



The Versatile BI Solution!

Click&DECiDE Business Application Intelligence

Data Sources, Queries & Output Formats Manual

Last Edition, April 16th, 2019

Click&DECiDE version 2019



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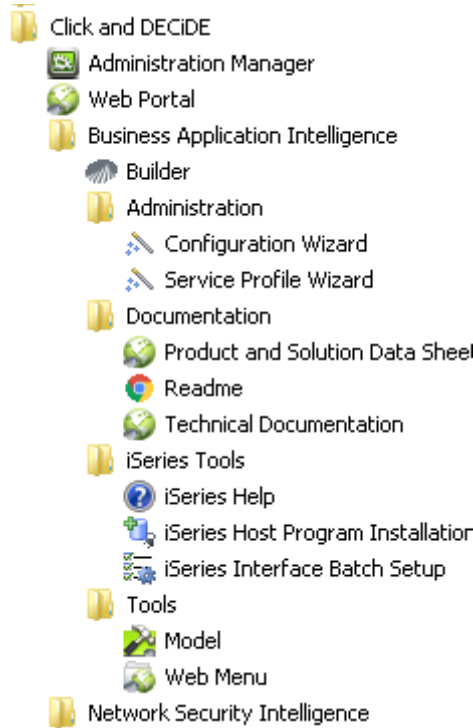
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1. Starting with Click&DECiDE

1.1. Using the Click&DECiDE Start Menu

The Click&DECiDE Start menu displays the following modules. To display the Start menu click **Start> All Programs> Click and DECiDE**.



Administration Manager: click **Administration Manager** to launch the Administration Manager. The Administration Manager enables you to define and setup each data source you want to access. In the Professional and Enterprise Edition, the Administration Manager also enables you to define the Security when accessing data sources: User Groups, Users, Menus used in the Web Portal and the Authentication mode.

In the Express and Standard Edition, this command only allows to define and setup each data source you want to access.

Web Portal: click **Web Portal** to access your Click&DECiDE Web Portal. The Web Portal will be launched.

1.1.1. Using the Start Menu's Business Application Intelligence Folder

Builder: click **Builder** to launch the Click&DECiDE Builder. The Builder is the main program which enables you to start the application to create queries, reports and cross-tables, all saved in the same project with a ".wfv" extension.

Configuration Wizard: click **Configuration Wizard** to launch the Click&DECiDE Configuration Wizard again. You may choose to run the Configuration Wizard again in the following cases:

- If you need to change your license certificate.
- If you need to change the Web Portal Authentication mode.
- If you need to change your Mail Server name.
- If you need to change the SQL Server Authentication mode.
- If you need to change the Working Folders in the Web Portal.

Service Profile Wizard: click **Service Profile Wizard** for changing the profile of the Click & DECiDE.

1.1.2. Using the Start Menu's Tools Folder

Model: click **Model** to launch the Click&DECiDE Model program (Enterprise Edition only).



This program is installed with BAI version 19 only for compatibility reasons, and it should be discontinued in a future version. We recommend to leave the use of Model and to migrate to views designed in database. You can also use the **Click and Decide Queries** data source for complex models. See the KB [How to use the new Click&DECiDE Queries Data Source?](#) for details.

Web Menu: click **Web Menu** to launch the Click and DECiDE Web Menu program (Enterprise Edition only). This program allows the Administrator to create the Menus they want to publish via the Web Portal, according the User Groups defined in the Administration Manager.

1.1.3. Using the Start Menu's iSeries Tools Folder:

iSeries Help: click **iSeries Help** to open the Click and DECiDE iSeries Online Help.

iSeries Host Program Installation: click **iSeries Host Program Installation** to run the tools required to upload to the AS/400 Host Program.

iSeries Interface Batch Setup: click **iSeries Interface Batch Setup** to run the tools managing the rights for the Batch Facility. This is a specific feature for iSeries that must be prepared by the AS/400 Administrator.

1.1.4. Using the Start Menu's Documentation Folder

Products and Solution Data Sheets: click **Products and Solution Data Sheets** to product and solution documents on the Click&DECiDE web site.

Readme: click **Readme** to open the Readme file and read about the new features in the current version.

Technical Documentation: click **Technical Documentation** to open technical documents on the Click&DECiDE web site.

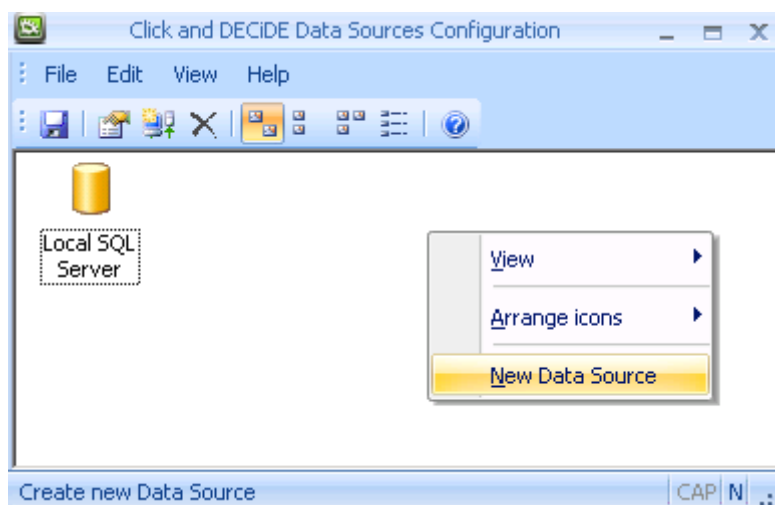
1.2. Defining Data Source Access (Express Edition or Builder standalone)

Once you have installed Click&DECiDE and you want to start using the product, you first need to define the data source you want to access. If you installed the Express Edition or only Builder from Desktop or Enterprise Edition then please follow the instructions in this section as the Administration Manager linked in the Start Menu will launch the **Click&DECiDE Data Sources Configuration** module which is only for the Express Edition of Click&DECiDE or Builder installed as standalone.

If you installed the Enterprise Editions, please follow the instructions in section 1.3.

To define the access to your data source, please follow the steps below.

1. Click **Start> All Programs> Click and DECiDE> Administration Manager**. The Click and DECiDE Data Sources Configuration module appears. This program allows you to add configure the access for each data source you want to use.

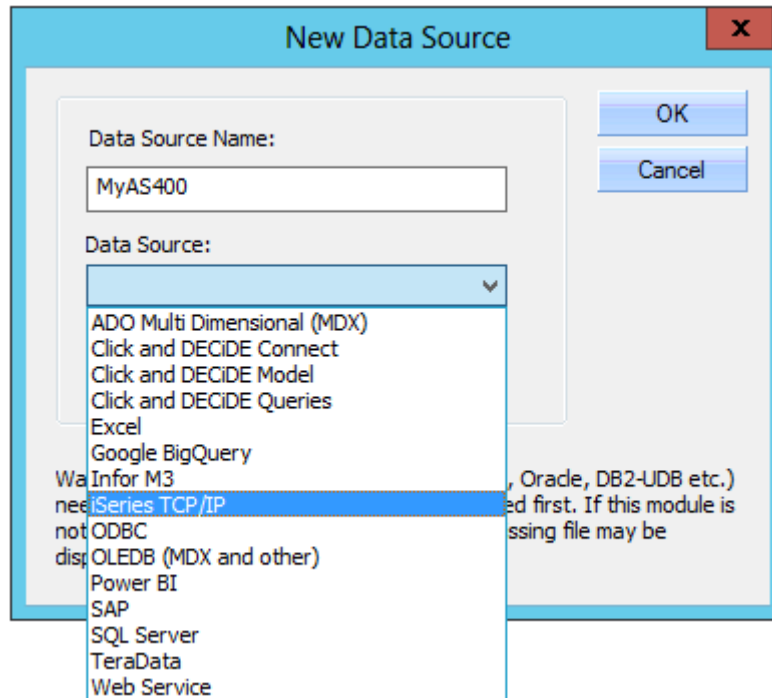




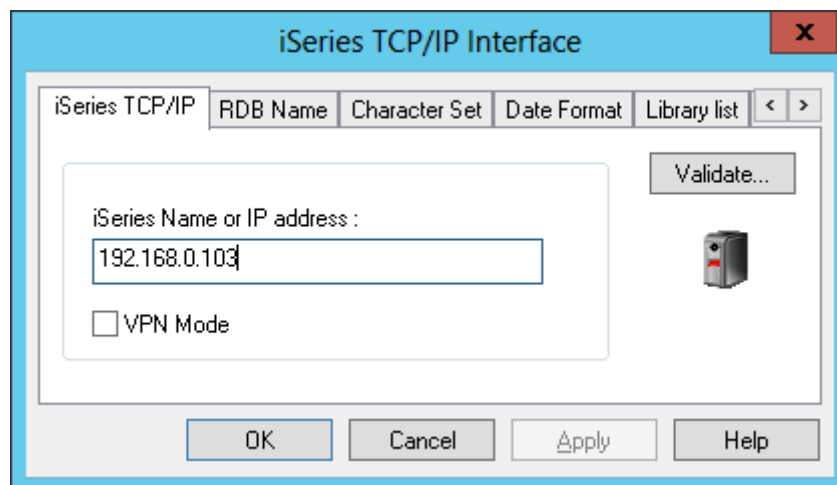
1.2.1. Creating a New Data Source

To create a new data source, please follow the steps below.

1. Right-click in the middle pane to add a new data source.
2. Click **New Data Source** or click **File> New**.
3. Enter the name you want for the new data source.

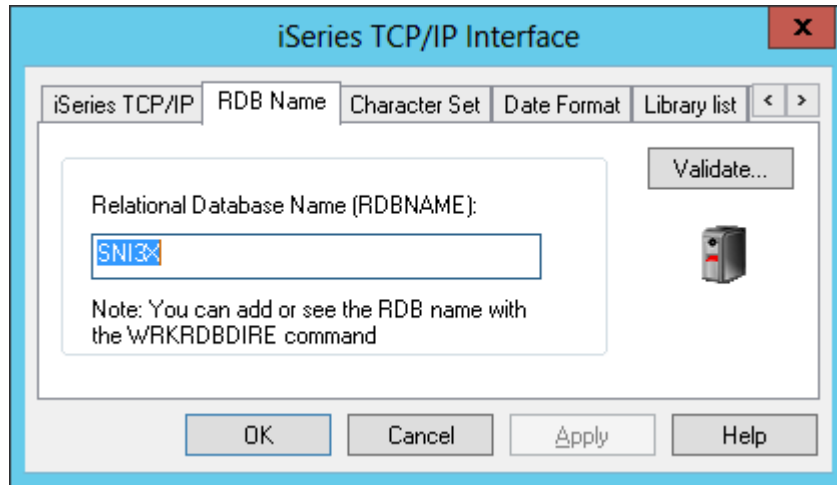


4. Select the data source in the **Type** down-down list. In this example we will add a new iSeries TCP/IP data source.
Note: for iSeries TCP/IP source you must run the [Host Program Installation](#) first before creating this data source. Select **Start> All Programs> Click and DECiDE> iSeries Tools> iSeries Host Program Installation** to run the tools required to upload to the AS/400 Host Program.
5. Click **OK**.
6. Enter the **iSeries Name or IP address**.





7. Enter the **RDB Name** tab:



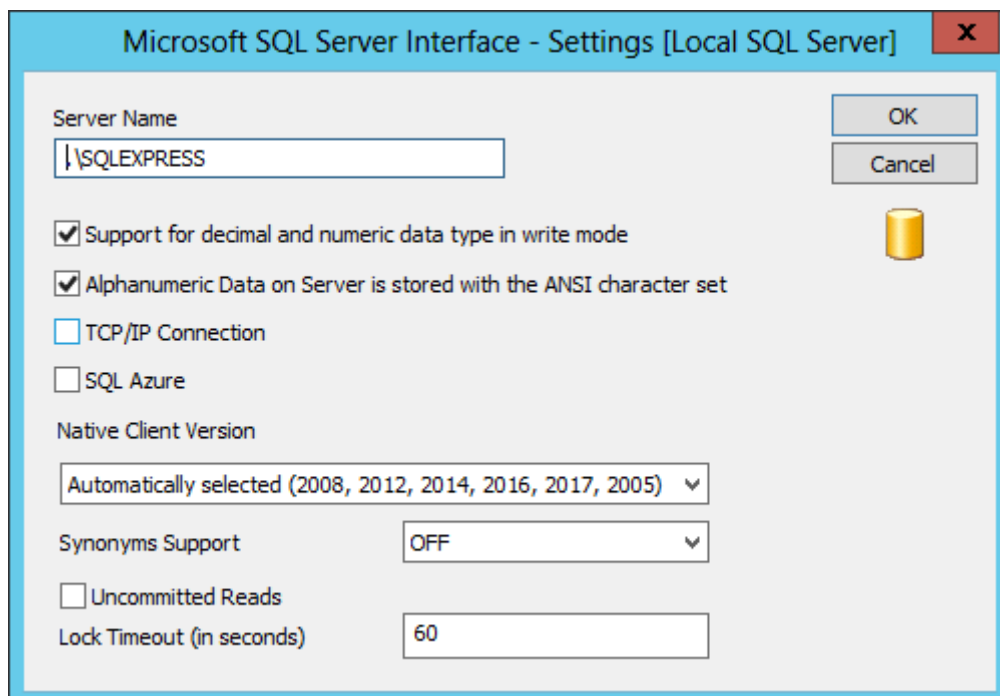
8. Modify the default RDB Name (SNI3X) if necessary.
9. Click **Validate**.

Note: Once the test connection is OK, your new iSeries data source will be ready to use with Click&DECiDE.

1.2.2. Modifying an Existing Data Source

To modify an existing data source, please follow the steps below.

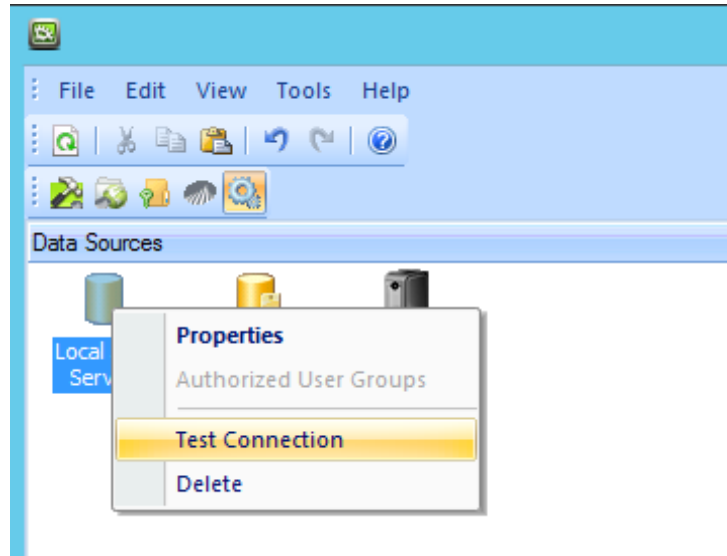
1. Right-click on the **Local SQL Server** icon.
2. Select **Properties** (or select **File>Properties**), the **Settings** dialog box appears.



3. Enter the **Server Name** or **Server Name\Instance Name** for the SQL Server you want to access.
4. Select or clear the check boxes and drop-down list as appropriate.
5. Click **OK**.
6. Right-click on the data source.



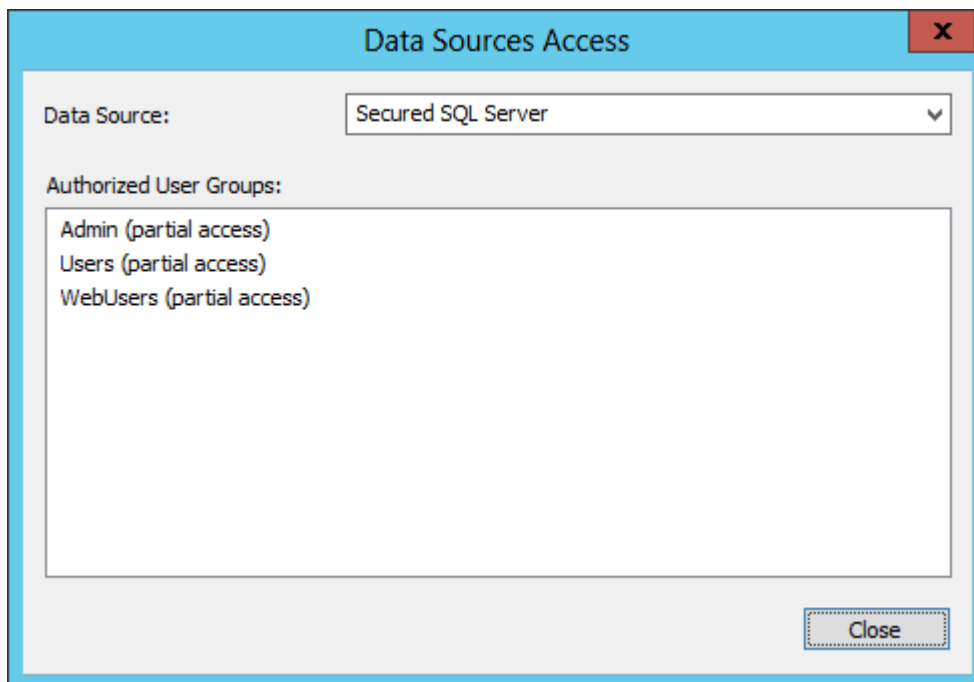
- Click **Test Connection**. **Note:** if your SQL Server was setup with SQL Server Authentication then enter your login (**User ID** and **Password**). If your SQL Server was setup with Windows Authentication then do not enter your login.



- Note the context menu displays the following other options:

Delete: deletes this data source.

Authorized User Groups: display the list of groups who are granted access to the data source (only for secured data sources):



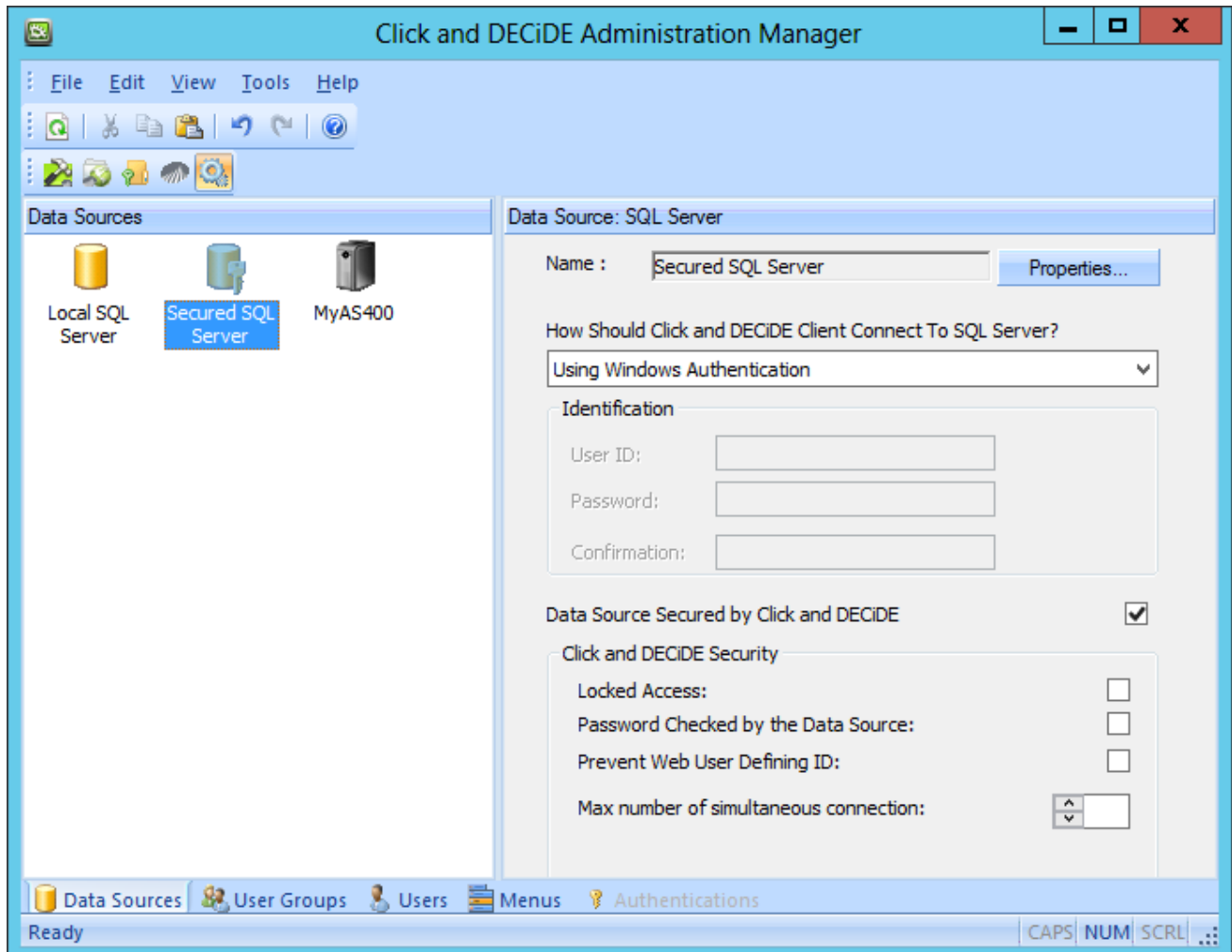
- To **rename** a datasource, press F2.

1.3. Defining Data Source Access (Enterprise Edition)

If you have installed the Professional or Enterprise Edition, then if you click Administration Manager in the Click and DECiDE Start menu, the Click and DECiDE Administration Manager module will be launched. Click and DECiDE Administration Manager allows you to perform the following tasks:



- Add and configure each data source you need to access
- Manage Users and User Groups
- Manage the Security for each data source that must be accessible according to the User Group
- Grant access to User Groups to predefined Web Menus.



To learn more about the Click and DECiDE Administration Manager, please refer to the **Click&DECiDE BAI Administration Manager Manual**.

2. Using Click and DECiDE Builder

Now that the data source you need is ready, you can start using Click and DECiDE Builder.

To launch Click and DECiDE Builder, select **Start> All Programs> Click and DECiDE> Business Application Intelligence> Builder**.

2.1. Introducing Key Concepts

Click and DECiDE Builder saves your work in a **Project** file with the file extension .wfv. The Project *.wfv file contains all the queries, reports and cross-tables you created for your project. You can create an unlimited number of projects.



Several tabs appear in a project: such as Queries, Reports and Cross-tables.

Queries tab: contains all the required queries used as is or used to feed a report, a graph inside a report, a sub-report or a web query for Excel. The queries can also be used to feed a Dashboard application.


Reports tab: contains all the reports, based on existing queries in the same project file. Each report can include several graphs or sub-reports but also external objects such as a Microsoft Excel graph or other Active-X components.

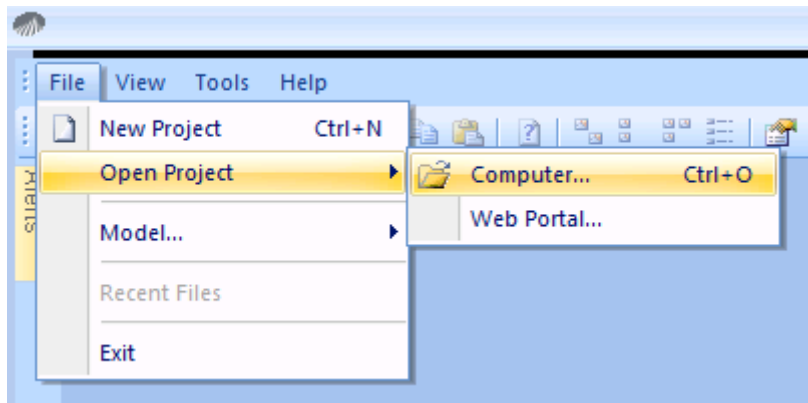
Cross Tables: contains Cross-tables based on existing queries in the same project file.

Project items such as queries or reports can be exported to send data to all the output formats supported by Click and DECIDE Builder such as ASCII File, HTML, PDF, Excel DDE, Excel XLS and XLSX (native format), Google Data Table, formatted text file (RTF), Clipboard and other databases.

2.2. Opening a Project.

To “Open” a project, please follow the steps below.


1. Select **File> Open Project** or click the **Open Project**  icon.

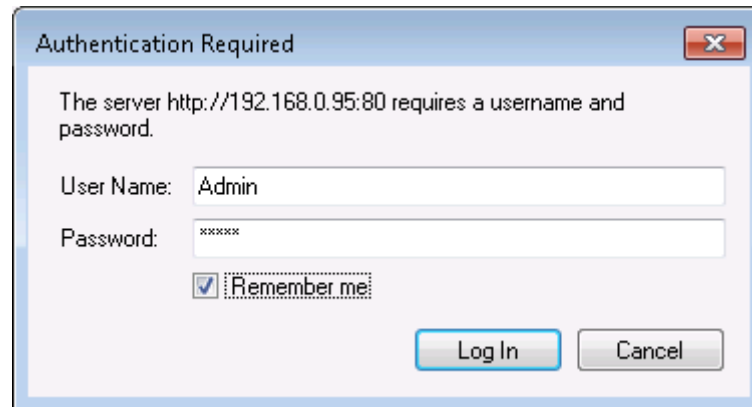


2. Select **Computer** if the project is located on your computer.
3. Select the required project file with the*.wfv extension.
4. Or Select **Web Portal** if the project is already saved in the Server managing the Web Portal.





5. Enter the Web Portal URL and click the right icon : (if needed, login to the Web Portal)



Authentication Required

The server http://192.168.0.95:80 requires a username and password.

User Name:

Password:

☒ Remember me

6. Log In to access the Web Portal and see the available Menus:



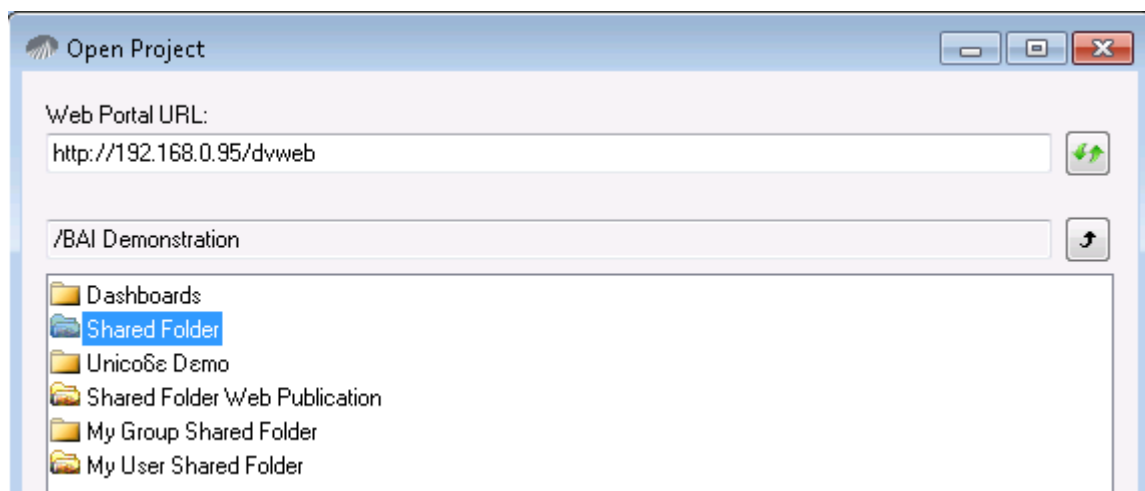
Open Project

Web Portal URL: 





 BAI Demonstration  **Double-click here to see the Menu's shared folders**







7. Display the Menu Shared Folders and Folders



Open Project

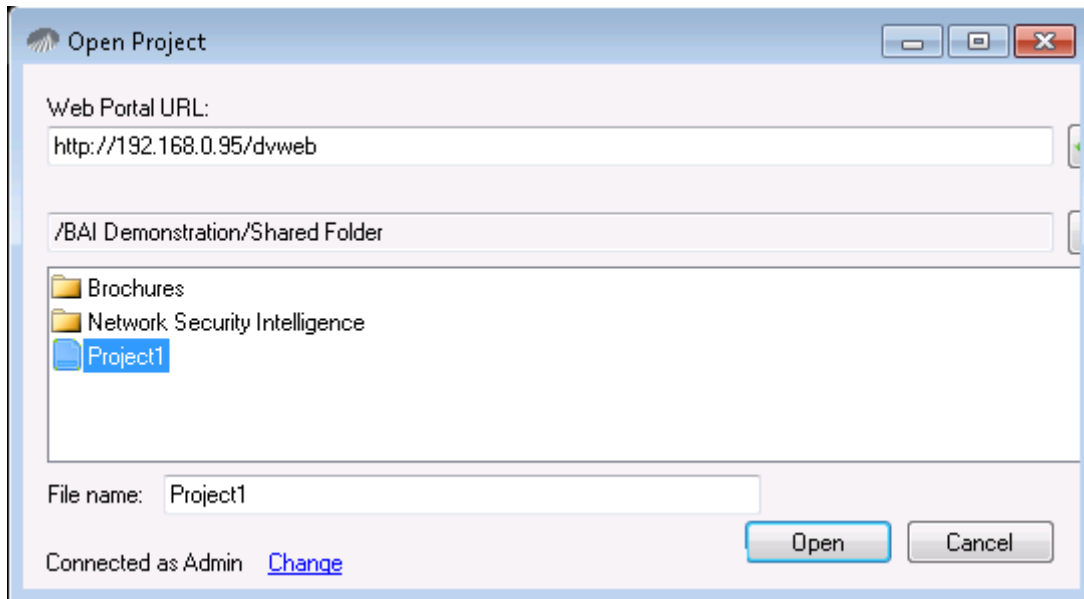
Web Portal URL: 



-  Dashboards
-  **Shared Folder**
-  Unicode Demo
-  Shared Folder Web Publication
-  My Group Shared Folder
-  My User Shared Folder




8. Select the Shared Folder from where you want to open a project.

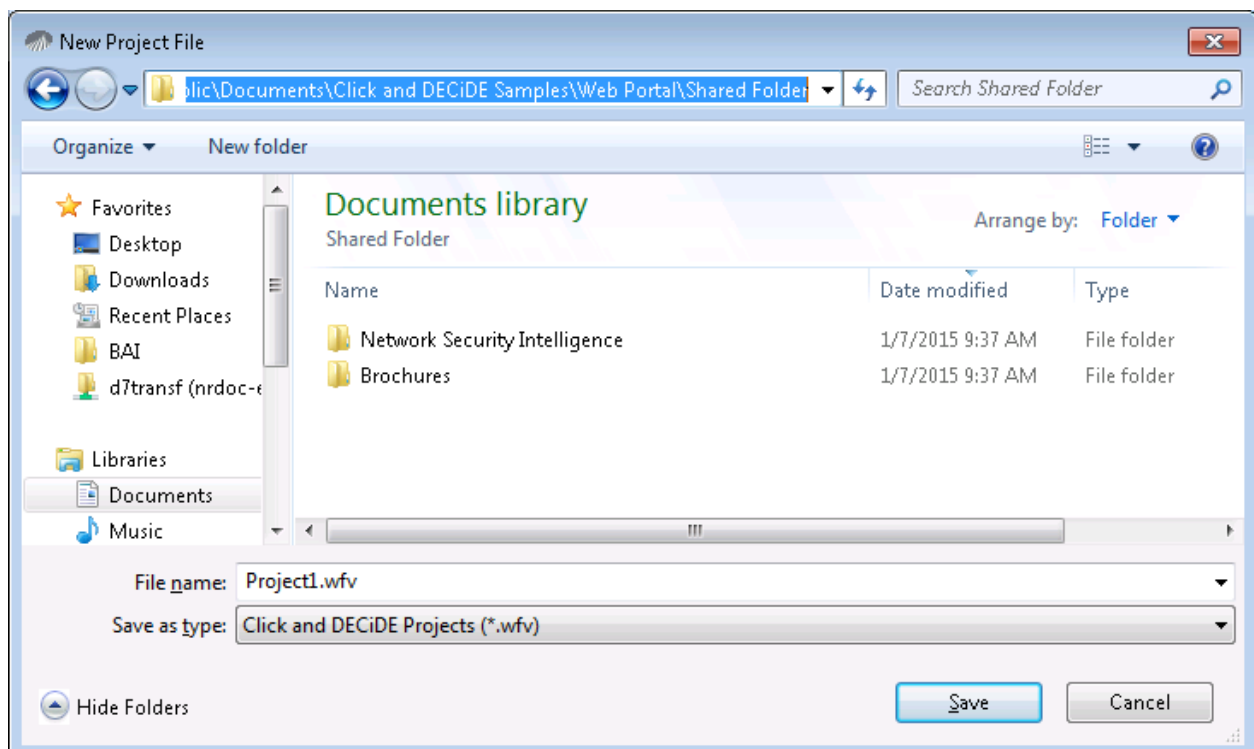


9. Select the required project file with the*.wfv extension.
10. Click Open

2.3. Creating a Project

To create a new project, please follow the steps below.

1. Select **File> New Project** or click the **New Project**  icon.
2. Browse a local directory, for example
C:\Users\Public\Documents\Click and DECiDE Samples\Web Portal\Shared Folder





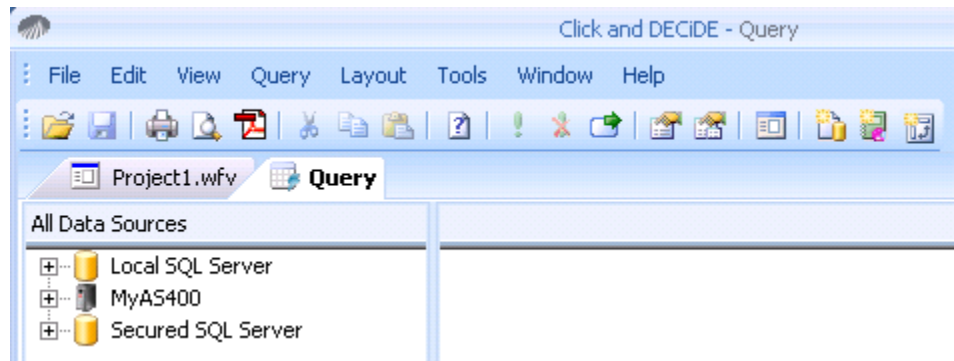
3. Enter a **File name** for the new project. This project must be first saved locally on your computer but you can later save it on the Web Portal using the **Save As** command.
4. Click **Save**.

Note: this project is now ready to store the queries, reports or cross-tables that you are going to create.

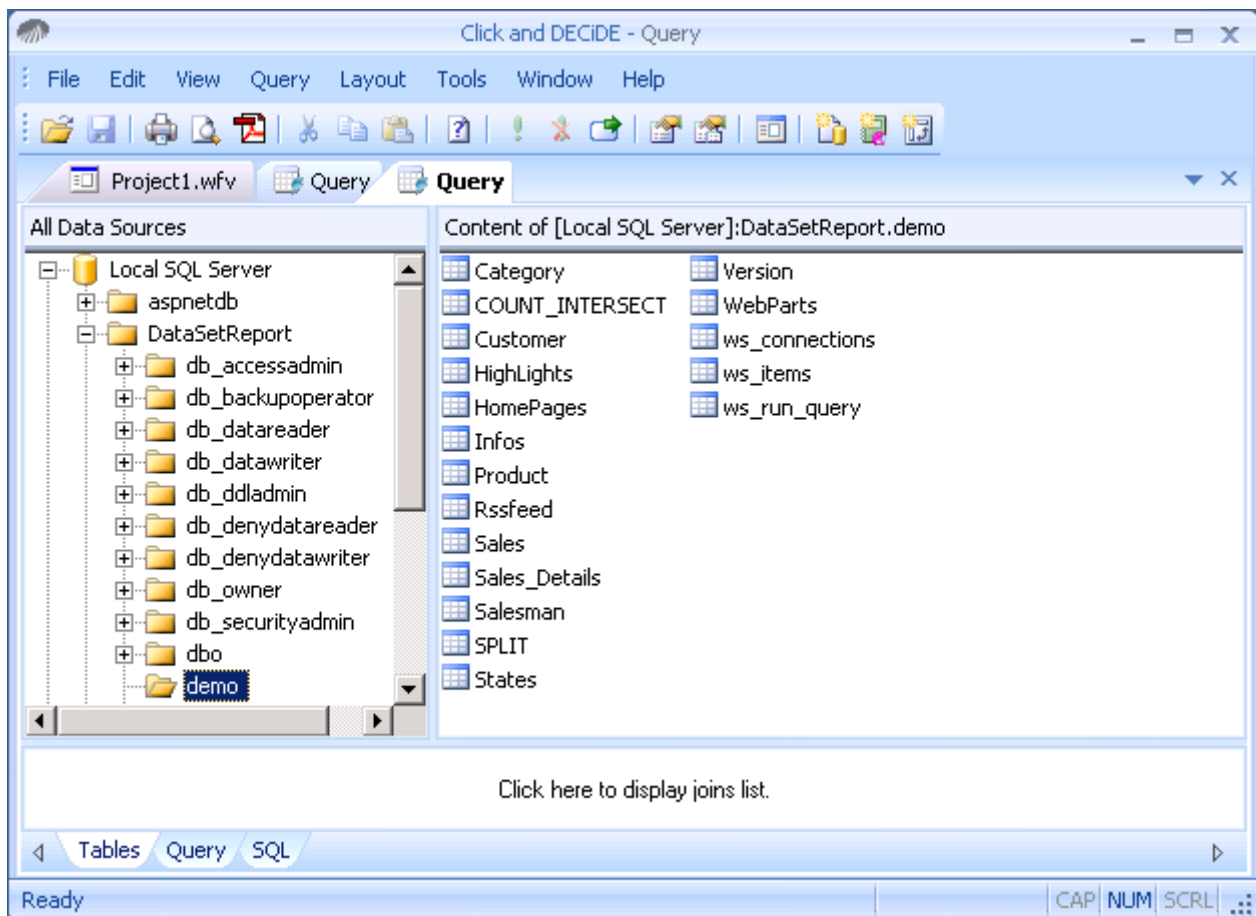
2.4. Creating a New Query with Only One Table

To create a query, you must first create a data source (please see section 1). If you have already created the data source you need, then you can now create your first query. To do so, please follow the steps below.

1. Click the **New Query** icon  or select **File> New> Query**.

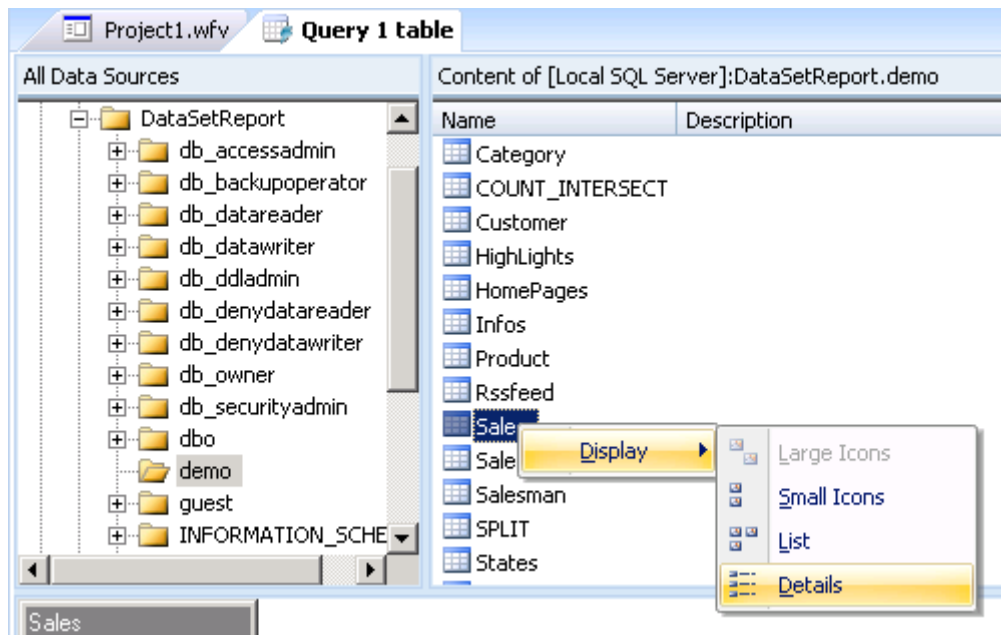


2. Click the required data source to display the available sublevels.
3. Select the table you need: (if you are not using the Windows Authentication mode you will be prompted for a login).

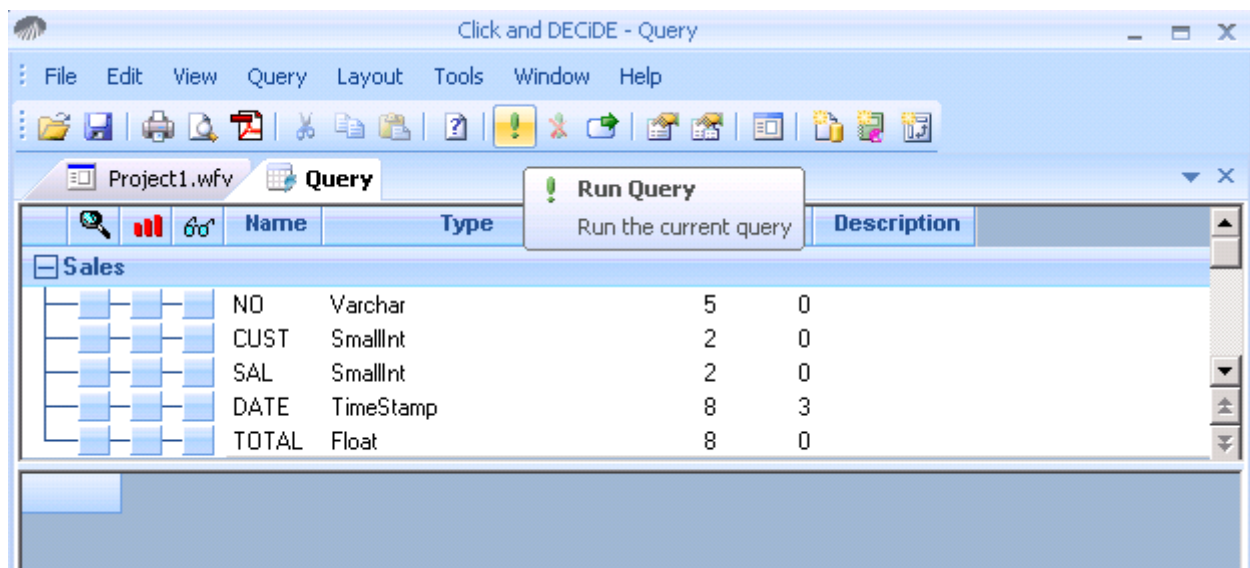




4. Right-click in the right pane.
5. Select **Display> Details** to see the description for the tables.



6. Double-click a table if you only need one table for your query. The column list will automatically be displayed.



7. Click the **Run** icon to get the result for the Top 50 records by default for all the fields in the data grid. If no fields have been selected, all the fields will be selected by default when running a query). If you want to modify or remove this Top value, refer to the [Applying a Top Value](#) section.



	Name	Type	Length	Scale	Description
<input checked="" type="checkbox"/>	NO	Varchar	5	0	
<input checked="" type="checkbox"/>	CUST	SmallInt	2	0	
<input checked="" type="checkbox"/>	SAL	SmallInt	2	0	
<input checked="" type="checkbox"/>	DATE	TimeStamp	8	3	
<input checked="" type="checkbox"/>	TOTAL	Float	8	0	

	NO	CUST	SAL	DATE	TOTAL
1	10028	1003	1	06/26/2008 0:00:00 AM	66818.2
2	10032	1008	5	07/03/2009 0:00:00 AM	76082
3	10034	1019	15	07/05/2009 0:00:00 AM	86378.2
4	10044	1003	1	07/23/2008 0:00:00 AM	232418
5	10045	1013	6	07/25/2009 0:00:00 AM	178368
6	10050	1008	5	08/02/2009 0:00:00 AM	79489.7
7	10055	1006	4	08/12/2009 0:00:00 AM	77918.2
8	10062	1001	2	08/22/2009 0:00:00 AM	69826.3
9	10075	1014	4	09/13/2009 0:00:00 AM	200728

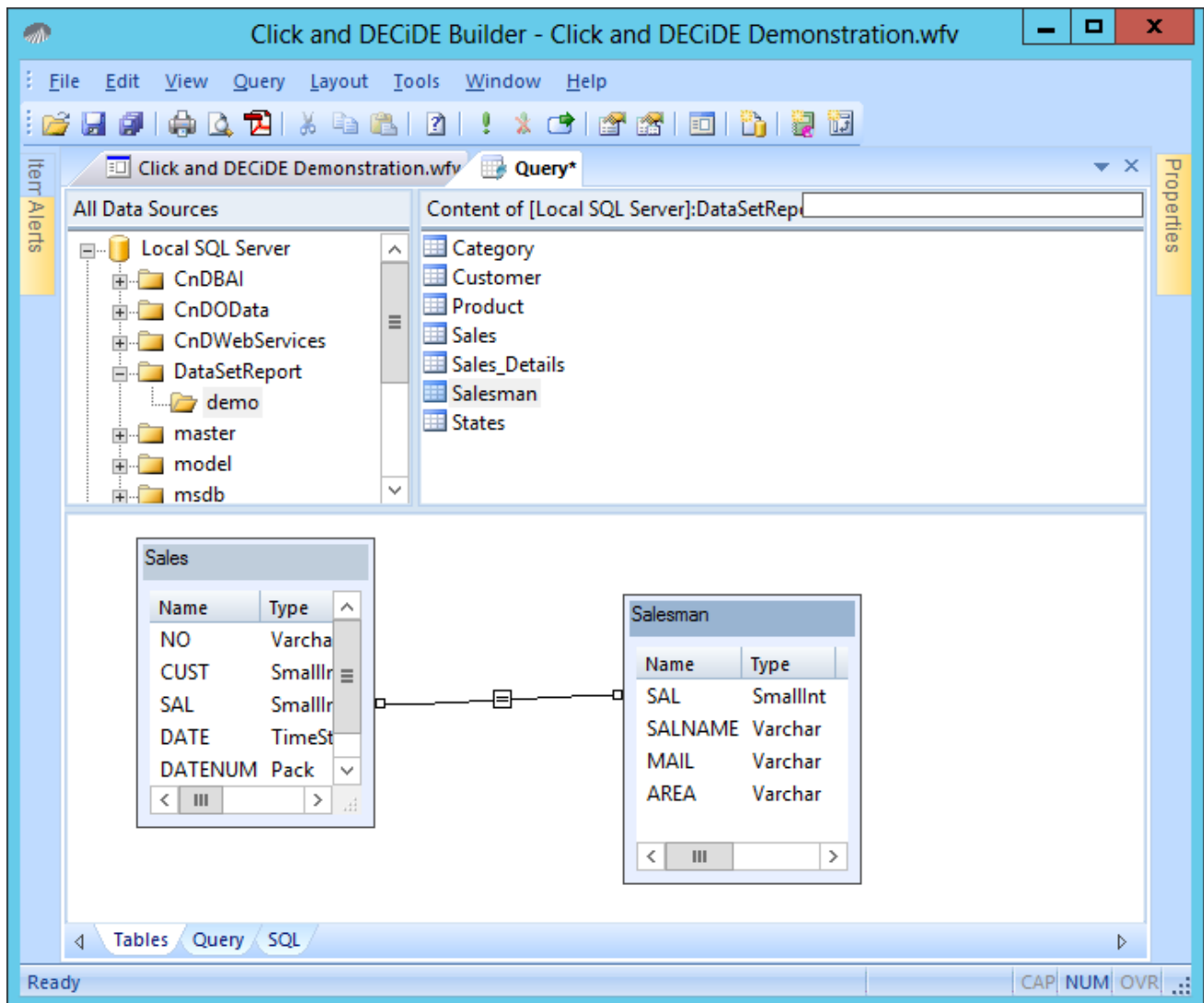
See also:

[Selecting Fields](#) – [Column Header and Data format](#) – [Sorting Data](#) – [Modifying column order](#) – [Deleting columns](#) – [Query information](#) – [Removing Query](#) – [Saving query](#) – [Aggregate fields](#) – [Virtual fields](#) – [Joining several tables](#).

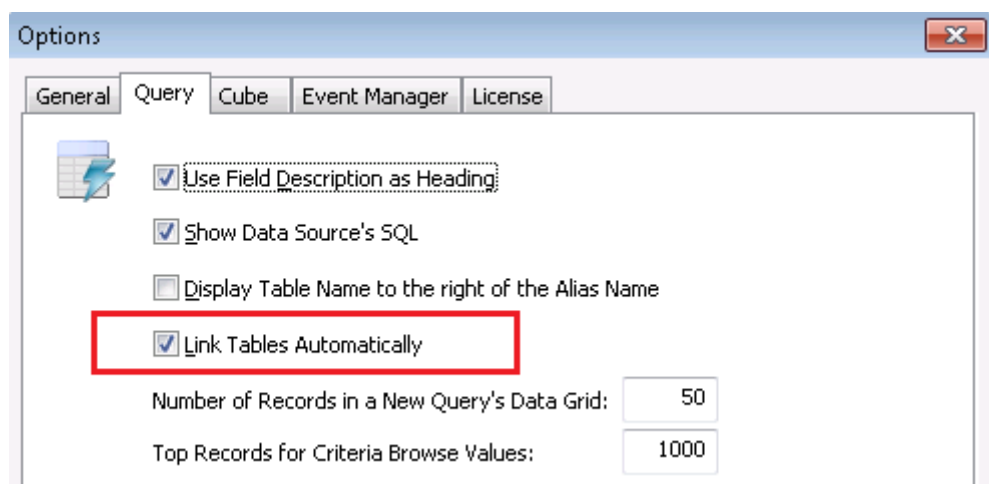
2.5. Creating a New Query with Two or More Tables

If you need two or more tables in your query, you first need to add each table in the **Table** tab when selecting the tables in the list by performing a drag-and-drop operation for both the tables required. To do so, please follow the steps below:

1. Select the table you want to use for the query.
2. Drag it into the lowest pane.
3. Select the other table you want to use.
4. Drag it into the lowest pane.



- Note that the default join condition is automatically proposed if the program finds two columns with same name, same type and same length. (Note: if you do not wish the join being automatic, you can disable this feature in Tools> Options> Query Tab and uncheck the "Link Tables Automatically".




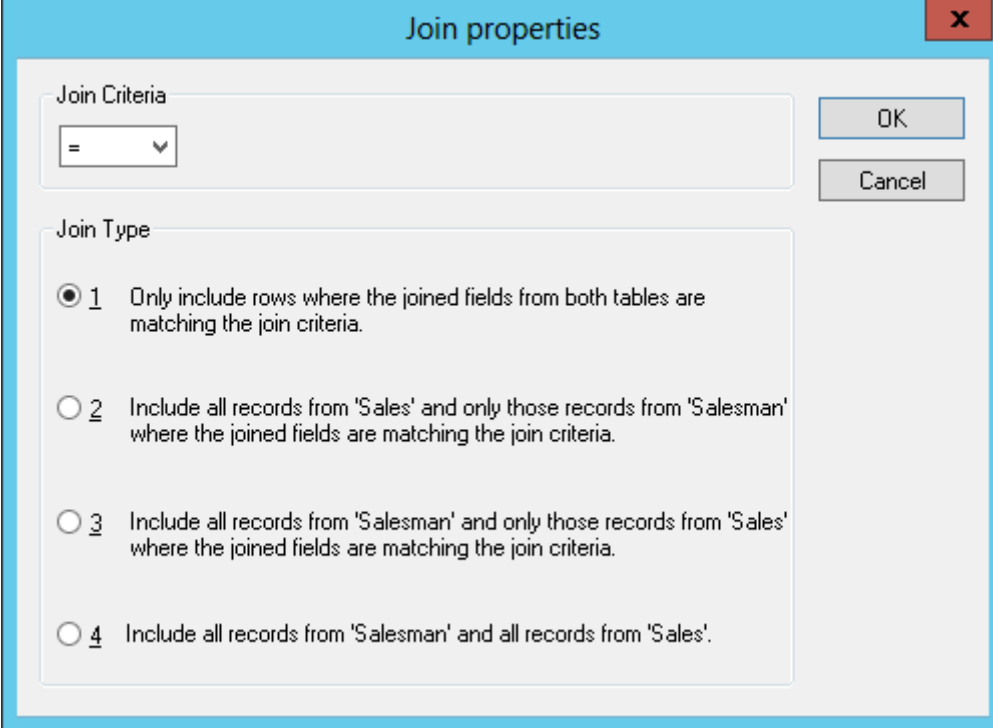


Note: if you need to remove a table from the lowest pane, select the concerned table and press the **Del** key.

2.6. Defining the Join Condition

To modify the join condition, please follow the steps below:

1. Double click the  equal sign in the square between the two tables The **Join Properties** dialog box appears.



The **Join properties** dialog box is shown. It has a title bar with a close button (X). Inside, there are two main sections: **Join Criteria** and **Join Type**. The **Join Criteria** section has a dropdown menu currently set to **=**. The **Join Type** section contains four radio button options:

- ☒ 1 Only include rows where the joined fields from both tables are matching the join criteria.
- ☐ 2 Include all records from 'Sales' and only those records from 'Salesman' where the joined fields are matching the join criteria.
- ☐ 3 Include all records from 'Salesman' and only those records from 'Sales' where the joined fields are matching the join criteria.
- ☐ 4 Include all records from 'Salesman' and all records from 'Sales'.

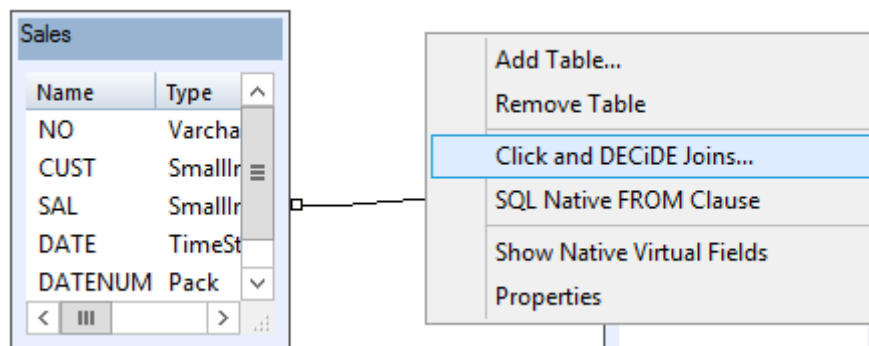
At the bottom right of the dialog are **OK** and **Cancel** buttons.

2. Select the required join type. **Note:** in the majority of cases, the Join Criteria must be set to “equal”.
3. Click **OK**.

Note: You can remove the join condition by pressing **DEL** on the square  with the equal sign.

To manage the join relation for several tables, please follow the steps below:

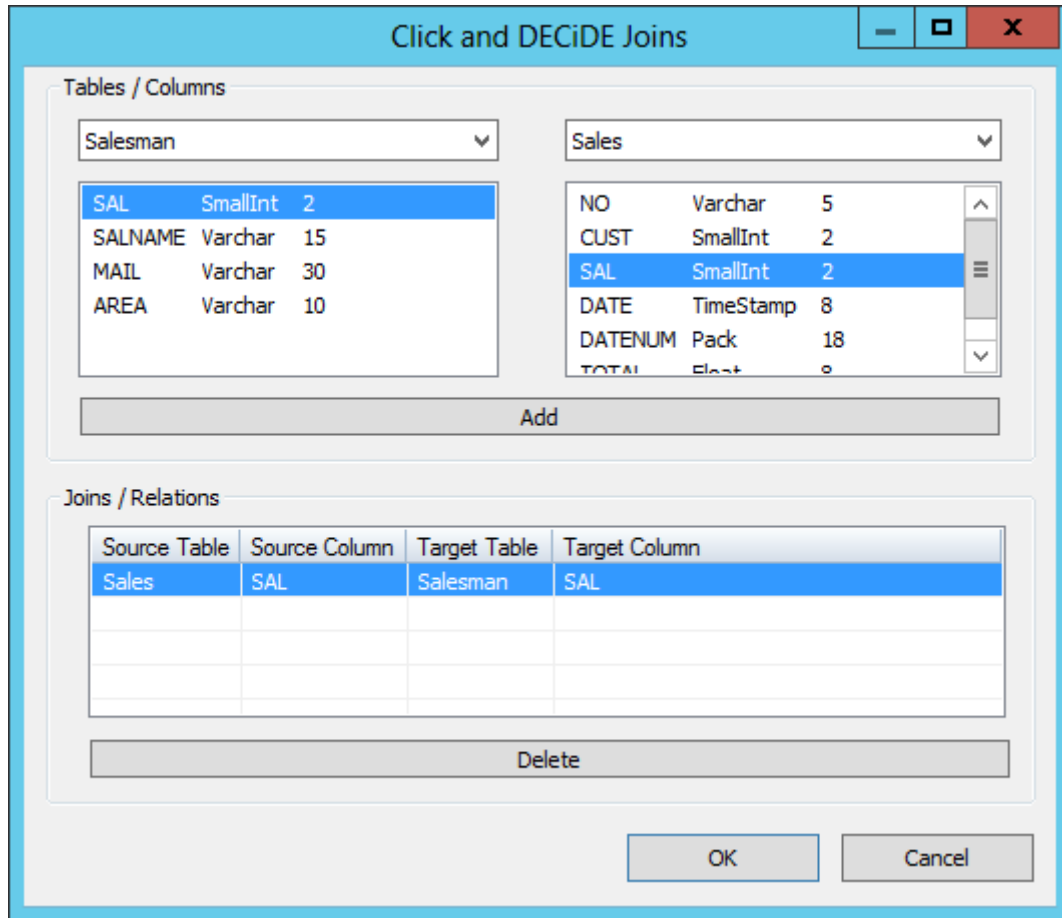
1. Click “**Click and DECiDE Joins...**” in the context menu. The Joins / Relations dialog box appears. This displays all the defined join relations.





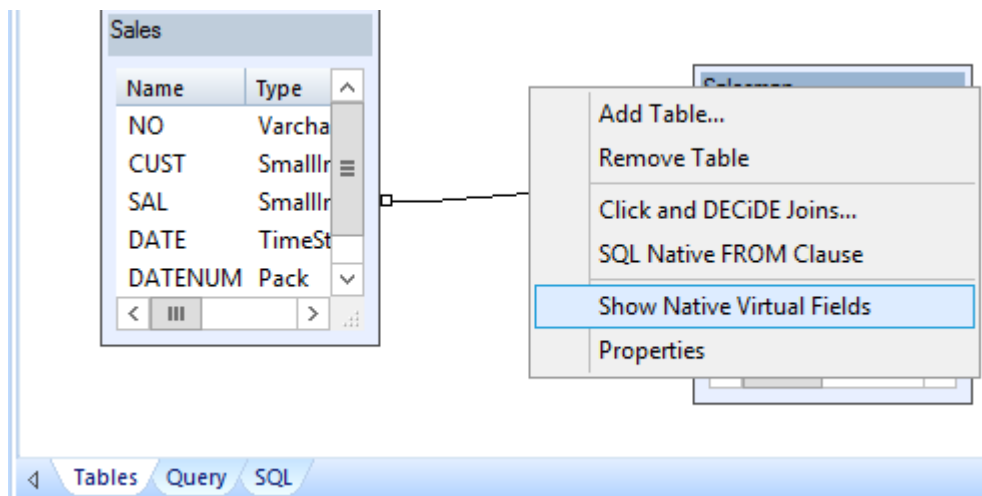
2. Add or remove a join condition.

Note: this will not modify the Join Type.



In the above screen; you can add a new Join condition or remove an existing join condition but you cannot change the Join Type, which can be changed in the screen explained previously. (see “Double click the equal sign”).

3. Click on “**Show Native Virtual Fields**” in the context menu if you need to add a join on a native virtual field.



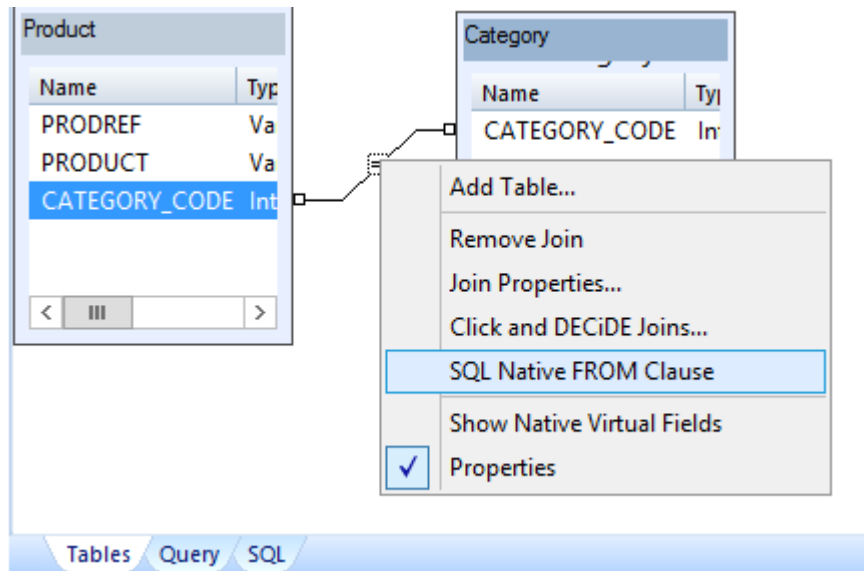
See [Join Condition with Virtual Field](#) for more detail.



2.7. Defining Native Joins

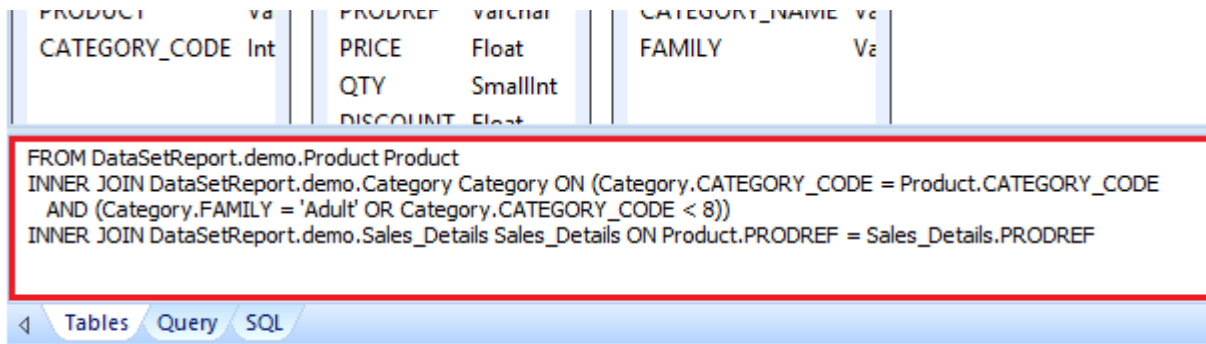
You can also express joins in native SQL language. This is useful for more complex joins, for example if you need to combining several conditions with the OR operator or if you want to use database-specific features.

1. To express joins in native SQL language, click on **"SQL Native FROM Clause"** in the context menu in the **Tables** view:



If the query already contains Click and DECiDE joins, they are converted into native SQL as far as possible.

2. Enter / update the FROM clause for all the query in the text area:



Use the mouse to drag/drop fields names from the Tables view to the text area.

You can use parameters in native joins. See [Defining Parameters in Native Joins](#) for more detail.

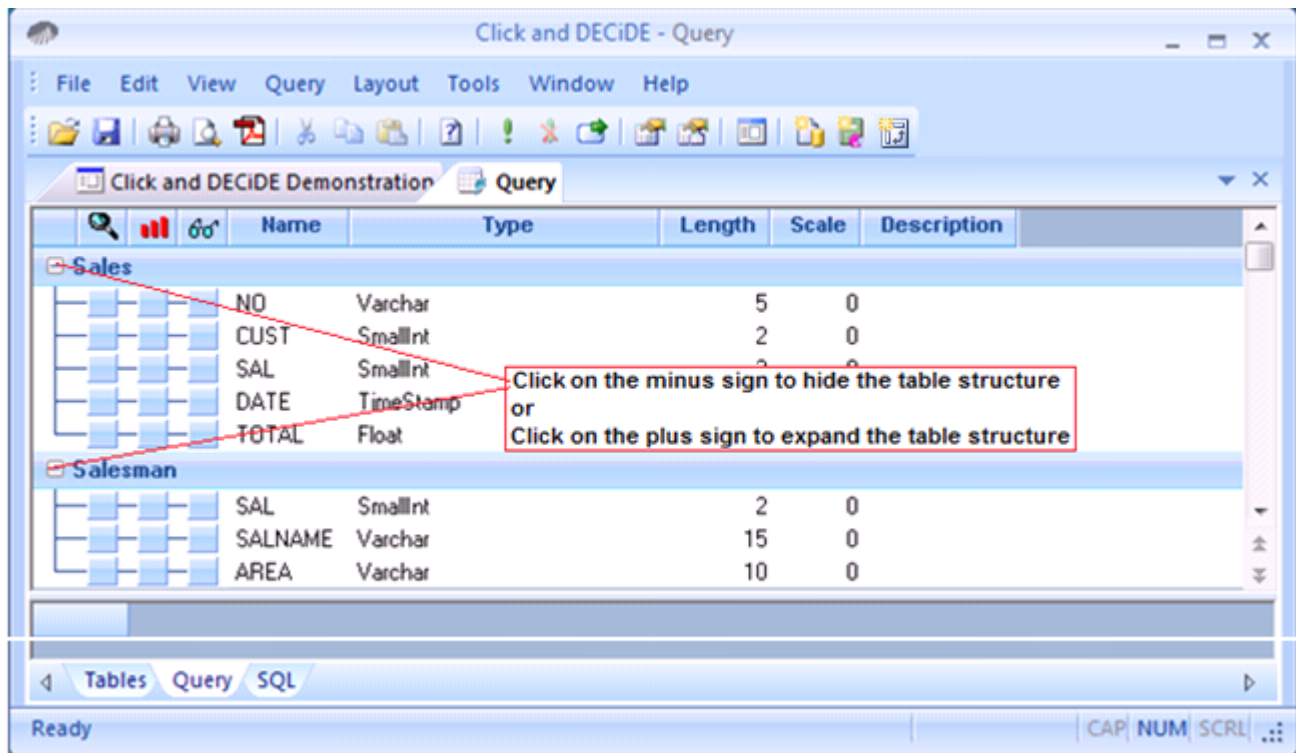
Note: No syntax and semantic check is applied at this level, so it is your responsibility to ensure your native SQL code is valid. If not, you will have an error when running the query.

2.8. Selecting some Fields

To select the columns you need in a query, please follow the steps below:



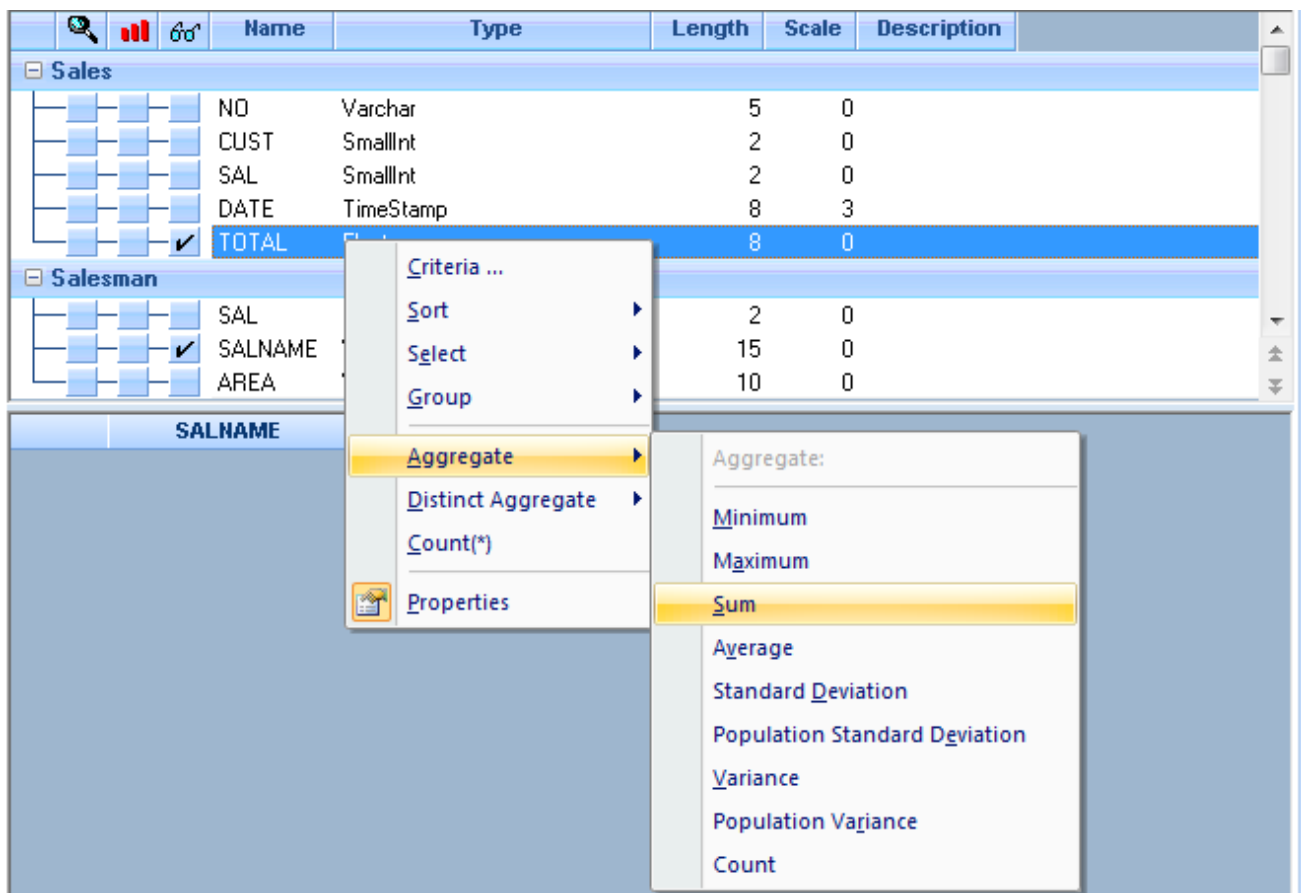
1. Click the **Query** tab. The tables appear.



2. Select the columns you need by double-clicking the left grey square near the column name.

Example

1. Select Join Type = 1 (this join type only includes records from both tables where the joined field match the join criteria).
2. Create a new query using the Sales and Salesman Tables.
3. Keep the default Join Type 1.
4. Select the SALNAME and TOTAL fields.
5. Right-click on the TOTAL field.
6. Select **Aggregate> Sum**.

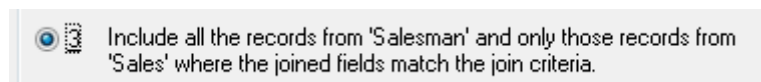


7. Click **Run** to run the query. The result will appear in the lower pane; only the result for salesmen with records in the Sales tables will be displayed.

	SALNAME	Sum_TOTAL
1	Bill Raley	\$1,567,519.40
2	Diane Meyer	\$1,984,251.50
3	Doug Castro	\$7,651,077.10
4	Georges Dunel	\$2,032,969.20
5	James Smith	\$1,138,394.00
6	Jean Martin	\$325,283.80
7	Jim Baxter	\$654,624.00
8	John Brown	\$736,873.50
9	Jon Kramer	\$3,614,309.30
10	Karen Walker	\$442,033.00
11	Kim Johnson	\$588,589.50
12	Ric Smith	\$4,239,232.60
13	Robert Salta	\$1,931,457.00
14	Sanders Wanda	\$1,059,025.30
15	Sandra Davis	\$2,037,367.90
16	Tim Rosenberg	\$319,224.00

8. Return to the **Tables** tab.

9. Select Join Type#3:





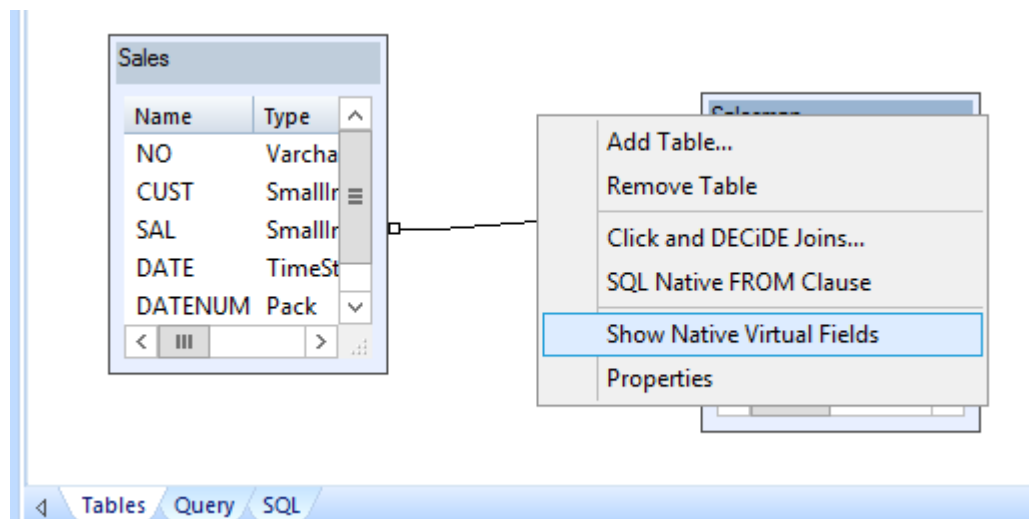
10. Click **OK**.
11. Click **Run** to run the query again. The result will appear for all the salesmen, even if they made no sales in the Sales table.

	SALNAME	Sum_TOTAL
1	Bill Raley	\$1,567,519.40
2	Diane Meyer	\$1,984,251.50
3	Doug Castro	\$7,651,077.10
4	Enrique Lopez	
5	Georges Dunel	\$2,032,969.20
6	James Smith	\$1,138,394.00
7	Jean Martin	\$325,283.80
8	Jim Baxter	\$654,624.00
9	John Brown	\$736,873.50
10	Jon Kramer	\$3,614,309.30
11	Karen Walker	\$442,033.00
12	Kathy Sanders	
13	Kim Johnson	\$588,589.50
14	Ric Smith	\$4,239,232.60
15	Robert Salta	\$1,931,457.00
16	Sanders Wanda	\$1,059,025.30
17	Sandra Davis	\$2,037,367.90
18	Tim Rosenberg	\$319,224.00

Note: the Join type = 4 is not supported by all databases, such as ODBC Access, but supported for example by the MS SQL Server database and the iSeries, Oracle or UDB-DB2 database. This Join type will retrieve all the records from each table. (It is equivalent of type 2 + type 3 together).

2.9. Defining a Join condition including virtual field(s)

You can add a **Join condition** between a **native virtual field** and **another column or between 2 virtual fields**. The **"Show Native Virtual Fields"** option must be activated in the context menu of the **Tables** view to display existing native virtual fields in the column list.





Example: if we create 2 virtual fields using the Category and Sales_Details tables as follow:

	Name	Type	Length	Scale	Description
Formula					
<input checked="" type="checkbox"/>	CodeFamily	Char	2	0	IF(Category.FAMILY='Adult','01','02')
<input checked="" type="checkbox"/>	FamilyCode	Char	2	0	Substr(Sales_Details.PRODREF,1,2)
Category					
<input type="checkbox"/>	CATEGORY_CODE	Integer	4	0	
<input type="checkbox"/>	CATEGORY_NAME	Varchar	50	0	
<input type="checkbox"/>	FAMILY	Varchar	10	0	
Sales_Details					
FamilyCode CodeFamily					

Then we can define a join between these 2 virtual fields (or between one virtual field and another column):

- Go to the Tables Tab and click in the context menu on "**Click and DECiDE Joins...**".
- Select in the left and right windows the fields to be joined.
- Click **Add**

Click and DECiDE Joins

Tables / Columns

Sales_Details

PRODREF Varchar 5

PRICE Float 8

QTY SmallInt 2

DISCOUNT Float 8

CodeFamily Char 20

FamilyCode Char 20

Category

CATEGORY_CODE Integer 4

CATEGORY_NAME Varchar 50

FAMILY Varchar 10

CodeFamily Char 20

FamilyCode Char 20

Add

Joins / Relations

Source Table	Source Column	Target Table	Target Column
Sales_Details	CodeFamily	Category	CodeFamily

Delete

OK

Cancel

- Click Delete if you need to remove this join.

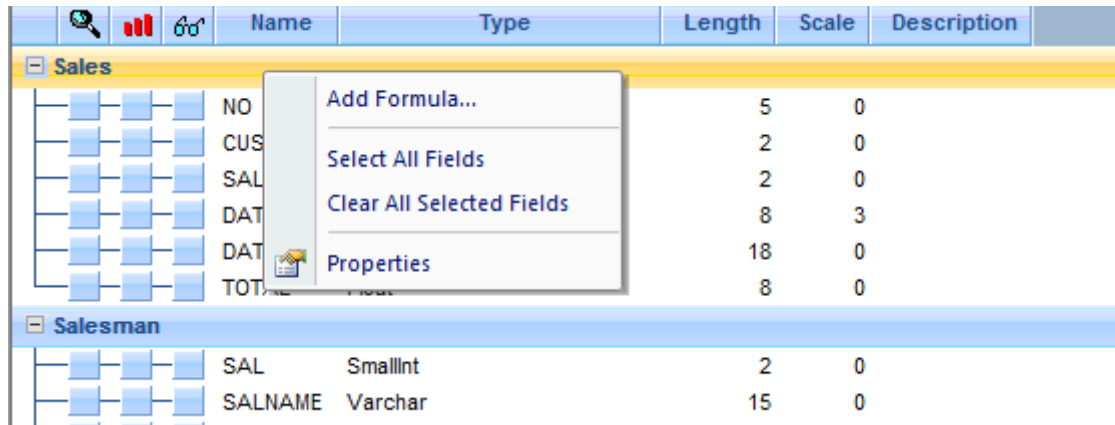
2.10. Selecting or Removing All Fields

Note: if no fields are selected when you click **Run**, all the fields from all the tables will be selected by default.



To select fields, please follow the steps below.

1. Select the table title (Table Alias).
2. Right-click to display the context menu.



Name	Type	Length	Scale	Description
Sales				
NO		5	0	
CUS		2	0	
SAL		2	0	
DAT		8	3	
DAT		18	0	
TOT		8	0	
Salesman				
SAL	Smallint	2	0	
SALNAME	Varchar	15	0	

3. Note the following options appear in the context menu:

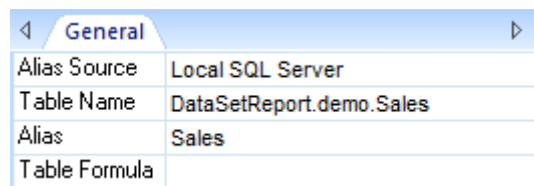
Add a formula...: adds a virtual field whose formula can be calculated by the data source engine or by Click and DECiDE. This option will be described later in this document.

Select All Fields: selects all the columns in this table. **Note:** you also can double-click directly on the Table Alias to select all fields in a table.

Clear All Selected Fields: clears the selection for all the columns from this table.

Properties: displays the Table Properties.

4. Click **Properties** to display the Table Properties.



General	
Alias Source	Local SQL Server
Table Name	DataSetReport.demo.Sales
Alias	Sales
Table Formula	

5. Note the following properties appear:

Alias Source: the name of the data source of the query (defined in the Administration Manager). This cannot be modified here.

Table Name the full table name (this cannot be modified here).

Alias: the visible Table Alias that can be modified here, if necessary.

Table Formula: you can use a formula for building the table name. This can be useful if the table name depends on the user who runs the query. See [Click & DECiDE Formula](#) and [Updating a Parameter with a User Property](#) for more details.

6. Double-click each required column if you only want to select some columns. The columns will automatically appear from left to right in the Data Grid pane. In this example we will select AREA, SALNAME, DATE and TOTAL.
7. Click **Run**.



	Name	Type	Length	Scale	Description
Sales					
<input type="checkbox"/>	NO	Varchar	5	0	
<input type="checkbox"/>	CUST	SmallInt	2	0	
<input type="checkbox"/>	SAL	SmallInt	2	0	
<input checked="" type="checkbox"/>	DATE	TimeStamp	8	3	
<input checked="" type="checkbox"/>	TOTAL	Float	8	0	
Salesman					
<input type="checkbox"/>	SAL	SmallInt	2	0	
<input checked="" type="checkbox"/>	SALNAME	Varchar	15	0	
<input checked="" type="checkbox"/>	AREA	Varchar	10	0	

	AREA	SALNAME	DATE	TOTAL
1	NORTH-WEST	Bill Raley	06/26/2008 0:00:00 AM	66818.2
2	NORTH-WEST	Bill Raley	07/23/2008 0:00:00 AM	232418
3	NORTH-WEST	Bill Raley	10/27/2008 0:00:00 AM	82702.2
4	NORTH-WEST	Bill Raley	01/03/2009 0:00:00 AM	83468.2
5	NORTH-WEST	Bill Raley	10/21/2009 0:00:00 AM	66818.2

Tables Query SQL 50 record(s) found.

2.11. Modifying the Column Order

If you want to move one or several columns from right to left or left to right, please follow the steps below.

1. Select the required column(s).
2. Keep the mouse cursor pressed down.
3. Move the column as necessary.

2.12. Modifying the Column Header and Data Format

By default the column header will be the same as the field name. There are two methods of modifying the column header.

Method 1: Using the Field Description as the Column Header

To use the field description as the column header, please follow the steps below.

1. Select **Tools> Options> Query> Use Field Description as heading**.

Method 2: Modifying the Column Header by Hand

To modify the column header by hand, please follow the steps below.

1. Select the column whose header you want to modify.
2. Right-click.
3. Click **Properties**.



	SALNAME	AREA	DATE	TOTAL
1	Bill Raley	NORTH-WEST	01/04/2017 0:00:00	
2	Doug Castro	WEST	01/05/2017 0:00:00	
3	Diane Meyer	ATLANTIC	01/05/2017 0:00:00	
4	Georges Dunel	WEST	01/06/2017 0:00:00	
5	Ric Smith	WEST	01/17/2017 0:00:00	
6	Ric Smith	WEST	01/27/2017 0:00:00	
7	Ric Smith	WEST	01/28/2017 0:00:00	
8	Ric Smith	WEST	01/29/2017 0:00:00	
9	Jim Baxter	SOUTH	01/30/2017 0:00:00	
10	Georges Dunel	WEST	01/30/2017 0:00:00	
11	Ric Smith	WEST	02/01/2017 0:00:00	

- Note the **Properties** pod appears.
- Drag the floating Properties pod to the border (left, right, upper, lower) you want to dock it in the Click&DECiDE Builder and use the pin icon to pin/unpin it.

The screenshot shows the Click and DECiDE Builder interface. The main window displays a table with columns: Name, Type, Length, Scale, and D. The table contains data for 'Sales' and 'Salesman'. A 'Properties' dialog box is open, showing 'Selected Field Properties' for the 'DATE' field. The dialog box has tabs for 'General', 'Format', 'Decimal Place', 'Header', 'Assigned Param', 'Assigned Value', 'ASCII Output Length', 'Description', and 'Header Group (Excel)'. A red box highlights the 'Properties' dialog box with the text: 'Move this properties dialog box to one of the proposed locations'. The dialog box is being moved towards the right side of the interface.

- Drop the dialog box when the location is reached. The **Properties** pod will remain here until you decide to close or move it. Note: you can Auto Hide the **Properties** pod.



The screenshot shows the 'Selected Field Properties' dialog box for the 'DATE' field. The 'General' tab is active, showing the following properties:

Property	Value
Format	
Decimal Places	Auto
Header	DATE
Assigned Parameter	
Assigned Value	
ASCII Output Length	
Description	
Header Group (Excel)	

The main window displays a table with the following data:

	SALNAME	AREA	DATE	TOTAL
7	Ric Smith	WEST	01/28/2017 0:00:00 AM	52610
8	Ric Smith	WEST	01/29/2017 0:00:00 AM	62945
9	Jim Baxter	SOUTH	01/30/2017 0:00:00 AM	175875
10	Georges Dunel	WEST	01/30/2017 0:00:00 AM	209182.2
11	Ric Smith	WEST	02/01/2017 0:00:00 AM	93284

At the bottom, it indicates '322 record(s) found'.

7. Modify the **Header** for the field you selected. In this example we will replace DATE by Purchase Date. See also: [Using Formula in Column Header](#).
8. Specify a format. In this example we will select the long date format.
9. Select another column to modify its name and format if necessary. In this example, we have modified the name and format for the TOTAL column.

The screenshot shows the 'Selected Field Properties' dialog box for the 'DATE' field. The 'General' tab is active, showing the following properties:

Property	Value
Format	Date, long
Decimal Places	Auto
Header	Purchase Date
Assigned Parameter	
Assigned Value	
ASCII Output Length	
Description	
Header Group (Excel)	

The main window displays a table with the following data:

	SALNAME	AREA	Purchase Date	TOTAL
7	Ric Smith	WEST	Saturday, January 28, 2017	52610
8	Ric Smith	WEST	Sunday, January 29, 2017	62945
9	Jim Baxter	SOUTH	Monday, January 30, 2017	175875

The proposed formats for numeric fields, or date, time and date time fields, are those defined in Windows according to your Regional Settings. Nevertheless, you can customize numeric formats and date formats as follows.



Numeric Format: use the # number sign with your Windows thousand and decimal separator, with zero if you need to see this value. Examples:

Value	Customized format	Result
1456.2	#,###.#	1,456.2
1456.2	#,###.00	1,456.20
0.3	#,###.00	.30
0.35	#,##0.00	0.35
2150	#,###.##	2,150
2150	#,###.00	2,150.00
0	#,###	(not visible)
0	#,##0	0
45.1	#,##0_);[Red]-#,##0.00	45.10
-28.6	#,##0_);[Red]-#,##0.00	-28.60

Date format: use the ddmmyy characters as follows: d=day, m=month and y=year.

Value	Customized format	Result
If the day 5 of a month is Wednesday	d	5
	dd	05
	ddd	Wed
	dddd	Wednesday
If the month is April	m	4
	mm	04
	mmm	Apr
	mmm	April
If the year is 2015	yy	15
	yyyy	2015
11/27/2015	dddd dd of mmmm, yyyy	Friday 27 November, 2015

2.13. Deleting a Selected Column

If you no longer want to use a selected field, please follow the steps for one of the methods below.

Method 1:

1. Select the column you want to stop using.
2. Press **DEL**.

Method 2:

1. Click the right-most column (the **Select** column) for the field you no longer want to display.

Method 3:

1. Select the field you no longer want to display.
2. Right-click;
3. Click **Select> Off**.



Unselect a column by clicking here or by selecting Off in this popup

Unselect a column by pressing Del after selecting the column here

Criteria ...

Sort

Select

Group

Aggregate

On

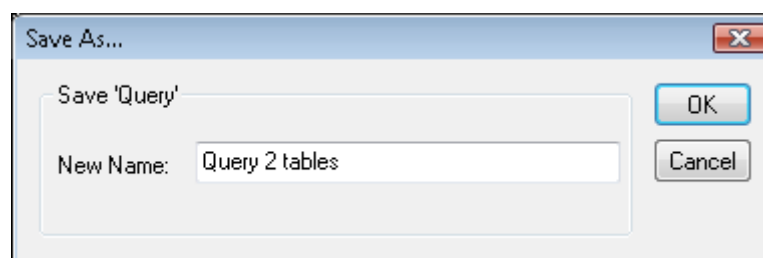
Off

Hidden

2.14. Saving the Query

To save your query, please follow the steps below.

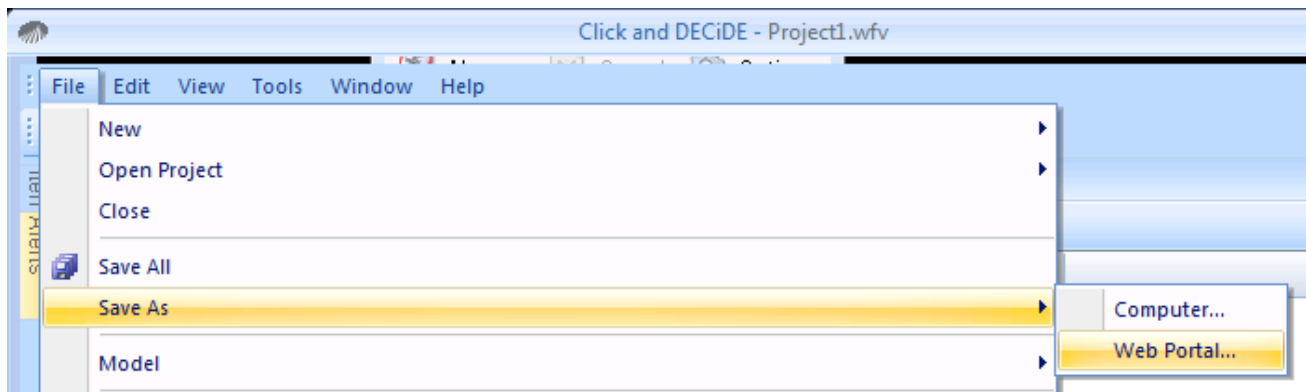
1. Select **File> Save** or **Save As**.
2. Enter a name.
3. Click **OK**.



2.15. Saving As a Project

To "Save As" a project, please follow the steps below.

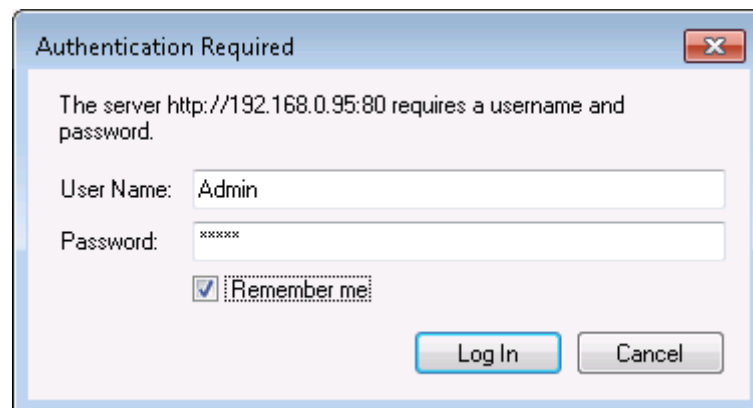
1. Select **File> Save as** command.



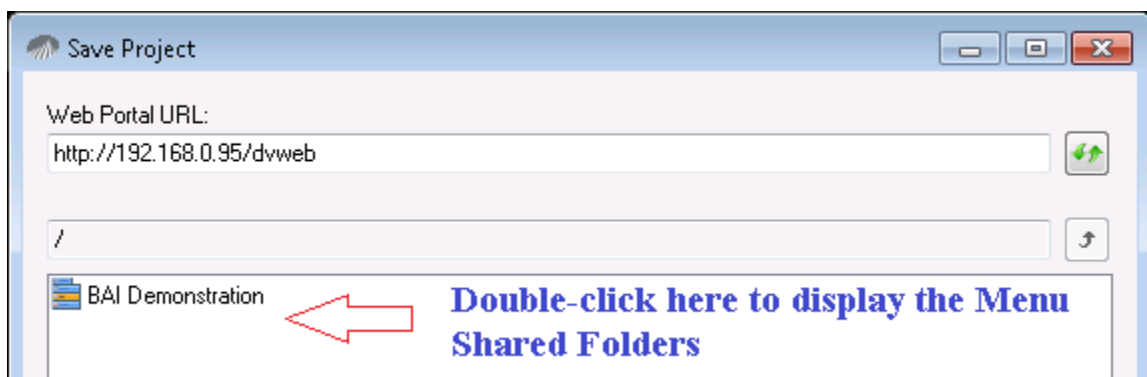
2. Select **Computer** if the project has to be saved locally on your computer.
3. Or Select **Web Portal** if the project has to be saved on the Server Web Portal.



4. Enter the Web Portal URL and click the right icon : (if needed, login to the Web Portal)

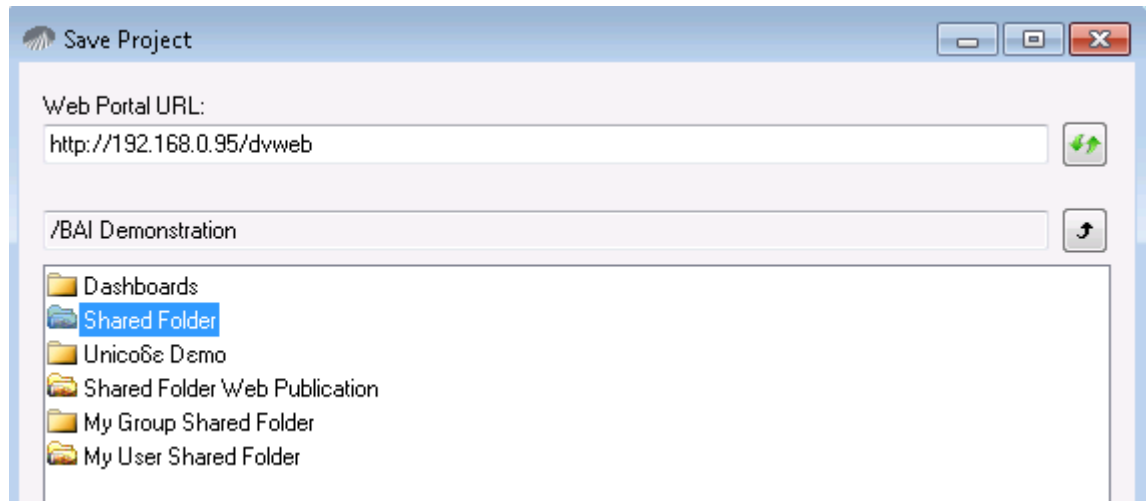


5. Log In to access the Web Portal and see the available Menus:

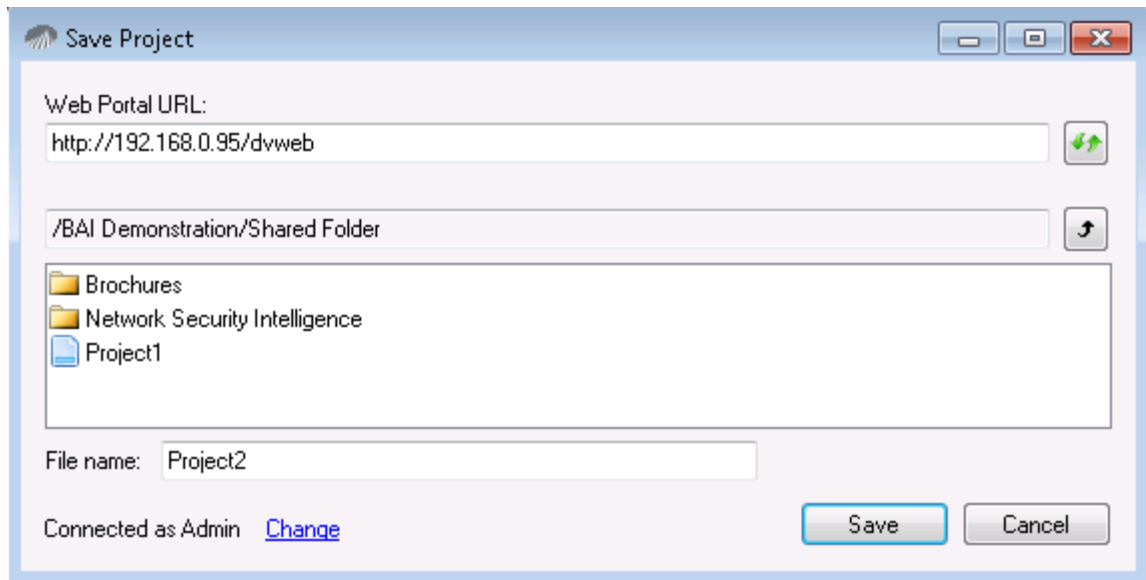




6. Display the Menu Shared Folders and Folders



7. Select the Shared Folder where you want to save the project.



8. Enter a new name. The extension will be automatically *.wfv.
9. Click **Save**

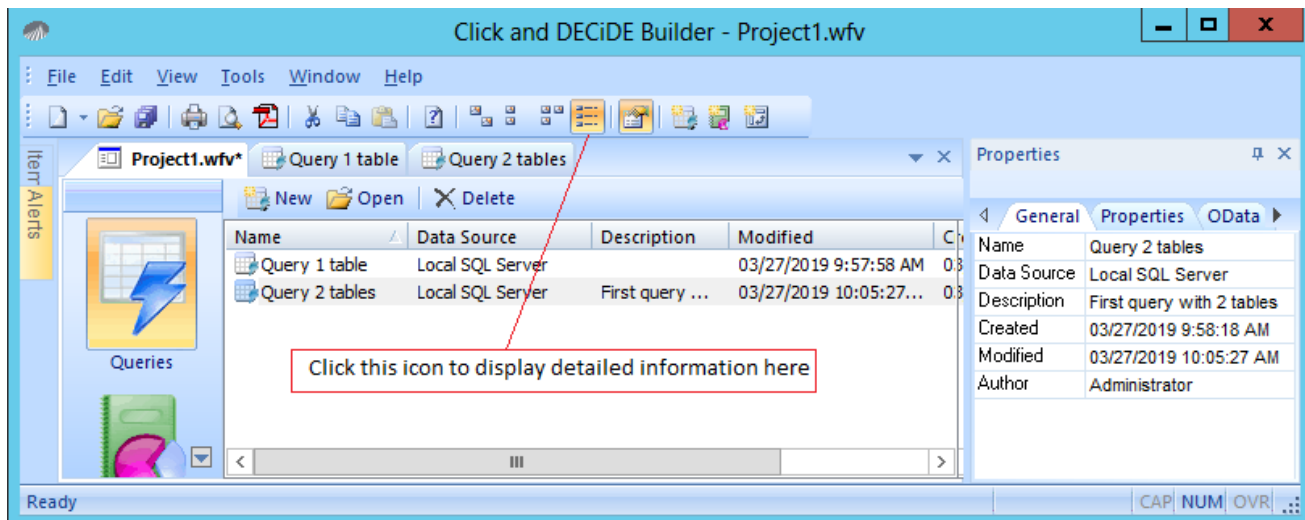
2.16. Save All command

This command will save all opened item and also the project.wfv itself. At the same time, the project will be automatically compacted. Sometimes it is recommended to compact your project file, when you have created or deleted several items such as queries, reports and cross-tables. This action is now automatic when you save the project, and will reduce the project size on the disk.

Use the **File > Save All** command or the corresponding icon: 

2.17. Query Information

Once you have closed the query, you can see all queries already made in your Click&DECiDE project file. To view the properties for each query, select the query and note the properties appear in the **General** tab in the **Properties** pod.



The **General** tab displays the following properties.

Name: displays the query name in your Project file.

Data Source: displays the query's data source.

Description: enter the description you want in the **Description** text box.

Created: the date and time the query was created. This cannot be modified.

Modified: the date and time when the query was modified for the last time. This cannot be modified.

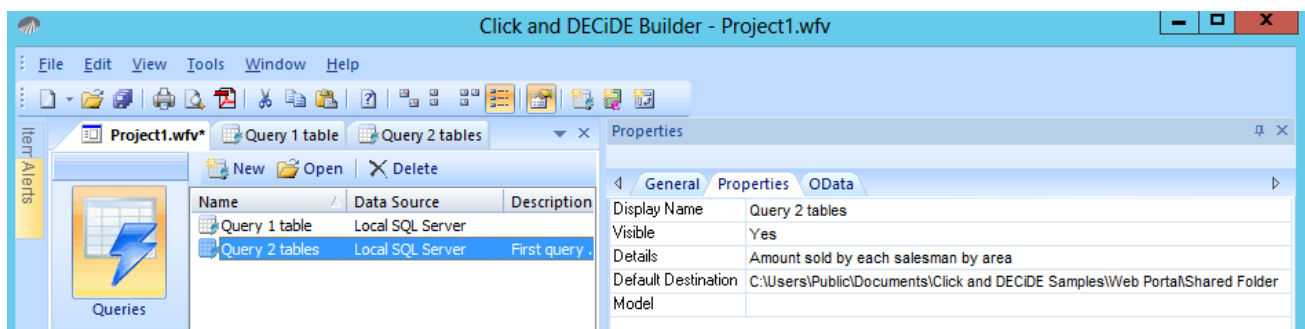
Author: who the author is. This will use the Windows User Name for the person who created the query.

Note: the list of queries can be viewed in several display modes (Large Icons, Small Icons, List, Details). To view the details displayed in the **Properties** pod **General** tab click the **Details** icon (please see the screen shot above). This enables the user to view the query's properties even when the Properties pod is closed.

2.17.1. Defining Query Properties to Display in the Web Portal

It is possible to specify properties for a query that will only be visible in the Click&DECiDE Web Portal (Professional and Enterprise Editions). To do so, please follow the steps below.

1. Select the query whose properties you want to define.
2. Click the **Properties** tab in the **Properties** pod.



3. Enter the Properties you want to be visible in the Web Portal:

Display Name: the name that will be visible in the Web Portal if the project file is in a Shared Folder (this is not the same as the one used in your Project file).

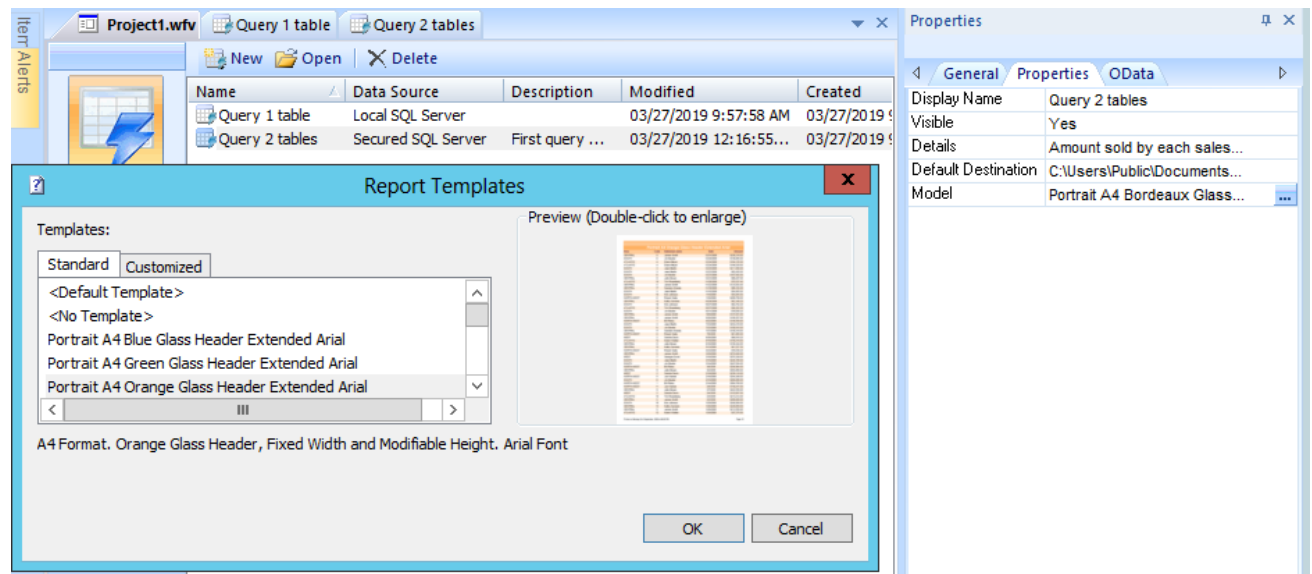
Visible: hide the query in the Web Portal if the project file is in a Shared Folder.

Details: the Description that will be visible in the Web Portal if the project file is inside a Shared Folder (this is not the same as the one used in your Project file).

Default Destination: enter the path and/or the file name to be used when exporting to PDF format (Acrobat Reader), either from Click&DECiDE Builder, or from Click&DECiDE Web Server. This can also be a formula which generates a dynamic query name, for example, including date elements in the file name (e.g.: Path + File Name + YYMMDD + .PDF).



Model: Report: enter the Report Template to be used when exporting the query to the PDF format.



2.17.2. OData Support

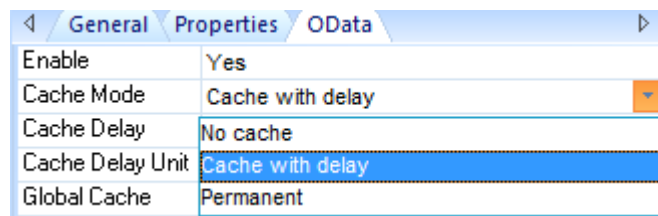
A Click & DECiDE query can be exposed using the OData protocol: data can then be accessed using an OData link, to be used from other applications such as Microsoft Excel Power Pivot or PowerView. OData support is defined for each query:

Enable OData: Yes/No (Default value is Yes when creating a new query).

If Enable is set to "No", then other options are grayed and cannot be changed.

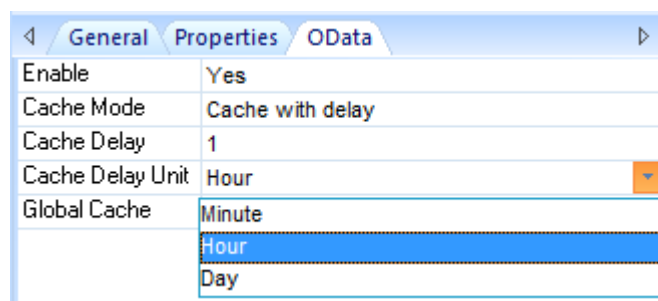
If Enable is set to "Yes", you can specify other options:

Cache Mode: you can choose among No Cache, Cache with Delay or Permanent Cache:



Cache Delay: if Cache Mode is set to "Cache with Delay", you can choose the duration for this delay. This must be an integer number.

Cache Delay Unit: if "Cache Delay" is not grayed, you can specify here the Unit among Day, Hour or Minute:



Global Cache: Yes/No. Default value is "No". In that case the Cache will apply to the Connected User. If you wish to have a global cache for everyone (any user), then select Yes for this option.



The project file must be "saved as" any name inside a Menu Shared Folder for the Web Portal on the Server where Click&DECiDE V19 Enterprise is installed. Even if you are working on the Server machine, do not use the "Save As" command selecting "Computer..."

Warning: this "Save as" command to the Web Portal doesn't work with the Forms mode if using the Click&DECiDE Authentication. You must use the HTTP Digest or the HTTP Basic modes, or the Windows Authentication mode.

2.18. Removing a Query

To remove a query, please follow the steps below.

1. Open the Click&DECiDE Builder project file which the query you want to delete is in.
2. Click the **Query** tab.
3. Select the query to be removed.
4. Press **DEL** or the **Remove** button. A warning message appears.
5. Click **Yes** to confirm.

Note: before removing a query, check that the query is not used by another query (sub-select), report, graph, sub-report, or a sub-query in a report or cross-table. As you cannot restore a query once it has been deleted, we recommend that you regularly backup your project files.

2.19. Sorting Data in a Query

To sort data in a query, please follow the steps below.

1. Open the query you want to sort data in. In this example, we will open the **Query 2 tables** query.
2. Click the rightmost column to select the field you want to sort data for. The column must be selected as the source database cannot apply a sort on an unselected field.
3. Click the sort column to the left of the field you want to sort data for.
4. Click the black histogram Sort icon to alter the sort from an Ascending to a Descending sort and vice versa.

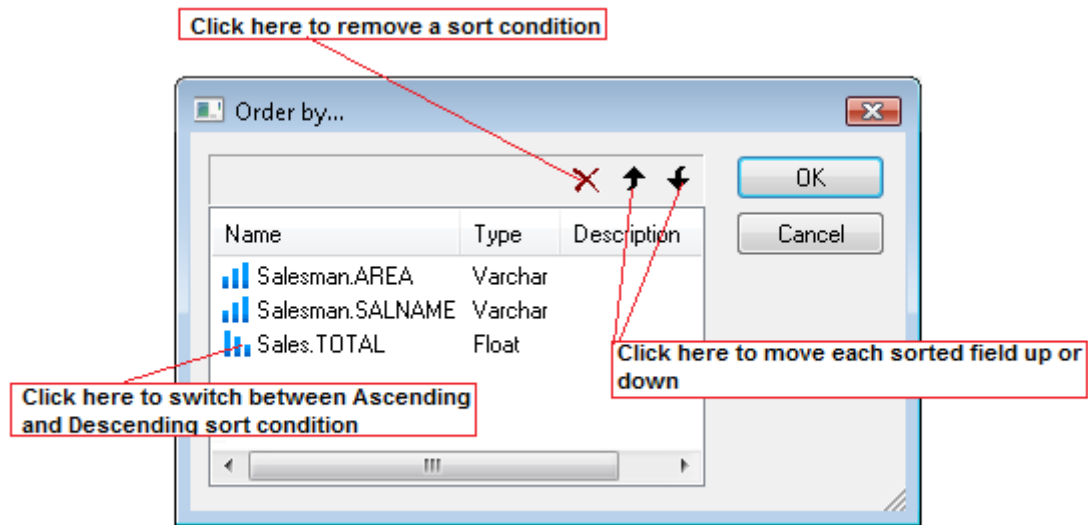
	Area	SALNAME	Purchase Date	Amount
1	WEST	Ric Smith	Tuesday, March 18, 2008	\$397,837.00
2	WEST	Doug Castro	Friday, March 07, 2008	\$376,532.00
3	WEST	Ric Smith	Tuesday, March 18, 2008	\$375,208.00
4	WEST	Ric Smith	Friday, February 22, 2008	\$367,190.00
5	WEST	Doug Castro	Sunday, March 02, 2008	\$355,868.00
6	WEST	Doug Castro	Thursday, February 14, 2008	\$322,382.00

50 record(s) found.

5. Select **Query> Order By...** if you want to add several sort conditions. This will display all the sort conditions. In this example, the first ascending sort will apply to the Area field, then, for the same



area, the second ascending sort level will apply to the Salesman Name, then, for the same salesman, the third descending sort level will apply the Total field.

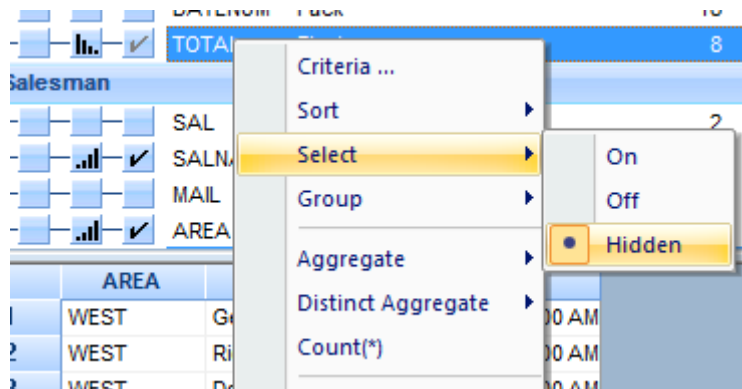


Modify the hierarchy of the sort conditions in the **Order by...** dialog box by using the up and down arrows. To remove a sort condition, click the red delete icon.

Note: the position of each field in the data grid does not matter: you can apply a sort condition to any field in the data grid regardless of its position. In the following screen shot the sort is applied to the Date (field #3), but the Area and Salesman Name fields are in first and second place.


		Name	Type	Length	Scale	Description
Sales						
<input type="checkbox"/>	<input type="checkbox"/>	NO	Varchar	5	0	
<input type="checkbox"/>	<input type="checkbox"/>	CUST	SmallInt	2	0	
<input type="checkbox"/>	<input type="checkbox"/>	SAL	SmallInt	2	0	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	DATE	TimeStamp	8	3	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TOTAL	Float	8	0	
Salesman						
<input type="checkbox"/>	<input type="checkbox"/>	SAL	SmallInt	2	0	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SALNAME	Varchar	15	0	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	AREA	Varchar	10	0	
	AREA	SALNAME	Purchase Date	Amount		
1	WEST	Sandra Davis	Tuesday, January 08, 2008	\$67,523.20		
2	WEST	Sandra Davis	Wednesday, January 09, 2008	\$77,115.60		
3	CENTRAL	Sanders Wanda	Thursday, January 10, 2008	\$208,749.00		
4	CENTRAL	John Brown	Thursday, January 10, 2008	\$223,333.00		
5	NORTH-WEST	Jon Kramer	Thursday, January 24, 2008	\$320,677.00		
6	WEST	Georges Dunel	Thursday, January 24, 2008	\$245,322.00		
7	WEST	Ric Smith	Thursday, January 24, 2008	\$37,275.00		

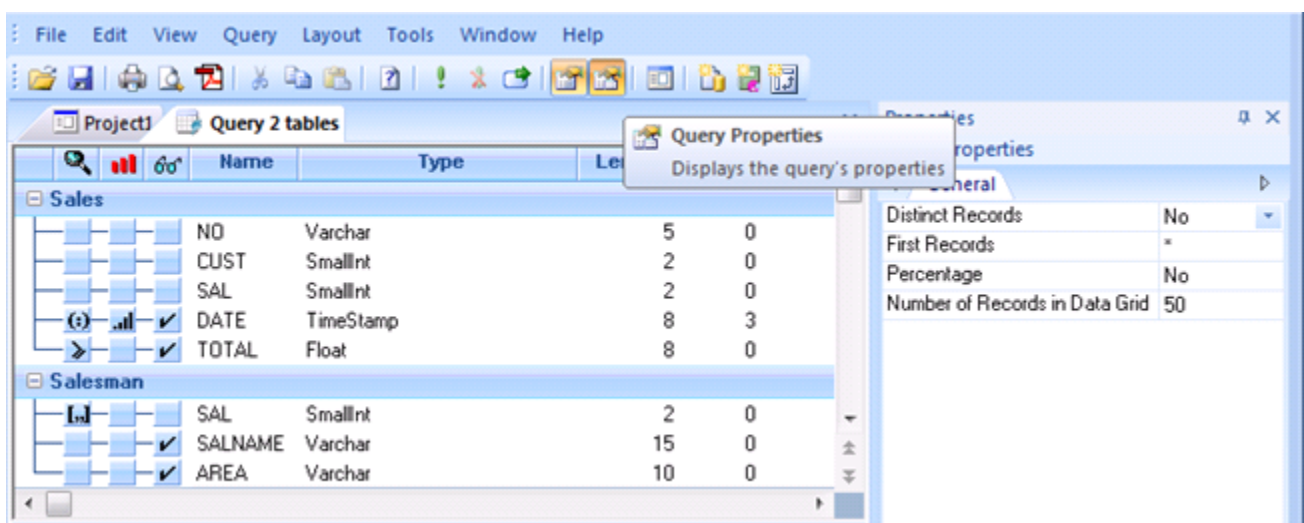
Note: Click&DECiDE Builder allows you to hide any selected fields if necessary. Right-click on the field you want to hide and click **Select> Hidden**.



2.20. Applying a Top Value

To apply a Top value, for example to display results for the top 10 Salesmen, please follow the steps below.

1. Click the  **Query Properties** icon to display the **Query Properties** pod.
2. Note the **Number of Records in Data Grid** value is set to 50 by default. This limits the number of records displayed in the Data Grid in the lower pane to 50. This does not apply to exports and printing. To modify this limit, select **Tools> Options> Query** and modify or remove the value in the **Number of Records in a New Query's Data Grid** text box.



3. Enter a number in the **First Records** text box to define a Top value. For example you can ask for the TOP 10 number of records. In this case, the TOP value will apply to any export or printing from this query, cross-table or report based on this query. Note that the **First Records** box displays an asterisk by default when a new query is created.
4. Define whether you want the top number to be converted as a percentage by selecting **Yes** in the Percentage drop-down list. For example, you can ask for the TOP 10% records. In this case, the TOP value will apply to any export or printing from this query, cross-table or report based on this query.
5. Make sure that you sort the query data according to the correct field to ensure that the Top Value is treated correctly. Note that a TOP usually applies to a numeric field, with the descending sort condition if the Top applies to the Top greater values, or Ascending sort condition if the Top applies to the Top lower values.

For example: no limit in the Data Grid and Top 20 for export or print action:



Properties	
Query Properties	
General	
Distinct Records	No
First Records	20
Percentage	No
Number of Records in Data Grid	

Note: refer to the section explaining how to use a Parameter to define a [Dynamic Top Value](#) for a query.

2.21. Defining Criteria

If you want to filter your data to only get the information you want, you will need to apply criteria. To do so, please follow the steps below.

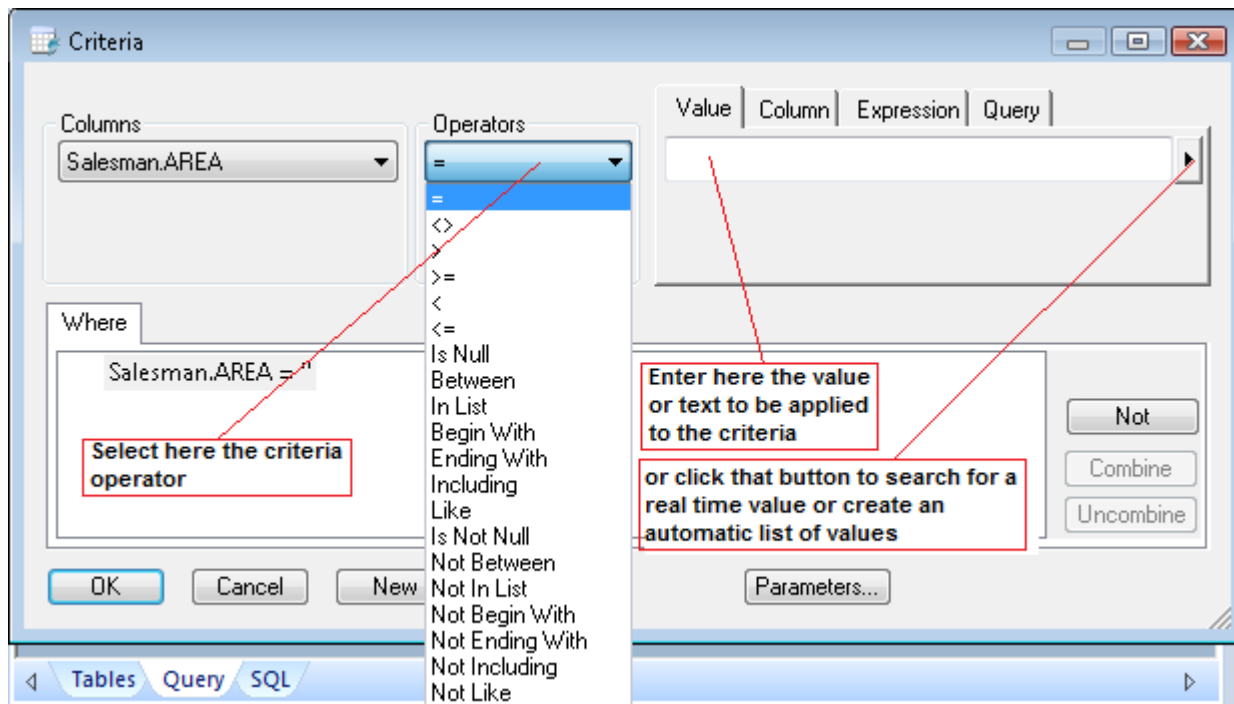
Only the records matching the criteria condition you set will be displayed in the data grid, output format, report or cross-table.

1. Click the leftmost column of the field you want to set criteria for. The **Criteria** dialog box appears.

Name	Type	Length	Scale	Description
Sales				
NO	Varchar	5	0	
CUST	SmallInt	2	0	
SAL	SmallInt	2	0	
DATE	TimeStamp	8	3	
TOTAL	Float	8	0	
Salesman				
SAL	SmallInt			
SALNAME	Varchar			
AREA	Varchar	10	0	

Click here to apply a criteria condition on the AREA field

2. Select the field from the **Columns** drop-down list.
3. Select the **Operator**.



4. Note that you can apply the criteria with the following four possibilities: a **Value**, the content of another **Column**, an **Expression** (formula) or the values given by another **Query**.

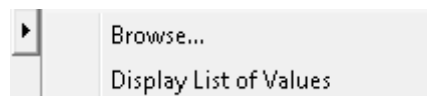
Value tab allows you to enter a value (text, number, date and so on) as a comparison value. However, you can also use the browse button to search for available values in the Host database in real-time or to automatically create a dynamic list of values.

Column tab allows you to use the content of another column as a criteria condition. For example you can create a criteria such as TABLE1.DEBIT >= TABLE2.CREDIT

Expression tab allows you to use a formula as a criteria condition. For example a TABLE.DATE can be compared to the formula = CurrentDate() – 7 to get all the records whose DATE contains the value from one week ago.

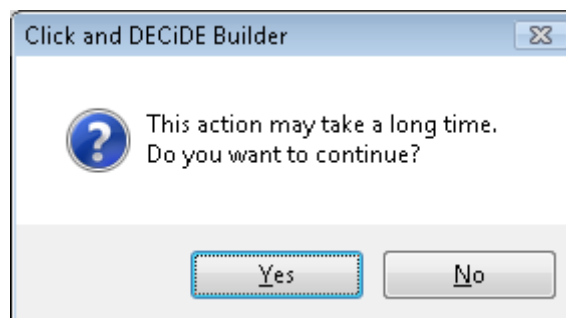
Query tab allows you to use the result given by another query as criteria condition.

5. Click the **Value** tab.
6. Click **Browse...**



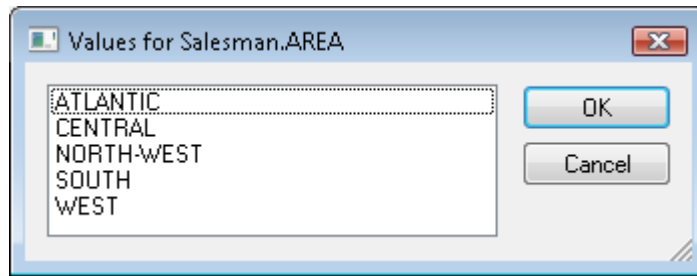
Browse displays a warning message explaining that this action may take a while because the distinct list of value will be generated dynamically from the source database.

7. Click **Yes** to get the list of values.

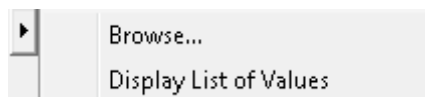
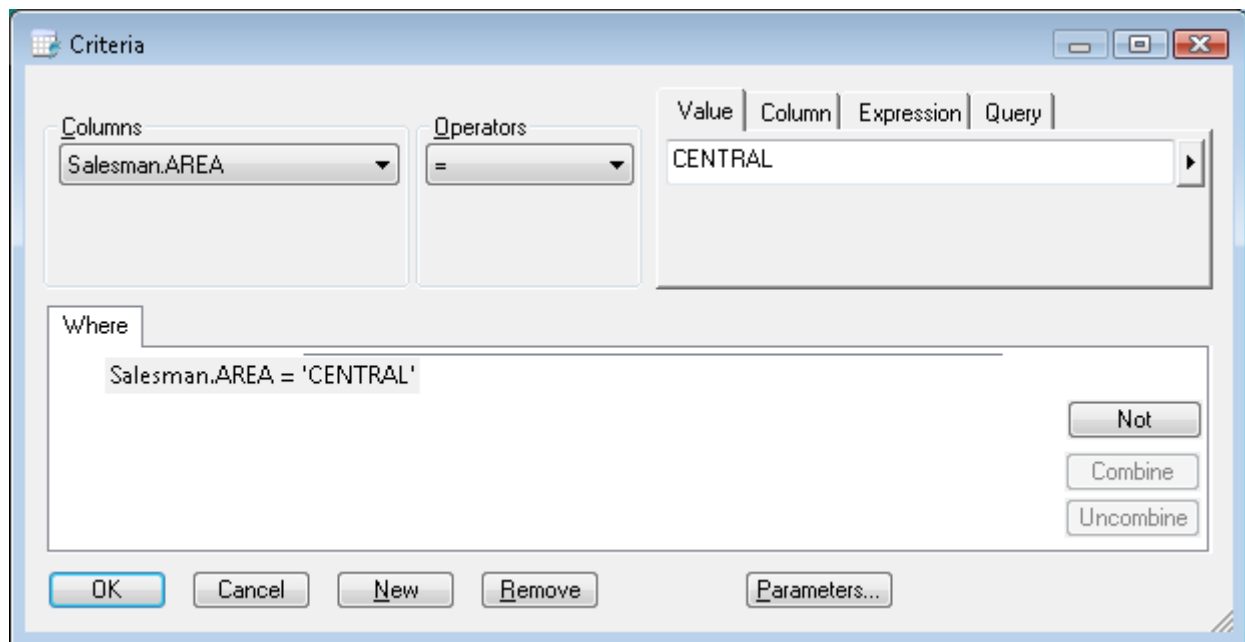




8. Select the required value(s) and click **OK**. The **Criteria** dialog box appears as in this example:

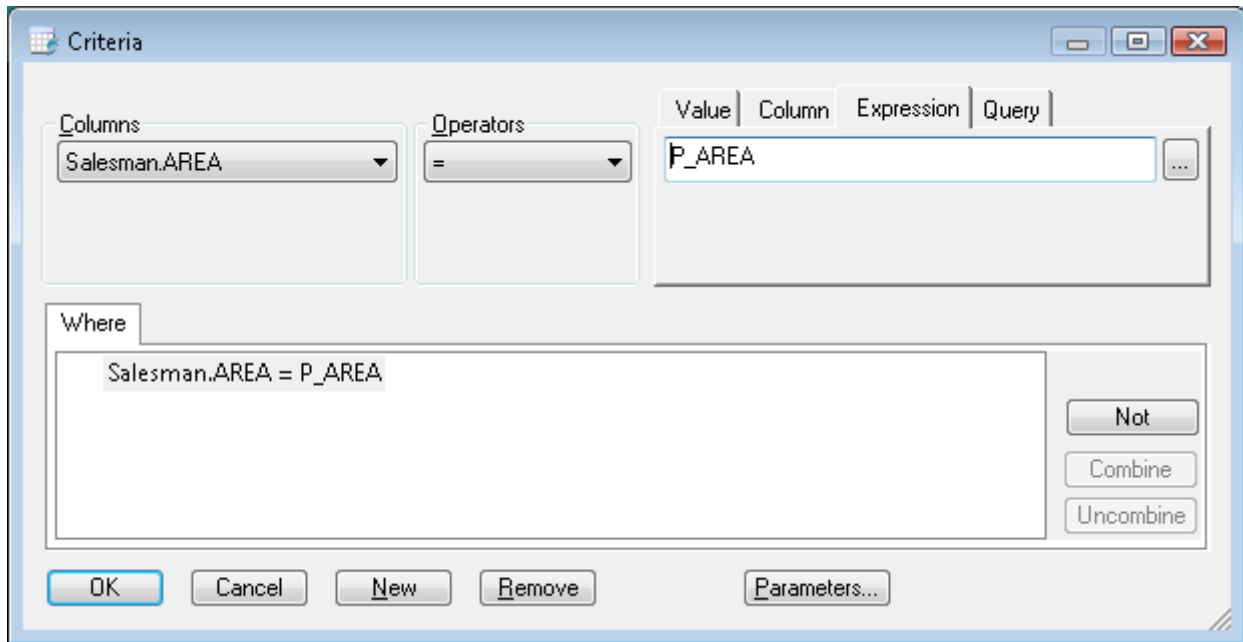


The result will be all records where the AREA field is equal to 'CENTRAL', but if you need to run again the query for another AREA you will need to modify the criteria each time. That is why the other option "Display List of Values" can be used to get a dynamic list of value without the need to modify the criteria.



Display List of Values: will automatically create a parameter fed by a sub-query which dynamically retrieves the distinct values found in the AREA field.

9. Click the **Display List of Values**. The **Criteria** dialog box appears.



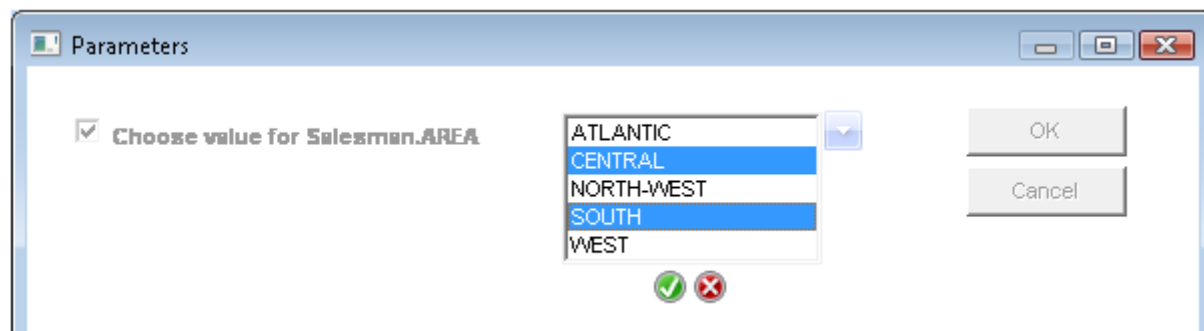
The 'Criteria' dialog box is shown with the 'Columns' dropdown set to 'Salesman.AREA', the 'Operators' dropdown set to '=', and the 'Value' field set to 'P_AREA'. The 'Where' section contains the expression 'Salesman.AREA = P_AREA'. The 'Parameters...' button is visible at the bottom right.

10. Click **OK**.
11. Click Run to run the query. You will be prompted to select a value for the AREA field.
Note: leave IGNORE (equivalent to All Values) if you want to run the query for all the data.
12. Click the down arrow to expand the dynamic list of distinct values.




The 'Parameters' dialog box is shown with the checkbox 'Choose value for Salesman.AREA' unchecked. The dropdown menu is set to 'IGNORE'. The 'OK' and 'Cancel' buttons are visible.

13. Select the value(s) you want.



The 'Parameters' dialog box is shown with the checkbox 'Choose value for Salesman.AREA' checked. The dropdown menu is expanded, showing a list of values: ATLANTIC, CENTRAL, NORTH-WEST, SOUTH, and WEST. The 'OK' and 'Cancel' buttons are visible.

14. Click the  icon.
15. Click **OK**. The result will be displayed.



	AREA	SALNAME	Purchase Date	Amount
1	CENTRAL	Sanders Wanda	Thursday, January 10, 2008	\$208,749.00
2	CENTRAL	John Brown	Thursday, January 10, 2008	\$223,333.00
3	CENTRAL	John Brown	Saturday, January 26, 2008	\$212,550.00
4	CENTRAL	John Brown	Saturday, January 26, 2008	\$230,236.00
5	SOUTH	Jim Baxter	Friday, March 14, 2008	\$262,983.00
6	SOUTH	Kim Johnson	Friday, March 14, 2008	\$247,934.00
7	SOUTH	Jean Martin	Tuesday, October 28, 2008	\$62,168.20
8	SOUTH	Jean Martin	Wednesday, October 29, 2008	\$71,619.60

Tables Query SQL 39 record(s) found

Important: note that a parameter, named **P_AREA**, has automatically been created and displayed in the **Expression** tab.

16. Click **Query> Parameters** to display the details about this parameter:

The dialog box titled "Query Parameters" shows a list of parameters with "P_AREA" selected. Below the list, the "Parameter Properties" section displays the following details:


Name	P_AREA
Type	String
Status	Enable
Update Method	Input Query List
Title	Choose value for Salesman.AREA
Mandatory	No
Editable	Yes
Default Value	IGNORE
Query	DEFINE SOURCE "Local SQL Server" TYPE src;SELECT T...
Selection	Extended
Hide List's First Column	No

Buttons: OK, Cancel

The above screen will be explained more in detail later in this manual, in the section concerning Parameters.

2.21.1. Working with Criteria for Sub-Select Queries

Another query is called a "sub-select" and can be a result coming from another table. To create a sub-select query, please follow the steps below:

1. Click the **Query** tab in the **Criteria** dialog box.
2. Click the **Browse** button  to dynamically create the sub-select.
3. Note that if you save the sub-select created, the name will be used in the criteria box, if not, the SQL will be used in the criteria box (this is not recommended if you are not familiar with SQL syntax).

Note: the result given by the sub-select must be accepted by the criteria operator you have chosen. For example an equal condition can be used only if the sub-select retrieve one value. However, an **In List** condition can accept a list of values given by the sub-select. Usually the sub-select must always give the result of one field whose content can be compared with the field used in the **Criteria** dialog box. In the following example the sub-select will retrieve the values 3, 6 and 16, that is, the salesman code values for all the salesmen from the SOUTH area.



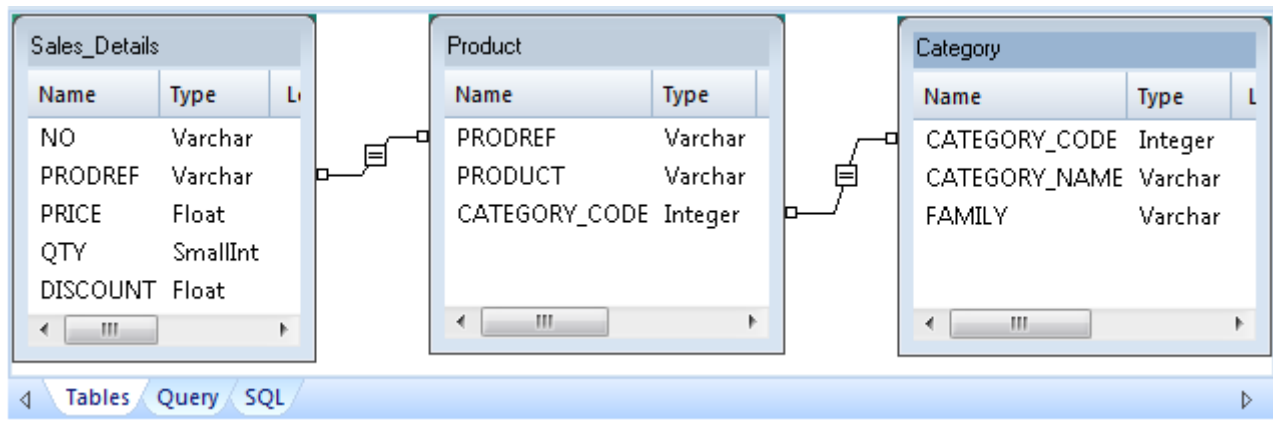
Each criteria added in the query will appear in the **Where** tab in the **Criteria** dialog box if the criteria concerns a host field. Please refer to the section concerning defining criteria for virtual fields or group fields further on in this document.

Note: when defining more than one criterion, a default **and** statement is automatically added between each criterion. It may sometimes be necessary to modify the **and** into an **or** statement, or use the **not** condition if necessary and combine certain criteria with each other by using parenthesis levels as you can see in the following example.

2.21.2. Exercise 1: Defining Criteria

In this exercise we are going to create a query from the SALES DETAILS, PRODUCT and CATEGORY tables in order to get the Family, the Product Name and the Quantity (sorted by descending quantity) for the selected Family, using an automatic list of values to choose the Family. To do so, please follow the steps below.

1. Create a query from the SALES DETAILS, PRODUCT and CATEGORY tables.
2. Define the joins between the tables as follows (if they are not automatically created):



3. Select the following columns:
Sales_Details: QTY
Product: PRODUCT
Category: FAMILY
4. Define an Descending Sort for the QTY field.
5. Modify the Column Headers.
6. Configure the Number **Format** for the QTY column.
7. Configure the **Decimal Places** for the QTY column.

The screenshot shows the Click&DECIDE interface with the Query1* window and the Properties window. The Query1* window displays the selected columns (QTY, PRODUCT, FAMILY) and the resulting data table. The Properties window shows the configuration for the QTY field, including Format (Standard), Decimal Places (0), and Header (Quantity).

Query1* Properties

Selected Field Properties

General

Format: Standard
 Decimal Places: 0
 Header: Quantity
 Assigned Parameter:
 Assigned Value:
 ASCII Output Length:
 Description:
 Header Group (Excel):

Click here to define the criteria on the Family field

Use the Properties to modify the column Headers and the number format and decimal places for the numeric column

	Product Name	Product Family	Quantity
1	SCHWINN	Children	101
2	SCHWINN	Children	100
3	GMC DENILI ROAD	Adult	75
4	BMX ADULT	Adult	72
5	IRON MAVERICK	Children	70
6	NIVRE SPECIAL	Adult	67
7	MONGOOSE	Children	66

8. Click the leftmost column of the FAMILY field to open the **Criteria** dialog box for the FAMILY field.
9. Click the ... **Browse** button.



10. Click **Display List of Values**.

Criteria

Columns: Category.FAMILY Operators: = Value: P_FAMILY

Where: Category.FAMILY = P_FAMILY

Buttons: OK, Cancel, New, Remove, Parameters...

11. Click **OK**.

12. Click **Run**, to run the query in the data grid to check the result.

13. Click **File> Save As** to save you query as Exercise 1.

2.21.3. Exercise 2: Using Keywords

In this exercise we will create a query from the SALES table in order to get the Customer Names, the date and the total amount for the sales made during the current month. To do so, please follow the steps below.

1. Create a query from the SALES table and the CUSTOMER table.
2. Select the following columns:
Sales: DATE
Sales: TOTAL
Customer: CUSTNAME

Project1.wfv Exercise 2

Selected Field Properties

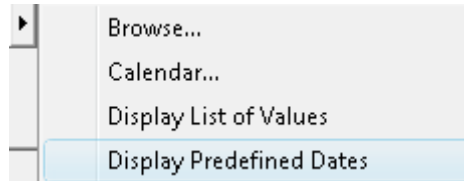
General

Format: Currency
Decimal Places: Auto
Header: Amount
Assigned Parameter:
Assigned Value:
ASCII Output Length:
Description:
Header Group (Excel):

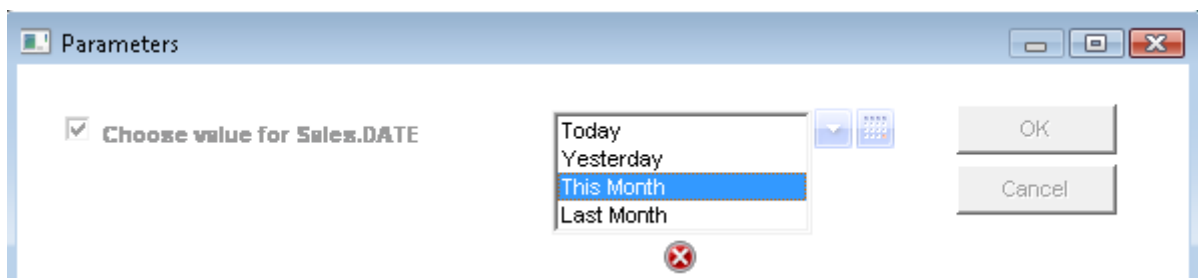
Customer Name Purchase Date Amount



3. Click the leftmost column of the DATE field. The **Criteria** dialog box appears.
4. Select the equal **Operator**.
5. Click the arrow to display the context menu.
6. Click **Display Predefined Dates**:



7. Click **OK**. A new parameter named P_DATE has been automatically created and placed in the **Expression** tab.
8. Click **OK**.
9. Click **Run** to run the query. The **Parameters** dialog box appears.
10. Select a keyword, such as **Today**, **Yesterday**, **This Month** and **Last Month**. In this example, select **This Month**.
11. Click **OK**.



12. Note that only the data for the date corresponding to the current month is displayed.

2.21.4. Exercise 3. Working with Two Criteria

Now we will add a new criteria condition to also get data from Last Month, so that you can compare data from two periods, This Month and Last Month. To do so, please follow the steps below.

1. Click the leftmost column of the DATE field. The **Criteria** dialog box appears.
2. Click **New** to add a new criterion for the DATE field.
3. Select the equal operator.
4. Select the **Value** tab.
5. Click the arrow to expand the context menu.
6. Click **Display Predefined Dates**. A new parameter is automatically created and placed in the **Expression** tab.



7. Note that the two criteria are separated by the **and** statement.
8. Click **and** in the middle pane, the statement is automatically replaced by the **or** statement. The or statement enables you to get results if you select This Month for the first criteria and Last Month for the second criteria.

9. Click **OK**.
10. Click **Run** to run the query. The **Parameters** dialog box appears.
11. Select **This Month** for the first parameter.
12. Select **Last Month** for the second parameter:
13. Click **OK**.

14. Note that you get data for both the periods you selected (Last Month and This Month) because you used the **or** statement. If you used the **and** statement no result would have been generated, because each record has a single date - Last Month OR This Month OR another period.

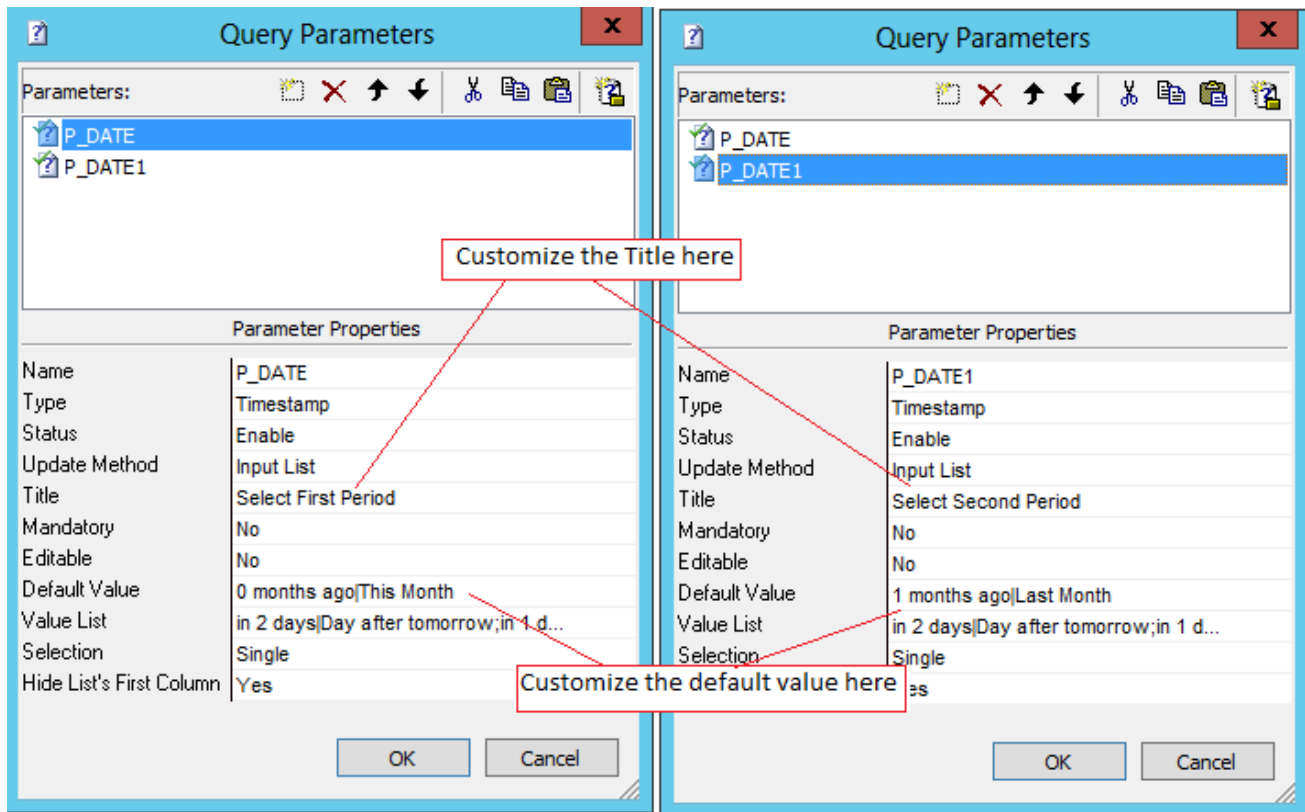
2.21.5. Exercise 4. Customizing your Query Parameters

You can easily customize the titles and default values which are displayed in the **Parameters** dialog box when you run a query. To do so, please follow the steps below.

1. Click the **Query Parameters** icon to display the Query Parameters.
2. Select the P_DATE parameter.



3. Modify the **Title** to **Select First Period**.
4. Modify the **Default Value** to **0 months ago|This Month**.
5. Select the P_DATE1 parameter.
6. Modify the **Title** to **Select Second Period**.
7. Modify the **Default Value** to **1 months ago|Last Month**.
8. Click **OK**.



Important: in this example we use keywords for Dates fields with the following syntax:

Invariant Keyword|Language Keyword

Invariant Keyword will always work independent of your regional settings.

Language Keyword: can be in the language you want.

For example 0 months ago is an invariant keyword where months is always written with an “s” and 0 can be a number between 0 and 12. For more than 12 months, you can use **1 years ago** as invariant.

You also can use direct keywords in your language if your language system is: English, French, German, Spanish, Italian, Swedish or Catalan. In this case, the invariant keyword can be ignored as well as the pipe separator. Please refer to the [keyword list](#) for each language at the end of this document.

2.21.6. Exercise 5: Modifying AND Statements to OR Statements

Now, we will add a new criteria condition to explain why you sometimes need to combine or ungroup several criteria together. To do so, please follow the steps below.

1. Click the leftmost column of the STATE field (in the Customer table). The **Criteria** dialog box appears.
2. Select the Customer.STATE **Column**.
3. Select the equal **Operator**.
4. Select the **Value** WA.



5. Note the criteria are added in the middle pane.
6. Click **OK**.

The screenshot shows the Click&DECIDE interface. On the left, a tree view displays the database schema with 'Sales' and 'Customer' tables. The 'Sales' table has fields: NO, CUST, SAL, DATE, and TOTAL. The 'Customer' table has fields: CUST, CUSTNAME, ADDRESS, CITY, STATE, CP, COUNTRY, and PHONE. The 'Criteria' dialog box is open, showing the 'Columns' tab with 'Customer.STATE' selected. The 'Operators' tab shows '='. The 'Where' tab shows the criteria: 'Sales.DATE = P_DATE or Sales.DATE = P_DATE1 and Customer.STATE = 'WA''. The dialog has buttons for OK, Cancel, New, Remove, and Parameters...

7. Click **Run** to run the query.
8. Note the following result appears.

	Customer Name	Purchase Date	Amount	STATE
1	City Sports	02/07/2019 0:00:00 AM	\$63,399.80	WA
2	City Sports	02/12/2019 0:00:00 AM	\$74,006.20	WA
3	The Polar Bicycle	02/14/2019 0:00:00 AM	\$39,215.00	WA
4	The Polar Bicycle	02/15/2019 0:00:00 AM	\$49,555.00	WA
5	Triathlon	03/04/2019 0:00:00 AM	\$188,570.26	WI
6	Triathlon	03/05/2019 0:00:00 AM	\$203,459.40	WI
7	Triathlon	03/06/2019 0:00:00 AM	\$72,518.00	WI
8	On 2 Wheels	03/07/2019 0:00:00 AM	\$99,705.50	ID
9	Triathlon	03/07/2019 0:00:00 AM	\$85,367.50	WI
10	On 2 Wheels	03/08/2019 0:00:00 AM	\$114,430.00	ID
11	Family Bikes	03/11/2019 0:00:00 AM	\$69,535.61	VT
12	Atlantic Mountains Bikes	03/22/2019 0:00:00 AM	\$80,676.18	MA

9. Note records for states other than WA appear in the STATE column in the result. This is because the SQL was as follows:

Sales.DATE = This Month OR Sales.DATE = Last Month AND Customer.STATE = 'WA'



The two conditions linked by the AND statement are Date = Last Month and State = 'WA', so for October we only got the State 'WA', but the first condition Date = This Month is not linked to any criteria in the State field because of the OR statement. The solution is to add the correct parenthesis using the **Combine** button. Please see Exercise 5 to find out how to combine criteria.

2.21.7. Exercise 6: Using the Combine Button

To add parenthesis using the **Combine** button, please follow the steps below.

1. Click the leftmost column for the DATE field. The **Criteria** dialog box appears.
2. Click on the first criterion Sales.DATE = P_DATE.
3. Press **CTRL+Click** on the second criterion Sales.DATE = P_DATE1.
4. Click the **Combine** button:

The screenshot shows the 'Criteria' dialog box. At the top, there are tabs for 'Value', 'Column', 'Expression', and 'Query'. Below these, there are three main sections: 'Columns', 'Operators', and 'Value'. The 'Columns' dropdown is set to 'Sales.DATE'. The 'Operators' dropdown is set to '='. The 'Value' field contains 'P_DATE1'. Below these sections is a 'Where' section. It contains a logical expression: (Sales.DATE = P_DATE or Sales.DATE = P_DATE1) and Customer.STATE = 'WA'. The 'Combine' button is highlighted in blue. At the bottom, there are buttons for 'OK', 'Cancel', 'New', 'Remove', and 'Parameters...'.

5. Click **OK**.
6. Click **Run** to run the query.
7. Note that now only the data for the WA state appears for this month and last month.

	Customer Name	Purchase Date	Amount	STATE
1	City Sports	02/07/2019 0:00:00 AM	\$63,399.80	WA
2	City Sports	02/12/2019 0:00:00 AM	\$74,006.20	WA
3	The Polar Bicycle	02/14/2019 0:00:00 AM	\$39,215.00	WA
4	The Polar Bicycle	02/15/2019 0:00:00 AM	\$49,555.00	WA

2.21.8. Exercise 7: Using the Not Button

The **Not** button can be used sometimes in the **Criteria** dialog box to modify one or several group of criteria, the Not can be applied to one row in the criteria or one group of rows between parenthesis. Please follow the steps below for more information.

1. Click the leftmost column of the DATE field. The **Criteria** dialog box appears.
2. Click **Not**.



Where

```

not (
    Sales.DATE = P_DATE
    or
    Sales.DATE = P_DATE1
)
and
not Customer.STATE = 'WA'

```

Not
Combine
Uncombine

3. Click **OK**.
4. Click **Run** to run the query.

2.22. Copying a Query to Start a New Query

Sometimes you can save time by copying an existing query if you want to create a new query, this enables you to keep some features already defined, such as join conditions, sort conditions, criteria and so on. There are two possible methods of copying a query.

Method 1: Save As

1. Open the query you want to copy.
2. Select **File> Save As**.
3. Enter the name for the new query which will be a copy of this query.
4. Click **OK**.

Method 2: Copy & Paste

1. Close the query you want to copy if it is open or select **File> Save**.
2. Go to the **Project** tab.
3. Select the **Query** button to the left.
4. Select the query you want to copy.
5. Either:
 - a. Right-click> **Copy**.
 - b. Right-click> **Paste**.
6. Or:
 - a. Select **Edit> Copy**
 - b. Select **Edit> Paste**.
7. Right-click> **Rename** and rename the copied query from “*-copy” to the name you want.
8. Open the new query.
9. Select **Edit> Clear Query** if you want to remove certain features in the copied version of the query.
10. Select the appropriate check box(es).

Clear All: removes the selection of the fields, existing join conditions, sort conditions and all existing criteria.

Clear Fields: removes the selection of the fields and sort conditions because a field which has not been selected cannot be sorted

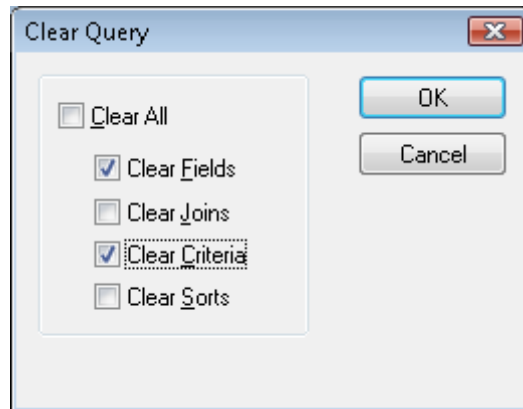
Clear Joins: removes existing join conditions.



Clear Criteria: removes existing criteria without removing corresponding fields if they are selected.

Clear Sorts: removes existing sort conditions without removing corresponding fields.

11. Click **OK**.
12. Select **File> Save**.
13. Note that existing parameters are not removed by this action, so check if you still need them and if so, you will have to assign some of them to required fields in the **Criteria** dialog box if necessary.



2.23. Copying a Query from a Project to another Project

1. Open the first project 1 containing the query to be copied
2. Start a new instance of Click&DECiDE Builder (Builder is started twice).
3. Create a new project or open an existing project 2 being the target
4. Make a drag and drop with the mouse of the concerned query from Project 1 to Project 2.
5. The same method can be used for a Report or a Cross-table.

2.24. Using Aggregate Functions

By default when selecting any field in a table, the result will be the detailed result corresponding to each existing record, according to the criteria and order defined. The aggregate fields or grouping functions allow you to get results grouped by one or several fields. The most simple aggregate field is the **COUNT(*)**, this will return the number of records from a table. To insert a Count(*) field, please follow the steps below.

1. Create a new query using the SALES table.
2. Select **Query> Insert> Count(*)** to insert a Count(*) field.
3. Click **Run** to run the query.
4. Note the result will be the number of records in the SALES table.
5. Add only one field, for example the SAL field, (with the Salesman code).
6. Run the query again.
7. Note the number of records appears in the SALES table for each salesman code.
8. Select the **SQL** tab.

Note: you can see that an aggregate function will generate a GROUP BY statement for all fields that are not aggregate fields.

Note: concerning other common aggregate functions, when you right-click any field, you can select the COUNT(*) field however other function groups are provided.

Group	Aggregate function	Can apply to
	Min	Any field type
	Max	Any field type
	Sum	Numeric field only



Aggregate	Average	Numeric field only
	Standard Deviation	Numeric field only
	Population Standard Deviation	Numeric field only
	Variance	Numeric field only
	Population Variance	Numeric field only
	Count	Any field type
Distinct Aggregate	Sum	Numeric field only
	Average	Numeric field only
	Standard Deviation	Numeric field only
	Population Standard Deviation	Numeric field only
	Variance	Numeric field only
	Population Variance	Numeric field only
	Count	Any field type

Exercise 1:

In this exercise we are going to directly obtain the sum of the total, to do so please follow the steps below.

1. Create a new query with the SALES and SALESMAN tables.
2. Join the two tables (please see the previous section).
3. Select the TOTAL field.
4. Right-click the TOTAL field.
5. Select **Aggregate> Sum** or select **Query> Insert> Aggregate> Sum**. The TOTAL field's selection will be cleared and anew SUM(TOTAL) field will appear.
6. Click **Run**, to run the query only the main total will appear from all the records.

Exercise 2:

In this exercise we are going to directly display the minimum value, to do so please follow the steps below.

1. Select the TOTAL field.
2. Right-click the TOTAL field.
3. Select **Aggregate> Minimum** or **Query> Insert> Aggregate> Minimum** to define the MIN(TOTAL).
4. Click **Run** to run the query to display the minimum value.

Exercise 3:

In this exercise we are going to directly display the maximum value, to do so please follow the steps below.

1. Select the TOTAL field.
2. Right-click the TOTAL field.
3. Select **Aggregate> Maximum** or **Query> Insert> Aggregate> Maximum** to define the MAX(TOTAL).
4. Click **Run** to run the query to display the minimum value.
5. Add a Count(*) to get the number of records.



	Name	Type			
Formula					
<input checked="" type="checkbox"/>	COUNT(*)	Float	15	0	Count
Sales					
<input type="checkbox"/>	NO	Varchar	5	0	
<input type="checkbox"/>	CUST	SmallInt	2	0	
<input type="checkbox"/>	SAL	SmallInt	2	0	
<input type="checkbox"/>	DATE	TimeStamp	8	3	
<input type="checkbox"/>	DATENUM	Pack	18	0	
<input type="checkbox"/>	TOTAL	Float	8	0	
<input checked="" type="checkbox"/>	SUM(TOTAL)	Float	15	0	Sum_TOTAL
<input checked="" type="checkbox"/>	MIN(TOTAL)	Float	8	0	Min_TOTAL
<input checked="" type="checkbox"/>	MAX(TOTAL)	Float	8	0	Max_TOTAL
Salesman					
<input type="checkbox"/>	SAL	SmallInt	2	0	
<input type="checkbox"/>	SALNAME	Varchar	15	0	
	Sum_TOTAL	Min_TOTAL	Max_TOTAL	Count	
1	\$45,901,319.63	\$34,455.50	\$398,518.30	322	

- Add another field from the SALES table or the SALESMAN table.
- Note the same information will be displayed however it will be sorted for each different value of the new field.
- Select the salesman name.
- Move the SALNAME field to the leftmost position. A GROUP BY statement is automatically added in the SQL followed by all fields that do not have an aggregate function.



Name	Type	L		
Formula				
<input checked="" type="checkbox"/> COUNT(*)	Float	15	0	Count
Sales				
<input type="checkbox"/> NO	Varchar	5	0	
<input type="checkbox"/> CUST	SmallInt	2	0	
<input type="checkbox"/> SAL	SmallInt	2	0	
<input type="checkbox"/> DATE	TimeStamp	8	3	
<input type="checkbox"/> DATENUM	Pack	18	0	
<input type="checkbox"/> TOTAL	Float	8	0	
<input checked="" type="checkbox"/> SUM(TOTAL)	Float	15	0	Sum_TOTAL
<input checked="" type="checkbox"/> MIN(TOTAL)	Float	8	0	Min_TOTAL
<input checked="" type="checkbox"/> MAX(TOTAL)	Float	8	0	Max_TOTAL
Salesman				
<input type="checkbox"/> SAL	SmallInt	2	0	
<input checked="" type="checkbox"/> SALNAME	Varchar	15	0	

	SALNAME	Sum_TOTAL	Min_TOTAL	Max_TOTAL	Count
1	Bill Raley	\$3,749,228.91	\$56,640.00	\$253,546.75	30
2	Diane Meyer	\$3,079,368.27	\$51,953.75	\$274,696.20	23
3	Doug Castro	\$6,752,881.60	\$47,215.50	\$376,532.29	38
4	Georges Dunel	\$3,596,665.03	\$46,990.00	\$398,518.30	27
5	James Smith	\$4,338,036.61	\$35,450.00	\$230,661.90	32

Note: all the aggregate functions are calculated grouped by the field that does not have an aggregate function or all the fields that do not have an aggregate function.

Exercise 4:

1. Add another field, such as the CUST field (customer code).
Note: the aggregate functions will apply to all the combinations between the Salesman name and the customer code. The row for Georges Dunel will appear for all his customers.
2. Add a sort condition on the Salname fields to check that the total of the Count column gives 27. Or add a criteria on the Salname field = Georges Dunel.

	SALNAME	Sum_TOTAL	Min_TOTAL	Max_TOTAL	Count	CUST
1	Georges Dunel	\$2,503,177.05	\$46,990.00	\$398,518.30	17	1005
2	Georges Dunel	\$1,093,487.98	\$73,173.00	\$170,819.60	10	1007

2.25. Working with Virtual and Calculation Fields

Virtual fields are additional fields created in the query by the user and can be used in two ways.

2.25.1. Working with Data Source Formula

The formula must be understood by the host database and will be calculated by the host database, as if it was a table field. In this case it is possible to apply a sort condition because the job is performed by the host database SQL engine before sending the result to Click&DECiDE Builder. It may take more resources to send it to the host database server.

Click&DECiDE Builder proposes a standard syntax for all the Host formula that will be translated according to the Host database syntax. Nevertheless, it is possible to use the Host database syntax written between single quotes and parenthesis and preceded by the word HOST as in the following example:

Click&DECiDE Builder will use the following formula to concatenate two or more strings:



Concat(CUSTOMER."CP" , Concat('-', CUSTOMER."COUNTRY")): will translate it with the following syntax if the data source is an AS400 database:

CUSTOMER."CP" concat '-' concat CUSTOMER."COUNTRY"

However, you can write and use the AS400 syntax directly by writing the following native formula:

HOST('CP Concat "-" Concat CITY')

Note: you must write the single quote twice in the formula.

2.25.2. Working with Click & DECiDE Formula

The formula must be understood by Click&DECiDE Builder and will be calculated by the Click&DECiDE Builder SQL Engine on the PC side only when the result rows are sent by the host database. In this case it is not possible to apply a sort condition. However, the benefit of this option is that it uses less resource to the host database server and uses the PCs power. Another benefit is that some functions provided by Click&DECiDE Builder are not supported by the Host database, such as the "Cumul" function for example and so on.

In both cases, criteria can be applied to a virtual field.

Exercise 1:

1. Create a query giving the final price for each product according to the given discount in the SALES DETAIL table linked to the PRODUCT table by the PRODREF field.
2. Select the PRODUCT fields.
3. Right-click.
4. Select **Add Formula...** or select **Query> Insert> Formula**. The **Formula Editor** Dialog box appears.
5. Define a name for the first virtual field.

6. Enter a **Name** for the virtual field.
7. Select the result **Type** if it is a Data Source formula.

Note: if you select a Click and DECiDE formula, the type will be automatically be defined by Click&DECiDE Builder.

Length: only applies to an output format to a database.

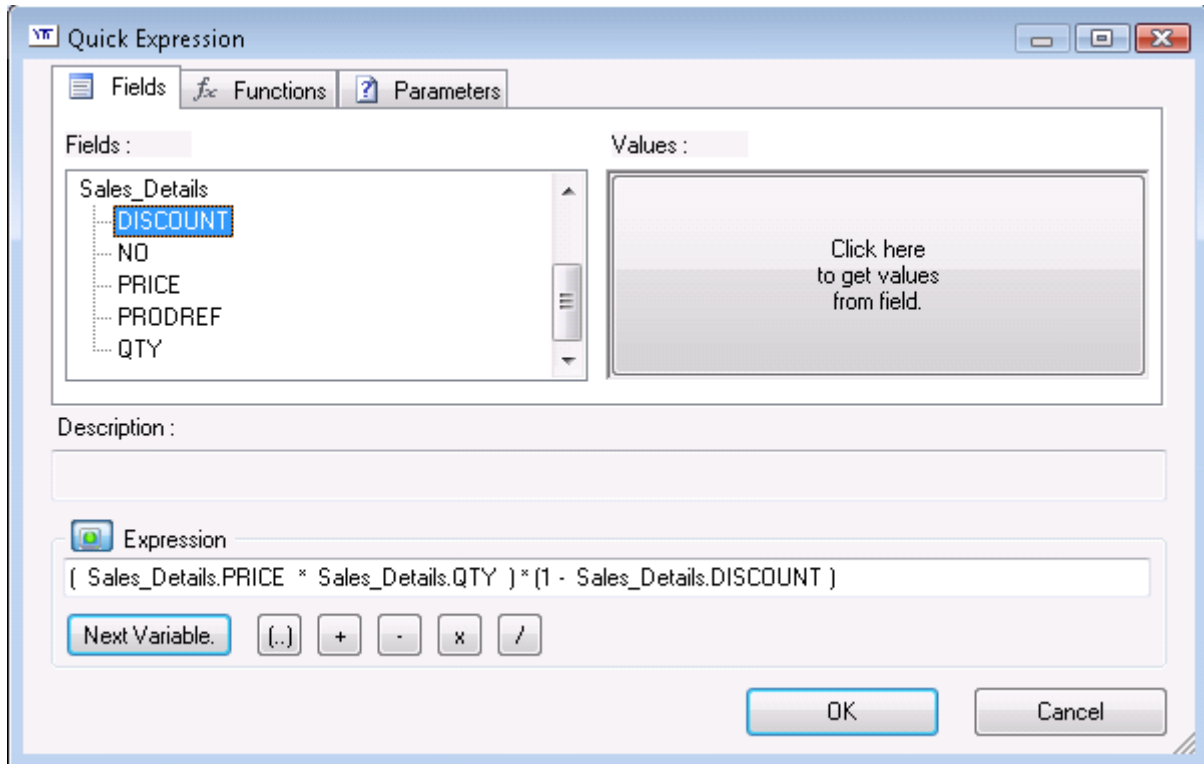
Scale: only applies to an output format to a database.

Comment: this is optional but can help you to remember what the purpose of the formula is.

8. Click **Generate...** the **Quick Expression** property sheet appears. The **Quick Expression** property sheet allows you to easily edit your formula.




Note: the proposed formula will depend on the option button you selected (**Data Source** or **Click and DECiDE formula**).



9. Edit the above formula to get the required result.
10. Select the **Fields** tab to select any field or virtual field already defined
11. Select the **Functions** tab to select any function from any group (String, Mathematic, Date Time, Aggregation, Conversion and Misc). The purpose of each function appears in the **Description** panel.
12. Select the **Parameters** tab to select any existing parameter.

Note: when working in the **Expression** text box, you can use the **+, -, *** buttons., when you use these buttons a default syntax is proposed with the \$2 variable that will be replaced by your selection. The **Next Variable** button allows you to switch to the next \$2 if it exists.

13. Click the **Expression** button  to resize the **Quick Expression** property sheet. This enables you to enlarge the top or lower part of the screen.. The last size you defined for the property sheet will be saved and automatically displayed the next time you use the **Quick Expression** property sheet.

Exercise 2: Use the Cumul Formula

Among the available Click&DECiDE Builder internal functions, the CUMUL function is specific to Click&DECiDE Builder and allows you to obtain a cumulative value from one record to another record.

1. Create a query on the SALES and SALESMAN tables.
2. Select the SALNAME field (salesman name) and the TOTAL field.
3. Apply an ascending sort to the SALNAME field.
4. Add a Click and DECiDE virtual field named **Cumulated Total** with the following formula: CUMUL(SALES."TOTAL").
5. Click **Run** to run the query: the **Cumulated Total** column will be displayed each time the TOTAL is cumulated with the value of the previous record (please see the screen shot below).



	Name	Type	Le	
Formula				
<input checked="" type="checkbox"/>	Cumulated Total	Float	20	2 Cumul(Sales.TOTAL)
Salesman				
<input type="checkbox"/>	SAL	SmallInt	2	0
<input checked="" type="checkbox"/>	SALNAME	Varchar	15	0
<input type="checkbox"/>	MAIL	Varchar	30	0
<input type="checkbox"/>	AREA	Varchar	10	0
Sales				
<input type="checkbox"/>	NO	Varchar	5	0
<input type="checkbox"/>	CUST	SmallInt	2	0
<input type="checkbox"/>	SAL	SmallInt	2	0
<input type="checkbox"/>	DATE	TimeStamp	8	3
<input type="checkbox"/>	DATENUM	Pack	18	0
<input checked="" type="checkbox"/>	TOTAL	Float	8	0

	SALNAME	TOTAL	Cumulated Total
1	Bill Raley	\$105,081.40	\$105,081.40
2	Bill Raley	\$146,917.50	\$251,998.90
3	Bill Raley	\$87,161.00	\$339,159.90
4	Bill Raley	\$73,750.00	\$412,909.90
5	Bill Raley	\$124,110.00	\$537,019.90
6	Bill Raley	\$161,242.20	\$698,262.10
7	Bill Raley	\$56,640.00	\$754,902.10

- Note that when the value of the SALNAME field changes from Bill Raley to Diane Meyer, the **Cumulated Total** field does not reset to zero and displays cumulated values up to the end of the data grid result. This function also provides a reset to zero option as explained in the next exercise.

Exercise 3:

- Modify the virtual field in the query you created for Exercise 2 above.
- Modify the virtual field with the following formula:
Cumul(Sales.TOTAL, Salesman.SALNAME)
- Click **Run** to run the query again. The **Cumulated Total** column will be displayed each time the TOTAL is cumulated with the value of the previous record. However, when the value of the SALNAME field changes, a **reset to zero** is performed (please see the screen shot below).



	Name	Type	Length	Scale	De:
Formula					
<input checked="" type="checkbox"/>	Cumulated Total	Float	20	2	Cumul(Sales.TOTAL,Salesman.SALNAME)
Salesman					
<input type="checkbox"/>	SAL	SmallInt	2	0	
<input checked="" type="checkbox"/>	SALNAME	Varchar	15	0	
<input type="checkbox"/>	MAIL	Varchar	30	0	
<input type="checkbox"/>	AREA	Varchar	10	0	
Sales					
<input type="checkbox"/>	NO	Varchar	5	0	
<input type="checkbox"/>	CUST	SmallInt	2	0	
<input type="checkbox"/>	SAL	SmallInt	2	0	
<input type="checkbox"/>	DATE	TimeStamp	8	3	
<input type="checkbox"/>	DATENUM	Pack	18	0	
<input checked="" type="checkbox"/>	TOTAL	Float	8	0	

	SALNAME	TOTAL	Cumulated Total
22	Bill Raley	\$136,054.00	\$2,534,058.16
23	Bill Raley	\$148,711.00	\$2,682,769.16
24	Bill Raley	\$123,008.50	\$2,805,777.66
25	Bill Raley	\$136,210.50	\$2,941,988.16
26	Bill Raley	\$121,893.50	\$3,063,881.66
27	Bill Raley	\$135,540.50	\$3,199,422.16
28	Bill Raley	\$238,710.00	\$3,438,132.16
29	Bill Raley	\$253,546.75	\$3,691,678.91
30	Bill Raley	\$57,550.00	\$3,749,228.91
31	Diane Meyer	\$85,045.00	\$85,045.00
32	Diane Meyer	\$136,018.00	\$221,063.00
33	Diane Meyer	\$123,757.50	\$344,820.50

Exercise 4: Use the IF Formula

Most databases now support the IF formula, however you can also run this function calculated by Click and DECiDE. To do so, please follow the steps below.

1. Create a query on the PRODUCT table.
2. Select all the fields.
3. Click **Run** to run the query.
4. Create a virtual field using the IF function in the Conditional group of the Functions Tab in the Quick Expression and select the following function.

If (\$Cond,\$RetTrue,\$RetFalse) where:

\$Cond will be the condition to evaluate.

\$RetTrue will be the result to be used if the condition is true.

\$RetFalse will be the result to be used if the condition is false.

In this example, **\$Cond** must be replaced with the following formula to search if the PRODUCT field contains the word "women": `Product.PRODUCT like '%women%'`

The **\$RetTrue** will be replaced for example with the text **'Woman bicycle'**

The **\$RetFalse** will be replaced for example with the text **'Man bicycle'**.

The final formula is: **IF(Product.PRODUCT like '%women%', 'Woman bicycle', 'Man bicycle')**



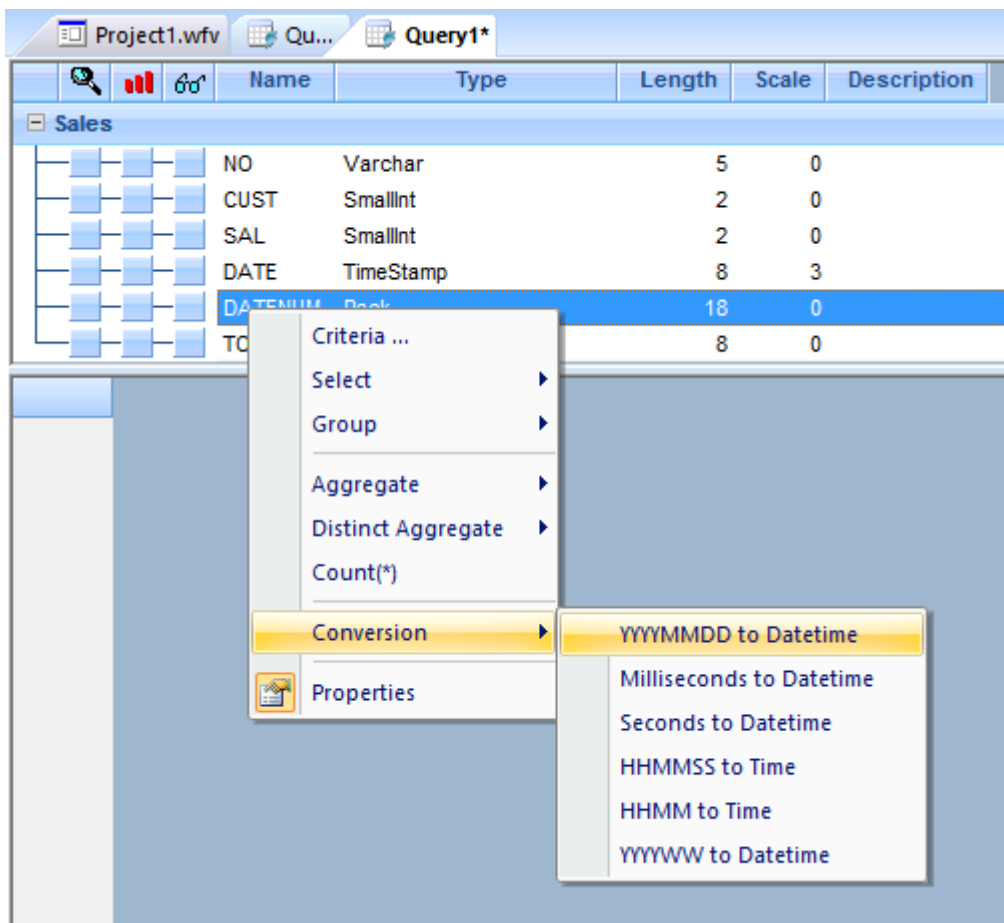
Note: you can replace **\$RetTrue** or **\$RetFalse** with another IF function. For example:

IF(Product.PRODUCT like '%cruiser%', 'Cruiser bicycle', IF(Product.PRODUCT like '%racer%', 'Racer bicycle', IF(Product.PRODUCT like '%speed%', 'Speed bicycle', 'Other bicycle'))))

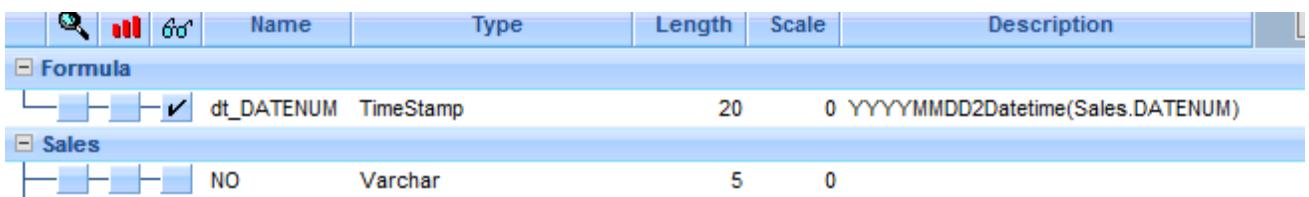
2.26. Using Conversions commands on Fields

Conversion commands are available in the context menu of a field, and allow you to automatically create a formula converting the field value.

1. Create a query on the Sales table.
2. Select the DATENUM field, right-click and select the **YYYYMMDD to Datetime** command:



3. The **dt_DATENUM** formula is automatically created:





The following table shows provided conversion commands depending on the field type:
(YYYY = year on 4 digits; MM = month on 2 digits; DD = day on 2 digits; WW: week number on 2 digits)

Field type	Conversion function	Sample
String	ToDecimal	'123.45' ⇒ 123.45 (the decimal separator is the one configured in the host database)
Numeric Length min	YYYYMMDD to Datetime*	20190327 ⇒ 3/27/2019
	Milliseconds to Datetime	3763207114584 ⇒ 4/2/2019 3:18PM (NTP Epoch, milliseconds since January, 1st 1900)
	Seconds to Datetime	3763266395 ⇒ 4/3/2019 7:46AM
	HHMMSS to Time**	114803 ⇒ 11:48:03
	HHMM to Time**	1148 ⇒ 11:48
	YYYYWW to Datetime*	201913 ⇒ 3/24/2019
Date Time Timestamp	Date to Day of the Month	03/27/2019 ⇒ 27
	Date to Day of the Week Number	03/27/2019 ⇒ 4 (depending on the first day of the week in the host database)
	Date to Day of the Week Name	03/27/2019 ⇒ Wednesday
	Date to Day of the Year	03/27/2019 ⇒ 86
	Date to Month Number	03/27/2019 ⇒ 3
	Date to Month Name	03/27/2019 ⇒ March
	Date to Year	03/27/2019 ⇒ 2019
	Date to Week	03/27/2019 ⇒ 13
	Date to Quarter	03/27/2019 ⇒ 1
	Date to First Day of the Month	03/27/2019 ⇒ 3/1/2019

*: YYYY = year on 4 digits, MM = month on 2 digits, DD = day on 2 digits and WW: week number on 2 digits.

** : HH = hour on 2 digits, MM = minutes on 2 digits and SS = seconds on 2 digits.

Note: Some conversion functions may not be available depending on the host database.
In BAI version 19, they are provided for SQL Server and AS400.

2.27. Using Dynamic Criteria with Parameters

Click&DECiDE Builder enables you to customize a query using parameters instead of fixed criteria. This saves you from having to modify the criteria each time to obtain a different result. Each criterion can be associated with a value, a list of values, an input, an input list and so on. The user can enter or select the required values when running the query. Two steps are required to use parameters: defining a parameter and assigning a parameter.


2.27.1. Defining a Parameter

A parameter can be defined at the project level, or at the query level. A project parameter can be modified in one place instead of in several queries. The method of defining parameters is the same in both cases. Please follow the steps below to define a parameter. Note the **Query Parameters** dialog box enables you to create, define, modify or remove any parameters.



2.27.2. Selecting an Existing Query Parameter

To select an existing query parameter, please follow the steps below.



1. Select **Query> Parameters** or click the  **Query Parameters** icon, the **Query Parameters** dialog box appears.
2. Click the **Name** text box to display the drop-down list to select an existing parameter.
3. Select an existing parameter from the **Name** drop-down list.

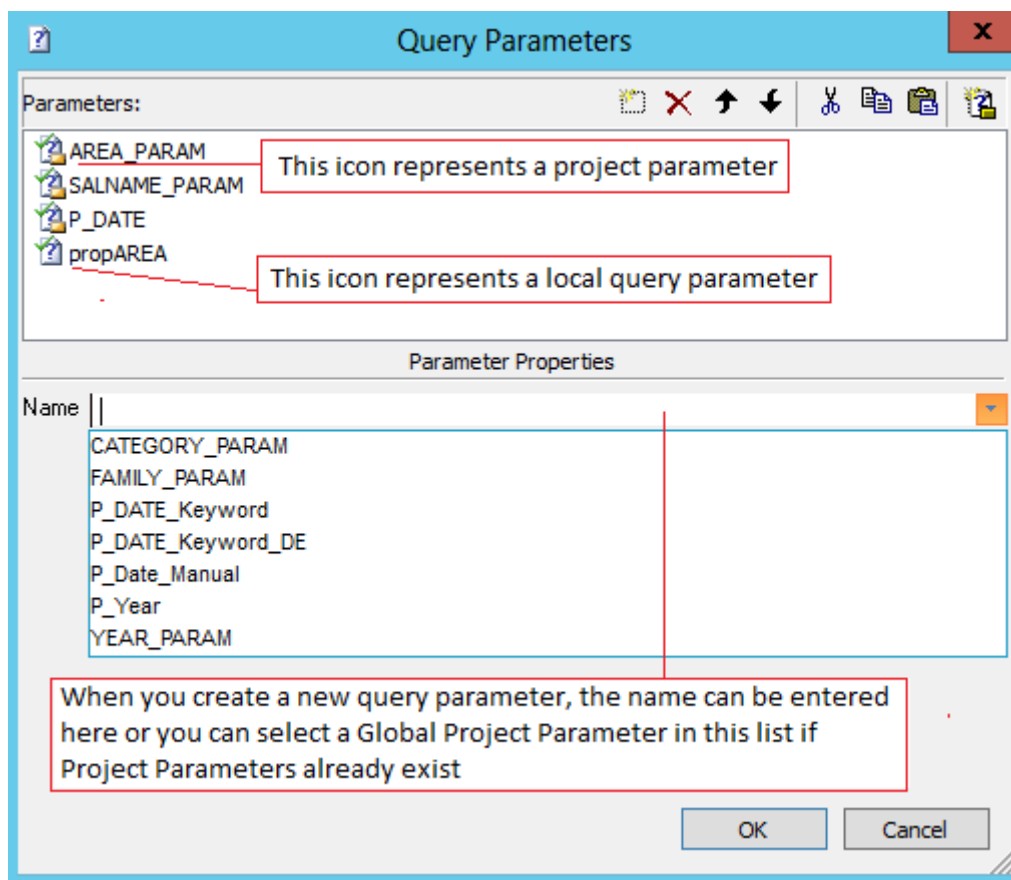
Note: the icon is not the same for a Local Query Parameter and a Project Parameter.

Important: a Project Parameter can only be modified from the **Project Parameter** dialog box not from the **Query Parameters** dialog box.

2.27.3. Creating a New Query Parameter

To create a new query parameter, please follow the steps below.

1. Select **Query> Parameters** or click the  **Query Parameters** icon, the **Query Parameters** dialog box appears.
2. Either create a new parameter:
 - a. If no parameters exist:
Enter a name in the **Name** text box.
Press **Enter**.
 - b. If parameters already exist:
Click the  **New** icon
Enter a name in the **Name** text box.
Press **Enter**.



3. Create a new query using the Sales and Salesman tables.




4. Select the Area, Salname, Date and Total fields.
5. Click the **Parameter** icon. In this example we are going to create the P_AREA parameter.

Parameter Properties	
Name	P_AREA
Type	String
Status	Enable
Update Method	Input
Title	Enter the Area:
Mandatory	No
Default Value	IGNORE
Multi Value	Yes

6. Specify the **Type** according to the field type (String, Numeric, Date, Time or Timestamp).
7. Select the **Status**. The **Status** is set to **Enable** by default. You can switch to **Disable** if the parameter is not used anymore but you want to keep it in the **Query Parameters** dialog box for use at a later date.
8. Select an **Update Method** (default is undefined) among Value(s), Input, Input List, Input Query List, Formula, Query or User Property. Please see the next section for more details.

Note: some **Update Methods** will display an option concerning the number of values that can be used in a parameter:

- **Multi-value:** **Yes** if you accept several values to be entered separated by a semicolon, **No:** if the value must be unique.
- **Selection:** select Single or Extended selection mode depending on if the user can select only one or more than one value.

9. Customize the **Title** with the text to be displayed at the query's runtime.
10. Specify the **Mandatory** option:
No: authorizes you to enter or modify the value by hand and authorizes the default value IGNORE (which is equivalent to selecting All Values).
Yes: avoids you having to modify the proposed value(s) by hand and forbids selecting IGNORE for this parameter.
11. Define the **Default Value(s)**. Enter the value(s) for the parameter without quotation marks. If more than one value is required, use the semicolon ";" as separator. The default value can be IGNORE if the **Mandatory** option is set to **No**.
12. Click the  icon in order to convert a query parameter into a new project parameter.

2.27.4. Working with Update Methods

It is possible to select from a range of different **Update Method** modes in the **Query Parameters** dialog box

Value: enter the default value for the parameter without quotation marks. If more than one value is required, use the semicolon ";" as separator. The user will not be prompted with a question when running the query. However, this value can be changed later when assigning a query result to the same parameter or when using the VBScript macro language.

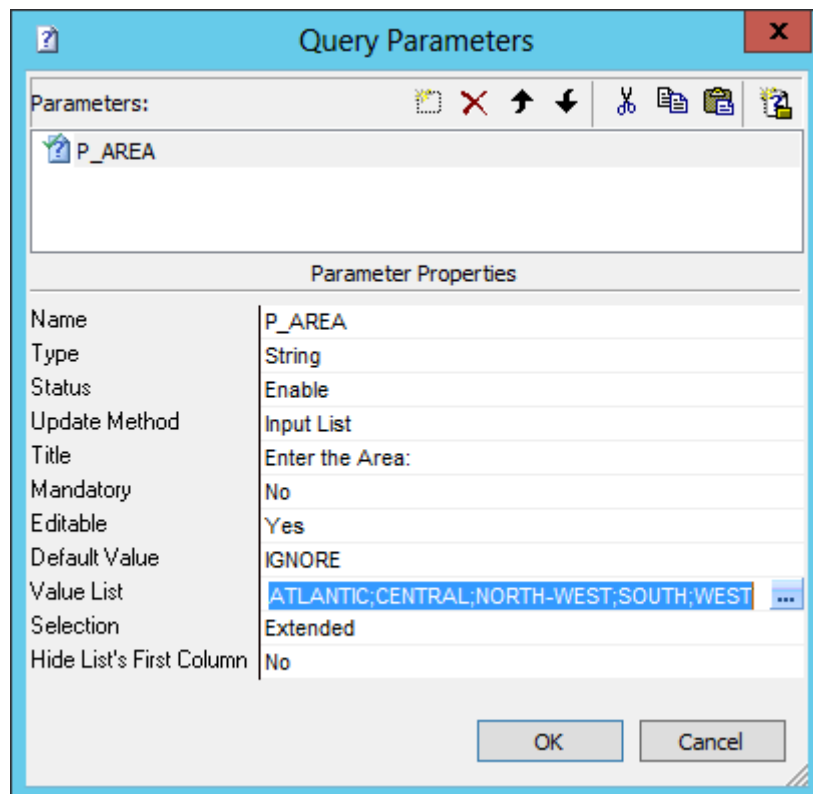


Input: the software will prompt the user with a question at run time. You can specify the **Title** to be displayed, the **Mandatory** option, the **Default Value** and if more than one value can be entered or not. If so, the user must separate each value with a semicolon “;”. When running the query you will be prompted to enter a value. Use a semicolon as a separator if **Multi-value** has been set to **Yes** and if you need the result for several values at the same time:



The image shows a 'Parameters' dialog box. It has a title bar with a question mark icon and standard window controls. Inside, there is a checked checkbox labeled 'Enter the Area:'. To its right is a text input field containing the text 'SOUTH;WEST'. Below the input field are two buttons: 'OK' and 'Cancel'.

Input List: the software will display a predefined list of values (values separated by a semicolon) or values from an ASCII List file previously created with Click&DECiDE Builder using the ASCII List output format. In this case, the first column must contain the field using the parameter as criteria. You can specify the **Title** to be displayed, the **Mandatory** option, the **Editable** option, the **Default Value**, the **Value List**, the **Selection** mode value and the **Hide List's First Column** option if you want to hide the first column that will be explained later in this document with an example:



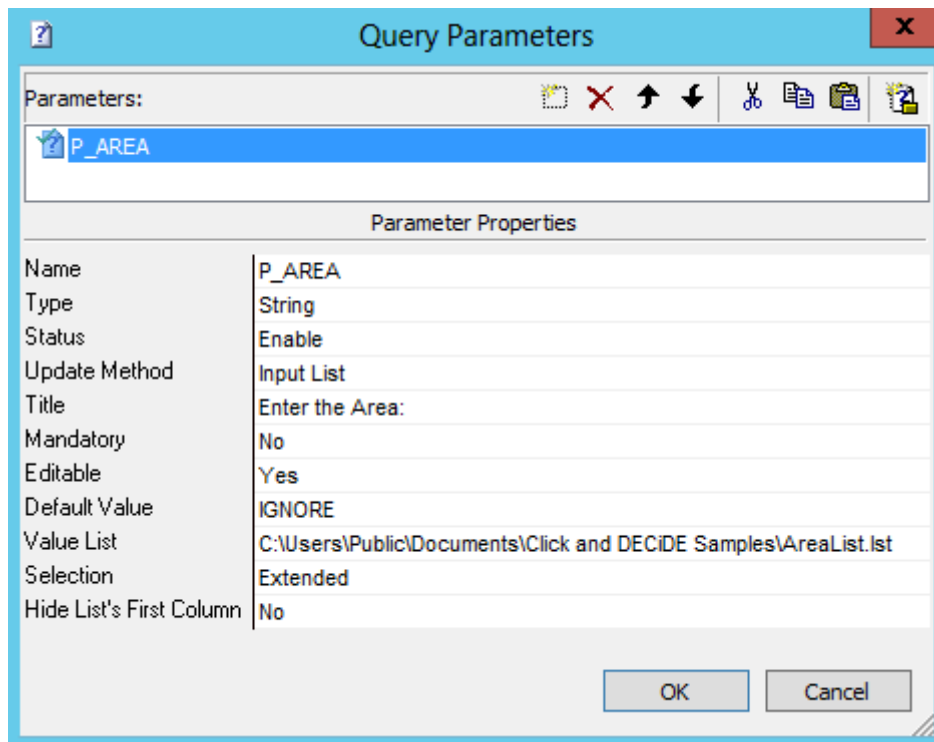
The image shows a 'Query Parameters' dialog box. It has a title bar with a question mark icon and standard window controls. Inside, there is a 'Parameters:' section with a list box containing 'P_AREA'. Below this is a 'Parameter Properties' section with a table of properties.

Parameter Properties	
Name	P_AREA
Type	String
Status	Enable
Update Method	Input List
Title	Enter the Area:
Mandatory	No
Editable	Yes
Default Value	IGNORE
Value List	ATLANTIC;CENTRAL;NORTH-WEST;SOUTH;WEST
Selection	Extended
Hide List's First Column	No

At the bottom of the dialog are 'OK' and 'Cancel' buttons.

2.27.5. Working with an ASCII File for the List of Values

The list of values can be an ASCII file created by Click&DECiDE Builder. If the file retrieves the area list that you need then you should set the following in the **Query Parameters** dialog box (please see the screen shot below).



Value List: the AreaList.lst file used in this example could be an ASCII file created by Click & DECIDE Builder or created manually with the ASCII List file format structure.

Note: each field must be between two straight quotation marks. If you need more than one field, use the comma, as a separator, as in the following example:

ASCII List File with One Field:

"ATLANTIC"
"CENTRAL"
"NORTH-WEST"
"SOUTH"
"WEST"

In the above example, the unique column will be applied to the parameter on the Area field.

ASCII List File with Two Fields:

"AK","Alaska"
"AL","Alabama"
"AR","Arkansas"
"AZ","Arizona"
"CA","California"
"CO","Colorado"


In the above example, only the information from the first column: State will be applied to a parameter on the State field. The second column with the State Name is only here to give more information to the user.

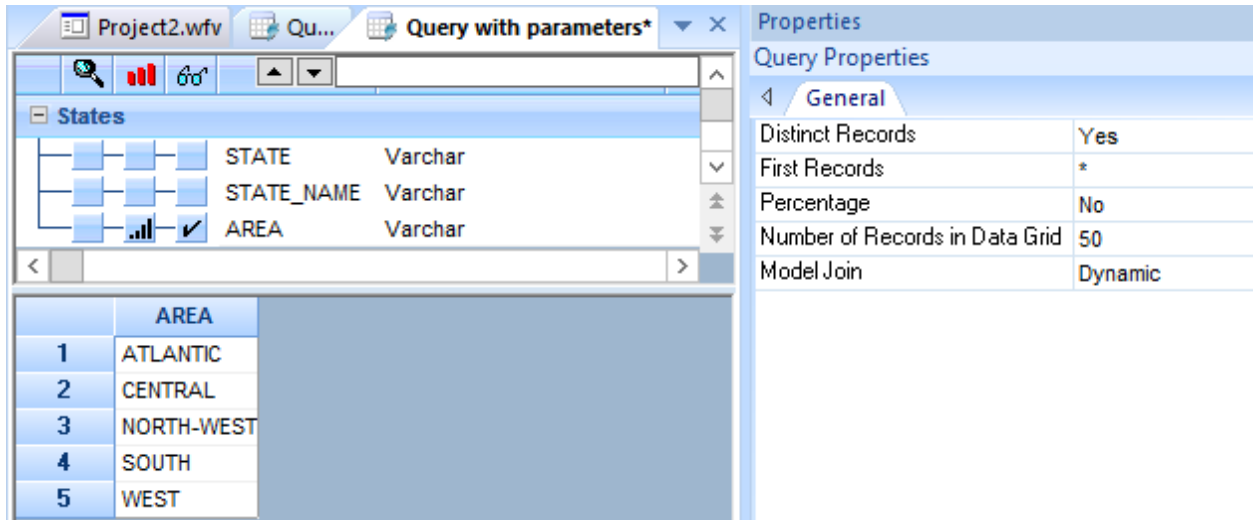
2.27.6. Creating the AreaList.lst File

To create the **area list.lst** file used in the example above, please follow the steps below.

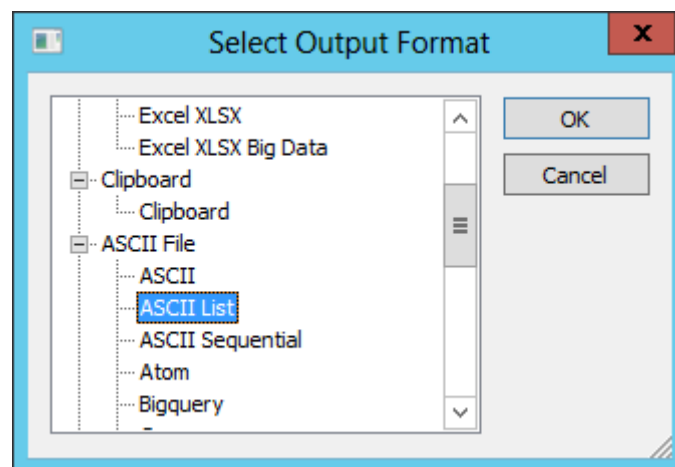
1. Click **File> Save As**.
2. Enter the following name for your query: **Query with parameters**.
3. Create a new query using the STATES table.
4. Select the AREA field.
5. Add an ascending sort condition.



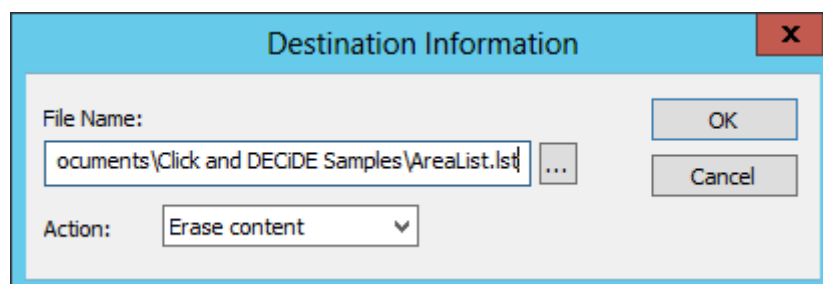
6. Click the  icon
7. Set the **Distinct Records** option to **Yes** in the **Query Properties** dialog box.
8. Click **Run** to run the query.
9. Select **File> Save As**.
10. Enter the following name for the new query: **area list**.



11. Select **File> Export**.



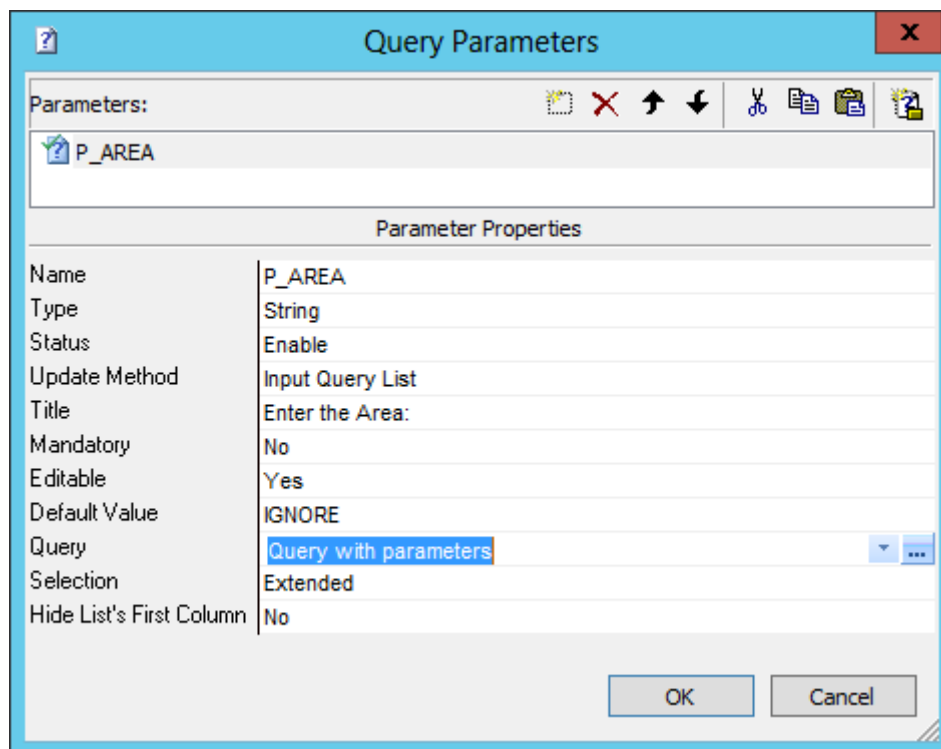
12. Select **ASCII List** in the **Select Output Format** dialog box.
13. Click **OK**.
14. Click ... Browse to select a destination directory and file name.



Note: if the file already exists, the **Action** drop-down list will propose **Erase file** or **Append**.



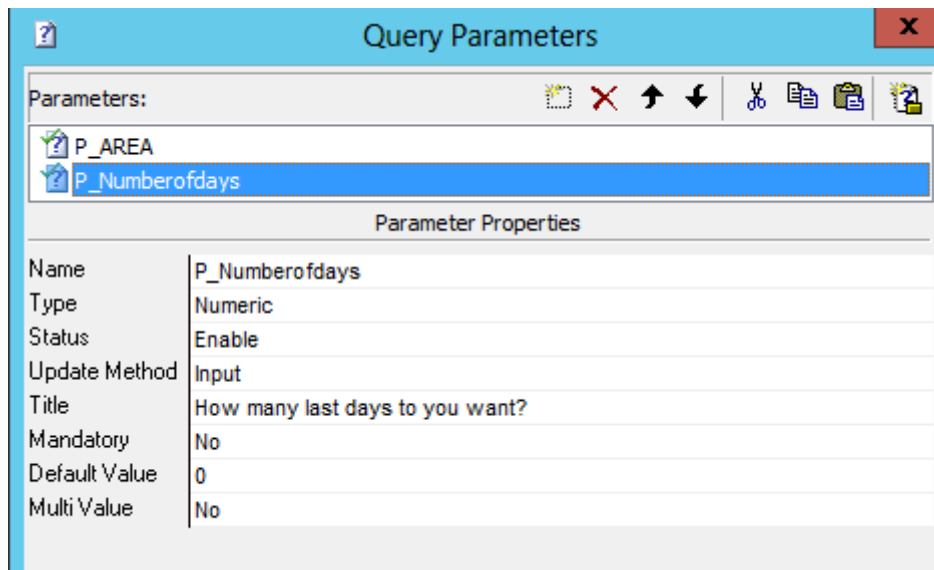
15. Click **OK** to create or update the file.
16. Go back to the **Query with parameters** query
17. Open the **Parameter** dialog box.
18. Select the P_AREA parameter.
19. Replace the list of values ATLANTIC, CENTRAL, NORTH-WEST, SOUTH, WEST with the ASCII List file: C:\Users\Public\Documents\Click and DECiDE Samples\AreaList.lst
20. Select **Input Query List** for the **Update Method**. A dialog box will be displayed: where the user can enter a value or click the **Search** button to get values in real time. The values are the result of another Click&DECiDE Builder query.
21. Specify the **Title** to be displayed;
22. Select **Yes** or **No** for the **Mandatory** option, the **Editable** option, the **Default Value**.
23. Click the ... button to create a dynamic query or click the down arrow to select an existing query. In this example we will select the area list query previously created.
Note: each time you run the query using the P_AREA parameter, the Area list will be displayed but this parameter will be a real time list of values.
24. Select the **Selection** mode.
25. Select **Yes** for the **Hide List's First Column** option explained later in this document.



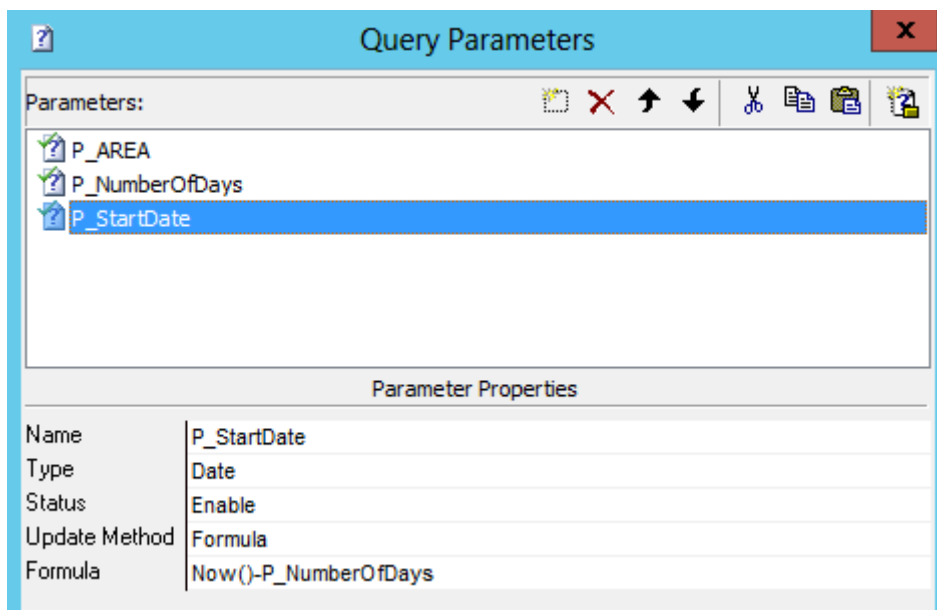
2.27.7. Updating a Parameter using a Formula

A parameter can be updated using a formula and depend on the value of another parameter. In this example we will be using the **P_Numberofdays** parameter. To update a parameter using a formula, please follow the steps below.

1. Define the Title you want to appear in the dialog box, to ask the user to enter a number of days to be used in the formula feeding the last parameter "P_StartDate".



2. Create a new **P_StartDate** parameter of type **Date**.
3. Note this will be updated with a formula using **P_NumberOfDays**:



4. Apply this new parameter to the **Date** field using, for example, the “greater or equal to” operator.
5. Click **OK**.



The Criteria dialog box is shown with the 'Where' tab selected. The 'Columns' dropdown is set to 'Sales.DATE', the 'Operators' dropdown is set to '>=', and the 'Value' field contains 'P_StartDate'. The 'Where' text box displays the resulting expression: 'Sales.DATE >= P_StartDate'. A 'Not' button is visible at the bottom right.

6. Note that when running the query, you will be prompted to enter a number of days and the Start Date will be calculated using the current date minus the number of days you specified. Note the example below for the last 7 days:

The Parameters dialog box is shown. The 'Select the Area(s):' checkbox is unchecked, and the 'How many last days do you want?' checkbox is checked. The text box next to the checked checkbox contains the value '7'. The 'IGNORE' dropdown is also visible. 'OK' and 'Cancel' buttons are at the bottom right.

2.27.8. Updating a Parameter with the Result of a Query Column

A parameter can be updated by the result of a query column. For example a query can return a column and a row displaying whether a table is empty or not. If the parameter contains zero or NULL, there is no data; if the parameter contains a positive value, the table contains data. This parameter can be used later in a report to validate if the report must be run or not inside a Report book. Please refer to the section concerning **Run Conditions** in this document.

2.27.9. Assigning a Parameter to a Field

Once you have created one or several parameters, you must assign each parameter to the required field in the **Criteria** dialog box. If you forget this step, the parameter value will be prompted to the user but nothing will be applied to the field.

To assign a parameter to a field, please follow the steps below.

1. Open the **Criteria** dialog box.
2. Select the required field.
3. Select the appropriate operator according to the values that the parameter will provide.
4. Select the **Expression** tab.



5. Either
 - a. Enter the parameter name.

Criteria

Columns: Salesman.AREA

Operators: =

Value: P_AREA

Where:

Sales.DATE >= P_StartDate

and

Salesman.AREA = P_AREA

Not, Combine, Uncombine

- b. Or click the **Browse** button.
Select the **Parameter** tab.
Double-click the parameter.

Quick Expression

Fields, Functions, Parameters

Parameters:

P_AREA, P_NumberOfDays, P_StartDate

Description:

Expression:

P_AREA

Next Variable, (), +, -, x, /

OK, Cancel

6. Click **OK**.
7. Click **OK**.
Note: you can access the **Parameters** dialog box directly from the **Criteria** dialog box using the **Parameters** button.

2.27.10. Assigning a Value to a Parameter

It is also possible to assign the result of a column to a parameter. The result can be the first value, the last value or the sum of the values. A typical example of this feature is if you want to feed some parameters with a result that can be zero or a positive value. The parameter could for example be a default value equal to 1, but



a query can change this value with the result of a column. At a later date, a report could use this parameter value to be run or be ignored. To assign a value to a parameter, please follow the steps below.

1. Create a first query on the SALES table.
2. Create a new parameter named **PDataExist**.
3. Select the **Type** as **Numeric**.
4. Select the **Update Method** as **Value(s)**.
5. Select the **Value(s)** as 1. The default value is equal to 1.

The screenshot shows the 'Query Parameters' dialog box. The 'Parameters:' list contains 'PDataExist'. The 'Parameter Properties' table is as follows:

Name	PDataExist
Type	Numeric
Status	Enable
Update Method	Value(s)
Value(s)	1

6. Add a parameter on the **Date** field. To enable you to easily run the query for the existing year to get data or without a year to get no data.

The screenshot shows the 'Query Parameters' dialog box with two parameters: 'PDataExist' and 'P_DATE'. 'P_DATE' is selected. The 'Parameter Properties' table is as follows:

Name	P_DATE
Type	Timestamp
Status	Enable
Update Method	Input
Title	Choose value for Sales.DATE
Mandatory	No
Default Value	IGNORE
Multi Value	Yes

7. Select SUM(Total).
8. Insert a Count(*). This will mean that when you run the query for the year 2018, for example, you get a positive result for the Count(*) field.



	Name	Type
Formula		
<input checked="" type="checkbox"/>	COUNT(*)	Float
Sales		
<input type="checkbox"/>	NO	Varchar
<input type="checkbox"/>	CUST	SmallInt
<input type="checkbox"/>	SAL	SmallInt
<input type="checkbox"/>	DATE	TimeStamp
<input type="checkbox"/>	DATENUM	Pack
<input type="checkbox"/>	TOTAL	Float
<input checked="" type="checkbox"/>	SUM(TOTAL)	Float

	Sum_TOTAL	Count
1	\$18,777,074.36	106

For example, for a year such as 2015 zero will be returned. It is now possible to assign the result of the Count(*) or the Sum(Total) columns to the **PDataExist** parameter previously created.

	Sum_TOTAL	Count
1		0

9. Select the **Count** column.
10. Display the **Properties**.
11. Click the right arrow in the **Assigned Parameter** text box.
12. Select the **PDataExist** parameter.

	Name	Type	Length
Formula			
<input checked="" type="checkbox"/>	COUNT(*)	Float	1
Sales			
<input type="checkbox"/>	NO	Varchar	
<input type="checkbox"/>	CUST	SmallInt	
<input type="checkbox"/>	SAL	SmallInt	
<input type="checkbox"/>	DATE	TimeStamp	
<input type="checkbox"/>	DATEN	Integer	
<input type="checkbox"/>	TOTAL	Float	
<input checked="" type="checkbox"/>	SUM(TOTAL)	Float	1

	Sum_TOTAL	Count
1		0

Selected Field Properties

General

Format:

Decimal Places: Auto

Header: Count

Assigned Parameter: PDataExist

Assigned Value: PDataExist

ASCII Output Length: P_DATE

13. Select the **Assigned Value**.
Note: the default value **First Record** is proposed, select one of the three options: **First Record**, **Last Record** or **Sum of Records**. In our example each result will be the same because we only get one row. However, in the case of a query returning several records, you need to select the appropriate **Assigned Value** for the condition you need.



Selected Field Properties	
General	
Format	
Decimal Places	Auto
Header	Count
Assigned Parameter	PDataExist
Assigned Value	Sum of Records
ASCII Output Length	

14. Click **Run** to run the query, the **PDataExist** parameter, defined with a default value equal to 1, will take the result of the **Count** column, for example 104 for the year current year or 0 for the last year.

Please see the Report section in this document for more information about how to use the value of this parameter to run the report only if this value is positive.

2.27.11. Updating a Parameter with a User Property or User Group Property

A User or User Group Property is defined in Administration Manager by the Administrator and allows to define one or several values that must be used in the Click&DECiDE Builder queries criteria for predefined Users and/or User Groups. (Refer to the **Click & DECiDE Administration Manager User Guide** for more information about how to create a Property).

On the Click&DECiDE Builder queries criteria side, the method is the following:

- 1- In the Query, open the Parameter Dialog Box
- 2- Add a new Parameter
- 3- Select the **Type** as required by the Property Type.
- 4- Select the **User Property** as **Update Method**.
- 5- Define **Mandatory** to Yes or **No** (Default value is No: if the Property is empty or doesn't exist, the IGNORE value will be applied).
- 6- Select the right arrow in the **Parameter** box to display the existing Property retrieved from the Administration Manager or enter manually the name of the Property you will have to create in Administration Manager. In the example below, propAREA is the Property name.

Parameter Properties	
Name	ParamProperty
Type	String
Status	Enable
Update Method	User Property
Mandatory	No
Parameter	propAREA

Note: User Property parameters are available only when the datasource of the query is secured.

- 7- Click **OK**



- 8- In the criteria dialog box, add the criteria for the concerned field as equal to this new parameter **ParamProperty** in the Expression Tab:

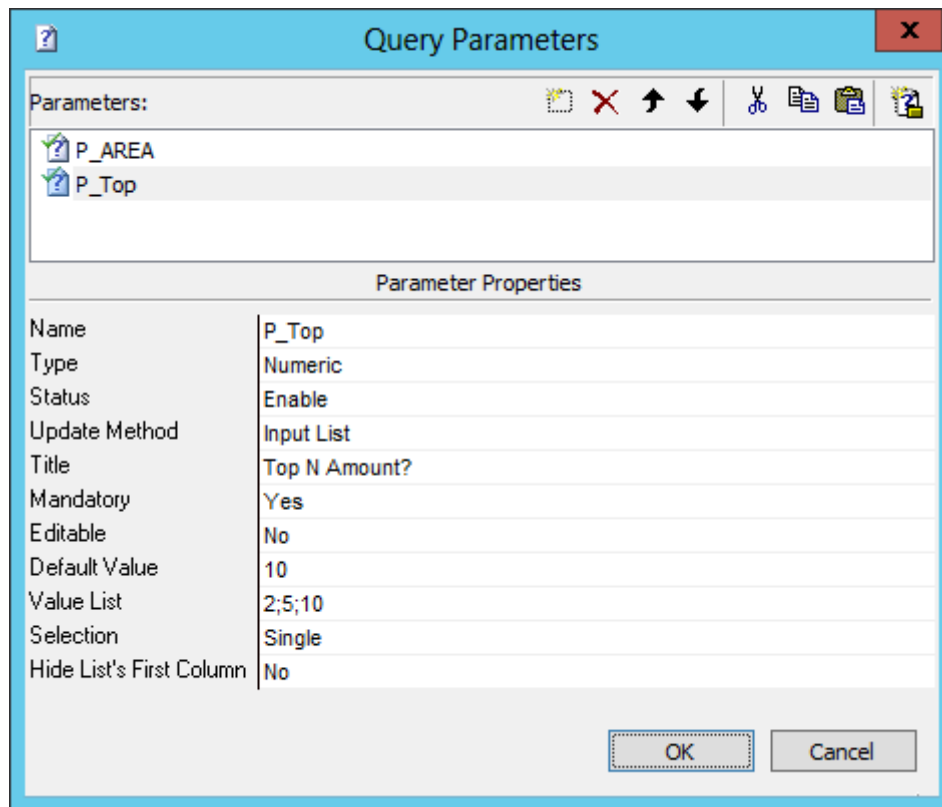
- 9- Click **OK**
10- Save the query.

2.28. Using Dynamic Top with Parameters

Note: refer to the section explaining how to define a [Top value](#) for a query.

To use a dynamic Top value via a parameter, please follow the steps below.

1. Create a new parameter, for example P_Top.
2. Select the **Numeric Type**.
3. Select **Input List** as **Updated Method**.
4. Select **Single Value Selection**.
5. Enter the default value you need (IGNORE or a numeric value).
6. Enter the list of values you want to be proposed.
7. Set the **Mandatory** option to **Yes** and the **Editable** option to **No** if you want to avoid the IGNORE value. The user will then have to use one of the proposed values, which will limit the data requested from the data source.

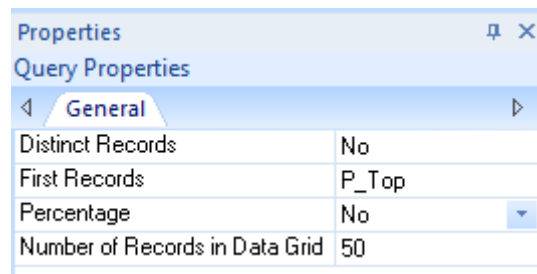



The 'Query Parameters' dialog box shows a list of parameters: P_AREA and P_Top. The 'Parameter Properties' section for P_Top is detailed below:

Property	Value
Name	P_Top
Type	Numeric
Status	Enable
Update Method	Input List
Title	Top N Amount?
Mandatory	Yes
Editable	No
Default Value	10
Value List	2;5;10
Selection	Single
Hide List's First Column	No

Buttons: OK, Cancel

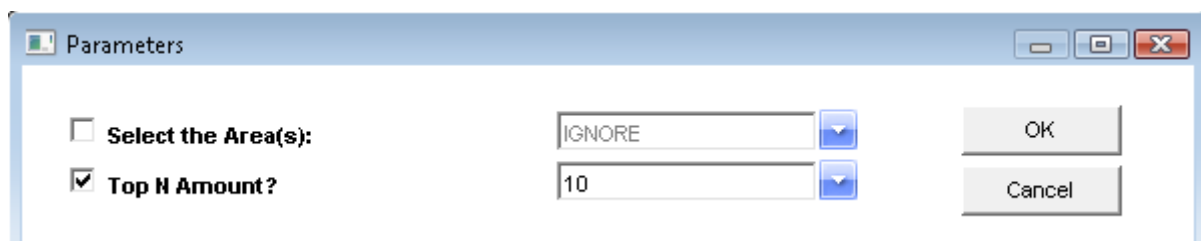
8. Copy the Parameter Name, in this example P_Top, to the clipboard.
9. Click **OK**.
10. Close the **Parameter** dialog box.
11. Open the **Query Properties**.
12. Paste the Parameter Name in the **First Records** text box.



The 'Query Properties' dialog box, 'General' tab, shows the following settings:

Distinct Records	No
First Records	P_Top
Percentage	No
Number of Records in Data Grid	50

13. Click **Run** to run the query.
14. Select the required value for the **Top** function.



The 'Parameters' dialog box shows the following settings:

<input type="checkbox"/> Select the Area(s):	IGNORE	OK
<input checked="" type="checkbox"/> Top N Amount?	10	Cancel



Note: if **Number of Records in Data Grid** is set to 50 and you ask for a **Top N Amount** = 100, only 50 records will be returned in the data grid, but up to 100 records will be returned in any other output format, when printing the query or the report based on this query, or when running the cross-table based on this query.

2.29. Using Parameters in Native Joins

You can use parameters in the native FROM clause with the following syntax:

```
{d7p <parameter name>}
```

In the following sample, in the first join conditions, the **Category.FAMILY** field must be equal to the value of the **P_FAMILY** parameter:

PRODUCT	NO	PRICE	QTY	DISCOUNT	CATEGORY_CODE	CATEGORY_NAME	FAMILY
PRODUCT	Va	PRODREF	Varchar		CATEGORY_CODE	Va	
CATEGORY_CODE	Int	PRICE	Float		FAMILY	Va	
		QTY	SmallInt				
		DISCOUNT	Float				

```
FROM DataSetReport.demo.Product Product
INNER JOIN DataSetReport.demo.Category Category ON (Category.CATEGORY_CODE = Product.CATEGORY_CODE
AND (Category.FAMILY = {d7p P_FAMILY} OR Category.CATEGORY_CODE < 8))
INNER JOIN DataSetReport.demo.Sales_Details Sales_Details ON Product.PRODREF = Sales_Details.PRODREF
```

Tables Query SQL

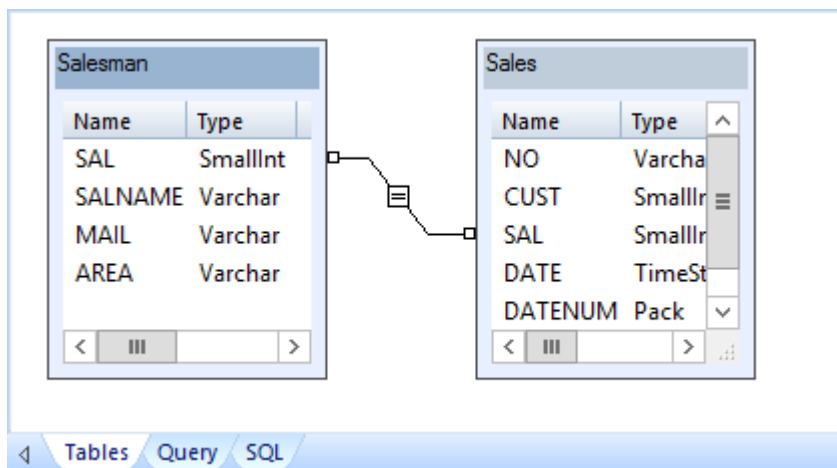
Note: Parameters used in native FROM clause must be configured as mandatory (IGNORE value is not supported).

2.30. Using Formula in Column Header

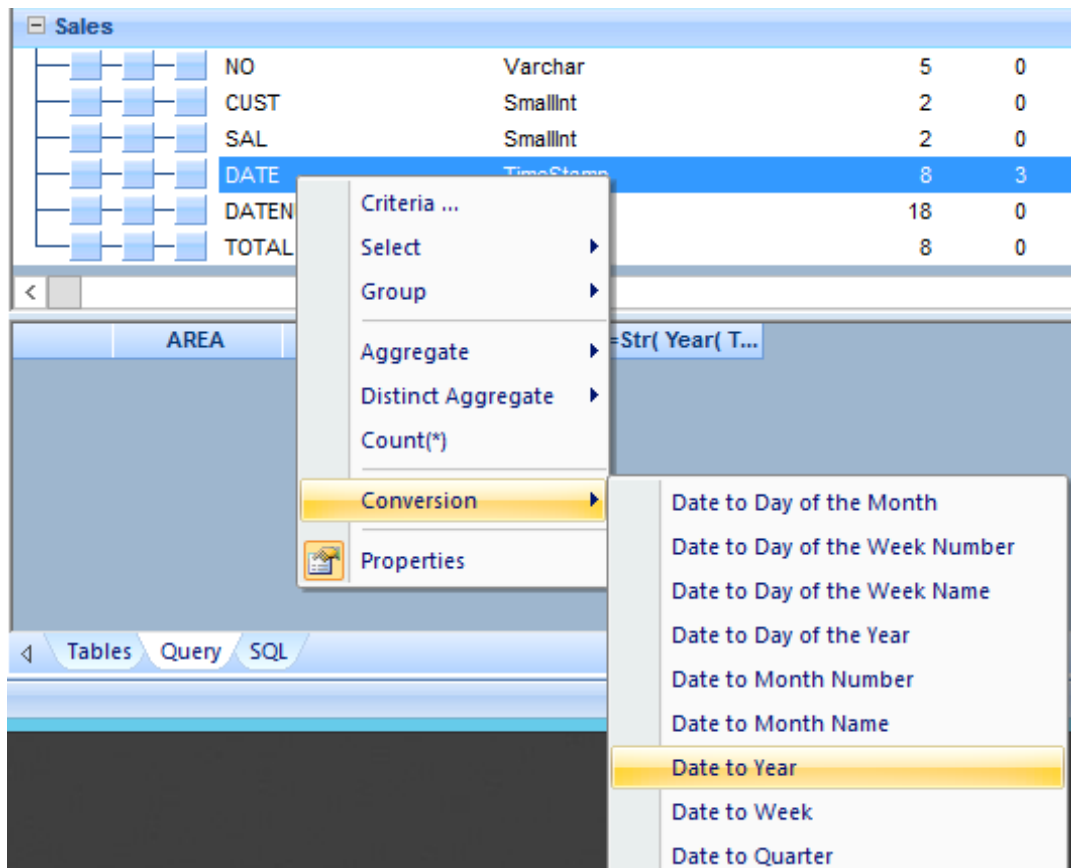
You can use formula for defining a dynamic column header.

Exercise: In this exercise, we are going to create a query in order to get the total amount by area and by salesman for the current year and the last year. The header of these

1. Create a query from the SALESMAN and SALES tables, with a join on the SAL field.



2. Select the fields AREA and SALNAME.
3. Select the DATE field in the Sales table, right-click and select the **Date to Year** conversion command in order to create the new virtual field DATE_year containing the year of sale.



4. Create the new numeric virtual field Amount_CurrentYear and containing the Total if the sale has been done this year:

Formula Editor

Field Description

Name: Type: Length: Scale:

Comment:

☒ Data Source Formula
☐ Click and DECIDE Formula

5. In the same way, create the new numeric virtual field Amount_LastYear containing the Total if the sale has been done last year:



Formula Editor

Field Description

Name: Type: Length: Scale:

Comment:

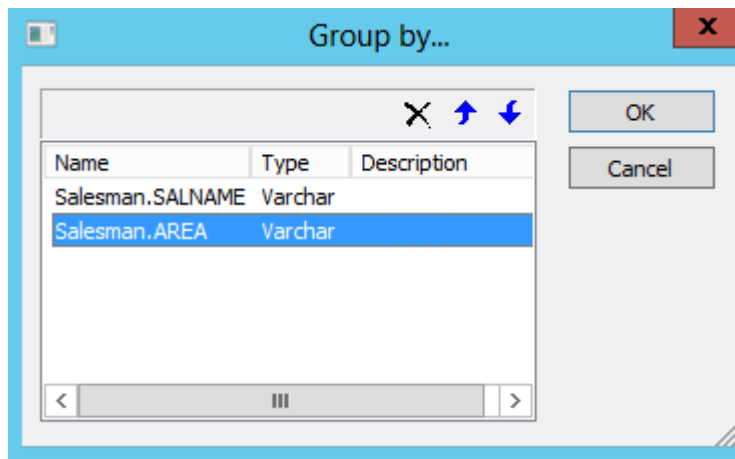
☒ Data Source Formula
☐ Click and DECIDE Formula

IF(DATE_year = Year(CurrentTimeStamp()) -1, Sales.TOTAL, 0)

6. Select the Amount_CurrentYear field, right-click and select **Aggregate > Sum**:

Name	Type	Length	Scale
DATE_year	Char	4	0
Amount_C	Numeric	20	0
Amount_L	Numeric	20	0
SAL	Char	2	0
SALNAME	Char	15	0
MAIL	Char	30	0
AREA	Char	10	0
NO	Char	5	0
CUST	Char	2	0
SAL	Char	2	0
DATE	Char	2	0
DATENUM	Char	2	0
TOTAL	Char	2	0

7. Select the Amount_LastYear field, right-click and select **Aggregate > Sum**.
8. Click on **Query > Group By...** and check in the **Group By...** dialog that only the fields AREA and SALNAME are grouped (remove the other fields in the list if needed):

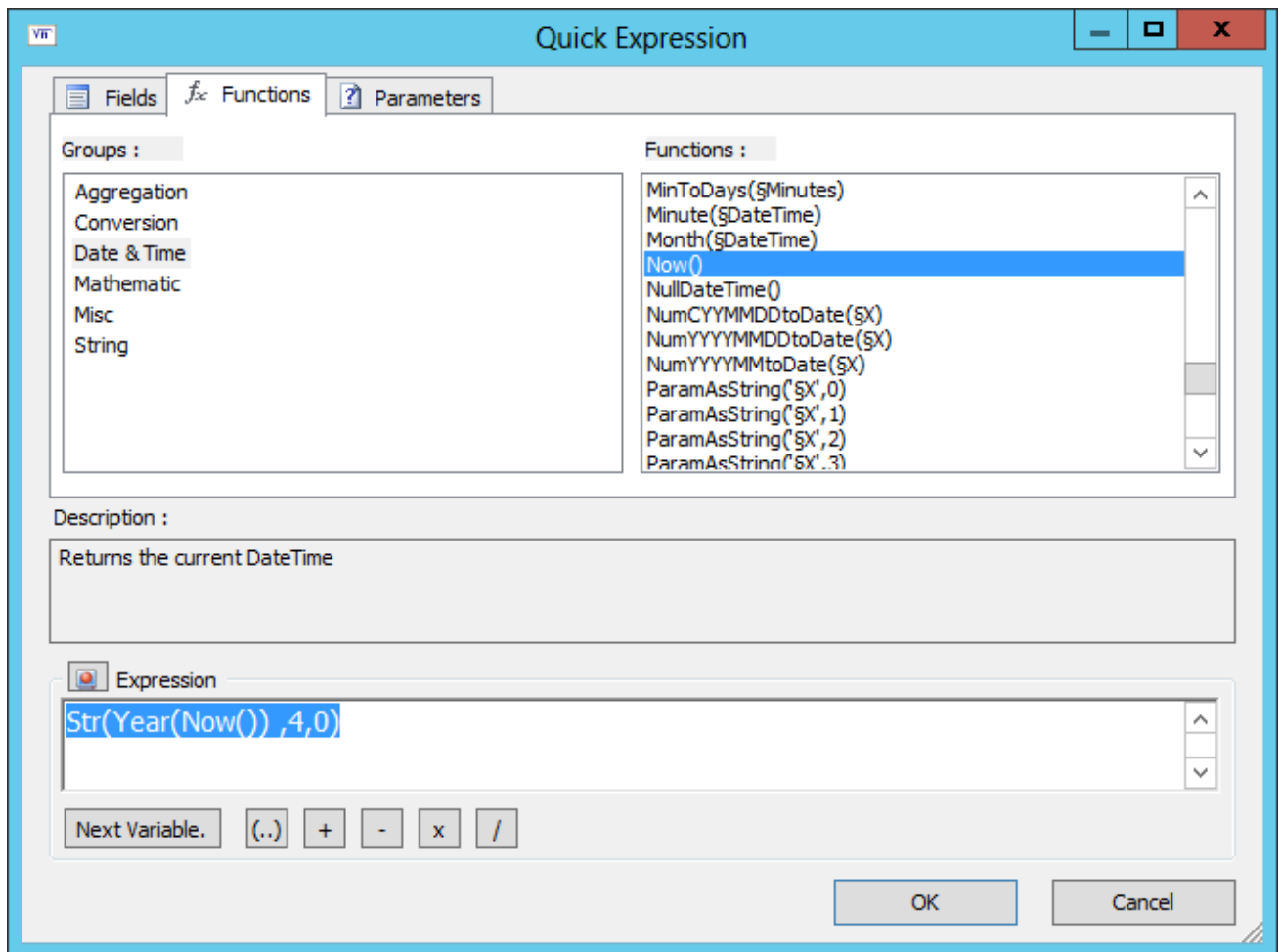


9. Replace the default column header for the Sum_Amount_CurrentYear field with a formula returning the current year:

Area	SALNAME	Sum_Amount_CurrentYear	Sum_Amount_LastYear

General

Format	Number
Decimal Places	Auto
Header	Sum_Amount_CurrentYear
Assigned Parameter	
Assigned Value	
ASCII Output Length	
Description	
Header Group (Excel)	



Note: You cannot use query fields in formula defining a column header.

10. Replace the default column header for the Sum_Amount_LastYear field with a formula returning the current year: `Str(Year(Now())-1,4,0)`
11. Run the query for displaying sales grouped by area and salesman, with Total summed for this year and last year. Column headers to total sums are dynamically calculated:

	AREA	SALNAME	2019	2018
1	ATLANTIC	Diane Meyer	809 028,71 €	1 117 395,96 €
2	ATLANTIC	Karen Walker	349 603,38 €	65 860,00 €
3	ATLANTIC	Tim Rosenberg	73 173,00 €	240 590,29 €
4	CENTRAL	James Smith	2 515 405,81 €	260 713,50 €
5	CENTRAL	John Brown	60 028,75 €	666 119,22 €
6	CENTRAL	Wanda Sanders	463 290,50 €	557 420,15 €
7	NORTH-WEST	Bill Raley	1 946 734,41 €	980 617,40 €
8	NORTH-WEST	Joe Kramer	302 905,50 €	2 468 565,04 €

2.31. Using an Advanced Query Function: UNION Statement

Another way of getting a result from two or more tables without needing to create a join condition is to use the UNION statement between two or more queries.

Important: to use the UNION statement you must respect the following rules



- The number of fields in each query must be the same.
- The field type in the same column must be the same (character with character, numeric with numeric and so on).
- The main query can have sorted fields and/or virtual fields.
- The called queries cannot have sorted fields or virtual fields.

Note: by default the UNION will apply a DISTINCT statement to the result (unless you apply a UNION ALL).

Note: an ascending sort is performed by default on the first left field unless you apply another sort condition in the main query.

2.31.1. Inserting a UNION

To use a UNION statement, please perform the steps below.

1. Create a single query on the SALESMAN table.
2. Selecting from left to right the following fields SAL, SALNAME and AREA.
3. Apply a sort to the SALNAME field.
4. Select **Query> Union> Insert>**.
5. Create another single query on the CUSTOMER table.
6. Select a numeric field and two character fields because the first main query had these features. For example, select the fields CUST, CUSTNAME and CITY.
7. Modify the heading text in the main query for each column so that the new text applies to all the columns (please see the screen shot below).

Project1		Query				
		Name	Type	Length	Scale	Description
Salesman						
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SAL	SmallInt	2	0	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SALNAME	Varchar	15	0	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	AREA	Varchar	10	0	
	Code	Name	Area or City			
1	1022	Atlantic Mountains Bikes	Boston			
2	1001	Bicycle & Co	San Diego			
3	1019	Bike for Life	Hysteria			
4	1018	Bikes for Tykes	Bismarck			
5	1	Bill Raley	NORTH-WEST			
6	1013	Central Hut	Miami			
7	1011	City Sports	Redmond			
8	4	Diane Meyer	ATLANTIC			

Note: in the previous example the SALESMAN and CUSTOMER tables cannot be joined because no fields correspond in both tables. However, by using the UNION you can retrieve data from both tables.

Important: several UNION type statements exist even if they are not all supported by all databases. The most common are the UNION and UNION ALL statements. By default the UNION statement will apply a DISTINCT statement, eliminating duplicate records, and the UNION ALL statement will keep duplicate records if they exist.

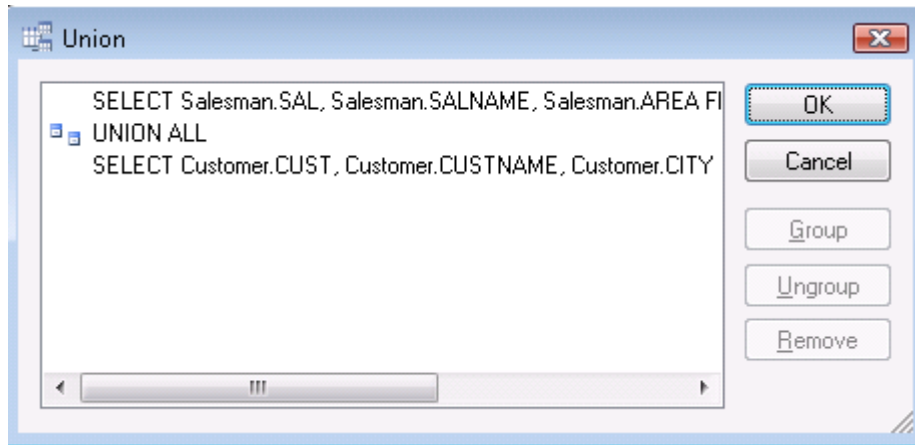
2.31.2. Changing the UNION Type

To change the UNION type, please follow the steps below.

1. Select **Query> Union> Edit>**.



- Click the UNION statement several times to display the other possibilities: UNION ALL, INTERSECT, INTERSECT ALL, MINUS, MINUS ALL.
- Note:** the MINUS statement is known under the word EXCEPT by some databases.
- Combine or ungroup several queries by adding parenthesis levels.

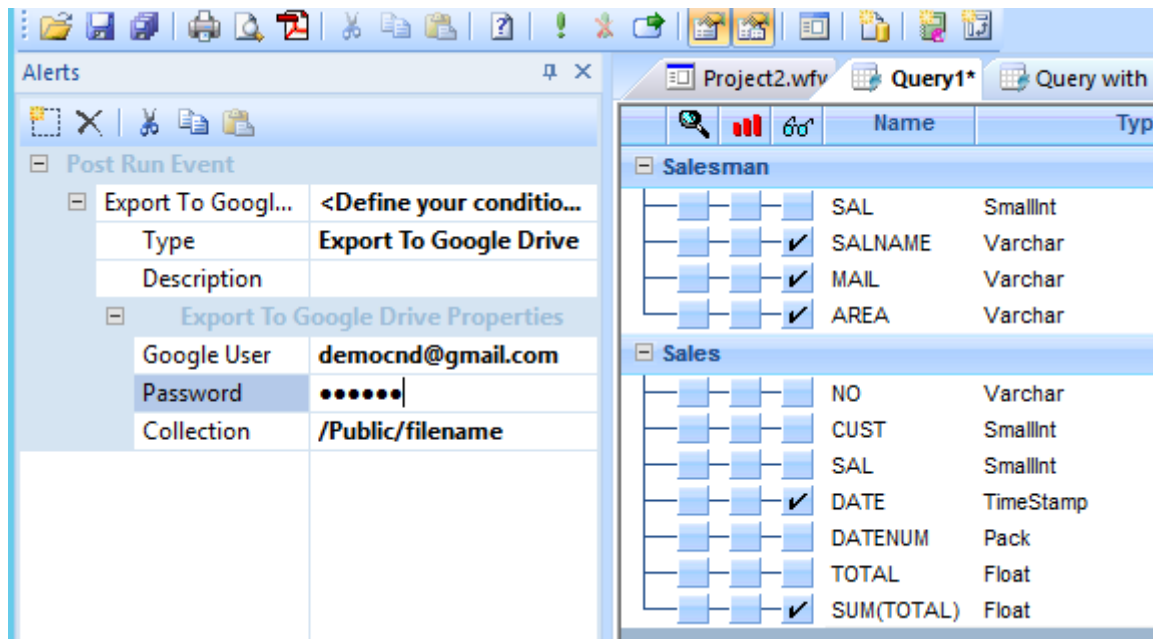


Please refer to the Online Help for more information, press **F1** in the **Union** dialog box. Example:

Query1	Query2	UNION ALL	UNION	MINUS ALL	MINUS	INTERSECT ALL	INTERSECT
1	1	1	1	1	2	1	1
1	1	1	2	2	5	1	3
1	3	1	3	2		3	4
2	3	1	4	2		4	
2	3	1	5	4			
2	3	2		5			
3	4	2					
4		2					
4		3					
5		3					
		3					
		3					
		3					
		4					
		4					
		4					
		5					

2.32. Creating Alert after running a Query

The Alerts are described in the ClicknDECiDE_BAI_Report_User_Guide.pdf but since Click&DECiDE version 12 you also can define an Alert in a Query or a Cross-table. This alert will be run once the query (or the Cross-table) has been run. To define a new Alert for a query, click the command View > Alerts to display the Alert Tab: The **Post Run Event** Alert will appear, ready to be defined:



Refer to the **ClicknDECiDE_BAI_Report_User_Guide.pdf** Manual for more details about how to configure all kinds of alerts.

2.33. Creating a Cross Table from a Query

To create a cross-table from a query, please follow the steps below.

1. Select **Query> Create Cross Table** or click the **Create Cross Table** icon to create a Cross Table.
2. Refer to the Click&DECiDE Cross Tables Manual.

2.34. Creating a Report from a Query

To create a report from a query, please follow the steps below.

1. Select **Query> Create Report** or click the **Create Report** icon to create a Report.
2. Refer to the Click&DECiDE Reports Manual.

2.35. Creating a Data Source's SQL from a Query

To create a data source's SQL from a query, please follow the steps below.

1. Select **Query> Create Data Source's SQL** or click the **Create Data Source's SQL** icon to create Native SQL.

Note: this command is reserved to Advanced User and is not explained in this Manual.

2.36. Modifying the Application's Look

To modify the look of your Click&DECiDE Builder, for example to change it from blue to grey, please follow the steps below.

1. Select **View> Application Look**.



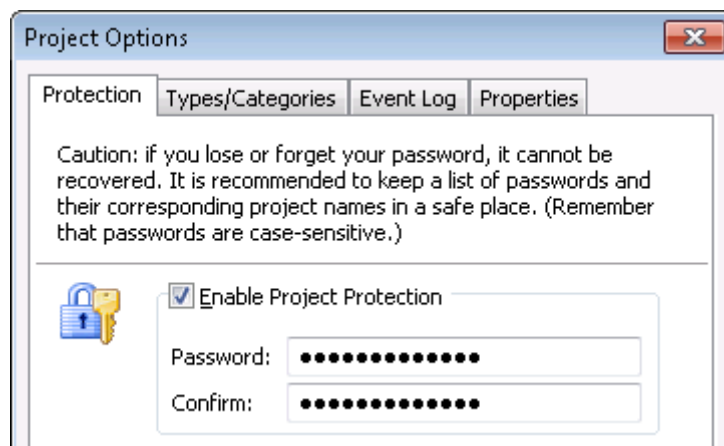
2. Select the Style you want. The selected look will also apply to other Click&DECiDE modules such as Administration Manager and Model and so on, according to the Edition you are using.

3. Working with Project Options

3.1. Defining Project Options

Once a project has been created or opened; it is possible to define specific options for it. To do so, please follow the steps below.

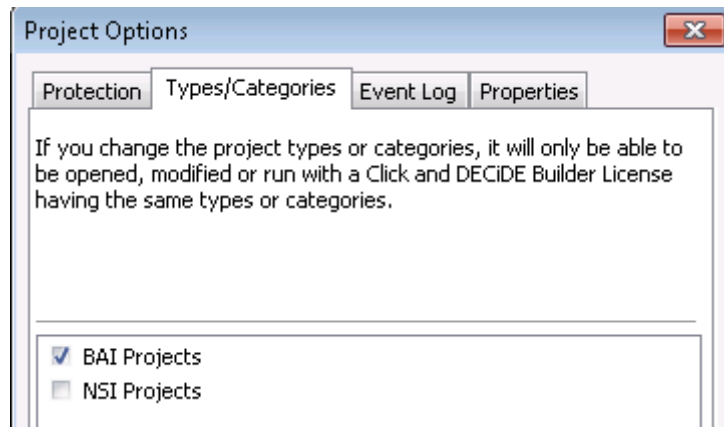
1. Select **Tools> Project Options**.
2. Select the **Enable Project Protection** check box to define a password for your project.
3. Enter the **Password** and confirm it





Note: if you want to remove a password later, clear the **Enable Project Protection** check box and click **OK** to confirm. The password will be deleted immediately.

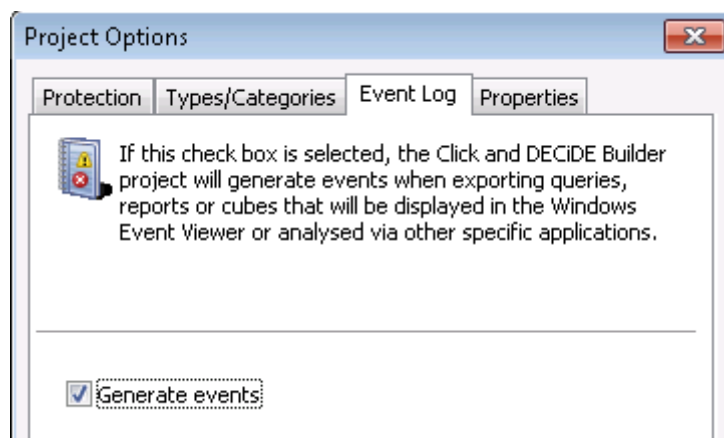
4. Click the **Types/Categories** tab.



The Types and/or categories displayed are depending on the Project file but also on your license type.

For example if your license is limited to BAI Type, you only can run, open or modify a Project containing at least this BAI Type. When you create yourself a new project file, you are prompted to specify which type or category you want to apply to this project file.

5. Click the **Event Log** tab.
6. Select the **Generate events** check box if you want events to be sent to the Event Viewer each time a query, report or cross-table is exported or printed.



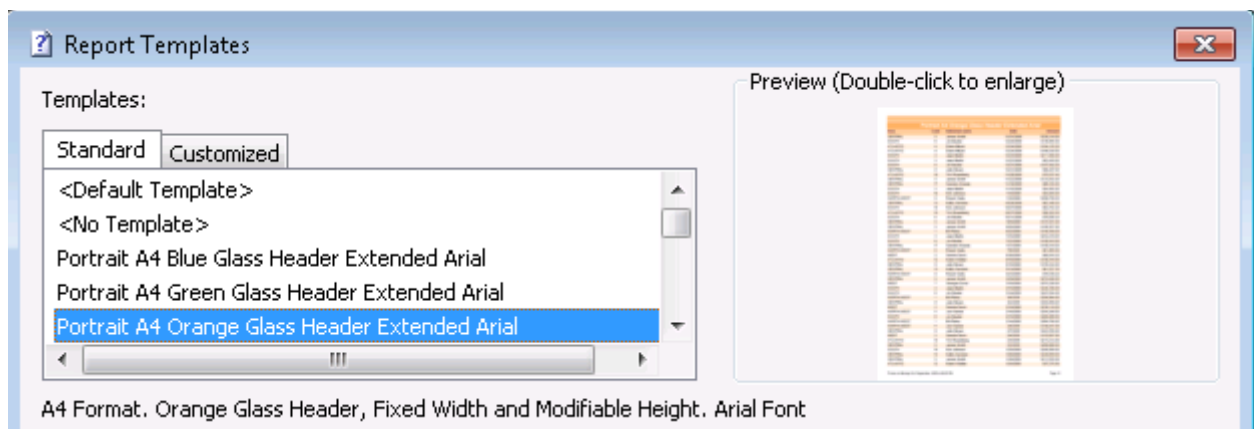
Note: this option is not related to the **Event Manager** tab described earlier in this document which is displayed when you select **Tools> Options** in Click&DECiDE Builder (only available in the Enterprise Edition).

7. Select the **Properties** tab.
8. Enter the **Name** you want to display for the project in the Web Portal. For example the project file name on the disk is "Sales Statistics Development.wfv" but the visible name in the Web Portal could be "Company Sales Statistics".

Note: the project properties will only be seen in the Web Portal when the project is visible by the users in a Shared Folder. Please refer to the section concerning the Web Portal further on in this document.

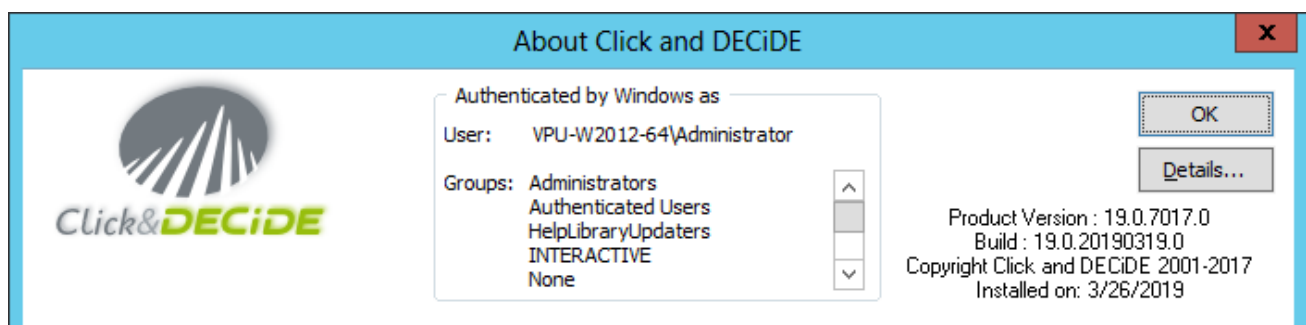


9. A default **Model (Report Template)** appears for this query. You can change it for another Report Template proposed by default with Builder or use a customized Report Template you have created with Builder. Refer to the "ClicknDECiDE_BAI_Report_User_Guide.pdf" for more information about the Report Templates.
10. Click the Browse button to select another Report Template (or specify "No Template"):



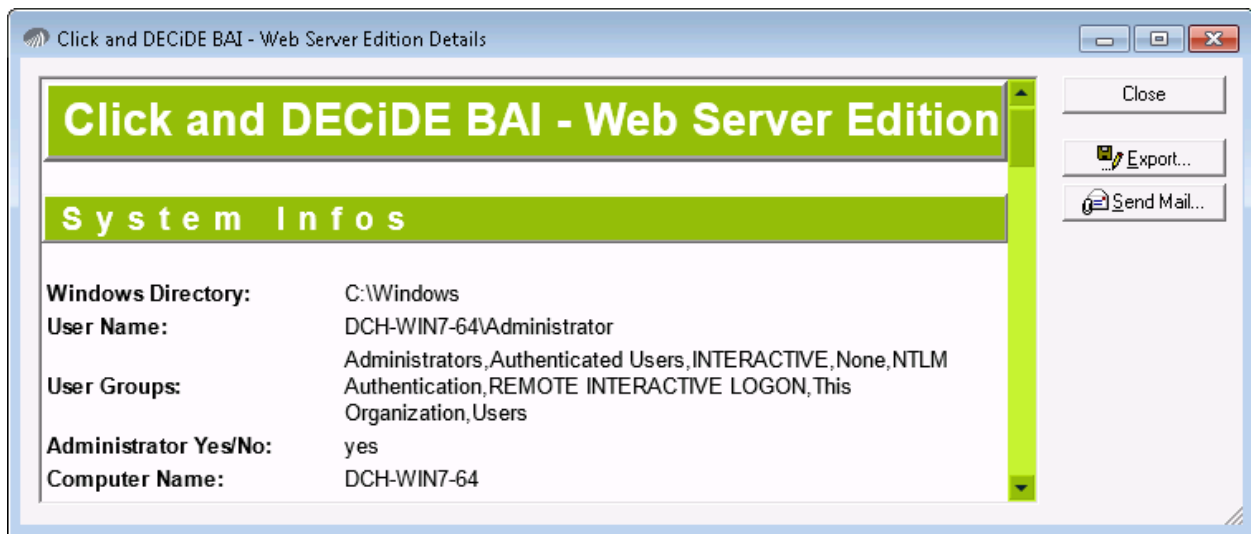
3.2. Using the About Click&DECiDE Command

When you select **Help> About Click&DECiDE** the **About Click and DECiDE** dialog box appears. This dialog box displays your current Click&DECiDE version, release and the build number. This can be useful for any support requests.



In the above example, the first row displays the version number 19.0 and the build number 7017. The second row displays the version number 19.0, the build date 20190319 and the release number 0.

If necessary, you may be asked by the Technical Support Team to click the **Details** button to get more information about installed components and your windows environment. You can also generate a file named **d7infos.d7i** that can be sent to your Support Provider if necessary (recommended).

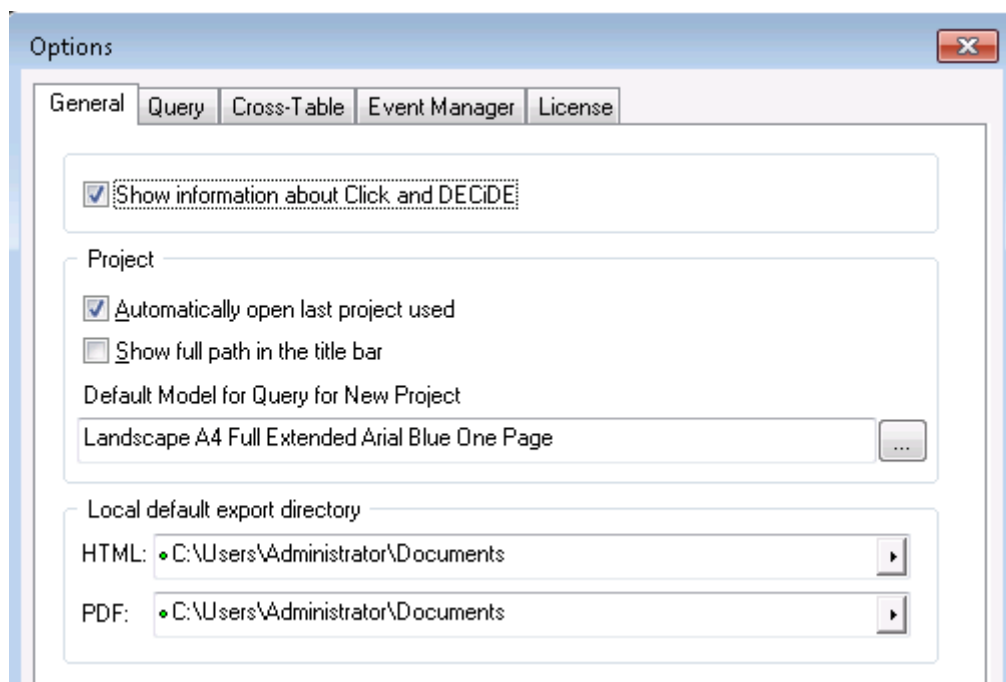


Click **Send Mail...** to automatically send the **d7infos.d7i** file to your support provider or click **Export...** to create and save the file so that you can send it later.

4. Working with the Tools Options Property Sheet

Once Click&DECiDE Builder is started, select **Tools>Options** to display the **Options** property sheet to customise default options.

4.1.1. Working with the General Tab



Show information about Click and DECiDE: displays information when starting the program and checks if a new version is available.

Note: this check box cannot be removed with the Express Edition.

Automatically open last project used: this option allows Click&DECiDE Builder to open the last project used when you launch Click&DECiDE Builder..

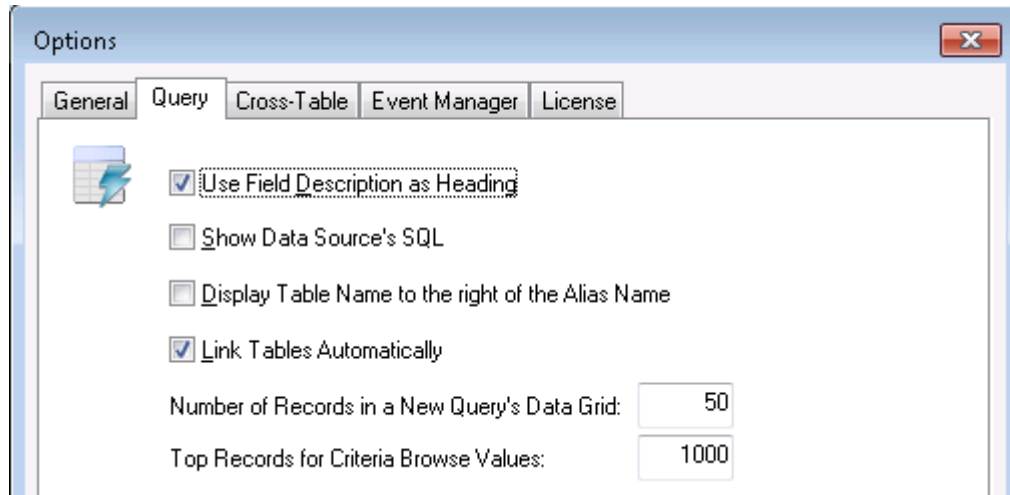
Show full path in the title bar: this is useful when you start Click&DECiDE Builder twice and are working with two different project files as you can see the full path and project name in the title bar.



Default Template for Query for New Project: you can specify here which Report Template for Query has to be used for any new Project you will create. You also can specify "No Template" if needed.

Local default export directory: specify here the default export directory for HTML or PDF output formats. A sub-directory with the current project name will be added in this path.

4.1.2. Working with the Query Tab



Use Field Description as Heading: this option can be used if you want to use the Description of the data source table column instead of the column name (if this description exists of course) as a column Heading in a new query.

Show Data Source's SQL: this option can be used temporarily to display the native SQL sent to the database when running a query. This can help you understand how your query is translated into SQL or to look for a problem.

Display table name to the right of the Alias name: this option can be used to add the table name after the Alias name. It was useful when the Alias Name used prefixes such as T1, T2 and so on, however it should no longer be used with Click&DECiDE version 10 or greater.

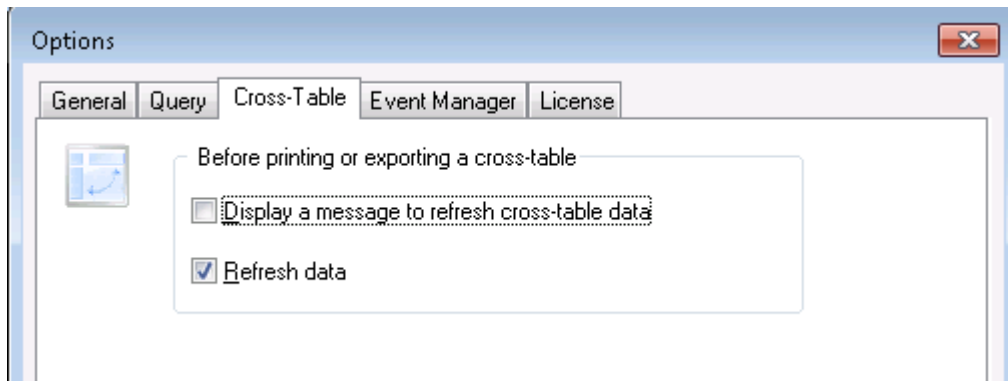
Link Tables Automatically: this option can be disabled if you no longer wish to have automatic joins when creating a new query with more than one table.

Number of records in a New Query's Data Grid: this option proposes a default TOP value when you run a query in the Data Grid, to check if the query is working correctly. In this case you do not need to retrieve all the data. This default TOP value can be changed here or removed if you do not want to use it. This TOP value has no effect when you export data to any output format or when you run a report or a cross-table. It is only used as a preview in the data grid. Please see the section concerning [Applying a Top Value](#).

Top Records for Criteria Browse Values: this option proposes a default TOP value when you run are searching online existing values in the criteria dialog box for a field. The default value is 1000.



4.1.3. Working with the Cross-table Tab

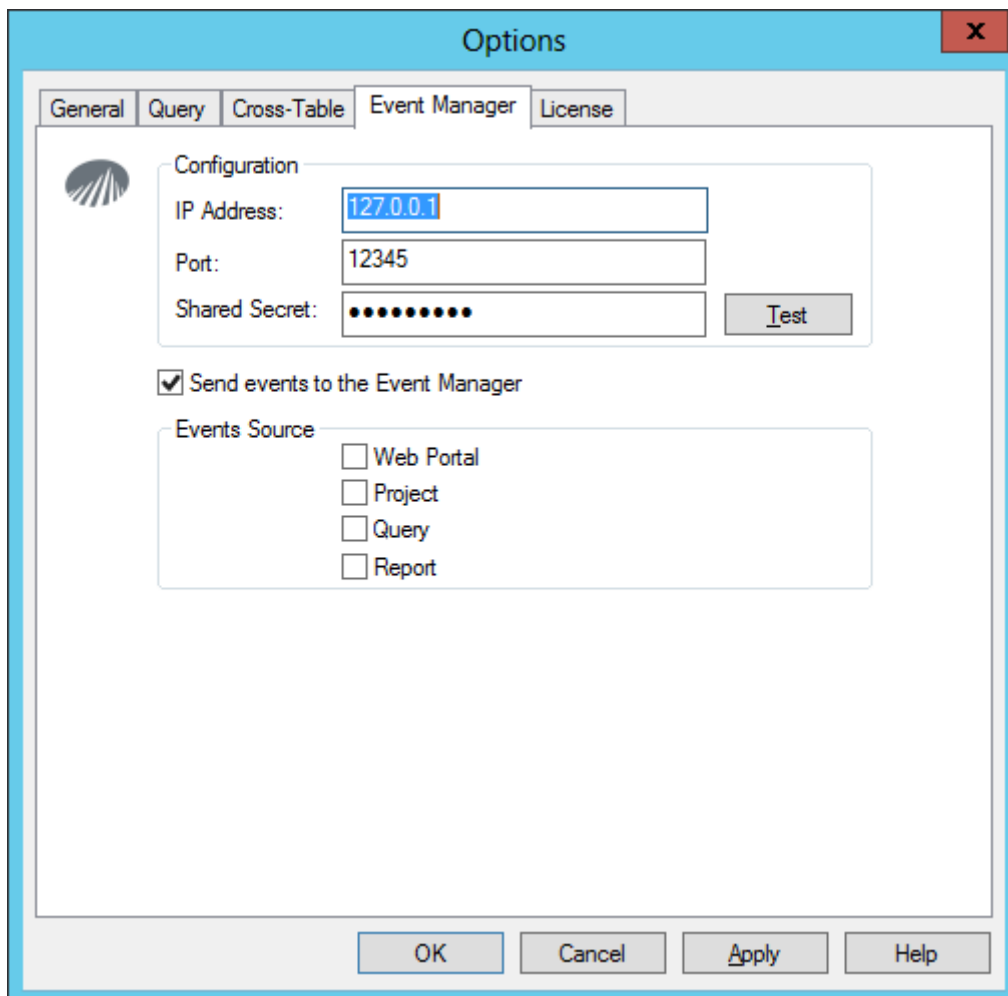


When printing or exporting a cross-table that you have already run in Click&DECiDE Builder, you may decide that you do not always want to refresh your data, as it is already stored in a file with the *.vpd extension and the same name as the project name.

Display a message to refresh cross-table data: select this check box if you want to display a message asking you if you want to refresh the data, each time you print or export a cross-table.

Refresh Data: select this check box to ensure that cross-table data is always refreshed.

4.1.4. Working with the Event Manager Tab





By default, Click&DECiDE Enterprise Edition is installed with an engine that will manage the Alerts that can be generated by a report or by a scheduled task. If the option "Send events to the Event Manager" is disabled, this engine is stopped.

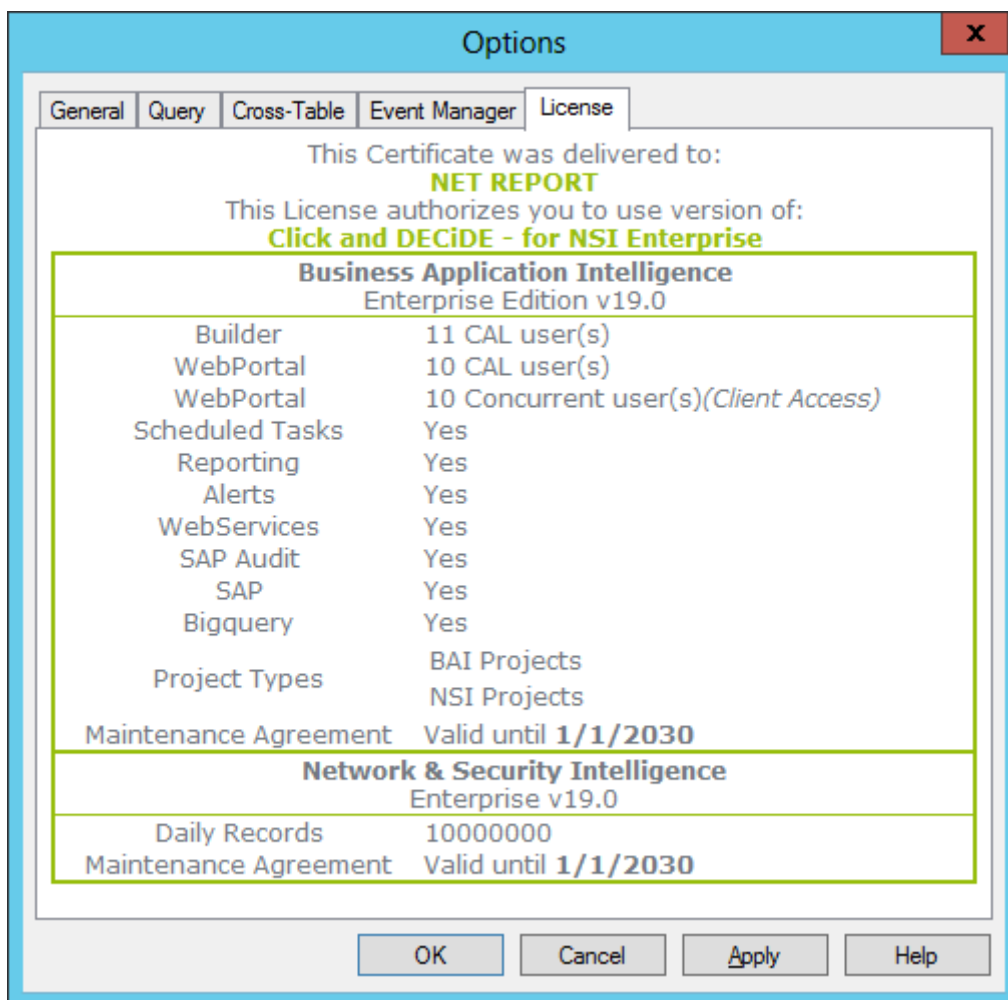
If you want to store events for debugging purpose or in order to get statistics about how the Web Portal is used, you can select the following check boxes in the Events Source section: **Web Portal**, **Project**, Query and **Query**.

For getting statistics, select **Web Portal** and **Query** event sources. When these event sources are selected, the Administrator can run the following reports which are installed by default by the Enterprise Edition in the Web Portal: Web Portal Statistics (Daily), Web Portal Statistics (Monthly), Connections on a period, SQL Query on a period and Items Run on a Period.

For a detailed description on all generated events (only for advanced users), please contact us.

Note that the above screen can be changed only if you have the Administrator rights on your computer, when you try to change the options from a Builder installed in standalone. Note also that the Express Edition license will display this Event Manager dialog greyed and not modifiable.

4.1.5. Working with the License Tab



This screen displays your license information, such as:

- Company Name
- Click&DECiDE Edition installed
- Version Number
- Builder CAL user(s) (Client Access License)



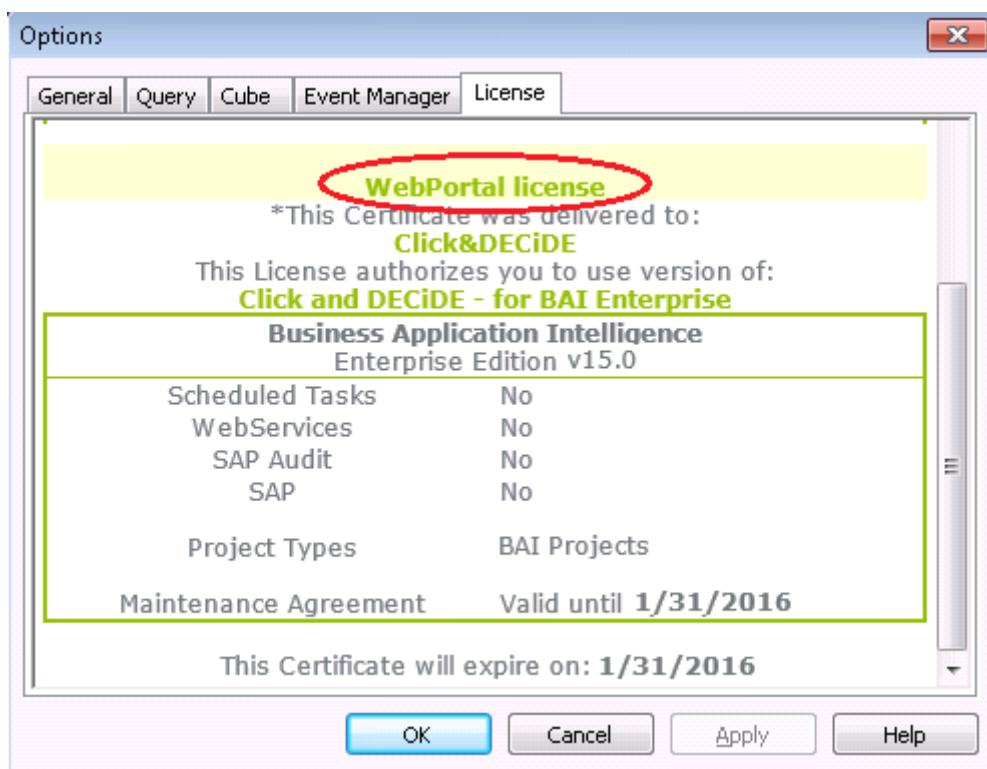
- Web Portal CAL user(s) (Client Access License)
- Web Portal Concurrent Users
- The project types you can use with this license. (BAI, NSI etc.)
- Workflow (the Events Manager Engine only for the Enterprise Edition).

Note: if you are under Support Agreement, the expiry date is displayed.

Note: if the license certificate is not a permanent license, the expiry date is displayed.

Under the above Server license, you can see some other information about the Web Portal license:


The Web Portal License is corresponding to the part downloaded to a client workstation when a user is starting Web Builder. This is the part of the license the User will see inside the command Tools > Options > License from the Click&DECiDE Builder:

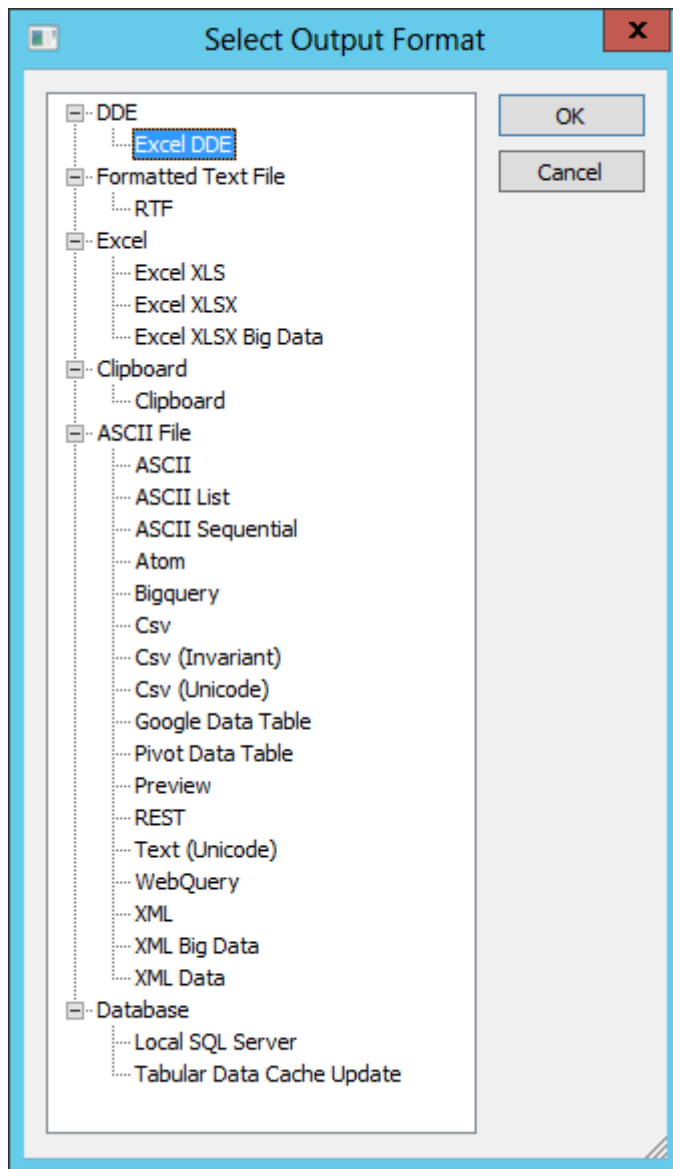


5. Exporting to an Output Format

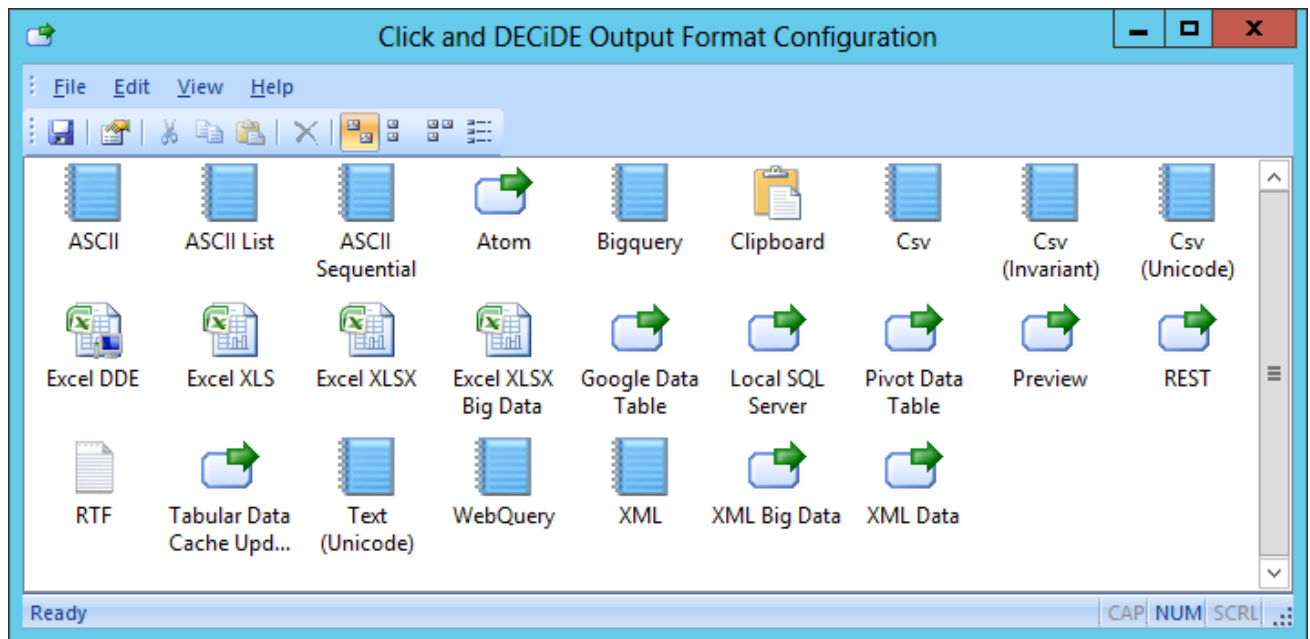
5.1. Working with Customizable Output Formats

Up to now, you have run queries in the Click & DECiDE data grid, to check the result according to the criteria defined, join conditions, sort conditions and so on. To export data to an output format, please follow the steps below.

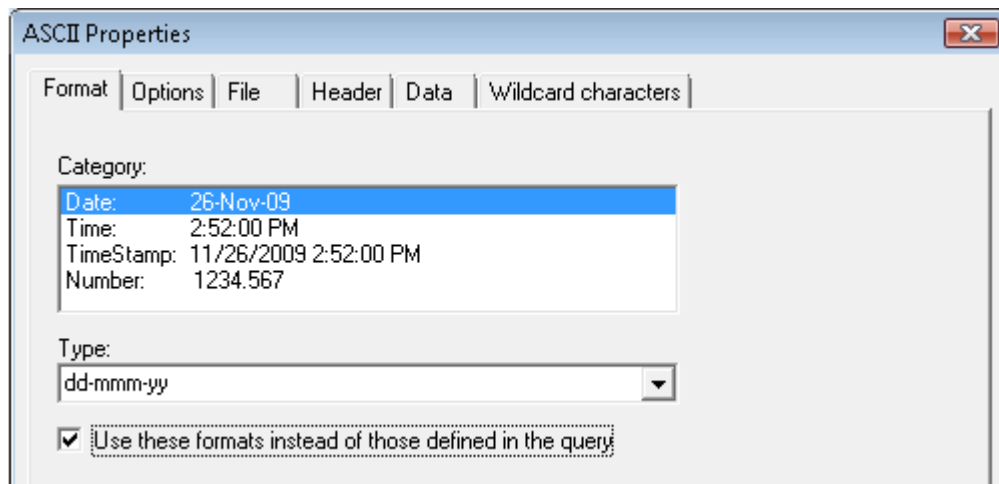
1. Select **File> Export** or click the  **Export** icon to display the **Click and DECiDE Output Format Configuration** dialog box with all the output formats supported by Click&DECiDE Builder.



2. Select **Tools> Output configuration** to add, modify or remove an output format.

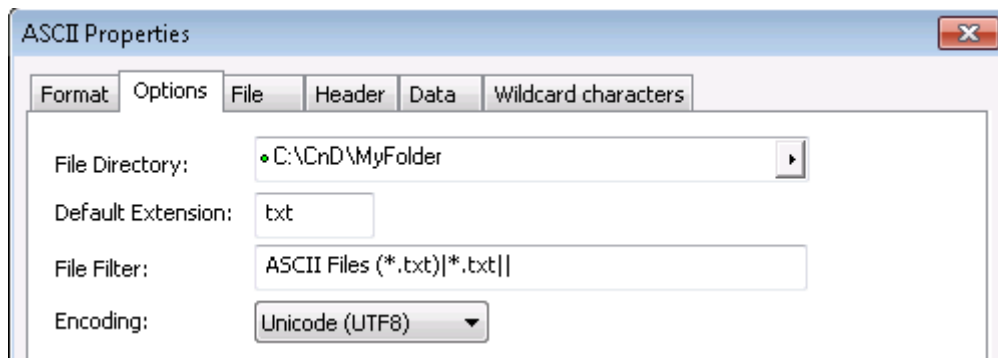


3. Select in the context menu **Properties...** to customize an output format as appropriate
Note: the configuration will differ according to each category.
4. Select the **Format** tab.
5. Configure the **Date**, **Time**, **Timestamp** and **Number Format** as appropriate.

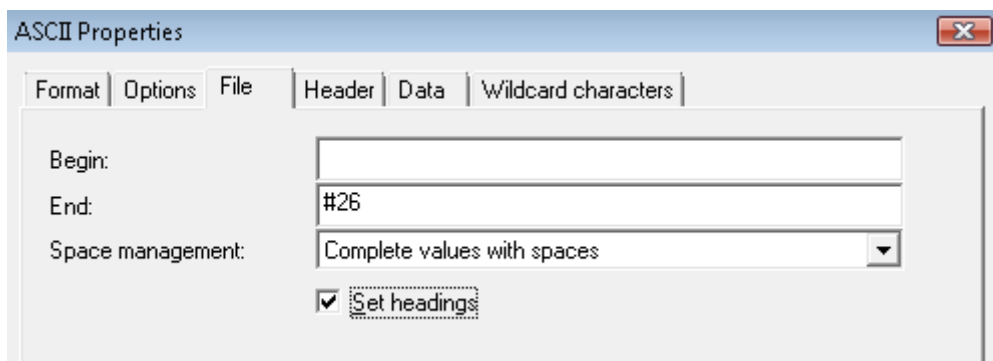


Note: usually the format defined in the query column header will be use by default when exporting data, unless you have defined a specific format in your output format and selected the **Use these formats instead of those defined in the query** check box.

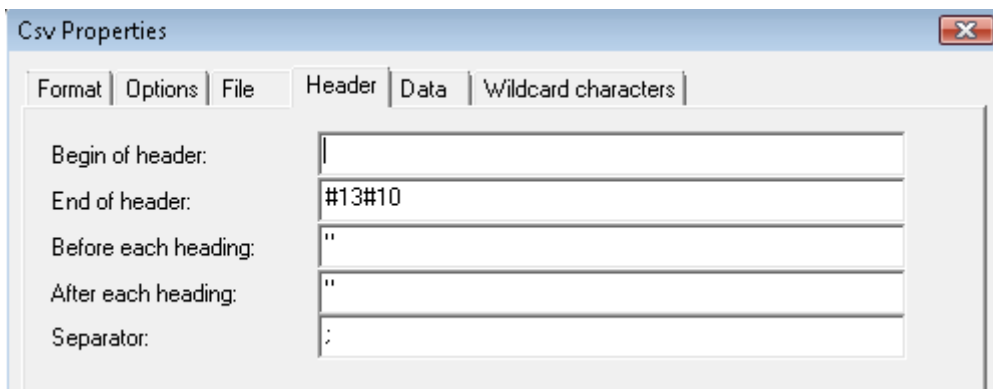
6. Select the **Option** tab.
7. Define the **File Directory**, the **Default Extension**, the **File Filter** and the Data Format Encoding (according to the Output Format in question).



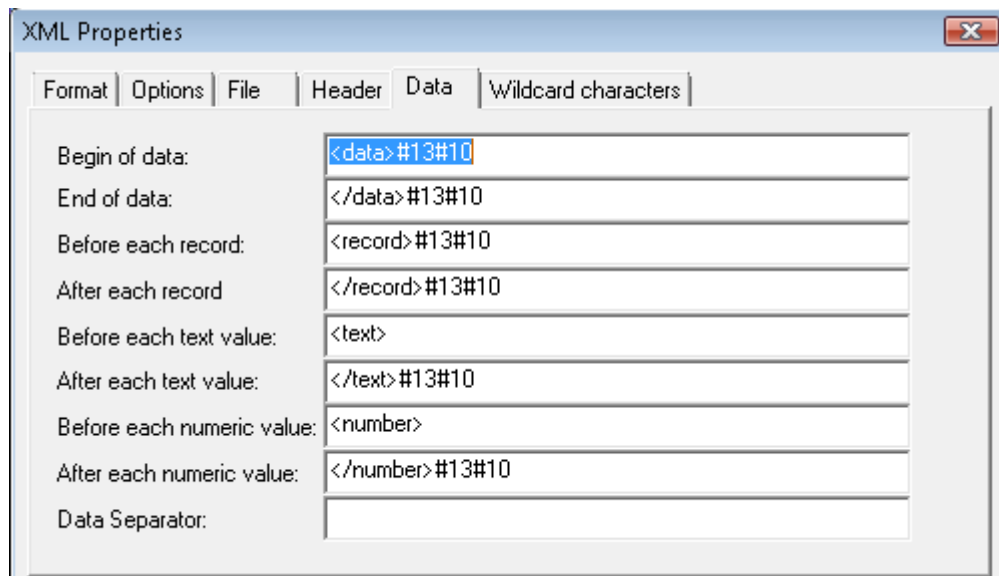
8. Select the **File** tab.
9. Configure the file structure, the **Space management**.
10. Select the **Set headings** check box if you want to use column headers.



11. Select the **Header** tab.
12. Enter the values for the file's Header structure.



13. Select the **Data** tab.
14. Configure the file's data structure.

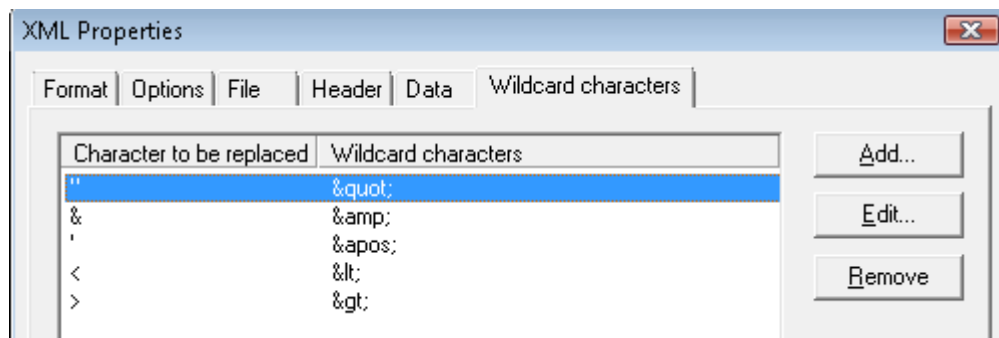


The XML Properties dialog box is shown with the 'Data' tab selected. It contains several text input fields for defining XML structure:

Field	Value
Begin of data:	<data>#13#10
End of data:	</data>#13#10
Before each record:	<record>#13#10
After each record:	</record>#13#10
Before each text value:	<text>
After each text value:	</text>#13#10
Before each numeric value:	<number>
After each numeric value:	</number>#13#10
Data Separator:	

15. Select the **Wildcard Character** tab.

16. Define how you want certain special characters in your data to be translated.



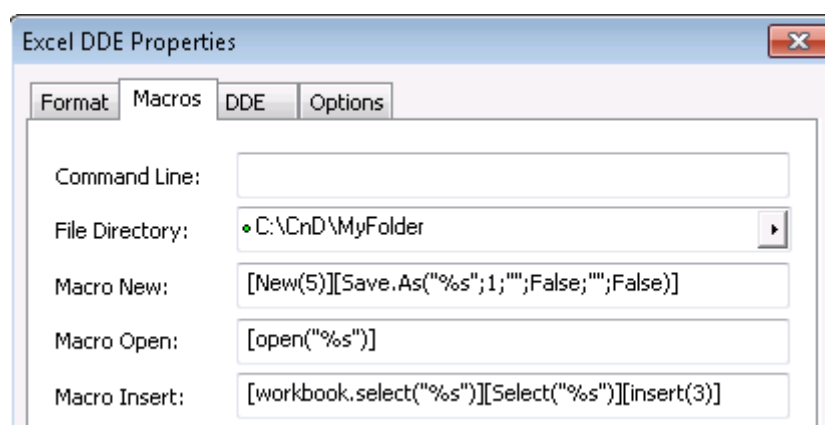
The XML Properties dialog box is shown with the 'Wildcard characters' tab selected. It contains a table for mapping characters to their XML equivalents:

Character to be replaced	Wildcard characters
"	"
&	&
'	'
<	<
>	>

Buttons: Add..., Edit..., Remove

5.1.1. Working with the Excel DDE Output Format

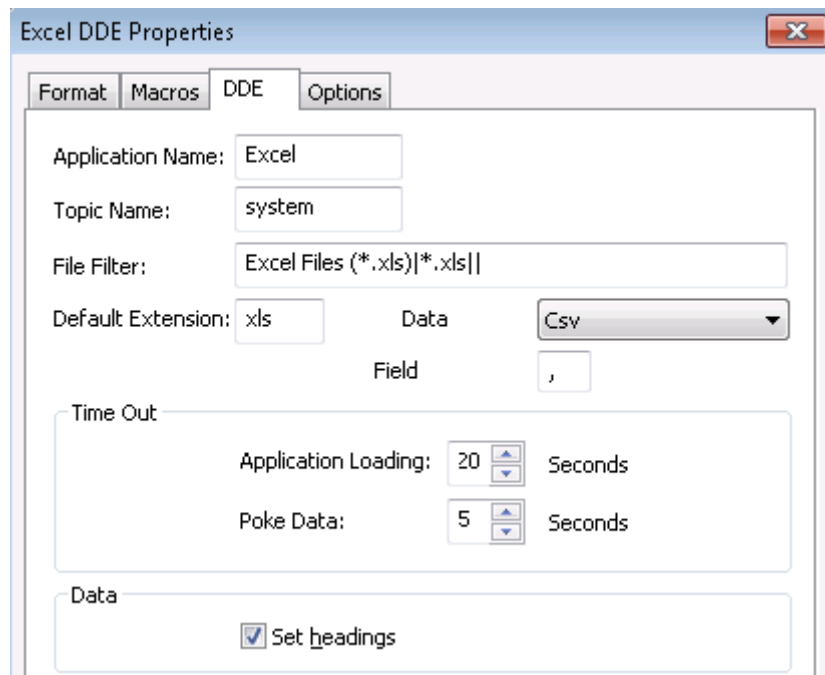
For the **Excel DDE** category, the **Macro Tab** will contain:



The Excel DDE Properties dialog box is shown with the 'Macros' tab selected. It contains several text input fields for defining Excel DDE commands:

Field	Value
Command Line:	
File Directory:	C:\CnD\MyFolder
Macro New:	[New(5)][Save.As("%s";1;"";False;"";False)]
Macro Open:	[open("%s")]
Macro Insert:	[workbook.select("%s")][Select("%s")][insert(3)]

The Command line will depend on your Excel.exe location. The Macros will depend on the language of your Excel program. Then the **DDE Tab** will contain:

Excel DDE Properties

Format Macros **DDE** Options

Application Name: Excel

Topic Name: system

File Filter: Excel Files (*.xls)|*.xls|

Default Extension: xls Data Csv

Field ,

Time Out

Application Loading: 20 Seconds

Poke Data: 5 Seconds

Data

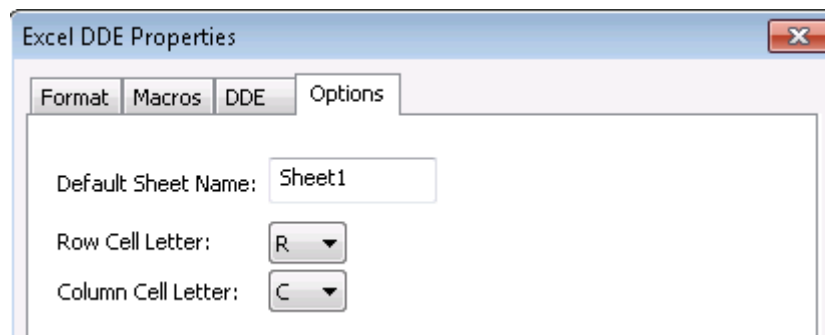
☒ Set headings

Note that the field separator can depend on your regional settings.

The Application Loading or Poke Data Timeout can be increased if necessary.

The Set Headings allows to send the Header row before the data in the Excel destination.

Then the **Options Tab** will contain the Reference to the Row and Column Cell Letters used by your Excel program according to the Excel language to specify the cell addresses (A1 is represented in Excel DDE by Row 1 and Column 1, as R1C1 for an English Excel). Sheet1 is the default Sheet Name.



Excel DDE Properties

Format Macros DDE **Options**

Default Sheet Name: Sheet1

Row Cell Letter: R

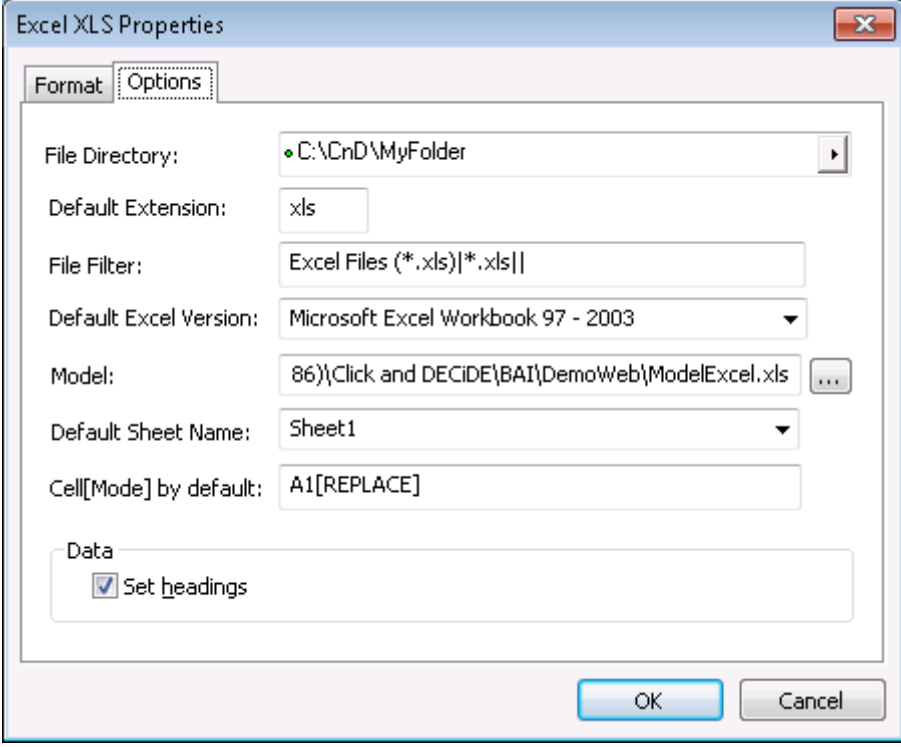
Column Cell Letter: C

The Row and Column Cell Letters can change according to your Excel language: for more detail refer to the Online Help by pressing F1 in Click&DECiDE Builder or click this link:

http://help.clickndecide.com/Helps/Vision_Help/d7vision.htm#viscore\HIDX_CONFIG_OUTPUT.htm

5.1.2. Working with the Excel XLS and XLSX Output Formats

For the **Excel XLS** output format type, the **Option** tab is specific to Excel 97 and to Excel 2003:



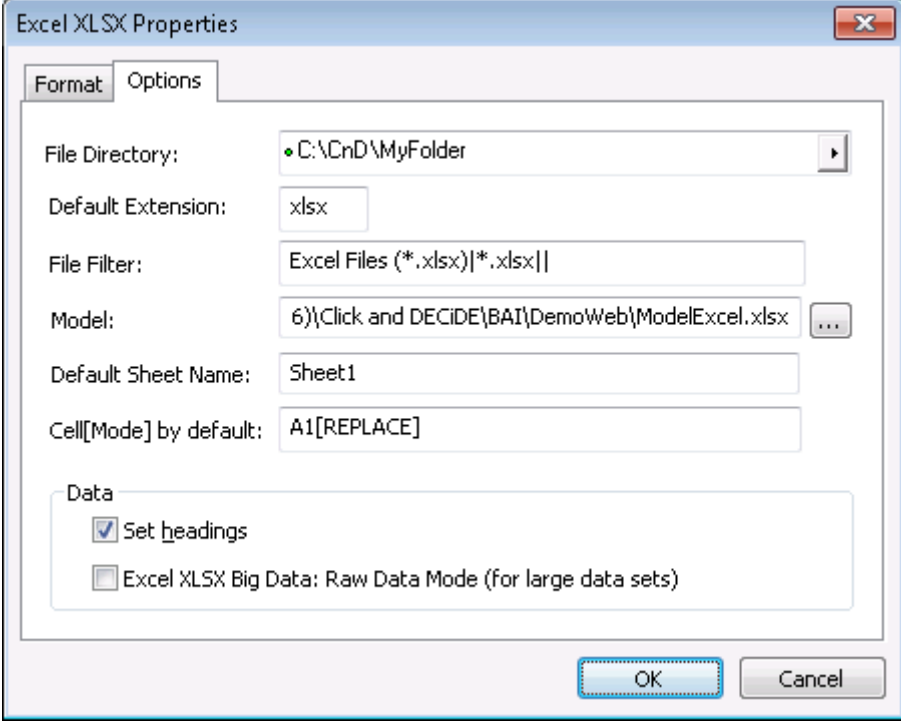
The 'Excel XLS Properties' dialog box has two tabs: 'Format' and 'Options'. The 'Options' tab is selected. It contains the following fields and controls:

- File Directory:** A text box with a dropdown arrow, containing 'C:\CnD\MyFolder'.
- Default Extension:** A text box containing 'xls'.
- File Filter:** A text box containing 'Excel Files (*.xls)|*.xls|'.
- Default Excel Version:** A dropdown menu showing 'Microsoft Excel Workbook 97 - 2003'.
- Model:** A text box containing '86)\Click and DECIDE\BAI\DemoWeb\ModelExcel.xls' with a browse button (...).
- Default Sheet Name:** A dropdown menu showing 'Sheet1'.
- Cell[Mode] by default:** A text box containing 'A1[REPLACE]'.
- Data:** A section with a checkbox labeled 'Set headings' which is checked.

At the bottom right are 'OK' and 'Cancel' buttons.

Note: you can apply an Excel file as a Model (Template) with, for example, your company logo, look & feel and so on, please note that this is optional.

For the **Excel XLSX** output format type, the **Option** tab is specific to Excel 2007 or later version:



The 'Excel XLSX Properties' dialog box has two tabs: 'Format' and 'Options'. The 'Options' tab is selected. It contains the following fields and controls:

- File Directory:** A text box with a dropdown arrow, containing 'C:\CnD\MyFolder'.
- Default Extension:** A text box containing 'xlsx'.
- File Filter:** A text box containing 'Excel Files (*.xlsx)|*.xlsx|'.
- Model:** A text box containing '6)\Click and DECIDE\BAI\DemoWeb\ModelExcel.xlsx' with a browse button (...).
- Default Sheet Name:** A text box containing 'Sheet1'.
- Cell[Mode] by default:** A text box containing 'A1[REPLACE]'.
- Data:** A section with two checkboxes: 'Set headings' (checked) and 'Excel XLSX Big Data: Raw Data Mode (for large data sets)' (unchecked).

At the bottom right are 'OK' and 'Cancel' buttons.

Model: you can apply an Excel file as a Model (Template) with, for example, your company logo, look & feel and so on, please note that this is optional.

Write Mode: for all Excel native format (Excel XLS and Excel XLSX), the [write mode] defined after the destination cell can be one of the following: (always in English and in CAPITAL letters).



[ERASEFILE]: deletes the destination Excel file if it exists and creates a new one using a Model if defined.

[ERASEDATA] or **[ERASESHEET]**: keeps the destination Excel file but removes all the data from all the rows in the destination Sheet, without modifying the other sheets.

[REPLACE]: adds data to an existing Excel file by partially or totally replacing existing data, from within the destination cell in the specified Sheet. (Not available for Excel XLSX Big Data).

[INSERT]: adds data to an existing Excel file by inserting rows from the destination cell. Existing data in the destination cell or below the destination cell is kept but moved to the base of the same Sheet. (Not available for Excel XLSX Big Data).

Set headings: each output format can be defined with headings enabled or not. You can thus create two formats for the same output, one with headings, the other without.

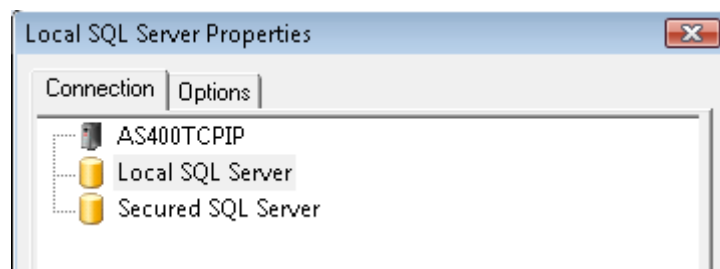
Excel XLSX Big Data: this option is specific to Excel 2007 or later version. This output format uses less memory as data are sent without formatting (Raw Data Mode) and is faster. It is recommended for big volume or if you get trouble with the standard Excel XLSX output format.

Also note that only the ERASEFILE or ERASESHEET write modes describe below can be used with the Excel XLSX Big Data output format.

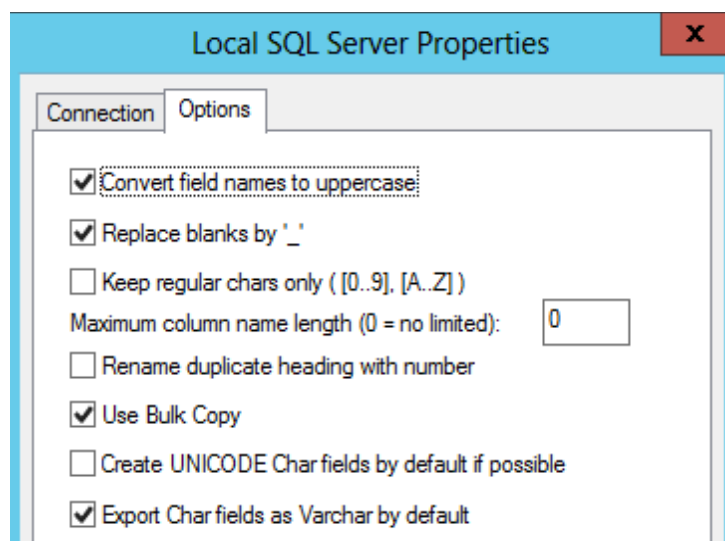
5.1.3. Working with the Local SQL Server Output Format

The **Local SQL Server** output format allows you to send data to your local SQL Server. **You also can create a new output format to send data to any database** which is already a [data source](#) defined in your Administration Manager. To do so, please follow the steps below.

1. Double-click the Local SQL Server icon, the **Local SQL Server Properties** property sheet appears.



2. Select the **Connection** tab.
3. Note all the existing data sources are displayed.
Note: you cannot export data to a data source [secured](#) by Click&DECiDE, for security reasons.
4. Select the **Option** tab to view the parameters that you can modify.





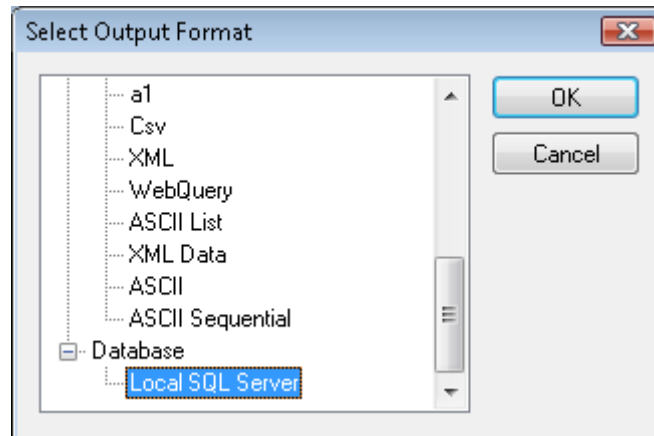
5. Select the **Use Bulk Copy** to allow faster export.

Warning: do not select this option for old versions of MSDE if you have too many columns; for example, the limit is 90 columns for SQL Server 2000.

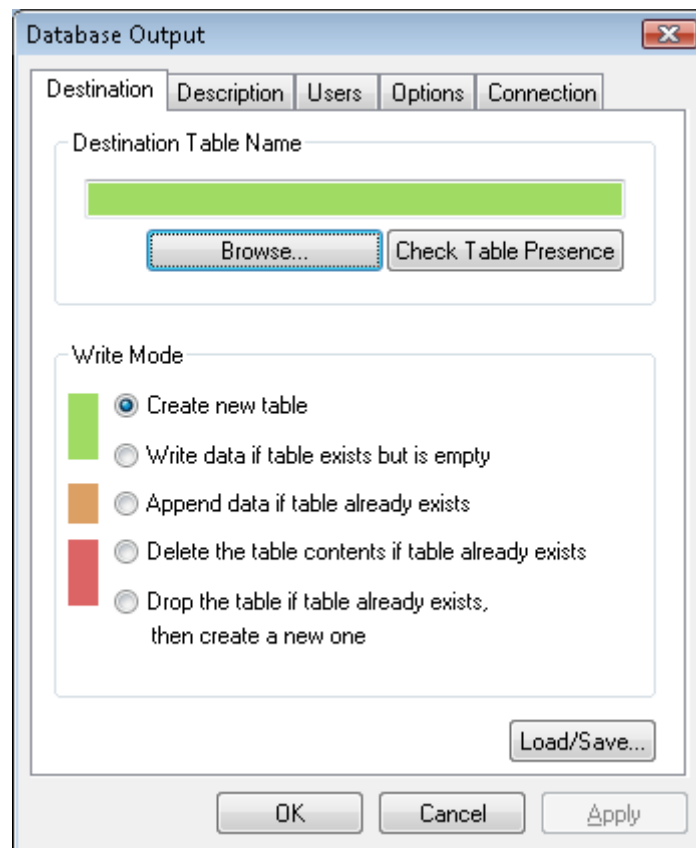
5.1.4. Saving the Output Configuration to the Database

When exporting a query to a database, you can modify and save the settings you have configured for the target table (column names, length, decimal and so on). To do so, please follow the steps below.

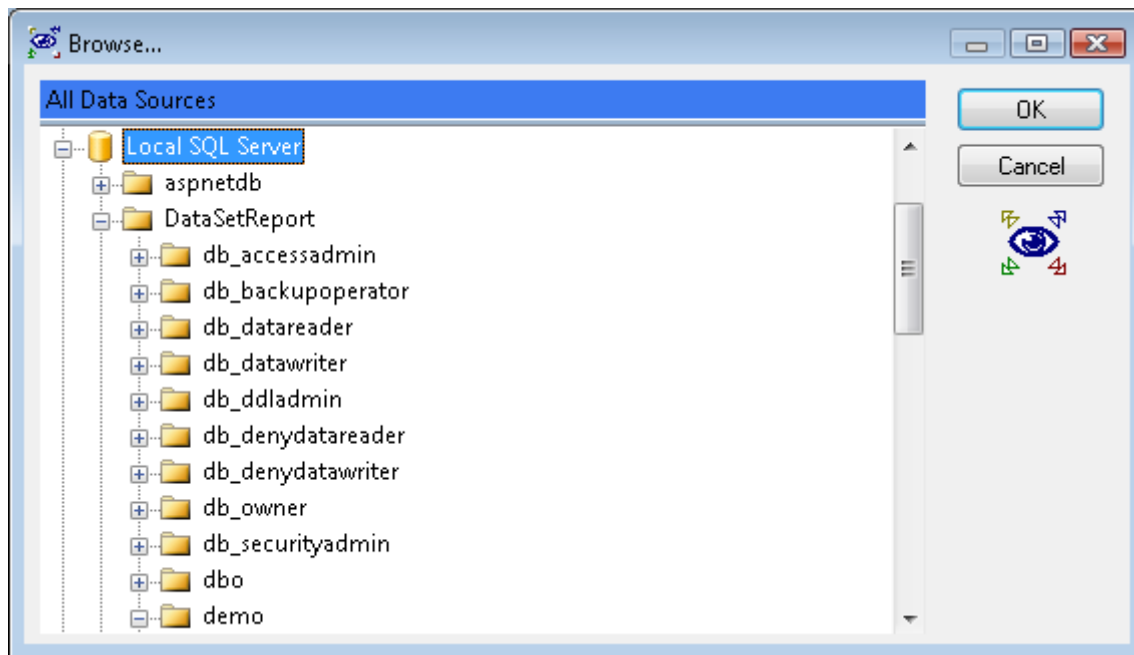
1. Export a query, for example the **demo multi criteria** query (from the Click and DECiDE Demonstration.wfv file) to the Local SQL Server database output format.



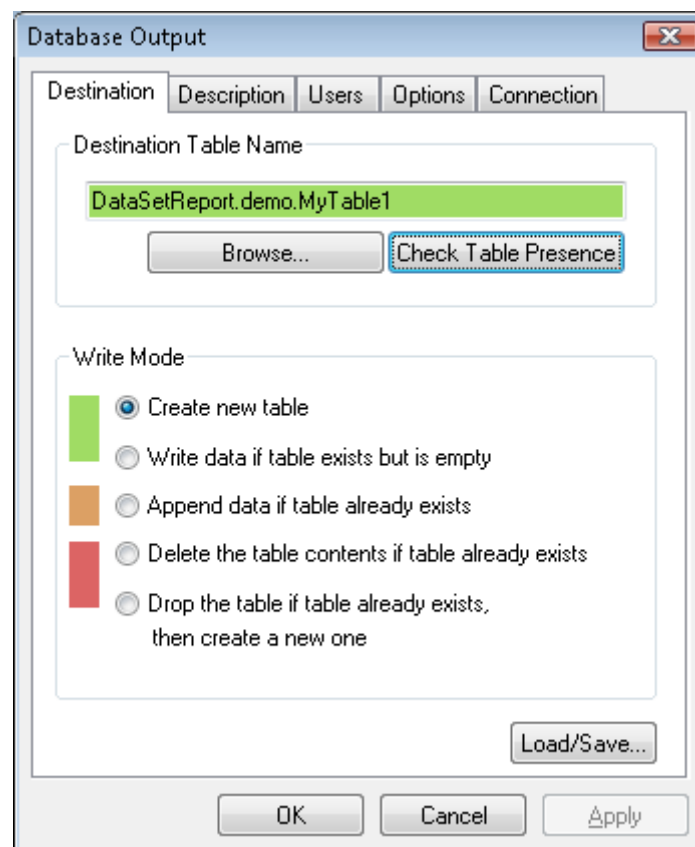
2. Click **OK**.



3. Click **Browse** to search for the full destination path for the target table.



4. Select a folder.
5. Enter a new table name if necessary.



6. Click **Check Table Presence** if you are not certain if it is a new table.
7. Select the **Description** tab.
8. Configure the column names and sizes:



The screenshot shows the 'Database Output' dialog box with the 'Description' tab selected. The 'Fields' list contains 'Area', 'Code', 'Salesman name', 'Date' (highlighted), and 'Amount'. The 'Selected Field Description' section shows 'Invoice Date' as the field name, 'Date/Time' as the type, '24' as the size, and '0' as the decimal. The 'Null authorized' checkbox is checked. The 'Load/Save...' button is visible at the bottom right of the description section. The 'OK', 'Cancel', and 'Apply' buttons are at the bottom of the dialog.

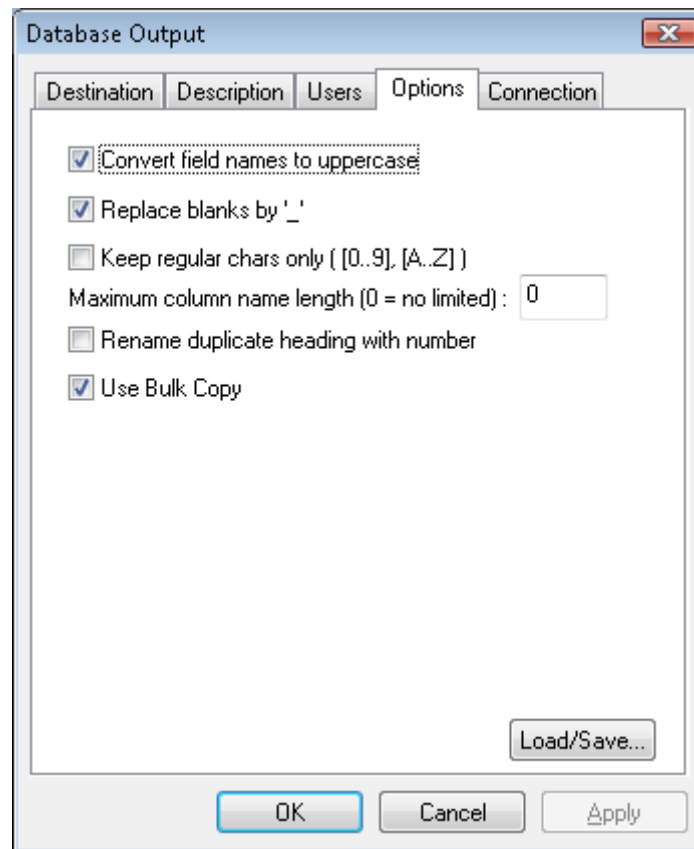
9. Select the **Users** tab.

10. Add authorization for other users.

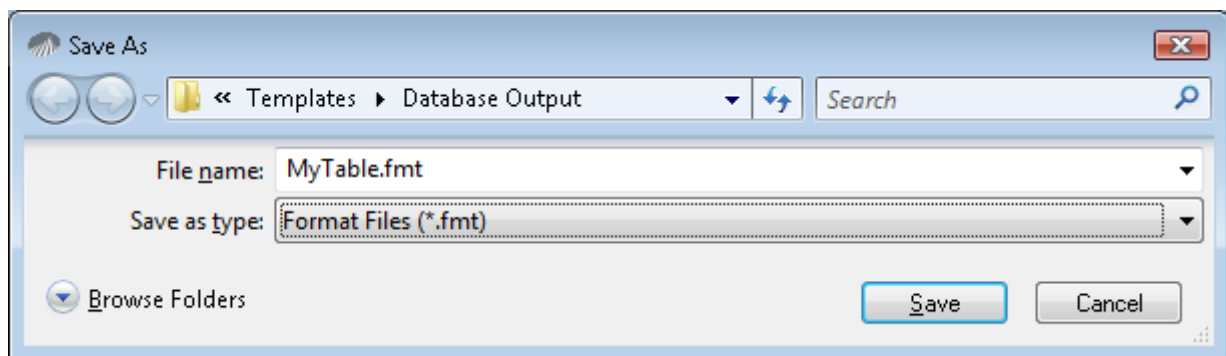
The screenshot shows the 'Database Output' dialog box with the 'Users' tab selected. The 'Users allowed to use the result table' list contains 'Davis Sandra' and 'Smith James'. The 'Add...' button is highlighted with a red border. The 'Remove' button is to its right. The 'Load/Save...' button is at the bottom right of the list section. The 'OK', 'Cancel', and 'Apply' buttons are at the bottom of the dialog.



11. Select the **Options** tab.
12. Select the check boxes as appropriate.



13. Click **Load/Save** in any of the tabs in the **Database Output** property sheet to save (or load next time) the configuration previously defined when exporting this query to the table.



14. Enter the **File Name**.

Note: next time you have to send data again to this table, from the same query, you can load this configuration, and then modify the **Destination** tab to specify if you want to append data, delete data or delete and create the table again.



15. Save the new configuration if you need to use it later.

16. Note that you can **schedule a task** that will **send data to a Database** output format. Refer to the online manual "ClicknDECiDE_BAI_Web_Portal_User_Guide.pdf".

5.1.5. Working with the ASCII Category Format

When editing a query in Click&DECiDE Builder, you can display the query properties as follows.

	Name	Type	Length	Scale	Desc
Sales					
	NO	Varchar	5	0	
	CUST	SmallInt	2	0	
	SAL	SmallInt	2	0	
	DATE	TimeStamp	8	3	
	TOTAL	Float	8	0	
Salesman					
	SAL	SmallInt	2	0	
	SALNAME	Varchar	15	0	
	AREA	Varchar	10	0	

Selected Field Properties				
General				
Format	\$#,##0.00			
Decimal Places	Auto			
Header	Amount			
Assigned Parameter				
Assigned Value				
ASCII Output Length	10			

	AREA	SALNAME	Purchase Date	Amount
1	SOUTH	Jim Baxter	Friday, January 30, 2009	\$158,318.00
2	SOUTH	Jim Baxter	Saturday, July 25, 2009	\$178,368.00

This option allows you to specify your own column size in the ASCII file instead of using the default column length. For example a Float Type will generate a column with 15 digits. If you only want 10 as width, enter 10 in this box.

Exercise 3: Open your query Exercise 1 and export the data to several output formats and check the result.



5.1.6. Working with Atom output format

This format is used most of the time through the Web Portal and Menu Builder. This format allows the Web Portal Users to copy a special link that can be paste into **Excel** to define some **Power Pivot** or **Power View** depending on the version of Excel.

Please refer to the **ClicknDECiDE_BAI_Web_Portal_User_Guide_V2015.pdf** for more information about the use of this feature.

5.1.7. Working with the Google Data Table output format

This format is used to create or update files containing data that can be read by a **Dashboard Application**. Some examples of these files having ".gcd" extension are installed with Click&DECiDE Enterprise Edition and used by the Dashboard Charts samples.

Please refer to the **ClicknDECiDE_BAI_Web_Portal_User_Guide_V2019.pdf** for more information about the use of this feature.

5.1.8. Working with Predefined Output Formats

Click&DECiDE Builder also provides two predefined output formats such as HTML and PDF (Acrobat Reader).

Select **File> HTML> Preview** to check the HTML result of your report.

Select **File> HTML> Publish to Web Portal** to export your query or report to an HTML format that can be read in the Web Portal (only available with the Professional or Enterprise Edition).

Select **File> Print to PDF** to export your query or report to an Acrobat Reader (PDF) format.

Select **File> Print Preview** to display a preview of your query or report.

Select **File> Print** or press **Ctrl+P** to send your query or report to the printer you want.

6. Working with Date Keywords

6.1. Invariant Predefined Functions

Invariant functions are keywords or expressions that are understood by Click&DECiDE whatever your computer language.

INVARIANT PREDEFINED FUNCTIONS		
Function	Range for x	Comment
HOURS (Note: in INVARIANT mode, hours is always written in plural even if the value is x=0 or x=1).		
x hours ago	0 - 12	The date time interval from the beginning of the hour specified in the past from XX:00:00 to XX:59:59.
in x hours	0 - 12	The date time interval from the beginning of the hour specified in the future from XX:00:00 to XX:59:59.
since x hours	0 - 12	The interval from the beginning of the hour specified in the past at XX:00:00 up to now.
until x hours	1 - 12	The interval from now to the end of the hour specified in the future at XX:59:59.
DAYS (Note: in INVARIANT mode, days is always written in plural even if the value is x=0 or x=1).		
x days ago	0 - 7	The date of the day specified in the past from 00:00:00 to 23:59:59.
in x days	0 - 7	The date of the day specified in the future from 00:00:00 to 23:59:59.



since x days	0 - 7	From the beginning of the date of the day specified in the past from 00:00:00 up to now.
until x days	1 - 7	From now up to the end of the date of the day specified in the future at 23:59:59.
WEEKS (Note: in INVARIANT mode, weeks is always written in plural even if the value is x=0 or x=1).		
x weeks ago	0 - 7	The date interval for the week specified in the past from YYYYMMDD 00:00:00 to YYYYMMDD 23:59:59.
in x weeks	0 - 7	The date interval for the week specified in the future from YYYYMMDD 00:00:00 to YYYYMMDD 23:59:59 .
since x weeks	0 - 7	From the beginning of the first day of the week specified in the past at 00:00:00 up to now.
until x weeks	1 - 7	From now to the end of the last day of the week specified in the future at 23:59:59.
MONTHS (Note: in INVARIANT mode, months is always written in plural even if the value is x=0 or x=1).		
x months ago	0 - 12	The date interval for the first day of the month specified in the past from YYYYMM01 00:00:00 to YYYYMM31 23:59:59.
in x months	0 - 12	The date interval for the first day of the month specified in the future from YYYYMM01 00:00:00 to YYYYMM31 23:59:59.
since x months	0 - 12	From the beginning of the first day of the month specified in the past at 00:00:00 up to now.
until x months	1 - 12	From now up to the end of the last day of the month specified in the future at 23:59:59.
QUARTER (Note: in INVARIANT mode, quarters is always written in plural even if the value is x=0 or x=1).		
q1 or Q1		Uses the date interval for the First Quarter of the current year from YYYY0101 00:00:00 to YYYY0331 23:59:59.
q2 or Q2		Uses the date interval for the Second Quarter of the current year from YYYY0401 00:00:00 to YYYY0630 23:59:59.
q3 or Q3		Uses the date interval for the Third Quarter of the current year from YYYY0701 00:00:00 to YYYY0930 23:59:59.
q4 or Q4		Uses the date interval for the Fourth Quarter of the current year from YYYY1001 00:00:00 to YYYY1231 23:59:59.
x quarters ago	1 - 4	The date interval for the first day of the quarter specified in the past from YYYYMM01 00:00:00 to the last day of the same quarter at YYYYMM31 23:59:59.
in x quarters	1 - 4	The date interval for the first day of the quarter specified in the future from YYYYMM01 00:00:00 to the last day of the same quarter at YYYYMM31 23:59:59.
qx 1990 <---> qx 2030	1 - 4	Uses the date interval for the specified Quarter of the specified year from YYYY0101 00:00:00 to YYYY0331 23:59:59. (Note that the year can be between 1990 and 2030 in the current Click&DECiDE version 11.1.0 or greater).
YEARS (Note : in INVARIANT mode, years is always written in plural even if the value is x=0 or x=1).		
x years ago	0 - 10	The date interval from the first day of the year specified in the past at YYYY0101 00:00:00 to YYYY1231 23:59:59.
in x years	0 - 10	The date interval from the first day of the year specified in the future at



		YYYY0101 00:00:00 to YYYY1231 23:59:59.
since x years	0 - 10	From the beginning of the first day of the year specified in the past at YYYY0101 00:00:00 up to now.
until x years	1 - 10	From now up to the end of the last day of the year specified in the future at YYYY1231 23:59:59.

6.2. Standard Days and Months Functions by Language

In the following table the first column is the same for Invariant or English, other available languages can be used according to your computer language:

Invariant and English	%s is a	French	German	Spanish	Catalan	Italian	Swedish
Days		Jours	Tags	Dias	Dies	Giorni	Dagar
DAY FROM LAST WEEK							
last %s	Day name	%s semaine dernière	%s letzter wochse	%s semana pasada	%s setmana passada	%s settimana scorsa	%s förra vecka
DAY ON NEXT WEEK							
next %s	Day name	%s en huit	%s kommender woche	%s semana próxima	de %s en vuit	%s settimana prossima	%s nästa vecka
NEXT COMING DAY							
coming %s	Day Name	%s prochain	nächster %s	próximo %s	proper %s	%s prossimo	nästa %s
LAST MOST RECENT DAY							
most recent %s	Day Name	%s dernier	letzter %s	%s pasado	%s passat	%s scorso	i %ss
SINCE A DAY							
since %s	Day Name	depuis %s	seit %s	desde %s	des de %s	da %s	sedan %s
UNTIL A DAY							
until %s	Day Name	jusqu'a %s	bis %s	hasta %s	fins %s	fino a %s	till %s
Months		Mois	Monaten	Meses	Mesos	Mesi	Månader
NEXT MONTH ON NEXT YEAR							
next %s	Month Name	%s année prochaine	%s kommendes Jahr	%s año próximo	%s proper any	%s anno prossimo	%s nästa året
MONTH OF PREVIOUS YEAR							
last %s	Month Name	%s année dernière	%s letztes jahr	%s año pasado	%s any passat	%s anno scorso	%s förra året
NEXT COMING MONTH							
coming %s	Month Name	%s prochain	nächster %s	próximo %s	proper %s	%s prossimo	nästa %s
MOST RECENT MONTH							
most recent %s	Month Name	%s dernier	letzter %s	%s pasado	%s passat	%s scorso	i %ss
SINCE A MONTH							



since %s	Month Name	depuis %s	seit %s	desde %s	des de %s	da %s	sedan %s
UNTIL A MONTH							
until %s	Month Name	jusqu'en %s	bis %s	hasta %s	fins %s	fino a %s	till %s

6.3. Other Hour Functions by Language

Invariant and English	Range for x	French	German	Spanish	Catalan	Italian	Swedish
HOURS		HEURES	STUNDEN	HORAS	HORES	ORE	TIMMAR
last hour		dernière heure	Letzte Stunde	hora anterior	hora anterior	ultima ora	förra timmen
this hour		cette heure	Diese Stunde	esta hora	aquesta hora	quest ora	denna timme
next hour		prochaine heure	Nächste Stunde	hora siguiente	hora següent	prossima ora	nästa timme
0 hours ago / this hour		il y a 0 heures / cette heure	Vor 0 Stunden / Diese Stunde	hace 0 horas / esta hora	fa 0 hores / aquesta hora	0 ore fa / quest ora	0 timmar sedan / denna timme
1 hour ago / last hour		il y a 1 heure / dernière heure	Vor 1 Stunde / Letzte Stunde	hace 1 hora / hora anterior	fa 1 hora / hora anterior	1 ora fa / ultima ora	1 timme sedan / förra timme
x hours ago	2 - 12	il y a x heures	Vor x Stunden	hace x horas	fa x hores	x ore fa	x timmar sedan
in 0 hours / this hour		dans 0 heures / cette heure	In 0 Stunden / Diese Stunde	en 0 horas / esta hora	en 0 hores / aquesta hora	in 0 ore / quest ora	om 0 timmar / denna timme
in 1 hour / next hour		dans 1 heure / prochaine heure	In 1 Stunde / Nächste Stunde	en 1 hora / hora siguiente	en 1 hora / hora següent	in 1 ora / prossima ora	om 1 timme / nästa timme
in x hours	2 - 12	dans x heures	In x Stunden	en x horas	en x hores	in x ore	om x timmar
since 0 hours / since this hour		depuis 0 heures	Seit 0 Stunden	desde 0 horas	des de 0 hores	da 0 ore	sedan 0 timmar
since 1 hour / since last hour		depuis 1 heure / depuis la dernière heure	Seit einer Stunde / Seit 1 Stunde	desde 1 hora / desde la hora anterior	des d'1 hora / des de l' hora anterior	da ultima ora / da 1 ora	sedan sista timme / sedan 1 timme
last x hours	2 - 12	depuis x heures	Seit x Stunden	desde x horas	des de x hores	da x ore	sedan x timmar
until 1 hour		jusque dans 1 heure	Bis einer Stunde / Bis 1 Stunde	hasta 1 hora / hasta la hora siguiente	fins 1 hora / fins l' hora següent	fino a 1 ora / fino a ora prossima	till 1 timme
until x hours	2 - 12	jusque dans x heures	Bis x Stunden	hasta x horas	fins x hores	fino a x ore	till x timmar



6.4. Other Day Functions by Language

Invariant and English	Range for x	French	German	Spanish	Catalan	Italian	Swedish
DAYS		JOURS	TAGS	DIAS	DIES	GIORNI	DAGAR
yesterday		hier	Gestern	ayer	ahir	ieri	igår
today		aujourd'hui / ce jour	Heute	hoy	avui	oggi	idag
tomorrow		demain	Morgen	mañana	demà	domani	imorgon
0 days ago / today		il y a 0 jours / aujourd'hui / ce jour	Vor 0 Tagen / Heute	hace 0 días / hoy	fa 0 dies / avui	0 giorni fa / oggi	0 dagar sedan / idag
1 day ago / yesterday		il y a 1 jour / hier	Vor 1 Tag / Gestern	hace 1 día / ayer	fa 1 dia / ahir	1 giorno fa / ieri	1 dag sedan / igår
x days ago	2 - 7	il y a x jours	Vor x Tagen	hace x días	fa x dies	x giorni fa	x dagar sedan
in 0 days / today		dans 0 jours / aujourd'hui / ce jour	In 0 Tagen / Heute	en 0 días / hoy	en 0 dies / avui	in 0 giorni / oggi	om 0 dagar / idag
in 1 day / tomorrow		dans 1 jour / demain	In 1 Tag / Morgen	en 1 día / mañana	en 1 dia / demà	in 1 giorno / domani	om 1 dag / imorgon
in x days	2 - 7	dans x jours	In x Tagen	en x días	en x dies	in x giorni	om x dagar
since 0 days / since today		depuis 0 jours / depuis ce jour / depuis aujourd'hui	Seit 0 Tagen / Seit Heute	desde 0 días / desde hoy	des de 0 dies / des d'avui	da 0 giorni / da oggi	sedan 0 dagar / sedan idag
since 1 day / since yesterday		depuis 1 jour / depuis hier	Seit 1 Tag / Seit Gestern	desde 1 día / desde ayer	des d'1 dia / des d'ahir	da 1 giorno / da ieri	sedan 1 dag / sedan igår
last x days	2 - 7	depuis x jours	Seit x Tagen	desde x días	des de x dies	da x giorni	sedan x dagar
until 1 day / until tomorrow		jusque dans 1 jour / jusqu'à demain	Bis 1 Tag / Bis Morgen	hasta 1 día / hasta mañana	fins 1 dia / fins demà	fino a 1 giorno / fino a domani	till 1 dag / till imorgon
until x days	2 - 7	jusque dans x jours	Bis x Tagen	hasta x días	fins x dies	fino a x giorni	till x dagar



6.5. Other Week Functions by Language

Invariant and English	Range for x	French	German	Spanish	Catalan	Italian	Swedish
WEEKS		SEMAINES	WOCHEN	SEMANAS	SEMANES	SETTIMANE	VECKOR
last week		semaine dernière	Letzte Woche	semana pasada / semana anterior	setmana passada / setmana anterior	settimana scorsa	förra vecka
this week		cette semaine	Diese Woche	esta semana / semana actual	aquesta setmana / setmana actual	questa settimana	denna vecka
next week		semaine prochaine	Nächste Woche	semana próxima / semana siguiente	propera setmana / setmana següent	settimana prossima	nästa vecka
0 weeks ago / this week		il y a 0 semaines / cette semaine	Vor 0 Wochen / Diese Woche	hace 0 semanas / esta semana	fa 0 setmanes / esta setmana	0 settimane fa / questa settimana	0 veckor sedan / denna vecka
1 week ago / last week		il y a 1 semaine / semaine dernière	Vor 1 Woche / Letzte Woche	hace 1 semana / semana pasada	fa 1 setmana / setmana passada	1 settimana fa / settimana scorsa	1 vecka sedan / förra vecka
x weeks ago	2 - 7	il y a x semaines	Vor x Wochen	hace x semanas	fa x setmanes	x settimane fa	x veckor sedan
in 0 weeks / this week		dans 0 semaines / cette semaine	In 0 Wochen / Diese Woche	en 0 semanas / esta semana	en 0 setmanes / esta setmana	in 0 settimane / questa settimana	om 0 veckor / denna vecka
in 1 week / next week		dans 1 semaine / semaine prochaine	In 1 Woche / Nächste Woche	en 1 semana / semana próxima	en 1 setmana / propera setmana / setmana següent	in 1 settimana / settimana prossima	om 1 vecka / nästa vecka
in x weeks	2 - 7	dans x semaines	In x Wochen	en x semanas	en x setmanes	in x settimane	om x veckor
since 0 weeks / since this week		depuis 0 semaines / depuis cette semaine	Seit 0 Wochen	desde 0 semanas / desde esta semana	des de 0 setmanes / des d'aquesta setmana	da 0 settimane	sedan 0 veckor
since 1 week / since last week		depuis 1 semaine / depuis la semaine dernière	Seit 1 Woche	desde 1 semana / desde la semana pasada	des d'1 setmana / des de la setmana passada	da 1 settimana	sedan 1 vecka
since x weeks	2 - 7	depuis x semaines	Seit x Wochen	desde x semanas	des de x setmanes	da x settimane	sedan x veckor
until 1 week		jusque dans 1 semaine	Bis 1 Woche	hasta 1 semana	fins 1 setmana	fino a 1 settimana	till 1 vecka
until x weeks	2 - 7	jusque dans x semaines	Bis x Wochen	hasta x semanas	fins x setmanes	fino a x settimane	till x veckor



6.6. Other Month Functions by Language

Invariant and English	Range for x	French	German	Spanish	Catalan	Italian	Swedish
MONTHS		MOIS	MONATEN	MESES	MESOS	MESI	MÅNADER
last month		mois dernier	Letzter Monat	mes pasado / mes anterior	mes passat / mes anterior	mese scorso	förra månad
this month / current month		ce mois / mois en cours / mois courant	Dieser Monat	este mes / mes actual	aquest mes / mes actual	questo mese	denna månad
next month		mois prochain	Nächster Monat	mes próximo / mes siguiente	proper mes / mes següent	mese prossimo	nästa månad
0 months ago / this month		il y a 0 mois / mois en cours / mois courant	Vor 0 Monaten / Dieser Monat	hace 0 meses	fa 0 mesos / aquest mes / mes actual	0 mesi fa / questo mese	0 månader sedan / denna månad
1 month ago / last month		il y a 1 mois / mois dernier	Vor 1 Monat / Letzter Monat	hace 1 mes / mes pasado	fa 1 mes / mes passat / mes anterior	1 mese fa / mese scorso	1 månad sedan / förra månad
x months ago	2 - 12	il y a x mois	Vor x Monaten	hace x meses	fa x mesos	x mesi fa	x månader sedan
in 0 months / this month		dans 0 mois / mois en cours / mois courant	In 0 Monaten / Dieser Monat	en 0 meses	en 0 mesos / aquest mes / mes actual	in 0 mesi / questo mese	om 0 månader / denna månad
in 1 month / next month		dans 1 mois / mois prochain	In 1 Monat / Nächster Monat	en 1 mes o "mes próximo"	en 1 mes / proper mes / mes següent	in 1 mese / mese prossimo	om 1 månad / nästa månad
in x months	2 - 12	dans x mois	In x Monaten	en x meses	en x mesos	in x mesi	om x månader
since 0 months / since this month		depuis 0 mois / depuis ce mois	Letzte 0 Monate	desde 0 meses / desde este mes	des de 0 mesos / des d'aquest mes	da 0 mesi	sedan 0 månader
since 1 month / since last month		depuis le mois dernier / depuis 1 mois	Seit Letztem Monat / Seit 1 Monat	desde el mes pasado / desde 1 mes	des del mes passat / des d'1 mes	da mese scorso / da 1 mese	sedan 1 månad / sedan förra månaden
last x months	2 - 12	depuis x mois	Letzte x Monate	desde x meses	des de x mesos	da x mesi	sedan x månader
until 1 month / until next month		jusque dans 1 mois / jusqu'au mois prochain	Bis 1 Monat / Bis Nächster Monat	hasta 1 mes / hasta el mes próximo	fins 1 mes / fins el mes següent	fino a 1 mese / fino a mese prossimo	till 1 månad / till nästa månaden
until x months	2 - 12	jusque dans x mois	Bis x Monate	hasta x meses	fins x mesos	fino a x mesi	till x månader

6.7. Other Quarter Functions by Language

Invariant and English	Range for x	French	German	Spanish	Catalan	Italian	Swedish
QUARTER		TRIMESTRES	QUARTALE	TRIMESTRES	TRIMESTRES	TRIMESTRI	KVARTAL
Q1		T1	Q1	T1	T1	T1	K1
Q2		T2	Q2	T2	T2	T2	K2
Q3		T3	Q3	T3	T3	T3	K3
Q4		T4	Q4	T4	T4	T4	K4
Last Quarter		trimestre dernier	letztes quartal	trimestre anterior	trimestre anterior	ultimo, trimestre	förra kvartal
This Quarter		ce trimestre	dieses quartal	trimestre actual	trimestre actual	questo, trimestre	detta kvartal
Next Quarter		trimestre prochain	nächstes quartal	trimestre siguiente	trimestre següent	prossimo, trimestre	nästa kvartal
1 quarter ago		il y a 1 trimestre	vor 1 quartal	hace 1 trimestre	fa 1 trimestre	1 trimestre fa	1 kvartal sedan
x quarters ago	2 - 4	il y a x trimestres	vor x quartalen	hace x trimestres	fa x trimestres	x trimestri fa	x kvartaler sedan
In 1 quarter		dans 1 trimestre	in 1 quartalen	en 1 trimestre	en 1 trimestre	in 1 trimestre	om 1 kvartal
In x quarters	2 - 4	dans x trimestres	in x quartalen	en x trimestres	en x trimestres	in x trimestri	om x kvartaler
Last Qx	1 - 4	dernier Tx	letztes Qx	anterior Tx	anterior Tx	Tx scorso	förra Kx
Next Qx	1 - 4	prochain Tx	nächstes Qx	siguiente Tx	següent Tx	Tx prossimo	nästa Kx
Qx 1990 to Qx 2030 (*)	1 - 4	Tx 1990 to Tx 2030	Qx 1990 to Qx 2030	Tx 1990 to Tx 2030	Tx 1990 to Tx 2030	Tx 1990 to Tx 2030	Kx 1990 to Kx 2030
(*) For version 10.x and 11.0 the year range was 2004-2013, the new range 1990-2030 applies to versions 11.1 and greater.							



6.8. Other Year Functions by Language

Invariant and English	Range for x	French	German	Spanish	Catalan	Italian	Swedish
YEARS		ANNEES	JAHREN	AÑOS	ANYS	ANNI	ÅR
last year		an dernier	Letztes Jahr	año pasado / año anterior	any passat / any anterior	anno scorso	förra året
this year		cette année	Dieses Jahr	este año / año actual	aquest any / any actual	quest anno	detta året
next year		an prochain	Nächstes Jahr	año próximo / año siguiente	proper any / any següent	anno prossimo	nästa året
0 years ago / this year		il y a 0 ans / cette année	Vor 0 Jahr / Dieses Jahr	hace 0 años / este año / año actual	fa 0 anys / aquest any / any actual	0 anni fa / quest anno	0 år sedan / detta året
1 year ago / last year		il y a 1 an / an dernier	Vor 1 Jahr / Letztes Jahr	hace 1 año / año pasado	fa 1 any / any passat / any anterior	1 anno fa / anno scorso	1 år sedan / förra året
x years ago	2 - 10	il y a x ans	Vor x Jahren	hace x años	fa x anys	x anni fa	x år sedan
in 0 years / this year		dans 0 ans / cette année	In 0 Jahren / Dieses Jahr	en 0 años / este año / año actual	en 0 anys / aquest any / any actual	in 0 anni / quest anno	om 0 år / detta året
in 1 year / next year		dans 1 an / an prochain	In 1 Jahr / Nächstes Jahr	en 1 año / año próximo	en 1 any / proper any / any següent	in 1 anno / anno prossimo	om 1 år / nästa året
in x years	2 - 10	dans x ans	In x Jahren	en x años	en x anys	in x anni	om x års
since 0 years / since this year		depuis 0 ans / depuis cette année	Seit 0 Jahren / Seit Dieses Jahr	desde 0 años / desde este año	des de 0 anys / des d'aquest any	da 0 anni / da quest anno	sedan 0 år / sedan detta året
since 1 year / since last year		depuis 1 an / depuis l'an dernier	Seit 1 Jahr / Seit Letztes Jahr	desde 1 año / desde el año pasado	des d'1 any / des de l'any passat	da 1 anno / da anno scorso	sedan 1 år / sedan förra året
last x years	2 - 10	depuis x ans	Seit x Jahren	desde x años	des de x anys	da x anni	sedan x år
until 1 year / until next year		jusque dans 1 an / jusqu'à l'an prochain	Bis 1 Jahr / Bis Nächstes Jahr	hasta 1 año / hasta el año próximo	fins 1 any / fins el proper any	fino a 1 anno / fino a anno prossimo	till 1 år / till nästa året
until x years	2 - 10	jusque dans x ans	Bis x Jahren	hasta x años	fins x anys	fino a x anni	till x år

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