

Query Management Facility



# Installing and Managing QMF for Windows

*Version 6*



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**Note!**

Before using this information and the product it supports, be sure to read the general information under "Appendix. Notices" on page 31.

**Fourth Edition (March 2000)**

This edition applies to Query Management Facility for Windows, a feature of Version 6 of DB2 Universal Database Server for OS/390 (DB2 UDB for OS/390), 5645-DB2 , and of Query Management Facility, a feature of Version 6 of DATABASE 2 Server for VM and VSE (DB2 for VM and VSE), 5648-A70, and of Query Management Facility for Windows, 5697-E35, and of Query Management Facility for Windows, a feature of Version 6 of DB2 Universal Database for AS/400, 5697-G04, and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces and makes obsolete the previous edition, GC26-9583-01. The technical changes for this edition are indicated by a vertical bar to the left of the change. Editorial changes that have no technical significance are not noted.

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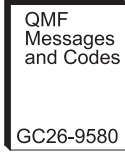

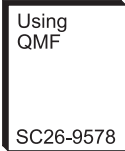
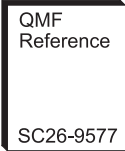








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# The QMF Library

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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Evaluating	 <p>Introducing QMF GC26-9576</p>			
Installing, planning for, administering, and diagnosing	 <p>Installing and Managing QMF on OS/390 GC26-9575</p>	 <p>Installing and Managing QMF on VM/ESA GC26-9573</p>	 <p>Installing and Managing QMF on VSE/ESA GC26-9574</p>	 <p>Installing and Managing QMF for Windows GC26-9583</p>
	 <p>QMF Messages and Codes GC26-9580</p>	 <p>QMF High Performance Option User's Guide for OS/390 SC26-9581</p>		
Using	 <p>Using QMF SC26-9578</p>	 <p>QMF Reference SC26-9577</p>	 <p>Getting Started With QMF for Windows SC26-9582</p>	
Application programming	 <p>Developing QMF Applications SC26-9579</p>			
Online libraries	 <p>SK2T-0730 OS/390, VM, &amp; VSE</p>	 <p>SK2T-6700 OS/390 only</p>	 <p>SK2T-2067 VM only</p>	 <p>SK2T-0060 VSE only</p>

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## Chapter 1. Before Installing

QMF for Windows Administrator is the administrative component of QMF for Windows. This book explains the basic concepts behind the operation of QMF for Windows, and describes the prerequisite software and configuration that they imply. It also provides a step-by-step guide for getting started with using QMF for Windows Administrator to effectively configure and administer a QMF for Windows installation. The intended audience is the person or persons responsible for planning for, installing, configuring, and maintaining QMF for Windows.

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### DB2 Connectivity

The primary function of QMF for Windows is to access data stored in any database in IBM's DB2 family of databases. There are two ways in which QMF for Windows can connect to DB2, via the Open Group's Distributed Relational Database Architecture (DRDA) or via the DB2 UDB for Windows Call Level Interface (CLI).

#### Distributed Relational Database Architecture (DRDA)

QMF for Windows and DB2 are both distributed relational database applications that operate together in a client/server relationship. Each component plays a separate and distinct role in this relationship: QMF for Windows as the client or requester, and DB2 as the server. Both QMF for Windows and DB2 implement and adhere to a common architecture, the Open Group's Distributed Relational Database Architecture (DRDA). This architecture is a comprehensive and detailed blueprint that specifies all of the layers and functions required in a client/server distributed database application.

Because QMF for Windows implements the DRDA requester specification, it is capable of connecting to any database that adheres to and implements the DRDA server architecture. Here are the IBM database products that contain a DRDA server component and are capable of communicating with QMF for Windows:

- DB2 UDB for OS/390, DB2 for OS/390, and DB2 for MVS
- DB2 Server for VSE & VM and SQL/DS
- DB2 UDB for AS/400
- DB2 Universal Database and DB2 Common Server
- DB2 Parallel Edition
- DB2 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.

## Call Level Interface (CLI)

Included as part of the DB2 UDB for Windows 95 or Windows NT client is a call level interface (CLI) component. CLI is an application programming interface for relational database access. Using CLI, client applications (such as QMF for Windows) can connect to DB2 UDB servers and execute SQL statements. In addition, with DB2 Connect, CLI applications can connect to mainframe (OS/390 or VM & VSE) databases.

In order for QMF for Windows to use CLI to connect to DB2, you first use the DB2 UDB facilities to define your database servers and how to connect to them. This configuration is outside the control of QMF for Windows. Once this configuration is complete, however, QMF for Windows simply needs the alias defined for a particular database in order to connect to it.

The primary advantage to using CLI is simplified configuration, in that if a database is already defined in the DB2 UDB client, its alias is the only piece of configuration information needed in QMF for Windows. The disadvantages to using CLI are that QMF for Windows performance using CLI is generally substantially worse than when using a CLI connection, and that QMF for Windows only supports connecting to workstation and MVS or OS/390 databases with CLI (you must use DRDA connections to access VSE & VM or AS/400 databases).

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## Communications

One component of DRDA describes the communications protocol that participants in the architecture must use. Specifically, it specifies that requesters and servers must communicate either via the SNA LU 6.2 architecture, or TCP/IP protocols.

**Important:**When using CLI to connect to a database, you must perform similar network configuration, however this configuration is performed as part of the DB2 client configuration rather than as part of the QMF for Windows configuration. The following discussion on configuring your SNA and TCP/IP environments applies only to DRDA connections.

**Important:**Because TCP/IP connectivity is a more recent addition to the architecture, not all versions of all DB2 database products support it at this time. DB2 UDB Server for OS/390 Version 6, DB2 for OS/390 Version 5, DB2 UDB for AS/400 version 4.3 and DB2 Universal Database Version 5 support TCP/IP connections from DRDA clients. Check your DB2 documentation to see if its DRDA application server component supports TCP/IP.

## LU 6.2 and CPI-C

LU 6.2 is an SNA communications architecture. APPC (Advanced Program-to-Program Communication) is a language based on the LU 6.2 architecture. A developer of SNA transaction programs has many different implementations of APPC from which to choose. Even though each implementation of APPC adheres to the LU 6.2 architecture, two implementations of APPC might not be exactly the same. Therefore, programs that rely on one vendor's APPC implementation might not work with another vendor's implementation. CPI-C (Common Programming Interface-Communications) is a standard, common programming interface that solves this problem.

CPI-C is a programming interface that implements the APPC verb set. Therefore, applications that require the use of the APPC verb set can instead be written using CPI-C in order to achieve SNA vendor independence. QMF for Windows is an application that is written using CPI-C.

## TCP/IP and WinSock

TCP/IP is a collection of **protocols**. WinSock (Windows Sockets) is a standard, common programming interface that implements the TCP protocol. Applications that require the use of the TCP/IP protocols can be written using WinSock to achieve TCP/IP vendor independence. QMF for Windows is an application that is written using WinSock.

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## Configuring your environment

You **must** install and configure the required network infrastructure before installing, configuring, or using QMF for Windows. QMF for Windows Technical Support cannot provide support for configuring your network infrastructure.

### Configuring your SNA environment

In an SNA network, QMF for Windows' basic requirement for connectivity is that it must be able to establish an LU 6.2 session with DB2, using the CPI-C interface. This connectivity is not provided with QMF for Windows—you must have a third party product that implements it. Whatever product you use to provide connectivity **must be installed, configured, and working** before you proceed with installing or using QMF for Windows.

The process of implementing LU 6.2 connectivity between Microsoft Windows and DB2 can be a complex task, depending on your SNA network environment. The Windows-based SNA products that can be used, and the different ways those products can be used, are far too numerous and complex for this book to describe in detail. You must rely on your in-house SNA networking staff and your SNA software vendor's technical support services

to implement and support your network configuration. QMF for Windows Technical Support cannot provide support for these issues.

Table 1 shows the configurations that QMF for Windows has been tested with and officially supports. The columns under Win 3.x, Win 9x, and Win NT indicate whether or not the 16-bit version or the 32-bit version of QMF for Windows works with the listed SNA product on that platform.

The following table indicates the configurations that QMF for Windows has been tested with and officially supports. The columns under Win 3.x, Win 9x, and Win NT indicate whether or not the 16-bit version or the 32-bit version of QMF for Windows works with the listed SNA product on that platform.

SNA Product	Win 3.x	Win 9x	Win NT
Attachmate EXTRA! APPC Client 3.11	16-bit		
Attachmate EXTRA! for Windows 95 6.2		32-bit	
Attachmate EXTRA! for Windows 95 6.4		32-bit	
Attachmate EXTRA! for Windows NT 6.2			32-bit
IBM APPC Networking Services for Windows 1.0	16-bit		
IBM Communications Server for OS/2 Warp 4.1	16-bit		
IBM Personal Communications AS/400 and 3270 4.1 for Windows 95		32-bit	
IBM Personal Communications AS/400 and 3270 4.1 for Windows NT			32-bit
IBM Personal Communications AS/400 and 3270 4.1 for OS/2	16-bit		
IBM Personal Communications 4.2 for Windows 95		32-bit	
Microsoft SNA Server 2.11, 3.0, or 4.0 - Windows 3.x Client	16-bit	16-bit	16-bit
Microsoft SNA Server 2.11, 3.0, or 4.0 - Windows 95 Client		32-bit	
Microsoft SNA Server 2.11, 3.0, or 4.0 - Windows NT Client			32-bit
NetSoft DynaComm/Elite 3.51 APPC	16-bit		
Novell Netware for SAA 2.0	16-bit		
Novell Netware for SAA 2.2		32-bit	32bit
Wall Data Rumba 5.0		32-bit	32-bit

QMF for Windows should work with other products that provide a WinCPIC interface. The products listed are simply the ones that have been tested and are supported.

*Important:* Make sure that you have the latest corrective service or maintenance for your SNA product. Contact your SNA software vendor's technical support services personnel for this information.

## Configuring your TCP/IP environment

To access a DB2 server using TCP/IP, QMF for Windows must be able to establish a TCP/IP connection from the local host (the system on which QMF for Windows is running) to the remote host (the system on which DB2 is running) and remote port (the port on which DB2 is listening).

The process of implementing TCP/IP connectivity between Microsoft Windows and DB2 is generally a much easier task than in the corresponding SNA scenario. You still must rely on your in-house TCP/IP networking staff and your TCP/IP software vendor's technical support services to implement and support your network configuration. QMF for Windows Technical Support cannot provide support for these issues.

QMF for Windows requires a WinSock 1.1 interface to the installed TCP protocol stack. The following table indicates the configurations that QMF for Windows has been tested with and officially supports. The columns under Win 3.x, Win 9x, and Win NT indicate whether the 16-bit version or the 32-bit version of QMF for Windows works with the listed TCP/IP product on that operating system.

TCP/IP stack	Win 3.x	Win 9x	Win NT
Microsoft Windows 95 TCP protocol		16-bit, 32-bit	
Microsoft Windows NT TCP protocol			16-bit, 32-bit
Microsoft TCP/IP-32 for Windows for Workgroups 3.11b	16-bit		

QMF for Windows should work with other products that provide a WinSock 1.1 interface. The products listed are simply the ones that have been tested and are supported.

## Configuring your CLI environment

To access a DB2 UDB server using CLI, the 32-bit version of QMF for Windows must be able to establish a CLI connection from the local host (the system on which QMF for Windows is running) to the remote host (the system on which DB2 UDB is running) via the DB2 UDB client.

The process of implementing CLI connectivity between Microsoft Windows and DB2 is generally the simplest form of connectivity to implement. All of the connectivity information is defined in the DB2 UDB client. You still must rely on your in-house networking staff to implement and support your network configuration. QMF for Windows Technical Support cannot provide support for these issues.

QMF for Windows requires the DB2 UDB client version 5.2 or later to access the database. CLI connections are supported for the following databases: DB2 Universal Database, DB2 Common Server, DB2 for MVS, DB2 for OS/390 and DB2 DataJoiner. To connect to DB2 for MVS or OS/390, you must also have DB2 Connect installed locally or as a gateway.

**Note:** Although QMF for Windows supports CLI connectivity to DB2 for MVS and DB2 for OS/390, you are strongly urged to use a DRDA connection for your DB2 for MVS or DB2 for OS/390 databases.

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## Chapter 2. Introduction to QMF for Windows Administrator

This chapter explains the basic concepts related to administering QMF for Windows and gives instructions for getting started. Use the extensive online help for details about specific tasks.

There are four basic tasks that you perform with QMF for Windows Administrator:

- Defining and configuring the database servers that QMF for Windows will access
- Creating database tables, binding database packages, and granting authority on the user package to your users
- Setting up governing
- Creating sample database tables

---

### Servers

You must define each database server that you or your users access with QMF for Windows. When you do so, you give the database server a **server name**. There are no restrictions on what this name can be—it is intended to be a descriptive label for the server, used only in QMF for Windows. This name is all that a user of QMF for Windows needs to know in order to access that server; all of the technical details about how to access the server are hidden behind the server name.

You use QMF for Windows Administrator to define each server, giving it a name and also specifying the technical information that QMF for Windows needs to access it. This is analogous to defining a data source in ODBC. The parameters that you must specify include:

- The RDB name for the server (also known as the location name in DB2 for OS/390 or MVS terminology, or simply the database name in DB2 Universal Database or DB2 Common Server terminology), or the database alias if connecting via CLI
- The appropriate network connection information if connecting via DRDA—either the CPI-C symbolic destination name or TCP/IP host name and port number

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## Maintaining packages

To run distributed SQL at any DB2 database, you must bind a package at the database that contains the SQL that you want to run (excluding dynamic SQL). You use QMF for Windows Administrator to choose the collection name and options for the packages that it requires, and to automatically bind the packages at a server.

The QMF for Windows packages refer to the set of DB2 tables that QMF for Windows uses, which might not already exist at a server. You must create these tables before binding the packages. QMF for Windows Administrator can automatically determine which tables need to be created, and allows you to automatically create them.

Finally, after you bind the QMF for Windows packages, you must grant authority to your end users to execute the user packages. Again, QMF for Windows Administrator can automatically grant or revoke this authority to the users that you specify.

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## Governing

QMF for Windows incorporates a comprehensive resource governor, restricting what actions a user can perform in QMF for Windows and placing limits on the resources that a user can consume. This governing feature allows you to provide distributed access to DB2 to your users with confidence that doing so does not have an adverse impact on your overall database or network performance.

Using QMF for Windows Administrator, you can define sets of limits and restrictions, which are called resource limits groups. You can then assign users to resource limits groups, according to the governing that you want performed for those users.

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## Creating sample tables

QMF for Windows provides nine sample tables that you can use while learning QMF for Windows before you begin working with your own tables. The sample tables are used throughout the **Getting Started with QMF for Windows** book and online help as examples. They contain information about a fictitious electrical parts company.

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Sample table name	Contains information about
Q.APPLICANT	The prospective employees of the company.
Q.INTERVIEW	The interview schedule for prospective employees.
Q.ORG	Organization of the company by department (within division).

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Q.PARTS	Materials supplied to company.
Q.PRODUCTS	Products produced by the company.
Q.PROJECT	Company projects.
Q.SALES	Sales information for the company.
Q.STAFF	The employees of the company.
Q.SUPPLIER	Other companies who supply materials to the company.



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## Chapter 3. Starting QMF for Windows Administrator

When you install QMF for Windows, you have the option of also installing QMF for Windows Administrator. If you choose to install QMF for Windows Administrator, an icon to start QMF for Windows Administrator is added to the Windows 9x or Windows NT 4.0 Start Menu or to the QMF for Windows program group in the Windows 3.x or Windows NT 3.51 Program Manager. You can use this icon to start Administrator, or you can run it directly by starting the program RSADMIN.EXE. If this program file does not exist, you must reinstall QMF for Windows to copy it from the installation disks. Be sure to either specify the Complete install option, or specify Custom and then choose to install QMF for Windows Administrator.

Using QMF for Windows Administrator is strictly an administrator task. There should not be any need for an end user to run QMF for Windows Administrator; an end user should not even install it. There is no security risk if an end user does run QMF for Windows Administrator, however. They are restricted in what they can do by existing database and file-sharing security mechanisms.

If you are connecting to any database servers via a DRDA connection in an SNA network, you must specify the SNA software you are using before proceeding in QMF for Windows Administrator. From the main window in QMF for Windows Administrator, select the **Options...** command from the **Edit** menu. On the Options dialog box in the CPI-C Options group, specify the name of the DLL that your SNA software provides for CPI-C applications.

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### Step 1. Create a server

When you are using QMF for Windows Administrator, you are always editing a particular **server definition file**. A server definition file (or SDF) contains all of the technical information needed by QMF for Windows to access any number of database servers.

There are two basic ways you can use server definition files. You can allow each user to have his or her own SDF, or you can create a single SDF that is shared by multiple users over a file-sharing network.

The advantage to the latter approach is that it centralizes administration of the SDF—you only need to create and maintain a single file, and your users need only point to that file when they run QMF for Windows. With either approach, you specify the SDF to use on the Options dialog box in QMF for Windows.

From within QMF for Windows Administrator, you can create a new SDF for a user or group of users by selecting the **New...** command or the **Save As...** command from the **File** menu. To open and work with a different SDF, select the **Open...** command from the **File** menu.

Start QMF for Windows Administrator, and click **New...** to define a new server. Enter all of the required values on the resulting Server Parameters dialog box.

### **Server name**

This can be any name you choose. It is the name by which users refer to this server throughout QMF for Windows and QMF for Windows Administrator.

### **RDB name**

If you are connecting to DB2 via DRDA, this is the name of the database. In DB2 for OS/390 or MVS terminology, this is also known as the location name. If you are unsure of the value to enter here, there is an easy way to determine the correct value. Using some tool other than QMF for Windows, run the following query at the server (you can use any table if Q.STAFF does not exist):

```
SELECT CURRENT SERVER FROM Q.STAFF
```

The resulting value is the RDB name for the server.

### **Connection**

Specify whether you are connecting to the database using TCP/IP, CPI-C, or CLI.

**Note:** Not all DB2 servers support TCP/IP connections. Refer to the documentation for the server you are configuring for more information.

### **Host Name and Port Number**

If you are connecting to DB2 via TCP/IP: Specify the host name and port number for the database. If you enter a TCP domain name for the host name, QMF for Windows resolves that name to an address using the gethostbyname socket call. Alternately, you can directly specify the host address in dotted decimal notation (for example, "1.2.3.4").

### **CPI-C symbolic destination name**

If you are connecting to DB2 via CPI-C: QMF for Windows requires a product that implements CPI-C in a Windows environment. Before installing QMF for Windows, you must have configured this software and defined a CPI-C symbolic destination name for the server. This is a name defined in your SNA software that refers to a set of parameters (known as a CPI-C side information record) for

establishing a connection to a partner application (DB2) over the network. For more information, see your SNA software's documentation.

### **Database alias**

The database alias is a name that refers to a database defined within your DB2 UDB client software. If you are connecting to DB2 via CLI, you must have DB2 UDB client version 5.2 or later installed locally. Before installing QMF for Windows, you must have configured the client software and defined a database alias name for the server within the DB2 UDB client.

After you enter all of the values, click **OK**.

---

## **Step 2. Test the connection to the database server**

To ensure that QMF for Windows can establish a connection to the database server, select the server in the QMF for Windows Administrator window, and click **Edit...** The Server Parameters dialog box opens.

Click **Test Connection** to test the connection to the database server. If there are any problems with your network configuration, QMF for Windows Administrator displays an error message dialog box when trying to establish the connection.

**Important:** If you are connecting to DB2 via an SNA network, the SNA link and the LU 6.2 session between the QMF for Windows LU and the DB2 LU must be active in order to establish the connection.

There are very few errors that can occur in QMF for Windows Administrator when simply establishing a connection to the server; a problem at this point almost certainly indicates a problem with the network configuration rather than QMF for Windows Administrator. Common errors include:

- Failure to activate the SNA software or start the SNA node
- Failure to activate the SNA link
- Failure to properly configure an LU 6.2 session between the QMF for Windows LU and the DB2 LU

If an error occurs, the displayed return code should be used to diagnose the problem with the technical support services for your SNA or TCP/IP software, or for your DB2 UDB software. If connecting via SNA or TCP/IP, you can get more specific information about what QMF for Windows Administrator was doing that caused the problem with the network software. Follow this procedure:

1. From the QMF for Windows Administrator main window, select **Options...** from the **Edit** menu.
2. On the Options dialog box, click **Traces...**
3. Review the listed trace file names; the defaults are probably acceptable.
4. In the TCP or CPI-C combo box, select **Calls with parameters and buffers**.
5. Click **OK** on the Traces dialog box and then on the Options dialog box.
6. Repeat the action that caused the error.

A detailed trace of the calls that QMF for Windows Administrator made to your SNA or TCP/IP software is written to the specified trace files. You can use this trace when seeking technical support for your SNA or TCP/IP software. Turn tracing on only when trying to diagnose a problem; tracing can have a significant adverse effect on the performance of QMF for Windows.

---

### Step 3. Bind the packages

After you verify that QMF for Windows can establish a connection to the database server, you are ready to bind the QMF for Windows packages. To do so, follow this procedure.

1. Select the server in the QMF for Windows Administrator main window, and click **Edit...**
2. On the Server Parameters dialog box, click **Packages...**
3. Enter all of the required values on the resulting Packages dialog box.

#### Collection Name

This is the user defined name that will be used to identify the packages that are created for use by QMF for Windows and QMF for Windows Administrator. Five packages will be bound in this collection: RAARDBI1, RAARDBI2, RAARDBIA, RAASHUT2, and RAASHUT3. RAARDBIA is used only by QMF for Windows Administrator and contains the SQL required for administrator functions.

#### Owner ID

To bind the packages, you must have authority at the server to run the SQL that they contain. If your primary authorization ID has the required authorities, you can leave this field blank. If you have a secondary authorization ID that you usually use for administration tasks, enter it in this field.

#### Replace existing package (if any)?

In most cases, you should make sure this box is checked.

#### Decimal Delimiter

Select the decimal delimiter that you and your users enter when writing SQL.

### String Delimiter

Select the string delimiter that you and your users enter when writing SQL.

You can click **Advanced...** to set additional bind options if you wish. See your database documentation for more information on applicable options.

### Creating database objects

When you click **Create objects...**, QMF for Windows opens a connection to the database server to bind the installation package. After the installation package is bound, QMF for Windows Administrator asks you whether you want to automatically check which objects need to be created (and which ones already exist). Click **Yes** at this prompt.

In order to check for the existence of the required objects, the SELECT authority is required on the following system tables, depending on the type of database server.

DB2 UDB for OS/390, DB2 for OS/390, DB2 for MVS

- SYSIBM.SYSDATABASE
- SYSIBM.SYSTABLESPACE
- SYSIBM.SYSTABLES
- SYSIBM.SYSINDEXES
- SYSIBM.SYSCOLUMNS

DB2 for VM & VSE, SQL/DS

- SYSTEM.SYSDBSPACES
- SYSTEM.SYSCATALOG
- SYSTEM.SYSINDEXES
- SYSTEM.SYSCOLUMNS

DB2 UDB for AS/400

- QSYS2.SYSTABLES
- QSYS2.SYSINDEXES
- QSYS2.SYSCOLUMNS

DB2 UDB, DB2 Common Server, DB2 Parallel Edition, DB2 DataJoiner

- SYSCAT.TABLESPACES (except DB2 Parallel Edition and DB2 DataJoiner Version 1)
- SYSCAT.TABLES
- SYSCAT.INDEXES
- SYSCAT.COLUMNS

If all of the objects already exist, a message to this effect will be displayed, and you do not need to do anything further.

If one or more objects need to be created, the Create Objects dialog box opens, displaying a series of SQL statements (separated by semicolons). These are the SQL statements that QMF for Windows Administrator needs to execute to create the required objects. Review these statements carefully. Make sure the syntax of the statements is correct.

Version 6.1 and later of QMF for Windows stores user profile, resource limits, and authorization ID information in different tables and views from previous versions and host QMF. If any of the previous tables are detected while creating the new tables, all data from the old tables is automatically migrated to the new tables. If you wish to continue sharing user profile and resource limits information with host QMF, you must customize the SQL displayed in the Create Objects dialog box.

In the CREATE VIEW statements for each of RDBI.PROFILE\_VIEW, RDBI.RESOURCE\_VIEW, and RDBI.AUTHID\_VIEW views, there are two versions of the FROM clause, one referring to a table owned by RDBI, and one referring to a table owned by Q (which is commented out by default). To continue sharing information between host QMF and QMF for Windows, comment out the line referring to RDBI, and uncomment the line referring to Q. If you make no changes, the information in the tables owned by Q will be unaffected, but also will not be used by QMF for Windows.

After reviewing the statements, click **OK** to run them at the server.

## Binding the packages

On the Packages dialog box, you bind the user and administrator packages by clicking **Bind**. The status line will indicate the progress of the bind operation. If any errors occur, you must correct them and repeat the bind. You can specify additional Bind options by clicking the Advanced... button.

**Note:** Changing the default bind options can have an effect on the function of QMF for Windows. Only expert users should change bind options.

SQL errors with an SQL code of -204 indicate that a required table does not exist. Click **Create Objects...** to create it. An SQL code of -551 or -552 indicate that the authorization ID on the bind (either your user ID or the specified owner ID for the bind) lacks at least one authority that is required to bind the packages.



Table Name	Authorities
RDBI.RESERVED	SELECT
RDBI.PROFILE_VIEW	SELECT, INSERT, UPDATE
RDBI.TABLE_VIEW	SELECT
RDBI.USER_AUTHID_VIEW	SELECT
RDBI.USER_ADMIN_VIEW	SELECT
RDBI.RESOURCE_VIEW	SELECT, INSERT, UPDATE, DELETE
Q.RAA_SUBTYPE	SELECT, INSERT, UPDATE, DELETE
Q.RAA_OBJECT_VIEW	SELECT
Q.OBJECT_DATA	SELECT, INSERT, DELETE
Q.OBJ_ACTIVITY_SUMM	SELECT, INSERT, UPDATE, DELETE
Q.OBJECT_DIRECTORY	SELECT, INSERT, UPDATE, DELETE
Q.OBJECT_REMARKS	SELECT, INSERT, UPDATE, DELETE
Q.OBJ_ACTIVITY_DTL	SELECT, INSERT, UPDATE, DELETE

### Granting permissions

After you bind the packages, you must grant permission to users to execute the packages intended for use by QMF for Windows users. (You already have this permission implicitly, as the binder of the package.) Click **Permissions...** on the Packages dialog box to display the Package Permissions dialog box. Enter the user IDs to which you want to grant the authority. Then click **Grant** to make this change at the server.

---

### Step 4. Set up governing

QMF for Windows incorporates a resource governor that limits and controls the use of database and communications resources. You use QMF for Windows Administrator to set up the resource limits groups that manage, control, and restrict this resource usage.

The governing function of QMF for Windows is always active. If you do not explicitly set up resource limits, governing based on default limits still happens.

This section describes how to use QMF for Windows Administrator to set up resource limits to effectively manage, control, and restrict resource usage.

### Questions about governing

Here are a few of the most frequently asked questions regarding QMF for Windows governing.

### **How do I set up QMF for Windows governing?**

To set up QMF for Windows governing, you must create a resource limits group and assign QMF for Windows users to that group. After a resource limits group is defined and a QMF for Windows user is assigned to it, that user's resource usage is limited as defined by that group.

### **What are the resources that I control?**

These resources are governed:

- Amount of time a cursor can remain open without being used
- Amount of time to wait for a response from a database server
- Amount of time a connection to a database server can remain unused
- Maximum number of rows returned from the database server for a query
- Maximum number of bytes returned from the database server for a query
- Maximum number of simultaneous connections to a database server
- SQL verbs that can be executed
- Whether a database can be accessed from the QMF for Windows user interface and programming interface
- Whether or not to confirm changes to the database
- Whether or not to fetch all rows immediately or only as needed
- Whether or not to allow data to be exported to files
- Whether or not to allow the use of the table editor
- Whether or not to allow the running of saved queries only
- What isolation level to use when running dynamic queries
- The accounting string to pass to the database server
- Whether to allow the use of the Save Data command
- The table space to use on the Save Data command
- Whether or not to allow users to bind static SQL packages for the queries they write
- Whether or not to allow users to drop static SQL packages for the queries they write
- What isolation level to use when binding static queries
- What collection name to use when binding static queries
- Whether or not to enable summary or detailed object tracking
- Whether or not to enable ad hoc object tracking
- Whether or not to enable SQL text tracking

### **What is a resource limits group?**

A resource limits group is a collection of limits and controls on the resources that are governed by QMF. You can control resource consumption by user, by day of week, and by time of day. For example, a resource limits group can

contain one set of limits that is in effect weekdays between 8 AM and 6 PM and another that is in effect on weekends and off-hours.

### **Where are resource limits groups stored?**

To prevent users from circumventing limits that you establish, resource limits groups are securely stored in a database table at the database server. Specifically, resource limits groups are stored in the table named `RDBI.RESOURCE_TABLE`. A view named `RDBI.RESOURCE_VIEW` must be defined on this table because QMF for Windows accesses that view, not the table.

QMF for Windows Administrator is used to maintain resource limits groups. To use QMF for Windows Administrator to maintain resource limits groups, you must have the authorization to execute the QMF for Windows Administrator package. This prevents unauthorized users from changing the limits that are established by the administrator.

### **What is the default resource limits group?**

Users who are not explicitly assigned to a resource limits group are governed by the limits defined in the default resource limits group. The system administrator is responsible for creating and maintaining the default resource limits group, which is named `<Default>`.

### **How does QMF for Windows relate a resource limits group to a user?**

The relationship between a QMF for Windows user and a resource limits group is stored in a table at the database server, specifically, the table named `RDBI.PROFILE_TABLE` and the view named `RDBI.PROFILE_VIEW`. QMF for Windows Administrator is used to maintain user and resource limits group relationships in this table.

### **How does QMF for Windows determine which profile to use?**

When QMF for Windows connects to a database server, you must provide user information (user ID and password), which is validated by the database server. If the user information is valid, QMF for Windows determines which resource limits group to use by first locating the correct profile for the user. This is done by searching the `CREATOR`, `ENVIRONMENT`, and `TRANSLATION` columns in the `RDBI.PROFILE_VIEW` table. QMF for Windows searches profile values in this order:

<code>CREATOR</code>	<code>ENVIRONMENT</code>	<code>TRANSLATION</code>
user ID	WINDOWS	from current national language of QMF for Windows
user ID	NULL	from current national language of QMF for Windows
SYSTEM	WINDOWS	from current national language of QMF for Windows

SYSTEM	NULL	from current national language of QMF for Windows
--------	------	---

**Open and restricted enrollment:** Every user must have a user profile. Under **restricted enrollment**, if a user profile with a matching creator does not exist, the user is denied access to the server. With **open enrollment**, if a user profile with a matching creator does not exist, then QMF for Windows will look for a user profile with a creator equal to SYSTEM. Access to the server will be granted only if a profile is found in one of these ways. With open enrollment in effect, every user has access to the SYSTEM profile, giving every user potential access to the server.

You can create unique profiles for some users and allow other users to use the SYSTEM default profile; you can also delete the SYSTEM profile, thus preventing those who don't have unique profiles from accessing the server.

**How does QMF for Windows determine which resource limits group is in effect?**

The RESOURCE\_GROUP column in the RDBI.PROFILE\_VIEW table contains the name of the resource limits group that is in effect for users identified by the profile entry. If this field is null or blank, QMF for Windows will assume a default value of the user ID.

QMF for Windows then searches the RESOURCE\_GROUP and RDBI.RESOURCE\_VIEW view, looking for these rows:

RESOURCE_GROUP	RESOURCE_OPTION
RESOURCE_GROUP from RDBI.PROFILE_VIEW	SHUTTLE_MAIN
RESOURCE_GROUP from RDBI.PROFILE_VIEW	SHUTTLE_SCHED1
RESOURCE_GROUP from RDBI.PROFILE_VIEW	SHUTTLE_SCHED2
RESOURCE_GROUP from RDBI.PROFILE_VIEW	SHUTTLE_SCHED3
RESOURCE_GROUP from RDBI.PROFILE_VIEW	SHUTTLE_SCHED4

If no matches are found, the user is governed by the default resource limits group. Otherwise, the user is governed based on the limits and controls found in these rows.

**How does QMF for Windows determine which schedule is in effect?**

After the resource limits group is determined, QMF for Windows determines which schedule in the group is in effect.

A schedule is uniquely identified by a schedule number. In addition to specifying a unique number, you must also specify an effective day of week

and time of day range. That is, the From and To Time and From and To Day for the schedule define when the limits and controls are in effect.

If more than one schedule is defined to be in effect at the same time, the QMF for Windows governor will use the one with the lowest schedule number.

The priority of checking to determine the effective schedule is:

1. Is the current day within the specified day range?
2. Is the current time within the specified time range?

**Note:** All ranges are inclusive, so that if the From Time is 08:00, the schedule is in effect exactly at 08:00:00. If the To Time is 17:00, the schedule is in effect at 17:00:59 but not in effect at 17:01:00.

If the From and To Times wrap around midnight (for example 5 PM through 8 AM), this creates, in effect, two separate blocks of time each day that the schedule becomes active. Consider the following schedule as an example:

From Day Monday

To Day Friday

From Time 17:00 (5 PM)

To Time 08:00 (8 AM)

This schedule is in effect only on weekdays. For each weekday, this schedule is in effect for the hours 5 PM to midnight, and midnight to 8 AM. For example, this schedule is in effect each Monday morning from midnight to 8 AM as well as each Monday evening from 5 PM to midnight.

---

## Enabling QMF for Windows governing capabilities

Governing is always active in QMF for Windows; if no explicit limits are in effect, governing is performed based on the limits in the default resource limits group.

There are three basic steps to establishing explicit governing or resource limits:

1. Create a resource limits group.
2. Create schedules in the resource limits group.
3. Assign users to the resource limits group.

## Creating a resource limits group

1. Select the server you are currently working with in the QMF for Windows Administrator window and click the **Edit...** button. The Server Parameters dialog box opens.
2. Click the **Resource Limits...** button. The Resource Limits Group List dialog box opens, showing a list of all the resource groups defined at the server.
3. Select the resource limits group in the list on which you want to base the new group and click the **New...** button. The New Resource Limits Group List dialog box opens.
4. Type a name for the group in the Group name field. There are no restrictions on the name you enter.
5. Type any comments, up to 80 characters in length, that describe the new resource limits group. Optionally, you can leave this field blank.
6. If the **Create this group using schedules from...** check box is enabled, the group you selected as a model has schedules that you can copy into the new group. Check this box if you want to create the new group with copies of all of the schedules contained in the model group. Otherwise, the new group contains no schedules.
7. Click **OK** to create the resource limits group.

## Creating schedules in the new resource group

1. Select the resource limits group for which you want to create schedules in the Resource Limits Group List dialog box and click the **Edit...** button. The Edit Resource Limits Group dialog box opens.
2. Click the **New...** button. The Resource Limits Group Schedule dialog box (Main Tab) opens so you can create a new schedule. If you select a schedule in the Schedule List before you click this button, the selected schedule is used as a model for the new schedule.
3. Enter the required values on each of the eight tabs and click **OK** to create the new schedule.

## Assigning users to the new resource group

1. Click the **Assign...** button on the Resource Limits Group List dialog box. The Assign User Profiles dialog box opens.
2. Type the first user ID you want to assign in the Show user profiles with "creator" matching field or a matching pattern if you want to work with multiple user IDs, and click the **Refresh List** button. QMF for Windows Administrator retrieves all the user profiles stored in the RDBL.PROFILE\_VIEW table that match the value you entered and displays them in the Not Assigned or Assigned lists.

**Note:** If the user ID you want to assign does not have an entry in the RDBL.PROFILE\_VIEW table, click the **Create New...** button to create the new user profile.

3. Select the appropriate user IDs and use the **Assign** and **Unassign** buttons to move them to either list.
4. Click **OK**.

---

## Step 5. Creating sample tables

QMF for Windows provides nine sample tables that you can use while learning QMF for Windows before you begin working with your own tables. The sample tables are used throughout the documentation as examples. They contain information about a fictitious electrical parts manufacturing company. For a complete listing of the sample tables and the information they contain, see “Creating sample tables” on page 8.

### Creating sample tables

1. Select the server at which you want to create the sample tables and click the **Edit...** button. The Server Parameters dialog box opens.
2. Click the **Sample Tables...** button. A dialog box opens, warning you that the sample tables will overwrite any previous versions of the sample tables that exist on the server.
3. Click **Yes** to create the sample tables. The sample tables are created.





---

## Chapter 4. Advanced Installation

After you complete the initial installation of QMF for Windows, you are ready to install it on other machines. To make this process more efficient, QMF for Windows is able to perform a variety of server and unattended installations.

---

### Copying disk images

Before you can perform an advanced installation, you must copy disk images from the QMF for Windows CD. For information on locating the correct language and version (16- or 32-bit) of QMF for Windows, refer to the readme.txt file in the QMF for Windows CD root directory.

Using Windows Explorer or File Manager, copy each disk image directory to your computer.

The instructions that follow explain how to edit the disk images for advanced installation.

---

### Predefining user options

These are two common options that you can predefine for your users. Other options can be predefined by editing the RDBI.INI or QMFWIN4.REG file.

#### Server definition file

The server definition file specifies the database servers that QMF for Windows uses. You must enter the name of a server definition file to use QMF for Windows. For more information, see “Step 1. Create a server” on page 11.

#### CPI-C provider DLL

The CPI-C provider DLL defines which SNA product you are using. If you are using a CLI or TCP/IP connection only, you do not need to declare this setting. For more information, see “Configuring your SNA environment” on page 3

### Step 1. Edit predefinition file

#### For 16-bit installations

User options are stored in the file named rdbi.ini. This file is on Disk1 of the QMF for Windows installation diskettes. The user options, found in the [Options] section of this file, are ServerDefinitionsFile and CPICDLL.

## 16-bit example

```
[Options]
ServerDefinitionsFile=f:\windows\sdf.ini
CPICDLL=c:\windows\system\wincpic.dll
```

## For 32-bit installations

User options are stored in the registry. The registry is updated during QMF for Windows installation based on the settings in the file named qmfwin4.reg. This file is on Disk1 of the QMF for Windows installation diskettes. The user options, in the [HKEY\_CURRENT\_USER\Software\IBM\RDBI\Options] section of this file, are ServerDefinitionsFile and CPICDLL. When you specify values for these options in this file, make sure that all backslashes (\) are doubled. For example, specify c:\\dir (not c:\dir). Also, make sure that both the option name and value are enclosed in double quotes.

## 32-bit example

```
"ServerDefinitionsFile"="f:\\windows\\sdf.ini"
"CPICDLL"="c:\\windows\\system\\wincpic.dll"
```

## Step 2. Save options file on Disk1

After you edit and save the appropriate predefinition file, copy it to Disk1 of the QMF for Windows installation diskettes.

---

## Configuring for unattended installation

An unattended installation allows you to select the installation options for your QMF for Windows users before beginning the installation process. Using this method you can designate all the options of an installation rather than having to select the same options repeatedly for each installation. The options are defined when you edit setup.ini.

### Step1. Edit setup.ini

Using a simple text editor, edit setup.ini. This file, on Disk1 of the installation diskettes, controls the installation process and determines the settings used for the installation. The variables you can set are described below.

[Options]	Settings	Effect
AutoInstall=	0,1	Specify 1 to perform an unattended installation. All other settings in setup.ini are ignored if this setting is not 1.
FileServerInstall=	0,1	Specifies whether QMF for Windows is already installed on a file server. If the setting is 0, all QMF for Windows files are installed to the directory specified in the InstallPath variable. If the setting is 1, QMF for Windows must be previously installed into the directory specified in the InstallPath variable.

SetupType=	0,1,2	Specifies the type of installation to perform. 0 indicates a typical installation, 1 indicates a compact installation, and 2 indicates a custom installation. If you select 2, you must indicate which components to install. See the [Components] table. <b>Note:</b> Option 2, the custom installation, is strongly recommended. Most users do not require the Administrator component, or both add-ins. Custom installations let the system administrator give the user the most efficient installation possible.
InstallPath=	<directory>	Specifies the directory to receive the QMF for Windows installation (if FileServerInstall=0) or the file server directory that already contains the installation (if FileServerInstall=1).
OverwriteINI=	0,1	Specifies whether to overwrite an existing rdbi.ini file in the Windows directory with the rdbi.ini file on Disk1 of the installation diskettes. Typically, the rdbi.ini on the installation diskette is copied only if there is not an existing copy. Setting OverwriteINI to 1 indicates that rdbi.ini should be copied from the installation diskette even if a copy already exists in the Windows directory. This allows administrators to force customizations on their users, but also causes users to lose any existing settings. This option is available only with the 16-bit version of QMF for Windows.
ProgramGroup=	<program group name>	Specifies the name of the program group to create (under Program Manager) or the program folder to create (for the Windows 95 and NT 4.0 Start menu).
[Components]	Settings	Effect
Base=	0,1	Specifies whether to install the main QMF for Windows program files. If FileServerInstall=1, files are not copied to the local machine, but program group icons are created.
Admin=	0,1	Specifies whether to install the QMF for Windows administrator program files. If FileServerInstall=1, files are not copied to the local machine, but program group icons are still created. Always set this option to 0 for user installations.
Excel=	0,1	Specifies whether to install the Microsoft Excel Add-In files.
1-2-3=	0,1	Specifies whether or not to install the Lotus 1-2-3 Add-In files. This option is available only with the 16-bit version of QMF for Windows.

## Setup.ini example

```
[Options]
AutoInstall=1
FileServerInstall=0
SetupType=0
InstallPath=C:\Programs\QMFWin
ProgramGroup=QMFWin
```

This setup.ini file specifies an unattended installation. A typical installation is performed, copying files to the C:\Programs\QMFWin directory, and creating a program group or program folder named QMFWin.

### Step2. Save setup.ini

After you edit and save setup.ini, copy it to Disk1 of the QMF for Windows installation diskettes.

### Step 3. Run QMF for Windows installation

Run the installation from the source diskettes or server. The installation proceeds automatically.

---

## File Server Installation

QMF for Windows can be installed to a file server. This method of installation allows the users to maintain only minimal files on their client machines. The main QMF for Windows files reside on the file server.

Files installed on the client are listed below.

Platform	File name	Description	Version
16-bit			
	CTL3DV2.DLL	3-D controls	2.31.000
	MFC250.DLL	MFC	2.5.200b
	MFCO250.DLL	MFC	2.5.200b
	MFCOLEUI.DLL	MFC	2.01
	OLE2.DLL	OLE	2.03
	OLE2CONV.DLL	OLE	2.01
	OLE2DISP.DLL	OLE	2.03
	OLE2NLS.DLL	OLE	2.03
	OLE2PROX.DLL	OLE	2.03
	STORAGE.DLL	OLE	2.03
	TYPelib.DLL	OLE	2.03
32-bit			

CTL3D32.DLL		2.3.1.000 (Windows NT 3.51 only)
MFC42.DLL	MFC	4.21.7303
MSVCRT.DLL	C runtime	5.00.7303

### Step 1. Install QMF for Windows to the server from the administrative computer

Perform a standard QMF for Windows installation at the administrative computer. When prompted for the installation path specify a path that resides on the file server rather than the administrative computer.

### Step 2. Start QMF for Windows Administrator

Using QMF for Windows Administrator, configure QMF for Windows at the file server. See “Chapter 3. Starting QMF for Windows Administrator” on page 11.

### Step 3. Proceed with client installations

Install QMF for Windows on the client machines.

---

## Client Installation

A client installation of QMF for Windows allows you to maintain fewer files on the client machine while maintaining most of the QMF for Windows files on the file server. A client installation must be performed in unattended mode.

### Step 1. Copy setup.ini to Disk1 of the installation diskettes

Copy the appropriate predefinition file and setup.ini file to Disk1 of the installation diskettes. These files control the installation.

### Setup.ini for client installation example

```
[Options]
AutoInstall=1
FileServerInstall=1
SetupType=2
InstallPath=f:\QMFWin
ProgramGroup=QMFWin

[Components]
Base=1
Admin=0
Excel=1
1-2-3=1
```

This setup.ini file specifies an unattended installation, where files have already been installed on a file server, in the f:\QMFWin directory. A custom installation will be performed, installing icons for the main QMF for Windows program files, the Microsoft Excel Add-In, the Lotus 1-2-3 Add-In, but not the

QMF for Windows Administrator program files. A program group or program folder named QMFWin is created, with icons referring to the f:\QMFWin directory.

## **Step 2. Run QMF for Windows installation**

Run the installation from the source diskettes or server. The installation proceeds automatically.

---

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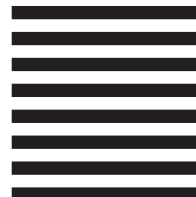
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