Operation Manual

DB Manager Manual

03.50.30

08.02.2021

Contents

The following notation is used in this document:

- Field labels in screen forms are shown in *italics*.
- Screen form button labels are encased in square brackets, such as [Approve].
- Sequences for selecting user menu items are shown with arrows, as in "Issuing → Contracts Input & Update".
- Sequences for selection of system menu items are shown using another type of arrow, as in: "Database => Change password".
- Key combinations used when working with DB Manager are shown in angular brackets, for example <Ctrl>+<F3>.
- The names of directories, files and file paths that vary for each local instance of the program are also shown in angular brackets, as in <OWS_HOME>.

Warnings about potentially hazardous situations or actions.

Information about important features, additional options or the best use of certain system functions.

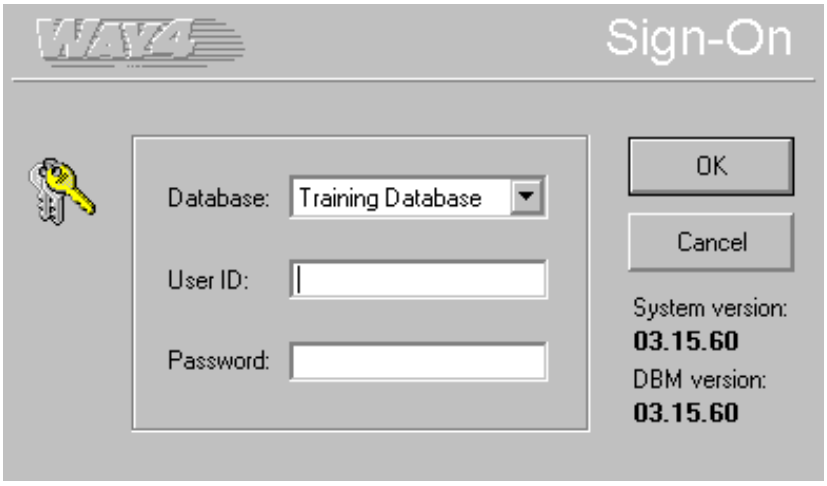
1 Starting DB Manager

DB Manager is started by running an executable file from the <OWS_HOME> system directory (see the section "Standard Way4 directories" of the document"DB Manager User Management"):

```
<OWS_HOME>\client\dbm\dbm.exe
```

> Way4 supports starting the DB Manager application via a remote desktop using the MS Remote Desktop Protocol (RDP), for more information, see the document "Way4 Main Technical Requirements").

When the application starts, a login dialog window is displayed.

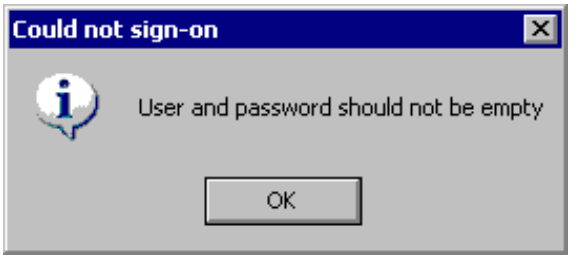


Login dialog window that opens when DB Manager is started

System version information and DB Manager version information is displayed in the lower right corner of the dialog window.

Select the required database from the drop-down list in the *Database* field. The list shows databases that have been configured by the system administrator.

Enter the user ID and password in the *User ID* and *Password* fields, respectively. These fields are mandatory. If these fields are not filled in, a warning will be displayed

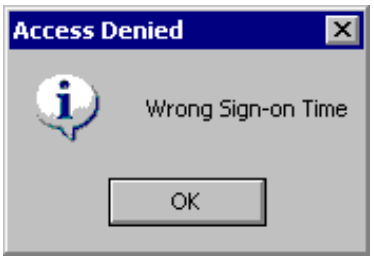


Warning that user ID and password must be entered

If an invalid user ID or password was entered, an error message will be displayed.

Error message displayed if the user ID or password are incorrect

According to Way4 data security principles, each user is granted access to the system according to the schedule set for this user (see the section "Window for working with user records" of the document "DB Manager User Management"). Therefore, if a user attempts to access the system at an unauthorized time, it will be considered an unauthorized access attempt, access will be denied, and the corresponding message will be displayed.



Message that access has been denied due to an attempt to obtain access at an unauthorized time

When the DB Manager application is started for the first time, parameters must be specified for setting up the application's connection to a database. To do so, run the application's executable file and specify the "setup" parameter:

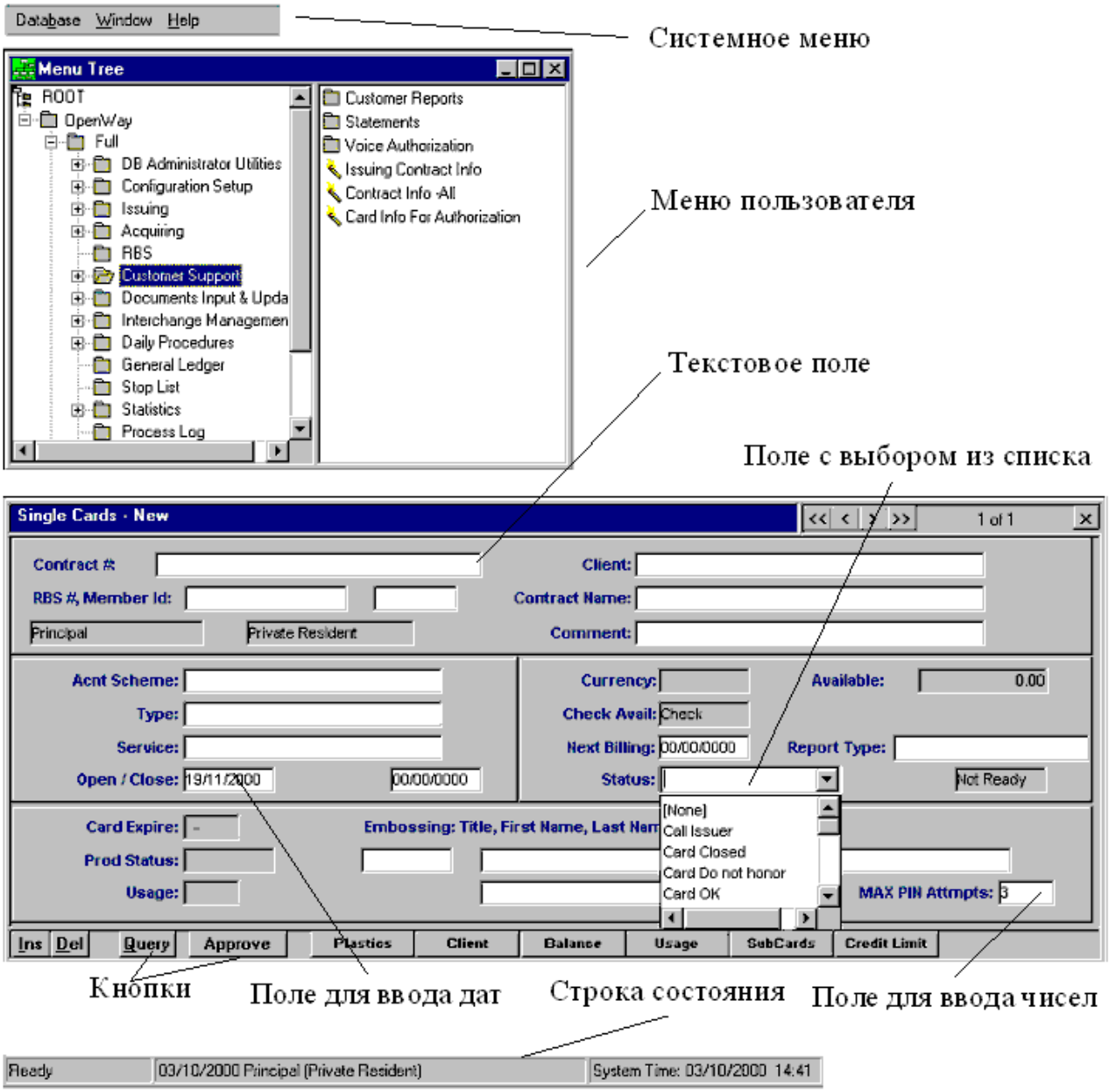
```
<OWS_HOME>\client\dbm\dbm.exe setup
```

A window will open for specifying parameters for DB Manager to work with a particular database. For more information, see the section ""Database" item".

2 User interface

When working with DB Manager, the following controls are used:

- The system menu.
- The toolbar.
- The user menu.
- Form fields:
- To enter data from the keyboard:
- text
- numbers
- dates
- To select from drop-down lists.
- Screen form buttons.
- The status line.



User interface control elements

2.1 System menu

The DB Manager system menu provides additional facilities for working with forms and the user menu.

To access system menu drop-down lists and run commands, use the standard MS Windows method: click on the required menu item and then on the name of the<Alt>+<letter> underlined in the title>.

The set of available system menu items is determined by the mode in which the application is running.

The following system menu items are available in various operating modes:

- "Database"
- "Form"
- "Data"

- "Special"
- "Links"
- "Hot Items"
- "Window"
- "Help"
- "Items Editor" – this item becomes available when editing user menu items (see the section "Working with Menu Editor" of the document "DB Manager. Menu Editor").
- "Editor" – this item becomes available when Form Builder is started (see the section "Saving an edited form" of the document "DB Manager. Form Builder").
- "Design" – this item becomes active when working in design mode (see the section "Designing forms" of the document "DB Manager. Form Builder").

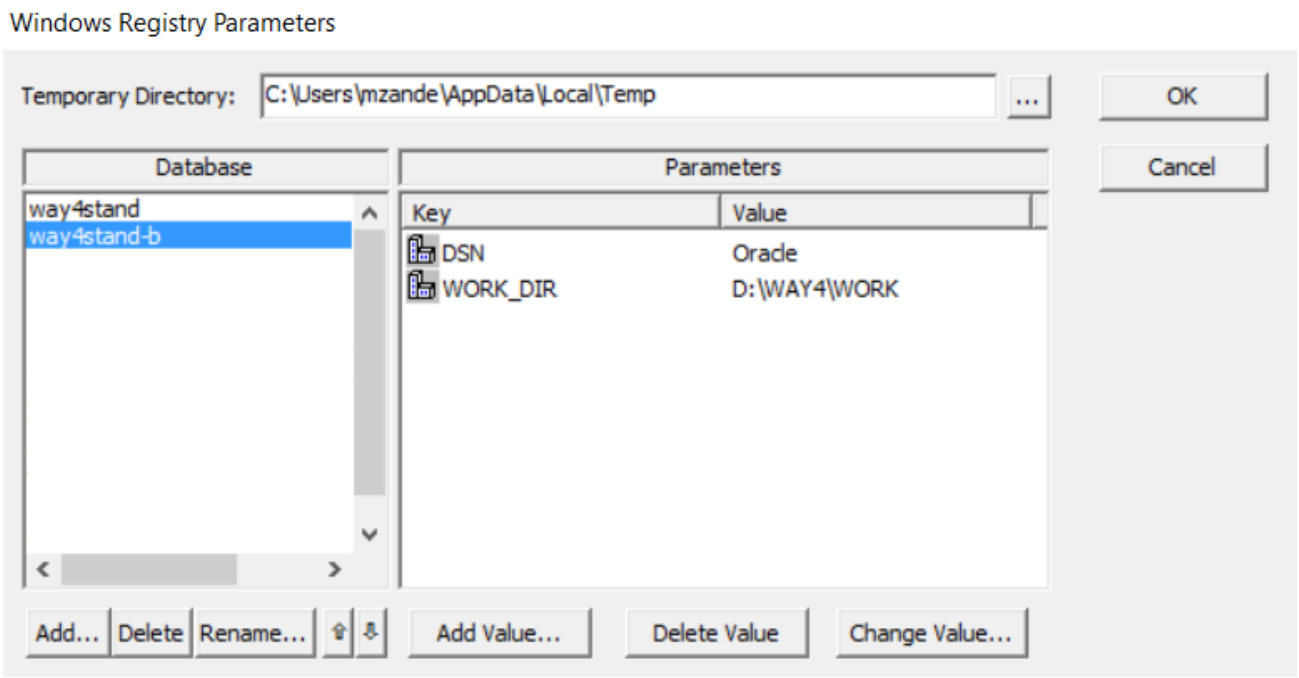
2.1.1 "Database" item

The set of subitems in this system menu item is the same for all modes of operation.

- "Database => Import Standard Menu" – import the standard menu; run once from any workstation after system upgrade (see the section "Importing the standard menu" of the document "DB Manager. Menu Editor").

> To save settings for the parameters of menu items, as well as menu folders and items created by users, it is necessary to create custom menu folders and items in a separate branch parallel to the "OpenWay" branch.

- "Database => Synchronize Forms" – synchronize custom forms. Run after upgrade that affects database structure (see the section "Synchronizing custom forms" of the document "DB Manager. Menu Editor").
- "Database => Configure" – configure DB Manager parameters of a local computer to work with Way4.

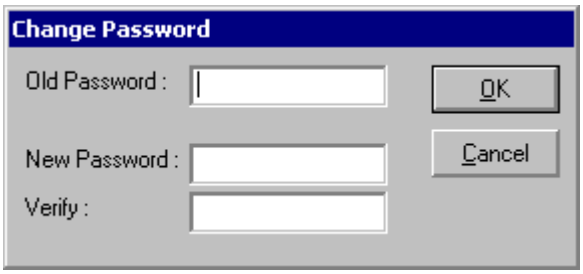


Window for setting DB Manager parameters

> Mandatory parameters include paths to the working directory and temporary file directory (see the section "Privileges for Way4 directories" of the document "DB Manager User Management").

Parameters used to work with DB Manager can also be set in the "HKEY_CURRENT_USER" branch of the Windows registry, or in a separate general ".ini" file for all databases (for more information, see the section "".ini" common configuration file").

- "Database => Forms" (<F2>) – starts Form Builder (see the document "DB Manager. Form Builder");
- "Database => Views" (<F3>) – starts View Editor (see the section "View Editor").
- "Database => Pipes" (<F6>) – starts the application for working with pipes.
- "Database => Menu Items" (<F7>) – starts Menu Editor (see the section "Starting Menu Editor" of the document "DB Manager. Menu Editor");
- "Database => View Dependencies" – opens the "Dependencies" window (see Search by link ("Dependencies" window);
- "Database => Execute SQL" (<F8>) – opens the SQL Executer window.
- "Database => Change password" – opens the "Change Password" window. To change the password, enter the old password in the *Old Password* field and the new password in the *New Password*, then confirm the new password in the *Verify* field.



Dialog window for entering a new password

- "Database => Exit" – exits the program.

2.1.2 "Hot Items" item

The lower section of the pull-down menu in this item may contain up to five links to the most recently launched user menu items The top part of the menu can contain the user menu items that are used most frequently, if they have been added to this list (see ""Window" item).

"Hot Items" pull-down menu

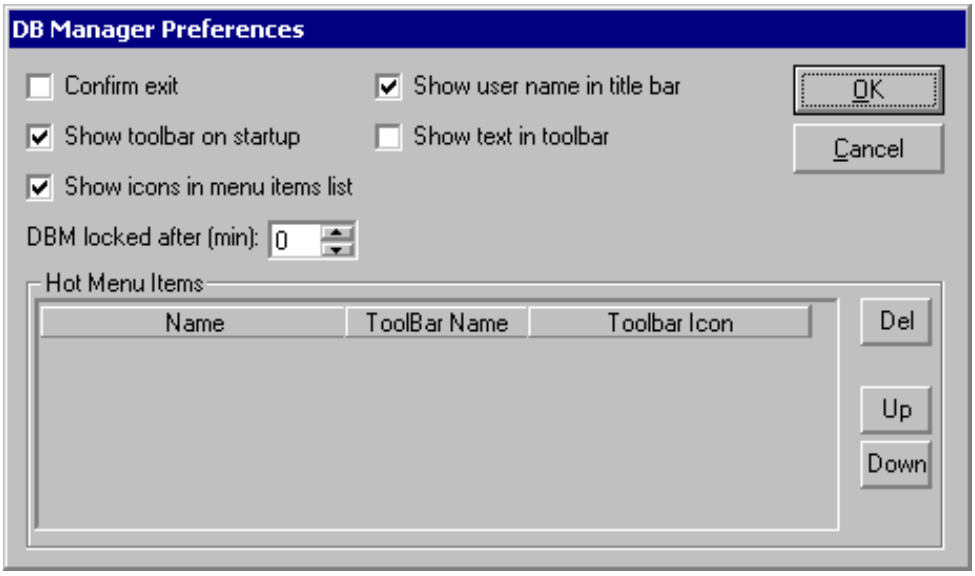
For information about adding items to the hot list, see the section "Adding menu items to a hot list" of the document "DB Manager. Menu Editor".

2.1.3 "Window" item

This system menu item's set of subitems includes the following:

- "Window => Show Toolbar" (<Ctrl>+<T>) – opens the toolbar.
- "Window => Preferences" – opens the "DB Manager Preferences" window. This window contains the following fields:
- *Confirm exit* – if this checkbox is selected, when an attempt is made to close the program, a dialog window with a request to confirm exit will be displayed.
- *Show toolbar on startup* – if this checkbox is selected, the toolbar will be displayed when DB Manager is started.
- *Show icons in menu item list* – if this checkbox is not selected, the list of menu items during editing will contain default icons; this optimizes work with the list of menu items in Menu Editor (see the document "DB Manager. Menu Editor").
- *Show user name in title bar* – if this checkbox is selected, the title of the DB Manager window will include the name of the user.

- *Show text in toolbar* – if this checkbox is selected, short text labels will be shown on toolbar buttons.
- *DBM locked after (min)* – field for entering the number of minutes after which the application will be locked when the DB Manager window is inactive (if "0" is specified, the application will not be locked).
- *Hot Menu Items* – list of user menu items that are used most frequently; the [Del] button removes a menu item from the list, the [Up] and [Down] buttons are used to specify the order of menu items in the list.



Window for specifying a user's individual settings

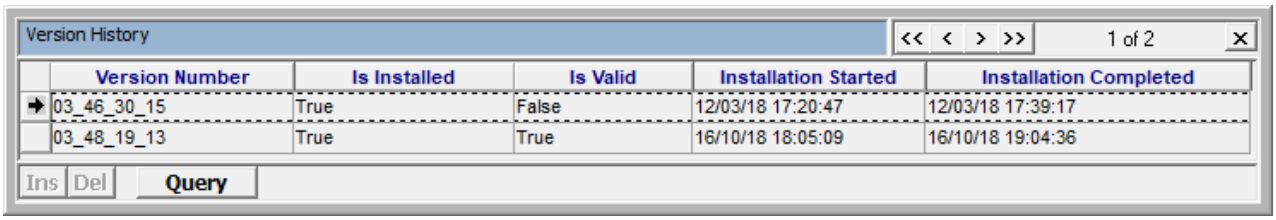
- "Window => Lock DB Manager" – locks DB Manager and minimizes its window. The program can be returned to only after entering the user password.
- "Window => Menu" (<Ctrl>+<M>) – opens the user menu.

> When working with a form, a number of additional subitems become available in the "Window" system menu item (see "Using the system menu").

2.1.4 "Help" item

"Help => About..." – shows information about the version number (Way4, database, and DB Manager) and the name of the user.

To view information about the current version of the database and all versions that were installed earlier, run the menu item "Full → DB Administrator Utilities → Upgrade Utilities → Version History". The "Version History" form will open. The current version of the database has "True" in the *Is Valid* field.

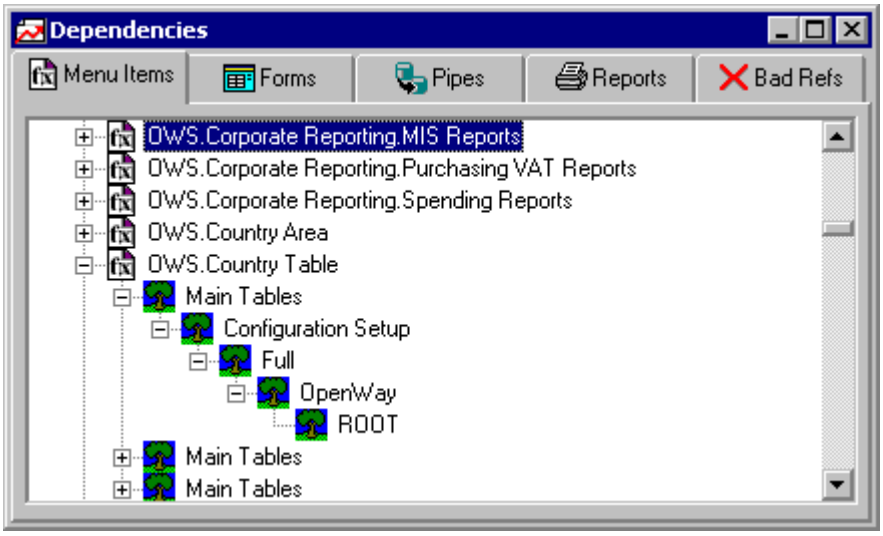


Form with database version numbers

2.1.5 Search by link ("Dependencies" window)

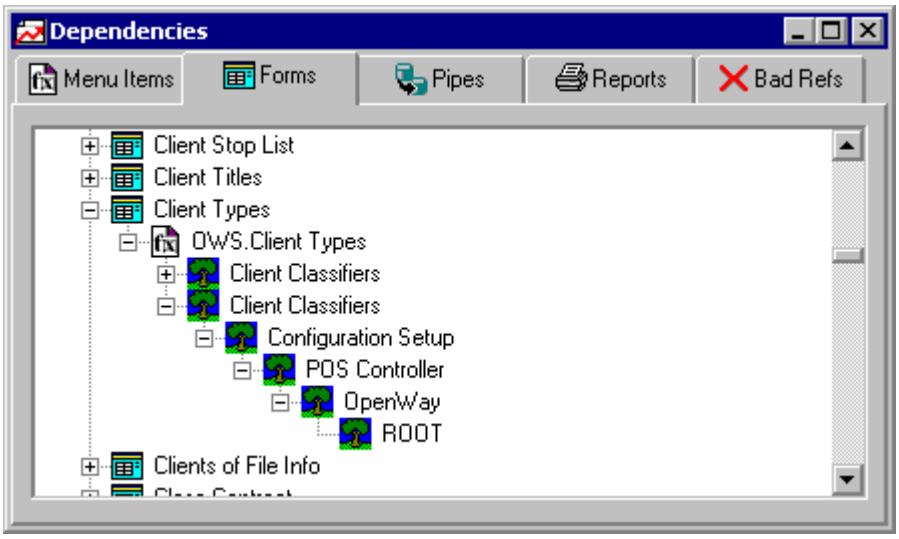
The "Dependencies" window is used for finding user menu paths to menu items, forms, pipes, reports and incorrect links such as references to a non-existent form. The window has the following tabs:

- Menu Item – hierarchical diagram showing a user menu item's links to higher-ranking items all the way to the root level.



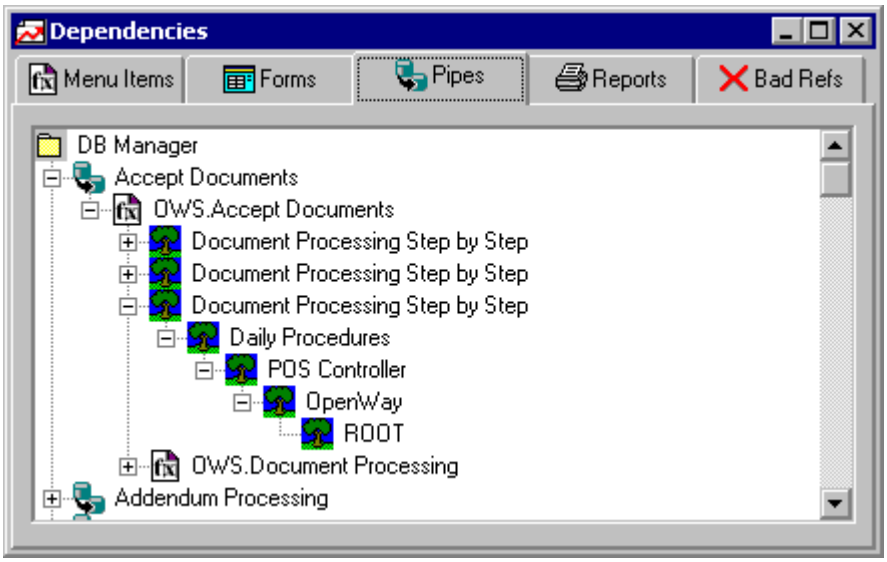
A user menu item in a hierarchy

- Forms – hierarchical diagram showing a form's links to higher-ranking forms or user menu items all the way to the root level.



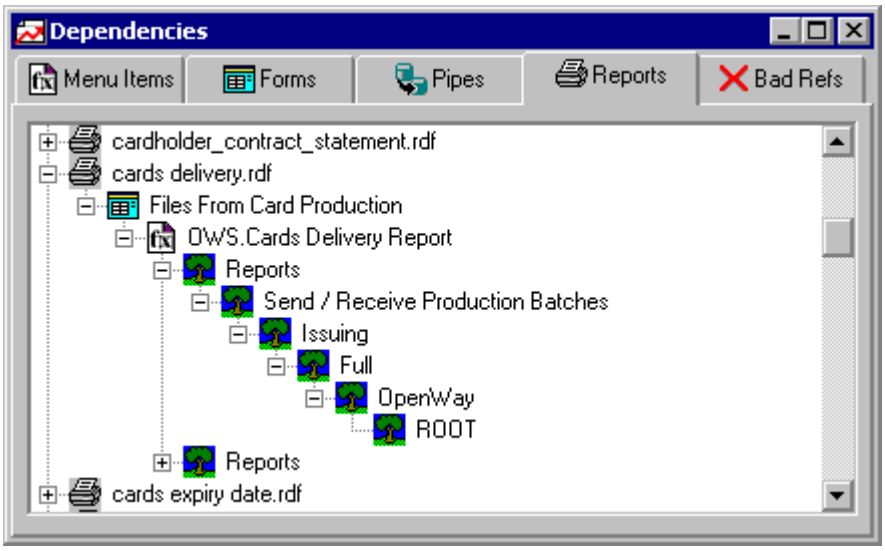
A form in the user menu hierarchy

- Pipes – hierarchical diagram showing the links of a pipe with a form and higher-ranking forms or user menu items, all the way to the root level from which this pipe can be started.



A pipe in the user menu hierarchy

- Reports – hierarchical diagram showing a report's links to a form and higher-ranking forms or user menu items, all the way to the root level from which this report can be generated.



A report in the user menu hierarchy

- Bad Refs – this tab contains a list of incorrect links from user menu items or forms, for example links to non-existent forms or procedures.

> The list of bad links may also include links to "Oracle Report" type menu items (see the section ""Oracle Report" type" of the document "DB Manager. Menu Editor") which, in addition to the report name, contain context variables from the "Local_constants" table. These context variables are specified in the report name where they are delimited by @ symbols, as in "risk_@command_text@". risk_@command_text@.

The following icons are used for indicating various objects on these tabs.

- – menu folder
- – menu item
- – form
- – pipe
- – report.

2.2 Toolbar

A toolbar is a DB Manager window element that contains buttons corresponding to certain system menu commands.

DB Manager toolbar

The toolbar becomes available when DB Manager is started if the corresponding checkbox is selected in the "DB Manager Preferences" dialog window "System menu"). While working with DB Manager, the "Window => Show toolbar" command or <Ctrl>+<T> key combination can be used to open or close the

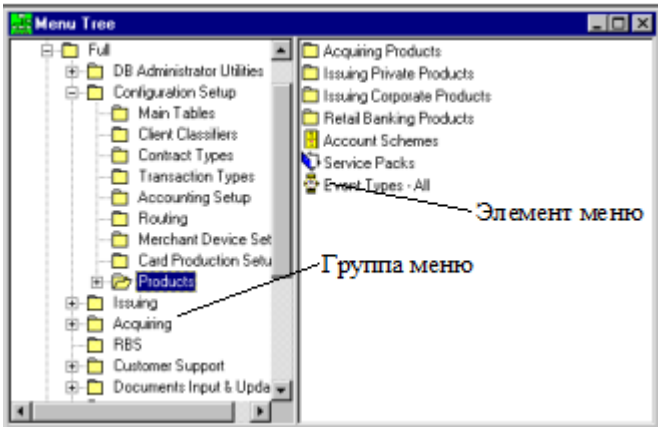
toolbar. The number of buttons on the toolbar depends on the mode in which DB Manager is currently running.

2.3 User menu

The user menu consists of menu folders and items

The set of available menu folders and items depends on the user's data access privileges (see the section "Creating user workplaces" of the document "DB Manager User Management").

Menu items are used to open forms and start processes. Menu folders are used to group menu items and are marked with the button.



User menu

To open a menu folder or start a menu item, double-click on it or select it and press <Enter>.

> While working in the user menu, the "Window => Print" system menu item used for printing out the user menu tree, remains available.

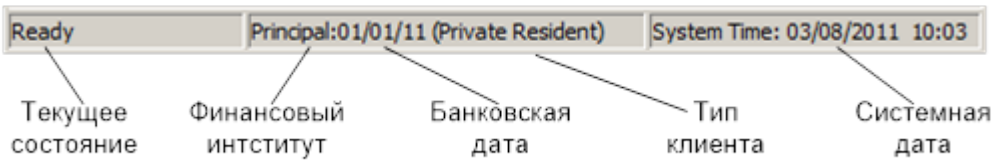
> While working with a large number of forms, it is always possible to go back to the user menu without closing the current form. To do so, use the "Window => Menu" system menu command or the <Ctrl>+<M> key combination.

2.4 Status bar

The status bar is located at the bottom of the DB Manager window. It shows the most important parameters and the system's current state. The status bar usually contains the following elements:

- Current state
- Banking date
- Financial institution name

- Client type
- System date and time



Status bar elements

2.5 Using the keyboard in DB Manager

The following key combinations are available in all DB Manager's modes:

- <Alt> or <F10> – switches to the system menu.
- <Ctrl>+<M> – opens the user menu window.
- <Ctrl>+<T> – displays the toolbar.
- <Ctrl>+<Tab> – shifts between the program's open windows.
- <Alt>+<F4> – exits the program

3 Entering and editing data

Forms are used for entering and editing data in DB Manager (see "Forms").

Forms can be opened by selecting a user menu item or, from a parent window by clicking a button or selecting a system menu item.

The way a form is opened from the user menu depends on the selected menu item's properties. These properties are set when editing the menu (see the section ""Form" item of the document "DB Manager. Menu Editor"). Accordingly, a form may be opened in one of the following ways:

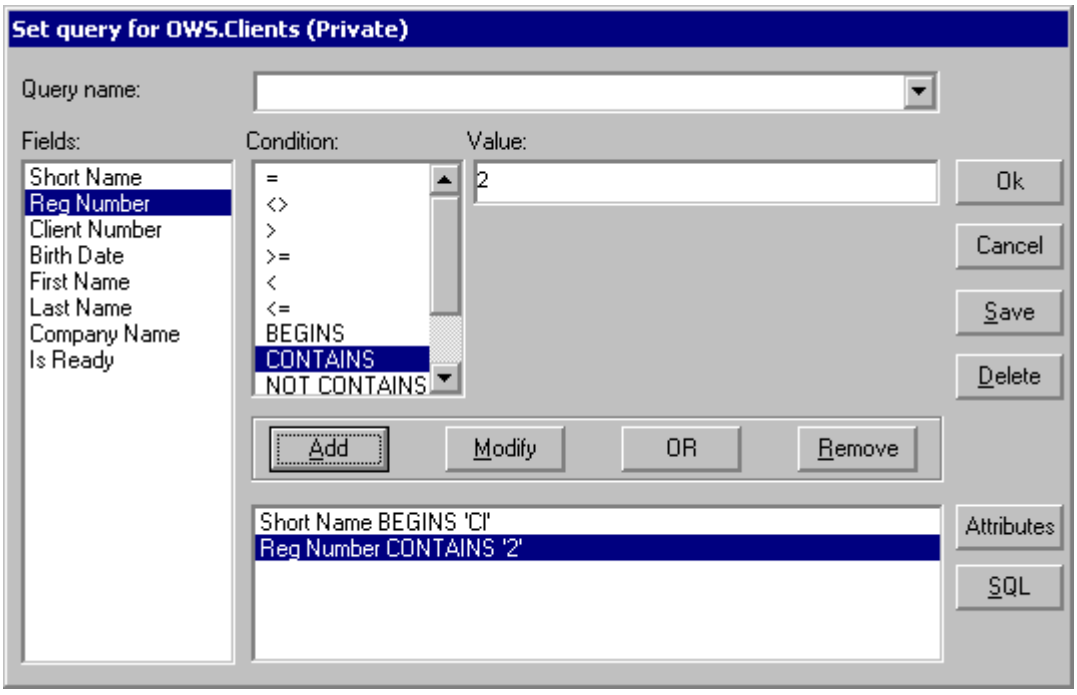
- The form is opened immediately.
- Before the form is displayed, users can enter a query.
- Before the form is displayed, users must select a query from a list.

3.1 Queries

In this case, before the form opens, a dialog window is displayed for entering query conditions.

Users can do the following:

- Start editing without a query. To do so, click [Ok] without specifying query conditions.
- Cancel the request to open the form by clicking [Cancel].
- Specify query conditions.



Query window

3.1.1 Entering simple query conditions

To enter a simple condition:

- In the *Fields* list, select the field name whose values will be used for the query.
- In the *Condition* list, select the query condition.
- Enter the necessary value in the *Value* field.
- Click the [Add] button.

DB Manager supports the following query conditions:

- For all fields, the condition "=" is supported,meaning a field value is equal to the value specified in the *Value* field.
- For all fields except for attributes (see "Using additional fields (attributes)"):
- "<>", ">", ">=", "<", "<=" – "not equal to", "greater than", "greater than or equal to", "less than", and "less than or equal to", respectively.
- "IS NULL" – search for empty fields (that are not filled in)
- "IS NOT NULL" – search for fields that are not empty (that are filled in)
- For strings, including those in attributes (see "Using additional fields (attributes)"):
- "BEGINS" – search for at matching value at the beginning of a field
- "CONTAINS" – search for fields containing the value specified in the *Value* field
- "NOT CONTAINS" – search for fields that do not contain the specified value
- For dates:
- ">= TODAY – " – search for records whose field value is greater than or equal to the system date minus the number of days specified in the *Value* field
- "< TODAY – " – search for records whose field value is less than the system date minus the number of days specified in the *Value* field
- "LAST MIN" – search for records whose field value is less than or equal to the system time minus the number of minutes specified in the *Value* field
- For attributes only (see "Using additional fields (attributes)"):
- "SET" – an attribute value is set
- "SET AFTER" – the date and time specified in the additional field are later than the date and time entered in the *Value* field.
- "NOT SET" – an attribute value is not set

Clicking [Attributes] in the query window will add the names of attributes to the list of fields that can be used for queries, if these attributes are used for the corresponding form (see the section "Using additional fields (attributes)").

The [SQL] button opens the window for entering arbitrary SQL expressions for queries in a form (see the section "Using SQL expressions for queries").

3.1.2 Entering complex query conditions

Simple query conditions can be grouped using "AND" and "OR" operators.

To create a complex criterion using the "AND" operator:

- Select the first criterion.
- Click the [Add] button.
- Select the second criterion.
- Click the [Add] button.

To create a complex criterion using the "OR" operator:

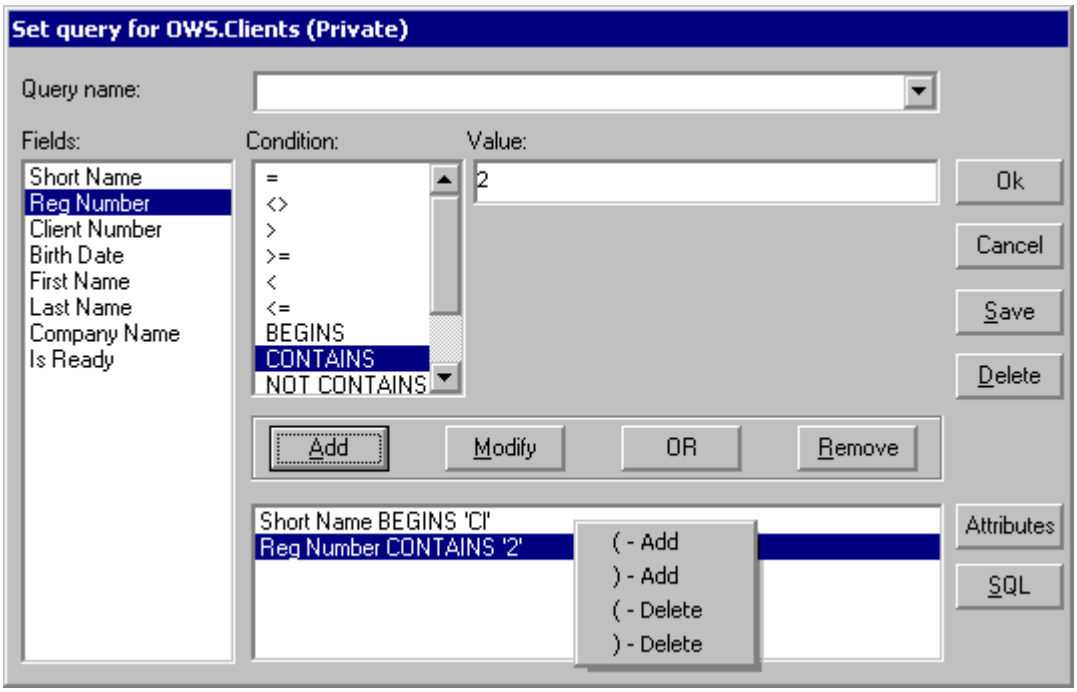
- Select the first criterion.
- Click the [Add] button.
- Click the [OR] button.
- Select the second criterion.
- Click the [Add] button.

Complex conditions can include both "AND" and "OR" operators. In this case, when a query is executed, "AND" conditions are considered first, and then "OR" conditions.

To set operation priorities in complex conditions, use the symbols "(" and ")" (operator brackets), for example: "(<condition A>OR<condition B>)<condition C>". In this case, the conditions inside the brackets are considered first. When creating criteria, brackets are entered in a special window. The window is opened by right-clicking in the bottom of the query window.

To add or delete "(" and ")" symbols, in the bottom of the query window select the required string with the condition, right-click, and select the appropriate command in the list that opens:

- "(– Add" – adds an opening bracket to the beginning of the string.
- ") – Add" – adds an opening bracket to the end of the string.
- "(– Delete" – deletes the opening bracket.
- ") – Delete" – deletes the closing bracket.



Query window when entering complex criteria

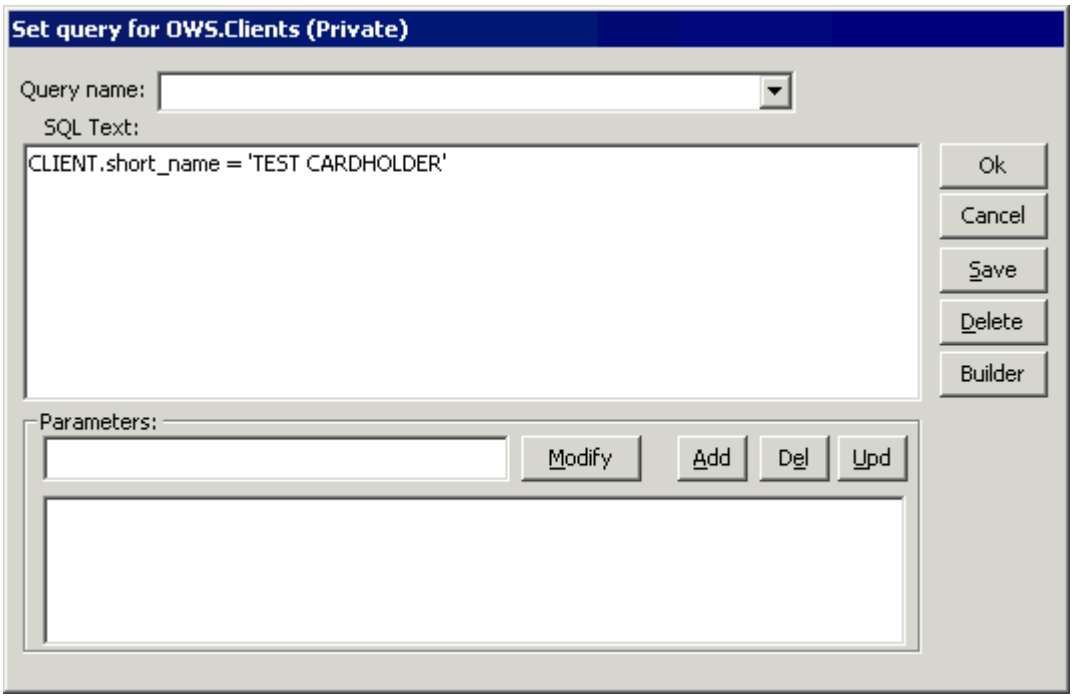
The entered criteria are saved as a list in the bottom part of the query window.

If necessary, these criteria may be:

- Modified – select the necessary criterion from the list, change the query conditions and click the [Modify] button.
- Removed – select the necessary criterion from the list and click the [Remove] button.

3.1.3 Using SQL expressions for queries

The [SQL] button in the window for entering query conditions (see the section "Queries") opens a window for entering an arbitrary SQL expressions for a query. Before the window opens, a warning is displayed with a prompt to confirm the switch to this mode.



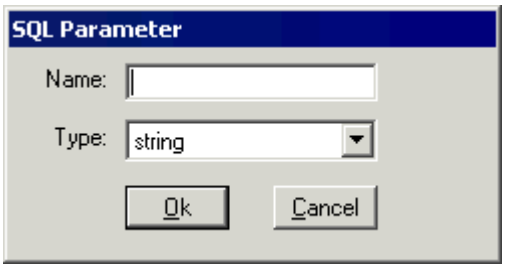
SQL query window

The *SQL Text:* field is used to enter the condition part (the WHERE statement) of the SQL expression "SELECT * FROM <current table> WHERE".

To make it convenient to create queries, the window supports a mechanism for defining parameters that can be used in SQL expressions.

The *Parameters:* group is used to define the list of parameters and their values.

The [Add] button is used to add parameters to the list. Clicking the button will open a window in which the parameter name must be specified in the *Name* field and the parameter type in the *Type* field.



Window for adding a parameter to the list

After clicking [OK] in the "SQL Parameter" window, a new parameter is added in the list in the lower field of the *Parameters:* group of the "Set query for <form name>" window.

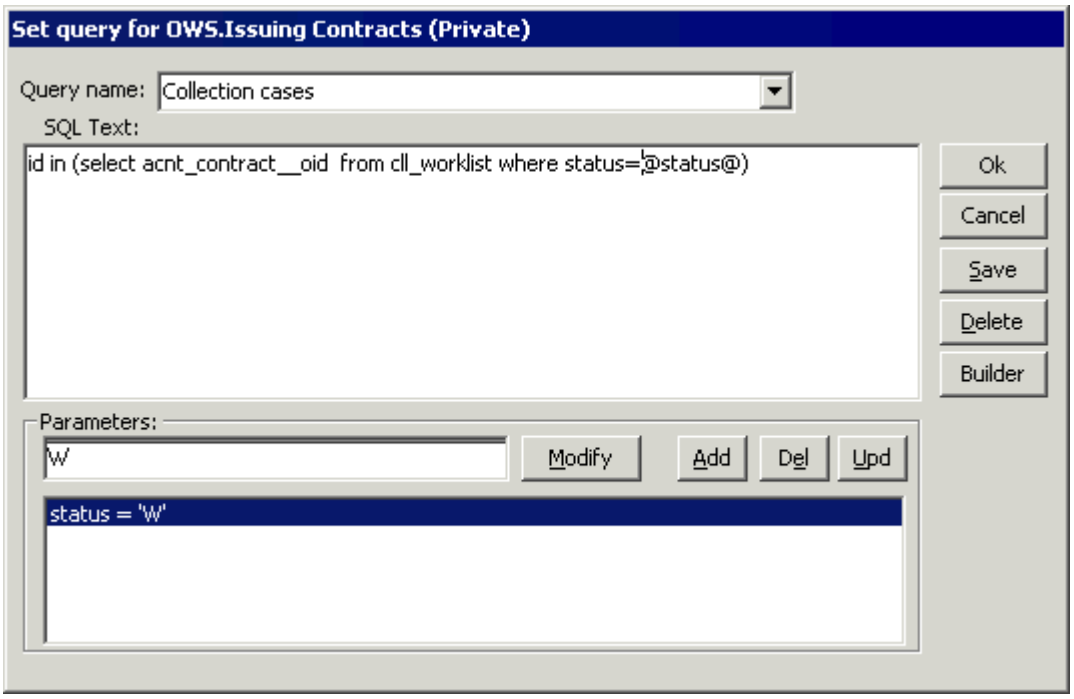
To edit a parameter, click on its name in the list.

The upper field in the *Parameters:* group is used to enter new parameter values, and the [Modify] button is used to set new values.

The [Del] button is used to delete parameters from the list.

The [Upd] button is used to edit parameter names.

To use a parameter, specify its name in between two "@" symbols in an SQL expression.



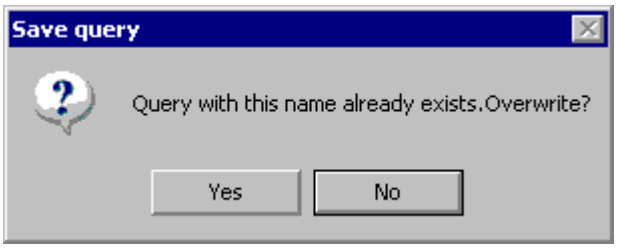
Example of an expression for a query

To automatically insert a parameter into an SQL expression, place the cursor in the necessary position in the expression and double-click on the parameter's name in the list.

3.1.4 Saved queries

Complex or frequently used queries can be saved for subsequent use.

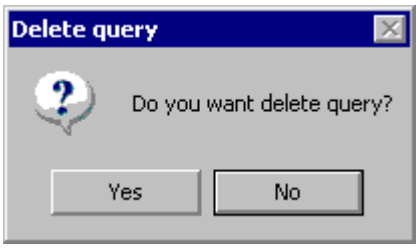
To save a query, enter its name in the *Query name* field and click the [Save] button. If a query with this name already exists in the list of saved queries, a warning will be displayed.



Warning window when saving a query with a name that already exists

To load a query, select its name from the list that opens in the *Query name* field when the button is clicked. If necessary, query conditions can be changed and the query can be saved.

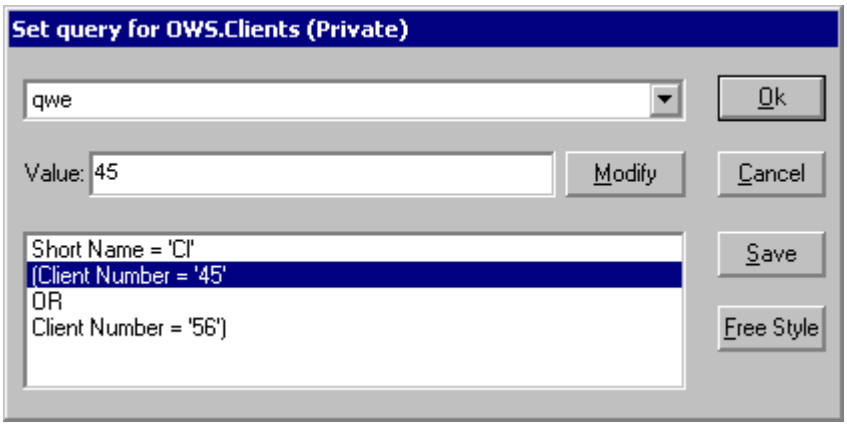
To delete a query, select its name from the list that opens in the *Query Name* field, click the [Delete] button and confirm deletion in the "Delete Query" confirmation window.



Window for confirming deletion of a query

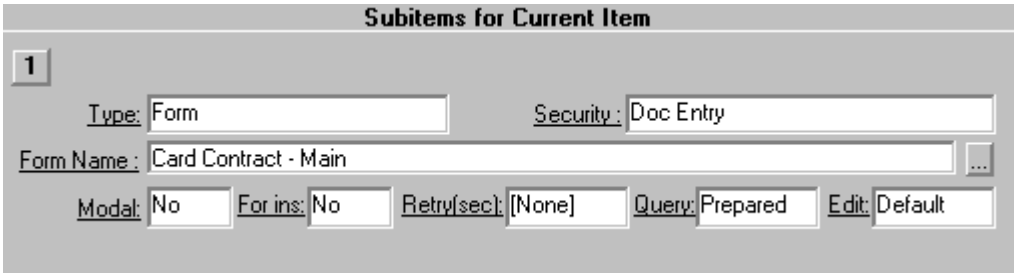
3.2 Using a predefined query

The opening of a form may be preceded by a dialog window for selecting a predefined query



Dialog window for selecting a predefined query

To do so, edit user menu item properties (see the section "Menu Editor window" of the document "DB Manager. Menu Editor") so that "Prepared" is specified in the *Query* field of the window with the menu item's subitem properties.



Window for editing a user menu item definition

In this case, it is possible to do the following:

- Start editing with a predefined query by clicking the [Ok] button.
- Select a different query (if there are any for the form being opened).
- Cancel the request to open the form by clicking [Cancel].
- Modify the query by selecting the required condition, entering the necessary value in the *Value* field and clicking the [Modify] button (the modified query can be saved by clicking the [Save] button).
- Switch to arbitrary query mode (see the section "Queries") by clicking the [Free Style] button.

3.3 Forms

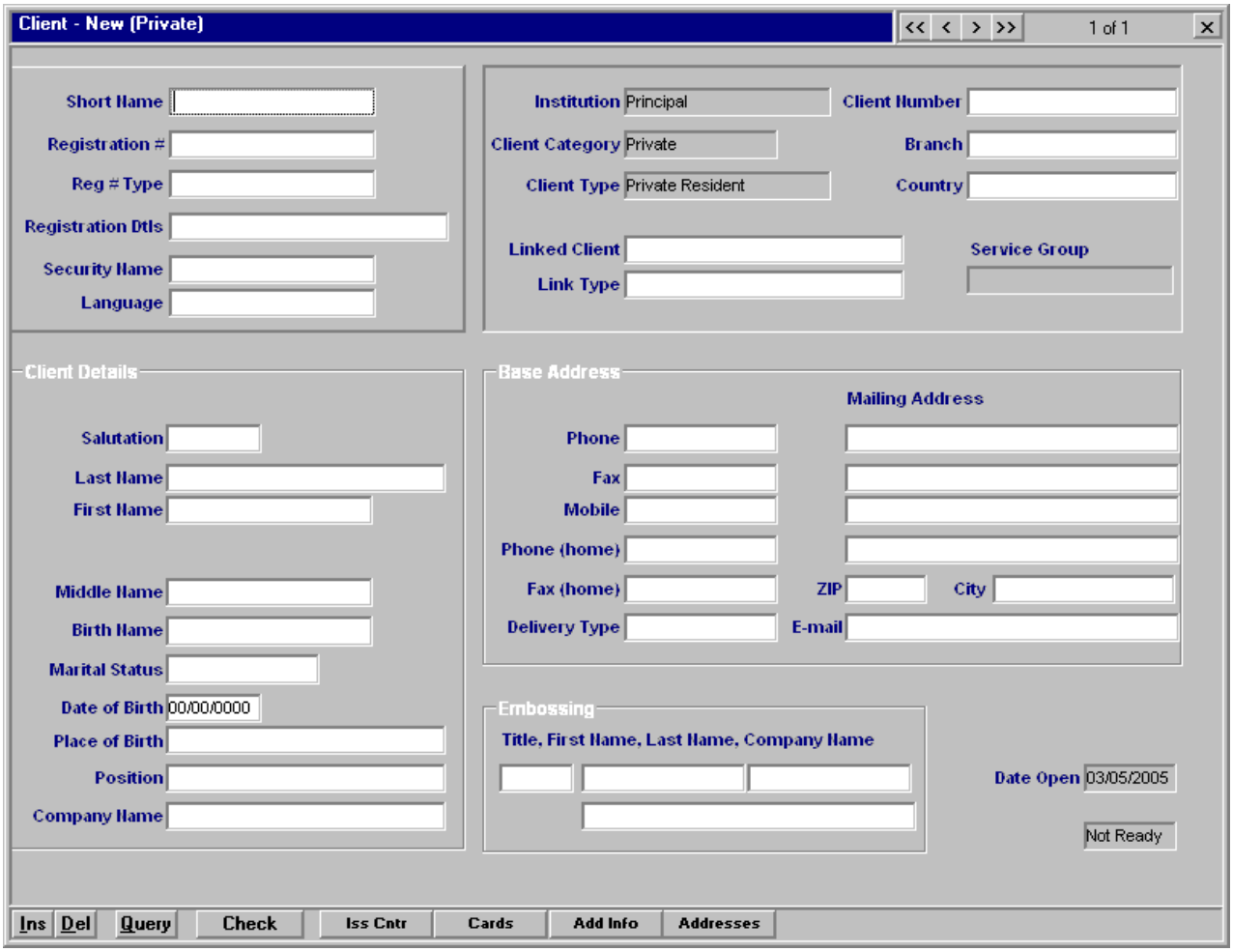
In DB Manager, data are entered and edited using forms.

3.3.1 Form types

In DB Manager, two types of windows are used for displaying and editing database records.

- Data tables in which records are shown as table rows and record fields as columns.
- Data forms, each of which corresponds to one database record

Data table



Data form

3.3.2 Form fields

Fields are a form property and are used to enter, display and edit data.

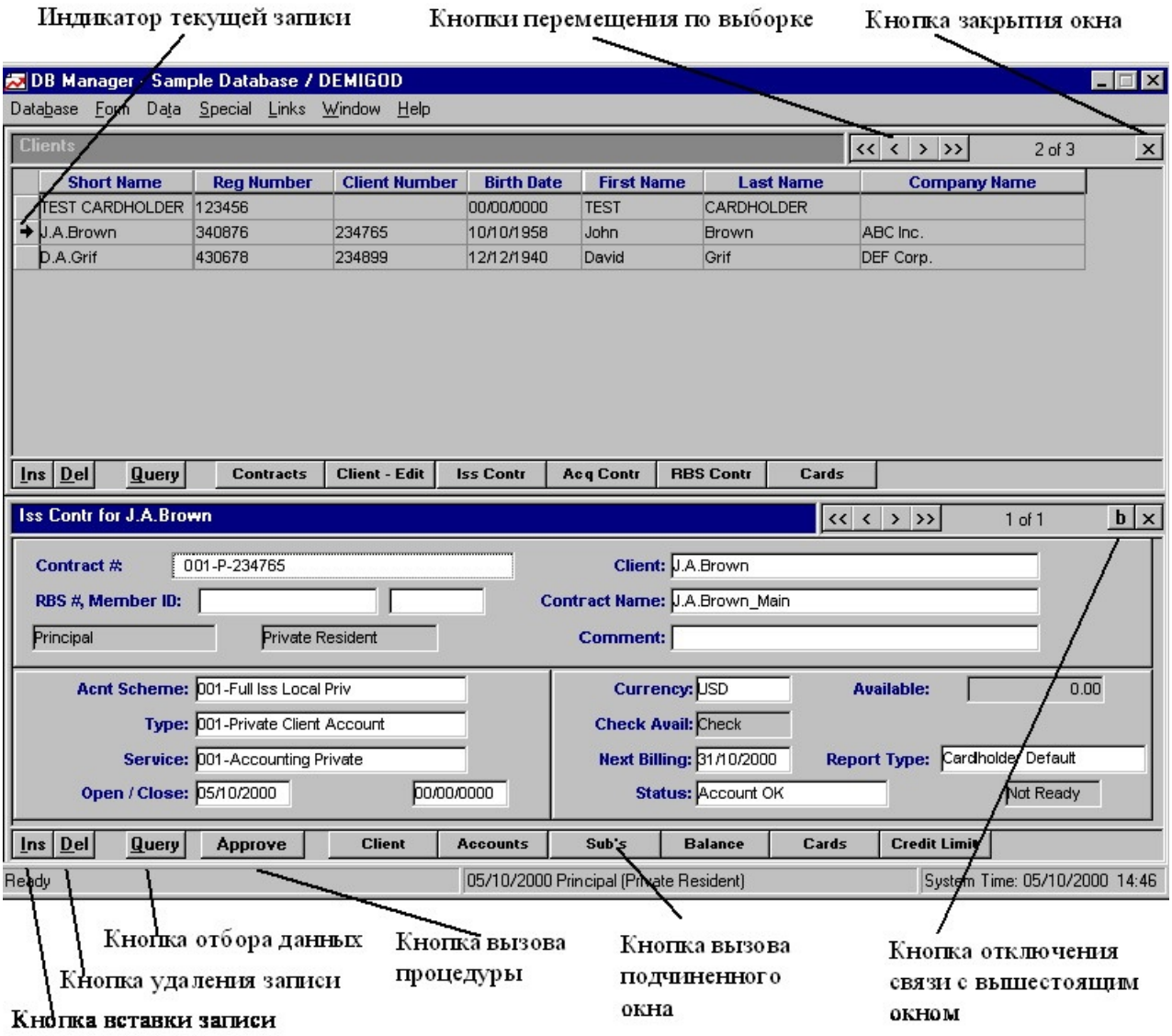
In DB Manager, the following field types are used:

- Text – for using the keyboard to enter text and numeric data (empty by default).
- Numeric – for entering numbers only (before they are filled in, these fields contain a digit)
- Date – only for entering numeric information in date format (before being filled in will contain the null value "00/00/0000").
- Fields for entering values from a drop-down list. When the cursor is placed in such a field, the  icon will appear).

3.3.3 Form controls

The following controls are used for editing data:

- Navigation buttons: to the first record (), to the previous record (), to the next record (), to the last record().
- The [Ins] button is used for inserting new records.
- The [Del] button is used to delete a selected record. After clicking this button, a prompt to confirm deletion will be displayed.
- A button for calling an associated procedure. This button is not present in every form and is usually used to validate entered data.
- The [Query] button is used when it is necessary to modify data selection conditions for the form.
- Button for closing the window (the same as in MS Windows)
- Buttons used to open child windows for entering additional data for the selected record (for example, to view and enter contract data for the selected client).



DB Manager form controls

3.3.4 Child forms

Child forms are called either from a form by clicking the appropriate buttons located at the bottom of the form window, or using the the "Links> <name>" system menu item.

> Note that the number of buttons used to open child forms depends on the monitor's screen resolution. If there is a large number of child forms (items in the "Links" system menu) and the screen resolution is low, not all buttons for opening child forms will be displayed in the form. In this case, use the "Links" system menu to open child forms.

After opening, a child form is linked with its parent form (from which it was called) and its content will change dynamically when another record is switched to in the parent window. It will close when the

parent window closes. The  button in a child form's upper right corner indicates that this form has a link to a parent form. When this button is clicked, it disappears from the screen and the connection between the windows is severed; as a result, shifting between records in the parent form or closing it will no longer affect the content of the child form.

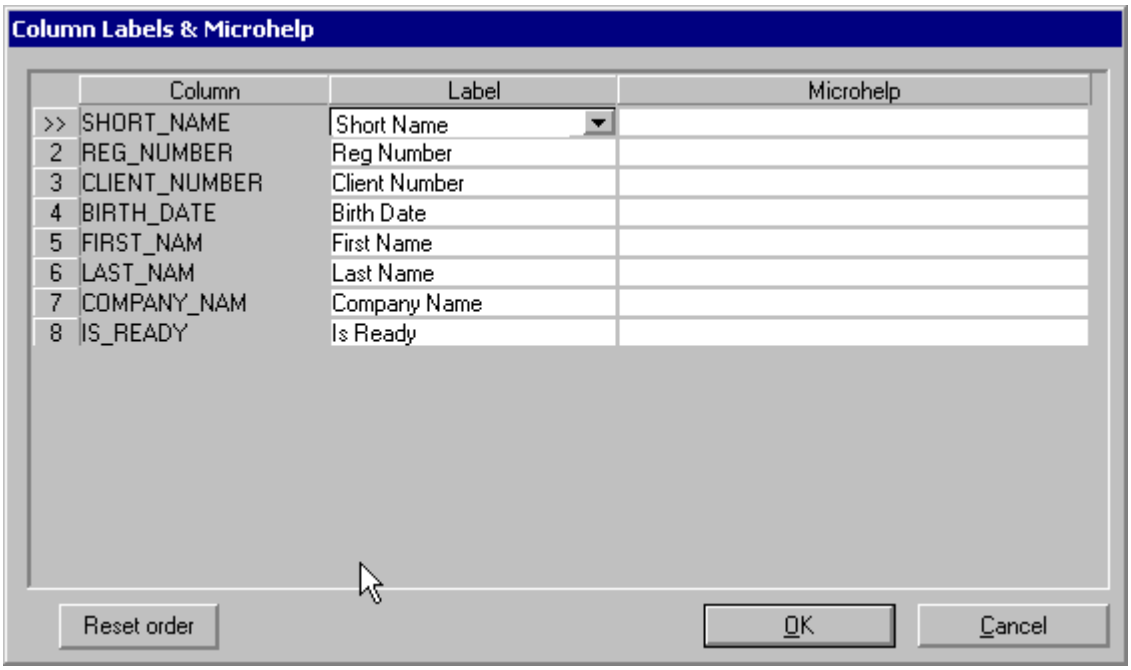
> To go back to the main form from a subordinate one, use <Esc>.

3.3.5 Using the system menu

The following system menu items are available when working in form windows:

- "Form" item
- "Form => Save" (<Ctrl>+<ALT>+<S>) – saves the form in the working directory (see "Appendix: Concept of storing forms in Way4 standard directories" of the document "DB Manager. Form Builder");
- "Form => Save as" – saves the form or table with a new name in the working directory.
- "Form => Design Mode" (<Ctrl>+<D>) – switches the form to design mode (see the section "Designing forms" of the document "DB Manager. Form Builder");
- "Form => Fields Labels" – opens a window to set the names of order of columns/fields in the query window. Select field/column labels from a list set when designing the form or define your own labels. In the latter case, the name will be shown in red (*Label* field).

  This window is also used for creating *Microhelp* hints appearing in the status line when the mouse cursor hovers over a field/row in a table.
  To change the order in which columns/fields appear, in the query window click on the required field label, and move the cursor, which will become bold arrow, to the required position and then click on the required position ⬅
  The [Reset order] button is used for restoring the default order in which columns/fields appear.



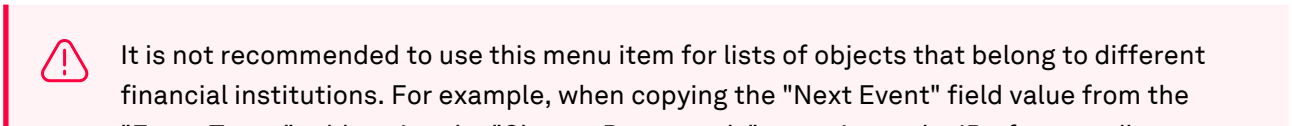
Window for defining form field labels

- "Form => Links" (<Ctrl>+<L>) – opens the "Select Links for ..." window with a list of the form's links to other forms (see the section "Links to other forms" of the document "DB Manager. Form Builder").
- "Form => Options" (<Ctrl>+<O>) – opens the window for setting the current form's parameters (see the section "Setting form parameters" of the document "DB Manager. Form Builder").
- "Form > Close" closes the form.

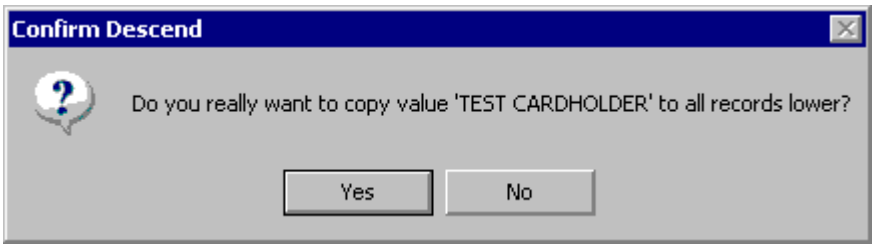
> All "Form" menu items except for the item "Form => Close" are used when working with Form Builder (see the document "DB Manager. Form Builder").

- "Data" item
- "Data => Retrieve" (<Ctrl>+<R>) – refresh data in the form, with consideration of query conditions.
- "Data => Print" (<Ctrl>+<P>) – send the current selection to a printer (see "Sending data to a printer").
- "Data => Export" – exports the current selection to a text file.
- "Data => View Attributes" (<Ctrl>+<A>) – open tabs with the form's additional fields (attributes), see "Using additional fields (attributes)".
- "Data => Edit Multiline" <F9> – open the multiline text editor window.
- "Data => Retrieve All" (<Ctrl>+<Shift>+<A>) – refresh all data in the window regardless of query conditions.
- "Data => Sort" (<Ctrl>+<S>) – sort data (see "Sorting data in forms").
- "Data => Query" (<Ctrl>+<Q) – change query conditions for the form (opens the query window).
- "Special"

- "Special => Change Downwards" – replace the value of the field in all records following the current record with the field value of the current record (this action must be confirmed in an additional dialog box).

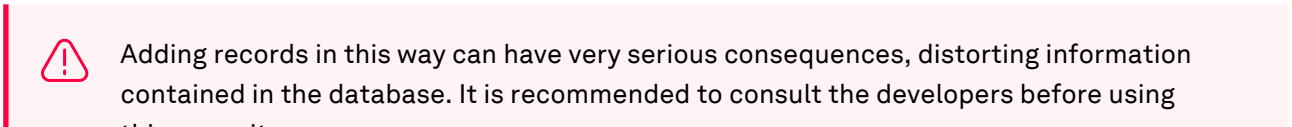


It is not recommended to use this menu item for lists of objects that belong to different financial institutions. For example, when copying the "Next Event" field value from the "Event Types" table using the "Change Downwards" menu item, the ID of a record's financial institution will be copied along with the field value. Accordingly, the "Next Event" field value that is copied will not be used for Events that belong to the other financial institutions.



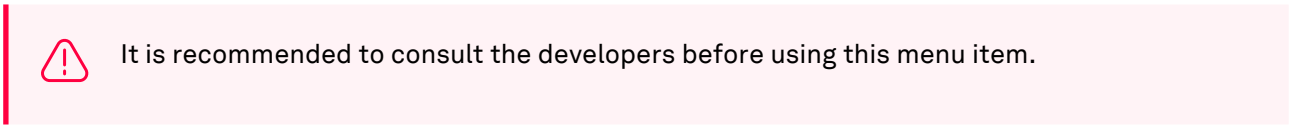
Confirmation window that opens when the value of a field is about to be replaced in all records selected for editing

- "Special => Copy With Children" – copy the record and all its child records. Copying a risk scheme with a set of parameter is an example (see the document "Risk Management Reports Setup").



Adding records in this way can have very serious consequences, distorting information contained in the database. It is recommended to consult the developers before using this menu item.

- "Special => Insert Many" – add the specified number of records

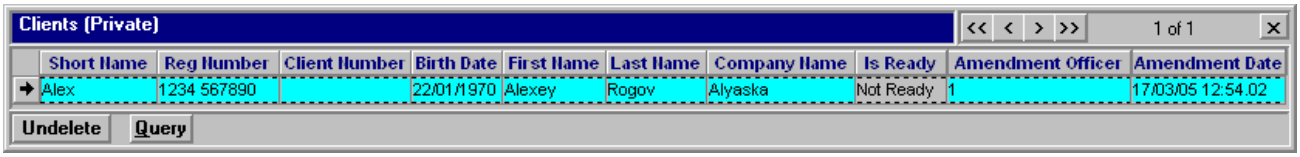


It is recommended to consult the developers before using this menu item.

- "Special => View History" – open a window with a table whose columns correspond to the current form's fields and the number of rows correspond to the number of changes made to field values (for more information, see the section "Logging changes made in grid forms" of the document "DB Manager User Management"). To restore previous values, select the table row with the required values and click the [Undelete] button.
- "Special => Delete All" – delete all selected records (this action must be confirmed in an additional dialog box).

> Note that reckless deletion of records can lead to the loss of information contained in the database.

- "Special => System Fields" – show hidden fields.
- "Special => Deleted" – open a table containing deleted records. To restore a deleted record, select the table row containing that record and click the [Undelete] button.



Form for restoring deleted records

- "Links" item
- "Links => <form name>" – open a child form. This item is the same as the button for opening child forms.

> Sometimes, the list of child forms is so large that there may not be enough space for buttons to open them. If this is the case, use the appropriate system menu to do so.

- "Window" item
- "Window => Arrange Two" – display two open windows. This command is used in form design mode (see the document "DB Manager. Form Builder").
- "Window => Layer" – switch to full-screen mode for the active window
- "Window => Close All" – close all open windows.
- "Window => Restore" – restore the default size and location of the active window
- "Window => <window name>" – switch between open windows

3.3.6 Field editing methods

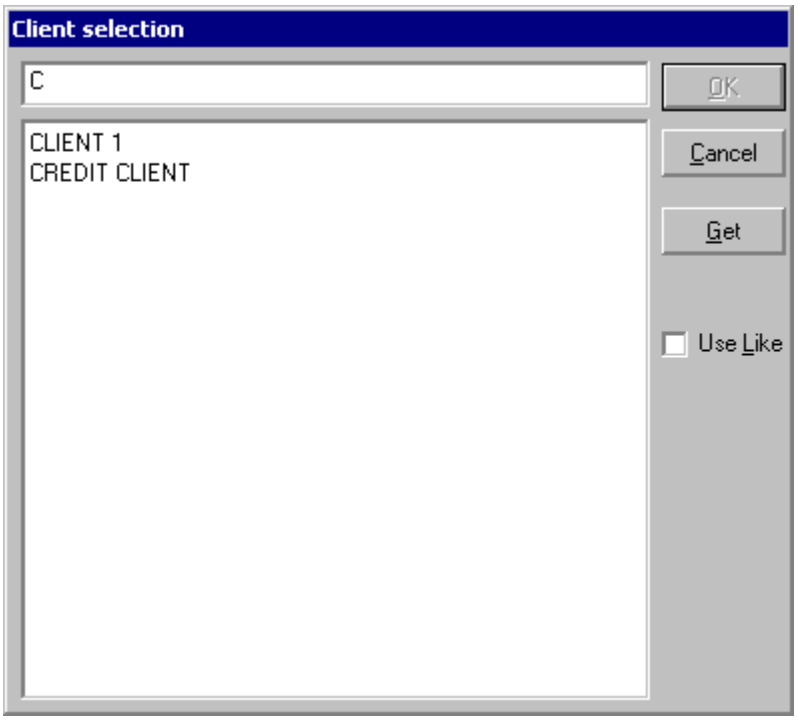
To navigate between record fields, use the mouse or the <Tab> key (<Shift>+<Tab>).

Editable fields have a white background; fields that can't be edited have a gray background.

In forms for entering text, numbers and dates (see "Form fields"), information is entered from the keyboard.

For fields with drop-down lists, values are entered by clicking on them in the list.

To fill in certain fields containing lists, users are shown a window for selecting a field value.



Window for selecting a field value

Dialog windows are used to select from long lists, such as a list of clients.

To select a value:

- Enter the first letters of the required value in the upper field of the form.
- Click [Get].
- Click on the appropriate value in the list that opens in the lower field.
- Click [OK].

In a dialog window, it is also possible to search for fields containing a specific string of symbols. To do so:

- Select the *Use like* check box.
- In the upper section of the window, enter a partial value, using the "%" sign (any number of arbitrary symbols, the same as rules for using special symbols in PL/SQL queries), like "%ABC%".
- Click [Get].
- Click on the appropriate value in the list that opens in the lower field.
- Click [OK].

For all elements of the list to be displayed in the dialog window:

- Enter the "%" character in the upper field.
- Click [Get].

3.3.7 Using the keyboard in forms

When working with forms, users can use the following keys and key combinations:

- <Tab> or <Enter> – go to the next field
- <Shift>+<Tab> – go to the previous field

- <Alt>+<↓> (in a field with a list of values) – select from a list.
- <Shift>+<←>, <Shift>+<→ > – select text
- <Ctrl>+<C> – copy the selected text to the clipboard
- <Ctrl>+<X> – cut the selected text to the clipboard
- <Ctrl>+<V> – paste the text from the clipboard
- <Alt>+<I> – insert a new record.
- <Alt>+<D> – delete a record.
- <Ctrl>+<End> – skip to the end of the list.
- <Ctrl>+<Home> – skip to the beginning of the list.

The following keys can also be used in data tables:

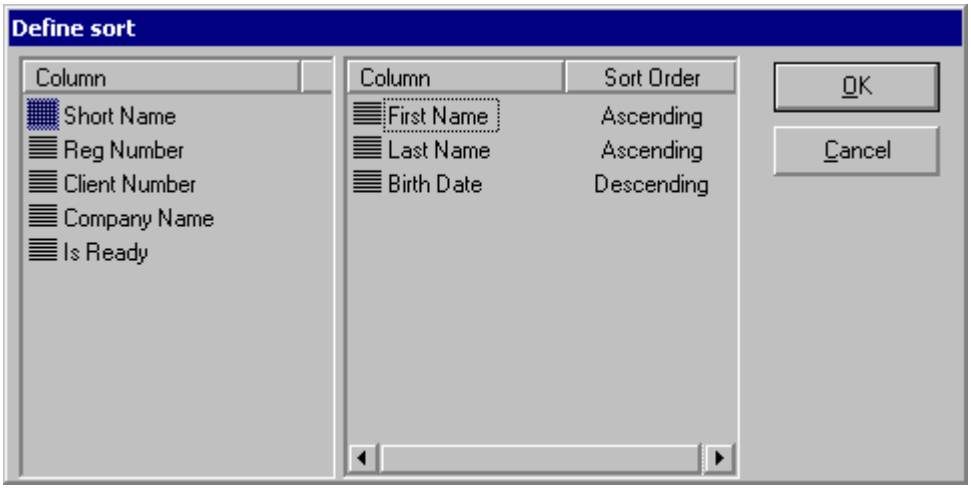
- <Tab> or <Enter> (when in the last field) – go to the next record (row)
- <Shift>+<Tab> (when in the first field) – go to the previous record (row)
- <PgUp>, <PgDn> – go one screen up/down

The following can may also be used in data forms:

- <PgUp> – go to the previous record (form)
- <PgDn> – go to the next record (form)
- <Esc> – from a child form, go back to the main form (from which the child form was opened)
- <Enter> (when in the last field) – go to the next record (form)

3.3.8 Sorting data in forms

While working with forms, data can be sorted by selecting the "Data => Sort" system menu item or clicking on the [Sort] button in the toolbar. This opens a dialog window for sorting data.



Dialog window for sorting data

The left part of the data sorting window contains a list with the form's column (field) labels. The middle part of the window is used to display a list of fields and the sort order.

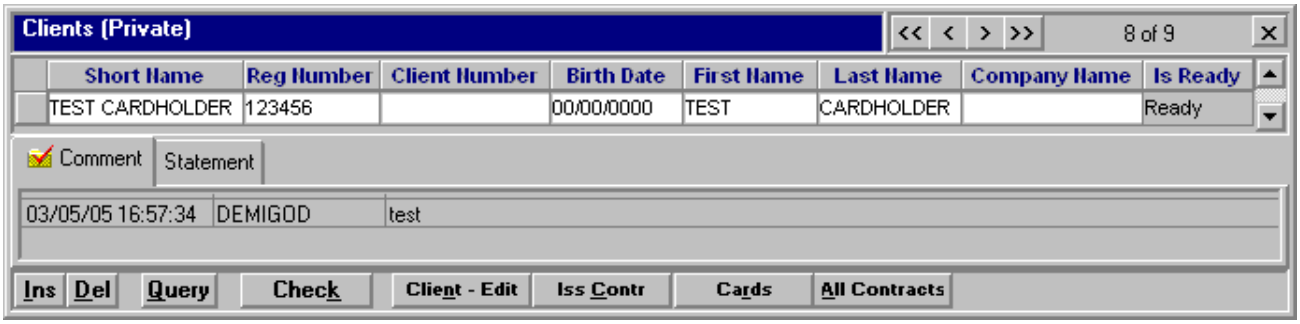
To specify the sort order, do as follows:

- Drag a field (column) name from the left part of the window into the middle part. The selected label will be moved to the list of sorting criteria and the "Ascending" sort order will be set for the label.
- If necessary, repeat the activity for other columns (fields).
- Define the sorting order by dragging field labels up or down in the middle part of the window
- To set the sort direction for a field, double-click on its label in the middle part of the window. A field can be sorted in "Ascending" or "Descending" order.
- Click [OK]
- To cancel sorting by a field, drag it back into the left part of the window.

3.3.9 Using additional fields (attributes)

In DB Manager, additional fields (attributes) can be used in forms. The number and names of these fields are set by a user with administrator privileges. These fields are used to enter additional data necessary when working with specific forms.

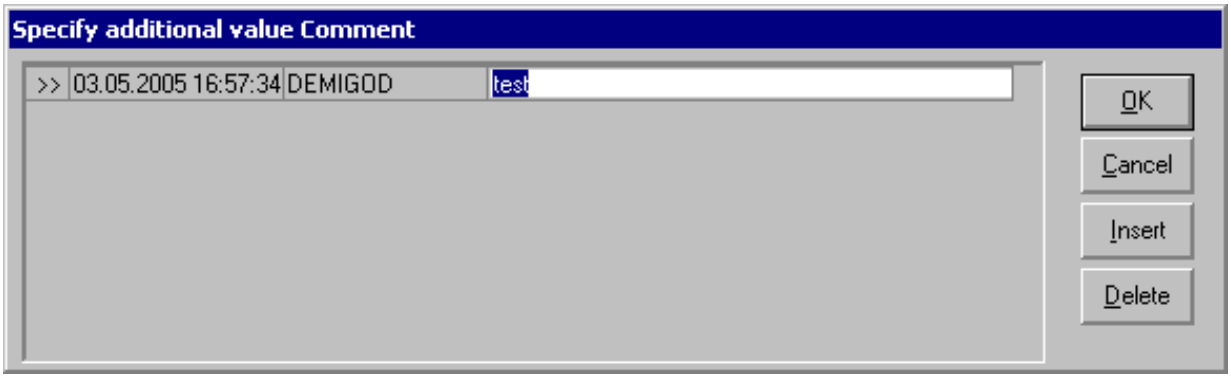
Attributes look like tabs located in the lower section of the window. To open them, select the "Data = > View Attributes" or <Ctrl>+<A> key combination.



Form with additional attributes

To change the value of an additional field, click on the corresponding tab to open the "Specify additional value ..." window for the required field.

To enter new values or delete old ones, use the [Insert] or [Delete] button, accordingly. In addition to the specified value, each row in the window for specifying attribute values contains the date the value was set and the name of the user who set it.

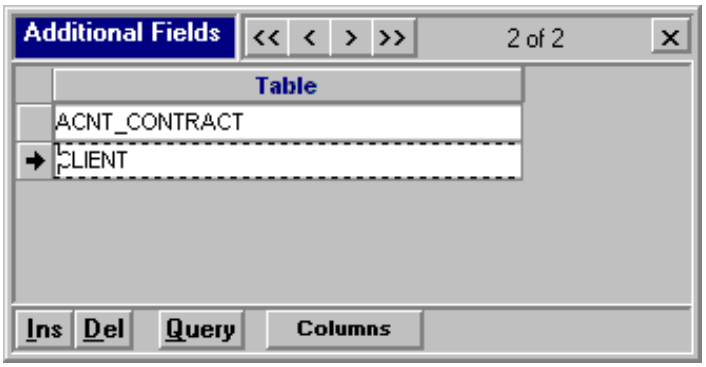


Window for setting the value of an additional field

The tab for an attribute whose value is specified is marked with a special sign.

To add attributes to forms, select the "Full → DB Administrator Utilities → System Utilities → Additional Fields" user menu item.

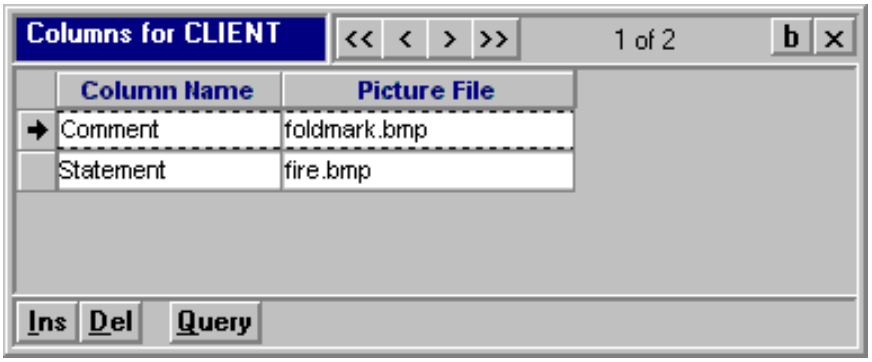
This opens the "Additional Fields" window that contains a list of forms with attributes.



Selecting forms that have attributes

To enter a new form name, click the [Ins] button and select a form from the list that opens in the empty field that is added.

To open a child window containing a list of form attributes, click the [Columns] button.



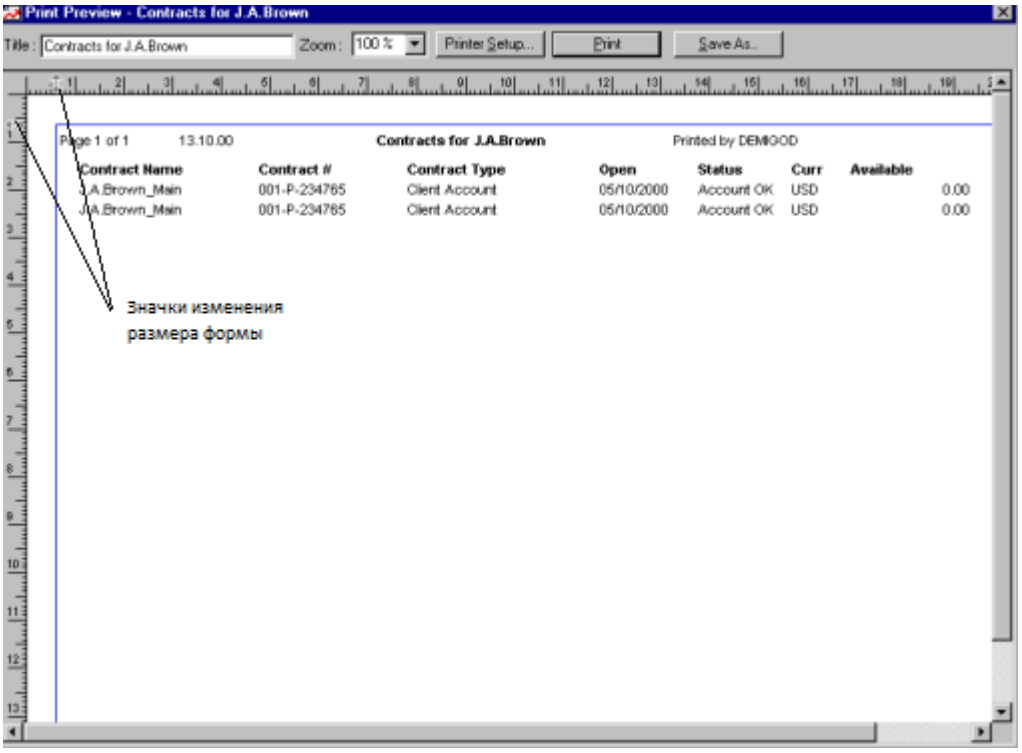
Setting additional fields for a form

To add new additional fields for a form, click the [Ins] button and enter a name in the *Column Name* field. In the *Picture File* field, users can specify the name of a file containing an image that will be used on the attribute tab to show that the field value is set. The image file must be located in the "<OWS_Home>\Client\Shared\Bmp".

3.3.10 Sending data to a printer

To print a form, select the "Data => Print" system menu item (<Ctrl>+<P>) or click on the appropriate button in the toolbar. A preview window with horizontal and vertical rulers will open.

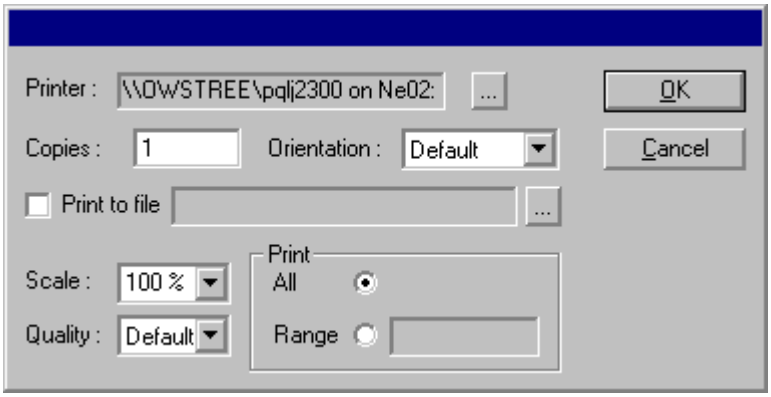
In the preview window, the size of page fields can be changed by dragging the "↔" and "↕" icons on the horizontal and vertical rulers. The*Title* field contains the form's name that will be printed. Before printing, this name can be edited. The *Zoom* field is used for altering the size of the page while previewing.



Print preview window

The print preview window has the following buttons:

- [Printer Setup] – opens the dialog window for setting printing parameters.



Printer setup window

This window's fields are filled in according to the MS Windows standard. The default values of the *Orientation* and *Quality* fields correspond to the parameters of the selected printer.

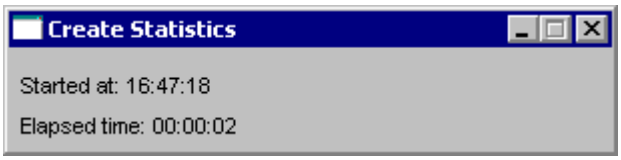
- The [Save As] button of the print preview window saves the data being printed in Powersoft Reports format (*.PSR).
- The [Print] button starts the printer.

4 DB Manager processes

In addition to opening various forms, user menu items are also used to start various processes.

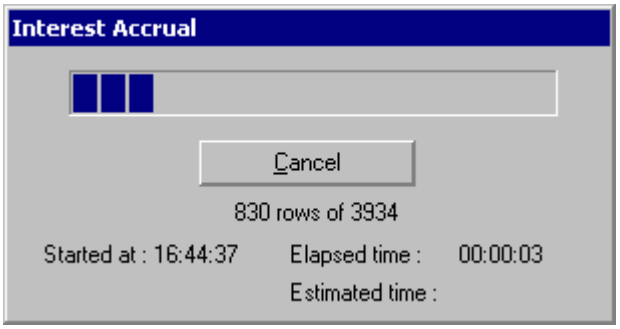
With regard to user control, there are two kinds of DB Manager processes:

- Uninterruptible processes – processes that cannot be stopped by users. While a process is running, its start time (Started at) and elapsed time is displayed. When a process finishes, a completion message or an error message is displayed.



Window for execution of an uninterruptible process

- Interruptible processes – processes accompanied by a dialog box with a progress bar and the [Cancel] button for stopping the process .



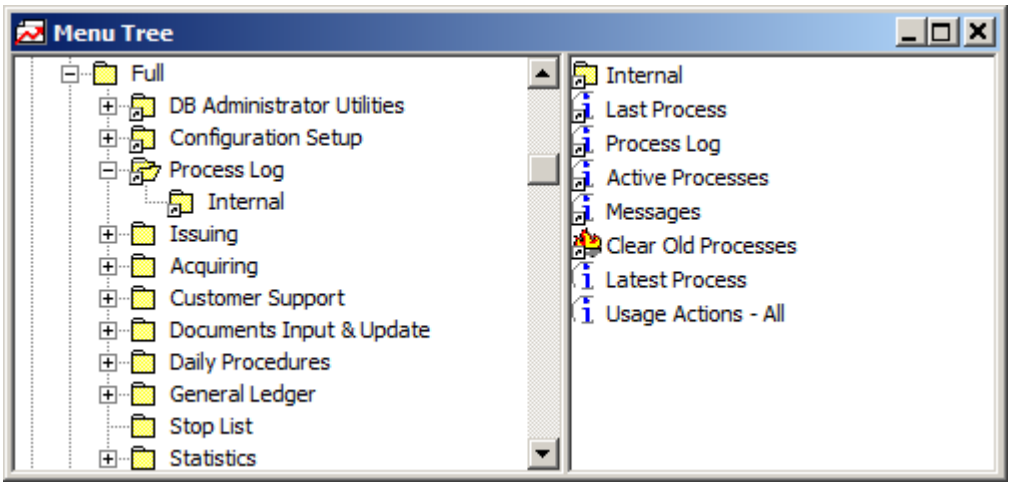
Window with a progress bar for an interruptible process

In terms of program execution, processes can be the following:

- Independent – these processes run as stand-alone MS Windows tasks, meaning all DB Manager functions are independently available during their execution.
- Child processes – processes during which DB Manager functions cannot be used until the processes are completed.

4.1 Process Log

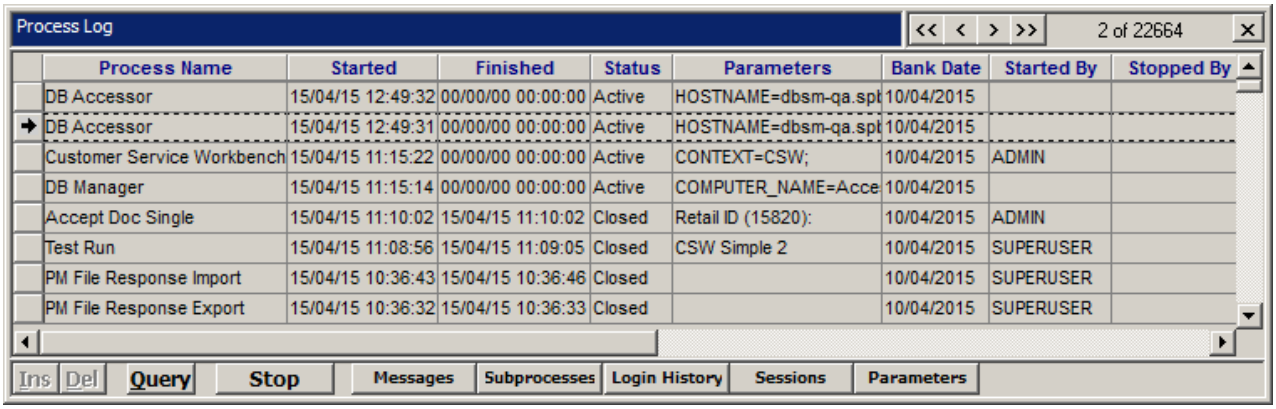
Forms used to work with the process log are located in the "Full → Process Log" user menu folder.



User menu folder for accessing the process log

4.1.1 "Process Log" menu item

The "Process Log" form contains data on all processes executed in the system since the last housekeeping (see the document "Housekeeping"). The form is opened by running the "Full → Process Log → Process Log" user menu item.



"Process Log" form

The form contains the parameters of each process, such as process name, start date and time, end date and time, if the process was completed or stopped, and its current status, etc.

In the system, a process may have one of four statuses:

- "Active" – the process is running
- "Closed" – the process has been completed successfully

> Note that the process of loading a file can be successfully completed if the file was founds, but the file itself may contain logical and format errors. To detect these kinds of errors, note the value of the "Error Level" field.

- "Rejected" – rejected (not completed) due to errors that occurred during its execution.
- "Suspended" – the process was stopped by the user.

- "Stopped" – the process was stopped (cancelled) by a system administrator; a process is not considered successfully completed until it is assigned the "Closed" status; if a process operates correctly, the "Closed" status will be assigned to it automatically.

Clicking the [Stop] button in the "Process Log" form opens a context menu with the following items:

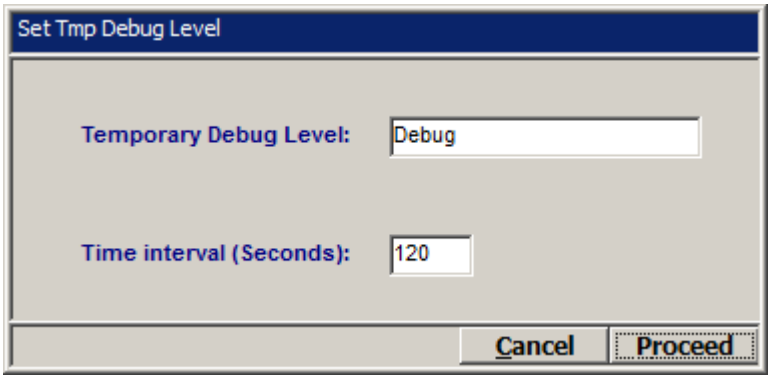
- "Stop" – stop a process that is running. This item is available for processes with the "Active" or "Suspended" statuses. If a process cannot be stopped correctly with the "Stop" item, it can be terminated by changing the status to "Rejected". This action is performed with the "Clear" menu item.
- "Suspend" and "Resume" – suspend or resume a process. When "Suspend" is selected, the process will be suspended and the "Suspended" will be indicated in the *Status* field. To resume a process that was suspended, select "Resume".

> Note that it only makes sense to select "Suspend" or "Resume" for processes whose *Current Number* field value is not null (for example contract processing, calculation of predicted interest, etc.).

It is possible to suspend all running processes with a *Current Number* field value that is not null. To do so, set the global parameter "SUSPEND_ALL_PROCESSES=Y" (see the section "SUSPEND_ALL_PROCESSES" of the document "Way4 Global Parameters").

> If the global parameter "SUSPEND_ALL_PROCESSES" is set ("Y" value), the context menu items "Suspend" and "Resume" will not work (since processes will be suspended). Therefore, to resume processes that were stopped by using the global parameter "SUSPEND_ALL_PROCESSES", set this parameter's value to "N".

- "Stop and Clear" – stop a process that is running and change its status to "Rejected". This item is the same as sequential execution of the "Stop" and "Clear" items.
- "Change Debug Level" – temporary change in the process' logging level. Selecting this item opens the "Set Tmp Debug Level" form.



Temporary change in process logging level

In the *Temporary Debug Level* field, select a logging level from the drop-down list: "DEBUG" – debugging information is saved; "TRACE" – more detailed debugging information than for "DEBUG" is saved; "ALL" – all information about process execution is saved; "NONE" – information about process execution is not saved. In the *Time interval (Seconds)* field, specify the time interval (in seconds) during which the selected logging level will be used. After clicking [Proceed], information about process execution (according to the selected logging level) during this period will saved to the log; when the period expires, the logging level will return to that which was used before the "Change Debug Level" item was run.

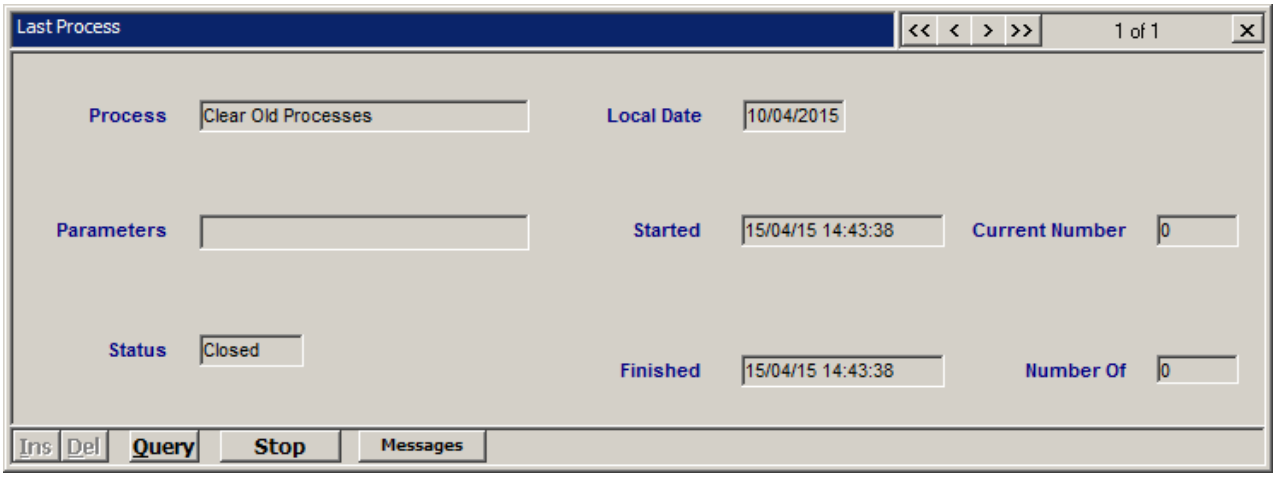
- "Terminate Jobs" – end all jobs that are being run within this process. This item can only be run for processes that contain jobs; for example, document processing.
- "Clear" – change the status of a process that terminated incorrectly to "Rejected". If a process cannot be stopped correctly with the "Stop" item, it can be terminated by changing the status to "Rejected". This action is performed with the "Clear" menu item. This can be done for several processes at the same time (see "'Clear Old Processes" menu item).

> Before stopping a process using the "Clear" button, the system administrator must be sure that the process cannot be stopped using the operating system's administrative tools.

The [Messages] button in the "Process Log" form is used to display messages generated by the system during a process, including error messages (see "'Messages" menu item).

4.1.2 "Last Process" menu item

The "Last Process" form is opened by selecting the user menu item "Full → Process Log → Last Process". The form provides information about the latest started process in the current DB Manager session.



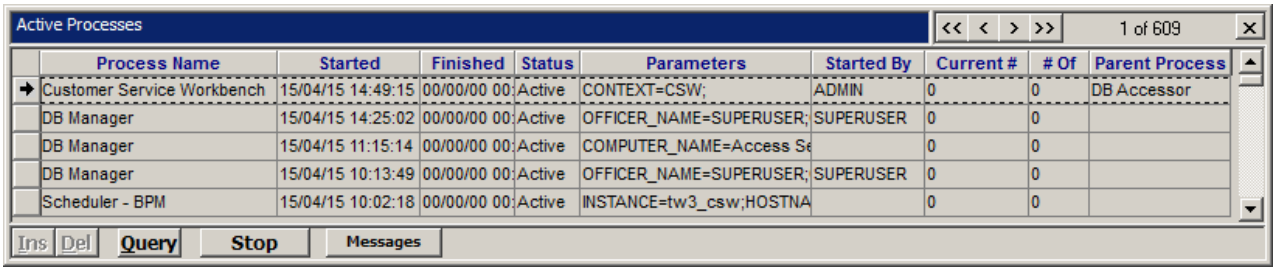
Information on the latest process started in the current DB Manager session

The [Stop] button is used to stop a process that is running. If the process has the "Closed", "Rejected" or "Stopped" status, when the [Stop] button is clicked, a window will open with the message "Process is not active."

The [Messages] button is used to access messages generated by the system during a process, including error messages.

4.1.3 "Active Processes" menu item

The "Active Processes" form opened with the user menu item "Full → Process Log → Active Process" provides information on all processes that are currently being run by the system.

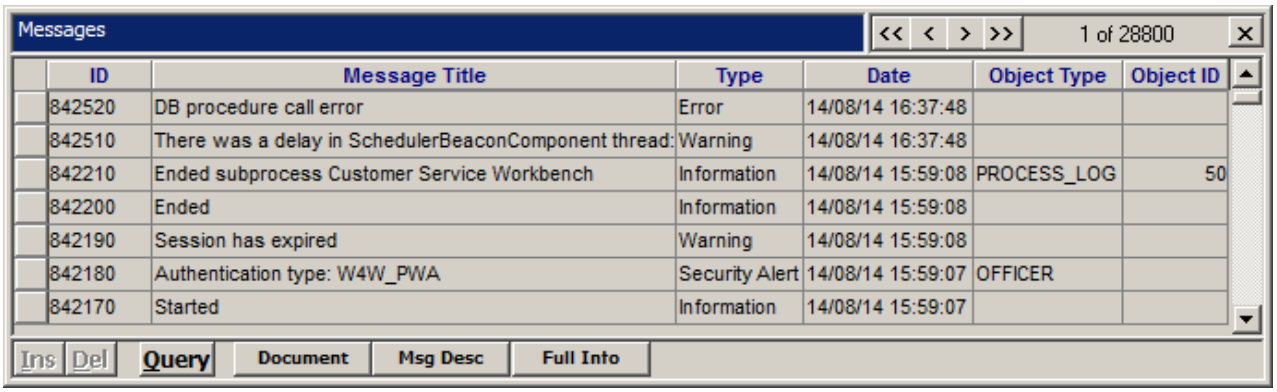


Information about active system processes

The [Stop], [Clear], and [Messages] buttons are the same as the context menu items and button, respectively, described in the section "Process Log" menu item".

4.1.4 "Messages" menu item

The "Messages" menu item available through "Full → Process Log → Messages" is used to access messages generated by the system during a process, including error messages.



Process message log

Use the [Document] button to open the form containing information about a document whose processing resulted in a message.

The [Msg Desc] and [Full Info] buttons are used to display detailed message data.

4.1.5 "Clear Old Processes" menu item

If processes can't be completed correctly, their status can be changed to "Closed". To do so, in the user menu select "Full → Process Log → Clear Old Processes". In the "Date To" window that opens, specify the date until which the status of all incorrectly terminated processes must be changed to "Closed"

and click the [Proceed] button. To continue, click [Yes] in the form that opens with the question "Are you sure that all processes with inactive status up to this date have already finished?".

Before stopping a process with the "Clear Old Processes" menu item, a system administrator must make sure that the process cannot be stopped through the operating system's administration tools.

4.1.6 "Events Log – All" menu item

The user menu item "Full → Process Log → Events Log – All" opens the contract Events log form (see the section "Contract Events Log" of the document "Events").

4.2 Stopping DB Manager Processes

To stop an interruptible process in DB Manager, click the [Cancel] button (see "DB Manager processes"). For an uninterruptible process, use the key combination <Alt>+<F4> .

The [Stop] button and "Stop"/"Clear" context menu items in process log forms can also be used to stop a process (see "Process Log").

4.3 Temporary file directory

The <OWS_TEMP> standard system directory is used for storing temporary files. The hierarchy of this directory includes directories created for each user and new DB Manager session. The names of these directories contain the username, creation date and session number). System error log files and temporary files (that exist only until DB Manager has successfully completed running) are stored in these directories, for example, message.pkm", "pipe.tmp" and "pipe.err".

In addition, the <OW_TEMP> hierarchy includes the LOG directory, which contains various logs.

Note the following files in the LOG directory:

- "menu_upgrade.log" – file with a log of user menu items that were imported and exported using DB Manager (see the section "Importing and exporting the user menu" of the document "DB Manager. Menu Editor").
- "/CLIENT/dbm.log" – file showing the start of various processes, such as report generation or pipe execution as well as errors occurring during execution of such processes or when starting forms or menu items.

5 Report generation principles

Report generation principles are described in the document "Generating Reports in WAY4".

6 Installing the client side of the system (DB Manager)

To install the client side of the system, edit the parameters described in the "<OWS_WORK>\db.ini" file and configure workstation parameters.

6.1 Settings for each database

It is necessary to edit the file "<OWS_WORK>\db.ini".

6.1.1 Section [Client.DBM.Default]

```
DSN=<Default name of ODBC Data Source>
```

In this string, specify the DSN that will be correct for the majority of workstations. It is recommended to use the same ODBC Data Source for all Way4 databases. As a rule, "DSN=Oracle" (the name of the DSN created when installing ODBC drivers).

The DSN value can subsequently be redefined for each workstation separately.

```
NAME=<Name of the database>
```

In this string, specify the name of the database that the user will select from a list in the DB Manager startup window (see the section "Starting DB Manager").

Later, this value can be redefined for each workstation separately.

6.1.2 Section [Client.DBM.Params]

```
CONNECT_STRING=DBQ=<SQL-Net name of Oracle database>
```

The value in this string cannot be redefined for separate workstations. SQL-Net on all workstations must be configured in the same way. To do so, it is recommended to use an LDAP server (for example, Oracle Internet Directory).

```
OWS_OWNER=<OWS owner name>
```

Specify the Way4 database schema owner's name (OWS Owner) in this string.

```
DBMS=Oracle
```

Do not change the value of this parameter.

```
ENCRYPTED_COLUMS=<TABLE_NAME1.COLUM_NAME1,TABLE_NAME2.COLUM_NAME2>
```

To fill in certain fields containing lists, users are shown a window for selecting a field value.

The value in the "ENCRYPTED_COLUMS" string is used to configure selection of encrypted field values. The name of the table and name of the column from which an encrypted value will be selected is set in the parameter (see the section "Field editing methods"). Values in the "ENCRYPTED_COLUMS" string are specified in capital letters and are separated by commas.

6.2 DB Manager additional parameters

Values of additional parameters are set in the "db.ini" file ([Client.DBM.Params] section).

These parameters can be redefined using the system menu item "Database => Configure". Note that the settings of parameters made in DB Manager on a local computer will have a higher priority than settings in the "db.ini" configuration file.

```
HANDLE_MOUSE_WHEEL_BY_DBM=true
```

The parameter is used if DB Manager ignores mouse wheel scrolling settings made in OS parameters.

6.3 ".ini" common configuration file

If centralized management of the DB Manager configuration is required; that is, management of settings for attached databases, a common .ini configuration file can be created. In this file, parameters can be specified that are common to all databases in the [GENERAL] section, as well as parameters for each database in the section with the database's name [<DB_name>].

```
[GENERAL]
<global_parm1>=....
...
[<profile1>]
parm1=....
...
[<profile2>]
 ...
```

In this case, DB Manager must be started using an executable file with the parameter "DB_PROFILES_FILE=<ini-file_path>". Specify the full name of the file in the parameter value.

```
<OWS_HOME>\client\dbm\dbm.exe DB_PROFILES_FILE=C:\OWS_WORK\dbmanager.ini
```

6.4 Configuring workstation parameters

Workstation parameters must be configured for the Installation Workstation. Other workstations can be configured later.

6.4.1 Preparation

When preparing for parameter configuration, do as follows:

- Make sure that Oracle client is installed on the workstation, and that SQL-Net is properly configured.
- Make sure that all users of the operating system who are granted access to Oracle ODBC have read and execute privileges for executable files of the <ORACLE_HOME> directory, as well as of all its subdirectories and files.
- Check the connection with the <SQL-Net name of Oracle database> databases specified in the "db.ini" files of all the databases. Use SQL-Plus and tnsping to check the connection.
- Make sure that at least one ODBC Oracle data source is installed and configured on the workstation.
- Make sure that the user performing setup has only read access to the directories <OWS_HOME> and <OWS_WORK> for all the databases on the file server. The ability to map is not mandatory.
- Create a directory for temporary Way4 files (<OWS_TEMP>) on the local disk. If a temporary file directory was created earlier, it is recommended that it be used. Next, start DB Manager with the "setup" parameter.

```
<OWS_HOME>\client\dbm\dbm.exe setup
```

  In the *Temporary Directory* field of the "Local Machine Parameters" window, specify the path to the <OWS_TEMP> directory.
- For correct operation of C pipes and pipes using parameters that contain local characters, local language support must be set in the MS Windows operating system. For example, for MS Windows 7, execute Start–> Control Panel–> Region and Language", and in the "Region and Language" window that opens, select the "Administrative" tab, after which select the local language in the field *Current language for non-Unicode programs*.

6.4.2 Adding Way4 databases

To add databases, in the "Local Machine Parameters" window, click the [Add...] button.

The "Add Database" form will open. In the *Directory for Custom Part of Files* field, specify the path to the <OWS_WORK> directory. It is recommended to use UNC-style paths (selection though Network Neighborhood) instead of specifying them on network disks.

In the *Database Name* field, specify the name of the database. Note that the name must be unique for this workstation.

After filling in this form's fields, click [OK].

If necessary, change the DSN value for this database.

6.4.3 Checking

After adding a Way4 database, in the "Local Machine Parameters" window, click the [OK] button and log into the system as the schema owner <OWS_OWNER> (in a one-user version of the database) or as the main administrator <OWS_ADMIN> (in a multi-user version of the database).

6.5 Completing setup (executed for all Way4 databases)

After the user has logged into the database through DB Manager, the standard menu must be imported by selecting the system menu item "Database => Import Standard Menu".

7 Composition and use of DB Manager files

Way4 has the following standard directories:

- <OWS_HOME> – main system directory, containing the standard structure of subdirectories and files, that is the same for all main system directories of the same version; the structure of this directory cannot be changed during system operation.

> Changes to the contents of the <OWS_HOME> directory are only permissible during a system upgrade.

- <OWS_WORK> – system directory containing a structure similar in part to that of the <OWS_HOME> directory, including various configuration files, data files specific for the particular Way4 configuration, custom screen form files and report files, etc.
- <OWS_TEMP> – system directory used to store temporary files created during DB Manager operation, as well as error log files (see "Temporary file directory").

When setting up standard directories, the following recommendations should be observed:

- The <OWS_HOME> directory can be located on the file server, on the local disk of the workstation or CD/DVD ROM. Several programs running on the same workstation or on different workstations, as well several different instalments of the same version of Way4 can use the same <OWS_HOME> directory.
- The <OWS_WORK> directory can only be located on the file server. Several programs running on the same workstation or on different workstations operating in the same Way4 system use the same <OWS_WORK> directory. If the programs are working in different Way4 systems, the <OWS_WORK> directories must be different. Therefore, each installed Way4 system has one and only one <OWS_WORK>.
- The <OWS_TEMP> directory is located on the local disk of the workstation. Several programs running on the same workstation, including several instances of the same program regardless of whether they are working in the same system or a different one, use the same <OWS_TEMP> directory.

7.1 Client-side components

The client side of the system is split into components. Each component has a name.

- Way4 has the following components:
  - DBM – DB Manager (Power Builder)
  - Soft – Remote Workplace (Java).

- Constant specific files for a component are located in the subdirectories "<OWS_HOME>\Client\<component_name>". Files whose contents can vary from system to system are located in the subdirectories "<OWS_WORK>\Client\<component_name>"
- Files used by several components are located in the subdirectories "<OWS_HOME>\Client\Shared" and "<OWS_WORK>\Client\Shared".
- Files whose contents rarely change from system to system are located in the <OWS_HOME> (by default, and in the <OWS_WORK> directory. First, the component looks for a file in the <OWS_WORK> directory and then in the <OWS_HOME> directory.
- Data generated during system operation is located in subdirectories of the directory "<OWS_WORK>\Data".

7.2 Joint use of file directories

Components can only use the <OWS_HOME> directory for reading, not blocking access to open files by other components.

Components use the <OWS_WORK> directory in read/write mode. It is possible to block access during writing.

To exclude the possibility of collision when several instances of the same program are operating on one workstation, temporary files are not created in the <OWS_TEMP> file, but in numbered temporary subdirectories created when the component is started and deleted when work is completed. For example, the first instance of a component will use the directory "<OWS_TEMP>\00000001*.*", the second – "<OWS_TEMP>\00000002*.*", the third (if by the time it starts the first has already finished) – "<OWS_TEMP>\00000001*.*" again, etc..

For the <OWS_HOME>, <OWS_WORK> and <OWS_TEMP> directories, UNC-style paths and long filenames must be supported.

7.3 Log files

Component log files are saved in the file "<OWS_TEMP>\Log\Client\<component_name_user_name_session_date>.log" or "<OWS_TEMP>\Log\Client\<component_name.subcomponent_name_user_name_session_date>.log".

All program instances save a log in different files.

Messages in the log file must contain identifying information about the system and the specific instance of the program.

A log file opens only at the time a message is written. A message is always written to the end of the file.

Log files can be deleted at any time. This should not cause problems in operation of the component: files are created again the next time a message is written.

7.4 Component configuration information

Configuration information specific to a particular system, but not dependant on the workstation, is located in the file "<OWS_WORK>\db.ini" in the sections [Client.component_name.*].

Configuration information specific to a particular workstation (for example, the path to the <OWS_TEMP>directory) is located in the System Registry.

When configuring a component, the systems it can work with are specified. System names, the path to the <OWS_WORK> directory of each system and other system-dependant information (for example, password for login) is also located in the System Registry (passwords are encrypted).

The program must be able to run several instances on one workstation. During startup, system names are sent either through the command line or interactively though a special window.

7.5 Creating file directories

The <OWS_HOME> directory is created by OpenWay when releasing a system version. Then, the system distribution is copied to the file server or local disks of workstations.

The <OWS_WORK> directory is created during system installation, by using the executable file "<OWS_HOME>\Install\MkWork\MkWork.bat".

If a component can't create subdirectories in the <OWS_WORK> directory during operation, the <OWS_HOME>\Install\MkWork\<component_name>.bat" file that is called from the "<OWS_HOME>\Install\MkWork\MkWork.bat" file is used to create all required subdirectories for the component.

In addition to subdirectories, the component may also require several files in the <OWS_WORK>directory. In this case, the instructions must clearly dictate the procedure for their creation (for example, copy a file template and edit it, or start a program that will create the required subdirectories or files in the <OWS_WORK> directory).

The <OWS_TEMP> directory and all its subdirectories must be created by components while these components are running.

The system is installed according to the following scenario:

- Copy the distribution of the <OWS_HOME> directory to the file server.
- For each system being installed it is necessary to:
  - Create the <OWS_WORK> directory using the executable file "<OWS_HOME>\Install\MkWork\MkWork.bat".
  - If necessary, for components take specific actions to create subdirectories and files in the <OWS_WORK> directory.
- For each workstation and component it is necessary to:
  - Configure the path to the <OWS_TEMP> directory.
  - For each system, configure the path to the <OWS_WORK> directory and other parameters.

7.6 Updating file directories with a new Way4 version

The <OWS_HOME> directory is updated in one of two ways:

- By copying the <OWS_HOME> directory from the distribution of the system's new version.
- By installing a patch for the previous version of the <OWS_HOME> directory.

To update the <OWS_WORK> directory, restart the executable file "<OWS_HOME>\Install\MkWork\MkWork.bat". By doing so, new subdirectories will be created; old files and directories will not be replaced.

No update of the <OWS_TEMP> directory is required, since components of the new version automatically create the necessary subdirectories.

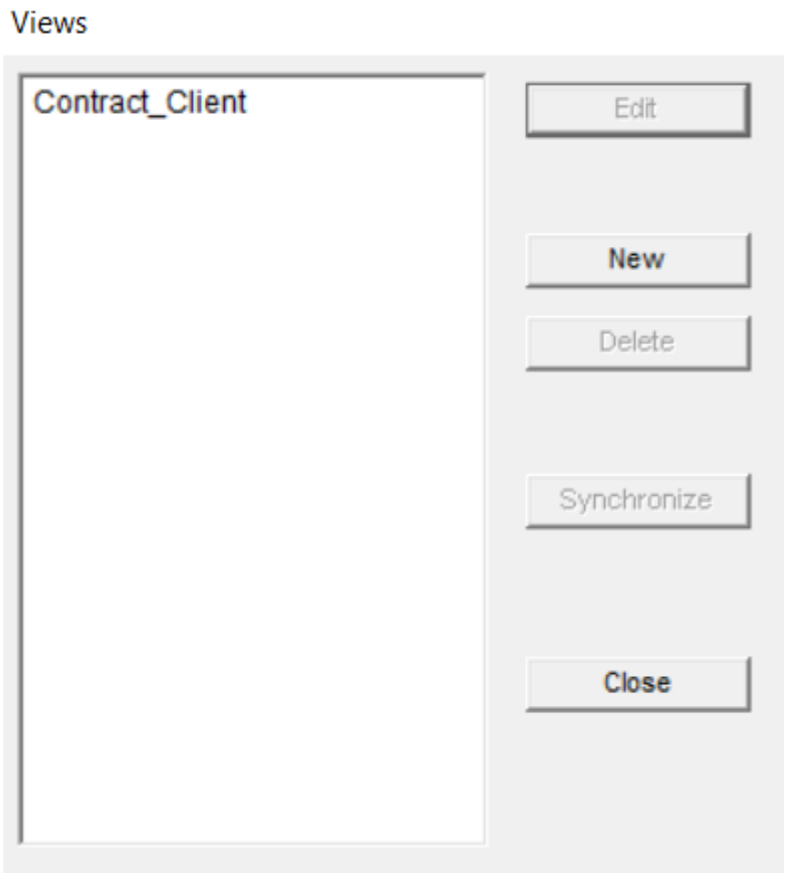
8 View Editor

> Creating custom views may affect system performance and health. This functionality should be used with the approval of OpenWay. Custom views can be created and changed only when installing and updating Way4 with schema owner privileges and with the approval of the DB administrator.

View Editor makes it possible to create logical tables based on data from several database tables.

To start View Editor, select the DB Manager system menu item "Database=> Views" or press <F3>.

The "Views" window will open with a field for creating and editing a list of database views.

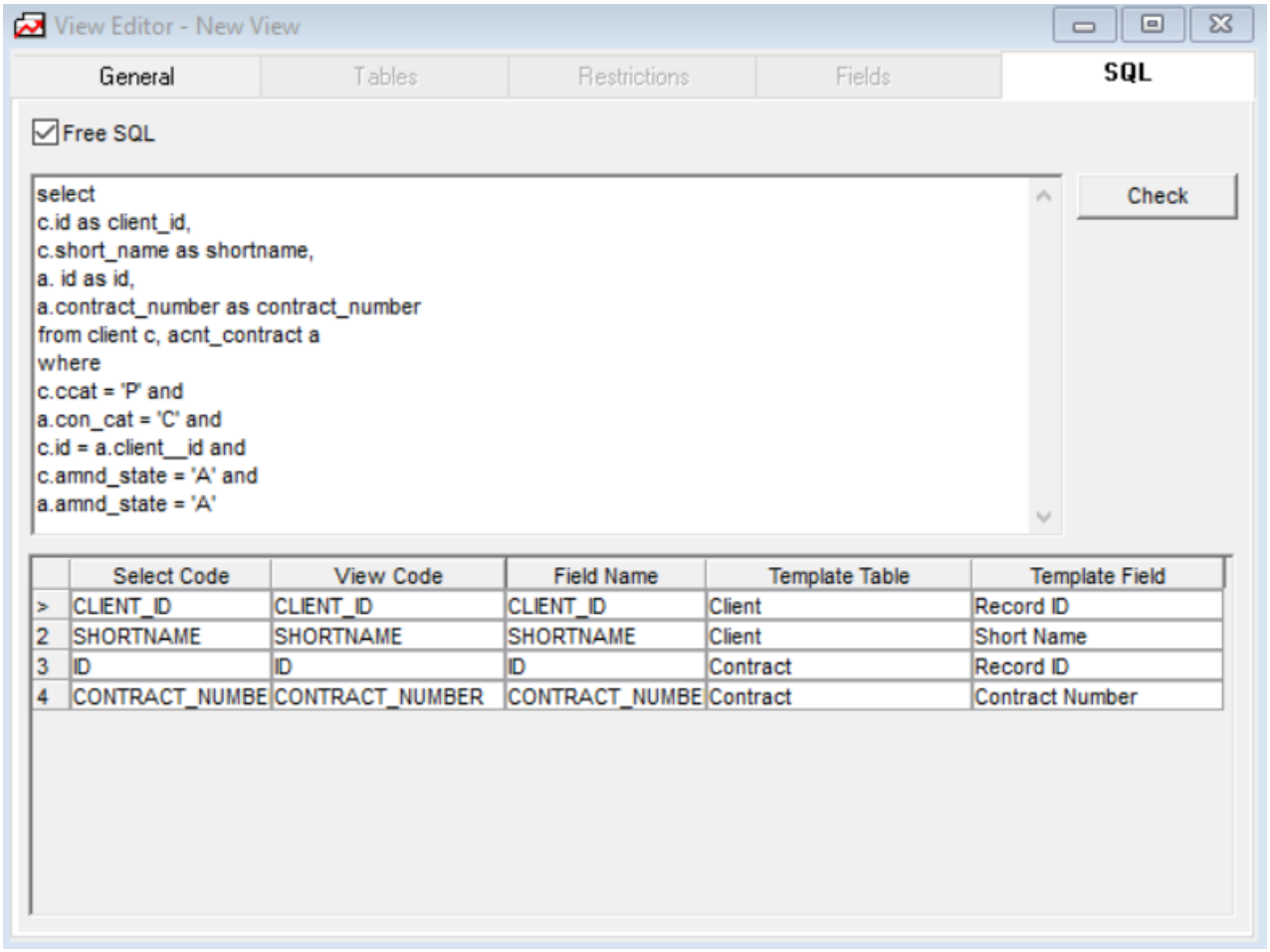


Window to select a view for editing

To add a new view, do as follows:

- Click the [New] button in the "Views" window.
- In the "View Editor" window that opens, select the "Free SQL" checkbox on the "SQL" tab.
- Enter a prepared SQL query into an input field to create a view. Use the SQL Executor (Database > Execute SQL (F8)) to write and debug the SQL query.

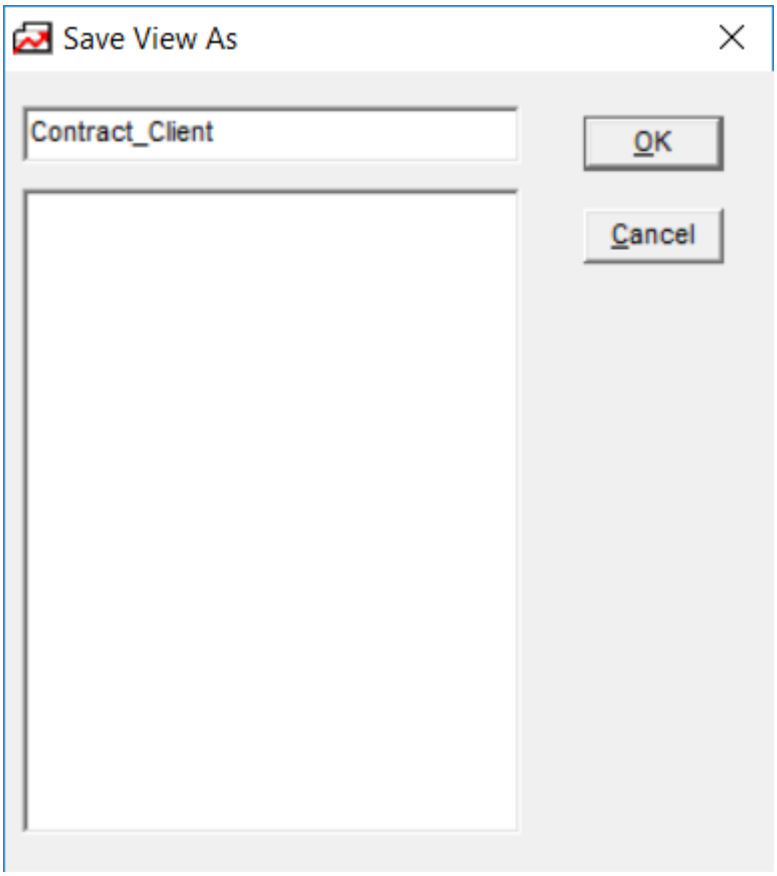
Note that the query must not contain the ";" symbol, otherwise an error may occur when saving the view.



Window for creating and editing a view

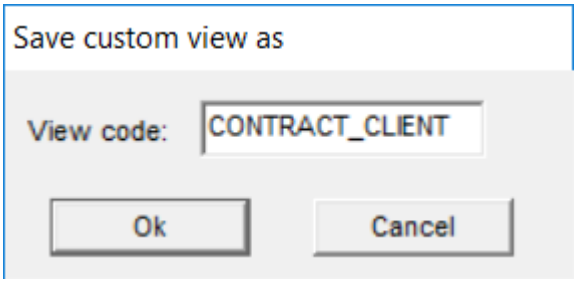
- Click the [Check] button. The "View Editor" form will show the result of the SQL query.
- In each table row, specify the original table's name in the *Template Table* field, and in the *Template Field* field, specify the field name from the table from which the selected field is called. In the *Template Table* and *Template Field* fields, logical names of tables and fields are used that differ from the names in the database structure.
- After the view has been prepared, close the "View Editor" window. Way4 will prompt to save the prepared view. In the top field of the "Save View As" window that opens, enter the name of the view that was created and click [OK]. When creating a new form, this name will be shown in the list of available tables.

A view's name must be entered without spaces or underline characters.



"Save View As" window

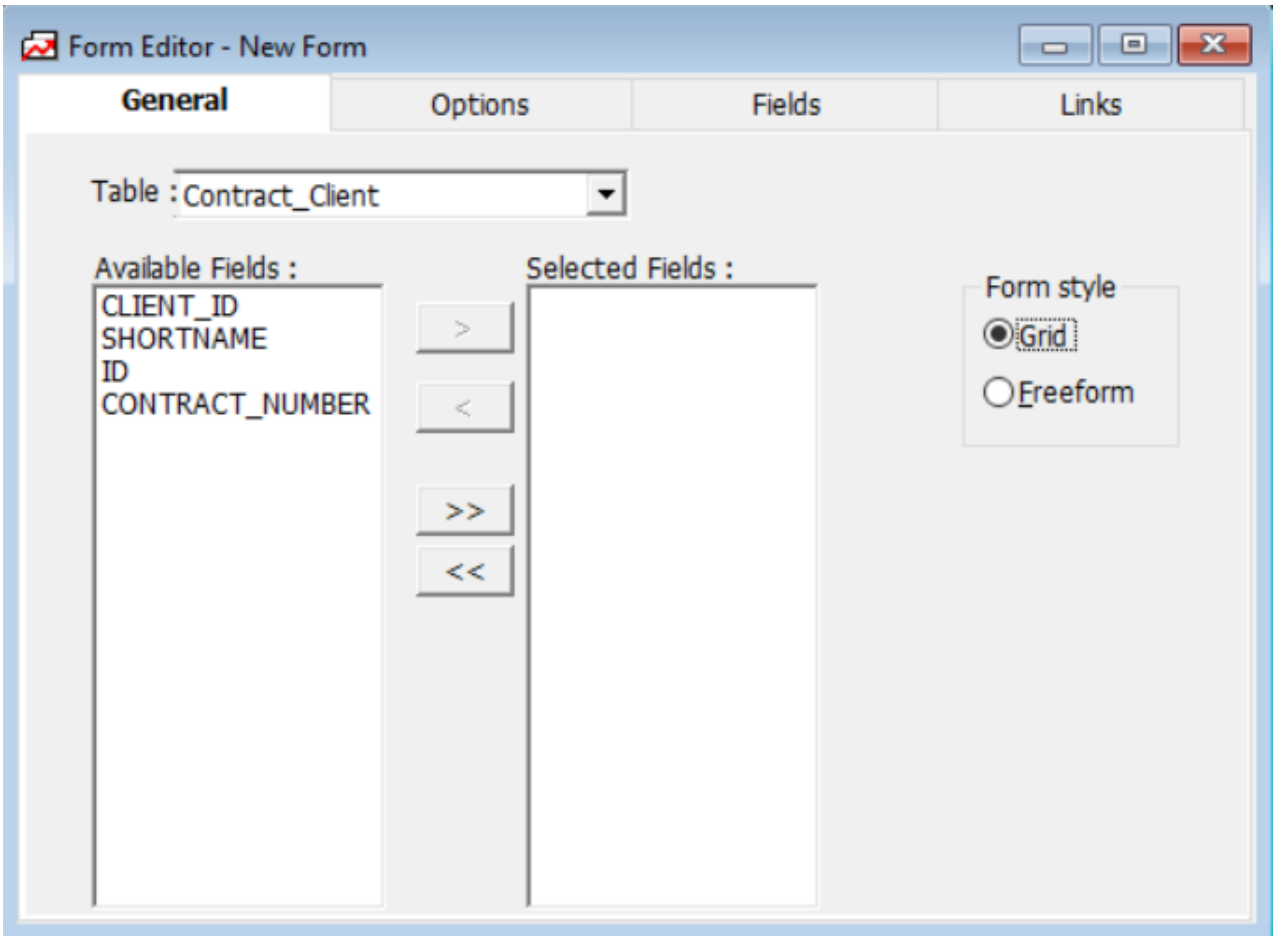
- Next, in the "Save custom view as" window enter the view code in the *View code* field – this is the name that will be used with the "OPT_" prefix in the database.



"Save custom view as" window

To create a form based on a prepared view, select the DB Manager system menu item "Database => Forms" or press <F2> and click the [New] button (for more information, see the document "DB Manager. Form Builder"):

- In the "Table" list of the window that opens, select the view that was created earlier and from the list of available fields, select those that are required for the form being created.

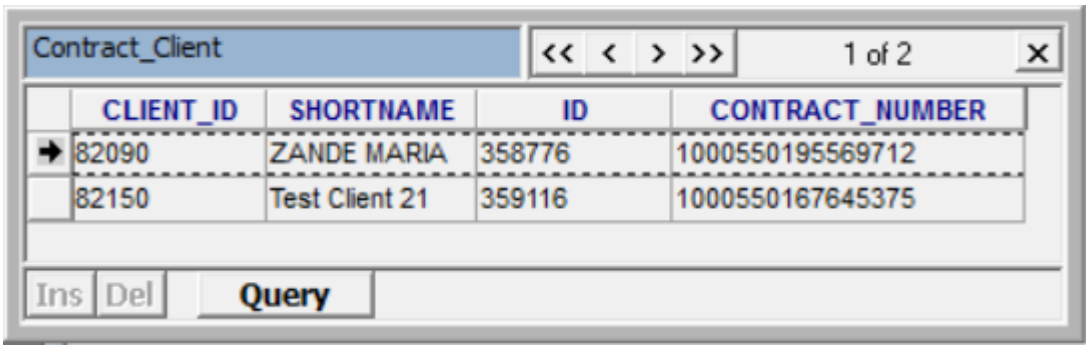


"Form Editor – New Form" window

- When the form is ready, close the "Form Editor" window. Way4 will prompt to save the form. In the top field of the "Forms" window that opens, enter the name of the form and click [OK].

> After views have been changed, view-based forms must be synchronized. To start the procedure, select the system menu item "Database => Synchronize Forms".

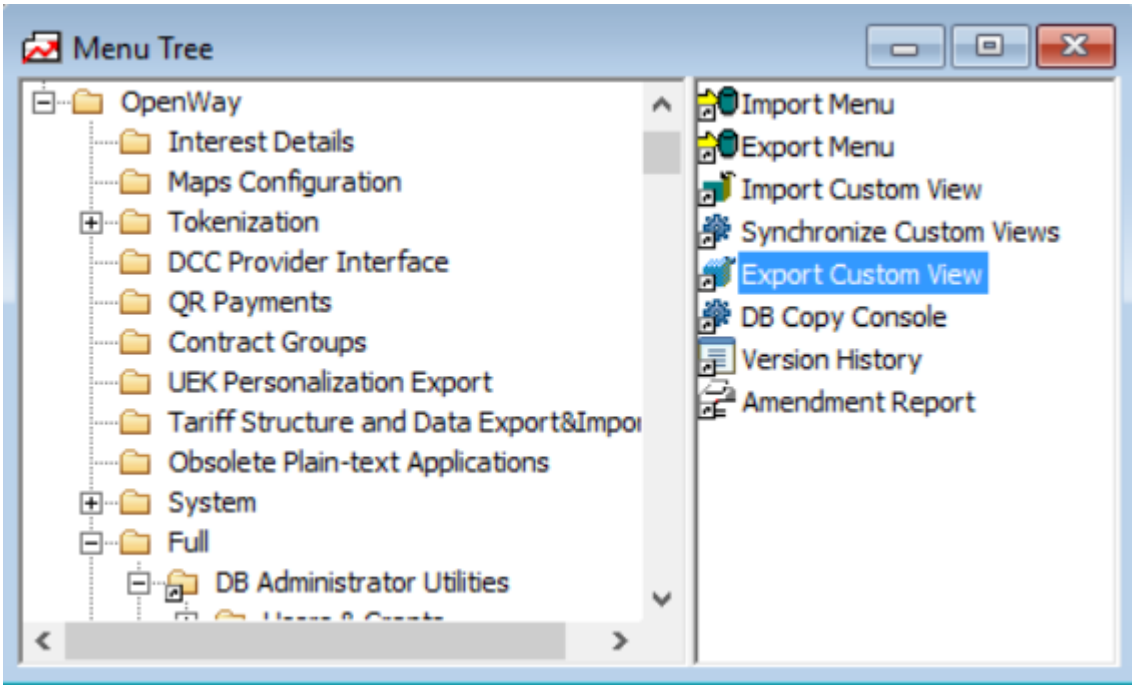
Menu Editor can be used to create a menu item based on the form and view that was created (for more information, see the document "DB Manager. Menu Editor").



Example of a view-based form

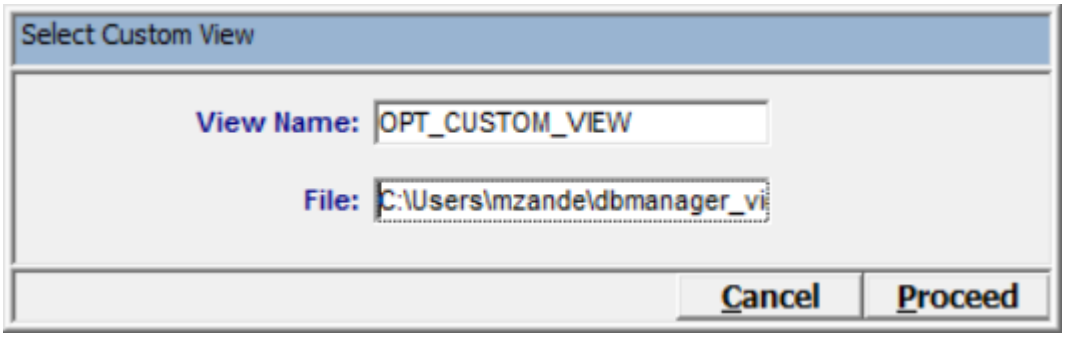
8.1 Exporting custom views

To export a custom view, select "Full → DB Administrator Utilities → Upgrade Utilities → Export View" in the user menu.



"Export View" menu item

Selecting this menu item opens the "Select Custom View" window in which custom views can be selected for export.

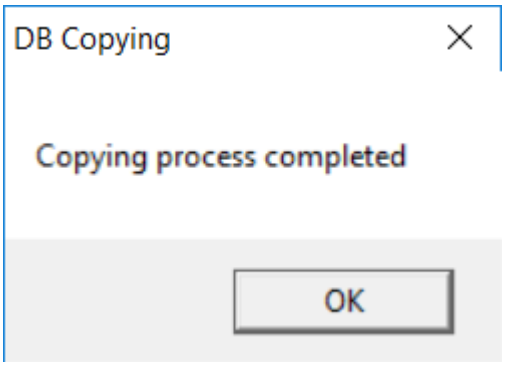


"Select Custom View" window

In the *View Name* field, enter the code of the custom view with the "OPT_" prefix that must be exported or select "All views" from the drop-down list if all custom views must be exported.

In the *File* field, specify the path to the file where the custom view must be saved.

Next, click the [Proceed] button. If export is successful, the message "Copying process completed" will be displayed.

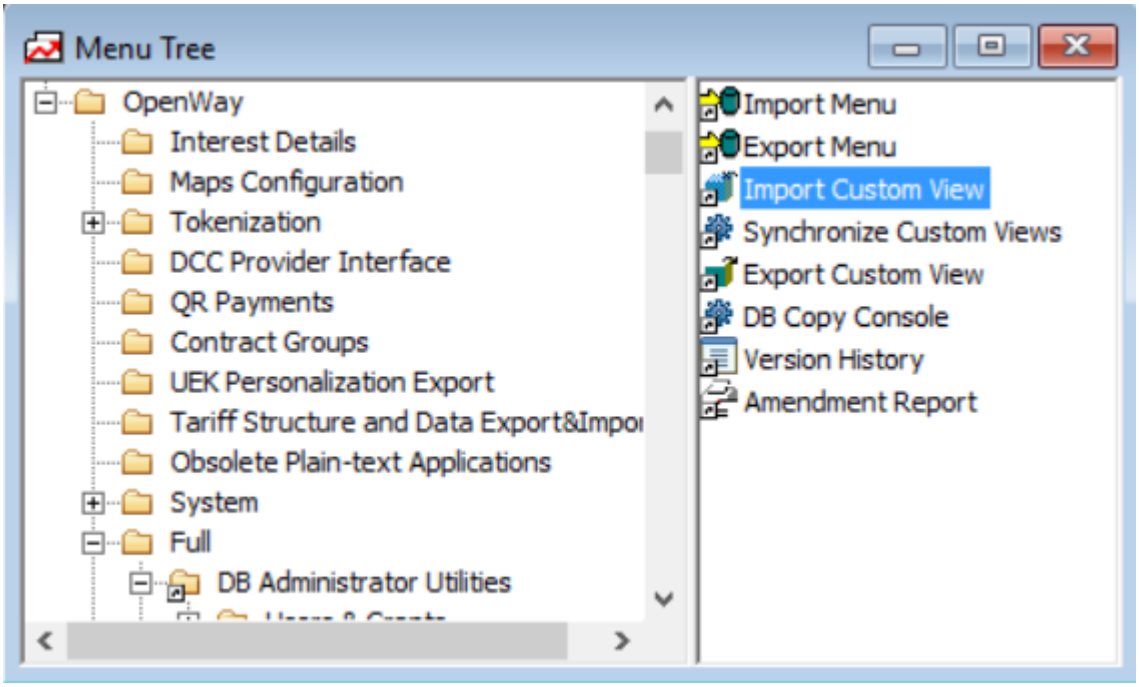


Message that export of a custom view was successful

Check the content of the exported file to make sure that export was successful. If the custom view code in the *View Name* field is incorrect, the file will be empty or will contain an insignificant number of rows. In this case, it is necessary to repeat export with the correct code specified in the *View Name* field.

8.2 Importing custom views

To import a custom view's metadata, select "Full → DB Administrator Utilities → Upgrade Utilities → Import View" in the user menu.



"Import View" menu item

Selecting this menu item opens the "Select File" window in which custom views can be selected for import.

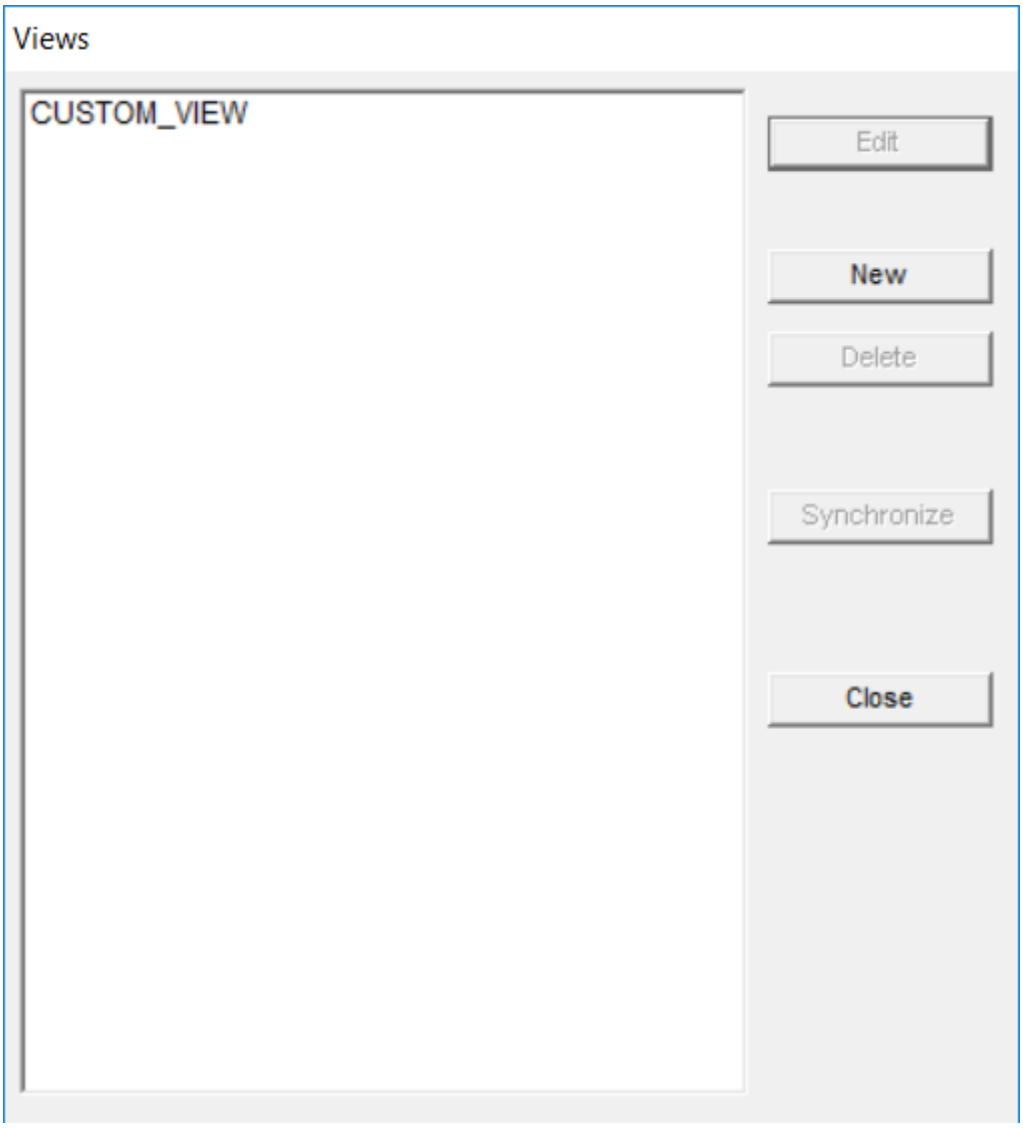
"Select File" window

In the *File Name* field, enter the file path to the custom view whose data must be imported.

Next, click the [Proceed] button. If export is successful, the message "Copying process completed" will be displayed.

To create a custom view whose data were imported, do as follows:

- Select "Database => Views" or press <F3>. The "Views" window will open.
- In the "Views" window, select an imported custom view from the list of editable custom views and click the [Edit] button.
- If necessary, edit the custom view and save it (and enter the schema owner's password).



"Views" window

Next, based on the custom view that was created, it is possible to prepare a form and create a menu item "View Editor").