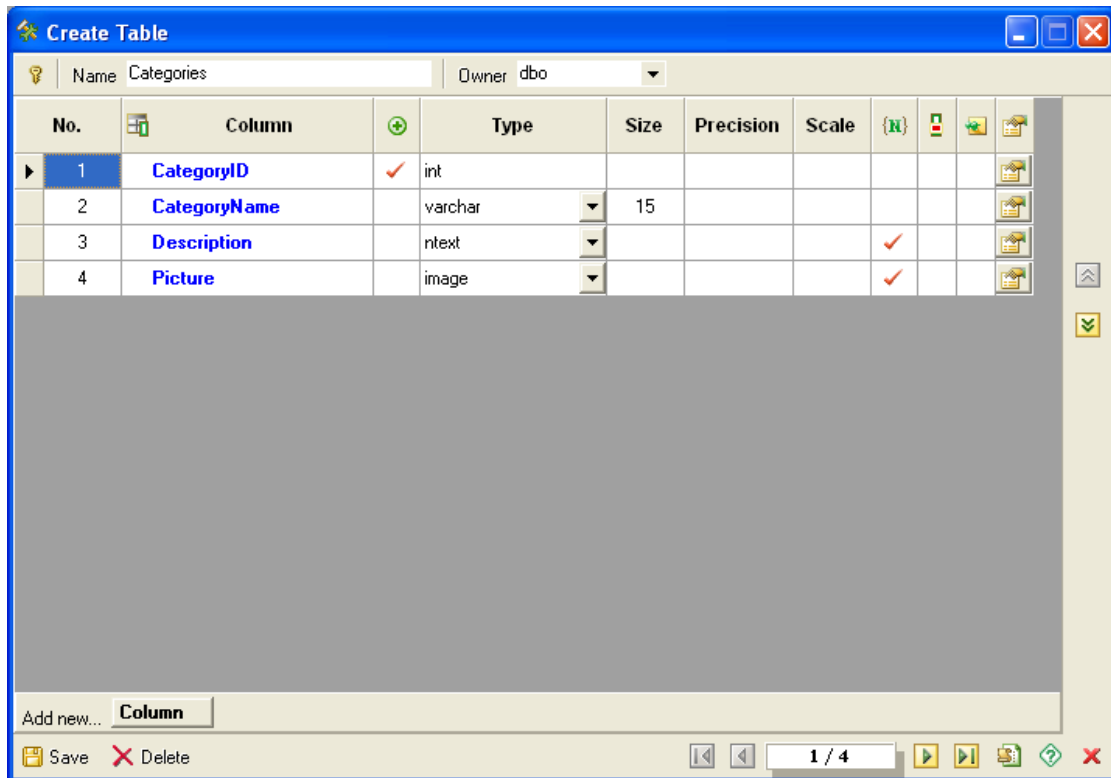


Figure 14 – Create/Design Table Window

In this window the table and its columns may be defined.



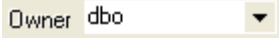
Columns

Following columns are available in this window:

- **No** - indicates the number of the column in the table.
- **Column** - indicates the name of the column. The column which is the Primary Key or included in the compound key gets a yellow key sign.
- **Identity** (🔑) - indicates whether the value in this column is automatically incremented identity or not
- **Type** - indicates the type of the table column.
- **Size** - indicates the length of the column.
- **Precision** – in case if the type is numeric, this indicates the integer part of the number.
- **Scale** - in case if the type is numeric, this indicates the fractional part of the number.
- **Nullable** (N) - indicates whether the Null value is allowed for this column.
- **Default** (D) – indicates the default value of this column. By double clicking on this column for the corresponding entry, you may apply a default value to the column. The appeared popup window contains a field for a default value. See [Input Window](#) chapter.
- **Description** (📄) – indicates the description of this column. By double clicking on this column for the corresponding entry, you may insert a description for the column. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Properties** (🔧) – opens a window with column properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.

Toolbar

Following options are available in the toolbar of this window:


Icon Preview	Name	Description
	Primary Key	This button is used to select the Primary Key column in the table.
	Name	This field requires the table name. This field is only present in the Create Table window; it is not present in the Design Table window.
	Owner	Indicates the owner of the table (the database it belongs to).—This field is only present in the Create Table window; it is not present in the Design Table window. This field is not available for MS Access databases.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Show SQL Script	For Create Table window this option opens a window with table creation SQL script. For Design Table window, this option opens a window where all the changes to the existing table are described in the SQL script.

4.3. Create Columns Window

In this window one or more new columns may be created in the selected table.

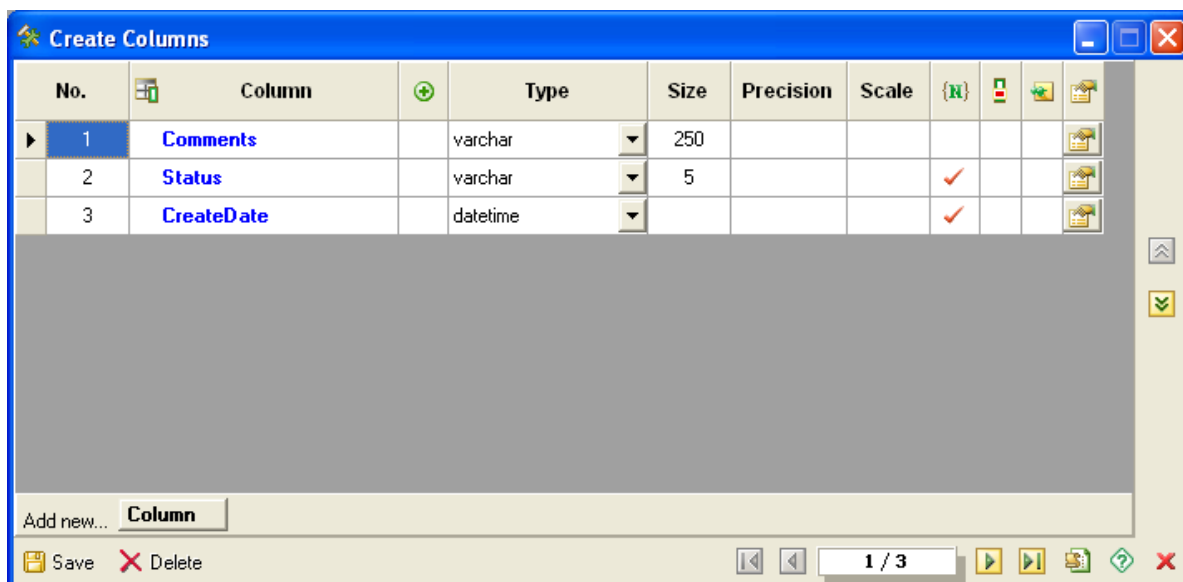


Figure 15 – Create Columns Window

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Column** - indicates the name of the column. The column which is the Primary Key or is included in the compound key gets a yellow key sign.
- **Identity** (Key) - indicates whether the value in this column is automatically incremented identity or not.
- **Type** - indicates the type of the table column.
- **Size** - indicates the length of the column.
- **Precision** – in case if the type is numeric, this indicates the integer part of the number.
- **Scale** - in case if the type is numeric, this indicates the fractional part of the number.
- **Nullable** (N) - indicates whether the Null value is allowed for this column.
- **Default** (Key) – indicates the default value of this column. By double clicking on this column for the corresponding entry, you may apply a default value to the column. The appeared popup window contains a field for a default value. See [Input Window](#) chapter.
- **Description** (Key) – indicates the description of this column. By double clicking on this column for the corresponding entry, you may insert a description for the column. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Properties** (Key) – opens a window with column properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Show SQL Script	This button is used to display the newly created columns SQL script.

4.4. Create Indexes Window

In this window one or more new indexes may be created in the selected table.

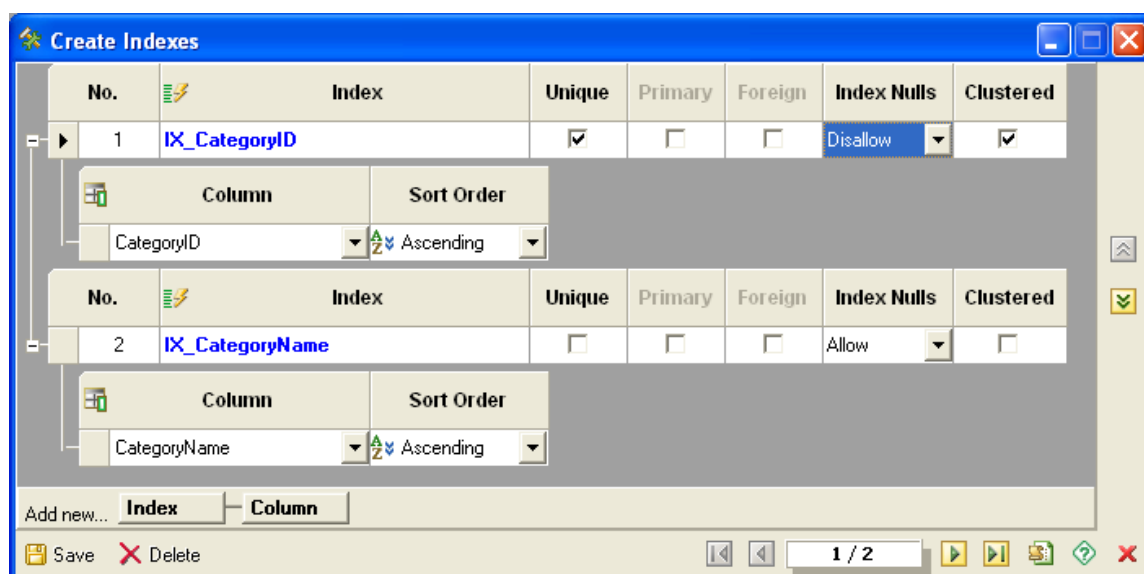


Figure 16 – Create Indexes Window

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Index** - indicates the name of the index.
- **Unique** - indicates whether this index is unique in the table.
- **Primary** – indicates whether this index acts as a Primary Key in the table or not.
- **Foreign** – indicates whether this is a foreign index or not.
- **Index Nulls** – indicates whether the null values are allowed in the indexes.
- **Clustered** – indicates whether the selected index is clustered or not.

The +/- icon in front of the row is used to expand/collapse all those columns to which the corresponding index is applied. In the index details the following information is provided:


- **Column** - indicates columns where the selected index is applied.
- **Sort Order** – indicates whether the index values are sorted in ascending or descending order in the index.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Show SQL Script	This button is used to display the SQL script of the newly created indexes.

4.5. Create Primary Keys Window

In this window Primary Key may be created in the selected table.

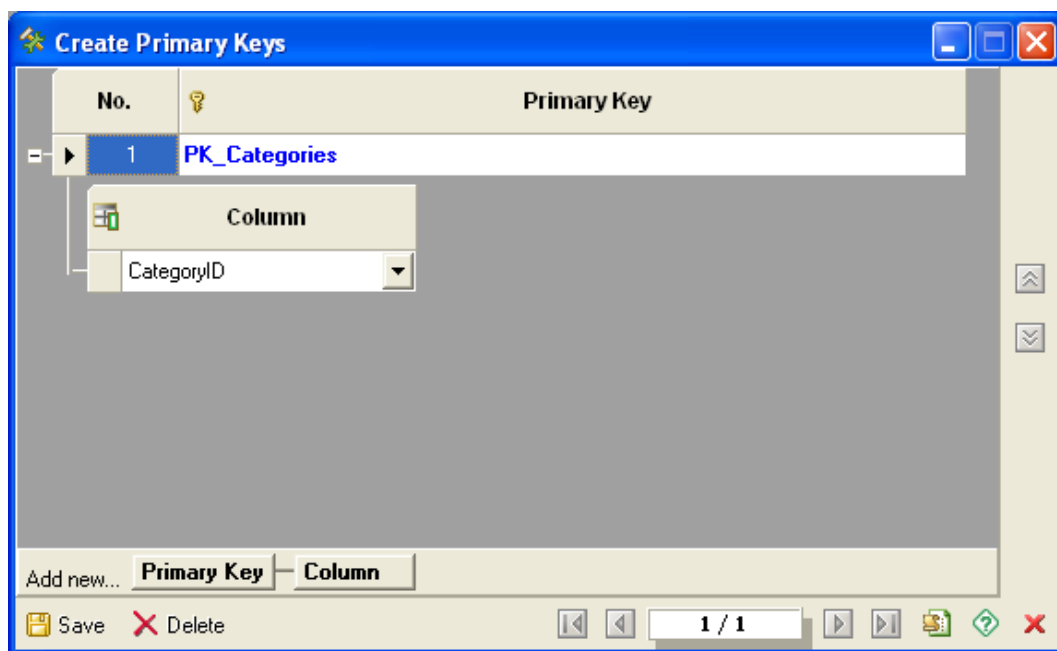


Figure 17 – Create Primary Keys Window

Note: System prevents creating new Primary Key to the table which already has a Primary Key assigned.

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Primary Key** - indicates the name of the Primary Key.

The +/- icon in front of the row is used to expand/collapse all those columns to which the corresponding Primary Key is applied. In the Primary Key details the following information is provided:


- **Column** - indicates columns where the selected Primary Key is applied.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Show SQL Script	This button is used to display the SQL script of the newly created Primary Keys.

4.6. Create Foreign Keys Window

In this window one or more new Foreign Keys may be created in the selected table.

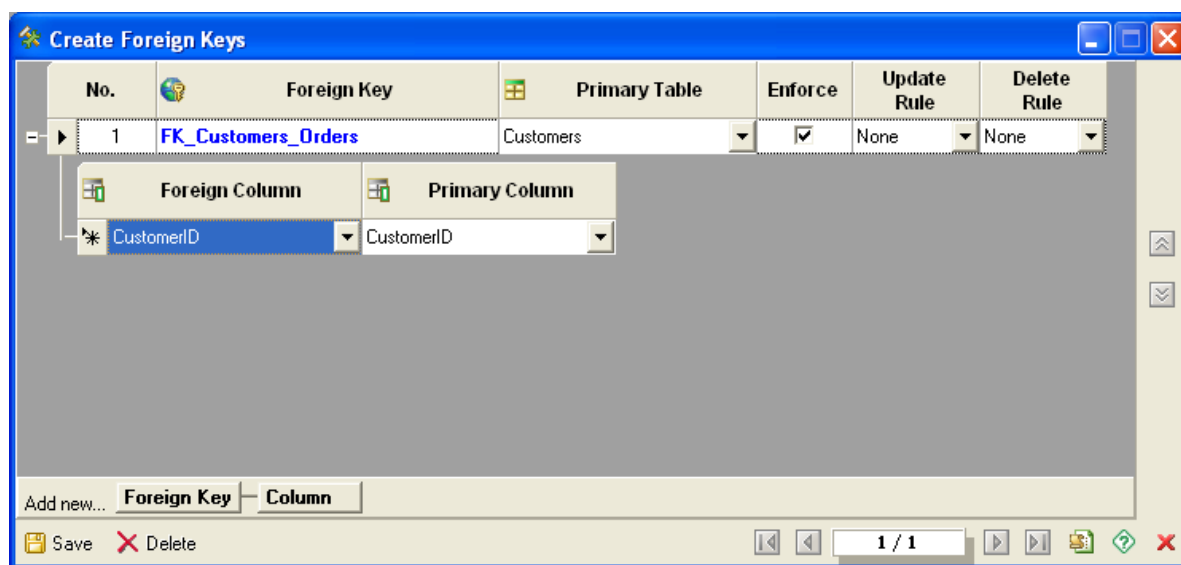


Figure 18 – Create Foreign Keys Window

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Foreign Key** - indicates the name of the Foreign Key.
- **Primary Table** – indicates the primary source table where the Foreign Key is assigned.
- **Enforce** – when this option (Enforce Referential Integrity) is selected, new row which do not match the primary table cannot be inserted to the related foreign table and rows cannot be deleted from the primary table if they are referred-to in the foreign table.
- **Update Rule** – when the **Cascade** option is selected here, Foreign Key of this relationship is automatically updated whenever the primary-key value is updated. This option is only available when **Enforce** is enabled.
- **Delete Rule** – when the **Cascade** option is selected here, rows of the foreign table is automatically deleted whenever the referred-to rows of the primary table are deleted. This option is only available when **Enforce** is enabled.

The +/- icon in front of the row is used to expand/collapse all those columns to which the corresponding Foreign Key is applied. In the Foreign Key details the following information is provided:

- **Foreign Column** - indicates columns in the selected foreign table where the selected Foreign Key is assigned.
- **Primary Column** – indicates the column in the primary table where the Foreign Key is assigned.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Show SQL Script	This button is used to display the SQL script of the newly created Foreign Keys.

4.7. Create Datatypes Window

In this window one or more new datatypes may be created in the database.

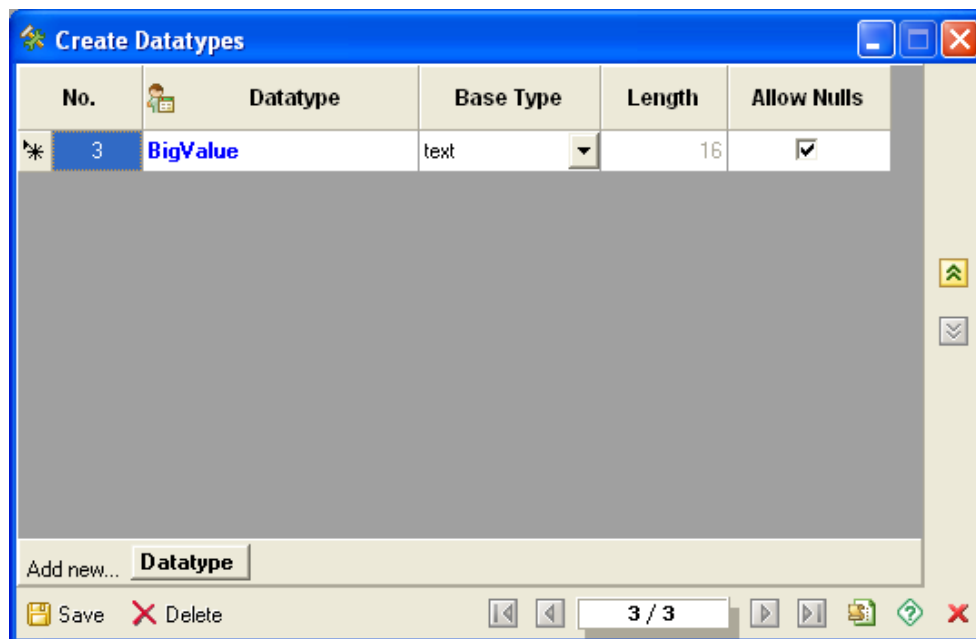


Figure 19 – Create Datatypes Window

Columns

Following columns are available in this window:


- **No** - indicates the identity number of the list.
- **Datatype** - indicates the name of the datatype.
- **Base Type** – indicates the base type of the new datatype defined.
- **Length** – indicates the length of the datatype.
- **Allow Nulls** – indicates whether null value is allowed for this datatype or not.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Show SQL Script	This button is used to display the SQL script of the newly created datatypes.

4.8. Create Database Objects

The PowerDBTools application allows you to create the database objects, such as Triggers, Constraints, Views, Procedures, Functions, etc. by generating an SQL script. By choosing a Create action for the corresponding database object, a Create Object window appears which already contains an SQL template to define the object. You only need to write in the object body and save the changes. The corresponding object will be created and added to the list.

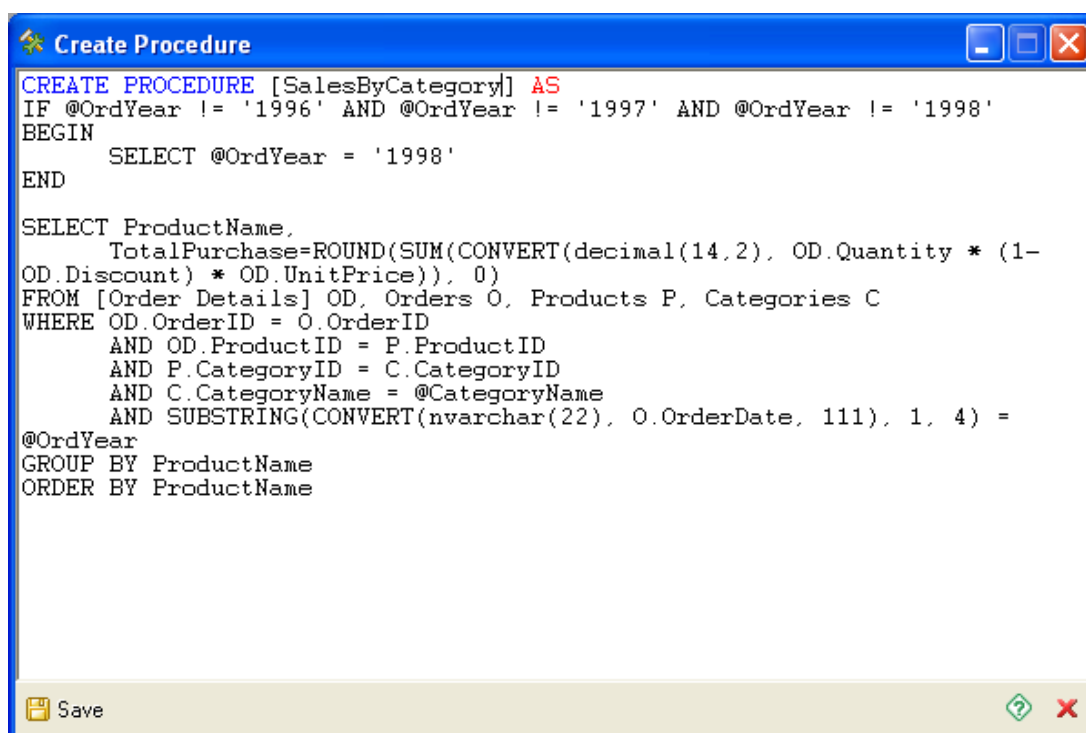


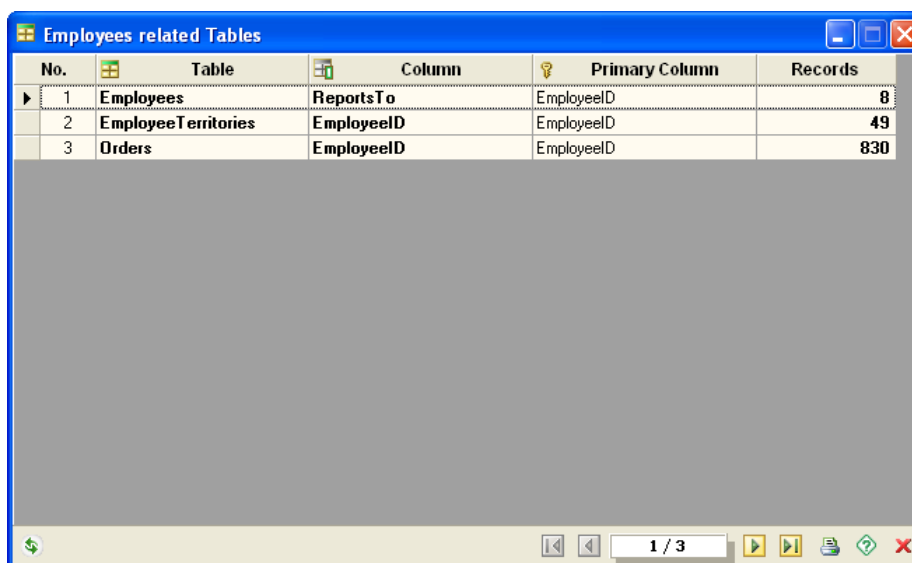
Figure 20 – Create Procedure Window

For description of standard functions, refer to [PowerDBTools Common Actions](#) chapter.

4.9. Related Tables Window

The PowerDBTools application allows you to view the related child tables of the selected table. To do that, go to the **Tables/Views Grid** of the [Database Management](#) window or

[Tables/Views Management](#) window, right click on the table in the list and choose the **Show Related Items** menu option.



No.	Table	Column	Primary Column	Records
1	Employees	ReportsTo	EmployeeID	8
2	EmployeeTerritories	EmployeeID	EmployeeID	49
3	Orders	EmployeeID	EmployeeID	830

Figure 21 – Related Tables Window

From this window you may open the selected table where the column participating in the relation will be marked in red.

Note: In the opened window where related tables are displayed Show Related Tables option is available too.

Columns

Following columns are available in this window:

- **No** - the identity number of the list.
- **Table** – the related table name.
- **Column** – the related table column by which the related table is connected to the selected table.
- **Primary Column** – the primary table column by which the selected table is connected to the related table.
- **Records** – the number of related records in the related table.

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Show Related Tables** – this option displays all child tables related to the selected table with any relation.
- **Open Table** – opens a content of the table. See [Data Output Window](#) chapter. The column which is used in the relation is marked in red in the output grid.

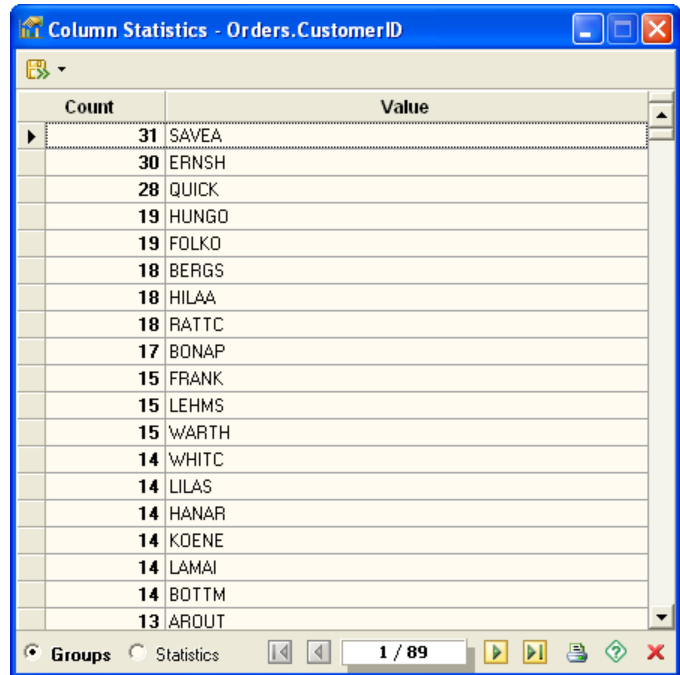
Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

4.10. Column Statistics Window

This window you can see the statistics of the selected column of the table. Following statistics are available to display: displayed data total count, distinct values count, each distinct value entries count, minimum and maximum values entries count, etc.

You may load the column statistics either from **Database** window, by clicking on the **Statistics** button of the corresponding row in the **Columns** tab of the [Components Grid](#) or by clicking on the **Statistics** button of the corresponding row in the [Table Columns Window](#).



Count	Value
31	SAVEA
30	ERNSH
28	QUICK
19	HUNGO
19	FOLKO
18	BERGS
18	HILAA
18	RATTC
17	BONAP
15	FRANK
15	LEHMS
15	WARTH
14	WHITC
14	LILAS
14	HANAR
14	KOENE
14	LAMAI
14	BOTTM
13	AROUT

Figure 22 – Column Statistics Window

This window allows you to see the values statistics in the column. The Statistics window has two previews: **Groups** and **Statistics**.

The **Groups** preview lists all values and their occurrence number in the selected column. For example, if you see that **Value** is 20 and **Count** is 252, it means that the value "20" appears 252 times in the selected column.

Groups Preview Columns

Following columns are available in this window:

- **Count** – count of appropriate value.
- **Value** – value present in the corresponding column.

Groups Preview Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Show Primary Table Related Record** – available if opened column is the foreign column of a relation. This option opens a window, where **Fields** of the primary table with **Values** and field **Types** are listed.

Statistics Preview

The **Statistics** preview provides text information about the selected column statistics. Following information is provided here:

- **Total Count** – indicates the summary of all occurrence numbers for all values in the column.
- **Distinct Count** – indicates the number of distinct values in the column.
- **Minimum Count** – indicates the smallest occurrence of values in this column.

- **Maximum Count** – indicates the largest occurrence of values in this column.
- **Minimum Value** – indicates the minimum value available in this column. If the value is not numerical, alphabetical order will be used to define the minimum value.
- **Maximum Value** – indicates the maximum value available in this column. If the value is not numerical, alphabetical order will be used to define the minimum value.

Toolbar

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

- **Groups and Statistics Radio Buttons** – switches between Groups and Statistics preview.

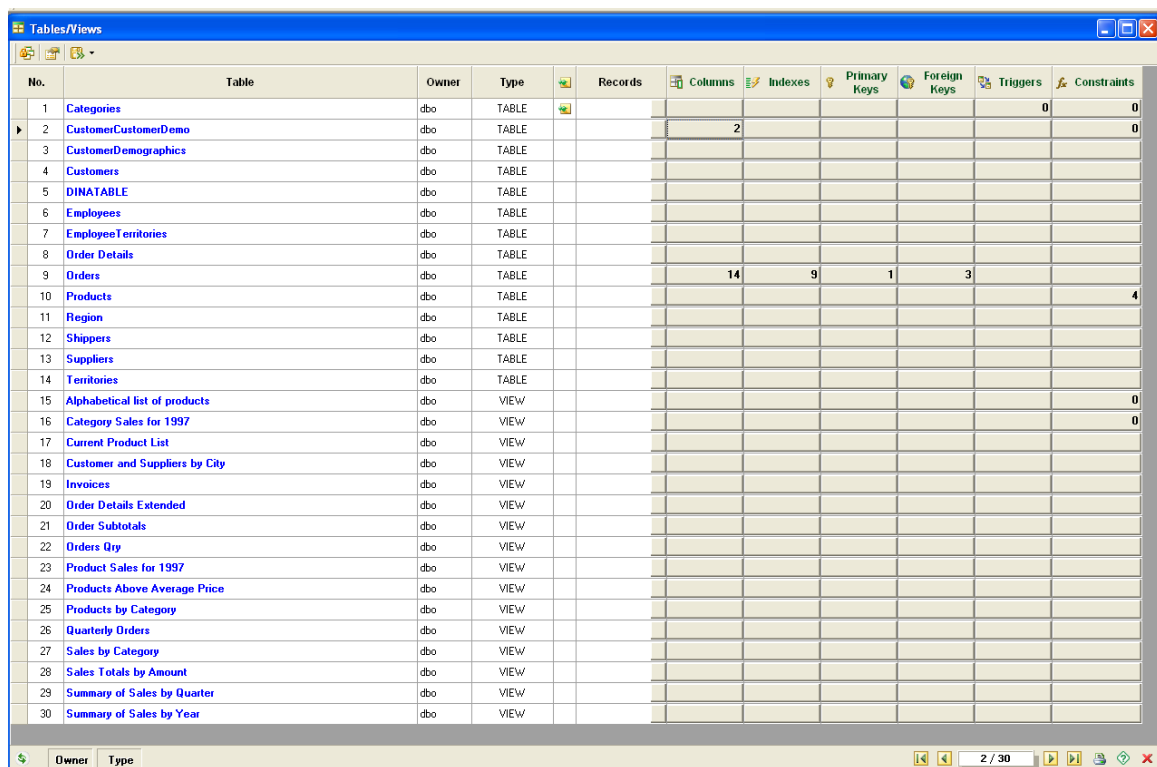
5. Tables/Views Management

The PowerDBTools application allows you to create, design, delete tables, manage table's data and create and delete views. Also you can get all tables related components such as columns, indexes, Foreign Keys, etc. and manage them (create, delete, etc.).

All these functions are available from **Tables/Views Management** window. To access the **Tables/Views Management** window, press the **Tables/Views** button on the **PowerDBTools** main toolbar. This will open a list of all tables and views existing in the database. Some button columns in the **Tables/Views Management** window do not initially show values. To avoid the connection overload with the server, the information in the cell is displayed once clicking on the button of cell.

By double clicking on the table or view you can view and manage of data of the table/view. See [Data Output Window](#) chapter for more details.

5.1. Tables/Views Management Window



No.	Table	Owner	Type	Records	Columns	Indexes	Primary Keys	Foreign Keys	Triggers	Constraints
1	Categories	dbo	TABLE						0	0
2	CustomerCustomerDemo	dbo	TABLE		2					0
3	CustomerDemographics	dbo	TABLE							
4	Customers	dbo	TABLE							
5	DINATABLE	dbo	TABLE							
6	Employees	dbo	TABLE							
7	EmployeeTerritories	dbo	TABLE							
8	Order Details	dbo	TABLE							
9	Orders	dbo	TABLE		14	9	1	3		
10	Products	dbo	TABLE							4
11	Region	dbo	TABLE							
12	Shippers	dbo	TABLE							
13	Suppliers	dbo	TABLE							
14	Territories	dbo	TABLE							
15	Alphabetical list of products	dbo	VIEW							0
16	Category Sales for 1997	dbo	VIEW							0
17	Current Product List	dbo	VIEW							
18	Customer and Suppliers by City	dbo	VIEW							
19	Invoices	dbo	VIEW							
20	Order Details Extended	dbo	VIEW							
21	Order Subtotals	dbo	VIEW							
22	Orders Qty	dbo	VIEW							
23	Product Sales for 1997	dbo	VIEW							
24	Products Above Average Price	dbo	VIEW							
25	Products by Category	dbo	VIEW							
26	Quarterly Orders	dbo	VIEW							
27	Sales by Category	dbo	VIEW							
28	Sales Totals by Amount	dbo	VIEW							
29	Summary of Sales by Quarter	dbo	VIEW							
30	Summary of Sales by Year	dbo	VIEW							

Figure 23 – Tables/Views Management Window

Columns

Following columns are available in this window:



- **No** – indicates the identity number of the list.
- **Table** – indicates the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see below) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see below) is pressed.

- **Description** - indicates the description of the column. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a table description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Records** – indicates the number of records in the selected table or view. This information is initially hidden and only appears when clicking on the small button assigned to each row in this column. To retrieve all tables and views records count click on **Retrieve Records** menu item in Right Click Menu of the column.
- **Columns** – indicates the number of columns in the selected table or view. This information is initially hidden and only appears when clicking on the cell button. It will open a window which contains all columns list of the table or view. See [Table Columns Window](#) chapter. To retrieve all tables and views columns count click on **Retrieve Counts** menu item in Right Click Menu of the column.
- **Indexes** – indicates the number of indexes in the selected table. This information is initially hidden and only appears when clicking on the cell button. It will open a window which contains all indexes of the table. See [Table Indexes Window](#) chapter. To retrieve all tables indexes count click on **Retrieve Counts** menu item in Right Click Menu of the column.
- **Primary Keys** – indicates the number of Primary Keys in the selected table. This information is initially hidden and only appears when clicking on the cell button. It will open a window which contains the Primary Key of the table. See [Table Primary Keys Window](#) chapter. To retrieve all tables Primary Keys count click on **Retrieve Counts** menu item in Right Click Menu of the column.
- **Foreign Keys** – indicates the number of Foreign Keys in the selected table. This information is initially hidden and only appears when clicking on the cell button. It will open a window which contains all Foreign Keys of the table. See [Table Foreign Keys Window](#) chapter. To retrieve all tables Foreign Keys count click on **Retrieve Counts** menu item in Right Click Menu of the column.
- **Triggers** – indicates the number of triggers in the selected table. This information is initially hidden and only appears when clicking on the cell button. It will open a window which contains triggers of the table. See [Table Triggers Window](#) chapter. To retrieve all tables triggers count click on **Retrieve Counts** menu item in Right Click Menu of the column.
- **Constraints** – indicates the number of constraints in the selected table. This information is initially hidden and only appears when clicking on the cell button. It will open a window which contains all constraints of the table. See [Table Constraints Window](#) chapter. To retrieve all tables constraints count click on **Retrieve Counts** menu item in Right Click Menu of the column.

Toolbar

Following options are available in the toolbar of this window:

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Show System Objects	Shows the system tables and views of the database. System objects cannot be modified and are only present in read-only form.
	Properties	Displays selected table or view Properties where all characteristics and parameters of the selected table or view are presented. See Properties Window .

Right Click Menu

Following options are available in the right click menu of this window:



For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Show Related Tables** – this option displays all child tables related to the selected table with any relation. See [Related Tables](#).
- **Open** – opens a content of the table or View. See [Data Output Window](#) chapter.
- **Create Table** – opens a **Create Table** window where a new table may be created in the database. See [Create/Design Table Window](#).
- **Rename** – renames the selected table or view of the database. This option is not available for system tables.
- **Delete** - deletes the selected table of the database. This option is not available for system tables.
- **Design Table** - opens a Design Table window where allows you to modify the table structure. See [Create/Design Table Window](#). This option is not available for Views or system tables.
- **Retrieve Records** – retrieves the records column's values for all tables/views. This option is only available in the right click menu on the records column.
- **Retrieve Counts** – retrieves the count values in column for all tables/views. This option is only available in the right click menu on the table components columns (Columns, Indexes, Primary Keys, etc.) in the right side of **Tables** window.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Owner	When this button is pressed, the grid contains an Owner column which indicates owners of the tables. Not available for MS Access databases.
	Type	When this button is pressed, the grid contains an Owner column, which indicates whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not.

5.2. Table Columns Window




This window contains a list of columns (fields) in the selected table and the related information. Here you may create new columns to the selected table. If you wish to edit the existing columns in the table, you should open the [Create/Design Table Window](#) from the right click menu on the selected table in the grid of the Tables/Views window.

No.	Column		Type	Size	Precision	Scale	{N}				
1	OrderID	✓	int		10						
2	CustomerID		nchar	5			✓				
3	EmployeeID		int		10		✓				
4	OrderDate		datetime				✓				
5	RequiredDate		datetime				✓				
6	ShippedDate		datetime				✓				
7	ShipVia		int		10		✓				
8	Freight		money		19		✓	✓			
9	ShipName		nvarchar	40			✓				
10	ShipAddress		nvarchar	60			✓				
11	ShipCity		nvarchar	15			✓				
12	ShipRegion		nvarchar	15			✓				
13	ShipPostalCode		nvarchar	10			✓				
14	ShipCountry		nvarchar	15			✓				




Figure 24 – Table Columns Window

Columns

Following columns are available in this window:

- **No** - indicates the number of the column in the table.
- **Column** - indicates the name of the column. The column which is the Primary Key or included in the compound key gets a yellow key sign.
 - **Show Key Column** – this option displays or hides the yellow key sign next to the columns that act as Primary Key fields.
- **Identity** () - indicates whether the value in this column is automatically incremented identity or not.
- **Type** - indicates the type of the table column.
 - **Show Column Local Types** - when this option is selected the Type column displays values as defined by the database, otherwise when this option is not selected, values are displayed as defined by the provider.
- **Size** - indicates the length of the column.
- **Precision** – in case if the type is numeric, this indicates the integer part of the number.
- **Scale** - in case if the type is numeric, this indicates the fractional part of the number.
- **Nullable** () - indicates whether the Null value is allowed for this column.
- **Default** () – indicates the default value of this column. By double clicking on this column for the corresponding entry, you may apply a default value to

the column. The appeared popup window contains a field for a default value. See [Input Window](#) chapter.

- **Description** () – indicates the description of this column. By double clicking on this column for the corresponding entry, you may insert a description for the column. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Properties** () – opens column properties. See [Properties Window](#).
- **Statistics** () – this button opens the statistics over the values in the column. See details in [Column Statistics](#) chapter.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

5.3. Table Indexes Window

This window contains a list of indexes in the selected table and the related information. Here you may create new indexes in the database. If you wish to edit an existing index, you should create a new one and then remove the old one; there is no way to directly edit the index properties. See [Create Indexes Window](#) chapter.

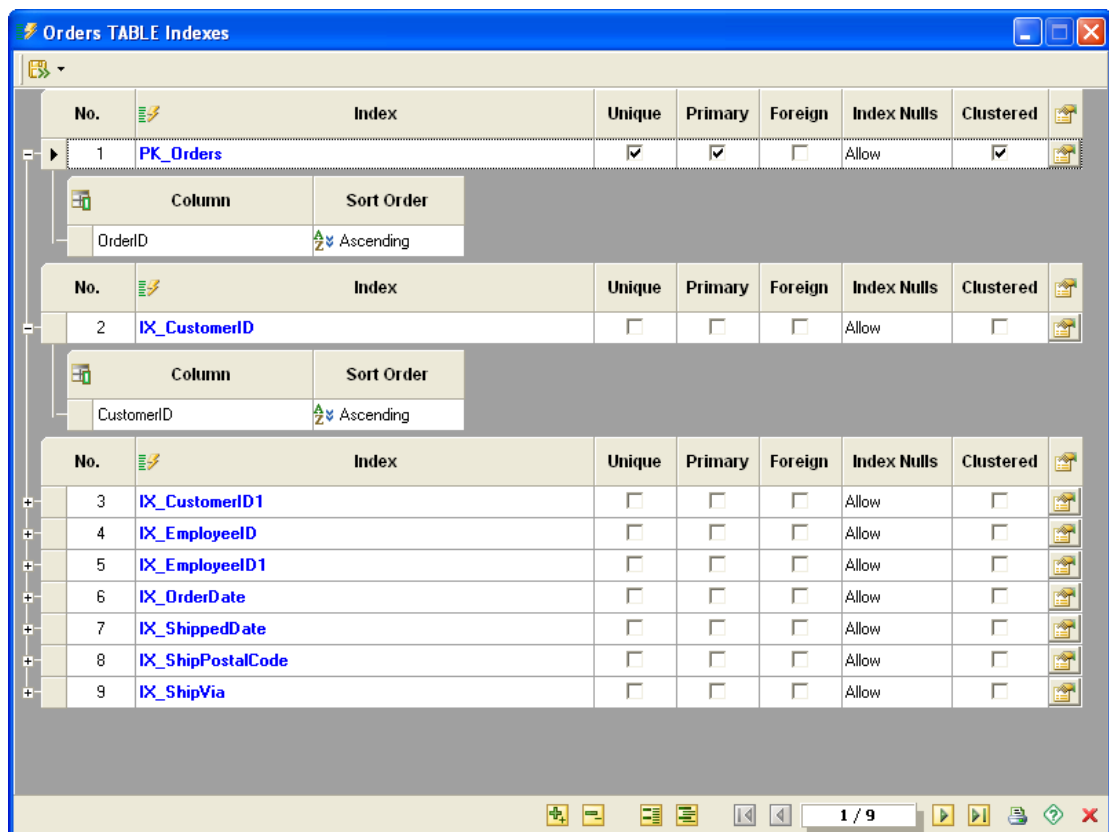


Figure 25 – Table Indexes Window

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Index** - indicates the name of the index.
- **Unique** - indicates whether this index is unique in the table.
- **Primary** – indicates whether this index acts as a Primary Key in the table or not.
- **Foreign** – indicates whether this is a foreign index or not.
- **Index Nulls** – indicates whether the null values are allowed in the indexes.
- **Clustered** – indicates whether the selected index is clustered or not.
- **Properties** – opens index properties. See [Properties Window](#).

The +/- icon in front of the row is used to expand/collapse the columns which are presented in the index (for compound indexes multiple columns may be present in the index). In the index details the following information is provided:

- **Column** - indicates columns where the selected index is applied.
- **Sort Order** – indicates whether the index values are sorted in ascending or descending order in the index.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

5.4. Table Primary Keys Window

This window contains a list of Primary Keys in the selected table and the related information. You may also create new Primary Keys here. If you wish to edit an existing Primary Key, you should remove the old one and then create a new one; there is no way to directly edit the Primary Key properties. See [Create Primary Keys Window](#) chapter.

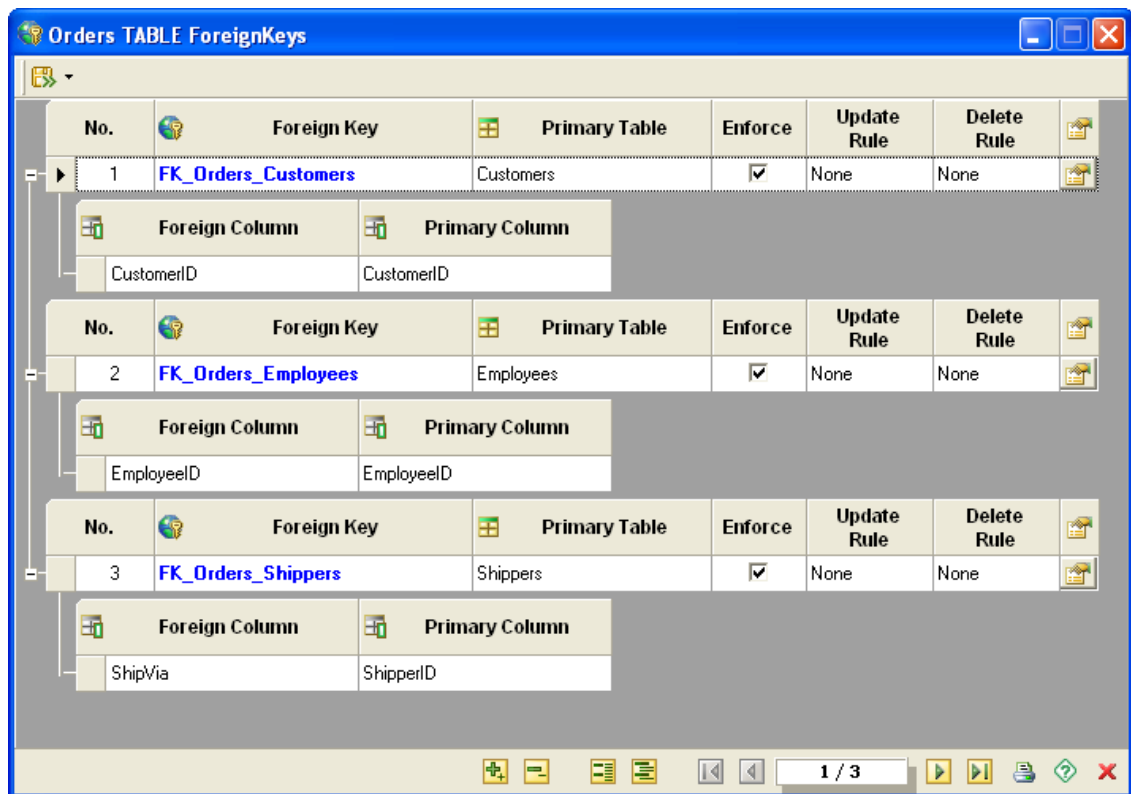


Figure 26 – Table Foreign Keys Window

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Primary Key** - indicates the name of the Primary Key.
- **Properties** – opens Primary Key properties. See [Properties Window](#).

The +/- icon in front of the row is used to expand/collapse all those columns to which the corresponding Primary Key is applied. In the Primary Key details the following information is provided:

- **Column** - indicates columns where the selected Primary Key is applied.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

5.5. Table Foreign Keys Window

This window contains a list of Foreign Keys in the selected table and the related information. You may also create new Foreign Keys here. If you wish to edit an existing Foreign Key, you should create a new one and then remove the old one; there is no way to directly edit the Foreign Key properties. See [Create Foreign Keys Window](#) chapter.

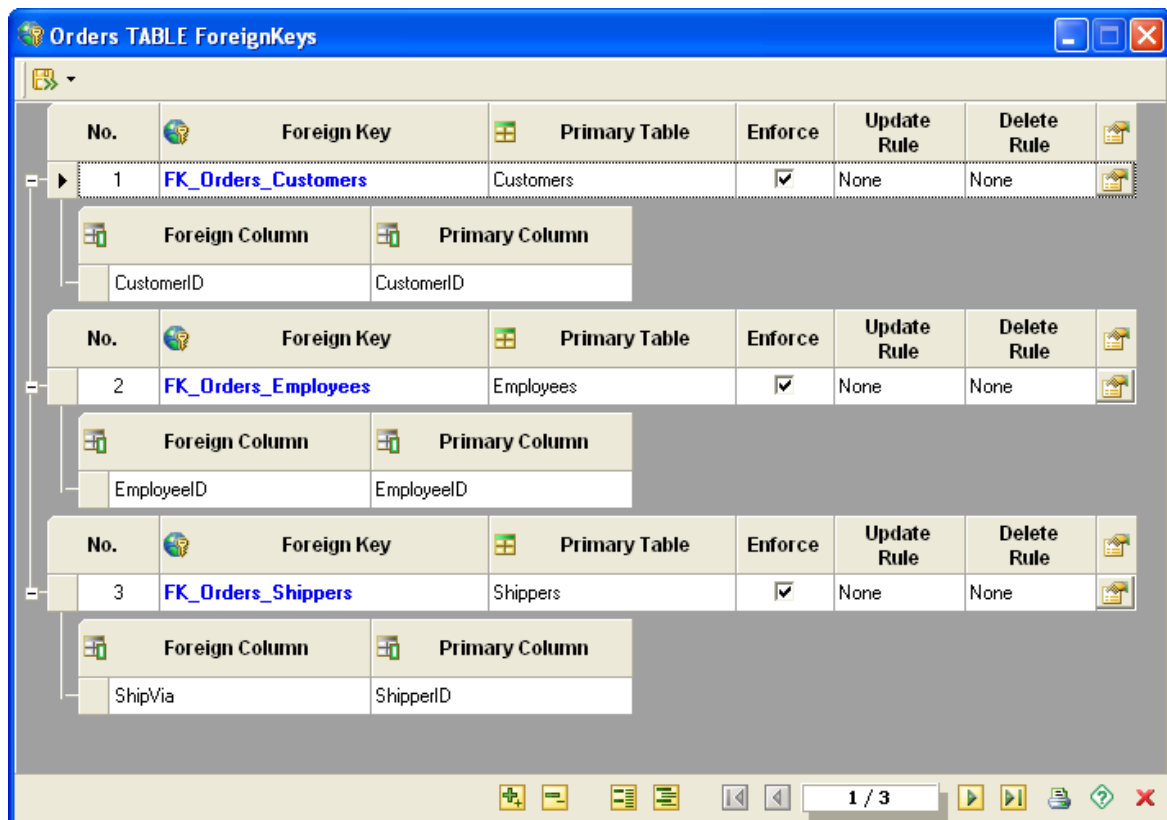


Figure 27 – Table Foreign Keys Window

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Foreign Key** - indicates the name of the Foreign Key.
- **Primary Table** – indicates the primary source table where the Foreign Key is assigned.
- **Primary Key** – indicates the primary table's Primary Key index by which the Foreign Key is assigned to.
- **Enforce** – when this option (Enforce Referential Integrity) is selected, new row which do not match the primary table cannot be inserted to the related foreign table and rows cannot be deleted from the primary table if they are referred-to in the foreign table.
- **Update Rule** – when the **Cascade** option is selected here, Foreign Key of this relationship is automatically updated whenever the primary-key value is updated. This option is only available when **Enforce** is enabled.
- **Delete Rule** – when the **Cascade** option is selected here, rows of the foreign table is automatically deleted whenever the referred-to rows of the primary table are deleted. This option is only available when **Enforce** is enabled.
- **Properties** – opens Foreign Key properties. See [Properties Window](#).

The +/- icon in front of the row is used to expand/collapse all those columns to which the corresponding Foreign Key is applied. In the Foreign Key details the following information is provided:

- **Foreign Column** - indicates columns in the selected foreign table where the selected Foreign Key is assigned.
- **Primary Column** – indicates the column in the primary table where the Foreign Key is assigned.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

5.6. Table Triggers Window

This window contains a list of triggers applied to the selected table and the related information. This tab is not present for databases that do not support triggering, for example MS Access.

You may create new triggers in this tab. If you wish to edit an existing trigger, you should create a new one and then remove the old one; there is no way to directly edit the triggers properties. See [Create Database Objects](#) chapter.

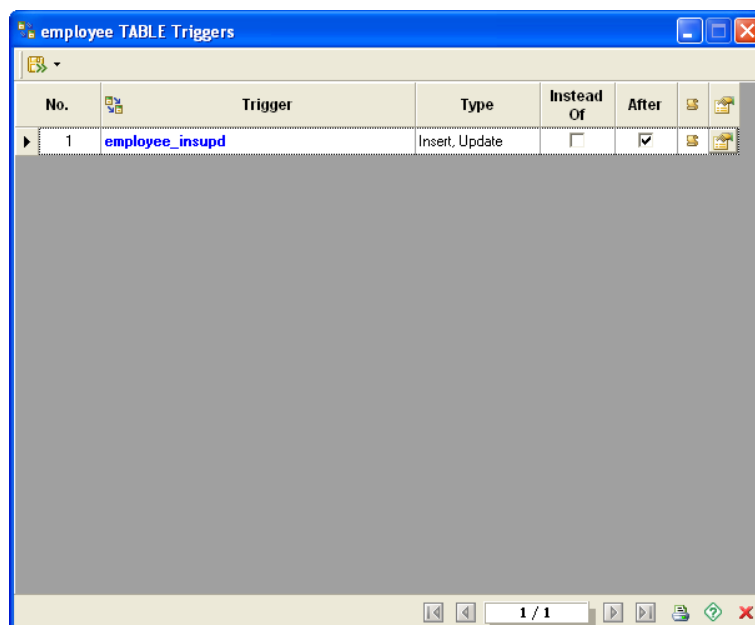


Figure 28 – Table Triggers Window

- **No** - indicates the identity number of the list.
- **Trigger** - indicates the name of the trigger.
- **Type** – indicates when the trigger should be launched (upon delete, update, or insert new).
- **Instead Of** – indicates whether the trigger action should take place instead of the deletion, update or insert new procedure.
- **After** – indicates whether the trigger action should take place after the deletion, update or insert new procedure.
- **Definition** – displays the SQL definition of the trigger. By double clicking on this column the read-only SQL definition will be opened in a popup window.
- **Properties** – opens trigger properties. See [Properties Window](#).

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

5.7. Table Constraints Window

This window contains a list of constraints applied to the selected table and the related information. You may also create new constraints here. If you wish to edit an existing constraint, you should create a new one and then remove the old one; there is no way to directly edit the constraint properties. See [Create Database Objects](#) chapter.

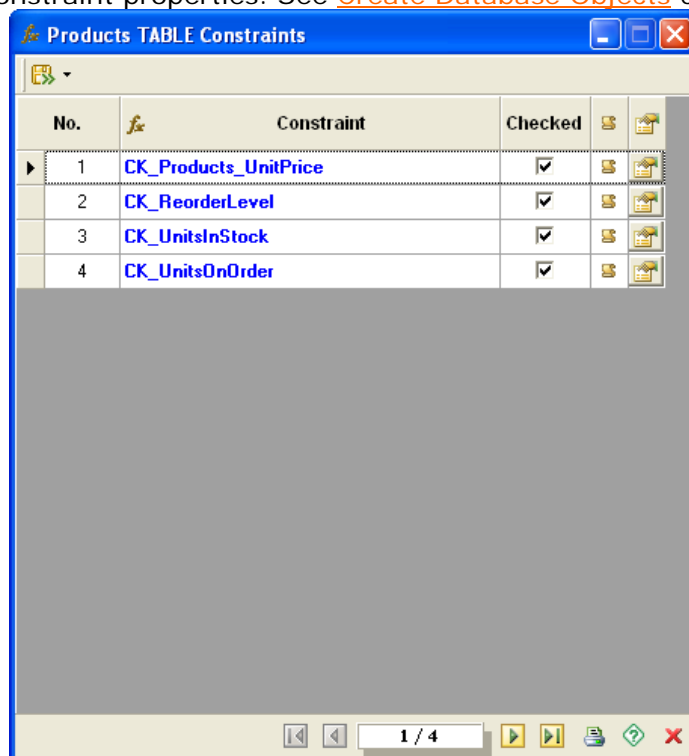


Figure 29 – Table Constraint Window

Columns

Following columns are available in this window:

- **No** - indicates the identity number of the list.
- **Constraint** - indicates the name of the constraint. For MS Access databases, if the constraint is of the CHECK type the column name that has the constraint applied is also displayed here.
- **Checked** - indicates whether the constraint is a check constraint or not. This column is not available for MS Access databases.
- **Type** - indicates the type of the constraint (CHECK, PRIMARY KEY, UNIQUE, FOREIGN KEY, etc.). This column is not available for SQL Server database.
- **Update Rule** - indicates the update rule (NO ACTION, CASCADE) for FOREIGN KEY type constraints. This column is not available for SQL Server databases.
- **Delete Rule** - indicates the delete rule (NO ACTION, CASCADE) for FOREIGN KEY type constraints. This column is not available for SQL Server databases.
- **Definition** - indicates the SQL definition of the constraint. By double clicking on this column the read-only SQL definition will be opened in a popup window.
- **Description** - indicates the description of the constraint. This column is not available for SQL Server databases.
- **Properties** - opens the constraint properties. See [Properties Window](#).

Right Click Menu

For description of standard functions in this menu, refer to refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to refer to [PowerDBTools Common Actions](#) chapter.

6. Indexes / Primary Keys / Foreign Keys Management

The PowerDBTools application allows you to manage database Indexes, Primary Keys and Foreign Keys. You may also check and update the names of indexes and keys and validate them against usage in the database, duplications or missing relations.

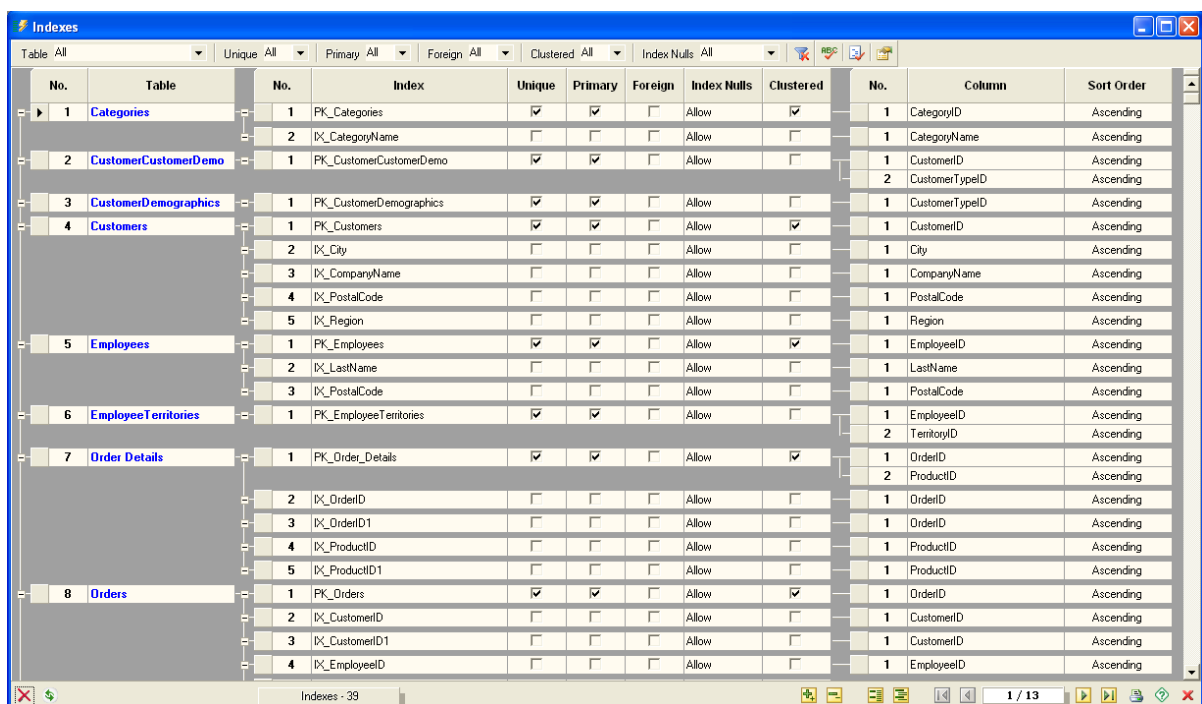
Basically, index name contains information about its type (index, Primary Key or Foreign Key) and the column and table it is applied to. Index names do not dynamically change when copying the tables, columns or indexes, or when performing other structure level changes in the database. Therefore, sometimes, index name remains old, which is no more actual for the new table or the database structure and may cause confusion. To avoid this problem, PowerDBTools application offers a possibility to rename all the listed indexes to the single standard. According to this standard the index names will have the following structure

- **Index** - IX_columnname1_columnname2..., where each columnname is the column the index applies to.
- **Primary Keys** - PK_tablename, where the tablename is the table where the Primary Key is assigned.
- **Foreign Keys** - FK_primarytablename_foreigntablename[n], where primarytablename and foreigntablename are the two tables in the relation and n is the sequence number if there are multiple indexes between the same tables.

To access the **Indexes / Primary Keys / Foreign Keys Management**, press the appropriate button in **Indexes** button submenu on the **PowerDBTools** connection toolbar.

6.1. Indexes Management Window

The **Indexes Management** window appears by choosing **Indexes** sub-option of the **Indexes** button on the **PowerDBTools** connection toolbar. This window displays all indexes of the database. Indexes are grouped by tables where they are used. Here you may filter indexes by table and by index attributes. You may also check and update indexes against their names and validate indexes.



No.	Table	No.	Index	Unique	Primary	Foreign	Index Nulls	Clustered	No.	Column	Sort Order
1	Categories	1	PK_Categories	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Allow	<input checked="" type="checkbox"/>	1	CategoryID	Ascending
		2	IX_CategoryName	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	CategoryName	Ascending
2	CustomerCustomerDemo	1	PK_CustomerCustomerDemo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	CustomerID	Ascending
									2	CustomerTypeID	Ascending
3	CustomerDemographics	1	PK_CustomerDemographics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	CustomerTypeID	Ascending
4	Customers	1	PK_Customers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Allow	<input checked="" type="checkbox"/>	1	CustomerID	Ascending
		2	IX_City	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	City	Ascending
		3	IX_CompanyName	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	CompanyName	Ascending
		4	IX_PostalCode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	PostalCode	Ascending
		5	IX_Region	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	Region	Ascending
5	Employees	1	PK_Employees	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Allow	<input checked="" type="checkbox"/>	1	EmployeeID	Ascending
		2	IX_LastName	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	LastName	Ascending
		3	IX_PostalCode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	PostalCode	Ascending
6	EmployeeTerritories	1	PK_EmployeeTerritories	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	EmployeeID	Ascending
									2	TerritoryID	Ascending
7	Order Details	1	PK_Order_Details	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Allow	<input checked="" type="checkbox"/>	1	OrderID	Ascending
									2	ProductID	Ascending
		2	IX_OrderID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	OrderID	Ascending
		3	IX_OrderID1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	OrderID	Ascending
		4	IX_ProductID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	ProductID	Ascending
		5	IX_ProductID1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	ProductID	Ascending
8	Orders	1	PK_Orders	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Allow	<input checked="" type="checkbox"/>	1	OrderID	Ascending
		2	IX_CustomerID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	CustomerID	Ascending
		3	IX_CustomerID1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	CustomerID	Ascending
		4	IX_EmployeeID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Allow	<input type="checkbox"/>	1	EmployeeID	Ascending

Figure 30 – Database Indexes Window

Columns

Following columns are available in this window:

- **No** – indicates the identity number of the list.
- **Table** – displays the name of the table.

The first +/- icon used to expand/collapse the indexes for each table. In the index details the following information is provided:








- **No** - indicates the identity number of the list for the corresponding table.
- **Index** - indicates the name of the index.
- **Unique** - indicates whether this index is unique in the table or not.
- **Primary** – indicates whether this index acts as a Primary Key in the table or not.
- **Foreign** – indicates whether this is a foreign index or not.
- **Index Nulls** – indicates whether null values are allowed in the indexes or not.
- **Clustered** – indicates whether the selected index is clustered or not.




The second +/- icon is used to expand/collapse the columns which have the corresponding index applied (for compound index multiple columns can be in the index). In the column details the following information is provided:

- **No** - indicates the identity number of the list for the corresponding table.
- **Column** - indicates columns where the selected index is applied.
- **Sort Order** – indicates whether the values are sorted in ascending or descending order within the index.

Toolbar

The toolbar in the **Indexes Management** window is divided into two parts: filtration options and all other tools.

Icon Preview	Name	Description
Filter – all options in this toolbar are used to filter the grid list:		
	Table	This list is used to filter by specific table whose indexes will be displayed in this window.
	Unique	This list is used to filter by those indexes that are unique in the table.
	Primary	This list is used to filter by those indexes that are Primary Keys.
	Foreign	This list is used to filter by those indexes that are Foreign Keys.
	Clustered	This list is used to filter by those indexes that are clustered.
	Index Nulls	This list is used to filter by Index Nulls column.
	Clear Filter	Used to clear filter conditions from the grid.

Icon Preview	Name	Description
Other Tools		
	Check Name Spelling	Used to rename all listed indexes to the single standard as described in Indexes / Primary Keys / Foreign Keys Management . This option requires confirmation to proceed. Once confirmed spell check is performed over the displayed indexes. The spell check log is then printed in the opened window. You may save, print or edit the log file. The spell checking automatically replaces the erroneous names with the corrected once. After the process, the corrected index names are colored in red. The red coloring disappears if you reopen the Indexes Management window. Attention: Renamed indexes cannot be recovered, they are saved in the source database, therefore make sure you want to proceed with the renaming before confirming the operation.
	Validate Indexes/Keys	Used to print a report listing for each index in the list indicating whether the corresponding index is used in some table (is related) or unused (unrelated).
	Properties	Opens the Properties Window of the selected grid component: table or index.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Indexes	This field displays the total number of indexes (for all tables) displayed in the window according to the filtration criteria.

6.2. Primary Keys Management Window

The **Primary Keys Management** window appears by choosing **Primary Keys** sub-option of the **Indexes** button on the **PowerDBTools** connection toolbar. This window displays all Primary Keys of the database. Primary Keys are grouped by tables where they are used. Here you may filter Primary Keys by table and by Primary Keys attributes. You may also check and update Primary Keys against their names and validate indexes.

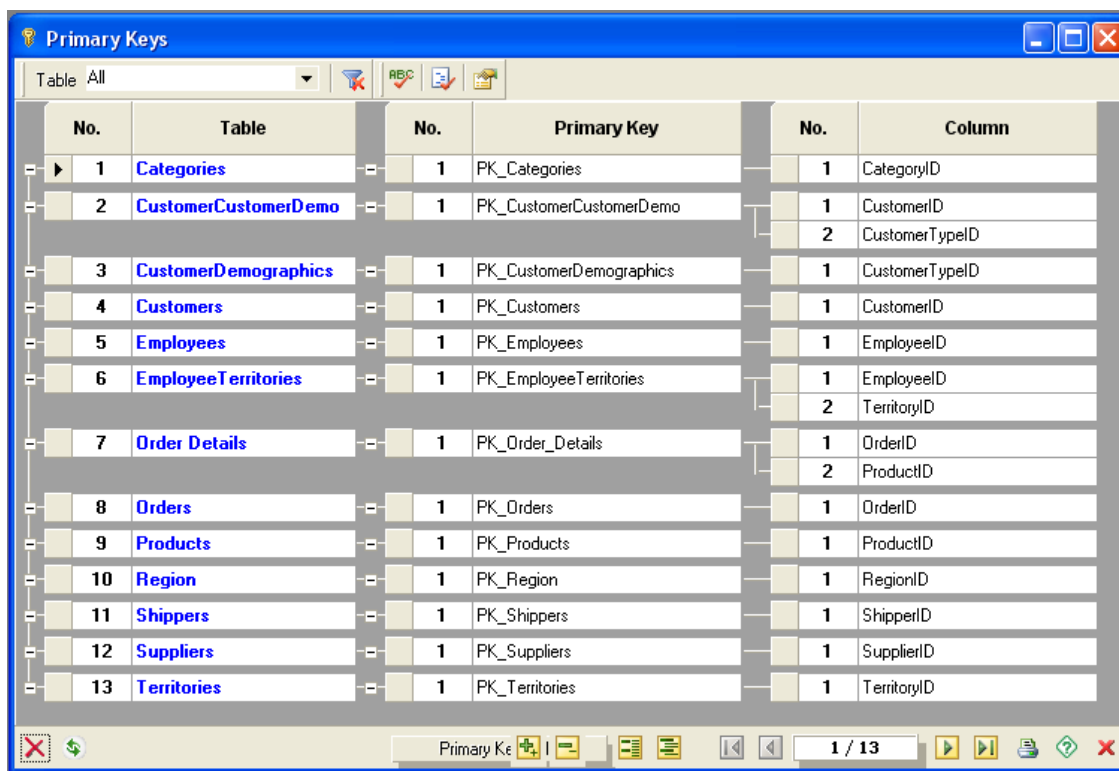


Figure 31 – Primary Keys Window

Columns

Following columns are available in this window:

- **No** – indicates the identity number of the list.
- **Table** – displays the name of the table.

The first +/- icon is used to expand/collapse the Primary Keys details. In the Primary Keys details the following information is provided:

- **No** - indicates the identity number of the list for the corresponding table.
- **Primary Key** - indicates the name of the Primary Key.




The second +/- icon is used to expand/collapse the columns which have the corresponding Primary Key is applied (for compound keys multiple columns may be present in the key). In the column details the following information is provided:

- **No** - indicates the identity number of the list for the corresponding table.
- **Column** - indicates columns where the selected Primary Key is applied.

Toolbar

The toolbar in the **Primary Keys Management** window is divided into two parts: filtration options and all other tools.

Icon Preview	Name	Description
Filter – all options in this toolbar are used to filter the grid list:		
	Table	This list is used to filter by specific table whose Primary Keys will be displayed in this window.
	Clear Filter	Used to clear filter conditions from the grid.

Icon Preview	Name	Description
Other Tools		
	Check Name Spelling	Used to rename all listed Primary Keys to the single standard as described in Indexes / Primary Keys / Foreign Keys Management . This option requires confirmation to proceed. Once confirmed spell check is performed over the displayed Primary Keys. The spell check log is then printed in the opened window. You may save, print or edit the log file. The spell checking automatically replaces the erroneous names with the corrected once. After the process, the corrected Primary Key names are colored in red. The red coloring disappears if you reopen the Primary Keys Management window. Attention: Renamed Primary Keys cannot be recovered, they are saved in the source database, therefore make sure you want to proceed with the renaming before confirming the operation.
	Validate Indexes/Keys	Used to print a report listing for each Primary Key in the list indicating whether the corresponding Primary Key is used in some table (is related) or unused (unrelated).
	Properties	Opens the Properties Window of the selected grid component: table or Primary Key.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

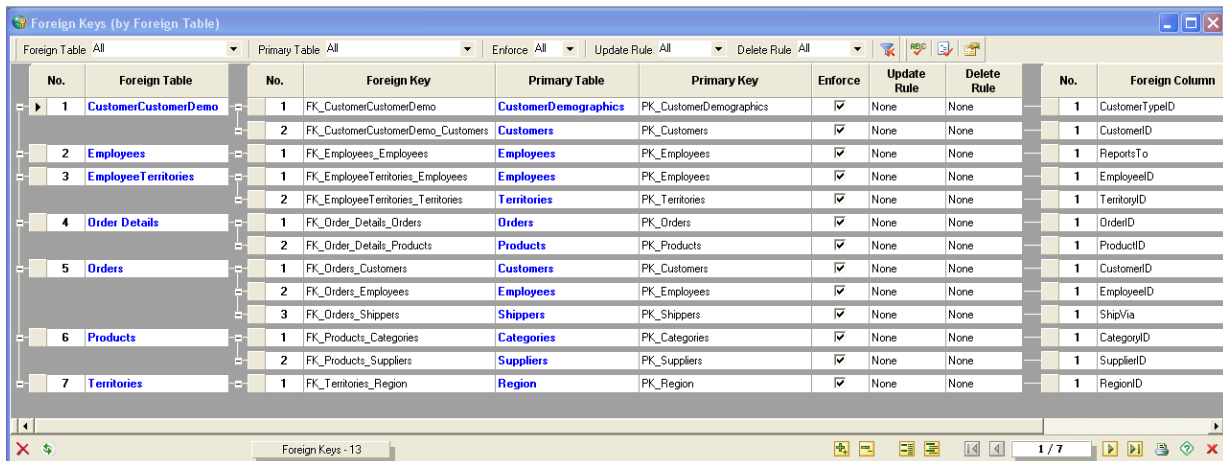
Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Primary Keys	This field displays the total number of Primary Keys (for all tables) displayed in the window according to the filtration criteria.

6.3. Foreign Keys (by Foreign/Primary Table) Management Window

The **Foreign Keys (by Foreign/Primary Table) Management** window appears by choosing **Foreign Keys (by Foreign Table)** or **Foreign Keys (by Primary Table)** sub-option of the **Indexes** button on the **PowerDBTools** connection toolbar. This window displays all Foreign Keys of the database sorted either by foreign or by primary table. Foreign Keys are grouped by tables where they are used. Here you may filter Foreign Keys by table and by Foreign Keys attributes. You may also check and update Foreign Keys against their names and validate indexes.



No.	Foreign Table	No.	Foreign Key	Primary Table	Primary Key	Enforce	Update Rule	Delete Rule	No.	Foreign Column
1	CustomerCustomerDemo	1	FK_CustomerCustomerDemo	CustomerDemographics	PK_CustomerDemographics	<input checked="" type="checkbox"/>	None	None	1	CustomerTypeID
		2	FK_CustomerCustomerDemo_Customers	Customers	PK_Customers	<input checked="" type="checkbox"/>	None	None	1	CustomerID
2	Employees	1	FK_Employees_Employees	Employees	PK_Employees	<input checked="" type="checkbox"/>	None	None	1	ReportsTo
3	EmployeeTerritories	1	FK_EmployeeTerritories_Employees	Employees	PK_Employees	<input checked="" type="checkbox"/>	None	None	1	EmployeeID
		2	FK_EmployeeTerritories_Territories	Territories	PK_Territories	<input checked="" type="checkbox"/>	None	None	1	TerritoryID
4	Order Details	1	FK_Order_Details_Orders	Orders	PK_Orders	<input checked="" type="checkbox"/>	None	None	1	OrderID
		2	FK_Order_Details_Products	Products	PK_Products	<input checked="" type="checkbox"/>	None	None	1	ProductID
5	Orders	1	FK_Orders_Customers	Customers	PK_Customers	<input checked="" type="checkbox"/>	None	None	1	CustomerID
		2	FK_Orders_Employees	Employees	PK_Employees	<input checked="" type="checkbox"/>	None	None	1	EmployeeID
		3	FK_Orders_Shippers	Shippers	PK_Shippers	<input checked="" type="checkbox"/>	None	None	1	ShipVia
6	Products	1	FK_Products_Categories	Categories	PK_Categories	<input checked="" type="checkbox"/>	None	None	1	CategoryID
		2	FK_Products_Suppliers	Suppliers	PK_Suppliers	<input checked="" type="checkbox"/>	None	None	1	SupplierID
7	Territories	1	FK_Territories_Region	Region	PK_Region	<input checked="" type="checkbox"/>	None	None	1	RegionID

Figure 32 – Foreign Keys Window

Columns

Following columns are available in this window:

- **No** – indicates the identity number of the list.
- **Foreign Table/Primary Table** – displays the name of the foreign or primary table depending on the window displayed.

The first +/- icon is used to expand/collapse the Foreign Keys details. In the index details the following information is provided:





- **No** - indicates the identity number of the list for the corresponding table.
- **Foreign Key** - indicates the name of the Foreign Key.
- **Primary Table/Foreign Table** – indicates the primary or foreign table the Foreign Key is assigned to.
- **Primary Key** - indicates the Primary Key of the primary table.
- **Enforce** – when this option (Enforce Referential Integrity) is selected, new row which do not match the primary table cannot be inserted to the related foreign table and rows cannot be deleted from the primary table if they are referred-to in the foreign table.
- **Update Rule** – when the **Cascade** option is selected here, Foreign Key of this relationship is automatically updated whenever the primary-key value is updated. This option is only available when **Enforce** is enabled.
- **Delete Rule** – when the **Cascade** option is selected here, rows of the foreign table is automatically deleted whenever the referred-to rows of the primary table are deleted. This option is only available when **Enforce** is enabled.

The second +/- icon is used to expand/collapse the column pairs which have the corresponding Foreign Key is applied. In the column details the following information is provided:

- **No** - indicates the identity number of the list for the corresponding table.
- **Foreign Column** - indicates columns in the foreign table where the selected Foreign Key is applied.
- **Primary Column** - indicates columns in the primary table where the selected Foreign Key is applied.

Toolbar

The toolbar in the **Foreign Keys Management** window is divided into two parts: filtration options and all other tools.

Icon Preview	Name	Description
Filter – all options in this toolbar are used to filter the grid list:		
	Table	This list is used to filter by specific table whose Foreign Keys will be displayed in this window.
	Clear Filter	Used to clear filter conditions from the grid.
Other Tools		
	Check Name Spelling	Used to rename all listed Foreign Keys to the single standard as described in Indexes / Primary Keys / Foreign Keys Management . This option requires confirmation to proceed. Once confirmed spell check is performed over the displayed Foreign Keys. The spell check log is then printed in the opened window. You may save, print or edit the log file. The spell checking automatically replaces the erroneous names with the corrected once. After the process, the corrected Foreign Key names are colored in red. The red coloring disappears if you reopen the Foreign Keys Management window. Attention: Renamed Foreign Keys cannot be recovered, they are saved in the source database, therefore make sure you want to proceed with the renaming before confirming the operation.
	Validate Indexes/Keys	Used to print a report listing for each Foreign Key in the list indicating whether the corresponding Foreign Key is used in some table (is related) or unused (unrelated).
	Properties	Opens the Properties Window of the selected grid component: table or Foreign Key.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Primary/Foreign Keys	This field displays the total number of Primary Keys (for all tables) displayed in the window according to the filtration criteria.

7. Database Relations

The PowerDBTools application allows you to manage the database relations in the visual, to edit and save the preview of the visual relations representation.

To open **Database Relations**, press the **Relations** button on the **PowerDBTools** connection toolbar. This window is used to display the relations between different tables in the database. You may create and save new relations between tables from this window.

If you have added two different table objects to the **Relations** pane and those two tables already have some relations, the relations will be automatically displayed in the solid black line. The solid black line points to the columns in both tables that build a relation.

7.1. Database Relations Window

The **Database Relation** window contains visual preview of the database relations. In the relations pane, table objects and the relation lines between them are displayed. By clicking on the relation lines, you may modify relation [Properties Window](#) between the two tables. You may also directly see the related tables from the selected table objects.

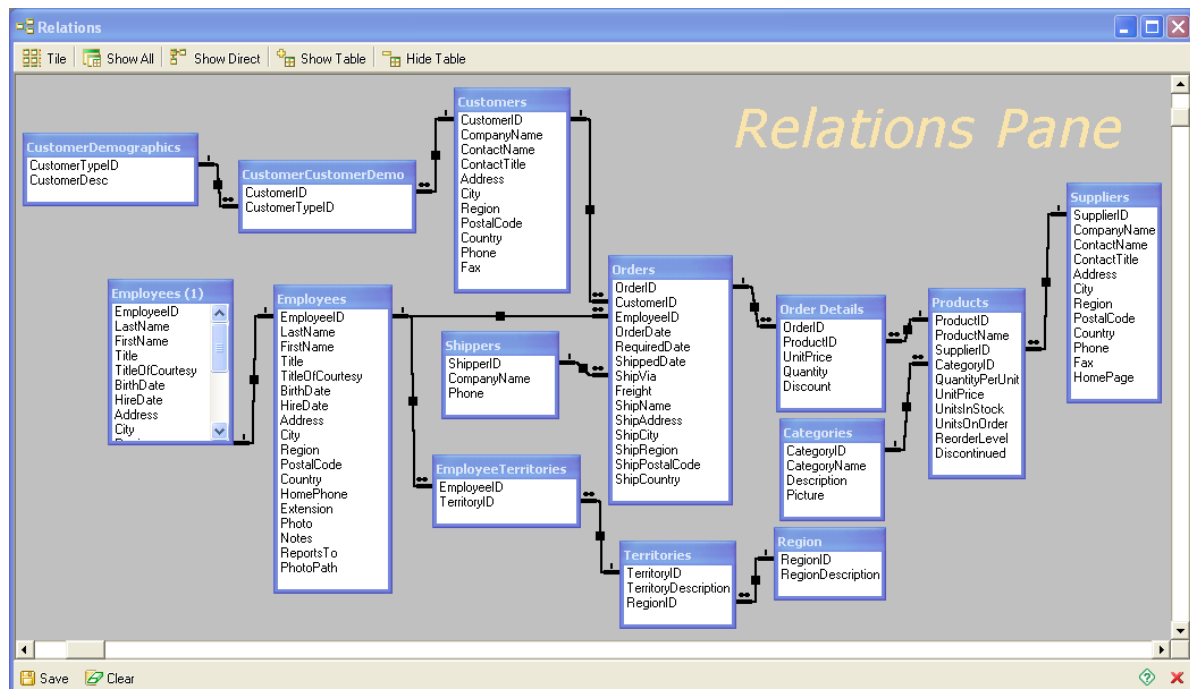







Figure 33 – Database Relations Window

Toolbar

Following options are available in the toolbar of this window:

Icon Preview	Name	Description
 Tile	Tile	Sorts the imported table objects.
 Show All	Show All	Displays all tables and relations between tables in the Relations Pane.
 Show Direct	Show Direct	Displays directly related tables of the selected table object.
 Show Table	Show Table	Displays a list of available tables in the database. Double click on the table or click on Add button in this window is used to add the selected table object to the Relations pane.
 Hide Table	Hide Table	Hides the selected table from the Relation pane.

Right Click Menu

All functions except those below are available in the right click menu both on **Relations Pane** and on **Table Object** are also present in the toolbar (see above for details).

On table Object

- **Resize Table** – resizes the table object to fit to the columns information in it.



On Relation Line

- **Edit Relationship** – opens relation properties to edit the relation. See [Relation Properties Window](#).
- **Delete** – deletes the existing relation.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
 Save	Save	Saves the relations layout created in the Relations Pane .
 Clear	Clear	Clears all the tables with the corresponding relations from Relations Pane .

7.2. Create New Relation

To create a new relationship, you should add at least two tables to the **Relations** pane. To do that use **Add Table** button in the top toolbar.

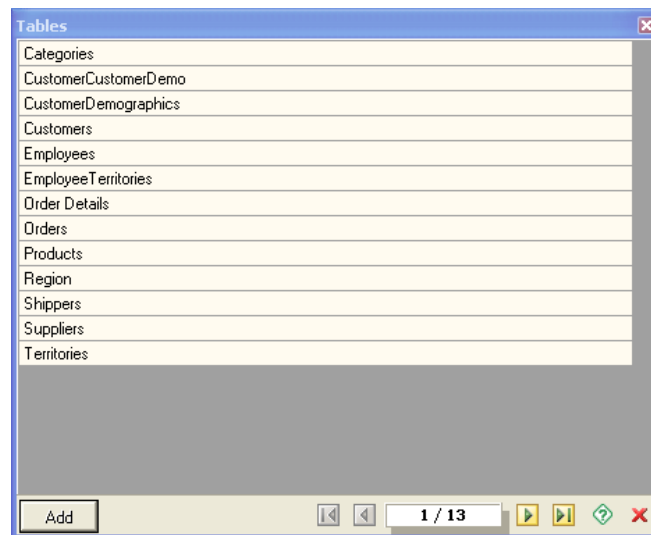


Figure 34 – Add Tables Window

When the tables are displayed, select the column in the first table and drag and drop it to the column on the second table. The two selected columns will be linked in a relationship. A **Relation Properties** window appears where a new relation should be configured. For details, see chapter [Relation Properties Window](#).

7.3. Relation Properties Window

This window allows you to create new relation and edit existing relation properties. Following information is displayed in this window:

- **Primary Table** – the table which is the primary Table in selected Relation. This information cannot be modified from this window. If you wish to create a relation over a different table, add it first to the Relations pane and link accordingly (for details see [Create New Relation](#))
- **Foreign Table** – the table which is the foreign Table in selected Relation. This information cannot be modified from this window.
- **Primary Columns** – displays columns in the primary table over which the relation is build.
- **Foreign Column** – displays columns in the foreign table over which the relation is build.

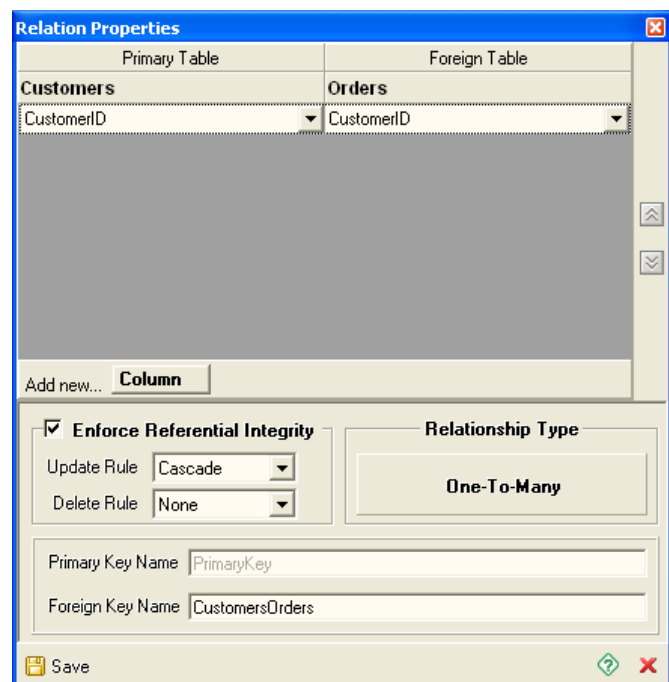


Figure 35 – Relations Properties Window

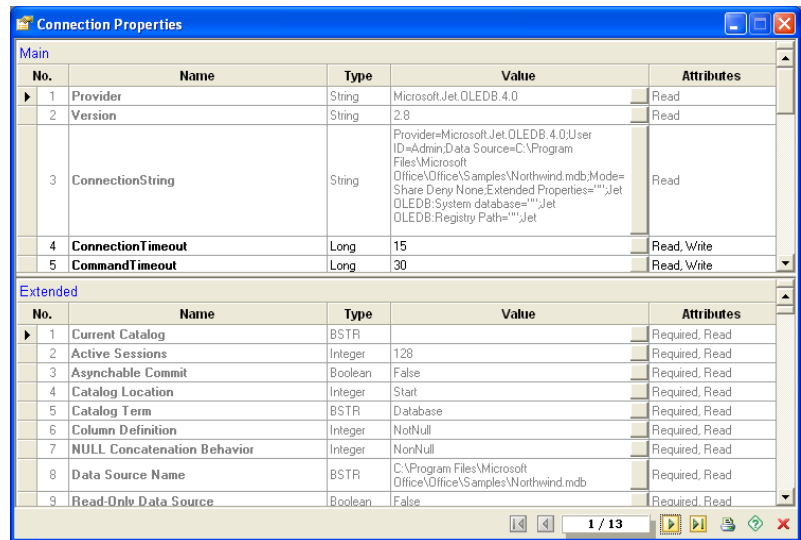
- **Add New Column** – button is used to add a new columns in the relation.
- **Enforce Referential Integrity** – when this option is selected, new row which do not match the primary table cannot be inserted to the related foreign table and rows cannot be deleted from the primary table if they are referred-to in the foreign table.
- **Update Rule** – drop down list is used to select the action taken when the Foreign Key of this relationship is updated. With the **Cascade** selection, the Foreign Key of this relationship is automatically updated whenever the primary-key value is

updated. This option is only available when **Enforce Referential Integrity** is enabled.

- **Delete Rules** – drop down list is used to select the action taken when the rows in the primary table are deleted. With the **Cascade** selection, rows of the foreign table are automatically deleted whenever the referred-to rows of the primary table are deleted. This option is only available when **Enforce Referential Integrity** is enabled.
- **Relationship Type** – indicates the type of the relationship. May have values One-To-One, One-to-Many, Indeterminate (Many-To-Many).
- **Primary Key Name** – indicates the Primary Key name of the primary table participating to the relationship.
- **Foreign Key Name** – indicates the Foreign Key name of the foreign table participating to the relationship.

8. Connection Properties

The PowerDBTools application allows you to see the current connection properties. To open the Connection Properties window, press the **Connection Properties** button on the **PowerDBTools** connection toolbar. For details see [Properties Window](#).



The screenshot shows the 'Connection Properties' window with two tabs: 'Main' and 'Extended'. The 'Main' tab is active and displays a table of connection properties. The 'Extended' tab is also visible and contains a similar table of properties.

No.	Name	Type	Value	Attributes
1	Provider	String	Microsoft.Jet.OLEDB.4.0	Read
2	Version	String	2.8	Read
3	ConnectionString	String	Provider=Microsoft.Jet.OLEDB.4.0;User ID=Admin;Data Source=C:\Program Files\Microsoft Office\Office\Samples\Northwind.mdb;Mode=Share Deny None;Extended Properties='';Jet OLEDB:System database='';Jet OLEDB:Registry Path='';Jet	Read
4	ConnectionTimeout	Long	15	Read, Write
5	CommandTimeout	Long	30	Read, Write

No.	Name	Type	Value	Attributes
1	Current Catalog	BSTR		Required, Read
2	Active Sessions	Integer	128	Required, Read
3	Asynchable Commit	Boolean	False	Required, Read
4	Catalog Location	Integer	Start	Required, Read
5	Catalog Term	BSTR	Database	Required, Read
6	Column Definition	Integer	NotNull	Required, Read
7	NULL Concatenation Behavior	Integer	NotNull	Required, Read
8	Data Source Name	BSTR	C:\Program Files\Microsoft Office\Office\Samples\Northwind.mdb	Required, Read
9	Read-Only Data Source	Boolean	False	Required, Read

Figure 36 – Properties Window

9. Database Schema

The PowerDBTools application allows you to get the schemas of the database provided by the database provider. Every database provider provides its own list of attributes.

To open the database schema, press the **Schema** button on the **PowerDBTools** connection toolbar.

9.1. Database Schema Window

The **Schema** window consists of two grids: all **Schemas** in the left pane and the corresponding **Schema Content** in the right pane.

No.	SCHEMAS	TABLE_CATALOG	TABLE_SCHEMA	TABLE_NAME	INDEX_CATALOG	INDEX_SCHEMA	INDEX_NAME	PRIMARY_KEY	UNIQUE	CLUSTERED
1	Assets	Northwind	dbo	Categories	Northwind	dbo	PK_Categories	✓	✓	✓
2	Catalogs	Northwind	dbo	CustomerCustomerD...	Northwind	dbo	PK_CustomerCustom...	✓	✓	✓
3	CharacterSets	Northwind	dbo	CustomerCustomerD...	Northwind	dbo	PK_CustomerCustom...	✓	✓	✓
4	CheckConstraints	Northwind	dbo	CustomerDemograph...	Northwind	dbo	PK_CustomerDemog...	✓	✓	✓
5	Collations	Northwind	dbo	Customers	Northwind	dbo	PK_Customers	✓	✓	✓
6	ColumnsDomainUsage	Northwind	dbo	Employees	Northwind	dbo	PK_Employees	✓	✓	✓
7	ColumnPrivileges	Northwind	dbo	EmployeeTerritories	Northwind	dbo	PK_EmployeeTerritor...	✓	✓	✓
8	Columns	Northwind	dbo	EmployeeTerritories	Northwind	dbo	PK_EmployeeTerritor...	✓	✓	✓
9	ConstraintColumnUsage	Northwind	dbo	Order Details	Northwind	dbo	PK_Order_Details	✓	✓	✓
10	ConstraintTableUsage	Northwind	dbo	Order Details	Northwind	dbo	PK_Order_Details	✓	✓	✓
11	Cubes	Northwind	dbo	Orders	Northwind	dbo	PK_Orders	✓	✓	✓
12	DBInfoKeywords	Northwind	dbo	Products	Northwind	dbo	PK_Products	✓	✓	✓
13	DBInfoLiterals	Northwind	dbo	Region	Northwind	dbo	PK_Region	✓	✓	✓
14	Dimensions	Northwind	dbo	Shippers	Northwind	dbo	PK_Shippers	✓	✓	✓
15	ForeignKeys	Northwind	dbo	Suppliers	Northwind	dbo	PK_Suppliers	✓	✓	✓
16	Hierarchies	Northwind	dbo	Territories	Northwind	dbo	PK_Territories	✓	✓	✓
17	Indexes	Northwind	dbo	Products	Northwind	dbo	IX_CategoryID	✓	✓	✓
18	KeyColumnUsage	Northwind	dbo	Products	Northwind	dbo	IX_CategoryID1	✓	✓	✓
19	Levels	Northwind	dbo	Categories	Northwind	dbo	IX_CategoryName	✓	✓	✓
20	Measures	Northwind	dbo	Customers	Northwind	dbo	IX_City	✓	✓	✓
21	Members	Northwind	dbo	Customers	Northwind	dbo	IX_CompanyName	✓	✓	✓
22	PrimaryKeys	Northwind	dbo	Suppliers	Northwind	dbo	IX_CompanyName	✓	✓	✓
23	ProcedureColumns	Northwind	dbo	Orders	Northwind	dbo	IX_CustomerID	✓	✓	✓
24	ProcedureParameters	Northwind	dbo	Orders	Northwind	dbo	IX_CustomerID1	✓	✓	✓
25	Procedures	Northwind	dbo	Orders	Northwind	dbo	IX_EmployeeID	✓	✓	✓
26	Properties	Northwind	dbo	Orders	Northwind	dbo	IX_EmployeeID1	✓	✓	✓
27	ProviderSpecific	Northwind	dbo	Employees	Northwind	dbo	IX_LastName	✓	✓	✓
28	ProviderTypes	Northwind	dbo	Orders	Northwind	dbo	IX_OrderDate	✓	✓	✓
29	ReferentialConstraints	Northwind	dbo	Order Details	Northwind	dbo	IX_OrderID	✓	✓	✓
30	Schemas	Northwind	dbo	Order Details	Northwind	dbo	IX_OrderID1	✓	✓	✓
31	SQLLanguages	Northwind	dbo	Employees	Northwind	dbo	IX_PostalCode	✓	✓	✓
32	Statistics	Northwind	dbo	Suppliers	Northwind	dbo	IX_PostalCode	✓	✓	✓
33	TableConstraints	Northwind	dbo	Customers	Northwind	dbo	IX_PostalCode	✓	✓	✓
34	TablePrivileges	Northwind	dbo	Order Details	Northwind	dbo	IX_ProductID	✓	✓	✓
35	Tables	Northwind	dbo	Order Details	Northwind	dbo	IX_ProductID1	✓	✓	✓
36	Translations	Northwind	dbo	Products	Northwind	dbo	IX_ProductName	✓	✓	✓
37	UsagePrivileges	Northwind	dbo	Customers	Northwind	dbo	IX_Region	✓	✓	✓
38	ViewColumnUsage	Northwind	dbo	Orders	Northwind	dbo	IX_ShippedDate	✓	✓	✓
39	ViewTableUsage	Northwind	dbo	Orders	Northwind	dbo	IX_ShipPostalCode	✓	✓	✓
40	Views									

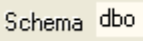
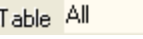


Figure 37 – Database Schema Window

Basically, the list of schemas in the **Schemas** grid is the same for all type of databases. The content of the **Schema Content** grid is dependent on the attribute selected and is out of scope of this document.

Toolbar

The toolbar is divided into two parts: filtration options and all other tools.

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
Filter – contains options to filter among data displayed in this window:		
	Schema List and Schema Refresh button	This list is used to filter Schemas by database owner. This option is not available for MS Access databases. The Refresh Schema button is used to refresh the Schema list on the toolbar of the Schemas window. This option is not available for MS Access databases.
	Table List and Table Refresh button	Lists all tables and views in the database. This list is used to filter Schemas Content by table or view. Refresh Table button is used to refresh the Table list on the toolbar of the Schemas window.
	Properties	Displays the properties for selected field. For details see chapter Properties Window .
	Clear Filter	Used to clear filter conditions from the grid.
Other Tools		
	Provider Specific SchemaID	Displays provider specific schema content according to the selected value. Applicable to MS Access databases only.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Status Bar	This read-only field displays the action description when performing operations over the selected item in the Schema window.

10. Lookups

Lookups are applicable to the table sources. This allows you to obtain the original information from the related primary table instead of having a foreign column values in the table. Lookup may be set on a certain column of the table. With Lookups, you can see more informative primary table values instead of just foreign column values.

You may predefine lookups from the **Lookups** window accessible from the connection toolbar and then use them in the tables, or you may locally create a lookup on the table, by accessing this option from the right click menu on the table preview. See, [Data Output Window](#) chapter.

10.1. Lookups Window

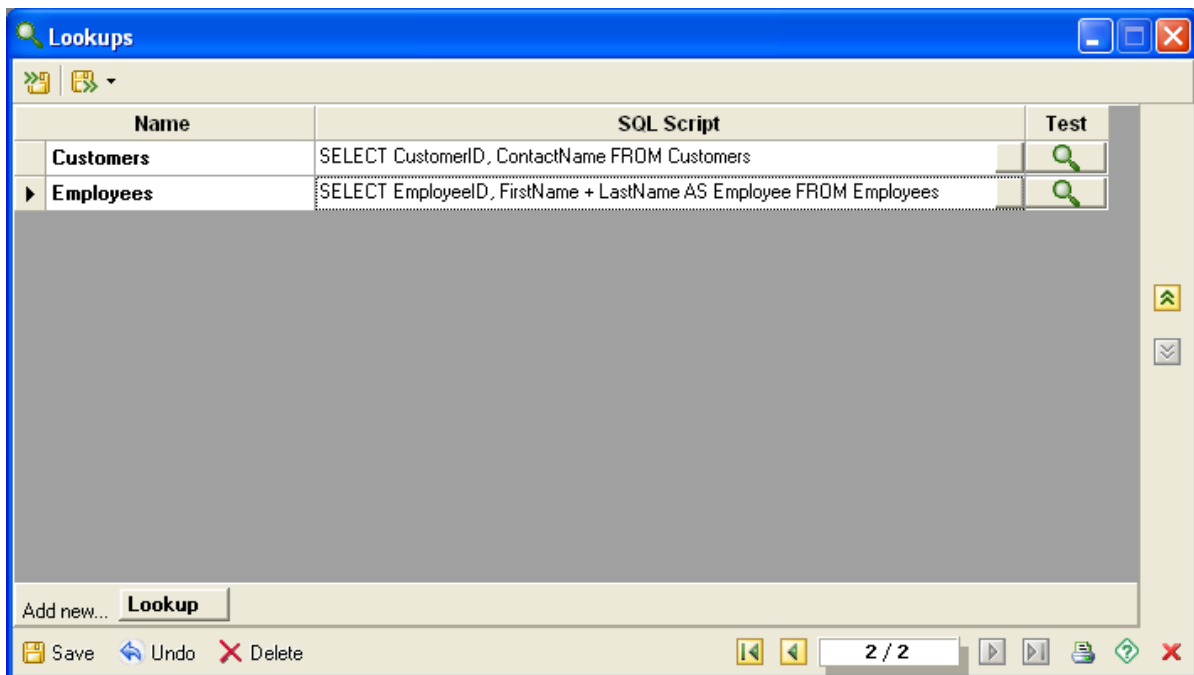


Figure 38 – Lookups Window

Columns

Following columns are available in this window:

- **Name** – lookup name defined by the user.
- **SQL Script** – displays the SQL Script which retrieves values for lookup. Usually lookup output data has 2 fields: the first one for data key and the second one for display text. By clicking on the small button in the cell, a window which is used to define lookup's SQL script appears. See [Add/Edit Lookup](#).
- **Test** – this button is use for testing output data. It opens a window with lookup output data listed.

Toolbar

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

10.2. Add/Edit Lookup

By pressing **Add Lookup** button a new blank line is added to the **Lookups** table. Here you may define Lookup Name and the SQL Script.

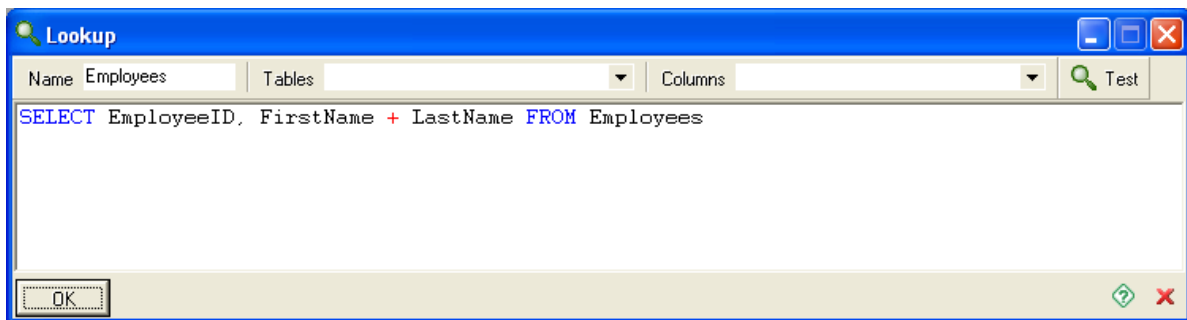


Figure 39 – Add/Edit Lookup Window

In the **SQL Script** field, you may directly insert the lookup script or you may press a small button in that field to open a SQL script editor.

Lookup SQL Script editor provides an easy way to create a lookup. It contains the following components:

- **Name** – this field requires the name for a newly created lookup.
- **Table** – this drop down list contains all tables in the database and allows you to select the table to add table name into the script.
- **Columns** – according to the selected table, this drop down list contains all columns in the selected table. This list allows you to add a column name to the script.

In the lookup script edit field you can edit script manually. When the lookup script is created, you may press a **Test** button to see whether the script is correct or not. If the script is correct, the lookup data window will be displayed. This button is also available in the main **Lookups** window.

Lookup output is displayed in a window where all values of the defined lookup column are displayed.

11. Query Management

The PowerDBTools application is used to create queries which may be saved in the application and reopened or run later. You may save the frequently used queries in this application for fast and easy future access.

The **Query Management** is very helpful for testing the queries. It allows you to mark the keywords in different colors that is a helpful option when reading large queries. To make the query writing easy in the **Query Editor**, different type of query templates (hierarchic and special) are defined in this application

Two ways of defining queries are available in this application: graphically in the Query Designer or by defining the query script in the Query Editor.

To make the queries management flexible for different types of databases, this application contains some frequently used SQL functions which allow easily retrieve the requested query for different databases. For example, CONCAT(x1, x2,.. delimiter) function allows to concatenate by delimiter different fields. This function is translated in different ways for different databases. Another example is SYSDATE() function, which returns the system data. This is a quite frequently used function and it also used in different way for different databases.

To access the **Query Management**, press the **Query** button in the PowerDBTools application main toolbar.

11.1. Query Management Window

This window consists of two parts: the queries list and the queries editor.

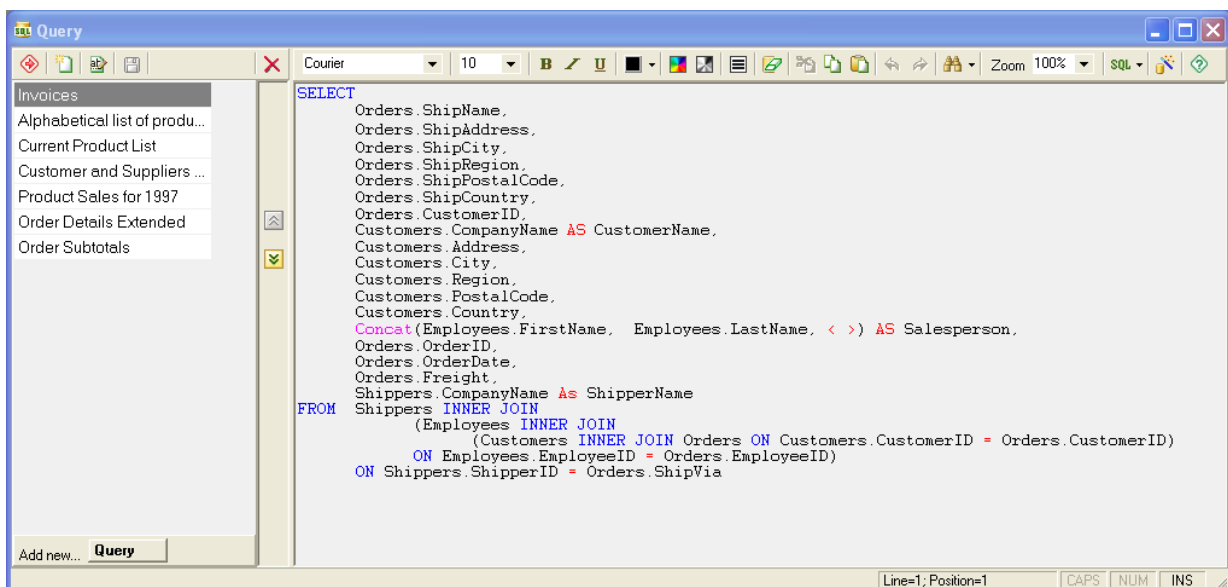









Figure 40 – Query Management Window

Queries Pane

In this pane the defined queries are listed.

Toolbar

Following options are available in the toolbar of this window:













Icon Preview	Name	Description
	Execute Query (F5)	Runs the query and displays an output (if any).
	Add New Query	Creates a new query with the sample name. A new query may also be created from the same named button in the bottom of the pane.
	Edit Query Name (F2)	Edits the sample name of the newly created query or is used to rename the query.
	Save Query	Saves the changes done to the selected query.
	Delete Query (Del)	Deletes the selected query.
 	Move Up Move Down	Used to sort the query in the list. Queries you use more can be moved to the top of the list.




Query Editor Pane

In this pane you can edit query content.

Toolbar

All options in this toolbar are only available when at least one query is already created.

Icon Preview	Name	Description
	Font Name Font Size, Bold (B), Italic (I) Underline (U)	Used to define font settings for the SQL script to be inserted in the query body.
	Font Color	Used to select the color of the text of the SQL script.
	Design Reserved Keywords	Used to color the reserved keywords in the SQL script.
	Clear Design	Clears and coloring of the reserved keywords in the SQL script.
	Select All (Ctrl+A)	Selects the whole code in the SQL pane.
	Erase Text	Deletes the selected text.
	Cut (Ctrl+X)	Cuts the selected text.
	Copy (Ctrl+C)	Copies the selected text to the clipboard.
	Paste (Ctrl+V)	Pastes the copied text from the clipboard.
	Undo (Ctrl+Z)	Cancels the previous action done.
	Redo	Repeats the previous canceled action.
	Find First (CTRL+F)	Opens a standard Find dialog box with the well known search criterions. The first text matching the defined criteria will be highlighted. A small arrow beside the Find First button offers option to Find Next (F3) and Find Previous (ALT+F3).

Icon Preview	Name	Description
	Zoom	Used to zoom in/out the Query code to view it closer or farther.
	SQL	<p>This menu offers a group of SQL script related options.</p> <ul style="list-style-type: none"> • Keyword – this menu contains the most popular SQL keywords and is used to insert the selected keyword to the query code. • Function – this menu contains the special functions supported by PowerDBTools application. It is easy to work with different database types. For more details on the syntax of these functions, refer to Appendix 1. • Shape – this menu is used to select the query structure. It contains a number of hierarchy templates. Choosing one of these templates will automatically insert the required keywords for the selected hierarchy to the SQL script so you will only need to add the details. • Special – contains SQL special templates to insert. <ul style="list-style-type: none"> ○ TRANSFORM...PIVOT inserts data crosstab representation template. • Save SQL Script – saves the created SQL script in the rich text (*.rtf) or text (*.txt) formats. • Load SQL Script – loads the saved SQL script file (from rich text (*.rtf) or text (*.txt) formats).
	Query Designer	Opens a skillful designer window, where queries may be created visually and query attributed may be defined. For details, see chapter Query Designer . If you have an SQL script in the SQL Editor, with this option you will see the parsed objects of the script.

Right Click Menu

Right click menu are only available on the SQL script pane of the Query Manager. Following functions are available in the right click menu of this window:

- **Undo (Ctrl+Z)** – cancels the previous action done.
- **Redo** – repeats the previous canceled action.
- **Cut (Ctrl+X)** – cuts the selected text.
- **Copy (Ctrl+C)** – copies the selected text to the clipboard.
- **Paste (Ctrl+V)** – pasts the copied text from the clipboard.
- **Delete (Del)** – deletes the selected text.

11.2. Query Designer Window

This window is used to define the query in the user friendly visual way. Here, instead of writing an SQL script for the query, you may manually add tables, define relations, output columns, function expressions fields, conditions, etc. of query execution. This will automatically generate an appropriate SQL script which may further be saved or used elsewhere.

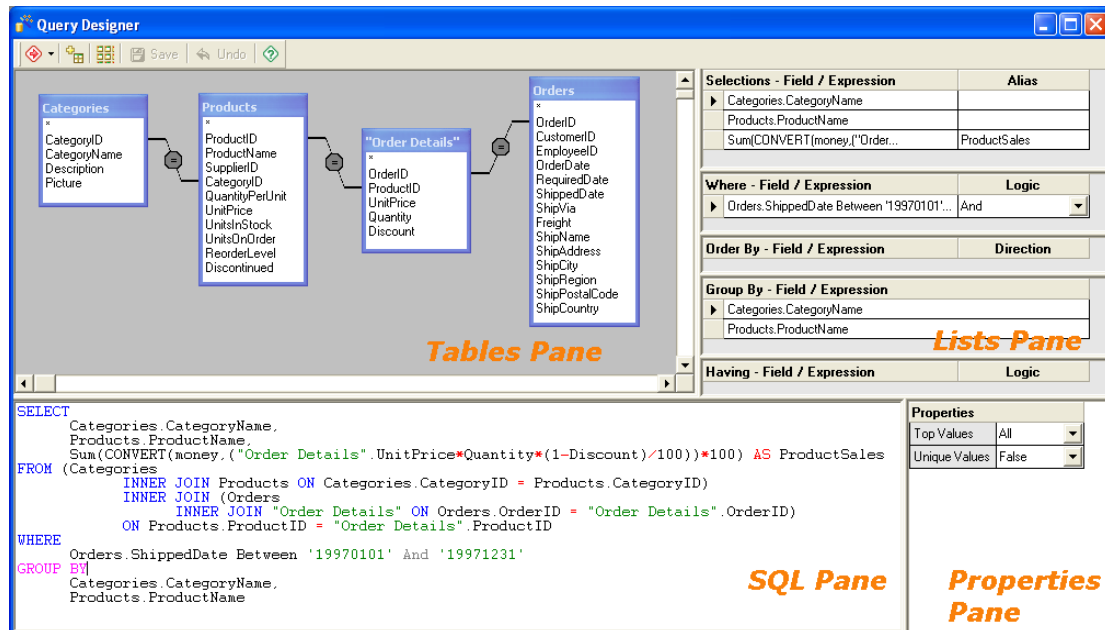


Figure 41 – Query Designer Window

Toolbar

Following options are available in the toolbar of this window:

Icon Preview	Name	Description
	Run Query	Runs the query. In the menu of this button Validate Query (Ctrl+F5) option is present used to validate the query script and return any available scripting errors.
	Add Table(s)	Opens a pop-up window where all available tables and views of the database are listed. Select the table/view and press Add or double click on table row to add the selection to the Query Designer.
	Tile Tables	Sorts the imported table objects.
Save	Save	Saves the configuration made in the Query Designer.
Undo	Undo	Rollbacks the last actions performed in the Query Designer.

Panes

The Query Designer is divided into several panes, which allow you to easily preview the imported table objects, define functions and relations and adjust the query attributes from one window.

Tables Pane

This is the biggest pane in this window. Here, you may import table objects to the query and define the relations. To get details on how to create queries in the Query

Designer, refer to the chapter [How to Create and Execute Query from the Query Designer](#).

Lists Pane

This pane is divided into 5 blocks:

- **Selections** – defines columns selections per table to be included in the query. Also includes expression fields. Any manual edits are also possible here. **Alias** displays the column alias name.
- **Where** – indicates conditions for Query. Any manual edits are also possible here. Logic expression may be AND or OR.
- **Order By** – indicates the order in the query output (ascending or descending).
- **Group By** – inserts a GROUP BY fields to the query.
- **Having** – used when GROUP BY is inserted to the query script and allows you to add a HAVING conditions.

SQL Pane

This pane contains the SQL script for the query according to the table imports, relations and parameters defined in the Query Designer. You may copy the text from this pane and use it elsewhere.

Properties Pane

This pane contains the properties applicable to the query.

- **Top Values** – this list indicates whether all values returned by the query should be displayed or not. Any numeric value inserted manually to this list will indicate the number of top records displayed in the query output. The percentage selected from this list indicates the top value's percentage of the overall output to be displayed.
- **Unique Values** – indicates whether any repeated values should be displayed in the query output or not.

Right Click Menu

The right click menu options are different depending on where the right click menu has been accessed.

On Tables Pane

When accessing the right click menu on the Tables pane, the following options are available:

- **Run** – runs the query.
- **Add Table(s)** – same function as Add table(s) on toolbar.
- **Resize All Tables** – resizes all the imported table objects to fit to the columns information in it.
- **Show Panes** – used to show/hide the available pane(s) in the Query Designer window.

On the Table Object in the Table Pane

When accessing the right click menu on the particular imported table object in the Tables pane, the following options are available:

- **Run** – runs the query.
- **Add Table(s)** – this option contains the following sub-options:
 - **All** – imports all tables in the database.

- **All Related Tables** – imports all tables that have relations to the selected table.
- **Related to selected column Tables** – imports all tables related to the selected column of the selected table.
- **Remove Table** – removed the selected table from the Query Designer.
- **Select All Columns** – adds “all columns” (table name.*) keyword of the selected table to the query script.
- **Remove All Columns** – removes “all columns” (table name.*) keyword of the selected table from the query script.
- **Set Table Alias** – used to define an alias name to the selected table.
- **Sort By Name** – if this option is checked, it sorts the columns in the selected table by the ascending alphabetic order in the imported table object window; otherwise if this option is not selected, it sorts by column list number.
- **Resize Table** – resizes the selected table object to fit to the columns information in it.
- **Resize All Tables** – resizes all the imported table objects to fit to the columns information in it.
- **Show Panes** – used to show/hide the available pane(s) in the Query Designer window.

On the Relation Line in the Table Pane

When accessing the right click menu on the particular imported tables' relation line in the Tables pane, the following options are available:

- **Run** – runs the query.
- **Add Table(s)** – this is the same function as Add table(s) on toolbar.
- **Remove Join** – used to break the join.
- **Properties** – opens [Join Properties Window](#) to set join attributes.
- **Show Panes** – used to show/hide the available pane(s) in the Query Designer window.

On the Lists Pane

When accessing the right click menu on any of the blocks in the Lists pane, the following options are available:

- **Run** – runs the query.
- **Add Table(s)** – this is the same function as Add table(s) on the toolbar.
- **Insert Row** – adds a blank row to the selected block of the Lists pane allowing you to insert the details manually.
- **Delete Row(s)** – deletes the selected rows of details from the Lists pane.
- **Show Panes** – used to show/hide the available pane(s) in the Query Designer window.

11.2.1. How to Create and Execute Query from the Query Designer

To import the table object use the **Add Table(s)** button in the toolbar. To define the relations, choose the column in the table object and simply drag and drop it to the other column in another table object. A link appears. By double clicking on the link you may view its properties in the [Join Properties Window](#).

If you wish to define columns to select in the query, double click on the column in the table object. It will be added to the **Selections** block in the Lists Pane (see [Query Designer Window](#)).

When the query attributes are defined, save the query by pressing the **Save** button in the toolbar. You may now run the query by pressing the **Execute Query** from the toolbar.

11.2.2. Join Properties Window

This window contains the parameters of the relation between tables. **Left** and **Right** blocks display the table name, alias name and field (column) name for each side participating in the relation.

- **Include All Rows** - returns all records from the left or right table correspondingly and if any values do not have a corresponding relation, null values will be returned instead.
- **Condition** - drop down list in the middle of the window indicates the condition by which two columns are joined. The condition selected here is visible on the relation link line displayed in the Tables pane.
- **Outer** – this checkbox indicates whether an Outer or Inner join type will be used.

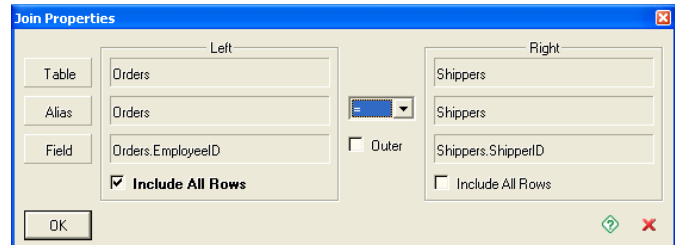


Figure 42 – Join Properties Window

12. Reports

Reports are used to create a printer friendly arranged information depending on the given one or more criteria. Reports may contain certain database components (tables, table columns, indexes, etc.).

To open Reports window, press the **Reports** button in the PowerDBTools application's connection toolbar. The **Reports** window contains a list of selected components on the left side and tabs with the database component types (tables, columns, indexes, etc.) on the right side. Depending on the tab selected on the right side of the window, the list of the selected components for whole database appears on the left side. Checkboxes next to each displayed component allow you to select or deselect the selected components to be included in the report or not.

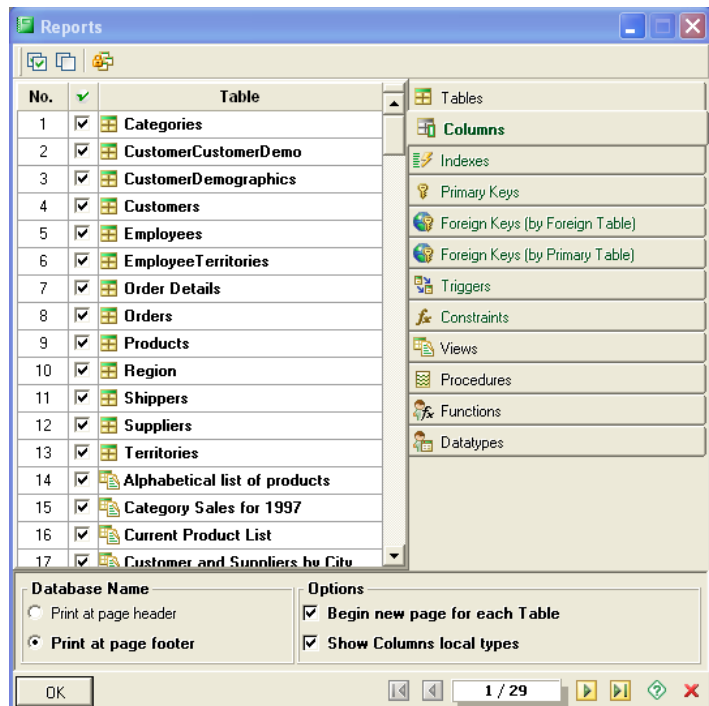


Figure 43 – Reports Window

Following options are available in the **Reports** window:

- **Show System Objects** – this button in the top toolbar of **Reports** window shows or hides the system objects of the database.
- **Use Microsoft Access Objects** – this button is only available when MS Access database is opened. With this option selected the application retrieves table/view detail objects using DAO (Data Access Object) components interface; otherwise when this option is not selected, the details are retrieved using ADO.
- **Database Name** – radio buttons group allows to select whether the database name will be printed in the header or footer of the report.
- **Begin new page for each table** – checkbox is used to select whether each table report should start from the new page or not. This option may not be available for some selected components.
- **Show columns local type** – checkbox is used to select whether the local types of the columns should be printed in the report or not. This option is available for columns components.

12.1. Report Output

When a report is generated, an output window appears. Output window displays Reports using Crystal Reports viewer. For detail presentation of this window operations see Crystal Reports viewer help.

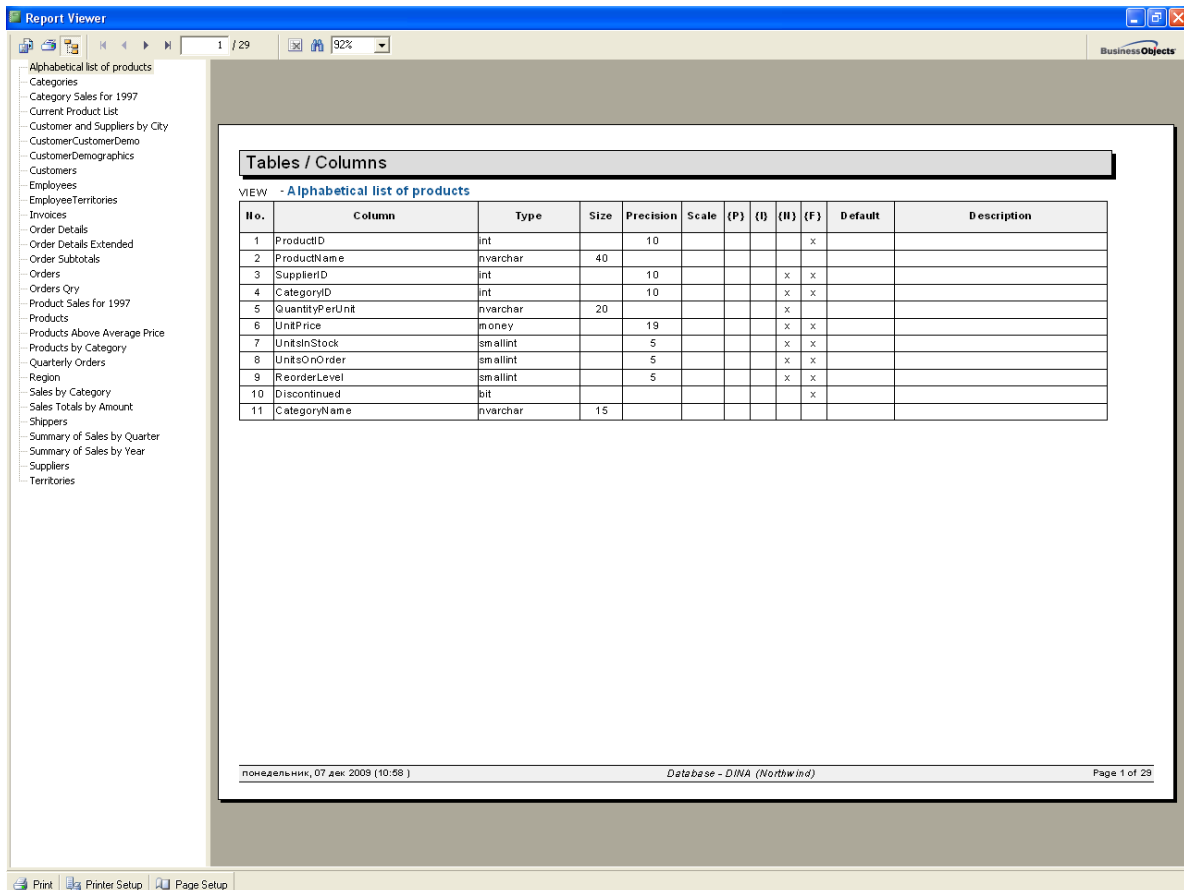


Figure 44 – Report Output Window

From this window you may export and print the report output. You may also find a specific text in the report.

Toolbar

Following options are available in the toolbar of this window:

- **Export Report** – allow you to export the generated report to other formats installed and supported by your system.
- **Print Report** – send the generated report to the printer, opens the printing window.
- **Toggle Group Tree** – shows/hides the group tree in the left side of the **Reports Output** window. Group tree lists all components over which the report is generated. By selecting the component in this tree, it will be highlighted in the report.
- **Navigation Bar** – used to navigate through report pages.
- **Page Number** – displays the current and total number of pages in the report. You may type here a page number manually to perform a quick jump to that page.
- **Stop Loading** – stops the loading of the report. Button is available for large reports.
- **Search Text** – finds the text in the report.
- **Zoom** – allow you to select the report preview zoom size.

Right Click Menu

Following options are available in the right click menu of this window:

- **First Page, Previous Page, Next Page** and **Last Page** – used to navigate through report pages.

- **Print** – prints the report.
- **Export** – allow you to export the generated report to other formats installed and supported by your system.
- **Search** - finds the text in the report.
- **Toolbar** – shows/hides the top toolbar of the Reports Output window.
- **Group Tree** - shows/hides the group tree pane in the left side of the Reports Output window.
- **Freeze/Unfreeze Pane** – freezes the report page to the selected object by keeping it always on top of the page. Unfreeze removes the page freezing.

Command Bar

Following options are available in the command bar of this window:

- **Print** – send the generated report to the printer, opens the printing window.
- **Printer Setup** – opens the printer properties.
- **Page Setup** – opens the page properties.

12.2. How to generate and print a report

To generate and print a report, follow the steps below:

1. Press **Reports** in the PowerDBTools connection's toolbar.
2. Choose the needed tab from the right side of the window to display the selected components of the database.
3. Using the checkboxes next to each of the displayed component, select those you want to include in the report.
4. Adjust report options below (Database Name settings, Begin new page for each table and Show columns local type)
5. Press **OK** to generate a report. Confirm your action.
6. Report Output window appears. Use the Printer Setup and Page Setup to adjust the settings.
7. Print the report or export it, if needed.

13. Find

One of the powerful options of this application is the finding features. You can find any database component (table, view, table column, index, procedure, etc.) by name or part of the name. You can find table column by its attributes: default value, description, type. You may immediately find any value in whole database. You can also find all unused columns (i.e. columns which have no values in all rows) in the database.

The **Find** menu is available in the PowerDBTools connection's toolbar and is used to perform a search operation among the selected type of parameter.

The output will display all results matching the search criteria. For different parameters, the find output is different and is described in the chapters below.

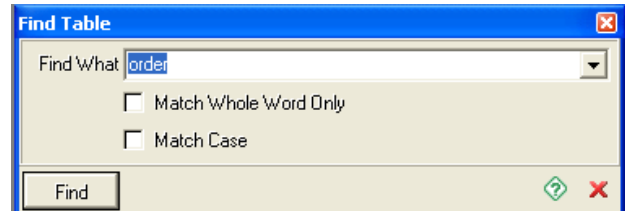


Figure 45 – Common Find Window

13.1. Finding a Table

For finding a specific table or view, this button opens a **Find** window, requesting the table name or part of the name to find and matching details.

The output is printed in a window which contains the following information:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Name** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not.
- **Description** – indicates the description of the table. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a table description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Properties** – displays the table [Properties Window](#).

13.2. Finding a View

For finding a specific view, this button opens a **Find** window, requesting the view name or part of the name to find and matching details.

The output is printed in a window which is contains the following information:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **View** – displays the name of the view.
- **Owner** – displays the owner of the view (the database it belongs to). Not available for MS Access databases.
- **Definition** – displays the SQL definition of the view. By double clicking on this column the read-only SQL definition will be opened in a popup window.
- **Properties** – displays the view [Properties Window](#).

13.3. Finding a Procedure

For finding a specific procedure, this button opens a **Find** window, requesting the procedure name or part of the name to find and matching details.

The output is printed in a window which contains the following information:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Procedure** – displays the name of the procedure.
- **Owner** – displays the owner of the procedure (the database it belongs to). Not available for MS Access databases.
- **Type** - displays the type of the procedure.
- **Definition** – displays the SQL definition of the procedure. By double clicking on this column the read-only SQL definition will be opened in a popup window.
- **Properties** – displays the procedure [Properties Window](#).

The +/- icon in front of the row is used to expand/collapse the procedure input/output parameters. In the procedure details the following information is provided:

- **Direction** – indicates whether the parameter is input or output.
- **#** - the number of parameter.
- **Parameter** – indicates the name of the parameter.
- **Type** – indicates the type of the parameter.
- **Size** – indicates the length of the parameter.

13.4. Finding a Function

For finding a specific function, this button opens a **Find** window, requesting the function name or part of the name to find and matching details.

The output is printed in a window which contains the following information:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Function** – displays the name of the function.
- **Owner** – displays the owner of the function (the database it belongs to). Not available for MS Access databases.
- **Type** - displays the type of the function output (scalar, inline, table, etc.).
- **Definition** – displays the SQL definition of the function. By double clicking on this column the read-only SQL definition will be opened in a popup window.
- **Properties** – displays the function [Properties Window](#).

The +/- icon in front of the row is used to expand/collapse the function input/output parameters. In the function details the following information is provided:

- **Direction** – indicates whether the parameter is input or output.
- **#** - the number of parameter.
- **Parameter** – indicates the name of the parameter.
- **Type** – indicates the type of the parameter.
- **Size** – indicates the length of the parameter.

13.5. Finding a Datatype

For finding a specific datatype, this button opens a **Find** window, requesting the datatype name or part of the name to find and matching details.

The output is printed in a window which contains the following information:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.




- **No** - indicates the identity number of the list.
- **Datatype** – displays the name of the datatype.
- **Base Type** – indicates the base type of the new datatype defined.
- **Length** – indicates the length of the datatype.
- **Allow Nulls** – indicates whether null value is allowed for this datatype or not.
- **Properties** – displays the function [Properties Window](#).



13.6. Finding a Column

For finding a specific column in all tables of the database, this button opens a **Find** window, requesting the column name or part of the name to find and matching details. In this window you can narrow the find criteria by selecting tables where you wish to find the corresponding column. To do that, expand the list of tables by pressing the **Tables** button.

The output is printed in a window which contains the following details about the searched columns and the table it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Description** – indicates the description of the table. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a table description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Column** – displays the name of the column.
- **Identity** () - indicates whether the value in this column is automatically incremented identity or not
- **Type** - indicates the type of the table column.
- **Size** - indicates the length of the column.
- **Precision** – in case if the type is numeric, this indicates the integer part of the number.
- **Scale** - in case if the type is numeric, this indicates the fractional part of the number.
- **Nullable** () - indicates whether the Null value is allowed for this column.
- **Default** () – indicates the default value of this column. By double clicking on this column for the corresponding entry, you may apply a default value to the column. The appeared popup window contains a field for a default value. See [Input Window](#) chapter.

- **Description** () – indicates the description of this column. By double clicking on this column for the corresponding entry, you may insert a description for the column. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Properties** () – opens a window with column properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.

13.7. Finding an Index

For finding a specific index, this button opens a **Find** window, requesting the index name or part of the name to find and matching details. In this window you can narrow the find criteria by selecting tables where you wish to find the corresponding index. To do that, expand the list of tables by pressing the **Tables** button.

The output is printed in a window which contains the following details about the searched indexes and the table it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Index** - indicates the name of the index.
- **Unique** - indicates whether this index is unique in the table.
- **Primary** – indicates whether this index acts as a Primary Key in the table or not.
- **Foreign** – indicates whether this is a foreign index or not.
- **Index Nulls** – indicates whether the null values are allowed in the indexes.
- **Clustered** – indicates whether the selected index is clustered or not.
- **Properties** – opens a window with index properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.

13.8. Finding a Primary Key

For finding a specific Primary Key, this button opens a **Find** window, requesting the Primary Key name or part of the name to find and matching details. In this window you can narrow the find criteria by selecting tables where you wish to find the corresponding Primary Key. To do that, expand the list of tables by pressing the **Tables** button.

The output is printed in a window which contains the following details about the searched Primary Keys and the table it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.

- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Primary Key** - indicates the name of the Primary Key.
- **Properties** – opens a window with Primary Key properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.

The +/- icon in front of the row is used to expand/collapse all those columns to which the corresponding Primary Key is applied. In the Primary Key details the following information is provided:

- **Column** - indicates columns where the selected Primary Key is applied.

13.9. Finding a Foreign Key

For finding a specific Foreign Key, this button opens a **Find** window, requesting the Foreign Key name or part of the name to find and matching details. In this window you can narrow the find criteria by selecting tables where you wish to find the corresponding Primary Key. To do that, expand the list of tables by pressing the **Tables** button.

The output is printed in a window which contains the following details about the searched Foreign Keys and the tables it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Foreign Table** – displays the name of the foreign table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Foreign Key** - indicates the name of the Foreign Key.
- **Primary Table** – indicates the primary source table where the Foreign Key is assigned.
- **Enforce** – when this option (Enforce Referential Integrity) is selected, new row which do not match the primary table cannot be inserted to the related foreign table and rows cannot be deleted from the primary table if they are referred-to in the foreign table.
- **Update Rule** – when the **Cascade** option is selected here, Foreign Key of this relationship is automatically updated whenever the primary-key value is updated. This option is only available when **Enforce** is enabled.
- **Delete Rule** – when the **Cascade** option is selected here, rows of the foreign table is automatically deleted whenever the referred-to rows of the primary table are deleted. This option is only available when **Enforce** is enabled.
- **Properties** – opens a window with Foreign Key properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.

The +/- icon in front of the row is used to expand/collapse all those columns to which the corresponding Foreign Key is applied. In the Foreign Key details the following information is provided:

- **Foreign Column** - indicates columns in the selected foreign table where the selected Foreign Key is assigned.
- **Primary Column** – indicates the column in the primary table where the Foreign Key is assigned.

13.10. Finding a Trigger

For finding a specific trigger, this button opens a **Find** window, requesting the trigger name or part of the name to find and matching details. In this window you can narrow the find criteria by selecting tables where you wish to find the corresponding Primary Key. To do that, expand the list of tables by pressing the **Tables** button.

The output is printed in a window which contains the following details about the searched triggers and the table it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Trigger** – displays the name of the trigger.
- **Type** – indicates when the trigger should be launched (upon delete, update, or insert new).
- **Instead Of** – indicates whether the trigger action should take place instead of the deletion, update or insert new procedure.
- **After** – indicates whether the trigger action should take place after the deletion, update or insert new procedure.
- **Definition** – displays the SQL definition of the trigger. By double clicking on this column the read-only SQL definition will be opened in a popup window.
- **Properties** – opens a window with trigger properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.

13.11. Finding a Constraint

For finding a specific constraint, this button opens a **Find** window, requesting the constraint name or part of the name to find and matching details. In this window you can narrow the find criteria by selecting tables where you wish to find the corresponding Primary Key. To do that, expand the list of tables by pressing the **Tables** button.

The output is printed in a window which contains the following details about the searched constraints and the table it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.


- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Constraint** - indicates the name of the constraint. For MS Access databases, if the constraint is of the CHECK type the column name that has the constraint applied is also displayed here.
- **Checked** – indicates whether the constraint is a check constraint or not. This column is not available for MS Access databases.
- **Definition** – indicates the SQL definition of the constraint. By double clicking on this column the read-only SQL definition will be opened in a popup window.
- **Properties** – opens a window with constraint properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.






13.12. Finding a Column Default Value

For finding a specific column by default value in all tables of the database, this button opens a **Find** window, requesting the default value or part of the value to find and matching details. In this window you can narrow the find criteria by selecting tables where you wish to find the corresponding Primary Key. To do that, expand the list of tables by pressing the **Tables** button. If you have not entered any value in the **Find** window, all columns which have default values will be returned.

The output is printed in a window which contains the following details about the searched columns and the table it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Description** – indicates the description of the table. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a table description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Column** – displays the name of the column.
- **Identity** () - indicates whether the value in this column is automatically incremented identity or not
- **Type** - indicates the type of the table column.
- **Size** - indicates the length of the column.
- **Precision** – in case if the type is numeric, this indicates the integer part of the number.



- **Scale** - in case if the type is numeric, this indicates the fractional part of the number.
- **Nullable** () - indicates whether the Null value is allowed for this column.
- **Default** () – indicates the default value of this column. By double clicking on this column for the corresponding entry, you may apply a default value to the column. The appeared popup window contains a field for a default value. See [Input Window](#) chapter.
- **Description** () – indicates the description of this column. By double clicking on this column for the corresponding entry, you may insert a description for the column. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Properties** () – opens a window with column properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.
- **Statistics** () – this button opens the statistics over the values in the column. See details in [Column Statistics](#) chapter.





13.13. Finding a Column Description

For finding specific column by information inserted in the description of a column in all tables of the database, this button opens a **Find** window, requesting the description text value or part of the text to find and matching details. In this window you can narrow the find criteria by selecting tables where you wish to find the corresponding Primary Key. To do that, expand the list of tables by pressing the **Tables** button. If you have not entered any value in the **Find** window, all columns which have any description text will be returned.

The output is printed in a window which contains the following details about the searched columns and the table it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Description** – indicates the description of the table. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a table description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Column** – displays the name of the column.
- **Identity** () - indicates whether the value in this column is automatically incremented identity or not
- **Type** - indicates the type of the table column.
- **Size** - indicates the length of the column.
- **Precision** – in case if the type is numeric, this indicates the integer part of the number.
- **Scale** - in case if the type is numeric, this indicates the fractional part of the number.
- **Nullable** () - indicates whether the Null value is allowed for this column.




- **Default** () – indicates the default value of this column. By double clicking on this column for the corresponding entry, you may apply a default value to the column. The appeared popup window contains a field for a default value. See [Input Window](#) chapter.
- **Description** () – indicates the description of this column. By double clicking on this column for the corresponding entry, you may insert a description for the column. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Properties** () – opens a window with column properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.
- **Statistics** () – this button opens the statistics over the values in the column. See details in [Column Statistics](#) chapter.

13.14. Finding a Column Type




For finding a specific column by type of the column in all tables of the database, this button opens a **Find** window where among all available types you should select those you want to find in the database. In this window, **Nullable** drop down list is used to select whether nullable columns should be also returned in the search results or not. You can find columns by database column types or by provider specific types. Use the switch button on **Type** column header to list the certain column type.

The output is printed in a window which contains the following details about the searched columns and the table it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Description** – indicates the description of the table. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a table description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Column** – displays the name of the column.
- **Identity** () - indicates whether the value in this column is automatically incremented identity or not
- **Type** - indicates the type of the table column.
- **Size** - indicates the length of the column.
- **Precision** – in case if the type is numeric, this indicates the integer part of the number.
- **Scale** - in case if the type is numeric, this indicates the fractional part of the number.
- **Nullable** () - indicates whether the Null value is allowed for this column.
- **Default** () – indicates the default value of this column. By double clicking on this column for the corresponding entry, you may apply a default value to

the column. The appeared popup window contains a field for a default value. See [Input Window](#) chapter.

- **Description** () – indicates the description of this column. By double clicking on this column for the corresponding entry, you may insert a description for the column. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Properties** () – opens a window with column properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.
- **Statistics** () – this button opens the statistics over the values in the column. See details in [Column Statistics](#) chapter.

13.15. Finding a Value

For finding some value(s) in whole database data, this button opens a **Find** window, requesting the value or the part of the value to find in the columns and matching details. In this window you can narrow the find criteria by selecting tables where you wish to find the corresponding Primary Key. To do that, expand the list of tables by pressing the **Tables** button.

The output is printed in a window which contains the following details about the searched value and the column and the table it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Description** – indicates the description of the table. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a table description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Column** – displays the name of the column.
- **Type** - indicates the type of the table column.
- **Row** - indicates the number of row where the searched value is present.
- **Value** – indicates the searched value of the column.

13.16. Finding Unused Columns

Unused column are those column which have all or empty data in the whole table. Unused columns are not filled with any value.

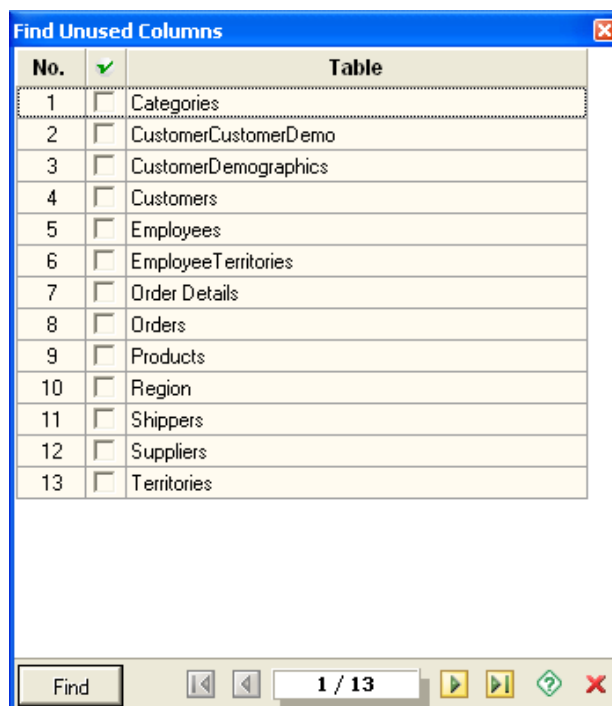





Figure 46 – Finding Unused Columns Window




In this window you can narrow the find criteria by selecting tables where you wish to find the corresponding Primary Key. If no tables are selected then unused columns will be searched in all tables of the database.

The output is printed in a window which contains the following details about unused columns and the table it belongs to:

For description of standard functions in this window, refer to [Find Output Window](#) chapter.

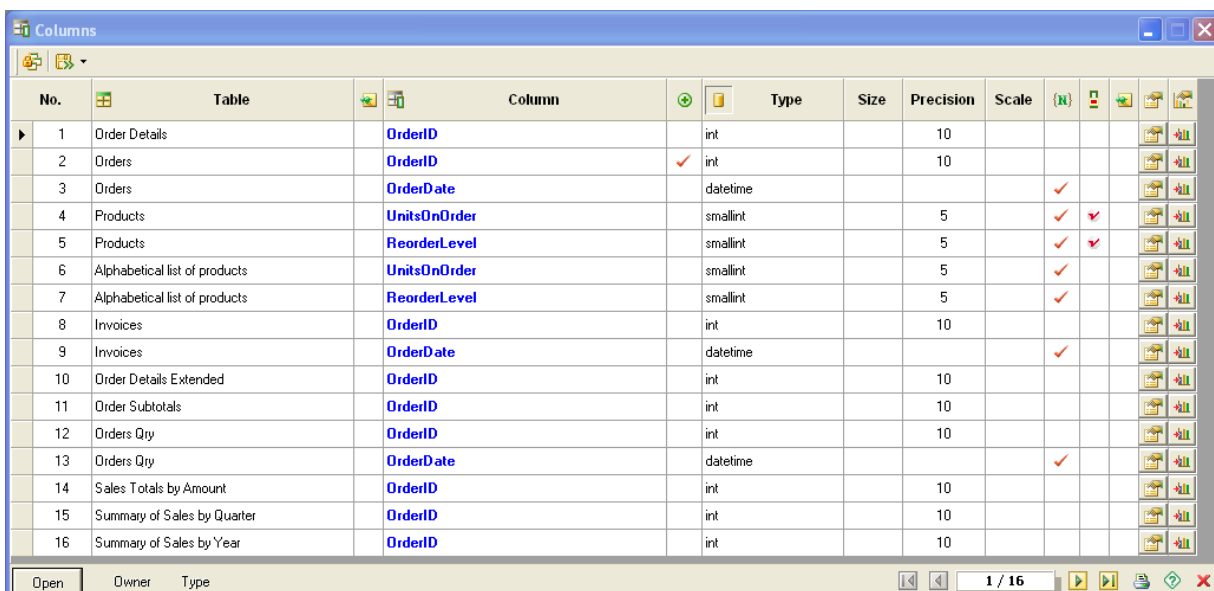
- **No** - indicates the identity number of the list.
- **Table** – displays the name of the table or view.
- **Owner** – displays the owner of the table (the database it belongs to). This column is only present when the **Owner** button from the Command Bar (see [Find Output Window](#)) is pressed. Not available for MS Access databases.
- **Type** - displays whether the entry in the list is a table or a view. This column also indicates whether the entry is system object or not. This column is only present when the **Type** button from the Command Bar (see [Find Output Window](#)) is pressed.
- **Description** – indicates the description of the table. By mouse over on cell you can see the description. By double clicking on this column for the corresponding entry, you may insert a table description for that entry. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Column** – displays the name of the column.
- **Identity** () - indicates whether the value in this column is automatically incremented identity or not
- **Type** - indicates the type of the table column.
- **Size** - indicates the length of the column.
- **Precision** – in case if the type is numeric, this indicates the integer part of the number.
- **Scale** - in case if the type is numeric, this indicates the fractional part of the number.
- **Nullable** () - indicates whether the Null value is allowed for this column.
- **Default** () – indicates the default value of this column. By double clicking on this column for the corresponding entry, you may apply a default value to

the column. The appeared popup window contains a field for a default value. See [Input Window](#) chapter.

- **Description** () – indicates the description of this column. By double clicking on this column for the corresponding entry, you may insert a description for the column. The appeared popup window contains a field for a description. See [Input Window](#) chapter.
- **Properties** () – opens a window with column properties. Some properties may be modified from this window. Depending on the type of database and provider type, this window may contain different options. For more information, refer to the ADO or provider help.
- **Statistics** () – this button opens the statistics over the values in the column. See details in [Column Statistics](#) chapter.

13.17. Find Output Window

All type of find operations result an output window where data matched to the selected search criteria and information related of that data are listed. All output windows have the same functionality; only the data information grid columns are different and are described in the corresponding chapters above.





No.	Table	Column	Type	Size	Precision	Scale											
1	Order Details	OrderID	int		10												
2	Orders	OrderID	int		10												
3	Orders	OrderDate	datetime														
4	Products	UnitsOnOrder	smallint		5												
5	Products	ReorderLevel	smallint		5												
6	Alphabetical list of products	UnitsOnOrder	smallint		5												
7	Alphabetical list of products	ReorderLevel	smallint		5												
8	Invoices	OrderID	int		10												
9	Invoices	OrderDate	datetime														
10	Order Details Extended	OrderID	int		10												
11	Order Subtotals	OrderID	int		10												
12	Orders Qty	OrderID	int		10												
13	Orders Qty	OrderDate	datetime														
14	Sales Totals by Amount	OrderID	int		10												
15	Summary of Sales by Quarter	OrderID	int		10												
16	Summary of Sales by Year	OrderID	int		10												

Figure 47 – Find Output Window

In this chapter common functionality of find output window is presented.

Toolbar

Following options are available in the toolbar of this window:

Icon Preview	Name	Description
	Show System Object	Displays the system objects, which are hidden by default, that also match the search criteria. For Datatypes this button not exists.
	Save As	This list provides options to save the displayed grid in the well known database formats: <ul style="list-style-type: none"> • Save as Extensive Markup Language (xml) Format File • Save as Advanced Data TableGram (adtg) Format File • Save as Microsoft Excel (xls) Format File

Right Click Menu

Following options are available in the right click menu of this window:

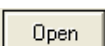


For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Open Table** – this button is used to open the table/view to which the found object belongs to [Data Output Window](#). For Procedures, Functions and Datatypes this button is not available.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Open Data	This button is used to open the table/view to which the found object belongs to. See Data Output Window . For Procedures it runs selected procedure and returns output data. For Functions and Datatypes this button is not available.
	Owner	When this button is pressed, the grid contains an Owner column which indicates owners of the found object or related table. Not available for MS Access databases.
	Type	When this button is pressed, the grid contains a Type column, which indicates type of the found database component or type of the related table or view. This column also indicates whether the entry is a system object or not.

14. Tools and Utilities

The PowerDBTools application offers many tools and utilities useful while working and managing the database.

Particularly the following possibilities are present:

- Compare the structures of two 2 databases (databases can be of a different types).
- Convert databases. You may also convert database from one type to another.
- Generate SQL Script to create any component of the database of the following database types: MS Access, SQL Server, Oracle My SQL.
- Easy create, rename and delete database components and empty tables' contents.
- Create, rename and delete database (available only for SQL databases).
- Easy backup and restore database, attach and detach database (available only for SQL databases).
- Compact and repair database (available only for MS Access databases).
- Monitor and trace databases.
- Also there are some useful operations handled over all tables for the database. For example, for all Boolean fields in the database set FALSE if the value is Null or set Null in numeric fields if the value is 0.

14.1. Compare Databases

The **Compare Databases** option is used to compare databases, save a pair of databases for repeated comparison, display and print comparison results.

Databases comparison module evaluated through two passes: comparing the first database against the second and vice versa. During comparison, a detailed logout text format data is generated which contains information about objects differences in the databases.

Besides the log, an SQL Script is generated which allows applying the structure of the first database to the second one.

The **Compare Databases** option is accessible from the application main toolbar's Tools menu.

14.1.1. Compare Databases Window

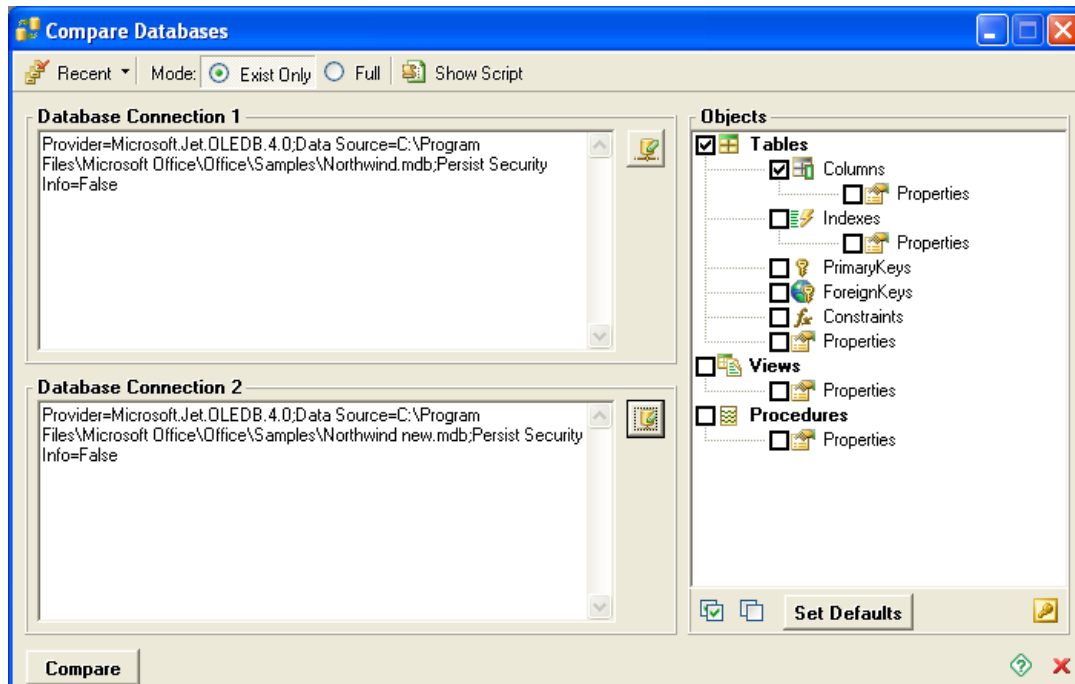



Figure 48 – Compare Database Window

The **Compare Databases** window consists of the following areas:

- **Database Connection 1** – this field displays the database connection string of the first database connection. The **Edit Connection** button beside this field is used to provide database connection using **Data Link Properties** window.
- **Database Connection 2** – this field displays the database connection string of the second database connection. The **Edit Connection** button beside this field is used to provide database connection using **Data Link Properties** window.
- **Objects** – this list indicates the objects of the database among which the comparison should take place. **Select All** button below this list allows you to select all available components in the list. **Reset Defaults** button is used to choose default objects for the database comparison. **MS Access** button is available here only when MS Access databases are opened in both connections to compare. This button selection will display the MS Access specific objects in the **Objects** pane. Comparison will then take place over the objects selected from either list.

Toolbar

Following options are available in the toolbar of this window:

Icon Preview	Name	Description
 Recent ▾	Recent	This button opens a list of recently saved database pairs to be compared. For details about this window, see Compare Recent List window. By pressing a small arrow next to this button, Recent list provides the following options: <ul style="list-style-type: none">• Add To Recent List – this option is used to add the selected pair of databases to the recent list for the quick load for future comparisons.

Icon Preview	Name	Description
		<ul style="list-style-type: none"> Clear Recent List – this option is used to clear all database pairs saved in the Compare Recent List.
	Exist Only and Full	These radio button selections are used the database comparison mode. With Exist Only selected, only tables existing in both databases will be compared. With Full selected, whole the databases will be compared.
Show Script	Show Script	This button is used to open the generated SQL Script which allows applying the structure of the first database to the second one.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Compare	This button is used to start the comparison procedure between the selected two databases among the selected list of objects.

14.1.2. Compare Recent List

This window lists all recently created and saved database pairs to compare. The list of database pairs contains the connection strings for each of the connection in the comparison.

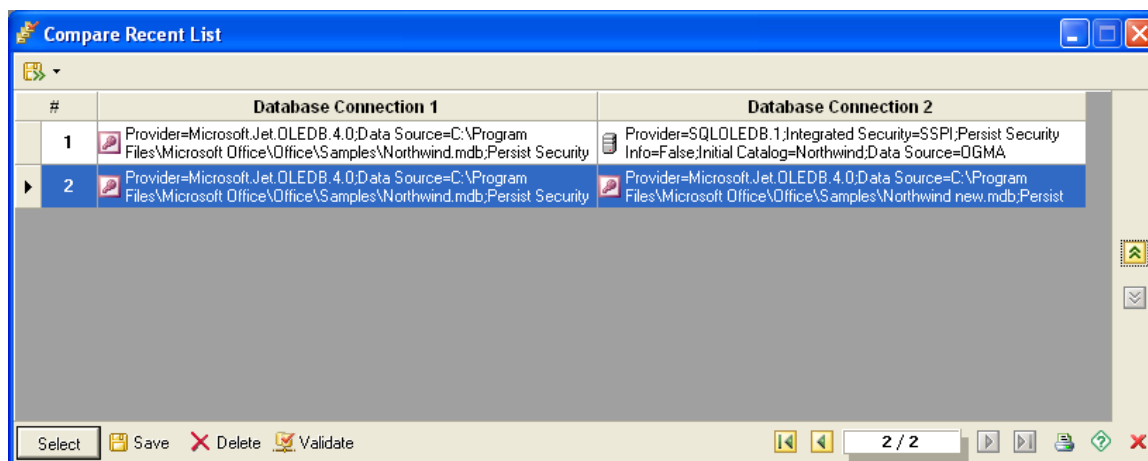




Figure 49 – Compare Recent List

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Select	This button in the command bar is used to choose the selected pair of databases to perform a comparison over them.
	Validate	Used to check the connection to both databases in the saved pair. Connections with the broken link will be marked in red.

14.2. Convert Database

The **Convert Database** tool offers a useful possibility to convert the database of one type to another as well as to export existing data from source database to target. During conversion a detailed logout text format data is generated containing detailed information of database objects conversion (including errors and warnings occurred during the conversion).

The **Convert Databases** option is accessible from the application main toolbar's Tools menu.

14.2.1. Convert Database Window

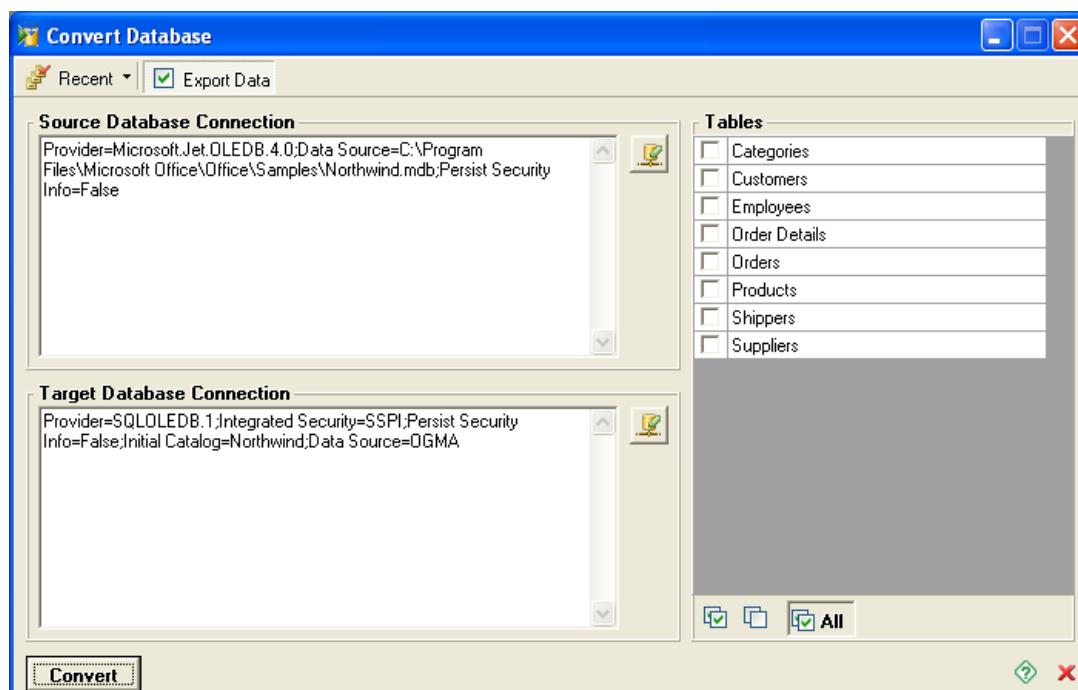


Figure 50 – Convert Database Window


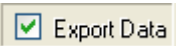
The Convert Databases window consists of the following areas:

- **Source Database Connection** – this field displays the database connection string of the source database connection. The **Edit Connection** button beside this field is used to provide source database connection using **Data Link Properties** window.
- **Target Database Connection** – this field displays the database connection string of the second database connection. The **Edit Connection** button beside this field is used to select the target database using **Data Link Properties** window.
- **Tables** – this list indicates the tables in the database to be converted. **All** button below this list is used to select all tables independent whether any selection is performed in the **Tables** pane (this is a useful opportunity to

avoid losing tables selection in the **Tables** pane and just to perform a conversion of all available tables in the database).

Toolbar


Following options are available in the toolbar of this window:

Icon Preview	Name	Description
	Recent	This button opens a list of recently saved source and target databases. For details about this window, see Convert Recent List window. By pressing a small arrow next to this button, Recent list provides the following options: <ul style="list-style-type: none"> • Add To Recent List – this option is used to add the selected pair of databases to the recent list for the quick load for future conversion. • Clear Recent List – this option is used to clear all database pairs saved in the Convert Recent List.
	Export Data	When this checkbox is selected, the data of the tables selected will be also exported. Otherwise, when this checkbox is not selected, only database structure with no data will be exported.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Convert	This button is used to start the database conversion.

14.2.2. Convert Recent List

This window lists all recently created and saved database pairs to convert. The list of database pairs contains the connection strings for source and target connections.

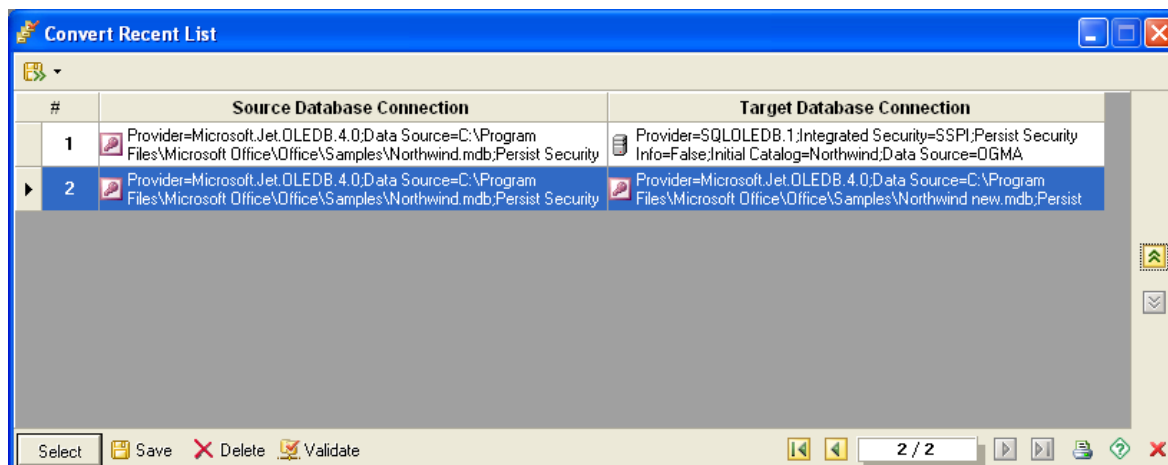




Figure 51 – Convert Recent List

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Select	This button in the command bar is used to choose the selected pair of databases to perform a database conversion.
	Validate	Used to check the connection to both databases in the saved pair. Connections with the broken link will be marked in red.

14.3. Generate SQL Script

This application allows you to generate SQL script for any component of the database to create that component to any (MS Access, SQL Server, Oracle, MySQL) type of Database SQL. To do that, open the **Generate SQL Script** option from Tools menu in the Connection's toolbar. This option opens the **Generate SQL Script** window, which contains the following components:

- **Tables, Views, Procedures, Functions, Datatypes** – these tabs in the bottom of the window are used to select the database components to be generated in the SQL script. Each of these tabs contains a list of corresponding components in the database. For the **Tables** tab, Objects pane appears on the right side of the window.

From this pane you may select what information of the selected table(s) should be exported.

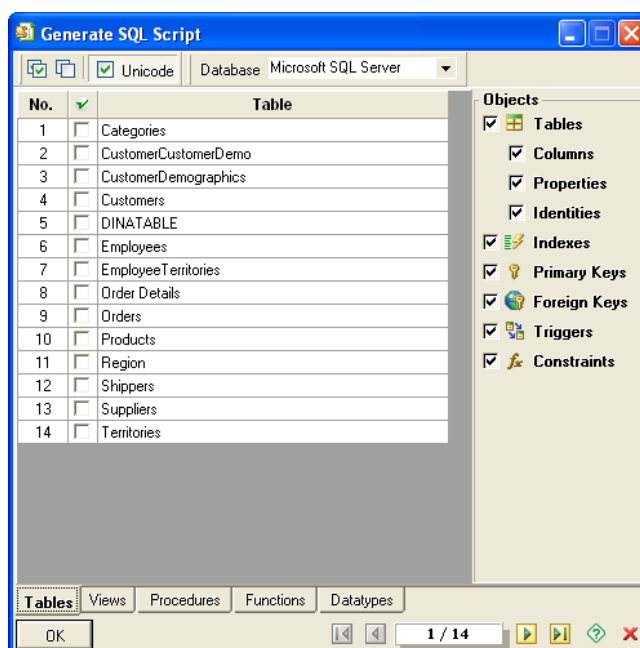
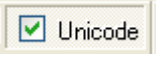



Figure 52 – Generate SQL Script Window

Toolbar

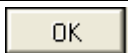
Following options are available in the toolbar of this window:

For description of standard functions in this window, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Unicode	Indicates whether the generated SQL Script's table text fields are of the Unicode text type or not.
	Database	Requires you to select the type of the database (Microsoft Access, Microsoft SQL Server, Oracle, MySQL) to which SQL to generate.

Command Bar

Following options are available in the command bar of this window:

Icon Preview	Name	Description
	OK	This button generates an SQL script over the selected components.

14.4. Create, Rename, Delete Database Components

The PowerDBTools application allows you to easily manage the database. **Connection** toolbar **Tools** menu contains options to manage the existing components in the database. There are Create, Rename and delete menu items for each type component (Table, View, Procedure, Function and Datatype).

- **Create** – this menu options opens a window where an appropriate component may be created. For details, see the appropriate component creation subchapter in [Database Management](#).
- **Delete** – this menu option opens a list of all available entities of the selected component in the database and is used to select one or more of them to delete.
- **Rename** – this menu option opens a list of all available entities of the selected component type in the database and allows you to rename them. The **New Name** column requires a new name for the selected component entity.

14.5. Empty Tables

One of the most useful and important features in the PowerDBTools application is a possibility to quickly empty all or a group of selected tables.

The option is available from **Tools > Tables > Empty** menu in **Connection** toolbar. The **Empty Tables** window contains a list of all tables available in the database and allows you to view the number of records in each of them and delete all records in the selected table(s) (i.e. to empty the tables).

Initially the number of records is hidden in the **Records** column. If you wish to view the number of total records in the corresponding table, push the small button in the **Records** column for that table. To show all tables records counts at once click on **Retrieve Records** right click menu item.

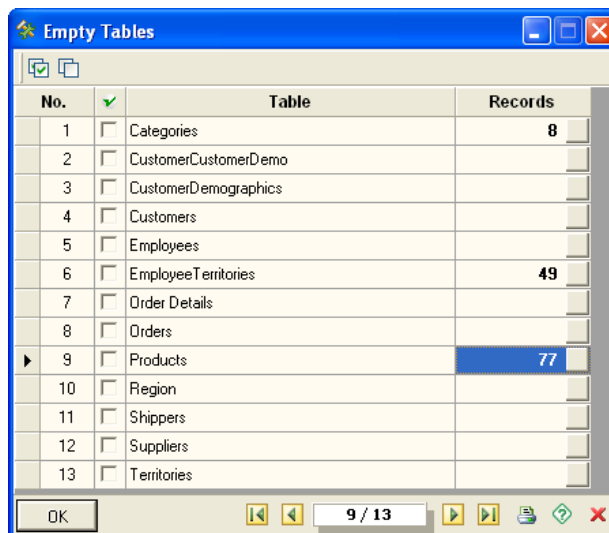


Figure 53 – Empty Tables Window

For description of standard functions in this window, refer to [PowerDBTools Common Actions](#) chapter.

14.6. Database Maintenance

The PowerDBTools application offers a group of features to maintain frequently used database. Such features are Backup/Restore the database, Detach/Attach the database, Create, Rename, Delete, Compact and Repair the database.

14.6.1. Backup

Attention: This menu option is only present for SQL Server databases.

To backup the database, choose the corresponding option from the **Tools > Database** menu in the **Connection** toolbar. It opens a window where the database name is displayed and the destination to save the backup file is required.

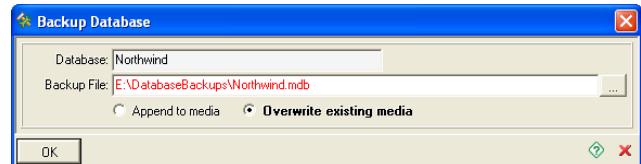


Figure 54 – Backup Database Window

- With the **Append to Media** radio button selection, the new backup information will be written in the end of the existing backup file.
- With the **Overwrite existing media** radio button selection a new file will be created with the backup information. If the file with the given name already exists, it will be overwritten.
- **Use Standard Browser** button is present in the file chooser window. By default, the SQL server file chooser window will be opened to choose the location where the backup file will be saved on the SQL server. When this button is pressed, MS Windows file chooser window will be opened to browse the location on SQL server where the backup file will be saved to.

14.6.2. Restore

Attention: This menu option is only present for SQL Server databases.

To restore the database, choose the corresponding option from the **Tools > Database** menu in the **Connection** toolbar. It opens a window where the database original name is displayed.

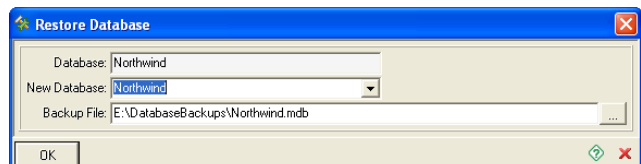


Figure 55 – Restore Database Window

The new database name (which can be either the same as the original name or different) and the destination where backed up file is located is required in this window.

14.6.3. Create

Attention: This menu option is only present for SQL Server databases.

To create a new database for the available connection, choose the corresponding option from the **Tools > Database** menu in the **Connection** toolbar. This menu option opens window when the new database name is required.

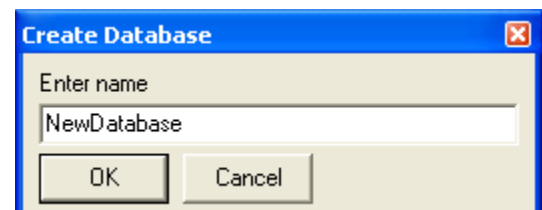


Figure 56 – Create Database Window

14.6.4. Delete

Attention: This menu option is only present for SQL Server databases.

To delete database(s), choose the corresponding option from the **Tools > Database** menu in the **Connection** toolbar. This menu option opens a list of all databases available in the connection and is used to select one or more databases to delete.

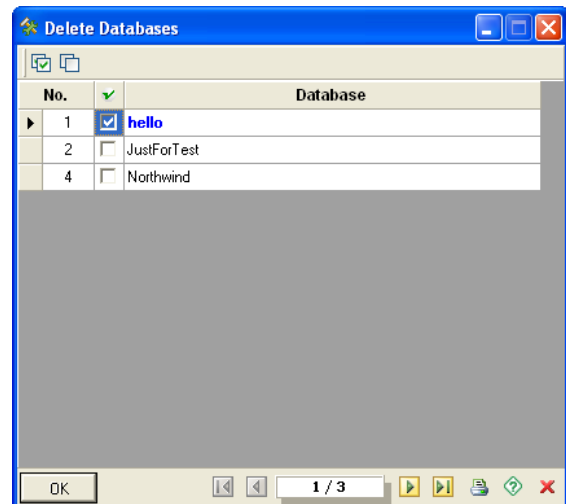


Figure 57 – Delete Database Window

14.6.5. Rename

Attention: This menu option is only present for SQL Server databases.

To rename database(s), choose the corresponding option from the **Tools > Database** menu in the **Connection** toolbar. This menu option opens a list of all databases available in the connection. The **New Name** column requires a new name of the selected database.

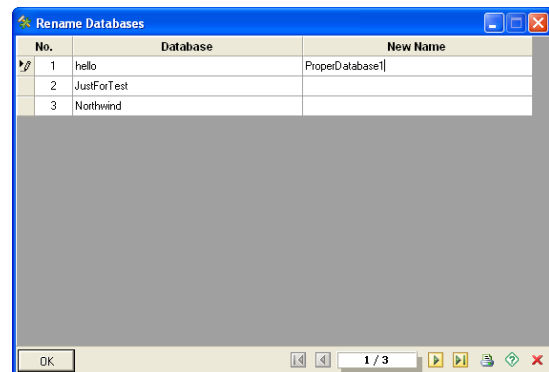


Figure 58 – Rename Database Window

14.6.6. Attach

Attention: This menu option is only present for SQL Server databases.

Menu option **Tools > Database > Attach** of the **Connection** toolbar is used to attach a new database to the SQL server. Option might be useful when moving the database from one SQL server to another.

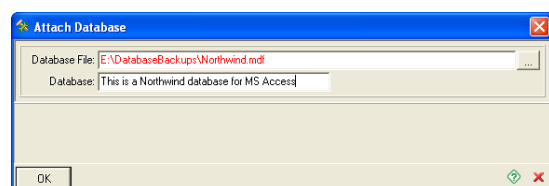


Figure 59 – Attach Database Window

14.6.7. Detach

Attention: This menu option is only present for SQL Server databases.

Menu option **Tools > Database > Detach** of the **Connection** toolbar, the selected database will be removed from the SQL server, but it will remain physically on the device. This option is needed if you plan to attach the database somewhere else.

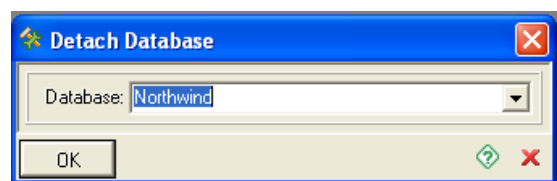


Figure 60 – Detach Database Window

14.6.8. Compact and Repair

Attention: This menu option is only present for MS Access databases.

To compact and repair the database(s), choose the corresponding option from the **Tools > Database** menu in the **Connection** toolbar. Next you will need to confirm your action.

With this option the corrupted databases will be repaired and compacted (deleted records and objects will be physically removed).

14.6.9. Miscellaneous

There are some miscellaneous specific features in the application which allow easy manage of the database objects properties and values.

To open the **Miscellaneous** window, go to the **Tools > Database** menu in the **Connection** toolbar and choose the **Miscellaneous** option.

This window contains the following options:

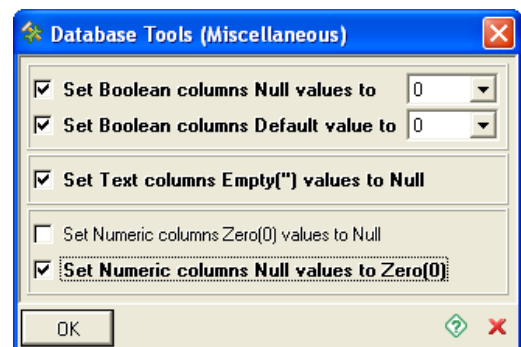


Figure 61 – Miscellaneous Window

- **Set Boolean column Null values to <indicated value>** – in all non-system tables replaces Null values in all boolean type columns to the indicated value. This option is available for MS SQL Server and MS Access databases only.
- **Set Boolean column Default values to <indicated value>** – in all non-system tables sets all boolean type columns default values to the indicated value. This option is available for MS SQL Server and MS Access databases only.
- **Set Text column Empty (") values to Null** – in all non-system tables replaces empty("") values in all text type columns to Null. This option is available for MS SQL Server and MS Access databases only.
- **Set Numeric columns Zero(0) values to Null** - in all non-system tables replaces zero(0) values in all numeric type columns to Null. This option is available for MS SQL Server and MS Access databases only.
- **Set Numeric columns Null values to Zero(0)** - in all non-system tables replaces Null values in all numeric type columns to zero(0). This option is available for MS SQL Server and MS Access databases only.
- **Set Columns "Allow Zero Length" property to True** – in all non-system tables sets "Allow Zero Length" property value in all columns to True. This option is available for MS Access databases only.

14.6.10. Users

This option displays the users on the database server and the corresponding properties.

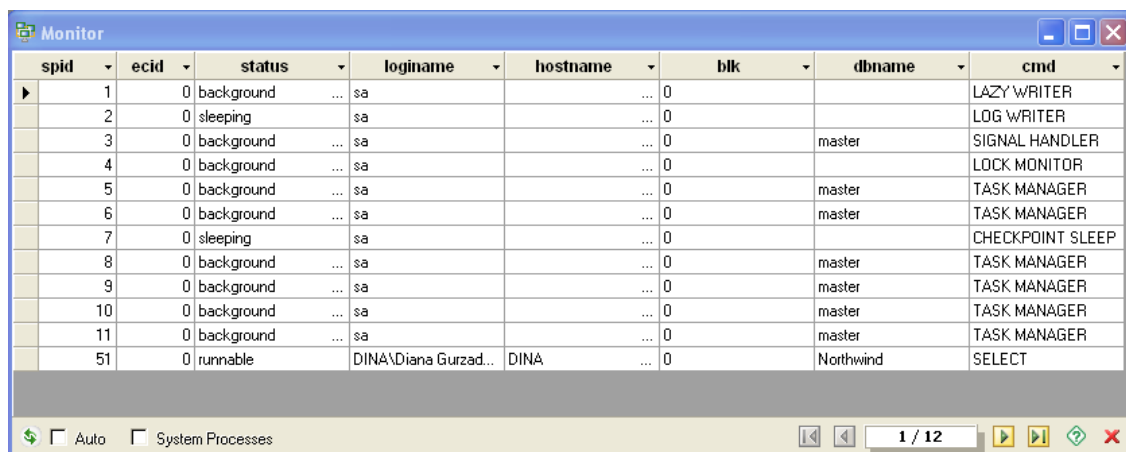
Name	Login Name	User Name	Create Date	Update Date
dbo	sa	public	06.08.2000 (01:27:55)	06.08.2000 (01:27:55)
guest		public	06.08.2000 (01:27:55)	06.08.2000 (01:34:03)

Figure 62 – Users Window

Note: If you do not see this option for MS Access database, it means no users are defined for your database.

14.6.11. Monitor

This option displays the actual connections to the server's current database and the actions performed.



spid	ecid	status	loginame	hostname	blk	dbname	cmd
1	0	background	sa	...	0		LAZY WRITER
2	0	sleeping	sa	...	0		LOG WRITER
3	0	background	sa	...	0	master	SIGNAL HANDLER
4	0	background	sa	...	0		LOCK MONITOR
5	0	background	sa	...	0	master	TASK MANAGER
6	0	background	sa	...	0	master	TASK MANAGER
7	0	sleeping	sa	...	0		CHECKPOINT SLEEP
8	0	background	sa	...	0	master	TASK MANAGER
9	0	background	sa	...	0	master	TASK MANAGER
10	0	background	sa	...	0	master	TASK MANAGER
11	0	background	sa	...	0	master	TASK MANAGER
51	0	runnable	DINA\Diana Gurzad...	DINA	0	Northwind	SELECT

Auto System Processes 1 / 12

Figure 63 – Monitor Window

15. PowerDBTools Interface

The PowerDBTools is a multi-document application. Each connection opens in a separate window. The main toolbar of the application contains functions which are unique for all type of connections. In the bottom of the window, you will see the Status Bar that provides information about the application and the current process state. For details, see [Main Window](#).

Each connection window has its own toolbar which contains functions related to the corresponding connection. For details, see [Connection Window](#).

All main windows in the application have the same structure. Each window has its own toolbar in the top of the window which contains a group of functions for the corresponding window, a working pane which is normally represented as a grid and, for some windows, a command bar in the right bottom of the window which contains tools to manage the working pane. For details, see [PowerDBTools Common Actions](#).

15.1. Main Window

This is the main window of the application where the connection is opened. This window has its own toolbar which contains the general functions for the connection. The main toolbar may contain user defined buttons for easy and quick access to some frequently used applications. For details, see [Applications Window](#).

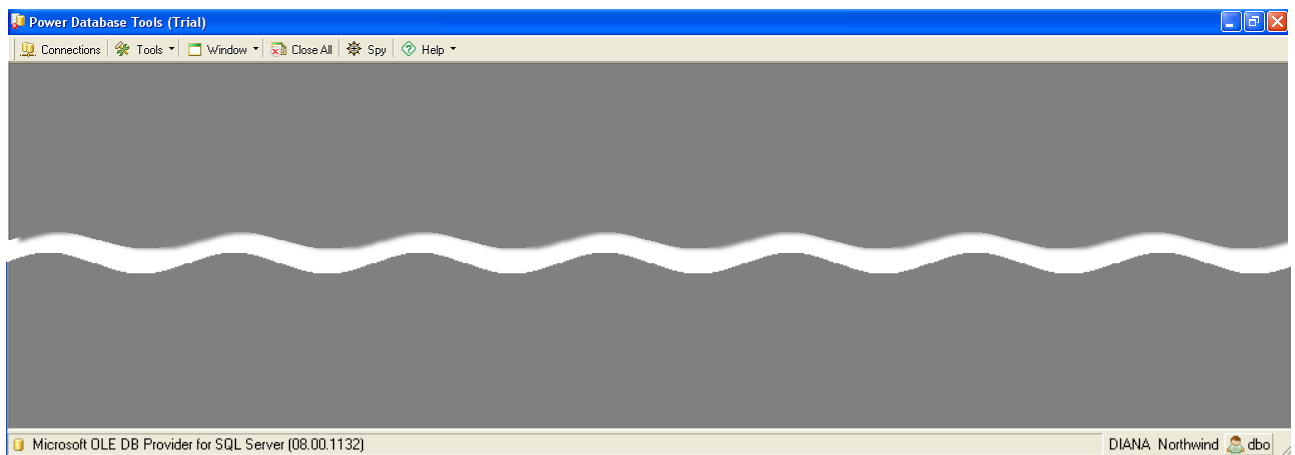








Figure 64 – Main Window

The **Status Bar** in the bottom of the **Main Window** provides information about the current connection and the current process state.

Toolbar

The application main toolbar contains the following options:

Icon Preview	Name	Description
 Connections	Connections	Opens Connections Window .
 Tools ▾	Tools	<p>This menu has the following options:</p> <ul style="list-style-type: none"> • Compare Databases – opens window which allows you to compare two databases of same or different types. For details, see Compare Databases chapter. • Convert Databases – opens window which allows you to convert the database from one type to another. For details, see Convert Database chapter. • System Information – opens Operating System (OS) specific system information. • Options – opens a window with all options of PowerDBTools. For details see, Application Options. • Applications – allows you to add different application icons to the PowerDBTools application's toolbar for easy and quick access. For details, see Applications Window chapter. • Custom Applications – these are custom buttons configured from the Applications Window used for easy and quick access to frequently used applications.
 Window ▾	Window	<p>This menu has the following options:</p> <ul style="list-style-type: none"> • Cascade, Tile Horizontal and Tile Vertical options are used to arrange the open windows in the corresponding order within the PowerDBTools application window. • Arrange Icons – when multiple connections are established, this option is used to arrange minimized connection windows in the PowerDBTools window. • Close All - closes all open windows. • Open Windows – this option is available if there are any open Connection Windows present in the application. Here are displayed all open windows. You can move through the open windows by choosing them from this menu.
 Close All	Close All	Closes all open windows.
 Spy	Spy	Allows you to drag and drop sight icon to any opened window grid inside the PowerDBTools and to obtain the grid related information. For details, see Spy Window chapter.
 Help ▾	Help	<p>This menu has the following options:</p> <ul style="list-style-type: none"> • Contents Databases - opens an online help of the application. • Index – opens the index of the online help. • Search – allows you to search the required topic in the online help. • About – opens a standard about window of the application.
	Custom Applications	These are custom buttons configured from the Applications Window used for easy and quick access to frequently used applications.

Status Bar

The status bar of the PowerDBTools application displays details about the application current status, performed actions, occurred errors and some other useful information. If the PowerDBTools is connected to the database, the following information is also displayed on the right side of the Status Bar:

- User accessed the database
- Database information
- Database Version

15.1.1. Applications Window

In this window you may define the custom button in the application main toolbar. Custom buttons may be quick references to the most used other applications installed in your operation system. This is a useful possibility to make an easy jump to the frequently used applications.

In this window you may define the custom button in the application main toolbar. Custom buttons may be quick references to the most used other applications installed in your operation system. This is a useful possibility to make an easy jump to the frequently used applications.

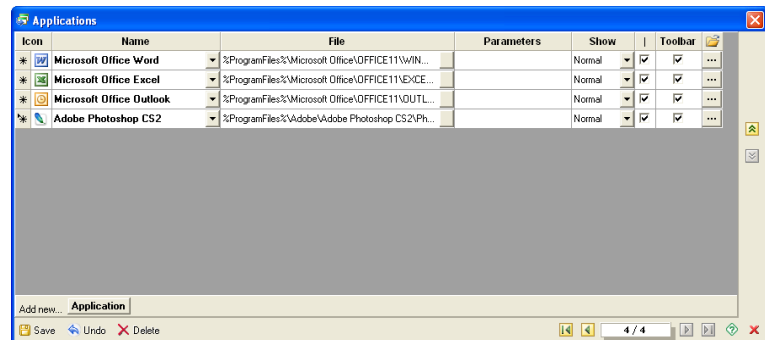



Figure 65 – Applications Window

The **Applications** option in the **Tools** menu of the main toolbar opens **Applications** window. The **Applications** window list all custom applications manually added to the PowerDBTools application's toolbar and the **Tools** menu.

Columns

Following columns are available in this window:

- **Icon** - displays the icon selected for the application. **Select Icon** right click menu item of this field is used to choose the icon file (in *.ico format). If the selected program has an icon then this field automatically displays the application's icon.
- **Name** - is used to type the name of the application to be added to the toolbar.
- **File** - displays the path to the application. A small button in this field is used to select the executable file of the application.
- **Parameters** - requires you to enter parameters for the application startup.
- **Show** - list is used to select the way how to load application from PowerDBTools and how the icon of the application will appear in the PowerDBTools application's toolbar.
 - **Normal** – the application will load in its normal preview.
 - **Maximized** – the application will load maximized.
 - **Hide** – the application icon will be hidden in the toolbar and the menu, but will be saved in the Applications window.
- **Separator** - checkbox is used to select whether the toolbar separator should be between the selected application and the next one, if available.

- **Toolbar** - checkbox is used whether the selected application's icon will be visible in the main toolbar of PowerDBTools.
- **Open Application** () - button at the end of the line is used to open the selected application right away.

Right Click Menu

Following options are available in the right click menu of this window:


For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Select Icon** - used to choose the icon file for application. Available only on Icon column.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Add New Application	Adds a new application line to the list. Any newly added line to the Applications list, even if it is empty, will appear on the PowerDBTools application's toolbar and the Tools menu.

15.1.2. Spy Window

This function is used to grab the windows containing grids and displays the properties for the selected grid.



Figure 66 – Spy Window

15.2. Connection Window

The connections are opened as child windows inside the PowerDBTools application's main window. Each connection has a toolbar with the connection related tools. All windows related to the connection are opened inside the corresponding connection window.

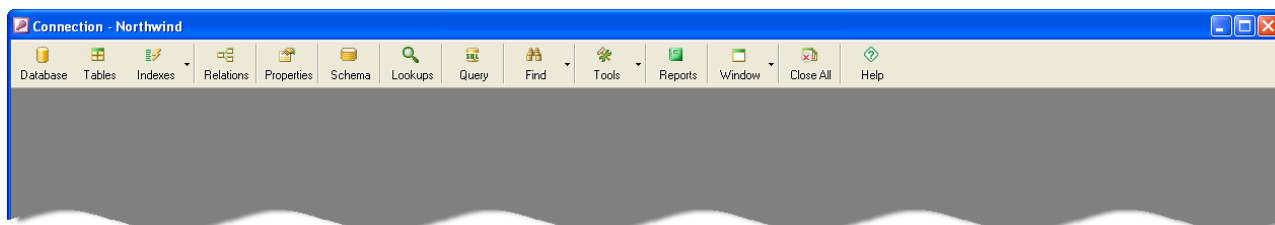
















Figure 67 – Connection Window

Toolbar

The connection toolbar contains the following options:

Icon Preview	Name	Description
 Database	Database	Opens Database window. For details, see Database Management chapter.
 Tables	Tables	Opens Tables/Views Management window. For details, see Tables/Views Management chapter.
 Indexes	Indexes	This menu contains options to manage database Indexes, Primary Keys, Foreign Keys. For details, see Indexes / Primary Keys / Foreign Keys Management chapter.
 Relations	Relations	Opens Database Relations window. For details, see Database Relations chapter.
 Properties	Properties	Opens Properties window which contains connection properties. For details, see Properties Window chapter.
 Schema	Schema	Opens Database Schema window. For details see Database Schema chapter.
 Lookups	Lookups	Opens Lookups window. For details, see Lookups chapter.
 Query	Query	Opens the Query Manager window. For details, see Query Management chapter.
 Find	Find	This menu contains options to find components or data values in database. For details, see Find chapter.
 Tools	Tools	This menu contains main tools and utilities used to manage the database. For details, see Tools and Utilities chapter.
 Reports	Reports	Opens Reports window. For details, see Reports chapter.
 Window	Window	This option is available if there are any open windows exist in the connection window. This menu displays all open windows in connection window and allows you to move through the open windows by choosing them from this menu.
 Close All	Close All	Closes all open windows in connection window.
 Help	Help	Opens the online help of the application.




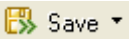


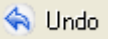

15.3. PowerDBTools Common Actions

All main windows in the PowerDBTools application have the same structure. Each window has a toolbar at the top, which contains functions for the corresponding window, a working pane, which is normally represented as a grid, and a command bar for some windows, which contains tools to work with the grid.

This chapter contains the description of all those actions that are repeatedly present in different windows. Depending on the window content and functions available in that window, some of below actions may not be present. Any additional window specific actions will be covered in the individual chapters.

Common Toolbar

Below are listed common actions that are present in the toolbar of each window:

Icon Preview	Name	Description
	Select All Deselect All	These buttons are used to select all components in the list and deselect all if previously selected.
	Refresh	Button is used to refresh the displayed information in the window or the selected frame.
	Save	Button is used to save the changes made in the window.
	Save as	<p>This list provides options to save the displayed data pane or grid information in the well known database formats:</p> <ul style="list-style-type: none"> • Save as Extensive Markup Language (xml) Format File • Save as Advanced Data TableGram (adtg) Format File • Save as Microsoft Excel (xls) Format File • Save as Crystal Reports Field Definition (ttx) Format File <p>Note: Depending on the window where this function appears, some of the file types to save as the grid may be missing.</p>
	Load	<p>This button is used to load a certain saved script from the PC. Depending on the data to be loaded, the following types of files may be required to select:</p> <ul style="list-style-type: none"> • Load From Extensive Markup Language (xml) Format File – this option opens a file chooser to select an *.xml file to import. • Load From Advanced Data TableGram (adtg) Format File – this option opens a file chooser to select an *.adtg file to import. • Load From Microsoft Excel (xls) Format File – this option opens a file chooser to select an *.xls file to import. • Load From dBASE (dbf) Format File – this option opens a file chooser to select an *.dbf file to import. • Load From Microsoft Data Link (udl) Format File – this option opens a file chooser to select an *.udl file to import.
	Delete	Removes the selected record from the list.
	Undo	Cancels the previous one or more actions.
	Print	Print the window content or the selected frame of the window in a printer friendly format.

Common Right Click Menu

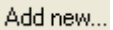
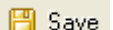

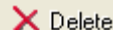




Below are listed common actions that are present in the right click menu accessed on the grid. Most of the right click menu actions are also available in the Command Bar (see below).

- **Column Name** – this is always the first option in the right click menu. It shows on which column the right click menu was accessed.

- **Find First** (CTRL+F) – this option opens a standard **Find** dialog box with additional selection to find the given string in the selected or all columns of the grid. The first entry matching the defined criteria will be highlighted.
- **Find Next** (F3) and **Find Previous** (ALT+F3) – these options are only available when something has been already searched by **Find First** operation.
- **Auto Size Header** – the selected column will be automatically resized to the column name length.
- **Auto Size Column** - the selected column will be automatically resized to the longest value in the column.
- **Auto Size All Headers** – all columns will be automatically resized to each column name length.
- **Auto Size All Columns** - all columns will be automatically resized to the longest value in each column.
- **Expand Row** – expands the sub-table of the selected entry.
- **Collapse Row** – collapses the sub-table of the selected entry.
- **Expand All** - expands all sub-tables in the list.
- **Collapse All** - collapses all sub-tables in the list.
- **Select All Rows** (CTRL+A) – selects all rows in the grid.
- **Unselect All Rows** – when selected, this option unselects all rows in the grid.
- **Hide Row(s)** – hides the selected row.
- **Unhide Row(s)** – displays all the hidden rows in the grid.
- **Copy** – copies the selected text to the clipboard.
- **Paste** - pastes the copied text from clipboard.

Common Command Bar

Below are listed common actions that are present in the command bar located in the bottom and vertical right side bar of each window. Most of windows have no vertical right side bar.

Icon Preview	Name	Description
	Add New ...	Button is available in the windows where grid is present. It is used to add a certain entity (record, column, index, etc.) to the grid, depending on the button description. For hierarchic data displayed in the grid, the command bar contains Add buttons for adding corresponding entities to each levels of the hierarchy.
	Save	Save changes made in the grid.
	Undo	Used to undo all unsaved changes made in the grid.
	Delete	Delete the selected row(s).
	Expand All	This option is available for windows where hierarchic data is displayed and is used to expand all the sub-data.
	Collapse All	This option is available for windows where hierarchic data is displayed and is used to collapse all sub-data.
	Horizontal View Style	This option is available for windows where hierarchic data is displayed. With this option the sub-table will appear beside the main table.
	Vertical View Style	Option is available for windows where hierarchy data is displayed. With this option the sub-table will appear below the main table.

Icon Preview	Name	Description
	Move First, Move Previous, Move Next, Move Last	Buttons are used to move through the records in the grid.
	Record Number	Field displays current record number and the count of the selected records in grid. Note: Depending on the content of the window and the requirements, the navigation bar may be missing the Record Number field.
	Go to Record Number	Field requires a numeric number of the record in the grid to perform a quick jump to it.
	Up and Down	Arrows are located in the right side vertical command bar of the window and are used to move the selected entry within the grid. By moving Up , the selected entry will go one level up in the grid; by moving Down , the selected entry will go one level down in the grid.
	Select All and Deselect All	Buttons are used to select all components in the list and deselect all if previously selected.

15.4. Data Output Window

Any type of output data is viewed in the **Data Output Window**. In this application you can view or edit data outputs of tables, views, custom SQL queries and stored procedures.

OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate	ShippedDate	ShipVia	Freight	ShipName	ShipAddress	ShipCity	ShipRegion
10248	VINET	5	04 июл 1996 00:00	01 авг 1996 00:00	16 июл 1996 00:00	3	32.38p	Vins et alcools Chev...	59 rue de l'Abbaye	Reims	
10249	VINSP	6	05 июл 1996 00:00	16 авг 1996 00:00	10 июл 1996 00:00	1	11.61p	Toms Spezialitäten	Luisenstr. 48	Munster	
10250	HANAR	4	08 июл 1996 00:00	05 авг 1996 00:00	12 июл 1996 00:00	2	65.83p	Hanari Carnes	Rua do Paco, 67	Rio de Janeiro	RJ
10251	VICTE	3	08 июл 1996 00:00	05 авг 1996 00:00	15 июл 1996 00:00	1	41.34p	Victualles en stock	2, rue du Commerce	Lyon	
10252	SUPRD	4	09 июл 1996 00:00	06 авг 1996 00:00	11 июл 1996 00:00	2	51.30p	Supremes delices	Boulevard Tirou, 255	Charleroi	
10253	HANAR	3	10 июл 1996 00:00	24 июл 1996 00:00	16 июл 1996 00:00	2	58.17p	Hanari Carnes	Rua do Paco, 67	Rio de Janeiro	RJ
10254	CHOPS	5	11 июл 1996 00:00	08 авг 1996 00:00	23 июл 1996 00:00	2	22.98p	Chop-suey Chinese	Hauptstr. 31	Bern	
10255	RICSU	9	12 июл 1996 00:00	09 авг 1996 00:00	15 июл 1996 00:00	3	148.33p	Richter Supermarkt	Starenweg 5	Geneve	
10256	WELLI	3	15 июл 1996 00:00	12 авг 1996 00:00	17 июл 1996 00:00	2	13.97p	Wellington Importado...	Rua do Mercado, 12	Resende	SP
10257	HILAA	4	16 июл 1996 00:00	13 авг 1996 00:00	22 июл 1996 00:00	3	81.91p	HILARION-Abastos	Carrera 22 con Ave. ...	San Cristobal	Tachira
10258	ERNSH	1	17 июл 1996 00:00	14 авг 1996 00:00	23 июл 1996 00:00	1	140.51p	Ernst Handel	Kirchgasse 6	Graz	
10259	CENTC	4	18 июл 1996 00:00	15 авг 1996 00:00	25 июл 1996 00:00	3	3.25p	Centro comercial Mo...	Sieras de Granada 9...	Mexico D.F.	
10260	OTTIK	4	19 июл 1996 00:00	16 авг 1996 00:00	29 июл 1996 00:00	1	55.09p	Ottiles Kasseladen	Mehrheimerstr. 369	Köln	
10261	QUEDE	4	19 июл 1996 00:00	16 авг 1996 00:00	30 июл 1996 00:00	2	3.05p	Que Delicia	Rua da Panificadora...	Rio de Janeiro	RJ
10262	RATTC	8	22 июл 1996 00:00	19 авг 1996 00:00	25 июл 1996 00:00	3	48.23p	Rattlesnake Canyon ...	2817 Milton Dr.	Albuquerque	NM
10263	ERNSH	9	23 июл 1996 00:00	20 авг 1996 00:00	31 июл 1996 00:00	3	146.06p	Ernst Handel	Kirchgasse 6	Graz	
10264	FOLKO	6	24 июл 1996 00:00	21 авг 1996 00:00	23 авг 1996 00:00	3	3.67p	Folk och fa HB	Akergatan 24	Bracke	
10265	BLONP	2	25 июл 1996 00:00	22 авг 1996 00:00	12 авг 1996 00:00	1	55.28p	Blondel pere et fils	24, place Kleber	Strasbourg	
10266	WARTH	3	26 июл 1996 00:00	06 сен 1996 00:00	31 июл 1996 00:00	3	25.73p	Wartian Herkku	Tonikatu 38	Oulu	
10267	FRANK	4	29 июл 1996 00:00	26 авг 1996 00:00	06 авг 1996 00:00	1	208.58p	Frankenversand	Berliner Platz 43	Munchen	
10268	GROSR	8	30 июл 1996 00:00	27 авг 1996 00:00	02 авг 1996 00:00	3	66.29p	GROSELLA-Restaur...	57 Ave. Los Palos Gr...	Caracas	DF
10269	WHITC	5	31 июл 1996 00:00	14 авг 1996 00:00	09 авг 1996 00:00	1	4.56p	White Clover Markets	1029 - 12th Ave. S.	Seattle	WA
10270	WARTH	1	01 авг 1996 00:00	29 авг 1996 00:00	02 авг 1996 00:00	1	136.54p	Wartian Herkku	Tonikatu 38	Oulu	
10271	SPLIR	6	01 авг 1996 00:00	29 авг 1996 00:00	30 авг 1996 00:00	2	4.54p	Split Rail Beer & Ale	P.O. Box 555	Lander	WY
10272	RATTC	6	02 авг 1996 00:00	30 авг 1996 00:00	06 авг 1996 00:00	2	98.03p	Rattlesnake Canyon ...	2817 Milton Dr.	Albuquerque	NM
10273	QUICK	3	05 авг 1996 00:00	02 сен 1996 00:00	12 авг 1996 00:00	3	76.07p	QUICK-Stop	Taucherstr.7e 10	Cunewalde	
10274	VINET	6	06 авг 1996 00:00	03 сен 1996 00:00	16 авг 1996 00:00	1	6.01p	Vins et alcools Chev...	59 rue de l'Abbaye	Reims	
10275	MAGAA	1	07 авг 1996 00:00	04 сен 1996 00:00	09 авг 1996 00:00	1	26.93p	Magazzini Alimentari ...	Via Ludovico il Moro ...	Bergamo	
10276	TORTU	8	08 авг 1996 00:00	22 авг 1996 00:00	14 авг 1996 00:00	3	13.84p	Tortuga Restaurante	Avda. Azteca 123	Mexico D.F.	
10277	MORGK	2	09 авг 1996 00:00	06 сен 1996 00:00	13 авг 1996 00:00	3	125.77p	Morgenstern Gesund...	Heerstr. 22	Leipzig	
10278	BERGS	8	12 авг 1996 00:00	09 сен 1996 00:00	16 авг 1996 00:00	2	32.69p	Berglunds snabbkop	Berguvsvagen 8	Lulea	
10279	LEHMS	8	13 авг 1996 00:00	10 сен 1996 00:00	16 авг 1996 00:00	2	25.83p	Lehmanns Marktstand	Magazinweg 7	Frankfurt a.M.	

Figure 68 – Data Output Window

The **Data Output Window** may appear different instances of the PowerDBTools application. For example, it appears by double clicking on the table in the [Tables/Views Grid](#) or [Database Management](#) windows. It displays the content of the corresponding table, with all the inserted data and available columns in the single list.

In this window you can view or edit data (editing is allowed on tables and some kind of views), filter, sort, find values, view ADO events on recordset, export the data, etc. All changes will be applied to the source database on the server.

In this window you may also manage BLOB data in the database. For details, see [BLOB Data Window](#).

The **Data Output Window** also displays certain useful data information such as count of records and time to load the data. Hierarchical data is also available in this window.

In the **Tables/Views Preview** and **Query Output** type of grids, which also open in the Data Output Window, you may order columns in the table by selecting a small arrow next to the column name in the table header and choosing which column you would like to see there instead.

Sometimes, before opening **Data Output Window** you may get an intermediate window where you will be asked to select columns and records count of output data. This happens when the number of records in the table exceeds the number configured in the **Max. Records** field of [Application Options](#) (see [Database](#) tab).




The intermediate window contains a list of all columns present in the table and allows you to select or deselect columns to be displayed in the **Data Output Window**.

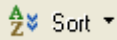





The total number of records available in the corresponding table is displayed in this window. The **Max. Records** field indicates the number configured in the [Application Options](#). You may either load the number of records pre-configured in the PowerDBTools application's options or to define larger number to fit all (or the required amount of) records in the table. The **All Records** checkbox next to the **Max. Records** field is used to load all records in the table.

When data output causes an error **Information** window appears instead of the **Data Output Window**. Error messages are displayed there (see [Information Window](#)).

Toolbar

Following options are available in the toolbar of this window:

Icon Preview	Name	Description
 Fields	Fields	Opens a window with all the columns in the table preview window. For details see Fields Window .
 Properties ▼	Properties	This button opens recordset Properties Window . The arrow next to this button opens a menu which contains Rowset Properties option that displays low level rowset properties using OLE DB technology. See rowset Properties Window (which is divided in two panes, where left pane contains rowset columns, and right pane contains column properties).
 Filter ▼	Filter	This option is used to filter the records in the table by some criteria. By clicking on the Filter button in the toolbar, a small window appears where the filter script should be defined. Here, the Fields drop down list is used to select field(s) of the recordset to be added to the filter condition script. The Relation drop down list is used to select the relation between the selected field and the defined criteria. The criteria should be defined

Icon Preview	Name	Description
		manually in the filter script body. The arrow next to this button opens a menu which contains the following options: <ul style="list-style-type: none"> • Remove Filter - removes the defined filter criteria. • Show Special Filter Information – shows special filter information such as Pending, Affected, Fetched and Conflicting records.
 Sort ▾	Sort	Allows you to sort the table columns according to one or more criteria. By clicking on the Sort button in the toolbar, a small window appears where the sort script should be defined. Here, the Fields drop down list is used to select column(s) of the table to be added to the script. The Sort Order drop down list is used to select the ascending or descending sorting order of the column. You may sort the table by multiple columns, separating them in the script with the sign ";". The arrow next to this button opens a menu which contains Remove Sort used to remove the defined sort criteria.
 Find ▾	Find (CTRL+F)	This button opens a standard Find dialog box with the well known search criteria. The first entry matching the defined criteria will be highlighted in the table. A small arrow button next to the Find button in the toolbar contains Find Next (F3) and Find Previous (ALT+F3) options to move between the records matching the find criteria.
 Events	Events	This button opens a window where navigation and database management events and event details are displayed. For details see Events Window .
 Layout ▾	Layout	This button opens Infragistics Layout settings of the window's grid, see chapter Layout . Submenu items Save Layout and Load Layout allows you to save the Layout on a disk and load it from the disk. This button is only present when it is enabled from Layout Form Style list in the General tab of Application Options window.
 Hierarchy	Hierarchy	Displays read-only graphical presentation of the database hierarchy and its levels. Clicking on each level in the Hierarchy window, sub-levels become enable.
 Save	Save	Offers an option to save the displayed data on the disk in different formats (xml, xsl, etc.).

Right Click Menu

Following options are available in the right click menu of this window:

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

- **Show Primary Table Related Record** - displays the corresponding related record data in primary table. This option is available if selected column is a physical or logical foreign column. This option opens a window, where **Fields** of the primary table with **Values** and field **Types** are listed.

- **Set Column Caption** – allows you to set column caption. By default it is source field name.
- **Set Column Format** – for the predefined value types like currency, date and time information, etc., this option requires you to define the format of the value displayed in this column.
- **Set Column Alignment** – this option allows you to define the alignment of the text (left, right or center). The value **Default** is used to set the default alignment.
- **Set Column Multi-Line** – when this option is selected, any long data inserted in the table cell will be wrapped and displayed in multiple lines. When this option is selected, a **Set Column Single-Line** option appears in the right click menu. This allows you to switch off the multi-line representation of data and turns to the single line representation. With the single line representation, if the data is long and column width is not large enough, some information will not be fully displayed in the table. You will need to expand the column width to see the whole information.
- **Set Column Style** – allows you to set the style in which the column value will be displayed. The following options are available here: Edit, Checkbox, Calendar, DropDown, DropDown List, DropDown Validate, HTML.
- **Set Column Lookup** – allows you to set a lookup to the column of the grid. You may choose from the predefined lookups (from [Lookups](#)) or you may create a new lookup here. However, when creating a new lookup here, you will get a lookup SQL script editor described in the [Lookups](#) chapter.
- **Mark Row** – this option marks the selected row of the table.
- **Mark Column** - this option marks the selected column of the table.
- **Mark Cell** - this option marks the selected cell of the table.
- **Column Layout** – allows to set column's Infagistics layout. See [Layout](#) window. This option is not available when **Layout Form Style** is set to disabled in the **General** tab of the [Application Options](#) window.
- **Row Layout** – allows to set row Infagistics' Layout. See [Layout](#) window. This option is not available when **Layout Form Style** is set to disabled in the **General** tab of the [Application Options](#) window.
- **Cell Layout** - allows to set cell Infagistics' Layout. See [Layout](#) window. This option is not available when **Layout Form Style** is set to disabled in the **General** tab of the [Application Options](#) window.
- **Show BLOB Data** – displays the uploaded BLOB data. See [BLOB Data Window](#).
- **Load BLOB Data From File** – used to upload own BLOB data to the table. This option opens a file chooser to select the file to upload to the database.
- **Save BLOB Data To File** – used to save the selected BLOB data to the PC. This option opens a file chooser to define the location where the file will be saved on your PC.
- **Empty BLOB Data** – used to remove the selected BLOB data from the table.

Command Bar

Following options are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
 Requery	Requery	<p>Refreshes the information of the table. The refresh properties should be selected in the opened window, which contains the following components:</p> <ul style="list-style-type: none"> • Execute Option – this drop down list indicates the way provider executes the requery operation. • Command Type - this drop down list indicates the way requery argument should be interpreted. <p>For more details about these settings, see the ADO API Reference for the "recordset requery method".</p>
 Resync	Resync	<p>Synchronizes the selected one record or a group of records, or a whole table (according to the defined settings) to the data on the server. The refresh properties should be selected in the opened window, which contains the following components:</p> <ul style="list-style-type: none"> • Affect Record – indicates which information should be synchronized: All, AllChapters, Current, Group. • Resync Values – indicates which values are going to be synchronizes and whether underlying values are overwritten or not. • Unique Table – allows you to insert the table which values are to be synchronized. A small button will fill in the currently opened table name into this field. • Retrieve Resync Command From Source – generates an SQL script based on the selected options. Press OK to run the resync operation.
 1	Band	The hierarchy level of the displayed data.
 0.016	Execute Time	Indicates the duration (in seconds) during which the table sources have been loaded. This may indicate the time when the sources have been loaded from the server or may indicate the time of the query execution.
 Show Nulls	Show Nulls	Displays "NULL" when the field value is empty.

15.4.1. Fields Window

The **Fields** window contains all columns present in the data output with the appropriate details.

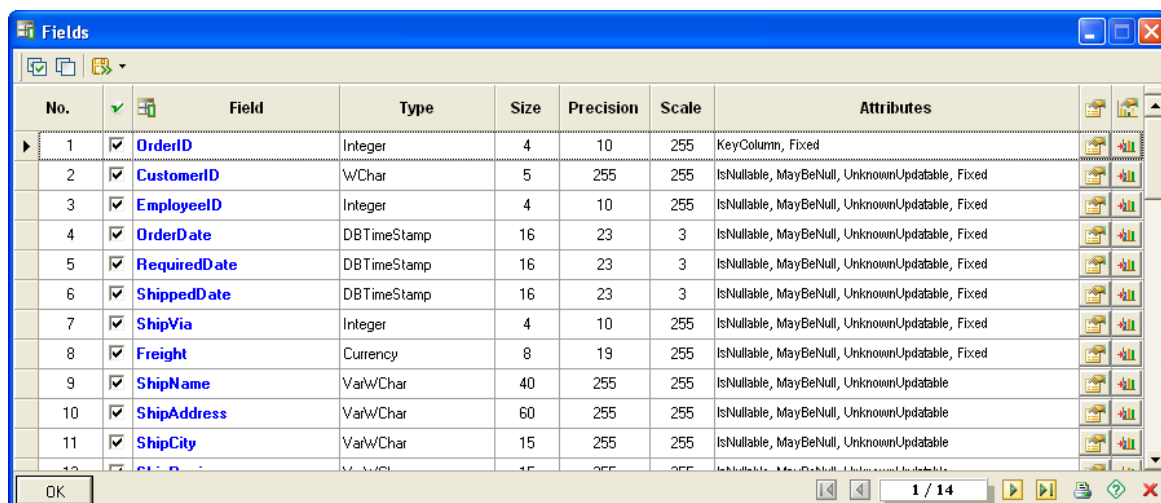


Figure 69 – Fields Window

Columns

Following columns are available in this window:

- **No** – indicates the identity number of the list.
- **Select** – checkbox allows you to show or hide the column in the grid.
- **Field** – the name of the field in the recordset.
- **Type** – the type of the field values.
- **Size** – the maximum size of the field.
- **Precision** - in case if the field type is numeric, this indicates the integer part of the number.
- **Scale** - in case if the field type is numeric, this indicates the fractional part of the number.
- **Attributes** – attributes of the field.
- **Properties** – field properties (see [Properties Window](#)).
- **Statistics** – this button opens the statistics over the values in the column. See details in [Column Statistics](#) chapter.

Toolbar

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

15.4.2. Events Window

The **Events** window displays navigation and database management events and event details are displayed.

No.	Event	Reason	Status	Description
1	WillMove	Move	OK	
2	MoveComplete	Move	OK	
3	WillMove	Move	OK	
4	MoveComplete	Move	OK	
5	WillChangeRecord	FirstChange	OK	
6	WillChangeField		OK	Field - ShippedDate Value - 17.07.1996
7	FieldChangeComplete		OK	Field - ShippedDate Value - 13.07.1996
* 8	RecordChangeComplete	FirstChange	OK	

Figure 70 – Events Window

Columns

Following columns are available in this window:

- **No** – number of the event collected
- **Events** – indicates the name of the event
- **Reason** – the reason why the event occurs
- **Status** – the status of the event (OK means event took place without failures)
- **Description** – an optional event description
- **Clear** – this button in the bottom of the window allows you to clear the collected events history.

Toolbar

For description of standard functions in this toolbar, refer to [PowerDBTools Common Actions](#) chapter.

Right Click Menu

For description of standard functions in this menu, refer to [PowerDBTools Common Actions](#) chapter.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

15.4.3. BLOB Data Window

This window provides an exclusive opportunity to view BLOB (Binary Large Object) data inserted in the tables. For example, bitmaps, plain or rich format texts can be displayed here. You may also upload your own BLOB data or save the BLOB data in the table locally to PC.

Type list is used to select the type of the BLOB data (image, text or rich text). Depending on the selection in this list, the appropriate information (either a picture or a text) is displayed in this window.

Stretched checkbox is available for image BLOBs only. When this checkbox is selected the image is resized to the window size; otherwise when this checkbox is not selected the image is displayed in its original size.

For description of standard functions in this window, refer to [PowerDBTools Common Actions](#) chapter.

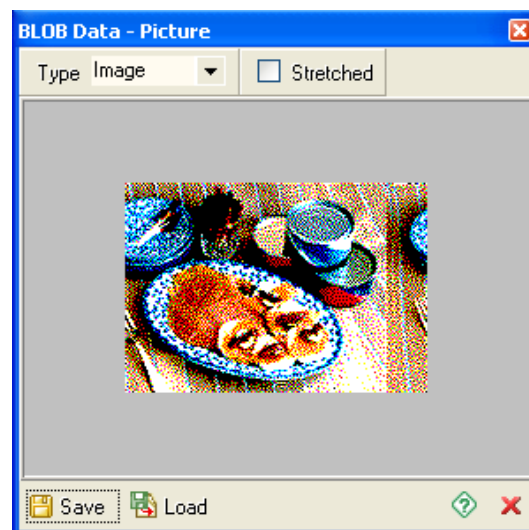


Figure 71 – BLOB Data Window

15.5. Information Window

The Data Output generation errors may take place while execution of SQL Scripts, Views, Procedures and Functions.

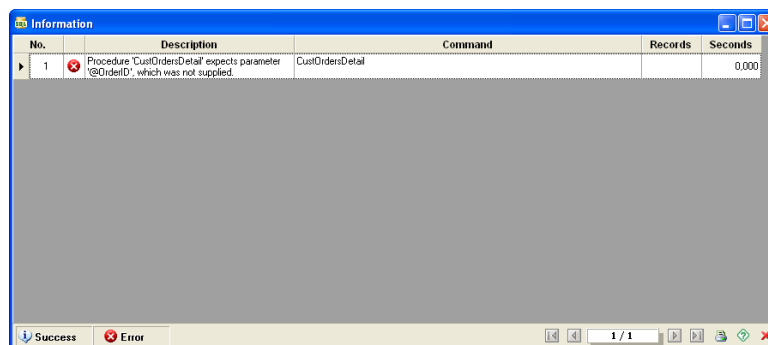


Figure 72 – Information Window

If the procedure or function cannot be launched due to connectivity problems or incorrect code definition, the execution will open SQL information window, where report information related to the procedure execution, its result, duration and system feedback. **Success** button in the bottom of the **SQL Information** window allows you to filter and display the successful information only. **Error** button is used to filter and display the erroneous information only. Both of these buttons should be pressed to display whole information.

15.6. Error Information Window

The **Error Information Window** appears when an incorrect data is inserted in the field. For example, when the text is inserted in the field where integer value is required.

This window displays all input errors occurred at the moment.

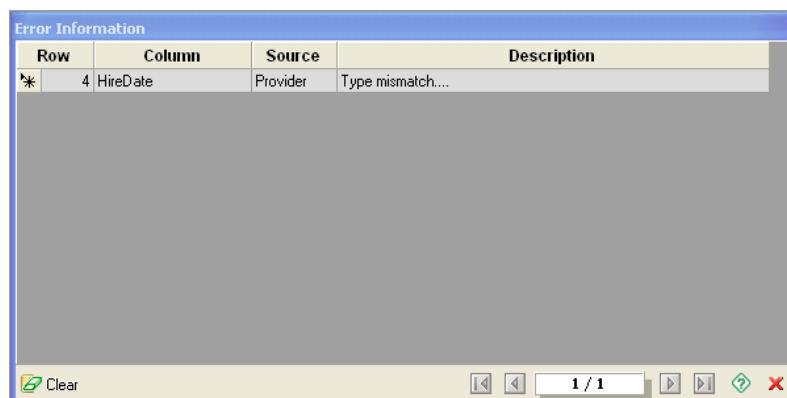


Figure 73 – Error Information Window

15.7. Properties Window

The **Properties** window may appear in different instances of the PowerDBTools application. It may open connection properties, table or recordset properties, etc.

Some **Properties** windows (such as Connection Properties, Field Properties, etc.) are divided into two frames (with OLE DB **Main** properties in the top frame and the **Extended** provider specific properties in the bottom frame) and contain all characteristics and parameters of the object (connection, field, etc.).

Other properties windows contain only one frame with the selected object main characteristics.

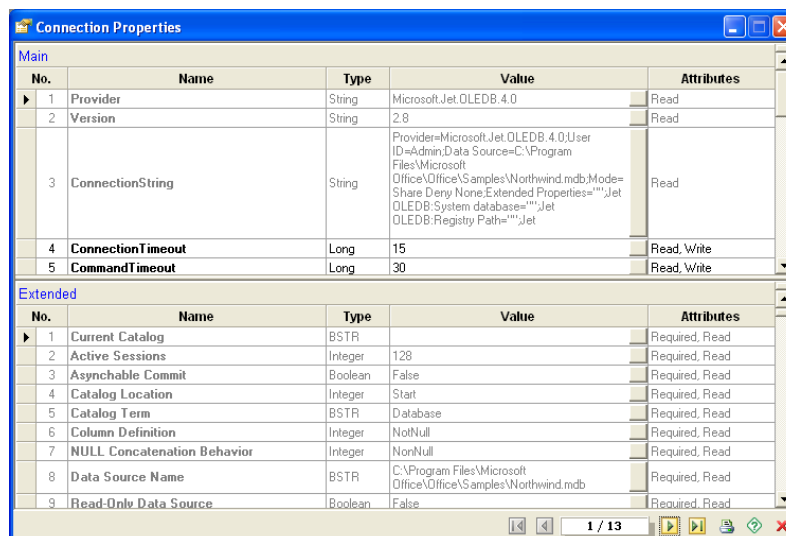


Figure 74 – Properties Window

The list of parameters in this window is individual for the different connection provider types. Therefore, the description of parameters in this window is out of scope of this document.

Independent on where the Properties window was accessed from, it contains the same columns and command bar.

Columns

Following columns are available in this window:

- **Name** – indicates the name of the parameter.
- **Type** - indicates the type of the parameter.
- **Value** – indicates the value of the parameter. Values colored in gray cannot be modified, while other can be adjusted as needed.
- **Attributes** - indicates the permissions assigned to the corresponding parameter:
 - **Read** – indicates the parameter's value is read-only and cannot be modified.
 - **Write** – indicates the parameter's value can be modified.
 - **Required** – indicates the parameter is mandatory.

Command Bar

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

15.8. Input Window

The **Input Window** appears from different instances of PowerDBTools application. For example, it appears from **Database** and **Tables** windows. This popup window is used to insert value to the table cell, such as the description or the default value.

The Input Window appears by double clicking on the cell where the information should be inserted. It contains a blank space to insert the value and the following functions available in the command bar:

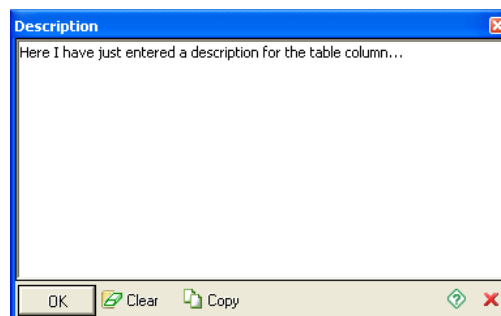





Figure 75 – Input Window

Icon Preview	Name	Description
	OK	Applies the inserted value to the cell.
	Clear	Clears the Input Window 's blank space by deleting anything previously inserted.
	Copy	Copies all the inserted text in the Input Window 's blank space. To paste the copied text, use the CTRL+V key combination.

15.9. Processing Log Window

This is an output window which contains a processing log generated as a result of a complex operation handled in the PowerDBTools application. For example, this window appears as a result of [Compare Databases](#) or [Convert Database](#) operation, or when using **Check Name Spelling** and **Validate Indexes/Keys** functions in [Indexes / Primary Keys / Foreign Keys Management](#) window, etc.

The processing log is printed in the Rich Text Format and allows to save the output as a *.rtf file.

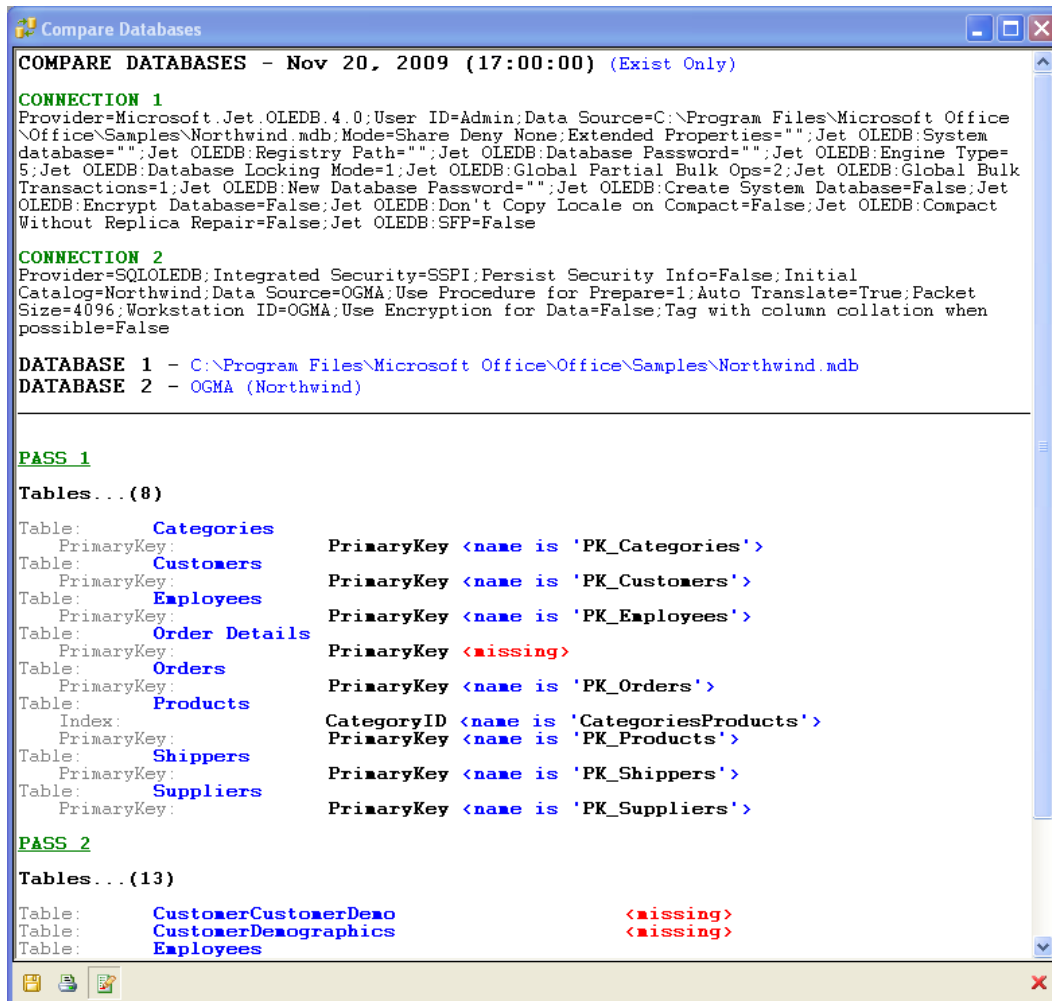





Figure 76 – Processing Log Window

Command Bar

Following functions are available in the command bar of this window:

For description of standard functions in this command bar, refer to [PowerDBTools Common Actions](#) chapter.

Icon Preview	Name	Description
	Save as Rich Text	Button is used to save the generated processing log as a *.rtf file.
	Print	Print the generated processing log.
	Edit Text	Edit the comparison output text and save it.

15.10. Layout Window

This window contains a large number of look-and-feel options (fonts, coloring, styles, and other appearance related settings) for the displayed grid. This window is created on the basis of standard Infragistics UltraSuite module and is out of scope of this document.

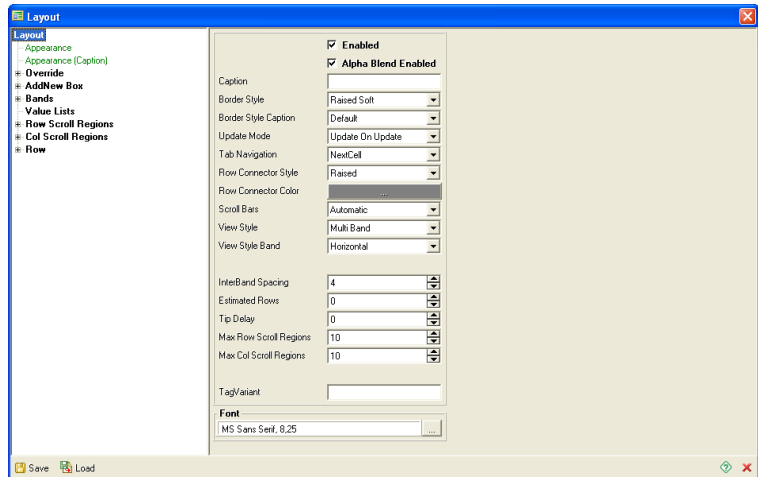


Figure 77 – Layout Window

16. Application Options

The PowerDBTools application provides a large group of options to configure application. You can access the configuration from the **Options** item in the **Tools** menu of the application's main toolbar.

The **Options** window contains the PowerDBTools application's global settings. This window consists of a number of tabs with grouped settings in each of them.

16.1. General

This tab contains application related global settings:

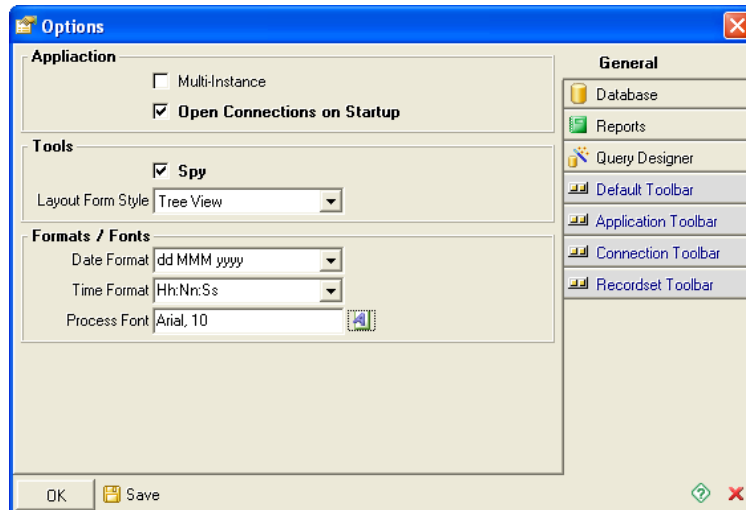


Figure 78 – Options Window – General tab

- **Application**
 - **Multi-Instance** – this checkbox is used to select whether PowerDBTools application is a multi-instance application or not, i.e. it can be opened in multiple sessions in different windows.
 - **Open Connections on Startup** – checkbox is used to select whether the **Connections** window will be opened on the application's startup.
- **Tools**
 - **Spy** – indicates whether Spy option should be displayed in the menu or not.
 - **Layout Form Style** – this option refers to the [Layout](#) window only. When **Tree View** is selected in this list, the settings in the Layout window will be grouped in the tree view, otherwise when **Tabs View** is selected here, the settings in the Layout window will be grouped in tabs. If this option is disabled, no Layout window will be opened.
- **Formats / Fonts**
 - **Date and Time Formats** – these lists are used to select the date and the time formats used in the PowerDBTools.
 - **Process Font** – used to select the font type and style for the text in the [Processing Log Window](#).

16.2. Database

This tab contains database related global settings:

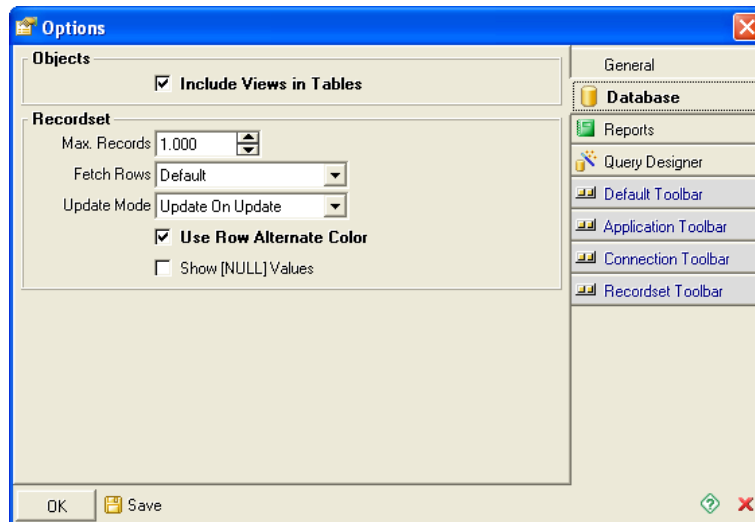


Figure 79 – Options Window – Database tab

- **Objects**
 - **Include Views in Tables** – select whether the database views (queries) should be displayed in the tables lists' preview or not.
- **Recordset**
 - **Max. Records** – indicates the maximum number of records returned by query. If the number of records exceeds the number displayed here, you will get an intermediate window where you will be asked to select the number of records to be displayed. This option is zero (no limit) by default.
 - **Fetch Rows** – how the grid will preload and/or cache rows. Considering that large databases load longer, this option allows you to define the priority and limitations of database loading from the server. The following options available in this selection:
 - **Default** - uses default loading settings of the parent object.
 - **On Demand Keep** - rows will be loaded as they are needed for display and cached in memory.
 - **On Demand Discard** - rows will be loaded as they are needed for display. When a row is no longer displayed it will be discarded.
 - **Preload with Siblings** - when a row is loaded, all of its sibling rows will be pre-loaded and cached.
 - **Preload with Parent** - when a row is loaded, any of its parent rows will also be loaded and cached.
 - **Update Mode** – this option indicates the update frequency of any changed data in the database to the server. When **Update on Row Change** is selected, the changes in the database will be synchronized to the server once a value of certain row is changed. When **Update on Cell Change** is selected, the changes in the database will be synchronized to the server once a value of certain cell is changed. With **Update on Update** option, the values will be synchronized to the server only after the **Save** button is pressed in the corresponding window.
 - **Use Row Alternate Color** – when this option is selected, rows in the displayed grid are colored in two colors. Otherwise the whole grid contains only white rows. The changes of this option take effect only after reopening the grid's window.
 - **Show [NULL] Values** – when this option is selected here, it is also enabled by default in the [Data Output Window](#) where all fields with empty values will be displayed as "NULL".

16.3. Reports

This tab contains report related settings:

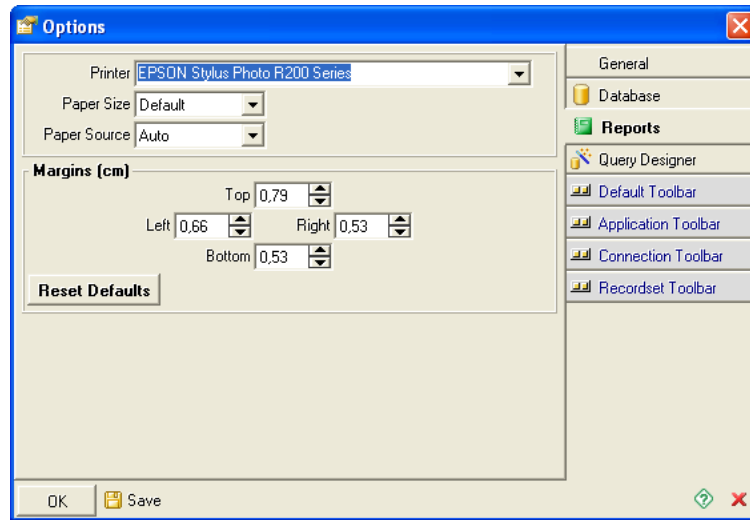


Figure 80 – Options Window – Reports tab

- **Printer** – lists available printers in the operating system and used to select the default printer to print the reports.
- **Paper Size** – list is used to select the default paper size for report printing.
- **Paper Source** – indicates the printer's paper source. Applies to printing.
- **Margins** – allows you to select the top, bottom, left and right margins of the report page.
- **Reset Defaults** – this button resets the custom settings in this tab and loads the defaults.

16.4. Query Designer

This tab contains SQL designer related settings used in Query designer (see [Query Designer](#)):

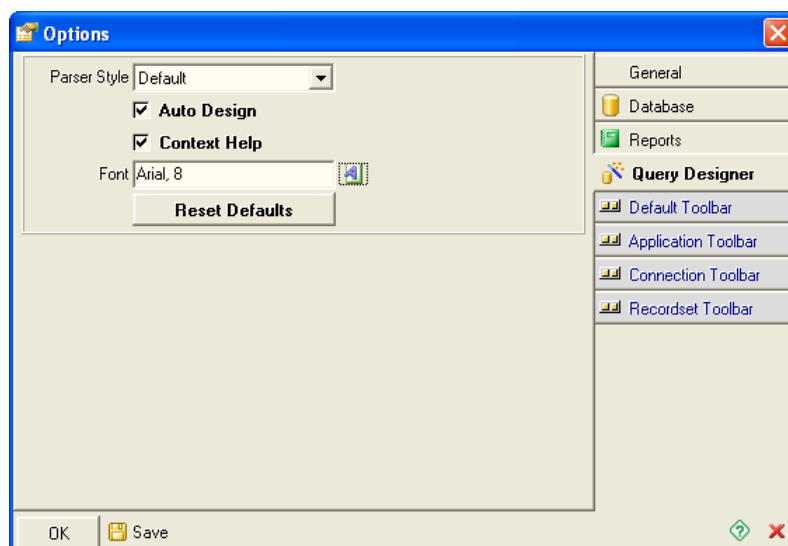


Figure 81 – Options Window – Query Designer tab

- **Parser Style** – used to select the SQL parser style. Following options are available in this list: Upper, Lower and Proper, which is related to the SQL script design (e.g. with Upper selection, SQL script strings will be written in upper case letters).

- **Auto Design** – with this option selected, the composed SQL script will be automatically aligned according to SQL programming standard.
- **Context Help** – with this option selected, context help for extended functions will be provided when composing an SQL script in Query designer window.
- **Font** – used to select the default font and style of the SQL script of the Query designer.
- **Reset Defaults** – this button resets the custom settings in this tab and loads the defaults.

16.5. Default Toolbar

This tab defines generic settings which may then be used by all the toolbars in the PowerDBTools application. This tab contains the following options:

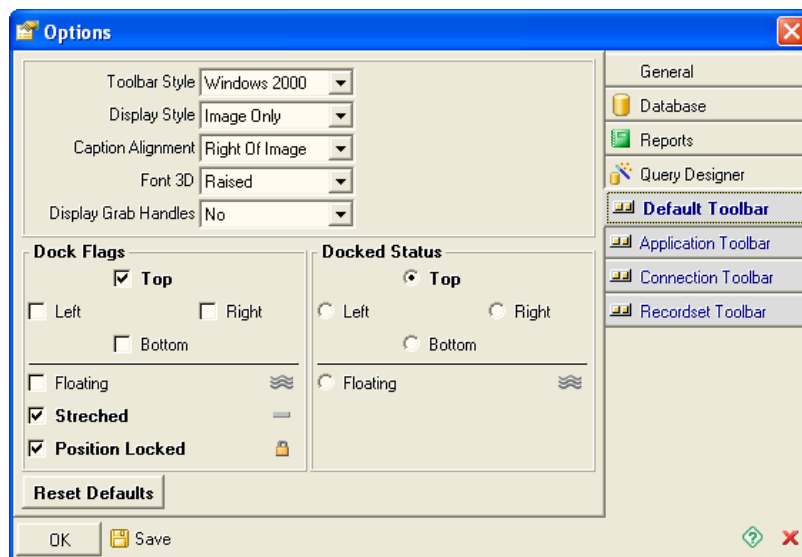


Figure 82 – Options Window – Default Toolbar tab

- **Toolbar Style** – this drop down list allows you to select the toolbars design style:
 - Windows2000,
 - WindowsXP.
- **Display Style** – this drop down list allows you to select the toolbar buttons display style:
 - **Image Only** – with this option, toolbar buttons will appear only as images.
 - **Text Only** - with this option, toolbar buttons will appear only as text.
 - **Image and Text** – with this option, toolbar buttons will appear as an image and a text caption next to it.
- **Caption Alignment** – this drop down list allows you to select the toolbar buttons' captions position related to the button image:
 - **Top Of Image** – the caption is aligned to the top of the button image, and all buttons have the same size.
 - **Bottom Of Image** – the caption is aligned to the bottom of the button image, and all buttons have the same size.
 - **Left Of Image** – the caption is aligned to the left of the button image,
 - **Right Of Image** – the caption is aligned to the right of the button image.
- **Font 3D** – this drop down list allows you to select toolbar buttons' caption font 3D effect style.

- **Display Grab Handles** – when this option is set to **Yes**, grab handles allowing to move the toolbar will appear in the most left side of the toolbar.
- **Dock Flags** – these checkboxes allow you to select the allowed positions of the window where the toolbars can be docked.
- **Floating** – when this checkbox is selected, application toolbars may be floating to any place of the window.
- **Stretched** – when this checkbox is selected, toolbars may be stretched to display all buttons on it.
- **Position Locked** – when this checkbox is selected, the initial position of the toolbars is locked by default.
- **Dock Status** – these radio buttons allow you to select the initial docking position after the application startup.
- **Reset Defaults** – this button resets the custom settings in this tab and loads the defaults.

16.6. Application Toolbar

This tab contains the application's main toolbar (see [Main Window](#)) settings. The settings on this page are all the same as in the Default Toolbar tab, so for the descriptions of settings in this tab, see the chapter [Default Toolbar](#).

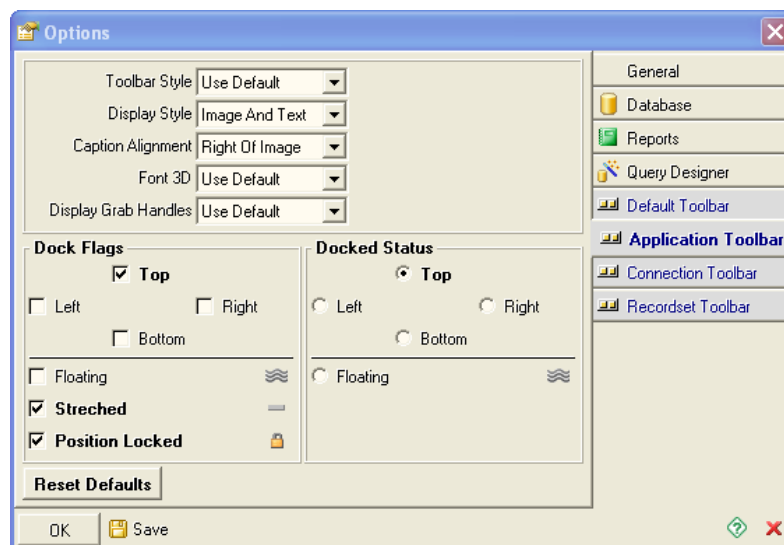


Figure 83 – Options Window – Application Toolbar tab

If in this tab some options are not set or the **Use Default** option is selected for some options in the Toolbar-Application tab, the settings will be taken from the Default Toolbar tab.

16.7. Connection Toolbar

This tab contains the application's connection toolbar (see [Connection Window](#)) settings. The settings on this page are all the same as in the Default Toolbar tab, so for the descriptions of settings in this tab, see the chapter [Default Toolbar](#).

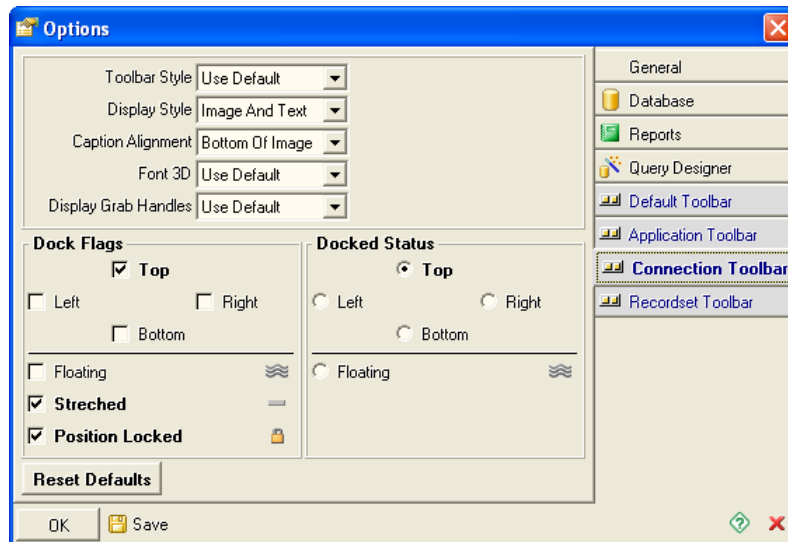


Figure 84 – Options Window – Connection Toolbar tab

If this tab some options not set or the **Use Default** option is selected for some options in the Toolbar-Application tab, the settings will be taken from the Default Toolbar tab.

16.8. Recordset Toolbar

This tab contains the application's windows' toolbar (see [Applications Window](#)) settings. The settings on this page are all the same as in the Default Toolbar tab, so for the descriptions of settings in this tab, see the chapter [Default Toolbar](#).

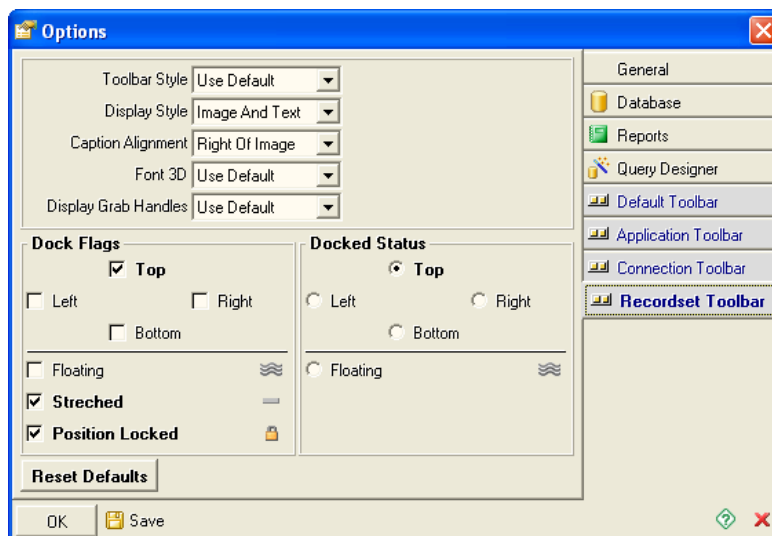


Figure 85 – Options Window – Recordset Toolbar tab

If this tab some options not set or the **Use Default** option is selected for some options in the Toolbar-Application tab, the settings will be taken from the Default Toolbar tab.

17. APPENDIX 1 - Built in Functions

This chapter outlines **Functions** used in the [Query Designer](#). Syntax and examples for each of the supported functions are presented below.

17.1. IFNULL

Returns the first non null expression among the defined arguments.

Syntax

IFNULL (expression [, ...n])

Arguments

expression - expression of any type.

n - placeholder indicating that multiple expressions can be specified. All expressions must be of the same type or must be implicitly convertible to the same type.

Return Types

Returns the same value as the expression is.

Remarks

If all arguments are NULL, IFNULL function returns NULL.

IFNULL is equivalent to MS SQL COALESCE function.

Examples

In example we have a table named Info, which has two columns with names Address and Phone. This table has two rows.

Address	Phone
USA, Los Angeles, str. Freedom 8001	1-337-611-94-384
Null	1-818-145-22-331

```
SELECT IFNULL(Address, Phone) AS Contact
FROM Info
```

Contact

```
USA, Los Angeles, str. Freedom 8001
1-818-145-22-331
```

17.2. IFELSEIF

Returns the result_expression of the first boolean_expression that evaluates to TRUE. If no boolean_expression present which evaluates to TRUE, this function will return the else_result_expression if it is specified, or a NULL value if no else_result_expression is specified.

Syntax

IFELSEIF (boolean_expression, result_expression [, ...n] [, else_result_expression])

Arguments

boolean_expression - expression of boolean type.

expression - expression of any type.

n - placeholder indicating that multiple boolean_expression and expression pair can be specified. All expressions must be of the same type or must be implicitly convertible to the same type.

Return Types

Returns the same value as result_expression is.

Examples

In example we have a SomeTable, which has column with name Num.

Num
7
NULL
8
14

```
SELECT IFELSEIF(num = 7, 'num Is 7', num = 8, 'num Is 8', 'num is not 7 or 8') AS Result
FROM SomeTable
```

Result

```
-----
num Is 7
num is not 7 or 8
num Is 8
num is not 7 or 8
```

17.3. CONCAT

Returns the concatenation of the expression arguments.

Syntax

CONCAT (expression [,...n] [, <delimiter>])

Arguments

expression - expression of string type.

n - placeholder indicating that multiple expressions can be specified.

delimiter - string, which adds between an expression. By default the delimiter is the space character.

Return Types

Return type is string.

Remarks

If some expression is NULL or empty string the corresponding delimiter will be omitted.

Example 1

```
SELECT CONCAT('Jose', 'M' , 'Aguera') AS Result
```

Result

Jose M Aguera

Example 2

```
SELECT CONCAT('123', '4567', < - >) AS Result
```

Result

123 - 4567

17.4. TOSTRING

Returns Convert expression to string.

Syntax

TOSTRING (expression[, length])

Arguments

expression - expression of any type.

length - length of return expression.

Return Types

Returns type is string.

Examples

In example we have a SomeTable, which has column with name Count.

Count
120
Null
345

```
SELECT TOSTRING(Count) AS Result
FROM SomeTable
```

Result

```
-----
120
NULL
345
```

```
SELECT TOSTRING(Count, 2) AS Result
FROM SomeTable
```

Result

```
-----
12
NULL
34
```


17.5. ZEROTONULL

Returns Null if expression = 0, else expression.

Syntax

ZEROTONULL (expression)

Arguments

expression - expression, which is convertible to number.

Return Types

Returns type is type of expression.

Examples

In example we have a SomeTable, which has column with names Count.

Count
0
14
25
NULL

```
SELECT ZEROTONULL(Count) AS Result
FROM SomeTable
```

Result

```
-----
NULL
14
25
NULL
```

17.6. DAYADD

Returns a new datetime value based on adding the number of days to the specified date.

Syntax

DAYADD (number, date)

Arguments

number - the value used to increment day. If you specify a value that is not an integer, the fractional part of the value is discarded. For example, if you specify 1.75 for number, date is incremented by 1 day.

date - expression that returns a datetime or smalldatetime value, or a character string in a date format.

Return Types

Returns type is date.

Examples

For SQL Server

```
SELECT DAYADD(2, '1998/01/25') AS Result
```

Result

01/27/1998

17.7. SYSDATE

Returns the current system date and time in the standard internal format for datetime values.

Syntax

`SYSDATE ()`

Return Types

For Microsoft® SQL Server™ function returns a character string in 'yyyy/mm/dd' format, and for Microsoft® Jet databases it returns a character string in #m/d/yyyy# format."

Examples

For SQL Server

System Date is 16 Jul 2009

```
SELECT SYSDATE() AS Result
```

Result

```
-----  
'2009/07/16'
```

For Jet databases

System Date is 16 Jul 2009

```
SELECT SYSDATE() AS Result
```

Result

```
-----  
#7/16/2009#
```

17.8. NULLDATE

Returns Null constant as date.

Syntax

`NULLDATE ()`

Return Types

Returns type is date.

17.9. SUBSTR

Returns part of a character string or text expression.

Syntax

SUBSTR (expression , start , length)

Arguments

expression - character string, text, or an expression that includes a column. Do not use expressions that include aggregate functions.

start - integer that specifies where the substring begins.

length - integer that specifies the length of the substring (the number of characters or bytes to return).

Return Types

Returns type is type of expression.

Examples

```
SELECT SUBSTR('Hello World!', 7, 5) AS Result
```

Result

World

17.10. IEMPTYSTR

Returns True if expression is NULL or '' (empty string). Otherwise returns False.

Syntax

ISEMPTYSTR (expression)

Arguments

expression - expression of string type.

Return Types

Returns type is boolean.

Examples

In example we have a SomeTable, which has column with names Text.

Text
''
'Hello'
NULL

```
SELECT IEMPTYSTR ( Text ) AS Result FROM SomeTable
```

Result

true

false

true

18. APPENDIX 2 - ADO Shape Command

You can use hierarchical recordsets as an alternative to JOIN and GROUP BY syntax when you need to access parent-child and summary data.

Hierarchical recordsets are used in many products: Xbase products use the SET RELATION command, MS Access uses "Segmented Virtual Tables" internally for reports with grouping levels, and so forth. Hierarchies give you the ability to build one or several recordsets, define groupings, and specify aggregate calculations over child recordsets. Although you could implement similar functionality through code, this functionality shifts much of the mundane work from the developer to the system.

Hierarchical recordsets are available through the MSDataShape provider, which is implemented by the client cursor engine.

Hierarchical recordsets differ from SQL **JOIN** and **GROUP BY** statements in that with a **JOIN**, both the parent table fields and child table fields are represented in the same recordset. With a hierarchical recordset, the recordset contains only fields from the parent table. In addition, the recordset contains an extra field that represents the related child data, which you can assign to a second recordset variable and traverse.

When you are performing aggregate functions using **GROUP BY** and aggregate operators, only aggregate values appear in the recordset. With hierarchical recordsets, the aggregate values are represented in the parent recordset and the detail records are in the child recordset.

You can create three types of shapes, and each type has its own strengths and weaknesses. You need to choose the mechanism that best fits the needs of your application and the environment you will be running your application in. The types of **SHAPE** are as follows:

- Relation Based
- Parameter Based
- Group Based

The first two are similar in that they produce a hierarchy that would otherwise be represented by a SQL **JOIN** statement. They differ in that all the parent and child records are read into a local cache before any processing continues in the relation-based hierarchy. This type of hierarchy has a high initial overhead when retrieving the records, but the overhead is low after the initial retrieval.

Initially, parameter-based hierarchies only read the parent records and fetch the child records on demand. Though the initial overhead is reduced, you must issue a new child query for each parent record that is accessed, and you must maintain the connection to the datasource for as long as the recordset is open.

The group-based hierarchy is equivalent to producing an aggregate SQL statement joined to a detail SQL statement or performing aggregate functions on non-normalized data. You cannot update the summary columns and calculated columns because they might be derived from more than one record. Like relation-based hierarchies, all records must be read up front.

Hierarchical recordsets are made available by the **SHAPE** clause. Simplified syntax is provided first, then examples with diagrams. Because the **SHAPE** syntax can get quite complex, the formal grammar for the SHAPE clause is provided at the end of the article to allow you to extend the examples. You can also use the program at the end of this article to test your own **SHAPE** statements. The examples use tables from the Northwind sample database.

Simplified Syntax

```
SHAPE {parent-statement}  
APPEND Aggregate  
      | ({child-statement} [As Alias])
```

```

RELATE parent-field TO child-field | parameter-marker
    [, parent-field TO child-field | parameter-marker ...])
[, Aggregate | ({child statement})...]

SHAPE {non-normalized-statement} [AS Alias]
COMPUTE Aggregate
    | Alias
    | ({child-statement} [As Alias] RELATE parent-field TO
        child-field | parameter-marker)
    [, Aggregate | Alias | ({child-statement}...)]
[BY grouping-field [, grouping-field]]

SHAPE {non-normalized-statement} [AS Alias]
BY grouping-field [, grouping-field]

```

NOTES:

1. If you select identically named fields from different tables, you might need to alias them to ensure that the **SHAPE** parser works.
2. The **SHAPE APPEND** functions similarly to an **OUTER JOIN** in that a parent record is returned, even if no child records exist for it.
3. Aggregates can only operate on fields in the immediate children of the recordset. To operate on fields in grandchildren, and so forth, you must produce intermediate aggregates. See the Group Hierarchy with Aggregate example at the end of this article for an illustration.
4. If you use an aggregate function with the **SHAPE APPEND** syntax, the aggregate value will occupy a field appended to the parent resultset, which also contains the fields from the parent statement. In contrast, the **SHAPE COMPUTE** and **SHAPE BY** create a new parent level for the aggregates and the non-normalized-statement becomes the child recordset.
5. The **SHAPE** provider requires that you include Alias for the non-normalized-statement in **COMPUTE** clause when using **SHAPE COMPUTE**. Failure to do so results in a message that the functionality is not supported, even though it doesn't result in a syntax error.

Examples

Simple Relation Hierarchy:

```

SHAPE {select * from customers}
APPEND ({select * from orders} AS rsOrders
    RELATE customerid TO customerid)

```

which yields:

```

Customers.*
rsOrders
|
+----Orders.*

```

In the previous diagram, the parent recordset contains all fields from the Customers table and a field called rsOrders. rsOrders provides a reference to the child recordset, and contains all the fields from the Orders table. The other examples use a similar notation.

Parameterized Hierarchy:

```

SHAPE {select * from customers}

```

```
APPEND ({select * from orders where customerid = ?} AS rsOrders
        RELATE customerid TO PARAMETER 0)
```

This results in the same hierarchy as the simple relation hierarchy.

Compound Relation Hierarchy:

This sample illustrates a three-level hierarchy of customers, orders, and order details:

```
SHAPE {SELECT * from customers}
APPEND ((SHAPE {select * from orders}
          APPEND ({select * from [order details]} AS rsDetails
                  RELATE orderid TO orderid)) AS rsOrders
        RELATE customerid TO customerid)
```

which yields:

```
Customers.*
rsOrders
|
+----Orders.*
      rsDetails
      |
      +----[Order Details].*
```

Multiple Relation Hierarchy:

This sample illustrates a hierarchy involving a parent recordset and two child recordsets, one of which is parameterized:

```
SHAPE {SELECT * FROM customers}
APPEND ({SELECT *
        FROM orders
        WHERE orderdate < #1/1/1998# AND customerid = ?}
        RELATE customerid TO PARAMETER 0) AS rsOldOrders,
({SELECT *
  FROM orders
  WHERE orderdate >= #1/1/1998#}
  RELATE customerid TO customerid) AS rsRecentOrders
```

which yields:

```
Customers.*
rsOldOrders
|
+----Orders.*
rsRecentOrders
|
+----Orders.*
```

Hierarchy with Aggregate:

```
SHAPE (select * from orders}
APPEND ({select od.orderid, od.UnitPrice * od.quantity as ExtendedPrice
        from [order details] As od}
        RELATE orderid TO orderid) As rsDetails,
        SUM(ExtendedPrice) AS OrderTotal
```

which yields:

```
Orders.*
rsDetails
|
+----orderid
      ExtendedPrice
OrderTotal
```


Group Hierarchy:

```
SHAPE {select customers.customerid AS cust_id, orders.*
      from customers inner join orders
      on customers.customerid = orders.customerid} AS rsOrders
COMPUTE rsOrders BY cust_id
```

which yields:

```
rsOrders
|
+----cust_id
      Orders.*
cust_id
```

Group Hierarchy with Aggregate:

NOTE: The **inner** SHAPE clause in this example is identical to the statement used in the Hierarchy with Aggregate example.

```
SHAPE
      (SHAPE {select customers.*, orders.orderid, orders.orderdate
              from customers inner join orders
              on customers.customerid = orders.customerid}
      APPEND ({select od.orderid,
                    od.unitprice * od.quantity as ExtendedPrice
              from [order details] as od} AS rsDetails
      RELATE orderid TO orderid),
      SUM(rsDetails.ExtendedPrice) AS OrderTotal) AS rsOrders
COMPUTE rsOrders,
      SUM(rsOrders.OrderTotal) AS CustTotal,
      ANY(rsOrders.contactname) AS Contact
BY
      customerid
```

which yields:

```
rsOrders
|
+----Customers.*
      orderid
      orderdate
      rsDetails
      |
      +----orderid
              ExtendedPrice
      OrderTotal
CustomerTotal
Contact
customerid
```

Multiple Groupings:

```
SHAPE
      (SHAPE {select customers.*,
                    od.unitprice * od.quantity as ExtendedPrice
              from (customers inner join orders
              on customers.customerid = orders.customerid) inner join
              [order details] as od on orders.orderid = od.orderid}
      AS rsDetail
      COMPUTE ANY(rsDetail.contactname) AS Contact,
              ANY(rsDetail.region) AS Region,
              SUM(rsDetail.ExtendedPrice) AS CustTotal,
              rsDetail
      BY customerid) AS rsCustSummary
```

```
COMPUTE rsCustSummary
BY      Region
```

which yields:

```
rsCustSummary
|
+-----Contact
      Region
      CustTotal
      rsDetail
      |
      +-----Customers.*
            ExtendedPrice
      customerid
Region
```

Grand Total:

```
SHAPE
      (SHAPE {select customers.*,
                od.unitprice * od.quantity as ExtendedPrice
              from (customers inner join orders
                    on customers.customerid = orders.customerid) inner join
                    [order details] as od on orders.orderid = od.orderid}
              AS rsDetail
        COMPUTE ANY(rsDetail.contactname) AS Contact,
                SUM(rsDetail.ExtendedPrice) AS CustTotal,
                rsDetail
        BY customerid) AS rsCustSummary
COMPUTE SUM(rsCustSummary.CustTotal) As GrandTotal,
rsCustSummary
```

Note the missing **BY** clause in the outer summary. This defines the Grand Total because the parent rowset contains a single record with the grand total and a pointer to the child recordset.

```
GrandTotal
rsCustSummary
|
+-----Contact
      CustTotal
      rsDetail
      |
      +-----Customers.*
            ExtendedPrice
      customerid
```

Complex Hierarchy:

This example illustrates a hierarchy that contains one parent rowset, two child rowsets, one of which is parameterized, and a group detail.

```
SHAPE {select customers.* from customers} AS rsDetail
COMPUTE rsDetail,
      ANY(rsDetail.companyname) AS Company,
      ({select * from orders where customerid = ?}
        RELATE customerid TO PARAMETER 0) AS rsOrders,
      COUNT(rsOrders.orderid) AS OrderCount
BY customerid
```

which yields:

```
rsDetail
|
+-----Customers.*
```

```

Company
rsOrders
|
+-----Orders.*
OrderCount
customerid

```

Grouped Parent Related to Grouped Child:

```

SHAPE
  (SHAPE {select * from customers}
    APPEND ((SHAPE {select orders.*, year(orderdate) as OrderYear,
                    month(orderdate) as OrderMonth
                    from orders} AS rsOrders
              COMPUTE rsOrders
              BY customerid, OrderYear, OrderMonth)
            RELATE customerid TO customerid) AS rsOrdByMonth )
  AS rsCustomers
COMPUTE rsCustomers
BY      region
which yields:

```

```

rsCustomers
|
+-----customers.*
      rsOrdByMonth
      |
      +-----rsOrders
              |
              +----- Orders.*
              customerid
              OrderYear
              OrderMonth

region

```

SHAPE Clause Formal Grammar

```

<shape-command>      ::=  SHAPE <table-exp> [AS <alias>]
                        [<shape_action>]

<shape-action>       ::=  APPEND <aliased-field-list>
                        |  COMPUTE <aliased-field-list>
                        |  [BY <field-list>]
                        |  BY <field-list>

<table-exp>          ::=  {<native-sql-statement>}
                        |  ( <shape-command> )

<aliased-field-list> ::=  <aliased-field> [, <aliased-field>...]

<aliased-field>      ::=  <field-exp> [AS <alias>]

<field-exp>          ::=  ( <relation-exp> ) | <calculated-exp>

<relation_exp>       ::=  <table-exp> [AS <alias>] RELATE
                        <relation-cond-list>

<relation-cond-list> ::=  <relation-cond> [, <relation-cond>...]

<relation-cond>      ::=  <field-name> TO <child-ref>

<child-ref>          ::=  <field-name> | PARAMETER <param-ref>

```

```

<param-ref> ::= <name> | <number>

<field-list> ::= <field-name> [, <field-name>]

<calculated-exp> ::= SUM (<qualified-field-name>)
                    | AVG (<qualified-field-name>)
                    | MIN (<qualified-field-name>)
                    | MAX (<qualified-field-name>)
                    | COUNT (<alias>)
                    | SDEV (<qualified-field-name>)
                    | ANY (<qualified-field-name>)
                    | CALC (<expression>)

<qualified-field-name> ::= <alias>.<field-name> | <field-name>

<alias> ::= <quoted-name>

<field-name> ::= <quoted-name>

<quoted-name> ::= "<string>" | '<string>' | <name>

<name> ::= alpha [ alpha | digit | _ | # ...]

<number> ::= digit [digit...]

<string> ::= unicode-char [unicode-char...]

<expression> ::= an expression recognized by the Jet
                  Expression service whose operands are
                  other non-CALC columns in the same row.

```

19. Technical Support and Contact Information

Contact Information

For information about PowerDBTools please visit our [website](#) or write to us at contact@powerdbtools.com.

Technical Support

PowerDBTools provides several levels of user assistance, including a comprehensive user manual, online tutorials and direct email support.

You can download the complete user support manual from the [Product section](#) of our website.

You can review any of our online tutorials from the [Tutorial section](#) of our website.

You can email us your questions and we will reply to them promptly.

Contact the support at support@powerdbtools.com.

Sales Information

For sales information visit our [website](#) or write to us at sales@powerdbtools.com.