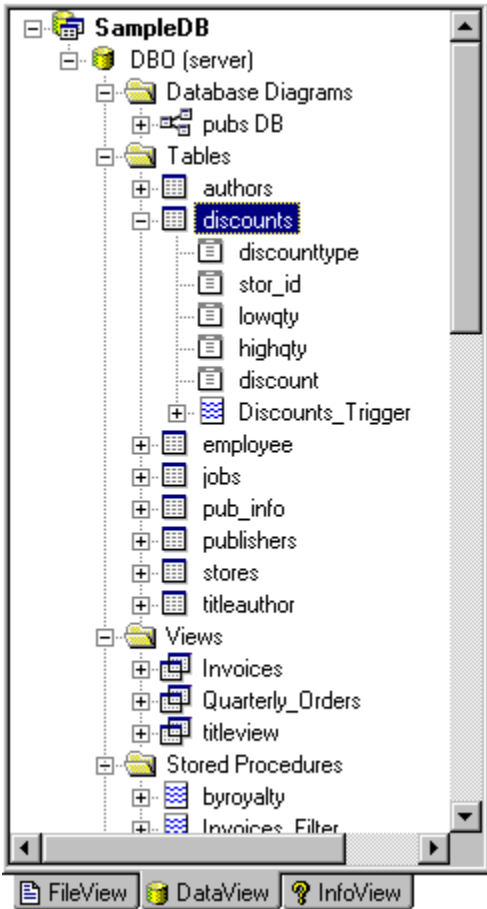







DataView Tab

The **DataView** tab provides a graphical environment for creating, viewing, and editing those files residing on a remote database server as part of a database project. The **DataView** tab is your starting point for managing your data source connections and the objects related to them such as database diagrams, tables, views, and stored procedures.



Within each data source  in a database project

, the DataView tab displays the following types of files in separate folders:

Icon	Folder name	For more information
	Database Diagrams	See the “Database Designer Overview” topic in the <i>Database Designer book</i> in the InfoView tab.
	Table	See the “Tables Overview” topic in the <i>Database Designer book</i> in the InfoView tab. Within a table, you can also see a list of columns  and triggers  . For information about columns, see the “Column Properties Overview” topic in the <i>Database Designer book</i> in the InfoView tab. For information about triggers, see <i>SQL Server Books Online</i> .
	View	See <i>SQL Server Books Online</i> . Within a view, you can also see a list of



Stored Procedures

columns

See *SQL Server Books Online*.

Within a stored procedure, you can also see a list of parameters

The **DataView** tab is visible when your database project is connected to a data source. For more information about the database objects you can manage in the **DataView** tab, see the Microsoft Visual DataTools in the MSDN books online.

Database Project Icon

Identifies the name of your database project. This is the root node for all files in the **FileView** tab and **DataView** tab of the project workspace.

In the **FileView** tab, you can expand this node to show all the connections to data sources and to local database items, or queries, referenced in those data sources.

In the **DataView** tab, you can expand this node to show all the data sources that your database project is connected to.

You can also right-click this node to open a shortcut menu.

Database Icon

Identifies, by name and database server, the data source that your database project is connected to. This represents the root node of a data source, usually a database.

You can expand this node to show the types of database objects stored in the database on the server. You can also right-click this node to open a shortcut menu.

Database Diagram Icon

Identifies the name of your database diagram. Database diagrams enable you to create, view, and edit database tables and the relationships between them. You can:

- Expand this node to show the tables that are represented in the database diagram.
- Double-click this node to open the diagram in the Database Designer.
- Right-click this node to open a shortcut menu.
- Drag this node into an open database diagram to add all of its tables to the diagram, or drag it into the **Diagram** pane of an open query.

Table Icon

Identifies the name of a table in the database. If another user is the owner of the table, that user's SQL Server login ID displays in parentheses after the table name. You can:

- Expand this node to show the names of the columns in the table.
- Double-click this node to show the table data in the **Results** pane of the Query Designer.
- Right-click this node to open a shortcut menu.
- Drag this node into an open database diagram to add the table to a diagram, or drag it into the **Diagram** pane of an open query.

Column Icon

Identifies the name of a column in the table. You can:

- Right-click this node to open a shortcut menu.
- Drag this node into an open database diagram to add the table to a diagram, or drag it into the **Diagram** pane of an open query to add the column to your query output.

Trigger Icon

Identifies the name of a trigger attached to the table. You can:

- Double-click this node to open the trigger in a text editor.
- Right-click this node to open a shortcut menu.

View Icon

Identifies the name of a view in the database. A view is a “virtual table” that provides an alternative way of looking at data from one or more tables in the database. It is created as a subset of columns from one or more tables, and its definition is stored in the database. If another user is the owner of the view, that user’s SQL Server login ID displays in parentheses after the view name. You can:

- Expand this node to show the names of the columns in the view.
- Double-click this node to show the table data in the **Results** pane of the Query Designer.
- Right-click this node to open a shortcut menu.
- Drag this node into the **Diagram** pane of an open query.

Stored Procedure Icon

Identifies the name of a stored procedure in the database. A stored procedure is a precompiled collection of Transact-SQL statements and optional control-of-flow statements stored in the database and processed as a unit. If another user is the owner of the stored procedure, that user's SQL Server login ID displays in parentheses after the stored procedure name. You can:

- Expand this node to show the names of the parameters in the stored procedure.
- Double-click this node to open the stored procedure in a text editor.
- Right-click this node to open a shortcut menu.

Parameter Icon

Identifies the name of a parameter in the stored procedure. You can right-click this node to open a shortcut menu.

Data Source Icon

Identifies, by name and database server, the data source that your database project is connected to. This represents the root node of a data source, usually a database.

You can expand this node to show all the local database objects associated with the data source. You can also right-click this node to open a shortcut menu.

Query Icon

Identifies the name of a query stored as a file with a .dtq extension in the project.

You can double-click this node to open the query in the Query Designer. You can also right-click this node to open a shortcut menu.

Insert Database Item Dialog Box

Allows you to select database items and insert them into the current data source or project. This dialog box appears when you choose Database Item from the Insert menu.

Dialog Box Options

Database Item Lists the types of objects available in the databases you are connected to and lets you select the type of database item you want to insert:

Database Item	Microsoft SQL Server 6.5	Microsoft SQL Server 6.0	Oracle 7.x	All Others
Table	available	not available	not available	not available
Database Diagram	available	not available	not available	not available
Query	project dependent	project dependent	project dependent	project dependent
Stored Procedure	available	available	available	not available

Database Lists the databases you are connected to for this project. Select the database that you want to insert the data item into.

OK Creates the database item you selected in the appropriate editor.

Cancel Cancels this action.

Help Opens the Help topic for this dialog box.

Options Dialog Box

Allows you to set options for queries and stored procedures for Microsoft SQL Server databases. This dialog box appears when you choose Options from the Tools menu. In the dialog box, choose the DataView tab to set the options described below.

Dialog Box Options

Limit SQL output If checked, this option limits the number of lines of data visible in the debug window when you run a query or stored procedure. If you check this option, type the number of lines you want to be able to see in the SQL pane.

SQL Query Timeout The number of seconds that elapse before a database connection times out. The default is 15 seconds.

SQL Server debugging If checked, this option enables the SQL Server debugger.

Verbose SQL output If checked, this option causes all output from the SQL Server driver to be displayed in the **Debug** tab of the **Output** window during debugging.

OK Accepts your settings.

Cancel Cancels this action.

Create Trigger dialog box

Allows you to specify the types of transactions that will activate the trigger you are creating. Triggers are often created to enforce referential integrity or consistency among logically related data in different tables

Dialog Box Options

Name Shows the default name of this trigger. You should type a different name for the trigger when you create it.

Insert If checked, this option activates the trigger when you add data (using the INSERT statement) to the table.

Delete If checked, this option activates the trigger when you delete data (using the DELETE statement) from the table.

Update If checked, this option activates the trigger when you change data (using the UPDATE statement) in the table.

OK Accepts your settings.

Cancel Cancels this action.

Help Opens the Help topic for this dialog box.

Execute Permissions Dialog Box

Under construction.

Execute Stored Procedure Dialog Box

Under construction.

Server Error(s) Dialog Box

Under construction.

Zoom Dialog Box

Under construction.

Save As Dialog Box


Under construction.

Choose Name Dialog Box

Under construction.

Save Change Script Dialog Box

Displays a change script whenever there are unsaved database changes in your table or database diagram and enables you to save the change script as a text file with an .sql extension in the project directory. This dialog box appears when you choose **Save Change Script** from the **File** menu or click

the **Save Change Script** button  on the toolbar.

Dialog Box Options

Yes Saves the SQL change script in the project directory.

No Cancels the save action.

For more information about saving SQL change scripts, see the topic “Saving a Change Script.”

Datatype Change Required Dialog Box

Appears when you change the data type, length, scale, or precision of a column that participates in a relationship.

Dialog Box Options

Yes Changes the data type properties of the related columns shown in the list so that existing relationships are preserved.

No Cancels the data type change and restores the previous data type to the column you just changed.

Note Although you cannot undo changes made to a table or database diagram, the changes are not saved to the database until you save the table or diagram. You can discard any unsaved changes by closing all open diagrams without saving them.

For more information about changing data types, see the topic “Changing the Data Type Assigned to a Column.”

Save Dialog Box

Appears when you attempt to save a database diagram or selected tables in order to confirm the tables that will be saved. This dialog box does not appear when your diagram contains only one modified table.

Dialog Box Options

Yes Saves all the tables shown in the list.

No Cancels the save action.

Save Text File Saves the list of tables in a text file in the project directory and displays a message box with the fully-qualified filename of the text file. This file provides a record of the tables that were affected by the changes you made.

Note Although you cannot undo changes made to a table or database diagram, the changes are not saved to the database until you save the table or diagram. You can discard any unsaved changes by closing all open diagrams without saving them.

For more information about the effects of saving tables and diagrams, see the topic “Saving Database Changes.”

Database Changes Detected Dialog Box

Appears if you attempt to save a database diagram or selected tables and some of the database objects that will be affected by the save action are out of date with the database. Accepting the changes shown in this dialog box updates the database to match your diagram and overwrites other users' changes.

Dialog Box Options

Yes Updates the database with all the changes shown in the list.

No Cancels the save action.

Save Text File Saves the list of database changes in a text file in the project directory and displays a message box with the fully-qualified filename of the text file. This file provides a record of the changes you made.

Note Although you cannot undo changes made to a table or database diagram, the changes are not saved to the database until you save the table or diagram. You can discard any unsaved changes by closing all open diagrams without saving them.

For more information about saving database objects that have changed since you began working in the Database Designer, see the topic "Saving Changes to a Modified Database."

Unsaved Changes Exist Dialog Box

Appears if you attempt to close the last table or database diagram in the Database Designer when there are unsaved tables in memory.

Dialog Box Options

Yes Saves all the tables shown in the list.

No Closes the diagram without saving the changes.

Save Text File Saves the list of unsaved tables in a text file in the project directory and displays a message box with the fully-qualified filename of the text file. This file provides a record of the tables that were affected by the changes you made.

Note Although you cannot undo changes made to a table or database diagram, the changes are not saved to the database until you save the table or diagram. You can discard any unsaved changes by closing all open diagrams without saving them.

For more information about canceling unsaved changes that exist in memory, see the topic “Rolling Back Unsaved Database Changes.”

Save Incomplete Dialog Box

Appears when errors have been encountered while you were trying to save a database diagram or selected tables. This dialog box lists the following: the objects that were successfully saved in the database, the objects that were not saved, and the errors that were encountered.

Dialog Box Options

OK Returns to the diagram.

Save Text File Saves the information shown in the list in a text file in the project directory and displays a message box with the fully-qualified filename of the text file. This file provides a record of the database changes that were successfully saved as well as the changes that could not be saved due to errors.

For more information about the errors that can occur when trying to save a diagram or selection, see the topic "Troubleshooting Errors."

Create Relationship Dialog Box

Enables you to confirm the related columns and to set properties for the new relationship. This dialog box appears when you draw a relationship line between two tables in your database diagram.

Dialog Box Options

Relationship name Displays the default name of the relationship and enables you to rename it.

Primary key table Shows the name of the primary key table in the relationship, followed by the columns that make up the primary key. You can select different columns to match the columns shown under **Foreign key table**.

Foreign key table Shows the name of the foreign key table in the relationship, followed by the columns that make up the foreign key. You can select different columns to match the columns shown under **Primary key table**.

Check existing data on creation Applies the constraint to existing data in the foreign key table.

Enable constraint for INSERT and UPDATE Applies the constraint when data is added to or updated in the foreign key table.

Enable constraint for replication copies the constraint whenever the foreign key table is replicated in a different database.

OK Creates the relationship line in your database diagram and sets the properties you selected.

Cancel Erases the relationship line from your database diagram.

For more information about creating relationships between tables, see the topic "Creating a Relationship Between Tables."

Table Property Page

This property page contains a set of properties for the tables in your database diagram and their check constraints.

Selected table Shows the name of the selected table in your diagram. If more than one table is selected in your diagram, only the name of the first table in your selection appears. Expand the list to choose a different table to show properties for.

Table name Shows the name of the selected table and enables you to rename it.

Check constraints for table and columns

- **Selected constraint** Shows a list of check constraints attached to the selected table.
- **New** Creates a new check constraint for the selected table.
- **Delete** Deletes the selected check constraint from the database.
- **Constraint expression** Shows the Transact-SQL syntax of the check constraint and enables you to change it. You must type a constraint expression before exiting this box.
- **Constraint name** Shows the name of the selected constraint and enables you to rename it.
- **Check existing data on creation** Applies the constraint to existing data in the table.
- **Enable constraint for INSERT and UPDATE** Applies the constraint when data is inserted into or updated in the table.
- **Enable constraint for replication** Applies the constraint when the table is replicated in a different database.

Relationship Property Page

This property page contains a set of properties for the relationships between the tables in your database diagram.

Selected relationship Shows the name of the selected relationship in your diagram. If more than one relationship is selected in your diagram, only the name of the first relationship in your selection appears. Expand the list to choose a different relationship to show properties for.

Relationship name Shows the name of the selected relationship and enables you to rename it.

Primary key table Shows the name of the primary key table in the relationship, followed by the columns that make up the primary key.

Foreign key table Shows the name of the foreign key table in the relationship, followed by the columns that make up the foreign key.

Check existing data on creation Applies the constraint to existing data when the relationship is added to the foreign key table.

Enable relationship for INSERT and UPDATE Applies the constraint when data is inserted into or updated in the foreign key table. Also prevents a row in the primary key table from being deleted when a matching row exists in the foreign key table.

Enable relationship for replication Applies the constraint when the foreign key table is replicated in a different database.

Index/Keys Property Page

This property page contains a set of properties for the indexes, primary keys, and unique constraints attached to the tables in your database diagram. Indexes and constraints are not graphically represented in database diagrams.

Selected index Shows the name of the first index for the selected table in your diagram. If more than one table is selected in your diagram, only the name of the first index for the first table in your selection appears. Expand the list to choose a different index to show properties for.

Type Shows the object type: index, primary key, or unique.

Column name Shows the list of columns in the index, primary key, or unique constraint. You can add, change, or remove column names in this list.

Index name Shows the name of the selected index and enables you to rename it.

Create UNIQUE Enables you to create a unique constraint or index.

- **Ignore duplicate key** If you create a unique index, you can set this option to ignore duplicate keys.

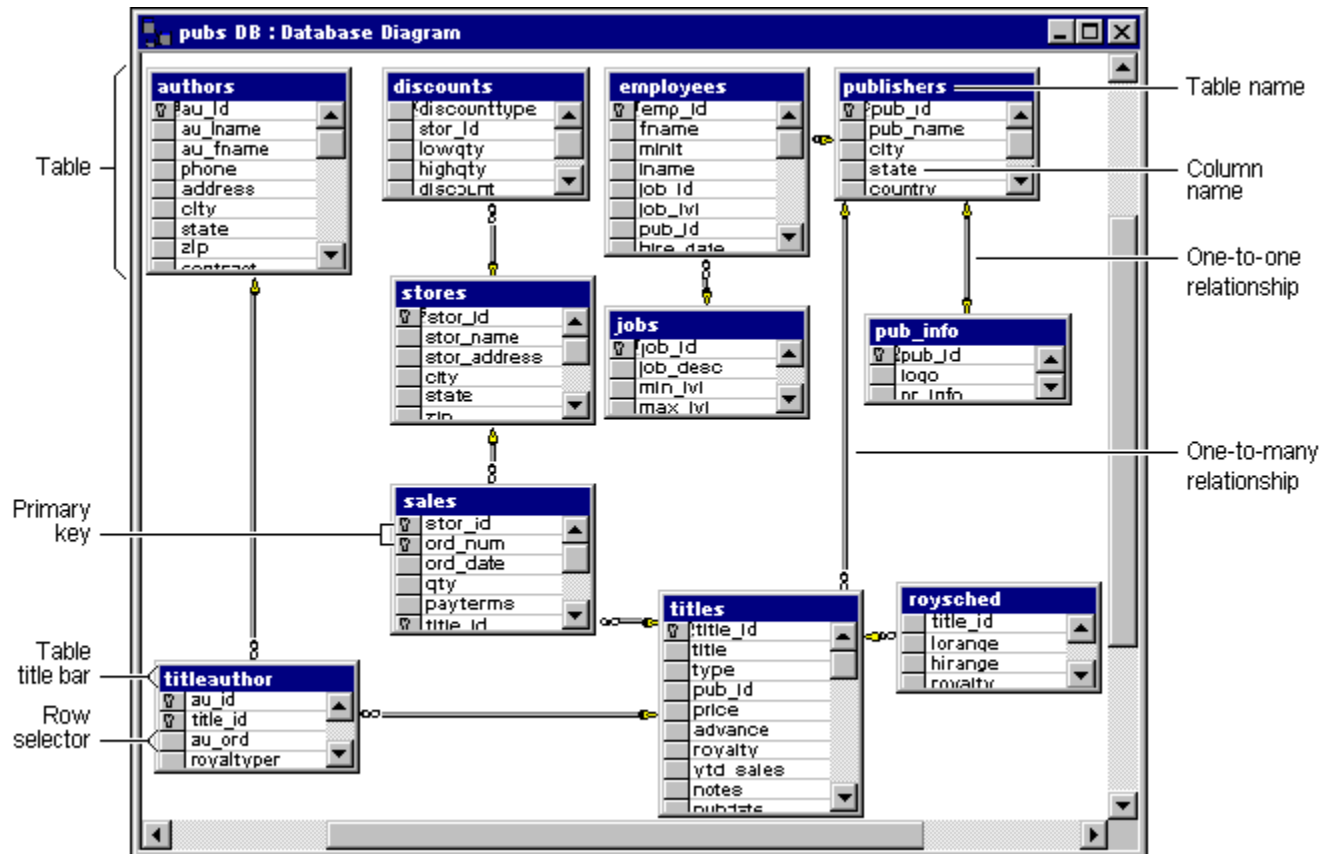
Fill factor Shows the fill factor. If a fill factor is not specified, the database's default fill factor is used.

Create as clustered Enables you to create a clustered index and set one of the following options:

- **Sort data** Organizes the data in ascending order.
- **Data already sorted** Accepts the order of existing data.
- **Reorg sorted data** Reorganizes the data in ascending order. Select this option, for example, when the table becomes fragmented or to rebuild nonclustered indexes.
- **Disallow duplicate rows** Prevents the index from being saved if duplicate rows exist.
- **Ignore duplicate rows** Deletes duplicate rows from the index as it is being created.
- **Allow duplicate rows** Creates the index, even though duplicate rows exist.

Database Diagram Window

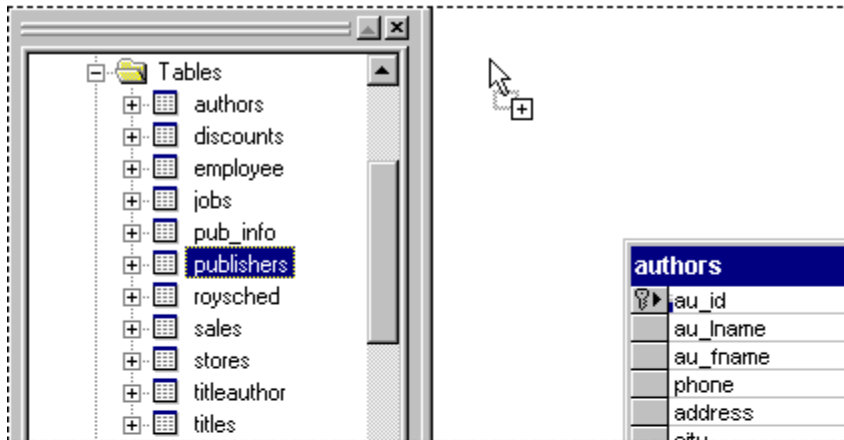
The **Database Diagram** window presents a graphic display of the tables and relationships in your database.



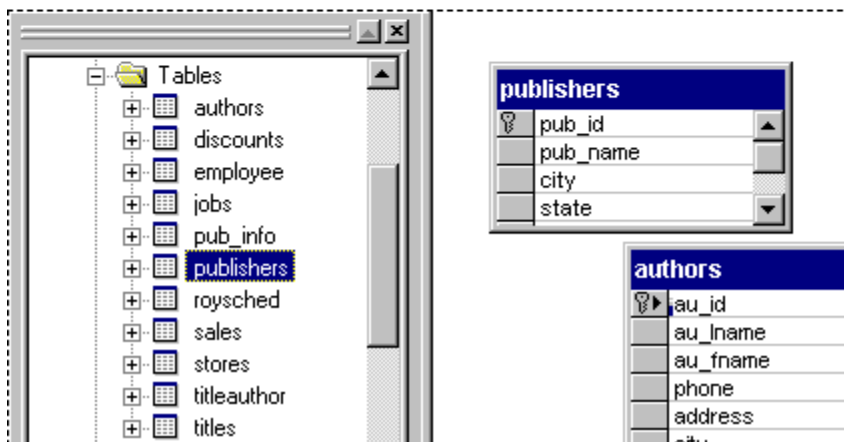
In the **Database Diagram** window, you can:

- Add tables from the **DataView** tab:

Drag a table from the DataView tab...

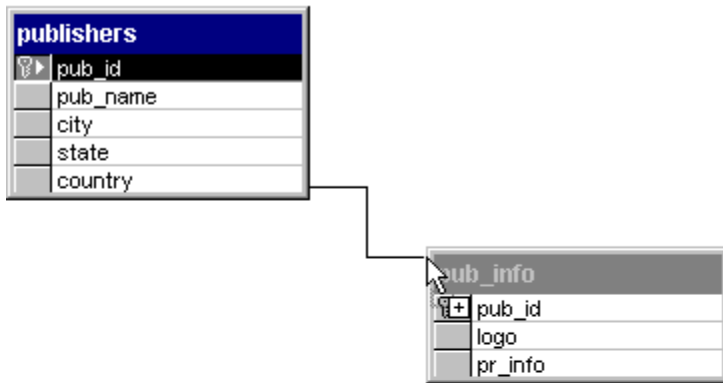


...and drop it in your database diagram.

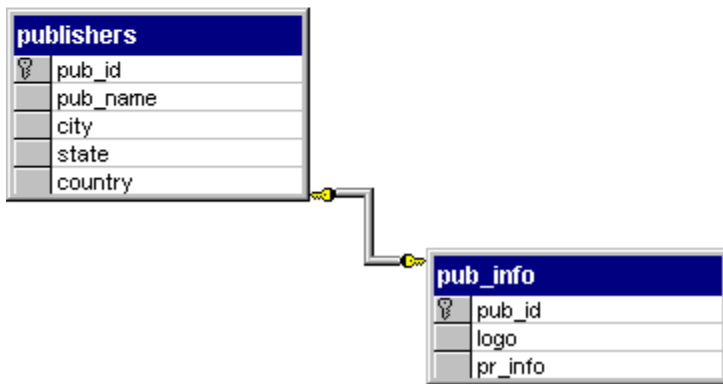


- Remove tables from the diagram and/or delete them from the database.
- Create, edit, or delete relationships between tables:

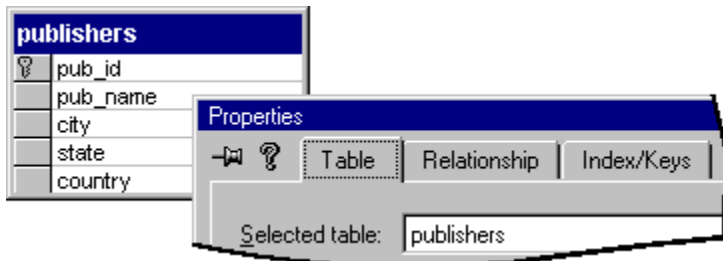
Drag a relationship line from the row selector of one table...



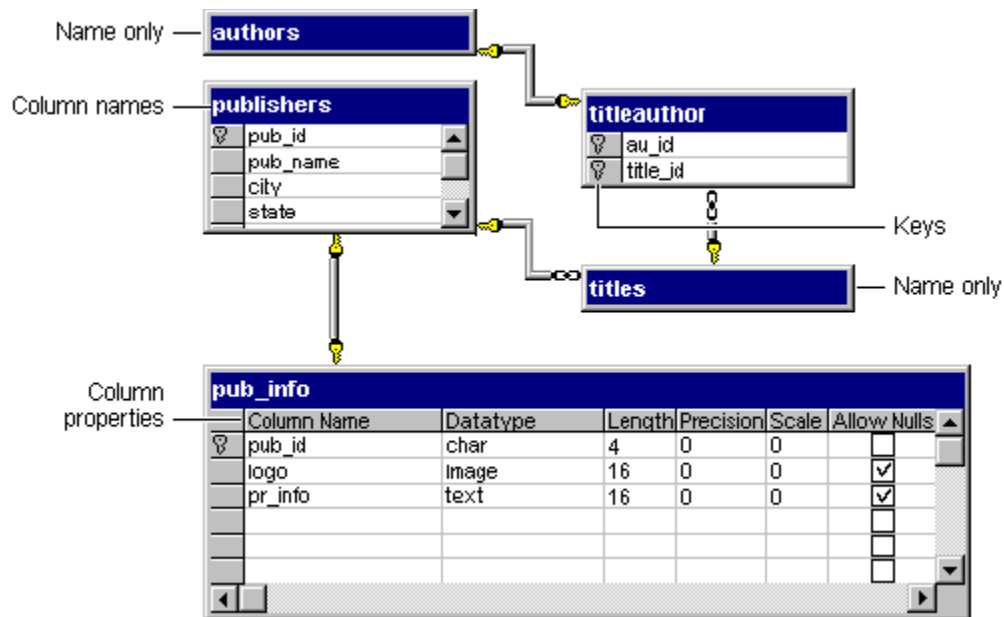
...and drop it on the related table to create a relationship.



- Create, edit, or delete database column definitions.
- Open the **Properties** window to edit objects shown in the diagram, or to create, edit or delete database objects, such as indexes and constraints, that are not graphically represented in the diagram:



- Lay out the objects shown in the diagram by expanding, collapsing or resizing tables, and rerouting relationship lines:



When you save a database diagram, the database is updated to match your diagram. The diagram is saved in your project directory and shown in the **Database Diagrams** folder of the **DataView** tab. Before you save a diagram, you can view an SQL change script to see the Transact-SQL statements that will be applied to the database when you save the diagram. If you close a diagram without saving it, the underlying database remains unchanged.

For more information about database diagrams, see the topic “Database Designer Overview.”

Diagram Pane

The **Diagram** pane presents a graphic display of the input sources (tables, views, or other queries) you have selected from the input source and shows any join relationships among them.






In the **Diagram** pane you can:

- Add or remove input sources and specify data columns for output. For details, see the section “Adding Input Sources” later.
- Specify columns for ordering the query.
- Specify that you want to group rows in the result set.
- Create or modify joins between input sources.

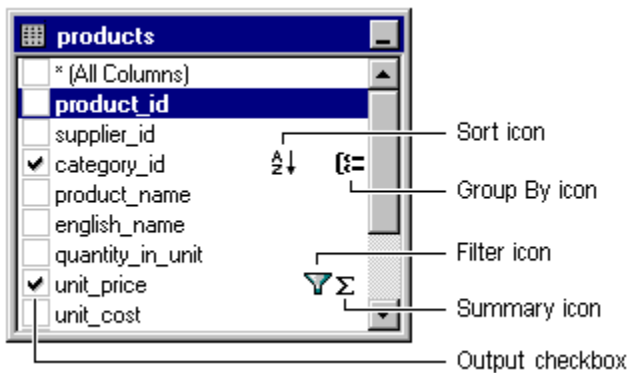
When you make a change in the **Diagram** pane, the **Grid** pane and **SQL** pane are updated immediately to reflect your change. For example, if you select a column for output in an input source window in the **Diagram** pane, the Query Designer adds the data column to the **Grid** pane and to the SQL statement in the **SQL** pane.

About the Diagram Pane



Each input source appears as a separate window in the **Diagram** pane. The icon in the title bar of each window indicates what type of input source the window represents, as illustrated in the following table.

Icon	Input source type
	Table
	Query or View
	Linked Table
	Subquery (in FROM clause)
	Linked View

The input source's data columns are listed in its window. Check boxes and symbols appear next to the names of columns to indicate how the columns are being used in the query. ToolTips display information such as data type and size for columns.



The following table lists the check boxes and symbols used in input source windows.

Check box or Symbol	Description
<input checked="" type="checkbox"/> <input type="checkbox"/>  	Specifies whether a data column appears in the query result set (Select query) or is used in an action query (Insert Into query or Update query). Select the column to add it to the results. If (All Columns) is selected, all data columns appear in the output.

Note The icon used with the check box changes according to whether you are creating a Select, Insert Into, or Update query (you cannot select individual columns when creating a Delete query).



Indicates that the data column is being used to order the query results (is part of an ORDER BY clause). The icon appears as A-Z if the sort order is ascending, or Z-A if sort order is descending.



Indicates that the data column is being used to create a grouped result set (is part of a GROUP BY clause).



Indicates that the data column is part of the search criteria for the query (is part of a WHERE or HAVING clause).



Indicates that the contents of the data column are being summarized for output (are included in a SUM, AVG, or other aggregate function).

Note The Query Designer will not display data columns for an input source if you do not have sufficient access rights to it or if the ODBC driver cannot return information about an input source. In such cases, the Query Designer displays only a title bar for the input source.

Resizing Input Source Windows

If you need more room in the **Diagram** pane, you can resize individual input source windows as you would any window. In addition, you can collapse them so that only the input source names are visible. When you want to work with columns in an input source whose window has been collapsed, you can expand that input source again.

▶ To collapse an input source window

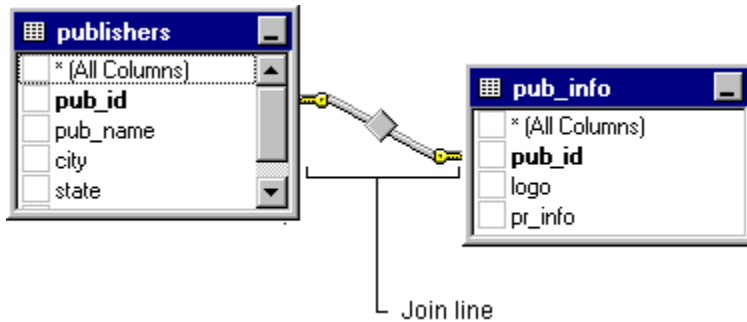
- 1 Select the input source.
- 2 From the **View** menu, choose **Show Table Name Only**.
– Or –
Click the Minimize button in the window's title bar.

▶ To expand a collapsed input source window

- 1 Select the input source.
- 2 From the **View** menu, choose **Show Column Names**.
– Or –
Click the Restore button in the window's title bar.

Working with Joined Tables

If the query involves a join, a join line is displayed between the data columns involved in the join. If the joined data columns are not displayed (for example, the input source window is minimized or the join involves an expression), the Query Designer places the join line in the title bar of the input source window. The Query Designer displays one join line for each join condition.



The shape of the icon in the middle of the join line indicates how the input sources are joined. If the join clause uses an operator other than equal (=), the operator is displayed in the join line icon. The following table lists the icons that are displayed in the join line.

Join line icon	Description
	Inner join (created using equal sign)
	Inner join based on "greater than" operator. (The operator displayed in the join line icon reflects the operator used in the join.)
	Left outer join
	Right outer join
	Full outer join

Note The words "left" and "right" do not necessarily correspond to the position of tables in the **Diagram** pane. "Left" refers to table whose name appears to the left of the keyword JOIN in the SQL statement, and "right" refers to the table whose name appears to the right of the JOIN keyword. If you move tables in the **Diagram** pane, you do not change which table is considered left or right.

Icons on the ends of the join line indicate the type of join. The following table lists the types of joins and the icons displayed on the ends of the join line.

Icon on ends of join line	Description
	One-to-one join
	One-to-many join
	Many-to-one join
	Query Designer cannot determine join type.

See Also

[Grid Pane](#)

[Results Pane](#)

[SQL Pane](#)

Grid Pane

The **Grid** pane allows you to specify query options — such as which data columns to display, how to order the results, and what rows to select — by entering your choices into a spreadsheet-like grid. In the **Grid** pane you can specify:

- Columns to display and column name aliases.
- Expressions for calculated columns.
- The sort order for the query.
- Search criteria.
- Grouping criteria, including aggregate functions to use for summary reports.
- New values for Update queries.
- Target column names for Insert queries.

When you make changes in the **Grid** pane, the **Diagram** pane and **SQL** pane are immediately updated. Similarly, the **Grid** pane is updated automatically to reflect changes made in the other panes.

About the Grid Pane

The rows in the **Grid** pane display the data columns used in your query, and columns in the **Grid** pane display query options.

Query options appear in grid columns

Column	Output	Sort Type	Sort Order	Criteria	Dr...
employee_id	<input checked="" type="checkbox"/>				
last_name	<input checked="" type="checkbox"/>	Ascending	1		
first_name	<input checked="" type="checkbox"/>				
birth_date	<input checked="" type="checkbox"/>	Ascending	2	> "01 Dec 26"	

Data columns appear as rows in the grid

The specific information that appears in the **Grid** pane depends on the type of query you are creating. For example, if you are creating a Select query, the **Grid** pane contains different columns than if you are creating an Update query.

The following table lists the grid columns that can appear in the **Grid** pane.

Column	Query Type	Description
Column	All	Displays either the name of a data column used for the query or the expression for a computed column. This column is locked so that it is always visible as you scroll horizontally.
Alias	Select, Insert, Update	Specifies either an alternate name for a column or the name you can use for a computed column.
Table	Select, Insert, Update	Specifies the name of the input source for the associated data column. This column is blank for computed columns.
Output	Select	Specifies whether a data column appears in the query output. Note If the data source allows it, you can use a data column for sort or search clauses without displaying it in the result set.
Sort Type	Select, Insert	Specifies that the associated data column is used to sort the query results, and whether the sort is ascending or descending.

Sort Order	Select, Insert	Specifies the sort priority for data columns used to sort the result set. When you change the sort order for a data column, the sort order for all other columns is updated accordingly.
Group By	Select, Insert	Specifies that the associated data column is being used to create a grouped result set. This grid column appears only if you have chosen Group By from the Tools menu or have added a GROUP BY clause to the SQL pane.

By default, the value of this column is set to **Group By**, and the column becomes part of the GROUP BY clause.

When you move to a cell in this column and select an aggregate function to apply to the associated data column, by default the resulting expression is added as an output column for the result set.

Criteria	All	Specifies a search condition (criterion) for the associated data column. Enter an operator (the default is "=") and the value to search for. Enclose text values in single quotation marks.
-----------------	-----	---

If the associated data column is part of a GROUP BY clause, the expression you enter is used for a HAVING clause.

If you enter values for more than one cell in the Criteria grid column, the resulting search conditions are automatically linked with a logical AND.

To specify multiple search conditions expressions for a single database column (for example, `(fname > 'A') AND (fname < 'M')`), add the data column to the **Grid** pane twice and enter separate values in the **Criteria** grid column for each instance of the data column.

Or ...	All	Specifies an additional search condition expression for the data column, linked to previous expressions with a logical OR. You can add more Or ... grid columns by pressing TAB in the rightmost Or ... column.
---------------	-----	---

Append	Insert	Specifies the name of the target data column for the associated data column. When you create an Insert query, the Query Designer attempts to match the source to an appropriate target data column. If the Query Designer cannot choose a match, you must provide the column name.
---------------	--------	--

New Value	Update	Specifies the value to place into the associated column. Enter a literal value or an expression.
------------------	--------	--

Navigating in the Grid Pane

You can move from cell to cell in the **Grid** pane using the mouse or by pressing TAB or the arrow keys. As you scroll, the leftmost grid column (**Column**) is locked so that you can always see the data column name you are working with.

Resizing Grid Columns

You can resize grid columns to make more room for entries.

▶ **To resize a grid column**

- Move the mouse over the divider between grid column headers until it changes to a double-headed arrow, and then either drag the grid column header until the column is the size you want or double-click to auto-size the column.

Editing Values in Cells

You can specify query options by entering values in the appropriate cell of the **Grid** pane. Certain grid columns — for example, **Column** or **Sort By** — display a drop-down list when you navigate to them.

The check box in the **Output** grid column indicates whether a data column appears in the **Results** pane when you run the query. If this check box is selected, the data column will appear in the output. If it is not selected, the data column will be used for ordering or searching, but will not appear in the **Results** pane.

To remove an option, move to the appropriate cell, select the value, and then press DELETE. To remove all the values in a grid column, select the column by clicking its header, and then press DELETE.

Adding and Removing Data Columns in the Grid Pane

You can add and remove data columns to the grid to make them part of the query. If you are displaying data columns, the order in which you add them to the query determines the order they appear in the **Results** pane. Adding a data column to the query puts it rightmost in the **Results** pane. To control more precisely where a data column appears in the output, you can insert a data column between existing grid columns.

▶ **To add a data column to the grid**

- Drag the column name from the **Diagram** pane onto the **Column** column.
 - Or –
- Navigate to a blank cell at the bottom of the **Columns** column, and then choose the name of a column to add from the drop-down list.

▶ **To insert a data column in the grid**

- 1 Select the row by clicking the box to the left of the **Column** column.
- 2 Press INSERT to insert a blank row.
- 3 In the **Columns** column, select the data column to use in the grid.

▶ **To remove a data column from the grid**

- Delete the contents of the **Column** column for the data column you want to remove.
 - Or –
- Select the row containing the column by clicking the box to the left of the **Column** column, and then press DELETE. You can select and delete multiple rows at one time.

The Query Designer removes the selected data column as an output field, sort column, and search condition for the query.

Reordering Grid Rows

If you are displaying individual columns in the query result set, the order in which the columns appear in the **Grid** pane determines the output. The data column that is topmost in the grid appears leftmost in the result set, and the bottom row in the grid contains the data column that appears rightmost in the result set.

To control where in the result set a data column appears, you can move the corresponding row in the **Grid** pane.

▶ **To reorder grid rows**

- 1 Select the row by clicking the button to the left of the row.
- 2 Drag the row to the new location.

Tip You can also insert a data column into the grid at a specific location by inserting a blank row, and then specifying the data column to insert. For details, see “Adding and Removing Data Columns in the Grid Pane” above.

See Also

[Diagram Pane](#)

[Results Pane](#)

[SQL Pane](#)

SQL Pane

The **SQL** pane displays the SQL statement for the current query. It is updated automatically as you build a query.

In the **SQL** pane you can:

- Create new queries by entering SQL statements.
- Modify the SQL statement created by the Query Designer based on settings you make in the **Diagram** and **Grid** panes.
- Enter back-end-specific statements that take advantage of features specific to the data source you are using.

Entering Statements in the SQL Pane

You can edit the current query directly in the **SQL** pane. When you move to another pane, the Query Designer automatically formats your statement, and then changes the **Diagram** and **Grid** panes to match your statement.

If your statement cannot be represented in the **Diagram** and **Grid** panes, the Query Designer displays an error and then offers you two choices:

- Return to the **SQL** pane and edit the statement.
- Discard your changes and revert to the most recent correct version of the SQL statement.

If you return to the SQL pane and continue editing the statement that the Query Designer, the Query Designer dims the other panes to indicate that they no longer reflect the contents of the **SQL** pane.

You can also use the **SQL** pane to enter back-end-specific SQL statements. In that case, the Query Designer displays the same behavior as when it detects an error, and dims the **Diagram** and **Grid** panes to indicate that they do not represent the current statement. You can continue to edit the statement and execute it as you would any SQL statement.

Note If you enter an SQL statement, but then make further changes to the query by changing the **Diagram** and **Grid** panes, the Query Designer rebuilds and redisplay the SQL statement. In some cases, this action results in an SQL statement that is constructed differently from the one you originally entered (though it will always yield the same results). This difference is particularly likely when you are working with search conditions that involve several clauses linked with AND and OR.

See Also

[Diagram Pane](#)

[Grid Pane](#)

[Results Pane](#)

Results Pane

The **Results** pane shows the results of the most recently executed query. In the **Results** Pane you can:

- View the result set for the most recently executed query in a spreadsheet-like grid.
- Edit the values in individual columns in the result set.
- Add new rows.
- Delete existing rows.

If you change the query definition (for example, add another output column to the query), the Query Designer dims the **Results** pane to indicate that it no longer reflects the current query. However, you can still navigate in the **Results** pane grid to edit, add, or delete rows.

Viewing the Result Set

When you execute a query, the Query Designer displays the result set in the **Results** pane grid. The Query Designer fetches and displays results incrementally (asynchronously) so that you can begin viewing data immediately and perform other tasks while the query is being executed.

The Query Designer uses these conventions when it displays data in the grid:

- Columns containing no value display the word <NULL>.
- Columns containing memo or binary data display the word <BLOB> (for “binary large object”). You cannot edit the contents of these types of columns.
- Columns containing long varchar-type data display only a portion of the data column; to see all of the data, click the cell.
- Number, currency, time, and date information is formatted according to the options set in the **Regional Settings** dialog box in the Windows Control Panel.

Navigating Through the Results Pane Grid

To see all of the result set, you can navigate through the **Results** pane grid.

▶ To navigate through the Results pane grid

- Move from cell to cell using the mouse or by pressing TAB, the arrow keys, or CTRL plus the arrow keys.
– Or –
- Use the vertical and horizontal scrollbars in the grid.
– Or –
- Right-click to display the shortcut menu, and then choose **First**, **Last**, **Next**, or **Previous**, or choose **Go to Record** to move to a specific row in the grid.

Resizing Grid Columns

If all of the data for a query does not fit on your screen, you can resize the grid columns.

▶ To resize a grid column

- Move the mouse over the divider between grid column headers until it changes to a double-headed arrow, and then either drag the grid column header until the column is the size you want or double-click to auto-size the column.

Note The width of the **Results** pane grid columns has no relationship to the width of the corresponding data columns. Resizing the **Results** pane grid column does not change the width of the data column in the table.

If the **Results** pane grid contains out-of-date information, you can clear it.

▶ **To clear the Results pane grid**

- Right-click to display the shortcut menu, and then choose **Clear**.

See Also

[Diagram Pane](#)

[Grid Pane](#)

[SQL Pane](#)

Insert Into Table Dialog Box

Allows you to specify an input source to insert new rows into. This dialog box appears when you choose Insert Query from the **Tools** menu.

Dialog Box Options

Append records to table Type or select from the list the name of the input source to add rows to. You can specify only one input source for the Insert query.

Note You can change the table to insert records into in the Properties window. For details, see [Query Tab, Properties Window](#).

See Also

[Query Tab, Properties Window](#)

[Results Pane](#)

[SQL Pane](#)

Update Table Dialog Box

Allows you to specify the input source to be updated. This dialog box appears if more than one input source is displayed in the **Diagram** pane when you choose **Update Query** from the **Tools** menu.

Dialog Box Options

Select the input source to update, and then choose **OK**.

See Also

[Results Pane](#)

[SQL Pane](#)

Delete Table Dialog Box

Allows you to specify the input source to delete rows from. This dialog box appears if more than one table is displayed in the **Diagram** pane when you choose **Delete Query** from the **Tools** menu.

Dialog Box Options

Select the input source to delete rows from, and then choose **OK**.

Note A Delete query removes entire rows from the input source. If you want to clear values from individual data columns, use an Update query. If you want to delete columns from a table definition, or delete the table itself, use the Database Designer (Microsoft SQL Server only).

See Also

[Results Pane](#)

[SQL Pane](#)

Define Query Parameters Dialog Box

Allows you to enter values for the parameters defined in the query. This dialog box appears when you execute a query that contains parameters to be filled in at runtime.

Dialog Box Options

Parameter Name Lists the parameters defined for the query being executed. If the query contains named parameters, the names appear in the list. If the query contains unnamed parameters, a question mark appears for each parameter in the query.

Parameter Value Enter the value for each parameter listed under **Parameter Name**. If you have executed the query before during this session of the Query Designer, the value used most recently appears as the default parameter value.

See Also

[Parameters Tab, Properties Window](#)

Go To Record Dialog Box

Allows you to navigate to a specific row in the **Results** pane. This dialog box appears when you choose **Number ...** from the shortcut menu in the Result pane.

Dialog Box Options

Record Enter the row number of the row you want to navigate to. If the query has finished fetching query results, the total number of rows in the result set is displayed. If you enter a number higher than the total number of rows in the result set, the Query Designer moves to the last row.

See Also

[Results Pane](#)

Query Tab, Properties Window

Contains options for controlling the behavior of the query you are building or modifying.

Tab Options

Query name Displays the name for the current query. You cannot change the query name in this box; to assign a new name, use the **Save As** command from the **File** menu.

Set query options

Output all columns Specifies that all columns from all tables in the query will be displayed. Choosing this option is the equivalent of specifying an asterisk (*) in place of individual column names for output.

Distinct values Specifies that the query will filter out duplicates when it displays results. This option is useful when you are displaying only some of the columns from a table and those columns might contain duplicate values, or when the process of joining two or more tables results in duplicate rows in the result set. Choosing this option is the equivalent of inserting the word DISTINCT into the statement in the **SQL** pane.

Destination table Specifies the name of the table into which you are inserting rows. This list appears only if you are creating an Insert Into query. Select a table name from the list.

See Also

[Join Line Tab, Properties Window](#)

[Parameters Tab, Properties Window](#)

Parameters Tab, Properties Window

Specifies options for marking parameters in the query.

To include a parameter in a query, you must mark the parameter using special characters so that the Query Designer does not mistake your parameter name for text data. For example, if you specify square brackets ([and]) as parameter markers, you can enter a parameter by specifying a search expression such as the following:

```
= [last_name]
```

When you run the query, the Query Designer prompts you for a value, then substitutes the value you provide for the parameter `last_name`.

Tab Options

Prefix character Specifies the character that marks the beginning of a parameter.

Suffix character Specifies the character that marks the end of a parameter.

Escape character Specifies a character that is used to indicate that a parameter marker character in a name is meant literally. For example, if you specify “%” as a parameter marker, you would not normally be able to include that character in a parameter name such as “% complete”. However, you can specify “\” as an escape character, and then use the following string as the parameter name:

```
%\% complete%
```

See Also

[Join Line Tab, Properties Window](#)

[Query Tab, Properties Window](#)

Join Line Tab, Properties Window

Specifies options for how tables are joined in a multi-table query.

By default, related tables are joined using an inner join that creates a result set based on rows containing matching information in the join fields. By setting options in the **Join Line** tab, you can specify a join based on a different operator, and you can specify an outer join.

Tab Options

Operator Specifies the operator used to relate the join fields. To specify an operator other than equal (=), select it from the list. When you close the dialog box, the operator you selected will appear in the diamond graphic of the join line.

Include Rows

Specifies whether unmatched rows appear in the **Results** pane.

All rows from <table1> Specifies that all rows from the left table appear in the output, even if there are no corresponding matches in the right table. Columns with no matching data in the right table appear as null. Choosing this option is the equivalent of specifying LEFT OUTER JOIN in the SQL statement.

All rows from <table2> Specifies that all rows from the right table appear in the output, even if there are no corresponding matches in the left table. Columns with no matching data in the left table appear as null. Choosing this option is the equivalent of RIGHT OUTER JOIN in the SQL statement.

Selecting both options is equivalent to specifying FULL OUTER JOIN in the SQL statement.

When you select an option to create an outer join, the diamond graphic in the join line changes to indicate that the join is a left outer, right outer, or full outer join.

Note The words “left” and “right” do not necessarily correspond to the position of tables in the **Diagram** pane. “Left” refers to table whose name appears to the left of the keyword JOIN in the SQL statement, and “right” refers to the table whose name appears to the right of the JOIN keyword. If you move tables in the **Diagram** pane, you do not change which table is considered left or right.

See Also

[Parameters Tab, Properties Window](#)

[Query Tab, Properties Window](#)

Returning Query Results (Edit)

Notifies you that the Query Designer cannot save changes to the row you have edited because a query is still in progress. This dialog box appears when you execute a query, and then before the query has been completed, you edit a row in the **Results** pane and attempt to save it by moving to another row in the grid.

By default, the Query Designer waits until the query is finished before saving the row you have edited and moving to the requested row. To help you estimate how long you must wait, the dialog box displays a progress counter.

Dialog Box Options

Cancel Choose this button to specify that you want to cancel your attempt to move to another row. The Query Designer returns you to the row you have edited, and you can save the changes later when the query is complete.

See Also

[Results Pane](#)

Returning Query Results

Notifies you that the Query Designer cannot perform the requested action because a query is still in progress. This dialog box appears when you execute a query, and then before the query has been completed, you attempt one of the following operations:

- Attempting to go to a row in the query results that has not yet been fetched.
- Inserting a new record in the **Results** pane.
- Deleting one or more rows in the **Results** pane.
- Using the **Copy** command to copy selected columns to the Clipboard.

Dialog Box Options

Cancel Cancels the attempted operation and leaves you at the row you were on when you requested the operation.

See Also

[Go To Record Dialog Box](#)

[Results Pane](#)

Database Changes Detected

Notifies you that the data row you are editing in the **Results** pane is no longer current. This dialog box appears when you attempt to save changes to a row by moving to another row in the **Results** pane and the Query Designer determines that the corresponding row in the database has changed. This situation occurs most often when another user has edited the row and saved the changes since you ran your query.

The dialog box displays a message asks how you want to proceed.

Dialog Box Options

Yes Choose this button to specify that you want to save your changes and overwrite the changes made by the other user.

No Choose this button to discard the changes you have made and fetch the most current version of the row. The Query Designer returns you to the **Results** pane after rereading the row from the database.

Cancel Choose this button to return to the **Results** pane without saving the row and without discarding your changes. If you choose this option, you can attempt to save the row again, or make further changes such as matching your edits to the version of the row in the database.

Tip To see the most current version of the row without discarding your changes, run a second query against the data you are editing.

See Also

[Results Pane](#)

SQL Syntax Errors Encountered Message

Notifies you that the statement in the **SQL** pane contains one or more syntax errors.

Query Definitions Differ Dialog Box

Notifies you that the SQL statement in the **SQL** pane cannot be represented in the **Diagram** and **Grid** panes because it contains:

- a SQL command that the Query Designer cannot execute.
- a SQL command supported only by the data source you are using.
- one or more syntax errors.

This dialog box appears when you have entered such a statement in the **SQL** pane and you switch to another pane or execute the query.

Note The Query Definitions Differ dialog box does not appear if you have hidden the **Diagram** and **Grid** panes.

The dialog box displays a message indicating why the SQL statement cannot be represented, and asks how you want to proceed.

Dialog Box Options

Yes Choose this button to specify that you want to accept the SQL statement, either to edit it further or to execute it. If you accept the statement, the Query Designer dims the **Diagram** and **Grid** panes to indicate that they do not represent the statement.

Note If the statement is not supported by the Query Designer but is correct, you can execute it even though it cannot be represented in the **Diagram** and **Grid** panes. For example, if you enter an INSERT statement that includes a VALUES clause, the statement can be executed but not represented in the other panes.

No Choose this button to discard the changes in the **SQL** pane and revert to the most recent SQL statement that can be represented in the **Diagram** and **SQL** panes.

