Query Management Facility

IBM

Getting Started with QMF for Windows

Version 6

> **Note!**
>
> Before using this information and the product it supports, be sure to read the general information under "Appendix. Notices" on page 55.

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The QMF Library

You can order manuals either through an IBM representative or by calling 1-800-879-2755 in the United States or any of its territories.

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Chapter 1. Introduction

This chapter provides an overview of QMF for Windows and explains some of the basic tasks for getting started with QMF for Windows.

Database servers

Queries, forms, procedures, and tables are run and saved at a database server.

DB2 family of databases

QMF for Windows can connect to a wide range of DB2 databases.

- DB2 UDB for OS/390, DB2 for OS/390, and DB2 for MVS
- DB2 Server for VSE & VM and SQL/DS
- DB2 Universal Database and DB2 Common Server
- DB2 Parallel Edition
- DataJoiner

Your QMF for Windows license determines which DB2 family products you can install on and connect to with your copy of QMF for Windows.

User name vs. technical name

Different versions and types of DB2 refer to a database by an RDB name, location name, or some other technical name.

With QMF for Windows your administrator can assign an easier to remember user name to a database name, for example, Purchasing Database instead of DB2P_01_PURCH.

QMF for Windows refers to a database server or a DB2 database as a "server."

Setting the server name

Before you can query a database, QMF for Windows needs to know where the database is stored.

1. From the **File** menu, click **New SQL Query**. A new SQL query document opens.

2. From the **Query** menu, click **Set Server**. The Set Server dialog box opens.

3. From the list of available servers, select the one that you want to query and click **OK**. When you begin your next QMF for Windows session, QMF for Windows automatically reconnects to the same server.

Database Security

You must provide a user ID and password before you can connect to a server.

Logging on

You must specify a valid user ID and password for the database server that you are trying to access. The database server user ID and password is not necessarily the same as your local or network user ID and password.

If you are running Windows for Workgroups or Windows 9x, you have the option of remembering server passwords across QMF for Windows sessions. If you are currently logged on to Windows, the Set User Information dialog box displays an additional check box labeled **Remember this password?**. If you select this check box, then the password you enter for that server is stored in the Windows password list. Whenever you are logged on to Windows, QMF for Windows can automatically retrieve that password so that you are not prompted. If you are not logged on when you run QMF for Windows, or if you are logged on as a different user, QMF for Windows prompts you for a user ID and password.

Note: If you choose to save a password, anyone who can log on to your Windows for Workgroups or Windows 9x account can access your database servers with your (server) user ID and password.

1. From the **Query** menu, select **Set User Information**. The Set User Information dialog box opens.

2. Enter your user ID and password in the appropriate fields.

   Note: The user ID and password are case sensitive, for example, if your user ID or password is uppercase, you must enter it in uppercase. Some types of database servers treat user IDs and passwords as case sensitive; others do not.

3. Check **Remember this password?** if you want to save your user ID and password.

4. Click **OK**. QMF for Windows stores this information in preparation for accessing the server.

Correcting passwords

If you entered an incorrect password, you can correct the error by reopening the Set User Information dialog box.

1. From the **Query** menu, click **Set User Information**. The Set User Information dialog box appears.

2. Type the password again and click **OK**. The password is corrected.

Changing passwords

You can change your password at the database server from QMF for Windows. This feature is currently supported only by DB2 for OS/390 Version 5 and later.

1. From the **Query** menu, click **Set User Information**. The Set User Information dialog box opens.

2. Click **Change**. The New password and Confirm new password fields appear.

3. Type your new password in the New password and Confirm new password fields and click **OK**. Your database server password is changed.

Specifying accounting strings

The database server uses accounting strings to track system usage. Ask your database administrator to find out if your system uses accounting strings.

1. From the **Query** menu, click **Set User Information**. The Set User Information dialog box opens.

2. In the **Accounting string** field, type the accounting string you want to use and click **OK**. QMF for Windows stores the information in preparation for accessing the server.

Governing

The QMF for Windows governor is always running in the background, monitoring the usage of database and system resources. The governor also limits the type and size of queries you can run.

Viewing resource limits

From the **View** menu, click **Resource Limits**. The Resource Limits dialog box opens. All information in the Resource Limits dialog box is read only. Your system administrator sets these limits.
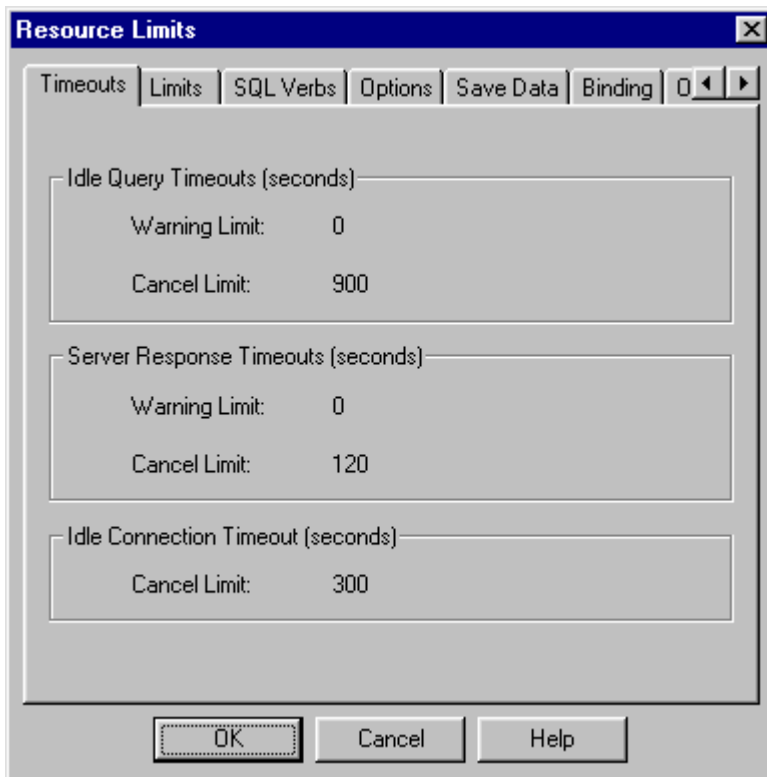
The types of limits and controls that can be in effect are:
- Timeouts
- Limits
- SQL Verbs
- Options
- Save Data
- Binding
- Object Tracking

Setting your own row limit

You can specify the maximum number of rows to retrieve for this query. When this limit is reached, QMF for Windows cancels the query. The maximum authorized row limit specified in your resource limits group takes precedence over this parameter.

Enter 0 to specify no limit in this field.

Rows that QMF for Windows has already retrieved in excess of this limit are retained and available for viewing.

1. From the **Query** menu, click **Set Row Limit**. The Set Row Limit dialog box displays.
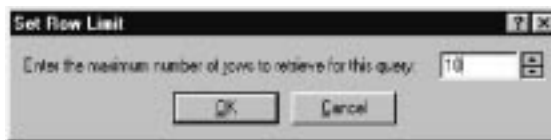
2. Enter the maximum number of rows that you want the query to return and click **OK**. The row limit is applied the next time you run the query.

Customizing the toolbar (32-bit version only)

You can customize the toolbar to display only the buttons that you want to see.

Adding buttons to the toolbar

You have the option of adding buttons to the existing QMF for Windows toolbar. These buttons represent functions that not all users may need, but that are available for inclusion in the toolbar.

1. Double-click the gray area surrounding the toolbar. The Customize Toolbar dialog box opens.

2. From the **Available buttons** column, select the button that you want to add and click **Add**. The button is added to the toolbar.
3. When you finish adding buttons, click **Close**. The dialog box closes and the new buttons are added to the toolbar

Moving buttons on the toolbar

You have the option of rearranging the buttons on the QMF for Windows toolbar.
1. Double-click on the gray area surrounding the toolbar. The Customize Toolbar dialog box opens.
2. From the Toolbar buttons column, select the button that you want to move.
3. Use the **Move Up** and **Move Down** buttons to move the button within the toolbar.
4. When you finish moving buttons, click **Close**. The dialog box closes and the buttons appear in their new locations.

Removing buttons from the toolbar

You have the option of removing buttons from the QMF for Windows toolbar.
1. Double-click on the gray area surrounding the toolbar. The Customize Toolbar dialog box opens.
2. From the Toolbar buttons column, select the button that you want to remove and click **Remove**. The button is removed from the toolbar.
3. When you finish removing buttons, click **Close**. The dialog box closes and the buttons are removed from the toolbar.

Chapter 2. Working with SQL queries

This chapter is intended for all users. After completing this chapter, you can write and run queries and view and scroll through query results.

Structured Query Language (SQL) is the most basic interface between a user and a database. Queries are written in SQL and processed by the database. Users can write QMF for Windows queries in SQL, or create queries using the "point and click" method.

SQL Queries

Structured Query Language queries require knowledge of the commands and syntax of SQL. Users unfamiliar with SQL should try creating Prompted queries.

Creating new SQL queries

Click the **New SQL Query** button on the toolbar.

A new query document opens.

Running SQL queries at a database server

1. Open a new query document and type in a query, or open an existing query file, or open a query from the database.
2. Click the **Run Query** button on the toolbar.

The query runs and the results are displayed.

Switching between the Results view and the SQL view

You can look at either the results of a query or the SQL statement itself.

From the SQL view of a query that has been run, click the **View Results** button on the toolbar.

The query results are displayed.

-or-

From the Results view of a query, click the **View SQL** button.

The SQL statement is displayed.

Selecting columns and rows

Once you have run a query, you can use the controls in the Results view to edit and select information.

Column and row selectors	Appearance	Function
Row selector	10	Click to select all the data in a row.
Column selector	ID 10	Click to select all the data in a column.
Cell	10	Click directly on the cell to select it.
Scroll-to-bottom and Scroll-to-top buttons		Click to scroll to the top or bottom of a set of query results.

Resizing columns and rows

You can change the appearance of a set of query results by resizing its columns and rows.

1. Using the mouse select the black dividing line between two columns or two rows.
2. Drag the divider line from side to side or up and down to resize the column or row.

   Note: If you save the query after resizing its rows or columns, that query is always displayed using the new formatting.

Auto fitting columns and rows

You can automatically size columns and rows to fit the data they contain.

Using the mouse, select an entire column and double-click on the black dividing line between it and the adjacent column. The column is automatically resized to fit its data.

Note: If you save the query after resizing its rows or columns, that query is always displayed using the new formatting.

Sorting query results

Once you have run a query, you can sort the results alphabetically by column.

From the Results view of a query, select a column and click the **Sort Ascending** button on the toolbar.

The query results are sorted in ascending order.

-or-

From the Results view of a query, select a column and click the **Sort Descending** button.

The query results are sorted in descending order.

Working with Fonts

You can change the font used to display queries and query results. The choice of fonts varies according to what has been installed on your computer. For more information on adding fonts, refer to your operating system's help facility.

Note: If you save the query after selecting a new query display or query results display font, that query is always displayed using the new font.

Selecting the query display font

1. From the SQL view, click **Set Font** from the **Query** menu. The Font dialog box opens.
2. Select the font for displaying the text of the query and click **OK**. The query reappears in the new font.

   Note: Click **Set As Default** to use the selected font as the default font for all new queries.

Selecting the query results display font

1. From the Results view, click **Set Font** from the **Query** menu. The Font dialog box opens.

2. Select the font for displaying the results of the query and click **OK**. The query results reappear in the new font.

   Note: Click **Set As Default** to use the selected font as the default font for all query results.

Multiple queries

You can have more than one query document open at the same time. You can also run more than one query at a time. You can use this feature to generate multiple reports, or to cut and paste SQL text from one query to another.

Displaying multiple queries simultaneously

1. Open at least two query documents.
2. From the **Window** menu, select one of the following commands:

Command	Result
Cascade	Displays queries in a staggered series.
Tile Horizontal	Displays query windows stacked vertically.
Tile Vertical	Displays query windows stacked side by side.

The query windows are arranged according to the option you select.

Drawing Queries

Use the Draw Query command to create new SQL query documents. You specify one or more table names and the type of SQL statement that you want, and QMF for Windows automatically creates an SQL statement that references the names and data types of the columns in the table.

Creating new SQL queries

1. From the **File** menu, click **Draw Query**. The Draw Query dialog box opens.

2. Select the type of query that you want to create:

Query type	Result
Select	Retrieve rows from one or more tables.
Update	Change the information in a table.
Insert	Add new rows to a table.

3. Enter the owner and name of the table to be queried.

   Note: You can use patterns to select table names from a list of matching tables.

   - Use the percent character (%) to match a string of any length containing any characters. For example, to list all tables with a name beginning with the letter A, enter A%.
   - Use the underscore character (_) to match a single character. For example, to list all tables with an owner that has the letter A in the second position, enter _A%.

   After you enter a pattern, click **Add from List** and select a table from the resulting list.

4. Enter a unique identifier for the table.
5. Click **Add**. The table is added to the query.

6. When you have added the table or tables that you want to query, click **OK**. An SQL query for the selected tables is created and displayed.

Substitution Variables in SQL Queries

With substitution variables, you can use the same query to retrieve different information by supplying different values each time you run the query. To retrieve a different set of data, you do not need to rewrite the query. Rather, you just supply different values for the substitution variables in the query when you run it.

A substitution variable is text that you include in a query. It must begin with an ampersand character (&), and can contain up to 18 characters, which can be alphabetic, numeric, or one of the following special characters: [! $ ~ { } ? @ # % \ or _. For example, the following values are valid substitution variables:

```
&VARIABLE1
&DEPARTMENT_NUMBER
```

A substitution variable can appear anywhere in a query, and its value can be anything that you might write in a query (except a comment). For example, you can use a substitution variable in place of a column name, search condition, subquery, or any specific value.

Running SQL queries with substitution variables

1. Open a new query document and enter this SQL statement:

```
SELECT * FROM Q.STAFF WHERE DEPT >= &MIN_DEPT
```

2. Run the query. The Enter Substitution Variable Values dialog box opens.
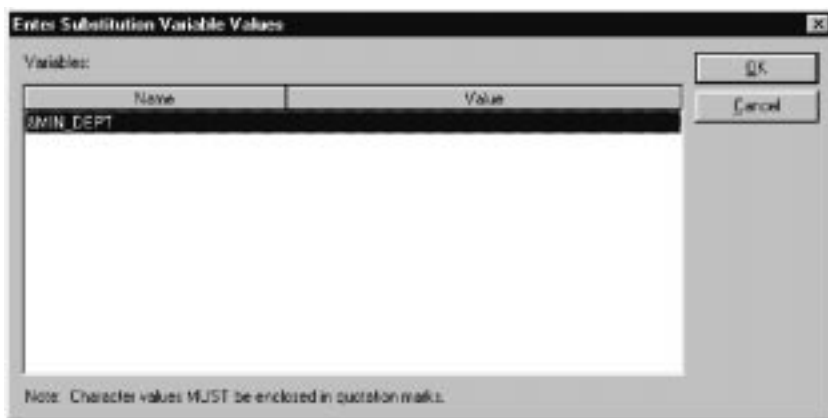
3. In the **Value** field enter a value of 50 and click **OK**. The query runs and displays the query results.

Try experimenting with substitution variables by replacing values in the SELECT and FROM clauses. See what results your queries return with different inputs.

Saving SQL Queries

You can save queries on your PC, on a file server, or at a database server.

Saving SQL queries to files

1. From an open query, click the **Save** button on the toolbar.

   If the query has been saved before, it is saved again. If the query has not been previously saved, the Save As dialog box opens.
2. Enter the name of the file where you want the query stored and click **OK**. The query is saved.

Opening saved SQL query files

1. Click the **Open** button on the toolbar.

   The Open dialog box opens.
2. Select the file that you want to open and click **OK**. The selected query opens in a new query document.

Saving SQL queries at the database server

Queries saved at the server can be made accessible to other users. If you want to share your queries with other users, save them at the database server.

1.

   From an open query, click the **Save at Server** button on the toolbar.

The Save Query dialog box opens.

2. Enter an owner, a name, select whether or not to share the saved query with other users, and click **OK**. The query is saved at the server.

   If a query with this name already exists, you are prompted to overwrite the previously existing query.

Opening saved SQL queries at the database server

You can open queries that have been saved at the database server.

1.

   Click the **Open From Server** button on the toolbar.

   The Open From Server dialog box opens.
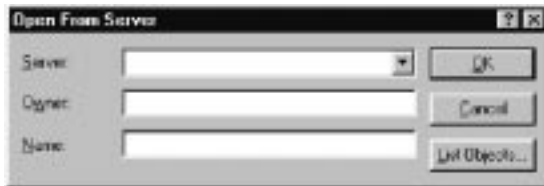
2. Enter a server, owner, and name and click **OK**. The SQL query opens.

Printing SQL Queries and Results

You can print your SQL statement and query results.

Previewing a query

1. Open a query and activate the SQL view. The SQL statement appears.
2. From the **File** menu, click **Page Setup**. The Page Setup dialog box opens.
3. Make any changes you want to the layout of the page and click **OK**.

4. Click the **Print Preview** button on the toolbar:

A preview of the printed query appears.

Previewing query results

1. Open and run a query. The query results appear.
2. From the **File** menu, click **Page Setup**. The Page Setup Dialog box opens.
3. Make any changes you want to the layout of the page and click **OK**.
4. Click the **Print Preview** button on the toolbar:

A preview of the printed query results appears.

Printing SQL queries

1. Open a query and activate the SQL view. The SQL statement appears.
2. From the **File** menu, click **Page Setup**. The Page Setup Dialog box opens.
3. Make any changes you that want to the layout of the page and click **OK**.
4. Click the **Print** button on the toolbar:

The query is printed.

Printing query results

1. Open a query and activate the Results view. The query results appear.
2. From the **File** menu, click **Page Setup**. The Page Setup Dialog box appears.
3. Make any changes that you want to the layout of the page and click **OK**.
4. Click the **Print** button on the toolbar.

The query results are printed.

Chapter 3. Building Prompted Queries

Prompted queries are an easy way for you to create a query by selecting options from menus and lists. Once you have created a prompted query, you can save it, or convert it to an SQL query.

Building simple queries

You can easily build simple queries using the prompted query interface.

Opening new prompted queries

- From the **File** menu, click **New Prompted Query**. A new Prompted Query document appears.

Prompted query action buttons

Edit prompted queries using the query action buttons. A set of buttons appears above the section that it controls.

Prompted query action button	Appearance	Result
Add		Click to add an item to the prompted query.
Edit		Click to edit the highlighted item in the query.
Delete		Click to delete the selected item.

Move up and Move down	⬆️⬇️	Click to move the selected item up and down in the prompted query.

Adding tables to prompted queries

1. In the Tables section of the Prompted Query document, click the **Add** button.

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The Tables dialog box opens.

Tables	☒
Table owner:	[ ]	Add From List...
Table name:	[ ]	
	Add	Cancel

2.

   Type the owner and name of the table that you want to add and click **Add**. The table is added to the query.

   Note: You can use patterns to select objects from a list of matching objects.
   - Use the percent character (%) to match a string of any length containing any characters. For example, to list all tables with a name beginning with the letter A, enter A%.
   - Use the underscore character (_) to match a single character. For example, to list all tables with an owner that has the letter A in the second position, enter _A%.

   After you enter a pattern, click **Add From List** and select a table from the resulting list.

3. Add any additional table conditions to the query and click **Close**. The prompted query document appears with the new tables listed.

Running prompted queries

You run a prompted query the same way that you run an SQL query.Click the Run Query button on the toolbar.

🔳

The prompted query runs.

Building Complex Queries

You can also build more complex queries using the prompted query interface.

Adding columns to prompted queries

1. In the Column section of the Prompted Query document, click the Add button.

   The Columns dialog box appears.

2. Select the column you want to add and click **Add**. The column is added to the prompted query.
3. Add any additional columns to the query and click Close. The Prompted Query document appears with the new columns listed.

   Note: You can apply a summary function to the column by selecting one in the Function field. Available summary functions include: AVERAGE, COUNT, MAXIMUM, MINIMUM, and SUM.

   Note: You can rename a column in the query by typing a new column name in the **New column name** field.

Using sort conditions

Sort conditions are used to specify the way you want to sort the rows in the query. Rows can be sorted in ascending (A-Z) or descending (Z-A) order.

If you sort your rows by more than one column, the first column is ordered first, the second column is ordered within the order of the first column, and so on.

Adding sort conditions

1. In the Sort conditions section of the Prompted Query document, click the **Add** button.

The Sort Conditions dialog box displays.

2. Select the column you want to sort by, the direction in which to sort, and click Add. The sort condition is added to the prompted query.
3. Add any additional sort conditions to the query and click **Close**. The Prompted Query document appears with the new sort conditions listed.

Using row conditions

Many times you want to view only certain rows in a table. To select specific rows to view, add row conditions. If you don't use row conditions, all the rows in the table are displayed.

The following row conditions are available:

- Equal to
- Less than
- Less than or equal to
- Greater than
- Greater than or equal to
- Between
- Starting with

- Ending with
- Containing
- NULL

Row conditions are controlled by the following operators:

- Is
- Is Not

Adding row conditions

1. In the Row conditions section of the Prompted Query document, click the **Add** button.

🔁

The Row Conditions dialog box displays.
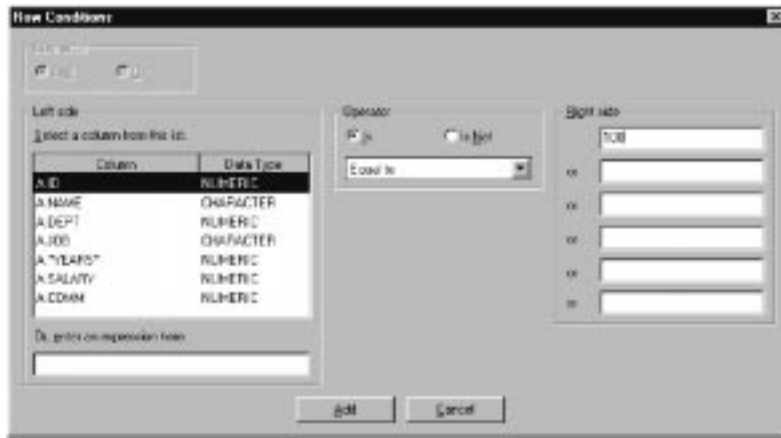
2. Select the parts of the conditional statement and click **Add**.

Part of the row condition	Function
Left side	Select the column you want to examine.
Operator	Determine the relationship between the left and right hand sides of the row.
Right side	Enter the condition for which you want to check.

The row condition is added to the prompted query.

3. Add any additional row conditions to the query and click **Close**. The Prompted Query document appears with the new row conditions listed.

Using multiple tables in prompted queries

You can include information from more than one table in a prompted query.

You must relate the two tables, specifying one or more join conditions in each. Only rows from the tables where join columns are equal are included in the results. The data type of each column in a join condition must match. Once you have specified a relationship between two columns, QMF for Windows remembers the relationship, and suggests it in future queries, making the creation of subsequent queries simpler and more efficient.

Creating prompted query join conditions

1. In the Tables section of the Prompted Query Window click the **Add** button to add at least two tables. If you have never joined the tables before, the Join Tables dialog box appears. If you have, QMF for Windows suggests the join condition that you used previously.
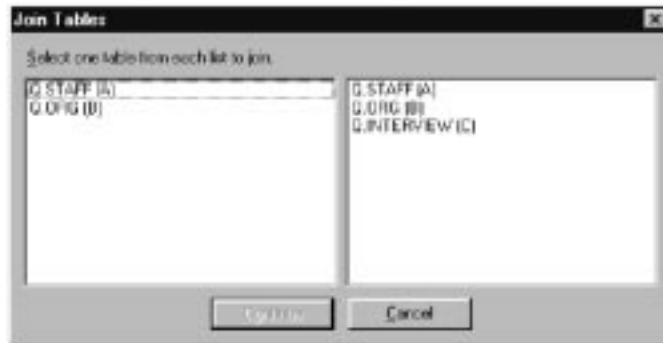
2. Select a column with the same data type from each table and click **Add**. The new join condition appears in the prompted query.

Prompted queries and SQL

You can use the prompted query interface to learn SQL

Viewing SQL for prompted queries

• From the prompted query view, click the **View SQL** button on the toolbar.

The equivalent SQL statement for the prompted query appears. You cannot modify the SQL statement from this view.

Converting prompted queries to SQL

You can convert a prompted query to a new SQL query document. The new SQL query can be modified, saved, printed, etc.

• From the **Query** menu, click **Convert to SQL**. The query is converted into a new SQL query document.

Using Substitution Variables in Prompted Queries

Substitution variables can be used in a prompted query in the same way as in an SQL query. See ""Substitution Variables in SQL Queries" on page 12"Substitution Variables in SQL Queries" on page -28".

For example, substitution variables can be used in:

- a row condition

  `DEPT Is Greater Than Or Equal To &MinDept`

- a column specification

  `&InputNum`

Saving Prompted Queries

Prompted queries can be saved in files on your PC, on a file server, or at a database server.

Saving prompted queries to files

1. From an open prompted query, click the **Save** button on the toolbar.

Note: IIf the query has been saved before, it is saved again. If the query has not been previously saved, the Save As dialog box opens.

2. Enter the name of the file where you want the prompted query stored and click **OK**. The query is saved.

Opening saved prompted query files

1. Click the **Open** button on the toolbar.

The Open dialog box opens.

2. Select the file you want to open and click **OK**. The selected prompted query opens in a new query document.

Saving prompted queries at the database server

1. From an open prompted query, click the **Save at Server** button on the toolbar.

The Save Query dialog box opens.

2. Enter an owner, a name, select whether or not to share the saved query with other users, and click **OK**. The query is saved at the server.

If a query with this name already exists, you are prompted to overwrite the previously existing query.

Opening saved prompted queries at the database server

You can open prompted queries that have been saved at the database server.

1.

Click the **Open From Server** button on the toolbar.

The Open From Server dialog box opens.

2. Enter a server, owner, and name and click **OK**. The prompted query opens.

Printing Prompted Queries

You can print your prompted query. You can also print the SQL text or the results of a prompted query. See "Printing SQL Queries and Results" on page 14Printing SQL Queries and Results on page 2-31

Previewing prompted queries

You can preview the results or text of a prompted query before you print it.

1. Open a query and activate the prompted view. The query appears.
2. From the **File** menu, click **Page Setup**. The Page Setup dialog box opens.

3. Make any changes you want to the layout of the page and click **OK**.
4. Click the **Print Preview** button on the toolbar:

A preview of the printed query appears.

Chapter 4. Building Reports

Reports are created by combining data from a query with formatting from a form.

Forms

Forms are used to create, display, and print reports.

Understanding Forms

Forms are composed of a number of components. These components can all be edited in a form document.

Main The primary components of a form, including headings, footings, and breaks.

Breaks

Characteristics, content, and placement of up to six subtotal lines in a report.

Calculations

Report calculation expressions.

> **Note:** You must have IBM's ObjectREXX installed on your machine to use form calculations.

Columns

Appearance and formatting of columns in the report. Definable characteristics include column order, format, usage, indentation, and width.

Conditions

Conditional formatting constraints. For example, you can set the form to not display rows that do not meet certain characteristics.

> **Note:** Although this form component can be edited and saved, form conditions are not supported when producing a report in Windows.

Details

Report detail headings and body text. This is where you can combine or replace tabular data with free-form text to create form letters or address labels.

Final Content and placement of your report's final text. For example, you can choose to include final text and summary data at the end of the report.

HTML
Content and placement of HTML tags and formatting in HTML reports.

Options
Miscellaneous appearance options for your report.

Page Content and placement of the page heading and footing on your report.

Producing a report using a form

Reports are created by combining query results with the formatting options contained in a form. You can produce multiple reports from a single set of query results by repeating this process.

1. From a query results view, click the **Display Report** button.

The Select Form dialog box appears.

2. Depending on the type of form you select in the Select From dialog box, you are asked to provide additional information. Specify the file location or owner and name, or document title, as appropriate, and click **OK**. The report is generated using the selected form and current query results.

Editing a form

The Form window provides many options for editing and formatting forms.

From an open form, display the Form menu. The Form menu lists all your options for editing and formatting your form. You can also edit any of these components by clicking the corresponding button on the toolbar.

Creating a form

These steps all include sample data from the table Q.STAFF. Try experimenting with different settings to create your own custom forms.

Step 1: Create a form

1. Run the following SQL query to retrieve the data to display in the report:

   ```
   SELECT * FROM Q.STAFF ORDER BY DEPT, NAME
   ```

   The query results appear.
2. Click the **Display Report** button on the toolbar. The Select Form dialog box appears.
3. Specify that you want to use the default form and click **OK**. QMF for Windows displays the default report. To make changes to the default format, click one of the form component buttons on the toolbar. A button for each form component is displayed on the form toolbar.

Step 2: Change the Column Order

We want NAME to be the first column in the report and ID to be the second. The order of the columns is specified in the Columns component of the form.

1. Click **Columns** on the **Form** menu to display the Form Columns dialog box.
2. Change the sequence of a column by typing over the existing sequence value. To make NAME the first column in the report, change its sequence number (the column in the list labeled Seq) to 1.
3. To make ID the second column in the report, change its sequence number to 2 and click **OK**. QMF for Windows displays the report with the new column order in the Form window.

Step 3: Change the Column Headings

We want the first column heading to be EMPLOYEE and the second to be COMMISSION. Column heading text is specified in the Columns component of the form.

1. Click **Columns** on the **Form** menu to display the Form Columns dialog box.
2. Change the column heading by typing over the existing column heading text. Change the first column heading to EMPLOYEE, and the last column heading to COMMISSION and click **OK**. QMF for Windows displays the report with the new column headings in the Form window.

Step 4: Change the Column Format

We want the SALARY column to be displayed with the appropriate currency symbol. The format of a column is determined by its edit code, which is specified in the Columns component of the form.

1. Click **Columns** on the **Form** menu to display the Form Columns dialog box.

2. Change the SALARY column edit code to D2 by typing over the existing edit code and click **OK**. QMF for Windows displays the report with the SALARY column using the appropriate currency symbol in the Form window.

Step 5: Add Summary Information

We want to divide the report into separate sections for each department. In addition, we want to see the total SALARY and COMMISSION for each department at the end of each section. To do this, we need to specify how we want each column in the report to be used. The usage of a column is determined by its usage code and is specified in the Columns component of the form.

1. Click **Columns** on the **Form** menu to display the Form Columns dialog box.
2. To divide the report into sections based on DEPT, change the usage code of DEPT to BREAK1. Usage codes beginning with the word BREAK produce a section break for the specified column. The number that follows the word BREAK determines the break level; up to six break levels are supported in a report.
3. To specify that we want to include a total SALARY and COMMISSION for each DEPT, change the usage code of SALARY and COMMISSION to SUM.
4. The report will be easier to understand if we also include descriptive information at the end of each section break. To do this, click **Breaks** on the **Form** menu.
5. You specify break footing text on the Form Breaks dialog box. Set the first break footing line to Department Total and click **OK**. QMF for Windows displays the Form window.

Step 6: Add Page Headers and Footers

We want to add a page heading and footing to our report. Page headings and footings are specified in the Page component of the form.

1. Click **Page** on the **Form** menu to display the Form Page dialog box
2. The top portion of this dialog is used to specify the page heading. Set the first line of the page heading to Department Report and the second line to Total Salary and Commissions. Choose how you want the heading to be aligned.
3. The bottom portion of this dialog is used to specify the page footing. Set the first line of the page footing to End Of Page. Choose how you want the footing to be aligned and click **OK**. QMF for Windows displays the Form window.

Saving Forms

You can save forms on your PC, on a file server, or at a database server.

Saving a form to a file

1. From an open form, click the **Save** button.
2. If the form has been saved before, select **Save**. If the form has not been previously saved, the Save As dialog box opens.
3. Enter the name of the file where you want the form stored, and click **OK**. The form is saved.

Opening saved form files

1. Click the **Open** button on the toolbar.

The Open dialog box appears.

2. Select the file that you want to open and click **OK**. The selected form opens in a new form document.

Saving forms at the database server

Forms saved at the server can be made accessible to other users. If you want to share your forms with other users, save them at the database server.

1.

From an open form, click the **Save at Server** button on the toolbar.

The Save Form dialog box opens.

2. Enter an owner, a name, select whether or not to share the saved form with other users, and click **OK**. The form is saved at the server.

   If a form with this name already exists, you are prompted to overwrite the previously existing form.

Opening saved forms at the database server
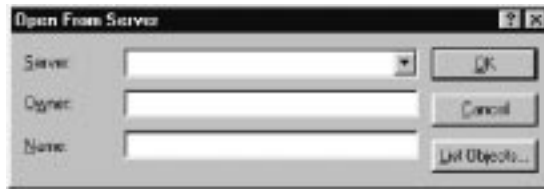
You can open forms that have been saved at the database server.

1.
   Click the **Open From Server** button on the toolbar.

   The Open From Server dialog box opens.

2. Enter a server, owner, and name and click **OK**. The form opens.

Printing Reports

You can produce printed reports.

1. Open a form and click **Page Setup**.
2. Make any changes that you want to the layout of the page and click **OK**.
3. Click**Print Report** on the **File** menu.
   The report is printed.

Exporting Reports

You can export a report to a file.

1. Open a form and click **Page Setup**.
2. Make any changes that you want to the layout of the page and click **OK**.

3. Click **Export Report** on the **File** menu. The Export Report dialog box opens.

4. Enter the name of the file where you want the report stored and click **OK**. The report is exported.

Chapter 5. Working with procedures

Linear procedures enable you to run queries, generate reports, edit data, and perform other functions by executing a single command. For a complete listing of all the procedure commands supported by QMF for Windows, refer to the online help facility.

QMF for Windows does not currently support procedures with logic (REXX procedures).

Running procedures

Procedures are used to execute multiple functions with one command.

Creating a new procedure

From the **File** menu, select **New Procedure**.

A new procedure document opens.

Running a procedure at a database server

1. Open a new procedure document and type in a set of commands, or open an existing procedure from a file or the database server.
2. Click the **Run Procedure** button on the toolbar.

The procedure runs.

Saving procedures

You can save procedures on your PC, on a file server, or at a database server.

Saving procedures to files

1. From an open procedure, click the **Save** button on the toolbar.

If the procedure has been saved before, the procedure is saved. If the procedure has not been previously saved, the Save As dialog box opens.
2. Enter the name of the file where you want the procedure stored and click **OK**. The procedure is saved.

Opening a saved procedure file

1. Click the **Open** button on the toolbar.

The Open dialog box appears.

2. Select the file you want to open and click **OK**. The selected procedure opens in a new procedure document.

Saving a procedure to the database server

1.

   From an open procedure, click the **Save at Server** button on the toolbar.

   The Save Procedure dialog box opens.

2. Enter an owner, a name, select whether or not to share the saved procedure with other users, and click **OK**. The procedure is saved at the server.

   If a procedure with this name already exists, you are prompted to overwrite the previously existing procedure.

Opening saved procedures at the database server

You can open procedures that have been saved at the database server.

1.

   Click the **Open From Server** button on the toolbar.

The Open From Server dialog box opens.
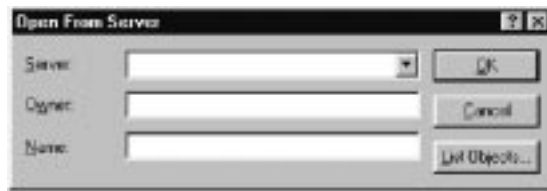
2. Enter a server, owner, and name and click **OK**. The procedure opens.

Printing procedures

You can print the text of a procedure.

Previewing a procedure

1. Open a procedure. The procedure commands appear.
2. From the **File** menu, click **Page Setup**. The Page Setup Dialog box opens.
3. Make any changes you want to the layout of the page and click **OK**.
4. Click the **Print Preview**button on the toolbar:

A preview of the printed procedure appears.

Printing a procedure

1. Open a procedure. The procedure commands appear.
2. From the **File** menu, click **Page Setup**. The Page Setup Dialog box opens.
3. Make any changes you that want to the layout of the page and click **OK**.
4. Click the **Print** button on the toolbar:

The procedure is printed.

Chapter 6. Working with Lists

Lists provide you with an easy way to view collections of QMF objects.

Objects

QMF for Windows recognizes four types of objects: queries, forms, procedures, and tables. You can use the List window to view the objects based on the object name, owner, and type.

Listing objects

1. On the **File** menu, click **New List** .

   The List window appears.

2. Specify an owner and a name.

   Note: You can use patterns to select objects from a list of matching objects.

   - Use the percent character (%) to match a string of any length containing any characters. For example, to list all tables with a name beginning with the letter A, you enter A%.
   - Use the underscore character (_) to match a single character. For example, to list all tables with an owner that has the letter A in the second position, enter _A%.

3. Select the type of object for which you are searching.

4. Click **Refresh List**. A list of objects saved at the database server and meeting your requirements is displayed.

List window commands

Right clicking on an object in the List window displays a list of commands identical to those in the List menu.

Display object

- Opens the selected object for viewing.

  Available for queries, forms, procedures, tables.

Run object

- Runs the selected object.

  Available for queries and procedures.

Draw object

- Creates a query based on the selected table. You can choose to draw an SQL SELECT query, an SQL UPDATE query, an SQL INSERT query, or a prompted query.

  Available for tables.

Edit object

- Opens the selected object for editing.

  Available for tables.

Properties

- Displays the properties of the selected object, including comments, attributes, and historical usage information.

  Available for queries, forms, procedures, tables.

Creating lists

You can create lists to serve as collections of objects. For example, you could create a list of all inventory related queries, forms, procedures and tables to keep your work in one place. Once created, you can remove unrelated objects from the list and save the list for future use.

Removing objects from lists

You can remove unrelated objects from lists.

From an open list, click the **Remove** button on the toolbar.

The object is removed from the list, but is not deleted.

Saving lists to files

1. From an open list, click the **Save** button on the toolbar.

   If the list has been saved before, the list is saved. If the list has not been previously saved, the Save As dialog box opens.
2. Enter the name of the file where you want the list stored and click **OK**. The list is saved.

Opening saved list files

1. Click the **Open** button on the toolbar.

   The Open dialog box opens.
2. Select the file that you want to open and click **OK**. The selected list opens in a list document.

Chapter 7. Working with static queries

A static query is an SQL query that has been previously passed to a database server and bound into a package. When a static query is run, the database server uses the SQL text bound in the package, rather than the SQL text currently appearing in the query window. Static queries are more resource efficient than dynamic queries, but static queries cannot be edited.

Static queries

Static queries are created from previously existing SQL and prompted queries.

Creating static queries

1. From the **Query** menu, click **Bind Static Package**. The Bind Static Package dialog box opens.
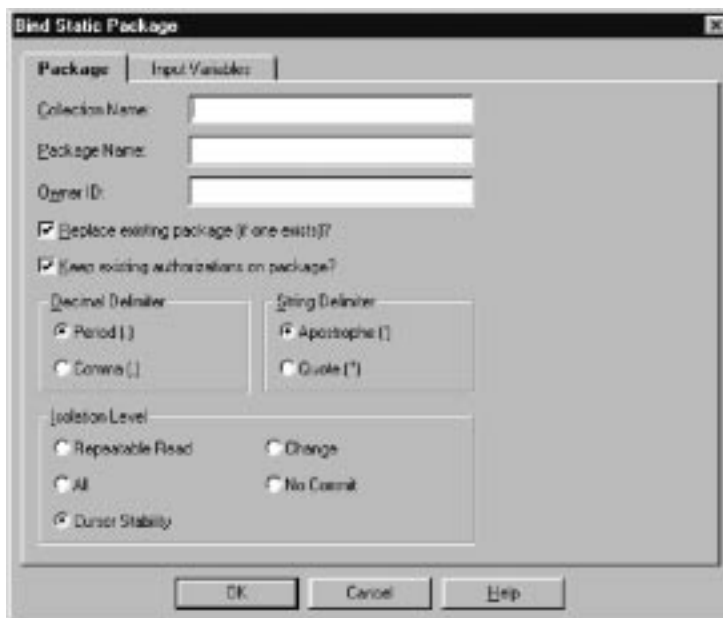
2. Select the Package tab, enter a collection ID and package name and change any other desired options.
3. If the query contains any substitution variables, select the Variables tab. Replace any substitution variables with host variables.
4. Click **OK**. The static query is bound.

Note: After you bind a query, you must also save that query either to a file or to the database server.

Replacing substitution variables with host variables

When you bind a package, you must specify a host variable to use in place of each substitution variable in the SQL text. However, a substitution variable cannot always be directly replaced by a host variable. Substitution variables provide direct text substitution in the query text before the text is sent to the database server. Host variables are sent as part of the query to the database server. Refer to the documentation for your database server for rules on where and how host variables can be used in queries.

After you specify a relationship between a substitution variable and a host variable, QMF for Windows remembers the relationship, and suggests it in future queries, making binding packages simpler.

The valid data types for host variables are:
- CHAR(n)
- VARCHAR(n)
- INTEGER
- SMALLINT
- FLOAT
- DECIMAL(p,s)
- DATE
- TIME
- TIMESTAMP

1. From the Bind Static Package dialog box, select the Input Variables tab.
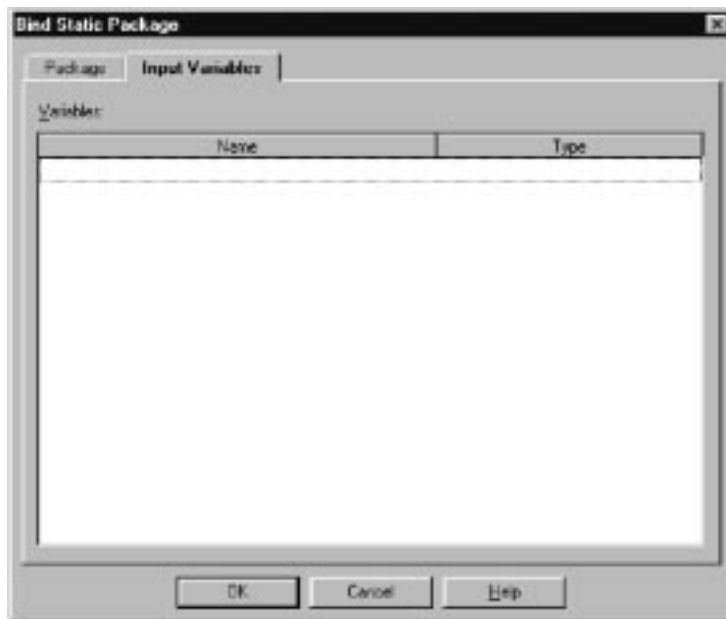
2. Enter the type of variable for each host variable and click **OK**. The substitution variables are converted to host variables.

Running a static query

You run static queries as you would any other queries. See "SQL Queries" on page 7"SQL Queries" on page -21.

Chapter 8. Working with the Table Editor

Use the table editor to search for, add, edit, or delete data stored in your tables without having to write SQL statements.

Table Editor

The table editor gives you flexibility in editing and searching your data.

Searching for rows using the table editor

1. From the **File** menu, click **Table Editor**. The Table Editor dialog box opens.

2. Specify a table.

   Note: You can use patterns to select table names from a list of matching tables.

   - Use the percent character (%) to match a string of any length containing any characters. For example, to list all tables with a name beginning with the letter A, you enter A%.
   - Use the underscore character (_) to match a single character. For example, to list all tables with an owner that has the letter A in the second position, enter _A%.

   Once you have entered a pattern, click **List Tables** and select a table from the resulting list.

3. Select a Save Mode.

   - Immediate - The table will be updated at the database server immediately after each change.
   - End - The table will be updated at the database server after you finish entering all changes. Other users will not be able to make changes to

the table while you are making your changes.
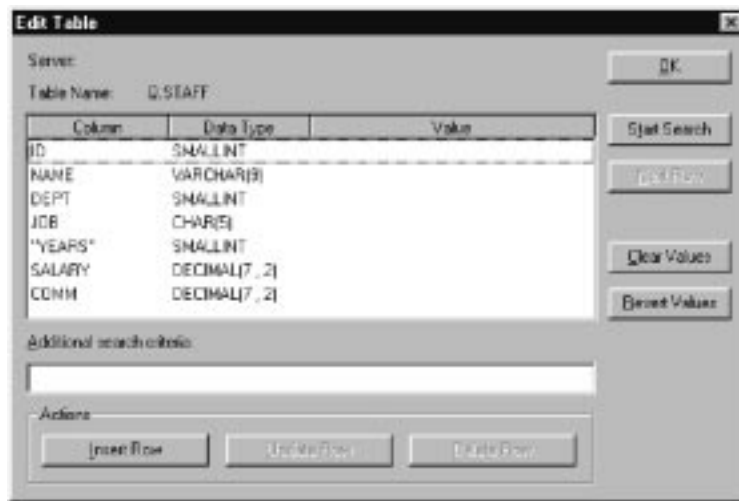
4. Click **Edit**. The Edit table dialog box opens.
5. Enter the values for which you want to search in the Value column, or type search criteria in the Additional search criteria field to specify more complex search conditions. You can enter any valid SQL predicate in the Additional search criteria field.
6. Click **Start Search**. The first matching row is displayed in the Value column.

Adding a row

1. In the Edit Table dialog box, enter the information for the new record.
2. Click **Insert Row**. The new row is added to the table.
3. Click **OK**. Your changes are saved.

Changing a row

1. From the Edit Table dialog box, search for the row you want to change.
2. Click **Next Row** until the row you want to change is displayed.
3. Edit the data in the Value column and click **Update Row**. The row is updated.
4. Click **OK**. Your changes are saved.

Deleting a row

1. From the Edit Table dialog box, search for the row that you want to delete.
2. Click **Next Row** until the row you want to delete is displayed.
3. Click **Delete Row**. The row is deleted.
4. Click **OK**. Your changes are saved.

Editing tables from the query results view

You can edit tables directly from the query results view.

Deleting a row from the query results view

You can delete individual rows from tables in the query results view.

- From the query results view, select a row and click **Delete** from the **Edit** menu. The row is deleted.

Updating columns from the query results view

You can update the contents of individual columns in the query results view.

- From the query results view, double click on a cell, enter a new value, and press Enter. The table is updated.

Chapter 9. Distributing Data

You can export your data to other databases and applications.

Exporting Data

You can export data from QMF for Windows into other applications in the following ways:

- Export the data into a Text, CSV, IXF, or HTML file
- Save query results to a table
- Add query results directly into a Microsoft Excel or Lotus 1-2-3 spreadsheet

Exporting data to files

1. While viewing query results, click **Export Data** on the **File** menu. The Export Data dialog box appears.
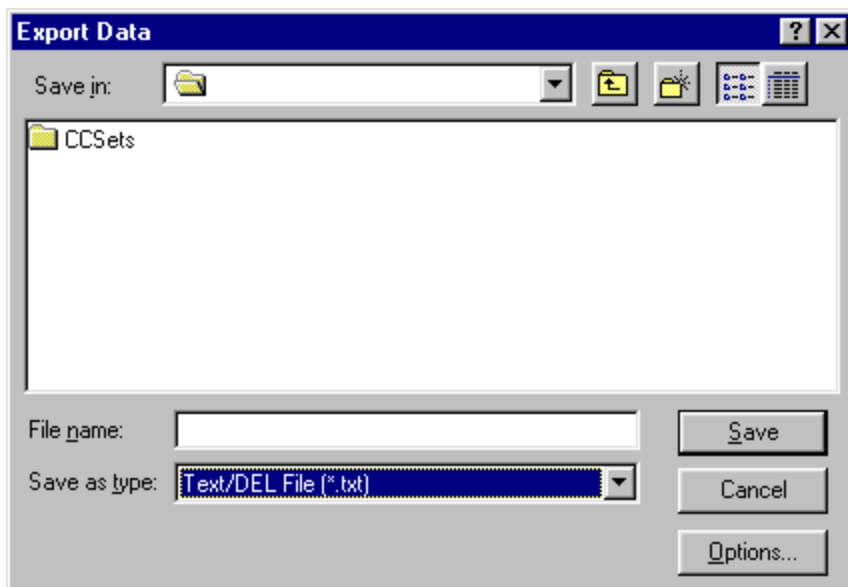
2. Select the desired Output File Type and click the Options button. Depending on the type of output file you select, either the Export Text/DEL Options dialog box, the Export HTML Options dialog box, the Export IXF Options dialog box, or the Export CSV Options dialog box appears.

- You can produce a text file, with a .TXT extension. This is a standard ASCII file with optional string and column delimiters (as specified in the Export Text/DEL Options dialog box).
- You can produce an HTML file, with a .HTM extension file. This is an HTML file that can be viewed by any web browser. All of the HTML tags are automatically generated in the file; it is ready to be published on your Internet or intranet web site. The options you choose on the Export HTML Options dialog box control the appearance of the exported data.
- You can produce a .IXF file. An IXF export preserves all database information, including column headings and data types. It is typically used to transfer information from one database to another.
- You can produce a .CSV file. A CSV export is very similar to a text export, using a comma as the column delimiter. This format is most commonly used by spreadsheet applications.

3. Select the options for the selected type of export file and click **OK**. The Options dialog box closes.
4. Click **OK** on the Export Data dialog box. The data is exported.

Importing data

You can import data that has been saved in a IXF file. Once data is imported into a query window, it can be saved to a database server, exported to a new file, or used for reports. PC/IXF and character mode System/370 IXF files are supported.

1. From the **File** menu, click **Import Data**. The Import Data dialog box opens.

2. Select the file you want to import and click **OK**. The imported data is displayed in a new query window.

Saving data to a database server

Imported query results can be saved to a database table.

1. While viewing imported query results, click **Save Data** on the **File** menu. The Save Data dialog box appears.

2. Select a database server, enter a table owner and name, choose any other desired options and click **OK**. The data is saved.

Using the Microsoft Excel Add-In

The 16-bit version of QMF for Windows includes an add-in for Microsoft Excel 5.0c and the 32-bit version includes an add-in for Microsoft Excel 7.0 or later. These add-ins enable you to run QMF for Windows from Excel and return query results directly into a spreadsheet. The appropriate add-in is automatically installed if you choose the "Typical" installation option, or if you choose the "Custom" installation option and select the Microsoft Excel Add-In option.

1. Click the **QMF for Windows** button on the Excel toolbar.

QMF for Windows activates.

2. From QMF for Windows, select and run a query. The query results appear.
3. Select the data you want to return to Excel.

4. From the **File** menu, click **Return data to Microsoft Excel**. Excel activates and displays the QMF for Windows Add-In dialog box.

5. Enter the destination range for the data and click **OK**. The data is added to the spreadsheet.

Using the Lotus 1-2-3 Add-In

The 16-bit version of QMF for Windows includes an add-in for Lotus 1-2-3 that enables you to run QMF for Windows from 1-2-3 and return query results directly into a spreadsheet. This add-in is installed if you choose the "Typical" installation option, or if you choose the "Custom" installation option and select the Lotus 1-2-3 Add-In option.

Note: There is no 32-bit add-in for Lotus 1-2-3.

1. Click the **QMF for Windows** button on the 1-2-3 toolbar. QMF for Windows activates.

2. From QMF for Windows, select and run a query. The query results appear.

3. Select the data you want to return to 1-2-3.

4. From the **File** menu, click **Return data to Lotus 1-2-3**. The Data Option dialog box appears.

5. 1-2-3 activates and displays the QMF for Windows Add-In dialog box.

6. Enter the destination range for the data and click **OK**. The data is added to the spreadsheet.

Using Sample Applications

Several sample applications and integration solutions are available for QMF for Windows. Visit the IBM web site at http://www.ibm.com/qmf/ to find out more.

Building an Application Using the QMF for Windows API

You can build your own applications using QMF for Windows. Refer to the online API help for a complete listing of all the API functions and their effects. Visit the IBM web site at http://www.ibm.com/qmf/ to see various programming examples.

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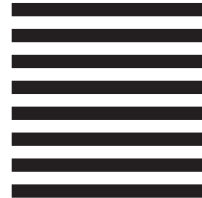
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