

IBM QMF Analytics for Multiplatforms
Version 13 Release 1

Installing and Managing QMF Server



Note

Before using this information and the product it supports, be sure to read the general information under "Notices" at the end of this information.

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This edition applies to IBM® QMF Analytics for Multiplatforms Version 13 Release 1, program number 5737-E42. The content in this edition applies to all subsequent releases and modifications associated with both of these program numbers until otherwise indicated in new editions.

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About this information

This information contains details about the Installing and Managing QMF Server application.¹ The information includes instructions for:

- Installing QMF Server
- Using QMF Server to configure the work environment for QMF users
- Setting up resource limits to control resource usage

Always check the [QMF Library page \(https://www.ibm.com/support/pages/node/6601477\)](https://www.ibm.com/support/pages/node/6601477) for the most current version of this publication.

Who should read this information

This information is intended for the person that is responsible for configuring and maintaining the Db2[®] QMF query and reporting tool set, which consists of the following applications:

- Installing and Managing QMF Server
- QMF for Workstation
- QMF for WebSphere[®]
- Getting Started with QMF Z Client

This information is not intended for users.

Service updates and support information

To find service updates and support information, including software fix packs, PTFs, Frequently Asked Questions (FAQs), technical notes, troubleshooting information, and downloads, see [IBM Software Support website](#).

¹ Throughout this information, the IBM QMF Server is referred to as Installing and Managing QMF Server.

Chapter 1. Planning to install

Before you install QMF Server, review the following topics.

QMF Server overview

The QMF Server application is used to perform the administrative tasks that enable the users of the QMF for Workstation, QMF for WebSphere, and QMF zClient applications to access data.

The tasks the administrator might perform are as follows:

- Configuring JDBC drivers
- Creating repositories
- Configuring data source information
- Setting up resource limits to control resource consumption and user actions
- Managing workspaces
- Managing users and groups
- Managing scheduled tasks

QMF Server system requirements

Before installing QMF Server, ensure that your environment meets the following minimum requirements.

QMF Server can be installed as an application on WebSphere or Tomcat application server, or as a standalone application. Installing QMF Server requires deploying an Enterprise Archive (EAR) file and a Web Archive (WAR) file to a web application server, such as WebSphere Application Server. Installing QMF Server as a standalone application requires performing a standard Java application installation procedure.

Hardware requirements

- Hardware configuration that supports IBM WebSphere V8.5.5 or V9.0 or Apache Tomcat 8.5 or 9.
- Minimum of 500 MB disk space
- Minimum of 4 GB of RAM on each server in which it is installed and an additional 50 MB of RAM for each concurrent user

Software requirements

QMF Server has the following software requirements:

- One of the following application servers:
 - WebSphere Application Server V8.5.5 or WebSphere Application Server V9 using Java 8.
 - WebSphere Liberty application server V19.0
 - Apache Tomcat: QMF Server is supported on Apache Tomcat V8.5 and Tomcat V9.0.
- One of the following Web browsers (with JavaScript support enabled) on each client:
 - Google Chrome Version 96.0.4664.45 or later
 - Mozilla Firefox Version 94.0.2 or later
 - Microsoft Edge Version 96.0.1054.43 or later

Database servers

QMF Server supports the following database servers:

- IBM Db2 LUW¹
- IBM BigSQL
- MongoDB

Note: Support for Mongo Db is limited to read access. You will be able to fetch the data and read it. You will not be able to write to the database or create repository storage.

- Microsoft SQL Server
- MySQL
- IBM Netezza
- Oracle Database
- PostgreSQL
- Teradata
- Hive
- Athena
- RedShift
- DVM virtual data sources

¹ BLU Acceleration is not supported.

Prerequisites

The following QMF Server functions have software dependencies:

- Database connectivity requires an appropriate JDBC driver for each type of RDBMS that is accessed.
- Exporting result sets to Excel requires a minimum level of Excel 2010.
- QMF Server requires JRE V8 to be installed as a standalone application.

Chapter 2. Installing QMF Server

Installing QMF Server as a web-application involves deploying the corresponding EAR and WAR files to an application server. Installing QMF Server as a standalone application requires performing a standard Java application installation procedure.

Installing QMF Server as a standalone application

Installing QMF Server as a standalone application requires performing a standard Java application installation procedure.

About this task

To install QMF Server as a standalone application, complete the following steps:

Procedure

1. In the command line, enter `java -jar <file>`, where `<file>` is the full path to the installation file (`QMFServerSetup131.jar`).
Note: To install QMF Server in silent mode, issue the following command: `java -jar <file> -s`, `<file>` is the full path to the installation file (`QMFServerInstaller.jar`), and skip the steps below.
2. Specify the application directory.
3. Enter the full path to the folder where you want to install QMF Server.
Note: If the selected folder is not empty, you will be prompted to empty it.
4. Enter the label for the server. This name will be displayed in QMF Clients in the list of available servers, provided by the QMF Server Registry.
5. Enter the login and password that will be required to access the server.
6. Enter the port for the **HTTP API** and the **QMF Registry** services. These two services use the same port. Make sure that the specified port is not being used by other services or applications.
7. Press Enter to finish the installation process.

Note: All information that you have specified during the installation is saved to the `qmfserver.properties` file. By default, this file is stored here: `Application Data\IBM\QMF Server\Settings`.

8. (Optional) If you want the QMF Server accessible through SSL/TLS, you can edit the `jetty.xml` file to enable the HTTPS connector settings. The `jetty.xml` file has two connectors. Only one connector can be enabled at a given point in time. By default, HTTP connector is enabled. You must disable the HTTP connector first and then enable HTTPS connector, by performing following steps:
 - a) Navigate to `Appdata > IBM > QMF Server > JettyXMLConf > jetty.xml`.
 - b) To disable the HTTP connector, search for the HTTP configuration and comment it.
 - c) To enable the HTTPS connector, search for the HTTPS configuration and uncomment it.
 - d) In the HTTPS connector configuration section, set the `KeyStorePath` to your current SSL certificate location and set the `KeyStorePassword` and `KeyManagerPassword`.

```
<Set name="KeyStorePath">file:///path_to/keystore.jks</Set>
  <Set name="KeyStorePassword">password</Set>
  <Set name="KeyManagerPassword">password</Set>
```

Results

You have successfully installed QMF Server. Now, configure the product for users.

To start or stop QMF Server on the Windows operating system, enter `startServer.cmd` or `stopServer.cmd <port>` in the command line, where `<port>` is the number of the port used by the **HTTP API** and **QMF Registry** services.

To start or stop QMF Server on Linux, enter `sh startServer.sh` or `sh stopServer.sh <port>` in the command line, where `<port>` is the number of the port used by the **HTTP API** and **QMF Registry** services.

Deploying QMF Server to the application server

The installation media includes an Enterprise Archive (EAR) file and a Web Archive (WAR) file that can be immediately deployed to your web application server using your server's administration console.

Important: If you are upgrading QMF Server from a previous version to QMF Server Version 13 Release 1, you must run the `exportAuditDb.bat` file for Windows or `exportAuditDb.sh` file for Linux, before deploying QMF for WebSphere to the application server. This is a mandatory step required for taking the Audit Database backup. The installation media includes `exportAuditDb.bat` and `exportAuditDb.sh` in the `AuditDbBackupScripts` folder.

Opening the WebSphere Administrative Console

Start the WebSphere Administrative Console by opening a web browser on a client machine, and entering the appropriate URL.

By default, the URL is `http://host:port/ibm/console`, where `host` is the host name of the WAS server and `port` is the port on which the Administrative Console is configured to listen (9080, by default).

Installing the new application

Follow this procedure to install the new application.

About this task

In the navigation tree on the left side of the **Administrative Console** window, perform the following steps:

Procedure

1. Expand **Applications**.
2. Click **Install New Application**.
The **Preparing for the application installation** page displays on the right side of the **Administrative Console** window.
3. On the first **Preparing for the application installation** page, specify the location of the QMF Server EAR file that you want to install.
 - If the QMF Server EAR file is on the local machine, click **Local file system**. Use the **Browse** button to search for and locate the file.
 - If the file is on the WAS server machine, click **Remote file system**. Use the **Browse** button to search for and locate the file.
4. When you install using the QMF Server EAR file, the default context root for the application is always `QMFServer131`. If for some reason you need to specify an alternate context root for the application, you must use the QMF Server WAR file for installation, enter the alternate context root in the **Context root** field, and follow the prompts to complete the installation.
5. Click **Next**.
The second **Preparing for the application installation** page opens.
6. Click **Generate Default Bindings**.
7. Click **Next**.
The **Step 1: Select Installation options** page opens.
8. Verify that the **Deploy Web Services** check box is clear and click **Next**.

- The **Step 2: Map modules to servers** page opens.
- Accept the default values and click **Next**.
The **Step 3: Map virtual hosts for Web modules** page opens.
 - Note the name of the application server listed for the QMF Server module and click **Next**.
 - Specify whether you will map a security role named qmfadmin for the QMF Server application.
If you have WebSphere security enabled, you must map at least one user ID to this role. The qmfadmin role is used to authenticate a user before performing various administrative tasks in QMF, such as binding packages. Use this page to specify whether the role should be mapped to all users (effectively eliminating authentication for the role), to all authenticated users (allowing any authenticated user to perform QMF administration functions), or only to users or groups that you specify.
 - Click **Next**.
 - Review the summary page that lists the options that you have chosen and click **Finish**.
 - After WAS has finished installing the application, save the configuration.
You will receive a message dialog informing you of the progress of the installation and that the installation of the application is complete.
The **Enterprise Applications** page opens.
 - Click **Save to Master Configuration** and click **Save**.

Configuring access to JDBC drivers

The last element of configuration that you must perform using the WebSphere Administrative Console is to provide access to any JDBC drivers that will be used by QMF Server.

About this task

In the navigation tree on the left side of the **Administrative Console** window:

Procedure

- Expand **Servers**.
- Click **Application Servers**.
The **Application Servers** page displays on the right side of the **Administrative Console** window.
- In the displayed list of application servers, click the application server where you installed the QMF Server application.
The properties of the application server are displayed.
- Under **Server Infrastructure** expand **JAVA and Process Management**, and click **Process Definition**.
The **Process Definition** page displays.
- In the **Additional Properties** list, click **Java Virtual Machine**.
The **Java Virtual Machine** page displays.
- In the **Classpath** list, add all of the *.zip or *.jar files that are required by the JDBC drivers that will be used by QMF Server.
For example, for the PostgreSQL database, you might enter:

```
C:\JDBCDrivers\JDBCDrivers\PostgreSQL\9.3.1100\postgresql-9.3-1100.jdbc41.jar
```
- When you have finished adding the required files, click **OK** and save the configuration.
After the configuration is saved, you must restart the server for the changes to take effect.

Starting the application

Follow this procedure to start the new application.

About this task

In the navigation tree on the left side of the **Administrative Console** window:

Procedure

1. Expand **Applications**.
2. Click **Enterprise Applications**.
The **Enterprise Applications** page displays on the right side of the **Administrative Console** window.
3. In the displayed list of installed applications, select the check box next to QMF Server.
4. Click **Start**.
The application is now available.

Accessing the application

Upon completion, you should be able to access QMF Server using the following URL (assuming the use of the suggested context root of QMFServer131)

URL to launch QMF Server application:

`http(s)://[server]:[port]/[ContextRoot]/user`

For example: `http://www.ibm.com:9080/QMFServer131/server`

Customizing Java Virtual Machine system properties and files

You can specify Java Virtual Machine system properties and files for saving the QMF Server system properties and files, especially when you configure a cluster to share application settings and other folders among cluster nodes and to set a timeout for a user session.

About this task

By default, all QMF Server system properties and files are stored in the user home directory, the path to which is in the `user.home` Java Virtual Machine system property. But you can use `qmf.instance.area.global`, `qmf.instance.area.shared`, or `qmf.instance.area` Java Virtual Machine system properties to customize the directories for storing files.

If you want to specify a timeout for a user session to close the session when the user does not work with application, use the `qmf.use.session.timeout` parameter.

Use the `VirtualDataSource.dir` parameter for QMF Server to avoid possible errors when working with virtual data sources in cluster mode.

You can configure the number of files to be imported by using the parameters `qmf.websecurity.allow.iFrame` and `qmf.websecurity.allow.iFrame.weblink`. The default parameters do not allow loading of QMF Server and Web Link inside iFrame. User can override this behavior by specifying `qmf.websecurity.allow.iFrame` and `qmf.websecurity.allow.iFrame.weblink` parameters.

The following table describes the available parameters.

Table 1. Java Virtual Machine parameters

Parameter	Description	Stored files
<code>qmf.instance.area.global</code>	This property is responsible for the folder that is distributed among several cluster nodes. It is used to store server configuration files, scheduled tasks, and personal repositories. If this parameter is not set, the settings from the <code>qmf.instance.area</code> are applied.	<ul style="list-style-type: none"> Repository connections data (<code>repositories.xml</code>) JDBC drivers properties (<code>.bi.jdbc.drivers</code>) License files Cache files
<code>qmf.instance.area.shared</code>	This property is responsible for the application folder that is shared among several cluster nodes. If this parameter is not set, the settings from the <code>qmf.instance.area</code> are applied.	<ul style="list-style-type: none"> Log files Session data: <ul style="list-style-type: none"> User settings User global variables Logins and passwords
<code>qmf.instance.area</code>	This property is responsible for storing temporary files. If this parameter is not set, the settings from the <code>java.io.tmpdir</code> Java Virtual Machine system property are applied. Note: In the cluster mode, to ensure the correct work of QMF Server features that require access to the file system, such as scheduled tasks, make sure that every cluster node that has access to this folder has full read and write permissions for the files in this folder.	<ul style="list-style-type: none"> Temporary files
<code>qmf.use.session.timeout</code>	This property is responsible for the timeout of a user session. If it is set to true, the user session is closed after the HTTP session timeout that is specified on the server. If this parameter is set to false or not defined, the session is active until the user closes the application.	-
<code>VirtualDataSource.dir</code>	Specifies the name of a subfolder with a virtual data source cache. For each cluster node, an individual subfolder with respective files and directories, including the cache, is generated. The <code>VirtualDataSource.dir</code> property must specify a unique value for each of the cluster nodes.	-
<code>qmf.websecurity.allow.iframe</code>	The default value of this parameter is "no". When you change it to "yes", the configuration allows you to load QMF Server inside iFrame.	-
<code>qmf.websecurity.allow.iframe.weblink</code>	The default value of this parameter is "no". When you change it to "yes", the configuration allows you to load WebLink inside iFrame.	-

To specify particular paths for saving system properties and files:

Procedure

1. Start the WebSphere Administrative Console by opening a web browser on a client machine, and entering the appropriate URL.
2. Navigate to the **Process definition** and, in the **Custom properties** for Java Virtual Machine, add the required properties `qmf.instance.area.global`, `qmf.instance.area.shared`,

`qmf.instance.area`, or `qmf.use.session.timeout` depending on the parameters that you want to modify.

3. Save the added parameters.

Chapter 3. Using QMF Server

The following topics describe working with the QMF Server application:

About QMF Server

QMF Server is the core component of the QMF solution.

The QMF solution provides a three-tier architecture in addition to the existing architecture. The architecture allows the QMF client components to access data sources and repositories not directly, but through a common QMF Server component. In addition to that, the QMF Server can be used to configure repository storages, repositories, and QMF catalogs, create and manage data sources, manage QMF services and APIs for QMF client components, manage repository users and workspaces, and so on.

Such architecture has the following key advantages:

- QMF administrators do not have to configure each client individually but only have to configure one common QMF Server. The clients will detect the presence of the QMF Server and automatically configure themselves to connect to it.
- The QMF Server can be placed as close to the data as possible thus providing improved security and performance.

The following QMF client components currently support the QMF Server:

- QMF for Workstation
- QMF for WebSphere
- QMF Z Client

Caching

In QMF, caching is a feature that allows you to accelerate the application performance, but affects the relevance of the data.

You can configure the caching functionality for the following entities:

- Repositories
- Relational data sources
- Virtual and JavaScript data sources

Repository cache

When caching is configured for a repository, the application saves the contents of that repository, including all the objects and metadata, on the web server. Repository cache is cleared when the time limit is exceeded.

Repository cache is also cleared when you exit the application. Caches of other QMF entities are not cleared when you exit the application.

Relational data source cache

When caching is configured for a data source, data from the tables in that data source is saved in cache, so that users can work with it without directly accessing the database. The cache is cleared when the time limit is exceeded.

Virtual and JavaScript data source cache

When caching is configured for a virtual or JavaScript data source, records from the tables in that data source are saved in cache, so that users can work with the contents of the tables without directly accessing the database. Virtual or JavaScript data source cache is cleared when the time limit is exceeded and can be updated regularly according to the schedule. This is the default option of updating the cache. To re-configure it, use the **Virtual Data Source** page of the **Preferences** window.

Setting preferences

The **Preferences** dialog is used to set user preferences that will apply to specific QMF objects and functions.

The **Preferences** window consists of two panes. The left pane displays the list of preferences groups and the right pane displays the page for the selected group. The following groups of preferences are displayed in the **Preferences** window.

Note: Starting with QMF 13.1, the **OK** button in the **Preferences** dialog of QMF for Workstation is renamed to **Apply and Close**. The button names **OK** and **Apply and Close** are used interchangeably throughout this document.

Setting general preferences

You use the **General** page of the **Preferences** window to specify the language and locale settings.

About this task

To specify the general user preferences for the current QMF application session:

Procedure

1. Click **Preferences > General**.
2. From the **Language** list, select the language to use for the current application session. Select **Auto** to use the local language of the current machine.
3. From the **Locale setting for numbers, currencies, times, and dates** list, select the language to use to display numbers, currencies, times and dates in the current QMF application session. Select **Auto** to use the local language of the current machine.
4. Click **Apply** to save your preferences choices.
5. Click **Restore Defaults** to restore the default preference values.
6. Click **OK** to close the **Preferences** window.

Setting the audit system

Use the Audit page of the Preferences window to enable and configure the audit system for QMF.

About this task

To enable and configure the audit system:

Procedure

1. Click **Preferences > Audit**.
2. Select the **Enable audit** check box.
3. To set the audit system to record only failed events, select the **Record failed events only** check box.
4. In the **Backup interval (days)** field, specify a time interval to define how often database backup files are created.

Note: After backup files are created, the original database is cleared.

5. In the **Delete all backup files older than (days)** field, specify an age for database backup files to be deleted.
6. Select the **Record SQL statements for users** check box to set the audit system to record SQL statements made by users for queries against the database.
 - Select **All Users** to record SQL statements made by all users.
 - Click the **Specify Users...** button to open the **Data Source Users** dialog and specify particular users. Click **OK** to accept the changes or **Cancel** to leave the dialog without saving the changes.

7. Click **Apply** to apply the settings and remain on the page or click **Apply and Close** to apply the settings and close the window.

Results

After audit is enabled, all information that is gathered by the audit system is saved to the tables under the AUDIT schema in an H2 database. This database is created in the application data folder. The summarized information from all the tables is presented in the AUDIT_VIEW table. For information about reading audit records, see [“Using the audit system” on page 109](#).

Setting SMTP and email preferences

You use the **Email** page of the **Preferences** window to specify the list of available SMTP servers and email notifications from the application.

About this task

The following topics describe how to specify SMTP server preferences and to set email notifications from scheduled tasks.

Setting SMTP server preferences

You use the **SMTP** area of the **Preferences** window to specify the list of available SMTP servers.

About this task

Defining parameters for commonly used SMTP servers in the SMTP area saves users from having to specify these parameters every time they need to send an email message by using these servers. For example, if the SMTP server password is expired, you just need to change it once in the SMTP area instead of updating authorisation information for every object that uses this SMTP server.

The servers listed in the SMTP area can be used when working with scheduled tasks.

To specify SMTP server preferences:

Procedure

1. Select **Preferences > Email**, then navigate to the **SMTP** area.
2. Add a new server to the list by clicking **Add Server**.
3. In the **SMTP** window specify SMTP server parameters including its name, address and port number.
4. Optional: If the SMTP server requires authentication, select **Use SMTP authentication**, and then specify user name and password in the **User** and **Password** fields.
5. Optional: If it is necessary to specify additional access preferences, click **Advanced** to open the **Advanced SMTP Settings** window where you can add required keywords supported by `javamail`. Click **OK**.
6. Click **OK** to close the **SMTP** window and then click **Apply** to save your preferences choices.
Tip: Select or clear the **Enabled** check box to control the SMTP settings globally.
7. Optional: If you need to restore default preferences, click **Restore Defaults**.
8. Click **Apply and Close** to close the **Preferences** window.

Related tasks

[Specifying email notification preferences](#)

You can globally configure a list of email notifications with debug information, which are sent for failed scheduled tasks. This information can be useful for fast fixing the problems with scheduled tasks.

Specifying email notification preferences

You can globally configure a list of email notifications with debug information, which are sent for failed scheduled tasks. This information can be useful for fast fixing the problems with scheduled tasks.

About this task

To configure an email notification:

Procedure

1. Click **Preferences > Email**.
2. In the **Email Notifications** area, click **Add Notification** to add a configuration for sending notifications.
3. In the **Email Notification Settings** window, type the name for the notification in the **Name** field.
4. In the **Message Properties** area, specify the following settings:
 - Select the format of the body text from the **Format** list. The available formats are Text and HTML.
 - The address to that the email must be sent in the **To** field.
 - The address to that a carbon copy of the email must be sent in the **Cc** field.
 - The address from that the email must be sent in the **From** field.
5. To specify SMTP server parameters, click **SMTP Settings**. In the **SMTP Settings** window, specify whether to use the server that is predefined by administrator or a custom one.
 - a) If you decide to use a predefined SMTP server, select the server from the list of predefined servers or click **Add Server** to create one.
 - b) If you decide to use a custom server, specify server parameters: its address and port number. If the SMTP server requires authentication, select **Use SMTP authentication**, and then specify user name and password. If it is necessary to specify extra access preferences, click **Advanced** to open the **Advanced SMTP Settings** window where you can add keywords that are supported by `javamail`. Click **OK**.

Click **OK** to close the **SMTP Settings** window.

6. Click **OK** to save the specified notification settings.

The specified notification appears in the **Email Notifications** area. You can now select it for a particular task on the **Scheduled Tasks** view.

Tip: Select or clear the **Enabled** check box to control the notifications globally.

Related tasks

[Setting SMTP server preferences](#)

You use the **SMTP** area of the **Preferences** window to specify the list of available SMTP servers.

Specifying font preferences

If you are using QMF for Workstation, you use the **Fonts** page of the **Preferences** window to specify the fonts that are used for exporting reports.

About this task

To specify the font preferences, complete the following steps:

Procedure

1. Click **Preferences > Fonts**.

2. To configure a set of fonts that you want to use for exporting reports, use the **Search directory** field to specify the path to the folder that stores the fonts and click **Refresh Associations**.
3. To restore default fonts, click **Restore Defaults**.

Working with global variables

Global variables are variables that stay active while the current session of QMF is active. This is in contrast to substitution variables that are active only during the execution of an object (query, form, procedure).

For objects that use substitution variables, values are entered via a window when the object is run. After the object runs, the variable and the value that you used no longer exists. For objects that use global variables, the value currently defined for the global variable is used.

There are two types of global variables:

- *System global variables* are pre-loaded with the QMF application. That means their values are re-initialized each time you open the QMF application. System global variables begin with the letters DSQQW, DSQAO, DSQEC, DSQDC, and DSQCP. You cannot add or delete system global variables. However, you can edit the default values for the system global variables.
- *User global variables* are defined by the user. User global variables can be specified with any unique name that does not begin with the letters DSQQW, DSQAO, DSQEC, DSQDC, and DSQCP. User global variables values can be available during the current session or permanently. Use QMF client components to work with user global variables.

Using the **Global Variables** page of the **Preferences** window you can edit the values of the system global variables.

DSQQW global variables

Global variables whose names begin with DSQQW provide information about the current query environment.

The following DSQQW global variables are currently available:

Name	Length	Description
DSQQW_AUTOMATION	1	Indicates whether the application was started as an Automation server.
DSQQW_CONNECTIONS	1	Controls the use of database server connections while running a procedure. Value can be zero (0) to minimize the number of connections or one (1) to allow a new connection for each RUN QUERY command. Specifying a value of zero (0) can force the distributed product to reset or complete a data object before continuing execution of a procedure. The default value is zero (0).
DSQQW_DQ	1	The value of a double quote character. This variable can be used in queries and procedures to eliminate the need for the user to enter quotes with a text value. The default value is the double quote character.

Name	Length	Description
DSQQW_EXP_DT_FRMT	1	<p>The format to use when exporting data with the EXPORT DATA command in a procedure. Specify the value of:</p> <ul style="list-style-type: none"> • zero (0) for text format • two (2) for HTML format • three (3) for CSV format • four (4) for IXF format • five (5) for dbase III files • six (6) for Shapefile format • seven (7) for WQML format • eight (8) for XML format • nine (9) for PDF format • ten (10) for XLS format • eleven (11) for XLSX format
DSQQW_EXP_OUT_MDE	1	<p>The IXF variation to use when exporting data to an IXF file. Value can be zero (0) for System/370 character-mode IXF or one (1) for PC/IXF. The default value is one (1).</p>
DSQQW_FST_SV_DATA	1	<p>Controls the use of "fast mode" when saving data with the SAVE DATA command in a procedure. Value can be zero (0) to use regular save mode (not fast mode); one (1) to use fast mode with ORDER BY clause(s) stripped; or two (2) to use fast mode with ORDER BY clause(s). The default value is zero (0).</p>
DSQQW_HTML_REFTEXT	55	<p>The text that appears in a report when the &REF variable is used. The default value is "Back To".</p>
DSQQW_OLD_PF6_MAP	1	<p>Choose behavior for the F6 shortcut key.</p> <p>NO: Use default mapping for F6, that is, create new Visual Query when F6 is pressed.</p> <p>YES: Use QMF 10 Mapping for F6, that is, if visual query is not open, create one. If one or more visual queries are open, then switch to last active SQL tab of a Visual Query.</p>
DSQQW_ORIENTATION	0	<p>The orientation of the application. The value is zero (0) for left-to-right orientation. The value is one (1) for right-to-left orientation.</p>

Name	Length	Description
DSQQW_PROC_FAIL_ON_ERROR	1	Stops procedure execution if any of the procedure commands fails. A value of zero (0) specifies the procedure will continue. A value of one (1) specifies the procedure will stop.
DSQQW_PROC_OUTPUT		Output file name for a procedure.
DSQQW_PROC_WNDWS	1	Controls what happens to intermediate result windows created by running a procedure. The value of zero (0) will close all intermediate windows, leaving only the final result window open at the end of the procedure. The value of one (1) will leave all windows open at the end of the procedure. The value of two (2) will close all intermediate windows, and will also close the procedure window if the procedure is run indirectly (run from another procedure or from the command line). The default value is one (1).
DSQQW_QUERY_LANG	1	Specifies the subtype of query created when a DISPLAY QUERY command is executed but no query object exists. Value can be zero (0) for a query in the SQL view or one (1) for a query in the prompted view. The default value is zero (0).
DSQQW_QUERY_PREP	1	Specifies whether the query on a RUN command is to be prepared or run. The results of prepared queries are not returned to the user's workstation. Value can be zero (0) to prepare the query, or one (1) to run the query. The default value is one (1).
DSQQW_QUERY_PRESERVE_SORT	1	Specifies whether the query sorting order defined by a user is saved within the query and used every time the query is run. Value can be zero (0) - not to preserve the sorting order, or one (1) - to preserve the sorting order. The default value is one (1).
DSQQW_REUSE_OBJJS	1	Specifies whether existing windows displaying retrieved objects are reused, or if a new window opens every time an object is selected. Value can be zero (0) to always open objects in new windows, or (1) to activate an existing window if the selected object is already open. The default value is one (1).

Name	Length	Description
DSQQW_RPT_COPIES	10	Specifies the number of copies to print when printing a report with the PRINT REPORT command in a procedure. The default value is one (1).
DSQQW_RPT_FONT	55	Specifies the font face name to use when printing a report with the PRINT REPORT command in a procedure. The default value is "Monospaced".
DSQQW_RPT_FONT_BD	1	Specifies the font bold attribute to use when printing a report with the PRINT REPORT command in a procedure. A value of zero (0) specifies not bold and a value of one (1) specifies bold. The default value is zero(0).
DSQQW_RPT_FONT_CS	3	The character set of the font to use when printing a report with the PRINT REPORT command in a procedure. The default value is zero (0).
DSQQW_RPT_FONT_IT	1	Specifies the font italic attribute to use when printing a report with the PRINT REPORT command in a procedure. A value of zero (0) specifies not italic and a value of one (1) specifies italic. The default value is zero (0).
DSQQW_RPT_FONT_SZ	2	Specifies the font point size to use when printing a report with the PRINT REPORT command in a procedure. The default value is ten (10).
DSQQW_RPT_LEN_TYP	1	Specifies the type of page length that will be used when printing a report with the PRINT REPORT command or exporting a report with the EXPORT REPORT command in a procedure. Value can be zero (0) to automatically fit the length to the printed page, one (1) to specify an explicit number of lines, or two (2) to specify a continuous report with no page breaks. The default value is zero (0).
DSQQW_RPT_NUM_CHR	10	Specifies the number of characters to fit across a printed page when printing a report with the PRINT REPORT command or exporting a report with the EXPORT REPORT command in a procedure. This has an effect only when DSQQW_RPT_WID_TYP is one (1). The default value is eighty (80).

Name	Length	Description
DSQQW_RPT_NUM_LNS	10	Specifies the number of lines to fit down a printed page when printing a report with the PRINT REPORT command or exporting a report with the EXPORT REPORT command in a procedure. This has an effect only when DSQQW_RPT_LEN_TYP is one (1). The default value is sixty(60).
DSQQW_RPT_ORIENT	1	The page orientation to use when printing a report with the PRINT REPORT command or exporting a report with the EXPORT REPORT command in a procedure. Value can be zero (0) for portrait or one (1) for landscape. The default value is zero (0).
DSQQW_RPT_OUT_TYP	1	The format to use when printing a report with the PRINT REPORT command in a procedure. Value can be zero (0) for text or two (2) for HTML. The default value is zero (0).
DSQQW_RPT_TD_TYP	1	Date format for TD edit code. Value can be zero (0) for ISO format, one (1) for USA format, two (2) for EUR format or three (3) for JIS format. The default value is zero (0).
DSQQW_RPT_TT_TYP	1	Time format for TT edit code. Value can be zero (0) for ISO format, one (1) for USA format, two (2) for EUR format or three (3) for JIS format. The default value is zero (0).
DSQQW_RPT_USE_PS	1	Specifies what page formatting options (page length, page width, etc.) to use when printing a report with the PRINT REPORT command in a procedure. Value can be zero (0) to use the values specified on the PRINT REPORT command or in global variables, or one (1) to use the values specified in the form's page setup. The default value is one (1).
DSQQW_RPT_WID_TYP	1	Specifies the type of page width when printing a report with the PRINT REPORT command in a procedure. Value can be zero (0) to automatically fit the width to the printed page, one (1) to specify an explicit number of characters or two (2) to specify a continuous line. The default value is zero (0).

Name	Length	Description
DSQQW_SHOW_QUERY	1	Specifies which view of a query to display when a SHOW QUERY command is issued from a procedure. Value can be zero (0) for SQL or prompted view, one (1) for results view, two (2) for build view, or three (3) for layout view. The default value is zero (0).
DSQQW_SQ	1	The value of a single quote character. This variable can be used in queries and procedures to eliminate the need for the user to enter quotes with a text value. The default value is a single quote character (").
DSQQW_SV_DATA_C_S	10	The number of rows to insert before committing the unit of work when saving data with a SAVE DATA command in a procedure. Value can be zero (0) for all of the rows or an explicit number of rows. The default value is zero (0).
DSQQW_SV_DATA_T_M	1	Specifies how source and target column data types are matched when using the SAVE DATA command. The value can be zero (0) to require exact data type matches, one (1) to allow data type conversions with no possible data loss, or two (2) to allow all data type conversions that are supported by the database. The default value is one (1).
DSQQW_UEDIT_JAR	55	The name of the JAVA archive file that contains user edit routines.

Related tasks

[Editing system global variable values](#)

You use the **Global Variables** page of the **Preferences** dialog to edit any system global variable values.

Related reference

[DSQAO global variables](#)

Global variables whose names begin with DSQAO provide information about the current state of the query session.

[DSQEC global variables](#)

Global variables whose names begin with DSQEC control how commands and procedures are executed.

[DSQDC global variables](#)

Global variables whose names begin with DSQDC control how information is displayed.

[DSQCP global variables](#)

Global variables whose names begin with DSQCP control the operation of the table editor.

DSQAO global variables

Global variables whose names begin with DSQAO provide information about the current state of the query session.

The following DSQAO global variables are available:

Name	Length	Description
DSQAO_BATCH	1	Batch or interactive mode. Value can be one (1) for an interactive session or two (2) for a batch session. See the BATCH command line parameter.
DSQAO_CONNECT_ID	8	The user ID that is used to connect to the current database.
DSQAO_CURSOR_OPEN	1	The status of the current query object's database cursor. Value can be one (1) if the cursor is open or two (2) if the cursor is closed.
DSQAO_DBCS	1	DBCS support status. Value can be one (1) if DBCS support is present or two (2) if DBCS support is not present.
DSQAO_HOME_WORKSPACE	128	<p>The current repository user's home workspace key, if the workspace exists. Valid values are:</p> <ul style="list-style-type: none"> • <code>rsbi:/.workspaces/<user name></code> This is the value if the user connected to a secured repository connection and if the <code>rsbi:/.workspaces/<user name></code> object is viewable by the current user in the repository. <code><user name></code> is the login name of the repository user. • <code>rsbi:/.workspaces</code> This is the value if the user connected to a repository connection without security, or the <code>rsbi:/.workspaces/<user name></code> is not viewable by the user, or it does not exist. • blank This is value if the previous situations do not exist. For example, if the user is not connected to any repository connection. <p>Note: Workspace operations such as creating, deleting, and renaming performed by the current user affect the Global Variable value. Additionally, such operations performed by other users might also affect the value.</p>
DSQAO_NLF_LANG	1	National language of session. Value is "E" for the English language.
DSQAO_NUM_FETCHED	0	The number of rows fetched by the current query object.

Name	Length	Description
DSQAO_OBJ_NAME	18	The name of the current query, form, or procedure object. If there is no current object, the value is blank.
DSQAO_OBJ_OWNER	8	The owner of the current query, form, or procedure object. If there is no current object, the value is blank.
DSQAO_REP_USER	8	The user name that is used to connect to the current repository.
DSQAO_RSBI_RELEASE	2	Numeric release number of the application.
DSQAO_RSBI_VER_RLS	10	External version and release number for the application.
DSQAO_QUERY_MODEL	1	Model of the current query object. Value can be one (1) for relational.
DSQAO_QRY_SUBTYPE	1	Subtype of the current query object. Value can be one (1) for SQL queries or three (3) for queries in a prompted view.
DSQAO_SYSTEM_ID	1	Current [®] operating system. Values can be one of the following: <ul style="list-style-type: none"> • 8 - Windows NT and above • 9 - Linux[®] • 10 - HP-UX • 11 - AIX[®] • 12 - Solaris • 13 - iSeries • 14 - z/OS[®]

Related tasks

[Editing system global variable values](#)

You use the **Global Variables** page of the **Preferences** dialog to edit any system global variable values.

Related reference

[DSQQW global variables](#)

Global variables whose names begin with DSQQW provide information about the current query environment.

[DSQEC global variables](#)

Global variables whose names begin with DSQEC control how commands and procedures are executed.

[DSQDC global variables](#)

Global variables whose names begin with DSQDC control how information is displayed.

[DSQCP global variables](#)

Global variables whose names begin with DSQCP control the operation of the table editor.

DSQEC global variables

Global variables whose names begin with DSQEC control how commands and procedures are executed.

The following DSQEC global variables are available:

Name	Length	Description
DSQEC_CURR_FOLDER	128	Use the variable to group links to objects in folders in QMF Catalog. Its value is used as a default one for the FOLDER parameter in the LIST, SAVE, and ERASE commands for Db2 databases. It can be up to 128 characters long. The variable is blank by default, no folder is used for LIST, SAVE, and ERASE commands.
DSQEC_EXTND_STG	31	Specifies the number of megabytes of extended storage that the application will acquire on each request to the extended storage manager when spilling data to extended storage in QMF for TSO. When a user performs an operation that requires extended storage, the application issues repeated requests to the extended storage manager for the specified amount until the operation is complete or extended storage is exhausted. When setting this global variable, consider the average size of DATA objects with which your users work. If the average size is very large and you set the DSQEC_EXTND_STG variable too low, the application must issue many calls to the extended storage manager to complete the DATA object, which could affect overall performance. Values can be from 1 to 1000. The default value is 25, indicating that the application requests 25MB of storage on each request.
DSQEC_FORM_LANG	1	Defines the default NLF language in which a form will be saved or exported. Value can be zero (0) for the presiding NLF language or one (1) for English. The default value is one (1).
DSQEC_LAST_RUN	1	Specifies the set of commands that cause the LAST_USED column of the Q.OBJECT_DIRECTORY table to be updated. Possible values are: <ul style="list-style-type: none"> • 0 - Last used is updated on any activity. • 1 - Last used is updated when RUN, SAVE, or IMPORT commands are performed.
DSQEC_LIST_OWNER	128	Provides the default value for the OWNER parameter of the LIST command. Specify an authorization ID up to 128 characters long. This variable is blank by default, resulting in a list of objects owned by the current authorization ID. You can use selection symbols in the variable value. Use an underscore (_) in place of a single character and a percent sign (%) in place of zero or more characters. For example, after you issue the following command, followed by a LIST command, the application lists only objects that are owned by user IDs that begin with the characters RO: <pre>SET GLOBAL (DSQEC_LIST_OWNER=RO%</pre> The following command sets the default owner to any user IDs that begin with I, have any character in the second position, and any characters in the remaining positions: <pre>SET GLOBAL (DSQEC_LIST_OWNER=I_%</pre>
DSQEC_NLFCMD_LANG	1	Defines the expected NLF language for commands in procedures. Value can be zero (0) for the presiding NLF language or one (1) for English. The default value is zero (0).

Name	Length	Description
DSQEC_RESET_RPT	1	Determines whether a user will be prompted when an incomplete data object that will affect performance is encountered. Value can be zero (0) to complete the data object without prompting, one (1) to prompt the user asking whether the data object should be completed, or two (2) to reset the data object without prompting.
DSQEC_RUN_MQ	1	<p>Specifies whether the RUN QUERY command supports multiple statements in an SQL query. Possible values are:</p> <ul style="list-style-type: none"> • 0 - Multiple SQL statements are not supported. If you set this variable to 0 and run an SQL query that contains multiple statements, the application ignores all statements after the first semicolon. • 1 - Multiple SQL statements are supported. This is the default value. A semicolon can be placed at the end of each statement. You can substitute the semicolon with any other character by using SET STATEMENT DELIMITER comment at the beginning of the SQL text. For example, the following example is a valid use of SQL with multiple statements: <pre>--SET STATEMENT DELIMITER="!" select * from q.staff! select * from q.org</pre>
DSQEC_SAV_ACCELDB	128	Specifies the name of the accelerator database that you want to use to save your tables.
DSQEC_SHARE	1	Specifies the default value for whether a saved object will be shared with other users. Value can be zero (0) to not share the object or one (1) to share the object.
DSQEC_SP_RS_NUM	1	Specifies the number of the result set that will be displayed for a stored procedure. The default result set number is minus one (-1).
DSQEC_SQLQRYSZ_2M	1	<p>Controls whether SQL queries greater than 32,767 bytes (32 KB) in length are supported by the RUN QUERY command. Possible values are:</p> <ul style="list-style-type: none"> • 0 - SQL queries directed to DB2® for iSeries or Linux and UNIX, and Windows databases are limited to 32,767 bytes (32 KB). This is the default. • 1 - SQL queries can be greater than 32 KB. that the version of the database to which the RUN QUERY command is directed supports queries of this size. SQL queries directed to DB2 for VM and VSE are limited to 8 KB.

Related tasks

[Editing system global variable values](#)

You use the **Global Variables** page of the **Preferences** dialog to edit any system global variable values.

Related reference

[DSQQW global variables](#)

Global variables whose names begin with DSQQW provide information about the current query environment.

DSQAO global variables

Global variables whose names begin with DSQAO provide information about the current state of the query session.

DSQDC global variables

Global variables whose names begin with DSQDC control how information is displayed.

DSQCP global variables

Global variables whose names begin with DSQCP control the operation of the table editor.

DSQDC global variables

Global variables whose names begin with DSQDC control how information is displayed.

The following DSQDC global variables are available:

Name	Length	Description
DSQDC_COL_LABELS	1	Specifies whether column headings will be column names or database labels in Classic Reports. Value can be zero (0) to specify that column headings will be column names or one (1) to specify that column headings will be database labels. The default value is one (1).
DSQDC_CURRENCY	18	Defines the custom currency symbol to use when the DC edit code is specified.
DSQDC_DISPLAY_RPT	1	Specifies whether a report is displayed after a RUN QUERY command in a procedure. Value can be zero (0) to not display a report or one (1) to automatically display a report with the default form. The default value is zero (0).
DSQDC_POS_SQLCODE	1	Specifies what happens when a positive SQL code is returned from the database. Possible values are: <ul style="list-style-type: none">• 0 - Neither log the message or display the message text.• 1 - Log the message associated with the SQL code.• 2 - Display the online help that is associated with the SQL code.

Related tasks

[Editing system global variable values](#)

You use the **Global Variables** page of the **Preferences** dialog to edit any system global variable values.

Related reference

[DSQQW global variables](#)

Global variables whose names begin with DSQQW provide information about the current query environment.

[DSQAO global variables](#)

Global variables whose names begin with DSQAO provide information about the current state of the query session.

[DSQEC global variables](#)

Global variables whose names begin with DSQEC control how commands and procedures are executed.

[DSQCP global variables](#)

Global variables whose names begin with DSQCP control the operation of the table editor.

DSQCP global variables

Global variables whose names begin with DSQCP control the operation of the table editor.

The following DSQCP global variables are available:

Name	Length	Description
DSQCP_TEDFLT	1	Defines the reserved character used in the Table Editor to indicate a default value for a column. The default value is "+". This variable can also be set in the Enter default values as field found in the Preferences window.
DSQCP_TENULL	1	Defines the reserved character used in the Table Editor to indicate a null value for a column. The default value is "-". This variable can also be set in the Enter null values as field found in the Preferences window.

Related tasks

[Editing system global variable values](#)

You use the **Global Variables** page of the **Preferences** dialog to edit any system global variable values.

Related reference

[DSQQW global variables](#)

Global variables whose names begin with DSQQW provide information about the current query environment.

[DSQAO global variables](#)

Global variables whose names begin with DSQAO provide information about the current state of the query session.

[DSQEC global variables](#)

Global variables whose names begin with DSQEC control how commands and procedures are executed.

[DSQDC global variables](#)

Global variables whose names begin with DSQDC control how information is displayed.

Editing system global variable values

You use the **Global Variables** page of the **Preferences** dialog to edit any system global variable values.

About this task

To edit system global variable values:

Procedure

1. Click **Preferences > Global Variables**.
2. The system global variables are listed in the **Variables** list by name. System global variable start with the prefix of **DSQQW**, **DSQAO**, **DSQEC**, **DSQDC**, or **DSQCP**.

Restriction: System global variables whose names start with **DSQAO** cannot be edited.

3. The current system global variable values are listed in the **Value** field. To edit the value of a global variable, click in the **Value** field for the system global variable that you want to change. Type the new value for the system global variable in the **Value** field.
4. Click **Restore Defaults** to restore the default values for all the system global variables.
5. Click **Apply** to save your preferences choices.
6. Click **Apply and Close** to close the **Preferences** window.

Related reference

[DSQQW global variables](#)

Global variables whose names begin with DSQQW provide information about the current query environment.

[DSQAO global variables](#)

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[DSQEC global variables](#)

Global variables whose names begin with DSQEC control how commands and procedures are executed.

[DSQDC global variables](#)

Global variables whose names begin with DSQDC control how information is displayed.

[DSQCP global variables](#)

Global variables whose names begin with DSQCP control the operation of the table editor.

Setting JDBC preferences

You can use the **JDBC Libraries** page of the **Preferences** window to set up the JDBC driver information.

About this task

QMF Server administrators are responsible for distributing the JDBC driver information that users will need in order to access any data source.

Advanced users can define or change JDBC driver location information using the **JDBC Libraries** page of the **Preferences** window to specify the JDBC driver information for each type of database (such as Db2, MySQL, Oracle) that will be accessed. The JDBC driver locations must be accessible to QMF. QMF will retain the JDBC driver information. You would only repeat this specification process to add new drivers or make changes to the properties of an existing driver.

To define JDBC driver information:

Procedure

1. Click **Preferences > JDBC Libraries**. The **JDBC Libraries** page of the **Preferences** window opens. All of the JDBC driver libraries that you have already set up are listed in the **JDBC driver libraries** area. The JAR files associated with selected driver library are listed in the **Driver files** area. Additional information about the selected driver library is displayed on the **Details** panel.
2. To add new JDBC driver, select **Add Driver**. The **Add New Driver Library** window opens.
3. The JDBC driver information for each type of database is organized by libraries. Enter a name for the library in the **Enter new library name** field. It is recommended that the name that you specify describes the JDBC information that will be included in the library. For example, if you are adding JDBC driver information for accessing Db2 databases, you might call the library Db2. However, this is a descriptive field and can include any text.
4. Specify the actual name of the driver class that will be used in the **Driver class name** field. This can be found in your JDBC driver documentation. For example: com.ibm.db2.jcc.DB2Driver.
5. Optional: Specify a generic example of a correctly formatted URL that could be used to connect to the database in the **URL templates** field. For example, if you are adding JDBC driver information for accessing Db2 databases, you might specify the following JDBC URL template: jdbc:db2://host:50000/database. The generic information as specified in the template is presented when you are adding data sources to the repository. You will replace the generic information with the specific database information.
6. Click **OK** to create the driver library and close the **Add New Driver Library** window.
7. Add the JDBC driver files to the library. Click **Add Driver Files**. In the **Open file** dialog, click **Add** and specify the path to the JDBC driver files that you want to add. Then click **OK**.
8. You can make the following changes to the JDBC driver information:

- To edit the JDBC driver library information, select an existing JDBC driver library from the list and click **Edit Driver**. The **Edit Driver Library** window opens where you can make changes to the **Library name**, **Driver class name**, and **JDBC URL template** fields.
 - To remove a JDBC driver library, select an existing JDBC driver library from the list and click **Remove Driver**. The library, including all the JAR files that it contains, is removed.
 - To remove a JAR file from a JDBC driver library, select an existing file from the list and click **Remove Driver File**. The file is removed.
9. Click **OK**. The JDBC library information is saved. The **Preferences** window closes. You must repeat this process for each type of JDBC driver that will be used to access various database data sources such as Informix® or SQL Server.

Setting log preferences

You use the **Log** page of the **Preferences** window to activate a log file that will track QMF processing information.

About this task

The log file information can be useful in debugging.

To specify the log file preferences for the QMF session:

Procedure

1. Click **Preferences > Log**.
2. Check **Enable log** to activate the log file for debugging purposes. If this check box is selected, the log file option fields are enabled. Check one or more of the log file options to indicate what information should be gathered. It is recommended that all options remain checked. The available log file options are as follows:
 - Print stack trace for log exceptions
 - Print log class and method
 - Print log user token
3. Click **Apply** to save your preferences choices.
4. Click **Restore Defaults** to restore the default preference values.
5. Click **OK** to close the **Preferences** window.

Example

<i>Table 2. Log category names and descriptions.</i>	
Name	Description
log	This is a root category.
log.api	This category logs messages or exceptions related to API calls. The information from Java Class API is added to this category.
log.api.qmfwin	This category logs messages or exceptions related to QMF API calls.
log.audit	This category logs messages or exceptions related to the audit system.
log.cache	This category logs exceptions and messages of query results cache.

Table 2. Log category names and descriptions. (continued)

Name	Description
log.calculator	This category logs the work of the calculator which is used in visual projects.
log.canvas	This category logs messages and exceptions related to canvas.
log.config	This category logs the reading or writing configuration information.
log.context_service	This category logs the service of repository contexts.
log.database	This category logs the database access operations and the work with a database.
log.database.common_errors	This category logs miscellaneous errors that occur on the database access layer.
log.database.connection_pool_ex	This category logs the work of database connection pool.
log.database.connections	This category logs the information on the connection management.
log.database.descriptors	This category logs the server descriptors information.
log.database.driver	This category logs JDBC drivers messages and records the JDBC library loader.
log.database.driverloader	This category logs the information from JDBC driver libraries class loader. It is used together with log.database.driver.
log.database.edit	This category logs the table editing operations.
log.database.jdbc	This category logs the execution of dynamic SQL queries.
log.database.sqlj	This category logs the execution of static SQL packages and stored procedures.
log.design_view	This category logs messages and exceptions related to design view.
log.displayMode	This category logs messages and exceptions related to display modes in analytical queries.
log.displayMode.chart	This category logs messages and exceptions related to the chart display mode.
log.displayMode.scenario	This category logs messages and exceptions related to drill-down paths.
log.drda_service	This category logs messages and exceptions related to QMF JDBC service.
log.environment	This category logs environment information of the application.
log.exception	This category logs the appearing exceptions.

Table 2. Log category names and descriptions. (continued)

Name	Description
log.export	This category logs messages and exceptions related to export to Excel.
log.forecast	This category logs messages and exceptions related to forecasts.
log.formula	This category logs messages and exceptions related to formulas used in calculated columns.
log.grid	This category logs the runtime exceptions and messages related to query results grid.
log.importer	This category logs the information of the import operations.
log.install	This category logs the installation process of stored procedures.
log.install.customizer	This category logs package customization. It is proper for Db2 systems only, as it logs the work of the external SQL profiles in the process of the customization.
log.job_scheduler	
log.js	This category logs messages and exceptions related to all JavaScript features.
log.js.js_api	This category logs messages and exceptions related to Scene Script in visual dashboards.
log.js.js_metadatalayer	This category logs messages and exceptions related to JavaScript tables.
log.js.js_modules	This category logs messages and exceptions related to JavaScript modules.
log.js.js_procedures	This category logs messages and exceptions related to JavaScript procedures.
log.legacy_converter	This category logs runtime exceptions and messages for utilities that convert legacy objects into visual projects when they are imported.
log.license	This category logs product licenses related runtime exceptions and messages.
log.limits	This category logs the runtime exceptions and messages related to resource limits.
log.limits.editor	This category logs the runtime exceptions and messages related to resource limits editor.
log.mailer	This category logs messages and exceptions that are related to sending the data from the application by email.
log.messages	This category logs messages displayed to users.
log.metadatalayer	This category logs the general functionality of Virtual data sources.

Table 2. Log category names and descriptions. (continued)

Name	Description
log.metadatalayer.optimize	This category logs the optimization system of Virtual data sources.
log.metadatalayer.scheduling	This category logs the work of a scheduler for Virtual data sources.
log.net	This category logs messages and exceptions that are related to server-client communication.
log.net_activity	This category logs the amount of data that the server and the client exchange.
log.olap_core_logger_category	This category logs the work of XMLA queries and XMLA editor.
log.procedureDesigner	This category logs messages and exceptions that are related to the work with procedures in design mode.
log.prompt_hierarchy	This category logs messages and exceptions related to prompt hierarchies.
log.prompts	This category logs messages and exceptions related to prompts.
log.qds	This category logs messages and exceptions related to QMF Data Service.
log.qmf	This category logs QMF objects issues.
log.qmfz	This category logs messages and exceptions related to QMF Z Client service.
log.qmf.command_processor	This category logs procedure information.
log.qmf_server_registry	This category logs messages and exceptions related to the selected QMF Server Registry.
log.queryEngine	This category logs runtime exceptions and messages related to the query.
log.queryEngine. localQueryEngine	This category logs server related runtime exceptions and messages for the local part of query.
log.queryEngine. localQueryEngine.localQEWarnings	This category logs runtime exceptions and messages related to the warnings in resource limits.
log.queryEngine. localQueryEngine.storedProcedures	This category is not used.
log.queryEngine.remoteQEServer	This category logs server related runtime exceptions and messages for the remote part of query.
log.queryEngine.remoteQEServer. QERequestResponseServer	This category logs requests and responses between remote and local parts of a query in case of network or web-service connection.

Table 2. Log category names and descriptions. (continued)

Name	Description
log.quick_report	This category logs messages and exceptions related to quick reports.
log.report_designer	This category logs the events of visual projects in design mode.
log.reporter	This category logs the exceptions and messages appearing in the visual projects module.
log.reporter.reporter_data_cache	This category logs the cache work of query results in visual projects.
log.reporter.reporter_mobile_viewer	This category logs the module that processes the connections from mobile devices (for example, iPad).
log.reporter.reporter_maps	This category logs the map data in Visual Projects.
log.reporter.reporter_queries	This category logs the work with queries in visual projects.
log.reporter.reporter_runtime	This category logs runtimes evaluation in visual projects.
log.reporter.reporter_runtime. reporter_canvas	This category logs the runtimes evaluation of canvas.
log.reporter.reporter_runtime. reporter_queries_thread_manager	This category logs messages and exceptions related to queries that are run from visual dashboards.
log.reporter.reporter_runtime. reporter_renderer	This category logs messages and exceptions related to individual components of a visual dashboard.
log.reporter.reporter_scene_views	This category logs messages and exceptions related to the scene views feature.
log.repository	This category logs repository runtime exceptions and messages and covers both repository and functions that use this repository.
log.rsbi	It logs all operations, in case a particular category cannot be determined, log data is written to this category.
log.runtime	This category logs the exceptions caused by work with UI and user messages.
log.scheduler	This category logs messages and exceptions related to Scheduler.
log.security	This category logs messages and exceptions related to secured repository providers.
log.service	This category logs internal application services and utility issues.
log.show_message	This category logs messages from Show Message action in visual projects.

Table 2. Log category names and descriptions. (continued)

Name	Description
log.statistics	This category is used only as a container.
log.statistics.queryEngine	This category logs statistics of the time spent on separate blocks of a query execution process.
log.time_trace	This category logs messages and exceptions related to the time trace function.
log.tracking	This category logs exceptions and messages related to object tracking.
log.transformation	This category logs messages and exceptions related to query transformations.
log.transformation.complex	This category logs messages and exceptions related to complex transformations.
log.transformation.simple	This category logs messages and exceptions related to simple transformations.
log.ui	This category logs user interface operations.
log.value	This category logs only the value runtime exceptions and messages in visual projects.
log.web.ide	This category logs the messages and exceptions that are related to the launch of QMF for WebSphere and its work.

Setting output preferences

You can use the **Output** page of the **Preferences** window to activate the **Output** view that tracks the information about errors and connections in QMF.

About this task

The information from the **Output** view can be useful for debugging. It can be delivered as a report in the **Output** view and automatically added to the log file.

To specify the output file preferences for the QMF session:

Procedure

1. Click **Preferences > Output**.
2. On the **Output** page, you can specify the following options:
 - Show errors**
This option displays all error texts in the **Output** view.
 - Show connection status**
This option displays the statuses of connections to data sources in the **Output** view.
 - Automatically activate Output view**
When an error occurs or a message appears, this option automatically opens the **Output** view.
3. Click **Apply** to save your preferences choices.
4. Click **Restore Defaults** to restore the default preference values.
5. Click **Apply and Close** to close the **Preferences** window.

Setting the directory location preference for objects generated by Export actions

You can set preferences in QMF so that objects generated from various QMF actions are exported to a specific location on the server file system.

About this task

This task describes how to specify (through preference settings) the location to which generated objects will be exported.

To set the export directory preference:

Procedure

1. Click **Preferences > Server-Side File System**.
2. Select the **Enable access to the server file system** check box.
3. Type the path in the **Root output directory** field to indicate where generated objects will be exported.

When data and objects are generated by the **EXPORT** procedure or scheduled tasks (**Copy** or **Execute** object), they will be exported to path you specify.

The directory you specify must exist on the server file system.
4. Type the path in the **Root input directory** field to indicate the path of the root directory for dynamart source files.

Note: You need to specify a **Root input directory** path, otherwise the settings are incorrect, and the **EXPORT** using server-side file system will yield an error.
5. Click **Apply** to save your preferences.
6. To restore preferences to the default values, click **Restore Defaults**.
7. Click **OK** to close the **Preferences** window.

Setting QMF Server Registry preferences

QMF Server Registry is a connecting link between QMF Server and QMF client components. QMF Server Registry specifies the QMF servers that the client components can connect to.

About this task

To set the QMF Server Registry preferences, complete the following steps:

Procedure

1. From the main menu, click **Preferences > QMF Server Registry**.
2. In the **Server label** field, specify the label for the server. This label will be displayed in the list of available servers provided by QMF Server Registry.
3. In the **Current Server Registry** area, from the **Registry type** list, select the type of registry that you want to use. The following types are available:

Built-in

The registry that is built into the current QMF server. This option is selected by default when you install QMF server for the first time. If you are using this option, see the address of the registry in the **Registry URL** field.

Auto

The registry that the QMF Registry Service found automatically in the SRV record of the local Domain Name System (DNS). For information about working with the SRV record, see [Specifying the auto discovered QMF Server Registry](#). If you are using this option, see the address of the registry in the **Registry URL** field.

Custom

Use the **Registry URL** field to specify the custom QMF Server Registry.

The **Status** field displays the availability status of the registry. To refresh the status, click **Refresh Status**.

4. Click **Apply**. Then click **Apply and Close**.

Specifying the auto discovered QMF Server Registry

To be able to use the **Auto** option on the **QMF Server Registry** page of the **Preferences** window, you must create an SRV record in the local Domain Name System (DNS) and manually specify the QMF server registry to be used.

Procedure

1. Create an SRV record in your local DNS and name it according to the following template:
_qmfserver._tcp.<domain_name>.
The record must include two components: target host and port number. Use the following template:
Name = "_qmfserver._tcp.<domain_name>"; Target = "<host_name>.<domain_name>";
Port = <port_number>.
2. Specify the values of the Name, Target, and Port parameters to specify the registry to be used with the **Auto** option.
The Target parameter must contain the address of the machine which will host the registry.
3. Optional: To define the application that runs the registry, you must create a TXT DNS record for the target host. The record must look like this: qmfserver_path=/<path>, where <path> is the name of the application.

Specifying virtual data source preferences

You use the **Virtual Data Source** page of the **Preferences** window to enable the automatic cache refresh option for virtual data sources.

About this task

For detailed information about enabling automatic cache refresh for virtual data sources, see [“Enabling automatic cache refresh for virtual and JavaScript data sources”](#) on page 81.

Exporting and importing the JDBC driver and repositories information

QMF administrators can distribute repositories and JDBC driver information by exporting the settings.zip file; and then importing the settings.zip or the settings.xml file.

About this task

To export and then import the repository connection and JDBC driver information:

Procedure

1. Open the **Export** window by selecting **File > Export**. Select **Repositories and JDBC library settings** from the list of available export destinations.
2. Click **Next**. The **Export Repositories and JDBC Library Settings** page of the wizard opens.
3. Select the information that you want to include in the exported settings file. All available repositories are listed in the **Repositories** list box. Select the check box for each repository that you want to include in the output file.

4. All of the JDBC driver libraries that you have defined are listed in the **JDBC libraries** list box. Select the check box for each JDBC driver library that you want to include in the output file.
5. Optional: If you want to export the JAR files that are associated with the selected JDBC drivers, select the **Export driver files** check box.
6. Click **Finish**. Your web browser automatically downloads the `settings.zip` file.
7. To import the repositories and JDBC driver information file, select **File > Import**. Select **Repositories and JDBC library settings** from the **Import** window. The **Import Repositories and JDBC Library Settings** page of the wizard opens.

Note: You can import the repositories and JDBC driver information file in the ZIP format as well as the XML format. This is intended as a backward compatibility feature, because in previous versions of QMF the repositories and JDBC driver information file was exported in the XML format.
8. In the **Settings file** field, click **Browse** and navigate to the `settings.zip/settings.xml` file.
9. Select the **Repositories** check box to import the repositories that have been included in the `settings.zip/settings.xml` file.
10. Select the **JDBC library settings** check box to import the JDBC driver information that has been included in the `settings.zip/settings.xml` file.
11. Select the **Driver files** check box to import the JAR files that have been included in the `settings.zip` file.
12. In the **Conflict resolving** area, specify how you want to resolve the conflicts with previous settings files. Select **Override existing settings** to replace all conflicting information with new information. Select **Keep existing settings** to not update any existing information with new information. Select **Manually resolve conflicts** to open the **Conflicts** window where you will manually resolve conflicts between existing and new setting information. For each conflict you can specify whether you want to overwrite the current settings or keep them intact.
13. Click **Finish**.

Using the Workstation Config view

Administrators can monitor the configuration setup of the Workstation from the **Workstation config** view. The **Workstation Config** view lists the Workstations that are connected to the QMF Server.

It lists the **Client Name**, **Current Version**, and **Last Updated Date** of the imported configuration. Administrators can push the configuration from the user interface using the **Push** button on the right top corner of the pane. When you click the **Push** button, then all the workstations connected to the server get notified about the configuration updates.

Note: The **Push** button on the right top corner of the pane gets enabled when the first version of the configuration has been published to the QMF server.

To access the **Workstation Config** view, click **View > Services** from the main menu.

You can perform the following actions on the **Workstation Config** view:

- **Push Updates:** Notifies the workstation about the available updates of the newer configuration versions. Only the workstations, which are connected at that instance of time, are notified.
- **Refresh:** Refreshes the table data.
- **Client Name:** Specifies the uniquely generated number. If you have more than one instance of QMF workstation installed on a machine, each instance would have its own unique number assigned.
- **Current Version:** Specifies the last version of the imported configuration.

Using the Services view

Use the **Services** view to start, stop, and edit QMF Server services.

Procedure

1. To access the **Services** view, click **View > Services** from the main menu.

The following QMF Server services are currently available in the **Services** view:

HTTP API Service

Allows third-party applications to access QMF objects using HTTP.

Note: If you stop the **HTTP API Service** service, your instance of QMF for Workstation or QMF for WebSphere will not be able to connect to repositories provided by QMF Registry.

JDBC Service

Allows third-party Java applications to work with QMF as a database by using JDBC interface.

To connect to the service, Java applications must specify the host of the QMF server as the *host* part of the JDBC URL, the port that the JDBC Service uses as the *port* part of the JDBC URL, and the name of a repository in a storage that exists on the server as the *database* part of the JDBC URL.

Note: If you have several repositories with the same name stored in different storages, the storage name must be written before the repository name and separated from it by a blank space.

QMF Registry Service

Collects and provides a list of available QMF servers.

Note: The **QMF Registry Service** cannot be stopped if the URL of this server's built-in registry is defined in the SRV record of the local Domain Name System (DNS). The **QMF Registry Service** also cannot be stopped if a QMF server uses a built-in registry.

To specify a different registry, click **Preferences > QMF Server Registry**. For more information, see [“Setting QMF Server Registry preferences”](#) on page 32.

QMF Z Client Service

Allows QMF Z Clients to access the current QMF server.

2. To start or stop a service, click the **Start** or **Stop** button to the left of the service name.
3. To change a port that the service uses or to configure the service autostart, right-click the service that you want to work with and click **Edit**.

Note: For **QMF Registry Service** and **HTTP API Service**, the port cannot be changed.

For the **QMF Z Client Service**, you can also edit the following additional parameters:

User timeout

Specifies the amount of idle time in minutes that must pass before your QMF Z Client user context is reset.

Socket timeout

Specifies the amount of idle time in minutes that must pass before your HTTP socket is deleted.

4. To edit the list of registered QMF servers that are visible to QMF Clients or to manage duplicate repositories, complete the following steps:
 - a) Right-click **QMF Registry Service** and select **Manage Visibility** from the menu.
 - b) Use the **Visibility** tab of the **Manage Servers** window to select which registered QMF servers will be visible to QMF client components. To change the visibility of a server, select or clear the corresponding check box.
 - c) Use the **Duplicate Repositories** tab of the **Manage Servers** window to manage the visibility of duplicate repositories. Duplicate repositories are repositories that are stored on different servers but share the same name. To change the visibility of a repository, select or clear the corresponding check box.

Note: The **Duplicate Repositories** tab only displays the servers that are set as visible on the **Visibility** tab.

5. Click **OK** to apply the changes.

Using the Repositories view

The **Repositories** view displays available repository storages and repositories that the selected storage contains.

The following information is available about each repository:

Repository Name

Shows the name of the repository.

Security Provider

Show the type of security that is currently applied to the repository. For more information about the available repository security types, see [Creating a shared repository](#).

Cache

Shows whether the caching feature is configured for the current repository. When caching is enabled, the application saves the contents of that repository, including all the objects and metadata, on the web server.

Visibility

Shows whether the repository is visible to users.

The following tabs below the list of repositories contain additional information about each repository in the list:

Data Sources

Shows the name, type, and URL of each data source that is available in the selected repository.

Workspaces

Shows the list of workspaces that are available in the selected repository.

Users and Groups

Shows the list of users who can access the repository and allows you to group users based on their permissions.

Use the **Repositories** view to perform the following actions:

1. Use the **Repository storages** list to select the repository storage whose repositories you want to display.
2. To create a repository storage, click the **Create a shared repository storage** button next to the **Repository storages** list. For more information, see [“Creating a shared repository storage”](#) on page 37.
3. To edit a repository storage, click the **Edit** button next to the **Repository storages** list.
4. To delete a repository storage, click the **Delete** button next to the **Repository storages** list.
5. To remove a repository storage from the list without deleting it, click the **Remove From List** button next to the **Repository storages** list.
6. To create a repository, click **Create a Shared Repository**. For more information, see [“Creating a shared repository”](#) on page 41.
7. To refresh the list of repositories, click **Refresh Repositories**.
8. To create a data source, click **Create a Data Source** on the **Data Sources** tab. For more information, see [“Data sources”](#) on page 46.
9. To refresh the list of data sources, click **Refresh Data Sources**.
10. To create a workspace, click **Create a User Workspace** on the **Workspaces** tab. For more information, see [“Setting up workspaces”](#) on page 85
11. To refresh the list of workspaces, click **Refresh Workspaces**.

12. To create a repository user profile, click **Create a Repository User** on the **Users and Groups** tab. This action is only available if the security type of the repository is set to **Internal**. For more information, see [“Creating a repository user”](#) on page 86.
13. To create a repository user group, click **Create a Repository Group** on the **Users and Groups** tab. This action is only available if the security type of the repository is set to **Internal**. For more information, see [“Creating a repository group”](#) on page 86.
14. To refresh the list of repository users and the list of repository user groups, click **Refresh Repository Users and Groups**.
15. To edit or delete a data source, workspace, repository user, or repository group right-click the object and select the action that you want to perform.

Creating a shared repository storage

A shared repository storage is a set of database tables. You must create a shared repository storage for storing database connection and resource limit information, as well as the database objects that users will use for reporting and querying actions.

Before you begin

Before you create a repository storage, make sure you have installed and configured your database management system (DBMS). Also, make sure to install the JDBC driver JAR files and license files so that QMF can connect to the database.

About this task

To create a repository storage, complete the following steps:

Procedure

1. In the **Repositories** view, click **Create a shared repository storage**. The **Create New Shared Repository Storage** wizard opens.
2. On the **Enter connection parameters for new shared repository storage** page, specify the JDBC connection information and user login information to use to connect to the database that will host the repository storage.
3. Click **Next**. The **Create or upgrade repository storage tables** page of the wizard opens.
4. On the **Create or upgrade repository storage tables** page, specify that the database objects that are required by the QMF applications in order to access the repository storage will be created or upgraded.
5. Click **Next**. If necessary, the **Update repository storage tables** page opens listing the SQL statements that will be used to create or update the required repository storage tables. If this page opens, click **Next**. The **Protect repository storage tables** page of the wizard opens.
6. On the **Protect repository storage tables** page of the wizard specify whether the database repository storage tables will be protected from unauthorized users.
7. Click **Finish**.

Specifying connection parameters and user login information

The first step to creating shared repository storage is to specify the connection parameters and the user login information that will be used when accessing the database that hosts the repository storage.

About this task

To specify the connection and user login information for the database that hosts the repository storage:

Procedure

1. Open the **Create New Shared Repository Storage** wizard and navigate to the **Enter connection parameters for new shared repository storage** page.

2. In the **JDBC Driver** field specify the library for the JDBC driver that will be used to access the database that is hosting the repository storage. You can select from a drop down list of libraries that you defined when you set up the JDBC driver information. You can use the ellipsis (...) to the right of the field to open the **Select JDBC Driver** dialog where you can create additional JDBC driver libraries.
3. In the **JDBC URL** list, specify the URL that points to the database that hosts the repository storage within which the repository to which you want to connect resides.

The format for the URL can be displayed in the list.

Note: You can also use the **Build URL by URL-template** dialog box to form the correct string.

Click **Build URL** to open the **Build URL by URL Template** dialog box. From the JDBC URL drop-down list, select the template. In the table, specify the **server**, **port**, and database information and click **OK**. The result URL string is added to the JDBC URL list.

4. Click **Advanced** to specify any driver-specific connection string keywords and their values that will be used for the database that is hosting the repository storage tables. The list of available advanced properties will change depending on both the type of driver being used, and the version of the driver. For information on any keywords that are required by a selected database driver, consult the specific driver's documentation.
5. Select **User ID and password are required** to require the use of a user ID and password when accessing the database that is hosting the repository storage. If the database that is hosting the repository storage allows access without a user ID and password, selecting this option will override that allowance, and a user ID and password will be required to access the repository storage tables.
6. Specify the user ID and password that will be used to access the database in the **User ID** and **Password** fields. The user ID and password that you specify when connecting to the host repository are used to authorize the user in that repository. The user ID and password that you specify must have administrative privileges on the host database in order to create the repository storage tables. This mode is only available on Db2.
7. To remember this password every time you use the specified user ID to connect to the database, select the **Remember password** check box.
8. Click **Test Connection** to test the connection to the database. If you have specified any information incorrectly you will not be able to connect.
9. Click **Next**. The **Create or upgrade the repository storage tables** page of the wizard opens.

Creating and updating tables

The second step to creating shared repository storage is to specify whether the database objects that are required by the QMF applications in order to access the repository storage will be created or updated.

About this task

Several database tables are required to support the shared repository storage that is being created on the database. You must specify whether QMF should check to see if the tables exist or need updating.

To create or update the repository storage tables:

Procedure

1. Open the **Create New Shared Repository Storage** wizard and navigate to the **Create or upgrade repository storage tables** page.
2. Select one of the following options:
 - Click **Repository storage tables have already been created** to bypass this step. You might select this option if all the repository storage tables already exist and you are certain that the tables have not changed. An example of this situation might be if you are editing the repository storage options and your intent is to re-bind packages or re-run stored procedures for the repository storage tables. Click **Next**. The **Protect repository storage tables** page of the wizard opens.

- Click **Create or upgrade repository storage tables** to check if the tables have been created or have to be updated.
3. If repository storage tables have not been created, you can select the **Enable customization of database object names** check box to open a window where you can customize how database objects are named.
 4. Click **Next**.

Depending on the status of the tables you will proceed as follows:

- If all the tables have been created and have not changed, a message is issued. Click **OK** in the message window. The **Protect repository storage tables** page of the wizard opens.
- If the tables have to be created or updated and you did not select the **Enable customization of database object names** check box, the **Update repository storage tables** page of the wizard opens listing the SQL statements that will be used to create or update the required repository storage tables. You can make changes to the SQL statements as described on the page. Click **Next**. The **Protect repository storage tables** page opens.
- If the tables have to be created and you selected the **Enable customization of database object names** check box, then the **Enter Substitution Variable Values** window opens. Enter your customized database object names in the **Value** column and click **OK**.

Note: The **Value** column of the window displays the default name of each database object. This gives you an opportunity to review and/or rename the objects that will be created. For example, one could preface all index names with the prefix "IX".

The **Enter Substitution Variable Values** window closes and the **Update repository storage table** page of the wizard opens.

Click **Next**. The **Protect repository storage tables** page opens.

Protecting repository storage tables and granting user permissions

The last step to creating shared repository storage is to specify whether the shared repository storage tables will be protected from unauthorized users.

About this task

Several tables in repository storage are used by QMF to store processing information. Some of these tables store sensitive information, for example the permissions table. By default all users can access these repository storage tables and make changes to the tables. You can choose to protect the repository storage tables. In protection mode the repository storage tables are accessed using a collection of stored procedures or static SQL packages depending on what the database that is hosting the repository storage supports. Users of the repository storage must then be granted permission to run the stored procedures or static SQL packages.

To protect the repository storage tables:

Procedure

1. Open the **Create New Shared Repository Storage** wizard and navigate to the **Protect repository storage tables** page.
2. Specify whether the shared repository storage tables will be protected from unauthorized users.
By default the **Protection method** check box is not selected. This means that all users will have access to the repository storage tables and can make changes to any of those tables. To specify that you will protect the repository storage tables, select the **Protection method** check box. The fields that you will use to specify the protection method become available.
3. Select one of the following protection methods:
 - Select **Stored procedures** to specify that you will use stored procedures to protect the repository storage tables. You can select this option if the repository storage tables are located on one of the following databases:

- Informix
 - DB2 UDB LUW V10 and later
 - DB2 iSeries (when accessed with IBM Toolbox JDBC driver)
 - Microsoft SQL Server
- Select **Static SQL packages** to specify that you will use static SQL packages to protect the repository storage tables. You can select this option if the repository storage tables are located on a Db2 database that you will connect to using the IBM DB2 Universal driver for JDBC.
4. Type, or select from the drop-down list, the name that you want to use to identify the collection of stored procedures or static SQL packages in the **Collection ID** field.
 5. Optionally you can type the owner name in the **Owner ID** field, if you work with Db2 databases. The Owner ID provides the administrator privileges to the user who operates under the login without SYSADM authority.
 6. Click **Create**. The stored procedures are created or the static SQL packages are bound. A message is issued that informs you of the success of the either process. You can also use the **Delete** button to remove a collection of stored procedures or packages.
 7. Specify which users will have permission to run the stored procedures or static SQL packages for the repository storage tables on this database. To grant permission to all users, enter PUBLIC in the **User IDs** field and click **Grant**. To grant permission to specific users, type their user IDs in the field and click **Grant**. A message is issued that informs you that the selected user IDs have been granted permission to run the stored procedures or packages.

Optionally, you can revoke permission to run the stored procedures or static SQL packages from any user that is listed in the **User IDs** list box. To revoke permission from one or more users, highlight one or more of the user IDs and click **Revoke**. A message is issued informing you that permission to run the stored procedures or static SQL packages has been revoked from the selected user IDs.

8. Click **Finish**.

The repository storage tables are created. The location of the new repository storage tables is listed in the **Repositories** view. After you have created the shared repository storage in the database, you can add one or more repositories that will share the storage. Each repository that you create can have its own independent objects, security models, and users.

Setting maximum number of simultaneous database connections

An advanced feature in creating repository storage tables allows you to specify the maximum number of simultaneous database connections.

About this task

To set the maximum number of simultaneous database connections:

Procedure

1. In the **Repositories** view click the repository storage that you want to work with. Click the down arrow next to the **Create a shared repository storage** button and select **Edit**. The **Edit Repository Storage** window opens.
2. Click the **Advanced** tab.
3. Specify the number of database connections in the **Maximum number of simultaneous database connections** field.
The default value is 10.
4. Click **OK**.
The maximum number of simultaneous database connections is set in the repository storage tables.

Creating a shared repository

Repositories serve as a centralized place which stores QMF objects, such as queries, procedures, forms, dashboards, and reports. Each repository can have its own independent objects, security models, and users.

About this task

To add a repository to the repository storage, perform the following steps:

Procedure

1. In the **Repositories** view, click **Create a Shared Repository**. The **Create New Shared Repository** wizard opens.
2. In the **Name** field, specify the name for the repository.
3. From the **Repository storage** field, select the repository storage that you want to use to host the new repository.
4. Optional: To make the repository unavailable for QMF clients, select the **Hide from QMF clients** check box.
5. Optional: To manage any driver-specific connections string keywords for the repository, click **Advanced**.
6. Optional: To configure a PassTickets-based Single Sign-on connection between QMF and Db2 for z/OS database, click **Single Sign-on**.
7. Optional: If you are using the Direct DRDA Connection to connect to the repository for the first time, you must bind Direct DRDA packages. To do so, complete the following steps:
 - a) Click **Bind Packages**.
 - b) In the **Owner ID** field, enter a privileged SQLID with the necessary rights for the binding process. If the value of this field is not specified, the user name from the **Set User Information** dialog will be used.
 - c) Click **Install**.
8. Optional: To specify the login name and password for the repository, click **Set Use Information**.
9. Optional: In the **Comment** field, type a comment that describes the repository.
10. From the **Security provider** list, select the security type that you want to apply to the repository. The following security types are available:
 - **None**: Specifies that no additional security beyond what is provided by the host database will be applied. All users will have full access to the contents of the repository.
 - **Internal**: Specifies that a layer of security beyond what is provided at the database level will be applied. This level of security allows you to define users and groups, and then assign them permission to access the repository. This level of security also allows you to control which data sources and workspaces a user or a group can access or view when they are connected to the repository. User and group definitions, and their assignments, are stored within the repository. Users will log on to QMF using their defined user IDs and passwords. They will be granted access to repositories, data sources, and workspaces based on the permissions that they are assigned by the QMF administrator.
 - **LDAP**: Specifies that a layer of security beyond what is provided at the database level will be applied. This level of security allows you to control the users and groups who are permitted access to the repository. This level of security also allows you to control which data sources and workspaces a user or a group can access or view when connected to the repository. If you choose the LDAP security option, the user identities and group affiliations are obtained from an existing LDAP server. Users will log on to QMF using their LDAP user names and passwords. They will be granted access to repositories, data sources, and workspaces based on the permissions that they are assigned by the QMF administrator.

- **Database-based:** Specifies that the security settings of the host database will be used to protect the shared repository.
11. If you want to automatically create default workspaces for users in secured repositories, select the **Enable home workspaces support** check box.
 12. Click **Next**.
 13. Depending on the security type that you selected in previous step, one of the following wizard pages opens:
 - If you selected the **Database-based** option, the **DB security provider options** page opens. On the page, specify whether you want to import the list of database users from the QMF Catalog table that is stored in the database and click **Next**.
 - If you selected the **Internal** option, the **Internal security provider options** page opens. On the page, specify the user name and password that will identify the QMF administrator account. The QMF administrator account is the account that is used to create additional administrative accounts, as well as apply security permission levels to different users and groups. Click **Next**.
 - If you selected the **LDAP** option, the **LDAP security provider options** page opens. On the page, specify one or more values for the LDAP fields. These fields are used to obtain all LDAP users and groups. You must specify an existing LDAP group in the directory that represents the QMF administrator account. All LDAP accounts that belong to this group will have administrator privileges and can create additional administrative accounts, as well as apply security permission levels to different users and groups. Click **Next**.
 14. On the **Define advanced connection parameters** page, in the **Repository Cache** area, select the **Enabled** check box to enable repository cache validation. Use one of the pre-defined modes or select the **Use custom cache settings** check box to specify a custom cache validation mode.

The following pre-defined modes are available:

Low relevance-High performance

Cache validation is not performed.

Balanced relevance/performance

Cache validation is performed every five minutes.

High relevance-Low performance

Cache validation is performed every minute.

15. Click **Finish**.

Assigning administrative privileges

QMF administrative privileges should be given only to those users who will be responsible for creating and managing repositories.

If your repository will be stored in a database and you want to protect your resources, only users familiar with administering databases should be given QMF administrative privileges. In many environments having a single user responsible for managing repositories centralizes and streamlines control over database resources.

Those users without QMF administrative privileges must be given the information necessary to connect to a repository that is created by the QMF administrator.

Using DRDA to connect to database repositories and data sources

You can use the Direct DRDA Connection to establish a connection to Db2 database data sources.

Before you begin

The Direct DRDA Connection is supported only for DB2 for z/OS Version 11, Version 12, and Version 13. Do not use it for Db2 LUW or DB2 for iSeries.

About this task

In contrast to JDBC driver libraries, the Direct DRDA Connection is included with QMF and does not require additional driver installation.

You can specify the Direct DRDA Connection when creating a relational data source, shared repository storage, or shared repository.

You can enable the use of SSL certificates for the Direct DRDA Connection to make the connection secure.

To specify the Direct DRDA Connection:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, right-click the data source that you want to work with and select **Properties**.
2. From the **JDBC Driver** list of the **Connection Parameters** page, select **Direct DRDA Connection**. The connection will be used to access the database that hosts the data source.
3. In the **JDBC URL** list specify the URL that points to the database that hosts the data source.

The templates for the URL can be displayed in the list:

```
jdbc:rsbi:db2://{server}:{port}/{database}
```

You must specify the **server**, **port**, and **database** information.

Note: You can also use the **Build URL by URL-template** window to form the correct string. To do so, click **Build URL** to open the **Build URL by URL-template** window. From the **JDBC URL** drop-down list, select the template. In the table, specify the server, port, and database information and click **OK**. The resulting URL string is added to the **JDBC URL** list.

4. Click **Advanced** to specify Direct DRDA Connection string properties and their values to be used for the database that hosts the data source tables.

See [Direct DRDA Connection properties](#) for more information.

5. To bind the direct DRDA package click **Bind Packages**. The **Bind Packages** dialog opens.

In order for Direct DRDA Connection to properly work you must bind Direct DRDA packages when you are connecting to a database for the first time. When the binding operation completes, users can connect to the database by using Direct DRDA Connection. They do not have to bind packages again.

- a) In the **Owner ID** field you can enter a privileged SQLID with the necessary rights for the binding process, in case a user who establishes a server connection has no administrator privileges for the database. If the value of this field is not specified, the CURRENT SQLID, the user name set in the **Set User Information** dialog, will be used to perform the installation process.
 - b) Click **Install** to start the installation process.
6. Continue specifying the data source parameters.

Direct DRDA Connection properties

Direct DRDA Connection properties define how the connection to a particular data source is established. You can specify Direct DRDA Connection properties in the **Advanced JDBC Settings** window.

The Direct DRDA Connection has the following properties:

Parameters

securityMechanism

This property specifies the Direct DRDA Connection security mechanism. The data type of this property is integer. Possible values are:

- SECMEC.I_USRIDPWD = 3

Neither user ID nor password is encrypted.

- `SECMEC.I_EUSRIDPWD = 9`
Both user ID and password are encrypted.

- `SECMEC.I_EUSRPWDDTA = 13`
The user ID, Password, and Data are encrypted.

If you do not specify a value for **securityMechanism**, the requester attempts to connect using the security mechanism without any encryption.

If the server accepts only encrypted login information, the requester attempts to switch to the corresponding security mechanism.

If a connection cannot be established because the server does not support that security mechanism, an exception is thrown.

sslConnection

This property specifies whether the use of SSL certificates is enabled for the current connection. The data type of this property is string. Possible values are:

true
Specifies that the use of SSL certificates is enabled.

false
Specifies that the use of SSL certificates is disabled.

sslTrustStoreLocation

This property specifies the path to the truststore file that is used for the connection. The data type of this property is string. The value must contain a path to the truststore file.

sslTrustStorePassword

This property specifies the password to the truststore file that is used for the connection. The data type of this property is string. The value must contain a password to the truststore file.

enableBidiLayoutTransformation

This property specifies the way the Direct DRDA Connection processes bidirectional data. Enabling this property allows QMF DRDA driver to correctly handle the data entered in a language with the right-to-left writing system (such as Arabic) that is stored in visual order. If the data is stored in logical order, enabling this option will result in incorrect data output.

true
The enableBidiLayoutTransformation property is enabled.

false
The enableBidiLayoutTransformation property is disabled.

Note: If the enableBidiLayoutTransformation option is enabled, users cannot insert, edit, or delete any data in the database. Also, with the enableBidiLayoutTransformation option enabled, the driver is configured to handle BiDi data on the server machine and on the client machine differently. See the table in the *Db2 Type 4 UDB JDBC driver parameters for bidirectional layout transformations procedure* for details. For the server machine, see the row that corresponds with value 4. For the client machine, see the row that corresponds with value 5.

DB2 Type 4 UDB JDBC driver parameters for bidirectional layout transformations procedure

The following table contains integer values and corresponding attributes for the *serverBidiStringType* and *clientBidiStringType* properties.

<i>Table 3. Property values and corresponding attributes for the serverBidiStringType and clientBidiStringType properties</i>					
Value	Type of text	Text Orientation	Symmetric swapping	Numeral shape	Text shapes
4	Visual	Left-to-right	No	Nominal	Shaped

Table 3. Property values and corresponding attributes for the `serverBidiStringType` and `clientBidiStringType` properties (continued)

Value	Type of text	Text Orientation	Symmetric swapping	Numeral shape	Text shapes
5	Logical	Left-to-right	Yes	Nominal	Nominal
6	Logical	Right-to-left	Yes	Nominal	Nominal
7	Visual	Right-to-left	No	Nominal	Shaped
8	Visual	Right-to-left	No	Nominal	Shaped
9	Logical	Right-to-left	Yes	Nominal	Shaped
10	Logical	Contextual left-to-right	Yes	Nominal	Nominal
11	Logical	Contextual right-to-left	Yes	Nominal	Nominal

Consider the following descriptions of the attributes listed in *Table 1*:

Type of text

Specifies the relationship between the order of text as stored in memory or on external media and its order for correct display. Possible values are:

- `Visual` – text is stored in the same order as it is displayed.
- `Logical` – text is stored in the order it is intended to be read.

Text orientation

Specifies the direction in which the text is stored. Possible values are:

- `Left-to-right` – marks the text as left-to-right.
- `Right-to-left` – marks the text as right-to-left.
- `Contextual left-to-right` – the direction of the text is determined by analyzing the text itself. If the first strong character belongs to the left-to-right script or there are no strong characters in the text, it is marked as left-to-right. If the first strong character belongs to a right-to-left script, the text is marked as right-to-left.
- `Contextual right-to-left` – the direction of the text is determined by analyzing the text itself. If the first strong character belongs to the left-to-right script, the text is marked as left-to-right. If the first strong character belongs to a right-to-left script or there are no strong characters in the text, it is marked as right-to-left.

Symmetric swapping

Specifies whether characters that have an implied directional meaning, such as `<`, `>`, `(`, `)`, and so on, are replaced with their mirror images. This option is meant for texts that are written in right-to-left writing systems and are stored in Visual order. Symmetric swapping is not performed for texts that are stored in logical order. Possible values are:

- `Yes` – symmetric swapping is enabled.
- `No` – symmetric swapping is disabled.

Numeral shape

Specifies whether numbers are presented by using the European digit shapes or the Arabic-Indic digit shapes. Possible values are:

- `Nominal` – numbers are presented by using the European digit shapes.
- `National` – numbers are presented by using the Arabic-Indic digit shapes.

Text shapes

Specifies the encoding for Arabic symbols. Possible values are:

- Nominal – Arabic letters are encoded with intrinsic code points, in the "06xx" range for Unicode.
- Shaped – Arabic letters are encoded as presentation forms which can be Initial, Middle, Final, or Isolated.

Enabling SSL connection for DRDA driver

You can enable the use of SSL certificates to make the connection secure.

About this task

To enable the use of SSL certificates, complete the following procedure:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, right-click the data source for which you want to enable the use of SSL certificates and click **Properties**.
2. On the **Connection Parameters** page of the **Properties** window, click **Advanced**.
3. In the **Advanced JDBC Settings** window, enable the **sslConnection** parameter and set the parameter value to true.
4. Enable the **sslTrustStoreLocation** parameter and specify the location of the truststore file in the **Value** column.

Note: Use the JDK Keytool utility to configure the truststore file.
5. Optional: Enable the **sslTrustStorePassword** parameter and specify the password for the selected truststore file in the **Value** column.
6. Click **OK** to close the **Advanced JDBC Settings** window.
7. Click **Finish** to close the **Properties** window.

Data sources

As an administrator, you create data sources to store database connection information.

Data sources are classified by the types of databases that they represent.

Table 4. Data source types

Data source	Database
Relational	Data is stored in relational databases.
Multidimensional	Data is stored in multidimensional databases.
Hive	Data is stored in Apache Hive™ data warehouses.
Virtual	Data is stored in virtual and JavaScript tables.
JavaScript	Data is provided by online services. Data is stored in JavaScript tables.

Creating a relational data source

You must add configuration information to your repositories for all relational data sources.

About this task

Relational data sources are accessed using JDBC. A relational data source stores data in database tables. Each database table comprises a number of columns, and one or more rows. Queries for relational data sources are written in SQL.

To create a new relational data source:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, click **Create a Data Source**. The **Create New Data Source** wizard opens.
2. In the wizard, select **Relational** and click **Next**.
The **Add new relational data source name and connection parameters** page opens.
3. In the **Data Source Name** field, specify the name for the data source.
4. In the **JDBC Driver** field specify the library for the JDBC driver that will be used to access the database that is hosting the repository storage. You can select from a drop down list of libraries that you defined when you set up the JDBC driver information. You can use the ellipsis (...) to the right of the field to open the **Select JDBC Driver** dialog where you can create additional JDBC driver libraries.
5. In the **JDBC URL** list, specify the URL that points to the database that hosts the repository storage within which the repository to which you want to connect resides.

The format for the URL can be displayed in the list.

Note: You can also use the **Build URL by URL-Template** dialog to form the correct string.

Click **Build URL** to open the **Build URL by URL-Template** dialog. From the JDBC URL drop-down list, select the template. In the table, specify the **server**, **port**, and database information and click **OK**. The result URL string is added to the JDBC URL list.

6. Click **Advanced** to specify any driver-specific connection string keywords and their values that will be used when connecting to this shared repository. For information on any keywords that are required by a selected database driver, consult the specific driver's documentation.

Note: For the DB2® Type 4 UDB driver, to receive extended SQL exception error messages, check the **retrieveMessagesFromServerOnGetMessage** option in the **Advanced JDBC Settings** window.

7. Optional: To configure a PassTickets-based Single Sign-on connection between QMF and Db2 for z/OS database, click **Single Sign-on**.
8. Click **Set User Information**.
The **User Information** window opens.
9. Select the **User ID and password are required** check box to specify that user information will be requested each time this data source is accessed. This check box can be left clear if the data source does not require logon information, or if the logon information is obtained using some other means, such as Kerberos or Windows authentication.
10. Select the **Try to use repository login and password to connect to this data source** check box to specify that before requesting logon information from the user, the current repository login and password will be used to try and connect to the data source (such as the case in Kerberos security).
11. Specify the user ID and password that will be used to access the data source in the **User name** and **Password** fields. Click **OK**.
The **User Information** window closes and control returns to the **Create Relational Data Source** wizard.
12. To test the connection, click **Test Connection**.
13. Click **Next**. The second page of the **Create Relational Data Source** wizard opens where you will enable the QMF catalog plug-in for the data source.

Enabling data source plug-ins

The second step in configuring a relational data source is to enable the QMF Catalog plug-in that will provide additional functionality for the data source.

About this task

For each relational data source that you configure in the repository you can enable additional functionality that applies specifically to that data source. QMF Catalog Plug-in is an example of such functionality. When you enable the QMF Catalog plug-in for a relational data source, users can access the QMF catalog that you specify whenever they are connected to the data source.

To enable plug-ins for a relational data source:

Procedure

1. Open the **Enable data source plug-ins** page of the **Create Relational Data Source** wizard.
2. To configure this data source to use a QMF catalog, select the **Enable Plug-in** check box. The **QMF Catalog Wizard** opens. For more information, see [“Enabling QMF catalog functionality”](#) on page 72.
Upon completion of the wizard's processing, control returns to the **Enable data source plug-ins** page of the **Create Relational Data Source** wizard.
3. The QMF catalog will be available to this relational data source. By default, the node label for the QMF catalog as it will appear in the repository will be QMF Catalog. You can specify a unique name. Type the name that you want to use to identify this QMF catalog in the **Catalog label** field. Optionally, you can type a comment that describes the QMF catalog in the **Comment** field.
4. To change any of the QMF catalog plug-in parameters, click **Parameters**. The **QMF Catalog Plug-in Parameters** window opens. Upon completion of modifying the parameters, control returns to the **Enable data source plug-ins** page of the **Create Relational Data Source** wizard. You can also open the **QMF Catalog Plug-in Parameters** window from the **Repositories** view by right-clicking a data source, selecting **Properties** from the menu, and selecting **Plug-ins** from the **Properties** list.
5. By default, the node label for all of the native database objects for this relational data source as it appears in the repository will be **Database**. You can specify a unique name. Type the name that you want to use to identify these database objects in the **Label** field. You can also choose to type a comment that describes the native database objects in the **Comment** field.
6. If the database that you are using supports IDAA, **Acceleration Database Plug-in** becomes available on the **Properties** page of your data source. Click **Parameters** to configure protection options for Accelerator tables. The procedure is identical to configuring protection options for QMF catalog tables. For more information, see [“Protecting QMF catalog tables and granting user permissions”](#) on page 107.
7. Click **Next**. The third page of the **Create Relational Data Source** wizard opens where you will select the resource limits provider for the data source.

Selecting the resource limits provider

The third step in configuring a relational data source is to specify whether the resource limits that will govern access to the data source will be provided from the repository or from the QMF catalog.

About this task

To specify the resource limits provider for a relational data source:

Procedure

1. Open the **Select resource limits provider** page of the **Create Relational Data Source** wizard.
2. From the **Resource limits provider** drop-down list, select where the resource limits for this data source are defined. Your choices are:
 - **Repository** if the resource limits are defined in the repository.
 - **QMF Catalog** if the resource limits are defined in a QMF catalog. This option is only available if you have enabled the QMF Catalog plug-in for the data source.
3. Click **Finish**.
You have completed the process of configuring a relational data source in the repository. You would now customize the feature set of the data source.
4. To add, edit, or delete resource limits, right-click the data source in the **Repositories** view (after it has been created) and click **Properties** from the pop-up menu. Select **Resource Limits** from the **Properties** tree. You can add, edit, and delete resource limits groups, schedules and user assignments.

Setting up data source resource limits

You can set up one or more unique sets of resource limits that can be applied to individual users or to groups of users when they access a data source.

About this task

For every data source that you add to a repository, the **Create Relational Data Source** wizard creates a default set of resource limits. Based on your resource limits provider selection, the default resource limits for the data source are stored in the repository or the QMF catalog. The resource consumption at the data source for every user of QMF for Workstation is automatically controlled by that default set of resource limits. The default resource limits are non-restrictive and are always active.

To modify the default resource limits or set up new, unique resource limits for a data source:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, right-click a relational data source. Select **Properties** from the pop-up menu. The **Properties for [data source]** window opens. Click **Resource Limits**. The **Resource Limits** window opens.
2. All resource limits groups that exist for a data source are listed in the **Resource limits groups** list box. Every data source has a resource limits group called **Default**. The **Default** resource limits group includes all users and has no resource limitations. Use the **Show resource limits groups whose names match** field and the **Refresh List** button to search for specific resource limits groups that exist on the data source. Use a percent (%) sign in the **Show resource limits groups whose names match** field to list all resource limits groups that exist on the data source.
3. Create a new resource limits group for the data source by clicking **Add**. The **New Resource Limits Group** window opens. Specify field values and click **OK**.

Note: The **Add** button is always available for the data sources with the QMF Catalog resource limits provider. However, if the limits are stored in a repository instead of a QMF Catalog, then **Add** is available only for the data sources that exist in secured repositories.

4. Create a schedule and specify resource limit values for the resource limits group by selecting the resource limits group from **Resource limits groups** list box and clicking **Edit**. The **Edit Resource Limits Group** window opens. Specify field values and click **OK**.
5. Assign users to a resource limits group by selecting the resource limits group from the **Resource limits groups** list box and clicking **Assign**. If you are using a repository as your resource limits provider, the **Assignment for [resource limits group name]** window opens. If you are using a QMF catalog as your resource limits provider, the **Assign User Profiles to [resource limits group name]** window opens. Specify field values and click **OK**.

Note: The **Assign** button is available only in the following scenarios:

- You are using a repository as your resource limits provider and the data source that you are working with exists in a secured repository.
- You are using a QMF Catalog as your resource limits provider.

6. To delete a resource limits group, select the group from **Resource limits groups** list box and click **Delete**. The resource limits group is removed from **Resource limits groups** list box.

Note: The **Delete** button is always available for the data sources with the QMF Catalog resource limits provider. However, if the limits are stored in a repository instead of a QMF Catalog, then **Delete** is available only for the data sources that exist in secured repositories.

7. Click **OK** to close the **Resource Limits** page of the **Properties** window.

Note: If a resource limit has been set at the data source level in QMF Server and at the query level in QMF clients, QMF will apply the most restrictive limit of the two. For example, if the **Maximum Rows to Fetch** limit is set to 150,000 rows at the query level, but set to 100,000 rows at the data source level, then QMF will apply the data source limit of 100,000 rows when the query is run, since the lower number constitutes a more restrictive limit. This selection process is repeated for every resource limit that is set at both the query and data source levels.

Definition of a resource limits group

A resource limits group is a set of resource limits that are implemented collectively, for each user that is assigned to the group, according to a specified schedule. You can create as many resource limits groups as you want, with each group having a different set of resource limits implemented according to different schedules.

There are many permutations available to you for setting up resource limits groups. The most common ways to set up resource limits groups and control resource usage are by:

- data source
- user
- day of the week
- 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. In addition, each resource limits group can have different users assigned allowing them to perform only certain functions on specific database data sources or when running specific queries.

Default resource limits group

Initially, all users are assigned to the default resource limits group. Users who are not assigned to any other resource limits group are governed by the limits defined in the default resource limits group.

The default resource limits group is assigned a set of default resource limits and a default schedule. The default resource limits are not restrictive and the default schedule implements the resource limits 24 hours a day, every day of the week. You can edit the default resource limits group and change the resource limits and the schedule.

Note: Resource limits are always active. Governing based on default resource limits is performed even if you do not set up resource limits groups. You should review the limits specified for the default resource limits group to ensure that unassigned users that are governed by the default group are not granted limits that are more extensive or restrictive than you intend.

Ensuring resource limits groups security

In order to protect the limits that have been specified for each user, QMF catalog-based resource limits groups are securely stored in the table `RDBI.RESOURCE_TABLE` that is part of the QMF catalog and resides on a database server.

You must have the authorization to execute the QMF application package on the database server in order to make any changes to a resource limits group. This prevents unauthorized users from changing the resource limits.

A view named `RDBI.RESOURCE_VIEW` is defined for the resource limits table. QMF applications access the resource limits information using the view so the table remains intact.

Note: The Default resource limits group resource limit information is stored in the repository and not in the `RDBI.RESOURCE_TABLE` on the database server. That means any user who can access the repository can make changes to the resource limits of the default resource limits group.

Creating resource limits groups

A resource limits group is a set of resource limits that are implemented collectively, for each user that is assigned to the group.

About this task

You can create one or more resource limits groups for each data source that you add to the repository. Resource limits groups can be created in the following scenarios:

- You are using a repository as your resource limits provider and the data source that you are working with exists in a secured repository.
- You are using a QMF Catalog as your resource limits provider.

To create a resource limits groups:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, right-click a data source. Select **Properties** from the pop-up menu. The **Properties for [data source]** window opens. Click **Resource Limits**. The **Resource Limits** window opens. Select a resource limits group from the **Resource limits groups** list box. Click the **Add** icon. The **New Resource Limits Group** window opens.
2. Type a name for the group in the **Group name** field. There are no restrictions on the name.
3. *Optional:* In the **Comments** field you can specify up to 80 characters of comments describing the resource limits group.
4. You can select the **Create this group using schedules from the Default group** check box to create the resource limits group with the same schedules as the default group. If this check box is cleared, the new resource limits group has no schedules. You create or modify a resource limits group's schedule using the **Edit Resource Limits Group Schedule** window.
5. Click **OK**. The **New Resource Limits Group** window closes. The new resource limits group is created. Control returns to the **Resource Limits** window. The next step to setting up resource limits is to create or edit the resource limits group schedules.

Specifying values for the resource limits

From the **Edit Resource Limits Group Schedule** window you enter the resource limits that you want to be in effect for the schedule.

About this task

To specify the individual resource limits:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, right-click a data source. Select **Properties** from the pop-up menu. The **Properties for [data source]** window opens. Click **Resource Limits**. The **Resource Limits** window opens. Select a resource limits group from the **Resource limits groups** list box. Click the **Edit** icon. The **Edit Resource Limits Group** window opens. Select a schedule from the **Schedule List**. Click **Edit**. The **Edit Resource Limits Group Schedule** window opens.
2. Using the following pages of the **Edit Resource Limits Group Schedule** window specify the parameters that will set up the resource limits for the selected resource limits group schedule:
 - Select the **Main** page to assign the schedule a priority and specify the time of day and day of the week the schedule is in effect. You must specify these parameters when you are creating a new schedule. For the **Default** resource limits groups, this page is not available.
 - Select the **Timeouts** page to specify warning and cancellation limits for idle queries, idle connections, and server response time.
 - Select the **Limits** page to specify warning and cancellation limits for the maximum number of rows and bytes of data that can be retrieved. In addition, select this page to specify the maximum number of simultaneous connections that can be established to the database server.
 - Select the **SQL Verbs** page to limit the SQL verbs that users assigned to this resource limits group are allowed to use when this schedule is in effect.
 - Select the **Options** page to specify access options including: database data source access using either the QMF for Workstation user interface and programming interface; database update confirmation; isolation levels for user queries; mandatory account information; and the ability to fetch all rows automatically, export data, edit tables, and only run saved queries.
 - Select the **Save Data** page to allow users assigned to this resource limits group and using this schedule to save data at the database server.
 - Select the **Binding** page to allow users assigned to this resource limits group and using this schedule to bind or drop static packages for their queries.

- Select the **Object Tracking** page to turn on QMF for Workstation object tracking. You must turn on object tracking in order to have meaningful object tracking reports.
 - Select the **LOB Options** page to allow users, assigned to this resource limits group and using this schedule, to access tables containing large object data (LOB).
 - Select the **Cache** page to control caching options for each user.
 - Select the **Object List** page to define the default owner name that will be used to filter data source objects and specify a specific list of owner names that can be used to filter data source objects aside from the default name.
3. Click **OK**. The **Edit Resource Limits Group Schedule** window closes. All the changes that you have made to the resource limits parameters are saved. The **Edit Resource Limits Group** window stays open.

Specifying Main resource limits

On the **Main** page of the **Edit Resource Limits Group Schedule** window you specify the day and time when the schedule will be in effect.

The **Main** resource limits are as follows:

Number

This resource limit is available only in the **New Resource Limits Group Schedule** window. Populate this text field with a number from 1 to 99. This number is used to identify the schedule and represent the schedule's priority. A number is assigned to the schedule only when it is created. The schedule number must be unique. Once assigned, you cannot change the schedule number and its assigned priority.

The schedule's priority number is used to decide which schedule is in effect when schedules overlap. If two schedules for the resource limits group cover the same time period, the schedule with the lower number takes precedence.

Day Range

Select from the drop down lists a day of the week that will be the starting day and a day of the week that will be the ending day for the schedule. The schedule is in effect from the starting day to the ending day, inclusive. You can specify a day range that wraps around the end of the week. For example, selecting Friday through Monday activates the schedule Friday, Saturday, Sunday, and Monday. In reverse, selecting Monday through Friday activates the schedule Monday, Tuesday, Wednesday, Thursday, and Friday.

Time Range

Select from the drop down lists a time to start and a time to end the schedule. The schedule is in effect from the start time to the end time, inclusive. Time is specified using a 24 hour clock. You can specify a time range that wraps around midnight. For example, selecting 23:00 through 7:00 will activate the schedule from 11:00 at night until 7:00 in the morning. In reverse, selecting 7:00 through 23:00 will activate the schedule from 7:00 in the morning till 11:00 at night.

Status

Use these radio buttons to set the status of the individual schedule. The status of the whole Resource Limits group, set using **Status** on the **Edit Resource Limits Group** window, takes precedence over the individual schedule status. There are two choices of status:

- **Active** to activate this schedule.
- **Inactive** to deactivate this schedule. An inactive schedule remains as it was defined until you activate it or delete the schedule from the resource limits group. You can activate the schedule at any time.

Related reference

[Specifying Timeouts resource limits](#)

On the **Timeouts** page of the **Edit Resource Limits Group Schedule** window you set the timeout warning and cancellation limits for idle queries, idle connections, and data source response time.

[Specifying Limits resource limits](#)

On the **Limits** page of the **Edit Resource Limits Group Schedule** window you set the warning and cancellation limits for the maximum number of rows and bytes of data that can be retrieved from the database data source. In addition, you can specify the maximum number of simultaneous connections that can be established to the data source.

Specifying SQL Verbs resource limits

On the **SQL Verbs** page of the **Edit Resource Limits Group Schedule** window you specify the SQL verbs that users assigned to this resource limits group are allowed to use when this schedule is in effect.

Specifying Options resource limits

On the **Options** page of the **Edit Resource Limits Group Schedule** window you specify the levels of access users have to a data source and the data source objects.

Specifying Save Data resource limits

On the **Save Data** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can save data at the database data source.

Specifying Binding resource limits

On the **Binding** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can bind or drop static packages for their queries to or from the data source.

Specifying Object Tracking resource limits

On the **Object Tracking** page of the **Edit Resource Limits Group Schedule** window you activate object tracking.

Specifying LOB Options resource limits

On the **LOB Options** page of the **Edit Resource Limits Group Schedule** window you control a users ability to access, retrieve, and save data to and from tables containing large objects (LOBs).

Specifying Report Center resource limits

You can control the level of QMF Report Center functionality allowed for members of a resource limits group.

Specifying Cache resource limits

On the **Cache** page of the **Edit Resource Limits Group Schedule** window you activate caching for query results.

Specifying Object List resource limits

On the **Object List** page of the **Edit Resource Limits Group Schedule** window you specify default and allowed owner names for data sources.

Specifying Timeouts resource limits

On the **Timeouts** page of the **Edit Resource Limits Group Schedule** window you set the timeout warning and cancellation limits for idle queries, idle connections, and data source response time.

The **Timeouts** resource limits are as follows:

Idle Query Timeouts

These fields specify the amount of time that a query can remain idle. The **Warning limit** field displays the number of seconds that a query can remain idle before the user is informed and asked if the query should be canceled. The **Cancel limit** field displays the number of seconds that a query can remain idle before the query is automatically canceled.

Server Response Timeouts

These fields specify the amount of time that can be spent waiting for a response from the database. The **Warning limit** field specifies the number of seconds that can elapse before the user is informed and asked if the database request should be canceled. The **Cancel limit** field specifies the number of seconds that can elapse before the database request is automatically canceled.

Note: A lower timeout limit prevents long running, runaway queries. A higher timeout limit allows database requests to complete when the database server is slow due to resource contention or other reasons.

Idle Connection Timeouts

This field specifies the amount of time that an idle connection to a database data source is retained. The **Cancel limit** field specifies the number of seconds that an idle connection is retained before it is automatically closed.

Note: A lower timeout limit minimizes the resources consumed at the database by idle connections. A higher timeout limit minimizes the overhead of establishing connections.

Related reference

Specifying Main resource limits

On the **Main** page of the **Edit Resource Limits Group Schedule** window you specify the day and time when the schedule will be in effect.

Specifying Limits resource limits

On the **Limits** page of the **Edit Resource Limits Group Schedule** window you set the warning and cancellation limits for the maximum number of rows and bytes of data that can be retrieved from the database data source. In addition, you can specify the maximum number of simultaneous connections that can be established to the data source.

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The **Limits** resource limits are as follows:

Maximum Rows to Fetch

These fields specify the limits for the number of rows of data that can be retrieved from a database data source when running a query. The **Warning limit** field specifies the number of rows that can be retrieved from the data source before you are notified that a row limit has been reached. The user is prompted to select whether more data should be fetched or should the query be canceled. The **Cancel limit** field displays the number of rows that can be retrieved from the data source before the row limit is reached. The query is then automatically canceled.

Maximum Bytes to Fetch

These fields specify the limits for the number of bytes of data that can be retrieved from a database data source when running a query. The **Warning limit** specifies the number of bytes that can be retrieved from the data source before the user is notified that the byte limit has been reached. The user is then prompted to specify whether more data should be fetched or should the query be canceled. The **Cancel limit** displays the number of bytes that can be retrieved from the data source before the byte limit is reached. The query is then automatically canceled.

Maximum Connections

This field specifies the limit for the number of simultaneous connections that can be established to a database data source. The **Cancel limit** specifies the number of simultaneous connections that can be established to a data source before the query requesting the next connection is automatically canceled. Setting the limit to zero (0) indicates that there is no limit to the number of connections.

Generally, connections to database data sources are reused. If you run one query at a data source, then run another query at the same data source, only one connection is required. However, if you run those two queries simultaneously, then two connections are required. If another connection to a data source is required and this limit is reached, an error is returned and the operation is not performed.

Note: To enable table editing, you must specify that two or more simultaneous connections are allowed.

Related reference

[Specifying Main resource limits](#)

On the **Main** page of the **Edit Resource Limits Group Schedule** window you specify the day and time when the schedule will be in effect.

[Specifying Timeouts resource limits](#)

On the **Timeouts** page of the **Edit Resource Limits Group Schedule** window you set the timeout warning and cancellation limits for idle queries, idle connections, and data source response time.

[Specifying SQL Verbs resource limits](#)

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[Specifying Options resource limits](#)

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[Specifying Save Data resource limits](#)

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[Specifying Binding resource limits](#)

On the **Binding** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can bind or drop static packages for their queries to or from the data source.

[Specifying Object Tracking resource limits](#)

On the **Object Tracking** page of the **Edit Resource Limits Group Schedule** window you activate object tracking.

[Specifying LOB Options resource limits](#)

On the **LOB Options** page of the **Edit Resource Limits Group Schedule** window you control a users ability to access, retrieve, and save data to and from tables containing large objects (LOBs).

[Specifying Report Center resource limits](#)

You can control the level of QMF Report Center functionality allowed for members of a resource limits group.

Specifying Cache resource limits

On the **Cache** page of the **Edit Resource Limits Group Schedule** window you activate caching for query results.

Specifying Object List resource limits

On the **Object List** page of the **Edit Resource Limits Group Schedule** window you specify default and allowed owner names for data sources.

Specifying SQL Verbs resource limits

On the **SQL Verbs** page of the **Edit Resource Limits Group Schedule** window you specify the SQL verbs that users assigned to this resource limits group are allowed to use when this schedule is in effect.

If a user tries to run a query that contains a *disallowed verb*, the query is canceled without sending the SQL to the data source. **SQL Verbs** resource limits can be set for data sources.

The use of the following SQL verbs can be controlled:

- ACQUIRE
- ALTER
- CALL
- COMMENT
- CREATE
- DELETE
- DROP
- EXPLAIN
- GRANT
- INSERT
- LABEL
- LOCK
- REFRESH
- RENAME
- REVOKE
- SET
- SELECT
- UPDATE

Related reference

Specifying Main resource limits

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Specifying Limits resource limits

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Specifying Options resource limits

On the **Options** page of the **Edit Resource Limits Group Schedule** window you specify the levels of access users have to a data source and the data source objects.

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Specifying Object List resource limits

On the **Object List** page of the **Edit Resource Limits Group Schedule** window you specify default and allowed owner names for data sources.

Specifying Options resource limits

On the **Options** page of the **Edit Resource Limits Group Schedule** window you specify the levels of access users have to a data source and the data source objects.

The **Options** resource limits are as follows:

Allow access to data source from user interface

This field specifies whether you have permission to access a data source from the QMF for Workstation user interface when the current resource limits group schedule is in effect.

Allow access to data source from programming interface

This field specifies whether you have permission to access a data source from the QMF for Workstation application programming interface (API) when the current resource limits group schedule is in effect.

Fetch all rows automatically

This field specifies how the data source will send query results data to the application. By default, data is requested from the data source only as required to display query results. For example, if 20 rows fill up the query results window, only 20 rows are requested from the data source. When you scroll down to make the 21st row visible, more data is requested. If you run a query and then wait before scrolling down, the query remains active for that wait time, consuming resources at the data source. If this parameter is enabled, data is requested repeatedly until all data is received, independent of your scrolling requests.

Confirm database updates

This field specifies whether or not you must confirm all data source changes resulting from the queries that you run or the actions that you perform when editing tables. If this check box is selected, you will be prompted for confirmation before any data source changes can occur. If this check box is cleared, data source changes can occur without confirmation.

You can override this resource limit setting using the **Confirm** parameter in a **Procedure** command. The following table shows the correlation of the parameters, depending on the specified values.

Confirm database updates value	Procedure parameter value	The confirmation dialog behavior
Selected	confirm=yes	appears
Selected	confirm=no	does not appear
Selected	not specified	appears
Cleared	confirm=yes	appears
Cleared	confirm=no	does not appear
Cleared	not specified	does not appear

Enable exporting of data

This field specifies whether a user can export query result data to a file using the **Export** command from the **File** menu or the **EXPORT DATA** procedure command.

Enable table editing

This field specifies whether or not you can edit a table using the table editor feature .

Allow running saved queries only

This field specifies whether or not you can create and save new queries at the database data source. If checked, you can only run queries that are saved at the database data source. If clear, you can run queries, as well as create and save new queries at the database data source.

Isolation level for queries

The **Isolation level for queries** parameter only applies to databases that support transactions.

This field specifies the level of transaction isolation to be applied to a user's queries. There are varying levels of isolation, each with a differing degree of impact on transaction processing in the database.

Consult with your database administrator or the database server documentation to determine if the database server being used is configured to support transaction processing.

Valid values include:

- **Default** specifies that the isolation level for a query will be the default specified for all applications.
- **Repeatable Read** specifies that the isolation level for a query will be Repeatable Read (RR). The RR isolation level provides the most protection from other applications.
- **All (RS)** specifies that the isolation level for a query will be Read Stability (RS).
- **Cursor Stability (CS)** specifies that the isolation level for your query will be Cursor Stability (CS). The CS isolation level provides the maximum concurrency with data integrity.
- **Change (UR)** specifies that the isolation level for your query will be Uncommitted Read (RS) which allows an application to read uncommitted data.
- **No Commit (NC)** specifies that the isolation level for your query will be No Commit (NC). An application running with an isolation level of NC can not make permanent database changes.

Account

This field specifies the default account information that will be sent to a data source when you connect to that data source.

Account can be overridden

This field specifies whether you are allowed to override the default accounting information specified in the **Account** field when connecting to a data source. If selected, you can enter a new accounting string using the **Set User Information** window. If clear, you cannot enter new accounting information and you are prevented in some cases from accessing data source objects that are not owned by your resource limits group.

Require account information

This field specifies whether you must specify a valid accounting string in the **Set User Information** window before connecting to a database when this schedule is in effect.

Allow printing

This check box must be selected in order for you to print objects that are stored on the data source.

Related reference

Specifying Main resource limits

On the **Main** page of the **Edit Resource Limits Group Schedule** window you specify the day and time when the schedule will be in effect.

Specifying Timeouts resource limits

On the **Timeouts** page of the **Edit Resource Limits Group Schedule** window you set the timeout warning and cancellation limits for idle queries, idle connections, and data source response time.

Specifying Limits resource limits

On the **Limits** page of the **Edit Resource Limits Group Schedule** window you set the warning and cancellation limits for the maximum number of rows and bytes of data that can be retrieved from the database data source. In addition, you can specify the maximum number of simultaneous connections that can be established to the data source.

Specifying SQL Verbs resource limits

On the **SQL Verbs** page of the **Edit Resource Limits Group Schedule** window you specify the SQL verbs that users assigned to this resource limits group are allowed to use when this schedule is in effect.

Specifying Save Data resource limits

On the **Save Data** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can save data at the database data source.

Specifying Binding resource limits

On the **Binding** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can bind or drop static packages for their queries to or from the data source.

Specifying Object Tracking resource limits

On the **Object Tracking** page of the **Edit Resource Limits Group Schedule** window you activate object tracking.

Specifying LOB Options resource limits

On the **LOB Options** page of the **Edit Resource Limits Group Schedule** window you control a users ability to access, retrieve, and save data to and from tables containing large objects (LOBs).

Specifying Report Center resource limits

You can control the level of QMF Report Center functionality allowed for members of a resource limits group.

Specifying Cache resource limits

On the **Cache** page of the **Edit Resource Limits Group Schedule** window you activate caching for query results.

Specifying Object List resource limits

On the **Object List** page of the **Edit Resource Limits Group Schedule** window you specify default and allowed owner names for data sources.

Specifying Save Data resource limits

On the **Save Data** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can save data at the database data source.

Save Data resource limits can be set for data sources. The **Save Data** resource limits are as follows:

Allow save data command

This field specifies whether you can save data at the database data source. Saving data can be extremely resource-intensive. As a result it can have a significant impact on your database and network.

Default table space

This field specifies the default table space name that will be used for tables created with the save data command. This field is only available if the **Allow save data command** has been selected. The syntax of the table space name that you specify must conform to the database rules for table space names. Any value that you specify is used as part of the CREATE TABLE SQL statement that runs when you save data to a new table. Entering an asterisk (*) specifies that the default table space will be taken from a user's profile in the RDBI . PROFILE_ TABLE or Q . PROFILES that are specified by the administrator when your profile was created.

Default table space can be overridden

This field specifies whether you can override the default table space. If selected, you can specify any table space name subject to database security authorizations. If this check box is not selected, you must use the table space name specified in the **Default table space** field.

Allow to replace any existing data

This field specifies whether a user can override the existing data when the objects are exported or imported to the database. If this option is selected, a user can replace the existing data with the new one in the database. If this check box is clear, a user can only append new data to the existing one.

Related reference

Specifying Main resource limits

On the **Main** page of the **Edit Resource Limits Group Schedule** window you specify the day and time when the schedule will be in effect.

Specifying Timeouts resource limits

On the **Timeouts** page of the **Edit Resource Limits Group Schedule** window you set the timeout warning and cancellation limits for idle queries, idle connections, and data source response time.

Specifying Limits resource limits

On the **Limits** page of the **Edit Resource Limits Group Schedule** window you set the warning and cancellation limits for the maximum number of rows and bytes of data that can be retrieved from the database data source. In addition, you can specify the maximum number of simultaneous connections that can be established to the data source.

Specifying SQL Verbs resource limits

On the **SQL Verbs** page of the **Edit Resource Limits Group Schedule** window you specify the SQL verbs that users assigned to this resource limits group are allowed to use when this schedule is in effect.

Specifying Options resource limits

On the **Options** page of the **Edit Resource Limits Group Schedule** window you specify the levels of access users have to a data source and the data source objects.

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The **Binding** resource limits are as follows:

Allow binding of packages

This field specifies whether or not you can bind static packages for your queries on the database data source.

Allow dropping of packages

This field specifies whether or not you can drop static packages from the database data source.

Default collection ID

This field specifies the default collection ID for the static packages that you bind.

Default collection ID can be overridden

This field specifies whether you must use the default collection ID. If this check box is selected, you can specify any collection ID subject to database security authorizations. If this check box is clear, you must use the default collection ID that is specified in the **Default collection ID** field.

Default isolation level

This field specifies the default isolation level for the static packages that you bind. You can select one of the isolation levels:

- **Repeatable Read (RR)** specifies that the default isolation level for the static packages will be Repeatable Read (RR). The RR isolation level isolates the SQL statements in the static package from the actions of concurrent users for rows the requester reads and changes, including phantom rows. RR isolation provides the most protection.
- **All (RS)** specifies that the default isolation level for the static packages will be Read Stability (RS). The RS isolation level isolates the SQL statements in the static package from the actions of concurrent users for rows the requester reads and changes
- **Cursor Stability (CS)** specifies that the default isolation level for the static packages will be Cursor Stability (CS). The CS isolation level isolates the SQL statements in the static package and the current row to which the database cursor is positioned from the actions of concurrent users for changes the requester makes.
- **Change (UR)** specifies that the default isolation level for the static packages will be Uncommitted Read (UR). The UR isolation level isolates the SQL statements in the static package from the actions of concurrent users for changes the requester makes.
- **No Commit (NC)** specifies that the default isolation level for the static packages will be No Commit (NC). The NC isolation level does not isolate the SQL statements in the static package from the actions of concurrent users for changes the requester makes.

Default isolation level can be overridden

This field specifies whether you can override the isolation level specified in the **Default isolation level** field. If this check box is selected, you can specify any isolation level when binding packages. If this check is not selected, you must use the default isolation level specified in the **Default Isolation Level** field to bind static packages.

Related reference

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Specifying Object Tracking resource limits

On the **Object Tracking** page of the **Edit Resource Limits Group Schedule** window you activate object tracking.

Object tracking must be enabled in order to collect the tracking data that is used to populate object tracking reports. Object tracking reports can help you locate unused objects, locate frequently accessed data sources such as tables or columns and spot potential problem areas.

The **Object Tracking** resource limits are as follows:

Enable summary object tracking

This field specifies whether summary object tracking is activated for your resource limits group. Summary tracking records the number of times an object is run, and the most recent times it was run and modified.

Enable detailed object tracking

This field specifies whether detailed object tracking is activated for your resource limits group. Detailed tracking records each time the object is run, who ran it, and the results. A large amount of data can be collected if this option is selected.

Note: This option must be enabled to use *ad hoc* object tracking or SQL text tracking.

Enable ad-hoc object tracking

This field specifies whether a record of each ad-hoc query is kept in the summary or detail object tracking tables. An ad-hoc query is a query that has not been named or saved at the database data source.

Note: The **Enable detailed object tracking** option must be enabled in order to enable this option.

Enable SQL text tracking

This field specifies whether a record of the SQL text of each query is kept in the detail tracking table.

Note: The **Enable detailed object tracking** option must be enabled in order to enable this option.

Last Used timestamp option

This field specifies when and by which commands data objects are updated.

Note: In cases when the object is saved to the QMF Catalog, the data is kept in the column **LAST_USED** of the table **Q.OBJECT_DIRECTORY**. If the object is saved to the repository, then the data is kept in the column **LAST_USED** of the **RSBI.OBJECTS** table.

The following options are available:

- **Update when object is accessed (legacy mode)**

Data is updated when you run any of the following commands against the object:

- **CONVERT**
- **DISPLAY**
- **EXPORT**
- **IMPORT**
- **PRINT**
- **RUN**
- **SAVE**

- **Update when object is run, saved or imported**

Data is updated after performing **RUN**, **SAVE** or **IMPORT** commands.

- **Update only when object is run**

Data is updated only after performing **RUN** command.

Last Used timestamp options can be overridden

Indicates whether the DSQEC_LAST_RUN variable value is ignored.

This check box is cleared by default.

Select this check box to change the variable value and override the resource limit.

Related reference

Specifying Main resource limits

On the **Main** page of the **Edit Resource Limits Group Schedule** window you specify the day and time when the schedule will be in effect.

Specifying Timeouts resource limits

On the **Timeouts** page of the **Edit Resource Limits Group Schedule** window you set the timeout warning and cancellation limits for idle queries, idle connections, and data source response time.

Specifying Limits resource limits

On the **Limits** page of the **Edit Resource Limits Group Schedule** window you set the warning and cancellation limits for the maximum number of rows and bytes of data that can be retrieved from the database data source. In addition, you can specify the maximum number of simultaneous connections that can be established to the data source.

Specifying SQL Verbs resource limits

On the **SQL Verbs** page of the **Edit Resource Limits Group Schedule** window you specify the SQL verbs that users assigned to this resource limits group are allowed to use when this schedule is in effect.

Specifying Options resource limits

On the **Options** page of the **Edit Resource Limits Group Schedule** window you specify the levels of access users have to a data source and the data source objects.

Specifying Save Data resource limits

On the **Save Data** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can save data at the database data source.

Specifying Binding resource limits

On the **Binding** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can bind or drop static packages for their queries to or from the data source.

Specifying LOB Options resource limits

On the **LOB Options** page of the **Edit Resource Limits Group Schedule** window you control a users ability to access, retrieve, and save data to and from tables containing large objects (LOBs).

Specifying Report Center resource limits

You can control the level of QMF Report Center functionality allowed for members of a resource limits group.

Specifying Cache resource limits

On the **Cache** page of the **Edit Resource Limits Group Schedule** window you activate caching for query results.

Specifying Object List resource limits

On the **Object List** page of the **Edit Resource Limits Group Schedule** window you specify default and allowed owner names for data sources.

Specifying LOB Options resource limits

On the **LOB Options** page of the **Edit Resource Limits Group Schedule** window you control a users ability to access, retrieve, and save data to and from tables containing large objects (LOBs).

A Large Object (LOB) is a Db2 for Linux, UNIX, and Windows data type that houses non-traditional data such as text, multimedia, image, video, photograph, sound, or any very large data file inside a database table. Retrieving or saving LOB data can consume a substantial amount of resources. Even just accessing a table that contains LOB data can be resource consumptive. Using the **LOB Options** resource limits, you can control access to tables on the database data source that include LOB data.

The **LOB Options** resource limits are as follows:

LOB Retrieval Option

This field specifies whether a user can retrieve large object (LOB) data when this schedule is in effect. You can select one of the following:

- **Disable LOB columns** specifies that users can not retrieve LOB data and can not query or access any table that contains LOB data.
- **Disable LOB data retrieval** specifies that users can not retrieve LOB data but can query tables that contain LOB data. Query result data will be returned for all columns in the table except those that contain LOB data.
- **Retrieve LOB data on demand** specifies that users can query tables that contain LOB data and result data will be returned for all columns including those columns that contain LOB objects. However, the results data for the LOB columns will not actually be displayed in the column. A pointer is displayed. When the user selects the pointer, the LOB data will be displayed in the query results.

You can also pull the data from the database by double-clicking on the pointer.

- **Retrieve LOB data automatically** specifies that users can query tables that contain LOB data and the result data will be returned for all columns, including those columns that contain LOB objects.

This option pulls ALL of the LOB data for ALL of the LOB columns from the database to the local computer.

This option can potentially consume a large amount of resources and time. The actual LOB data is not displayed in grids and reports. Instead, pointers to the LOB data are displayed.

Enable saving LOB data

This field specifies whether users can save LOB data on the database data source.

Maximum LOB column size

This field specifies the maximum size of a LOB column, in kilobytes, up to 2G (the maximum LOB size). The default is 0, no maximum. If a user queries a table with LOB data that is larger than the maximum, the LOB data will not be returned for display.

LOB options can be overridden

This field specifies whether a user can override the default LOB Options resource limits that have been specified for their group.

Related reference

Specifying Main resource limits

On the **Main** page of the **Edit Resource Limits Group Schedule** window you specify the day and time when the schedule will be in effect.

Specifying Timeouts resource limits

On the **Timeouts** page of the **Edit Resource Limits Group Schedule** window you set the timeout warning and cancellation limits for idle queries, idle connections, and data source response time.

Specifying Limits resource limits

On the **Limits** page of the **Edit Resource Limits Group Schedule** window you set the warning and cancellation limits for the maximum number of rows and bytes of data that can be retrieved from the database data source. In addition, you can specify the maximum number of simultaneous connections that can be established to the data source.

Specifying SQL Verbs resource limits

On the **SQL Verbs** page of the **Edit Resource Limits Group Schedule** window you specify the SQL verbs that users assigned to this resource limits group are allowed to use when this schedule is in effect.

Specifying Options resource limits

On the **Options** page of the **Edit Resource Limits Group Schedule** window you specify the levels of access users have to a data source and the data source objects.

Specifying Save Data resource limits

On the **Save Data** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can save data at the database data source.

Specifying Binding resource limits

On the **Binding** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can bind or drop static packages for their queries to or from the data source.

Specifying Object Tracking resource limits

On the **Object Tracking** page of the **Edit Resource Limits Group Schedule** window you activate object tracking.

Specifying Report Center resource limits

You can control the level of QMF Report Center functionality allowed for members of a resource limits group.

Specifying Cache resource limits

On the **Cache** page of the **Edit Resource Limits Group Schedule** window you activate caching for query results.

Specifying Object List resource limits

On the **Object List** page of the **Edit Resource Limits Group Schedule** window you specify default and allowed owner names for data sources.

Specifying Report Center resource limits

You can control the level of QMF Report Center functionality allowed for members of a resource limits group.

With QMF Report Center you can generate custom reports using shared queries, forms, procedures and tables that are stored on the database server. The custom reports can then be viewed and manipulated in a variety of applications.

To control which Report Center functions are authorized for a resource limit group, you specify settings on the **Report Center** page of the **Edit Resource Limits Group** window.

The **Report Center** resource limits are as follows:

Allow display of all object types

Select this check box to allow members of this resource limits group to access the objects that are used for their QMF Report Center reports.

Users do not need special permission to use the QMF Report Center application or run reports. However, in order to create new reports they need access to the stored objects. Some users might not have permission to access these objects. By selecting this check box you are authorizing members of this resource limits group to access the objects that are stored on the database server and create new reports.

Note: The **Allow display of all object types** check box is selected by default.

Allow administration of root node

Select this check box to allow the members of this resource limits group to add folders to the root folder, *Public Favorites*, used by the QMF Report Center application. The Public Favorites folder is stored on the database server.

QMF Report Center uses two top-level folders, *Personal Favorites* and *Public Favorites*, to store user's reports. Each folder contains reports that point to objects that reside on the database server. The objects are not contained within the folders.

The *Personal Favorites* folder resides locally on the user's machine. This folder and the reports contained in it can only be accessed by the user who created it.

The *Public Favorites* folder resides on the database server. It can be accessed (potentially) by all QMF Report Center users. However, in order to add a first-level sub folder to the *Public Favorites* folder, users must have permission. This option gives the members of this resource limits group that permission.

If granted permission to create a first-level sub folder, the member of the resource limit group is authorized to use the QMF Report Center security options to control who can run or amend the reports residing in the folder. The *Public Favorites* folder can have up to 50 first-level sub folders.

Note: The **Allow administration of root node** check box is cleared by default.

Allow taking ownership of node

Select this check box to allow all members of this resource limits group authorization to take ownership of a folder or a report in the *Public Favorites* folder.

If this check box is selected, users can access any report or folder in the *Public Favorites* folder regardless of whether they have been granted that access by QMF Report Center security.

Note: The **Allow taking ownership of node** check box is cleared by default.

Related reference

[Specifying Main resource limits](#)

On the **Main** page of the **Edit Resource Limits Group Schedule** window you specify the day and time when the schedule will be in effect.

[Specifying Timeouts resource limits](#)

On the **Timeouts** page of the **Edit Resource Limits Group Schedule** window you set the timeout warning and cancellation limits for idle queries, idle connections, and data source response time.

Specifying Limits resource limits

On the **Limits** page of the **Edit Resource Limits Group Schedule** window you set the warning and cancellation limits for the maximum number of rows and bytes of data that can be retrieved from the database data source. In addition, you can specify the maximum number of simultaneous connections that can be established to the data source.

Specifying SQL Verbs resource limits

On the **SQL Verbs** page of the **Edit Resource Limits Group Schedule** window you specify the SQL verbs that users assigned to this resource limits group are allowed to use when this schedule is in effect.

Specifying Options resource limits

On the **Options** page of the **Edit Resource Limits Group Schedule** window you specify the levels of access users have to a data source and the data source objects.

Specifying Save Data resource limits

On the **Save Data** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can save data at the database data source.

Specifying Binding resource limits

On the **Binding** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can bind or drop static packages for their queries to or from the data source.

Specifying Object Tracking resource limits

On the **Object Tracking** page of the **Edit Resource Limits Group Schedule** window you activate object tracking.

Specifying LOB Options resource limits

On the **LOB Options** page of the **Edit Resource Limits Group Schedule** window you control a users ability to access, retrieve, and save data to and from tables containing large objects (LOBs).

Specifying Cache resource limits

On the **Cache** page of the **Edit Resource Limits Group Schedule** window you activate caching for query results.

Specifying Object List resource limits

On the **Object List** page of the **Edit Resource Limits Group Schedule** window you specify default and allowed owner names for data sources.

Specifying Cache resource limits

On the **Cache** page of the **Edit Resource Limits Group Schedule** window you activate caching for query results.

With this resource limit enabled, when a query is run, the results will be cached. If the query is run again, and nothing has changed, the results will be taken from the cached results rather than run again at the data source.

The **Cache** resource limits are as follows:

Cache is enabled

This field specifies whether the caching of result set data is enabled. Caching is disabled by default. If caching is enabled, result data from a query is cached (stored) and is available for use by other users that have the same privileges to access this data on the data source. Caching result set data can significantly decrease resource consumption and improve performance. The cached result set data is not automatically refreshed.

Auto data fetching enabled

This field specifies how the cached rows of data will be retrieved. This resource limit becomes available if **Cache is enabled** is selected. When selected, this option specifies that if the query result set is taken from the cache, the entire result set will be presented. When this option is not selected, 100 rows (the default) of the query result set is presented.

Data expiration interval

This field specifies the time period the query result set data will remain in cache. You can set the time period by specifying the number of days, hours, and minutes. After this period, the cached query result set data will be updated.

Cache options can be overridden

This field specifies whether the cache options can be overridden.

Related reference

Specifying Main resource limits

On the **Main** page of the **Edit Resource Limits Group Schedule** window you specify the day and time when the schedule will be in effect.

Specifying Timeouts resource limits

On the **Timeouts** page of the **Edit Resource Limits Group Schedule** window you set the timeout warning and cancellation limits for idle queries, idle connections, and data source response time.

Specifying Limits resource limits

On the **Limits** page of the **Edit Resource Limits Group Schedule** window you set the warning and cancellation limits for the maximum number of rows and bytes of data that can be retrieved from the database data source. In addition, you can specify the maximum number of simultaneous connections that can be established to the data source.

Specifying SQL Verbs resource limits

On the **SQL Verbs** page of the **Edit Resource Limits Group Schedule** window you specify the SQL verbs that users assigned to this resource limits group are allowed to use when this schedule is in effect.

Specifying Options resource limits

On the **Options** page of the **Edit Resource Limits Group Schedule** window you specify the levels of access users have to a data source and the data source objects.

Specifying Save Data resource limits

On the **Save Data** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can save data at the database data source.

Specifying Binding resource limits

On the **Binding** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can bind or drop static packages for their queries to or from the data source.

Specifying Object Tracking resource limits

On the **Object Tracking** page of the **Edit Resource Limits Group Schedule** window you activate object tracking.

Specifying LOB Options resource limits

On the **LOB Options** page of the **Edit Resource Limits Group Schedule** window you control a users ability to access, retrieve, and save data to and from tables containing large objects (LOBs).

Specifying Report Center resource limits

You can control the level of QMF Report Center functionality allowed for members of a resource limits group.

Specifying Object List resource limits

On the **Object List** page of the **Edit Resource Limits Group Schedule** window you specify default and allowed owner names for data sources.

Specifying Object List resource limits

On the **Object List** page of the **Edit Resource Limits Group Schedule** window you specify default and allowed owner names for data sources.

With **Object List** resource limits, you can define the default owner name that will be used to filter data source objects. You can also specify a specific list of owner names that can be used to filter data source objects aside from the default name.

The **Object List** resource limits are as follows:

Default Owner Name

This field specifies the default owner name that will be used to filter the data source object list.

Default Owner Name can be overridden

This check box allows the user to override the current default owner name.

Allowed Owner Names

This field specifies the list of additional owner names that can be used to filter the data source object list. Owner names should be separated by a comma.

Allow <USERNAME>

This check box allows the current user's owner name to be used to filter the data source object list.

Allow <SQLID>

This check box allows the current user's SQLID to be used to filter the data source object list.

Related reference[Specifying Main resource limits](#)

On the **Main** page of the **Edit Resource Limits Group Schedule** window you specify the day and time when the schedule will be in effect.

[Specifying Timeouts resource limits](#)

On the **Timeouts** page of the **Edit Resource Limits Group Schedule** window you set the timeout warning and cancellation limits for idle queries, idle connections, and data source response time.

[Specifying Limits resource limits](#)

On the **Limits** page of the **Edit Resource Limits Group Schedule** window you set the warning and cancellation limits for the maximum number of rows and bytes of data that can be retrieved from the database data source. In addition, you can specify the maximum number of simultaneous connections that can be established to the data source.

[Specifying SQL Verbs resource limits](#)

On the **SQL Verbs** page of the **Edit Resource Limits Group Schedule** window you specify the SQL verbs that users assigned to this resource limits group are allowed to use when this schedule is in effect.

[Specifying Options resource limits](#)

On the **Options** page of the **Edit Resource Limits Group Schedule** window you specify the levels of access users have to a data source and the data source objects.

[Specifying Save Data resource limits](#)

On the **Save Data** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can save data at the database data source.

[Specifying Binding resource limits](#)

On the **Binding** page of the **Edit Resource Limits Group Schedule** window you specify whether users assigned to this resource limits group and using this schedule can bind or drop static packages for their queries to or from the data source.

[Specifying Object Tracking resource limits](#)

On the **Object Tracking** page of the **Edit Resource Limits Group Schedule** window you activate object tracking.

[Specifying LOB Options resource limits](#)

On the **LOB Options** page of the **Edit Resource Limits Group Schedule** window you control a users ability to access, retrieve, and save data to and from tables containing large objects (LOBs).

[Specifying Report Center resource limits](#)

You can control the level of QMF Report Center functionality allowed for members of a resource limits group.

[Specifying Cache resource limits](#)

On the **Cache** page of the **Edit Resource Limits Group Schedule** window you activate caching for query results.

Assigning users to resource limits groups

You must specifically assign users to a resource limits group.

About this task

Once assigned, what each user can do using QMF for Workstation is dictated by the resource limits group schedule. All users who are not assigned to a resource limits group are automatically included in the default resource limits group Default. The Default resource limits group schedule has no restrictions.

In order to assign a user to a resource limits group, you must first specify information that defines the user to QMF for Workstation. The process of defining users to the applications and then assigning them to a resource limits group varies slightly depending on the resource limits provider that was selected for the data source.

Assigning users to repository resource limits groups

To assign a user to a repository-based resource limits group, you select directly from the list of available users and groups that were given access to the secured repository when it was created.

About this task

The users and groups that are available for selection were defined based on the type of security that was selected for the repository. If LDAP security was selected, the users and groups were obtained from the LDAP server. If Internal security was selected, you define the user and group information using the **Users and Groups** view. If no security has been specified for the repository, and resource limits are repository based, you do not have the ability to create resource limits groups and make assignments.

The order in which you create user information or resource limits groups does not matter. You can create user information first, then create resource limits groups. You can create resource limits groups first, then user information. This flexibility is intended as creating and editing user information and resource limits group assignments is an ongoing process as the needs of your organizations change

To assign a user to a repository-based resource limits group:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, right-click a data source. Select **Properties** from the pop-up menu. The **Properties for [data source]** window opens. Click **Resource Limits**. The **Resource Limits** window opens. There are two pages. Click the **Resource Limits** tab. On the tab, click **Refresh List**. Select a resource limits group from the list of available resource groups. Click **Assign**. The **Assignment for [resource limits group name]** window opens.
2. The users that have been defined for the data source and are available for assignment, but have not been assigned to the selected resource limits group, are listed in the **Not assigned** list box. The users that have been assigned to the selected resource limits group are listed in the **Assigned** list box. To filter the users that are listed in the **Not assigned** list specify the user ID of a specific user or a wildcard character in the **Name filter** field. A percent (%) sign will generate a list of all users that have been defined for the data source. If not listed, the user or group has not been defined. You can define a new user or group, and then refilter the list.
3. Select the user that you want to assign to the resource limits group from the **Not assigned** list. Click **Assign**. The user is moved to the **Assigned** list.
4. To remove a user from the resource limits group, select the user from the **Assigned** list. Click **Unassign**. The user is moved to the **Not assigned** list. To remove all the users from the **Assigned** list and move them to the **Not assigned** list, click **Unassign All**.
5. Click **OK**. Your additions or changes to the resource limits group user assignments are saved.

Results

Note: You can also make user assignments to resource limits groups on the **Assignment** page of the **Resource Limits** window.

Managing user assignments for all repository resource limits groups

Each user and group that is defined for a data source can be assigned to one or more repository resource limits groups.

About this task

The **Assignment** page of the **Resource Limits** window lists each user or group that is defined for a data source and each resource limits group that is defined for the data source. From this window, you can assign a user to one or more resource limits groups from a single dialog.

To make user assignments for all resource limits groups from one dialog:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, right-click a data source. Select **Properties** from the pop-up menu. The **Properties for [data source]** window opens. Click **Resource Limits**. The **Resource Limits** window opens. There are two pages. Click the **Assignment** tab.
2. The users and groups that have been defined for the data source are listed in the **Users and Groups** field. Expand the **Groups** folder to see all groups. Expand the **Users** folder to see all users.
3. Each **Users and Groups** cell has a corresponding **Resource groups** drop-down list box. The **Resource groups** list displays all the resource limits groups that have been defined for the data source. To select a resource limits group, click the **Resource groups** cell for the user or group, click the downward arrow, and select a new resource limits group from the list of available resource limits groups.
4. Click **Save** or **OK**. The new assignment is made.

Specifying additional parameters

You can specify additional data source parameters on the **Information** page of the data source **Properties** window.

About this task

You must specify the settings for additional data source parameters that determine how the data source retrieves data. To specify these additional parameters:

Procedure

1. From the **Repositories** view on the **Data Sources** tab, right-click the data source that you want to edit and click **Properties**.
The **Properties** window opens.
2. Select **Information**.
The **Information** page opens.
3. Specify the settings in the **Additional parameters** table.
Valid additional parameters include:

Emulate Host QMF Column Naming (Db2 Only)

Specifies whether the data source emulates the column naming conventions of the host QMF catalog. This option is only valid for Db2 data sources.

Enable Spatial Extensions

Specifies whether extensions are enabled for spatial data that is stored in the data source.

Schema Retrieval Method

Specifies how schemas are retrieved from the database. If you select **getTables**, the schemas are organized by their table names. If you select **getSchemas**, the schemas are organized by their

owners. If you select **getTables/getSchemas**, the schemas are organized according to the filtering options that you have specified in the **Set Name Filter** dialog: if the **Name** field contains the % character, the schemas are organized by their owners. If the **Name** field contains anything else, the schemas are organized by their table names.

Note: **getTables/getSchemas** is the default schema retrieval method for non-Db2 databases.

Do Not Access Database to Retrieve Query Metadata

Specifies whether query metadata is retrieved from the host database.

Use this parameter to reduce the time of running the query and display the result set faster. It is FALSE by default. When this parameter is set to TRUE, the application does not refer to database and does not retrieve the metadata. So the result set is displayed faster, but the amount of R/W (read and write) queries is smaller than when the metadata are retrieved and this parameter is set to FALSE.

4. When you finished specifying the additional parameters, click **Apply**.

The changes are saved to the data source.

5. Click **OK**.

The **Properties** window closes.

Enabling QMF catalog functionality

You can configure a relational data source in the repository so that it can use a QMF catalog. By enabling access to the QMF catalog users can access any objects that are saved in the QMF catalog and, if they choose, they can save any new objects to the QMF catalog.

About this task

The QMF catalog is a set of database tables that contain saved objects (queries, procedures and forms); user resource limits and profiles; reports; and other miscellaneous settings and information. QMF catalogs reside on database servers that host a Db2 database.

Note: QMF catalogs are now superseded by repositories. The catalogs have been retained for those who want to share QMF objects with QMF for TSO/CICS or earlier versions of the QMF distributed products. QMF repositories offer more flexibility and enable users to take advantage of all the powerful QMF features.

By configuring a data source to access a QMF catalog, users can retrieve any QMF objects that have been saved in an existing QMF catalog. Users can also save any QMF objects that they might create to a QMF catalog. This allows users to share and use objects regardless of the application version or platform that was used to create the QMF object.

In addition, if users configure a data source to access a QMF catalog, they can control resource usage with the resource limits that have been set for the data source and the user and saved in the QMF catalog.

To configure a data source so that it can access a QMF catalog:

Procedure

1. Open the **QMF Catalog Wizard**.
2. Specify what type of catalog objects you will create using the **Create or update catalog objects** page of the **QMF Catalog Wizard**.
3. Click **Next**.
4. If it was decided that a set of QMF catalog tables has never been created on the data source, the **Choose object listing option** page opens. Select an option and click **Next**. The **Creating objects** page of the wizard opens. The SQL to create the catalog tables is displayed. You can make changes to the SQL. If it was decided that a set of QMF catalog tables has already been created for this data source and there are no required updates, than this step is bypassed.
5. Click **Next**.

6. The **Protect QMF catalog tables** page of the wizard opens. From the **Protect QMF catalog tables** page you will specify whether the QMF catalog tables will be protected from unauthorized users. You will also specify user permission to use those stored procedures or SQL packages.
7. Click **Next**.
8. The **Select QMF Catalog** page of the wizard opens. From the **Select QMF Catalog** page you will select the QMF catalog that the data source will use.
9. Click **Finish**. The **QMF Catalog Wizard** closes. Control returns to the **Enable data source plug-ins** page of the **Create Relational Data Source** wizard.

Creating or updating QMF catalog objects

The first step to enabling QMF catalog functionality is to choose whether the QMF catalog objects will be created or updated on the current data source.

About this task

To create or update QMF catalog database objects:

Procedure

1. On the **Enable data source plug-ins** page of the **Create Relational Data Source** wizard, select **QMF Catalog Plug-in Enable plug-in** check box. The **Create or update catalog objects** page of the **QMF Catalog Wizard** opens. For more information on how to enable the data source plug-ins, see [“Enabling data source plug-ins”](#) on page 47.
2. On the **Create or update catalog objects** page, you will specify whether a set of QMF catalog tables has ever been created on the data source and what kind of object names (long or short) are or will be supported by the QMF catalog that exists or will be created. Select one of the following:
 - Select **Catalog tables have already been created** if the QMF catalog tables already exist on this data source. A set of catalog tables would have been created for the data source when it was originally configured in either a repository or by a prior version of the application. You would select this option if you know the tables have already been created and you only want to rerun stored procedures or rebind the catalog packages.
 - Select **Create or update catalog tables to support short names** if you are configuring a new data source that has never had the QMF catalog tables installed and you will only use short names for objects, or you are upgrading from a previous version of the application and the existing QMF catalog tables will continue to support only short names for objects. If no QMF catalog tables exist on the data source, then they will be created. If you are upgrading to a new version, and a set of tables exist on the data source, they will be checked and updated or added as necessary. You are given the opportunity to confirm and modify the SQL statements used to create the tables. Any data that is in the existing catalog tables is maintained.
 - Select **Create or update catalog tables to support long names** if you are configuring a data source for the first time and want to create a set of QMF catalog tables that use long names; you are upgrading from a previous version of the application and the existing QMF catalog tables will continue to support only long names for objects; or you want to convert the existing catalog tables that support short names to catalog tables that support long names. To select this option, the data source that you are configuring must support long names.

If no QMF catalog tables exist on the data source, then they will be created and they will support long names. If a set of QMF catalog tables that support long names are detected on the data source, they will be updated or added to as necessary. If an existing set of QMF catalog tables that use short names are detected on the data source, they will be converted to support long names. The data source will be checked to ensure that the support for long names is available. There is no requirement to use long names in the QMF catalog tables. If the data source uses long names, the QMF catalog tables can still use short names. Once converted, only 8.1 or later of QMF applications can use these QMF catalog tables.

You are given the opportunity to confirm and modify the SQL statements used to create or update the tables. Any data that is in the existing catalog tables is maintained.

- If you do not want to create a set of QMF catalog tables for this data source, select **Do not create catalog tables**. You would select this option if the data source you are configuring will not host a QMF catalog; will use a set of QMF catalog tables that reside on a different data source; or a set of QMF catalog tables has already been created for this data source and you are just selecting a different QMF catalog.
3. If catalog tables have not been created, you can select the **Enable customization of database object names** check box to open a window where you can customize how database objects are named.
 4. Click **Next** to open the next page of the wizard. If you selected:
 - **Catalog tables have already been created** option, the **Protect QMF Catalog tables** page of the wizard opens.
 - **Create or update catalog tables to support short names** or **Create or update catalog tables to support long names** option and you did not check the **Enable customization of database object names** check box, the **Choose object listing option** page of the wizard opens. Select an option and click **Next**. The **Creating objects** page opens. On the page, type any changes that you want to make to the SQL statements and click **Next**. The **Protect QMF Catalog tables** page opens.
 - **Create or update catalog tables to support short names** or **Create or update catalog tables to support long names** option and you checked the **Enable customization of database object names** check box, the **Choose object listing option** page of the wizard opens. Select an option and click **Next**. The **Enter Substitution Variable Values** window opens. The **Value** column of the dialog displays the default name of each database object. This gives you an opportunity to review and/or rename the objects that will be created. For example, one could preface all index names with the **IX** . Enter your customized database object names in the **Value** column and click **OK**. The **Creating objects** page opens. On the page, type any changes that you want to make to the SQL statements and click **Next**. The **Protect QMF Catalog tables** page opens.
 - **Do not create catalog tables** option, the **Protect QMF Catalog tables** page of the wizard opens.

Creating database objects for the QMF catalog

The second step to enabling QMF catalog functionality is to review and run the SQL that is used to create the database objects for the QMF catalog.

About this task

This step of the process is necessary only if catalog objects were created on the data source or the existing catalog objects need to be updated.

To modify the SQL statements that will be used to create or update the required database objects:

Procedure

1. If you chose to create or update catalog tables, the **Choose object listing option** page of the **QMF Catalog Wizard** opens.
2. Select an object listing option from the radio group:
 - **Include all objects** - This option includes all objects that are saved in the data source, regardless of a user's ability to access them.
 - **Include only objects accessible by either the user's primary or current authorization ID**
 - **Include only objects accessible any of the user's primary or secondary authorization ID**
3. Click **Next**.
The **Creating objects** page of the **QMF Catalog Wizard** opens.
4. Specify a table space option.

The Table Space option is enabled or disabled depending upon the target database of export destination. This option is enabled only if the target data source is Db2 for z/OS and non-UTS. The datasource is UTS or non-UTS is determined by the user selection while creating relational data source.

5. The SQL that will be used to create or update the tables is displayed in the field. Type any changes that you want to make to the SQL statements directly in the field. You can modify any of the SQL statements to customize any parameters. You can not change the name of any of the objects. You must use a semi-colon(;) to separate multiple statements. Unless absolutely necessary, it is recommended that you run the SQL as it is displayed.

Note: You can switch the RDBI . PROFILE_VIEW to use RDBI . PROFILES or Q . PROFILES tables by specifying them in SQL. When you switch the table, you must specify correct values for the ENVIRONMENT column for each CREATOR.

- In the existing table row for a particular CREATOR, specify <NULL> to make the creator available for both QMF for TSO and CICS and QMF for Workstation.
 - Copy the existing table row for a particular creator and replace TSO or CICS with WINDOWS. The creator is available for both QMF for TSO and CICS and QMF for Workstation.
6. Click **Next**. A QMF catalog named **Default** will be created when this step is run. The **Protect QMF Catalog tables** page of the wizard opens.

Protecting catalog tables and granting user permissions

The third step to configuring a relational data source to use a QMF catalog is to specify whether the QMF catalog tables will be protected from unauthorized users and to specify the users that will have permission to access the tables.

About this task

Several tables in the QMF catalog store sensitive information that should not be available to the public. You can choose to protect the QMF catalog tables. In protection mode, the QMF catalog tables are accessed using a collection of stored procedures or SQL packages depending on what the database that is hosting the QMF catalog supports. Users of the QMF catalog must then be granted permission to run the stored procedures or static SQL packages.

To protect the QMF catalog tables:

Procedure

1. Open the **Protect QMF Catalog tables** page of the **QMF Catalog Wizard**.
2. To specify the type of protection that will be applied to the QMF catalog tables, select one of the following from the **Connect using Protected Mode** radio group:
 - **Never:** You select this option to specify that no protection will be placed on the QMF catalog tables. This method will expose the QMF catalog tables to unauthorized use. With no protection the QMF catalog tables can be accessed by any user using dynamic queries. When the database administrator grants permissions to a user to access the QMF catalog that resides on the database, that permission will extend to the whole QMF catalog including the tables in the QMF catalog that store sensitive information.
 - **If possible:** You select this option to specify that the QMF catalog tables will be protected using either stored procedures or static SQL packages if they are available on the data source. You will specify the users that can run the stored procedures or static SQL packages. If a set of stored procedures or static SQL packages is not available, access to the QMF catalog tables will be as if they are unprotected.
 - **Always:** You select this option to specify that the QMF catalog tables will always be protected using either stored procedures or static SQL packages. You will specify the users that can run the stored procedures or static SQL packages. If a set of stored procedures or static SQL packages is not available, the query to access the QMF catalog tables will fail.
3. If you selected **If possible** or **Always** from the **Connect using Protected Mode** radio group, the **Protect** check box becomes available.
4. Select the **Protect** check box. The protection method options become available.
5. Select one of the following protection methods:

- Select **Stored procedures** to specify that you will use stored procedures to protect the QMF catalog tables. You can select this option if the repository storage tables are located on one of the following databases:
 - DB2 UDB LUW V9 and above
 - DB2 iSeries (when accessed with IBM Toolbox JDBC driver)
 - Select **Static SQL packages** to specify that you will use static SQL packages to protect the QMF catalog tables. You can select this option if the repository storage tables are located on a Db2 database that you will connect to using the IBM DB2 Universal driver for JDBC.
6. Type, or select from the drop-down list, the name that you want to use to identify the collection of stored procedures or static SQL packages in the **Collection ID** field.
 7. Optionally you can type the owner name in the **Owner ID** field, if you work with Db2 databases. The Owner ID provides the administrator privileges to the user who operates under the login without SYSADM authority.
 8. Click **Create**. The stored procedures are created or the static SQL packages are bound. A message is issued that informs you of the success of either process. You can also use **Delete** to remove a collection of stored procedures or static packages.
 9. You must specify which users will have permission to run the stored procedures or static SQL packages for the QMF catalog tables on this database. To grant permission to all users, highlight PUBLIC in the User IDs list and click **Grant**. To grant permission to specific users, type their user IDs in the field, highlight one or more of the user ID(s) and click **Grant**. A message is issued that informs you that the selected user IDs have been granted permission to run the stored procedures or static SQL packages. Optionally, you can revoke permission to run the stored procedures or SQL packages from any user that is listed in the **User IDs** list box. To revoke permission from one or more users, highlight one or more of the user IDs and click **Revoke**. A message is issued informing you that permission to run the stored procedures or static SQL packages has been revoked from the selected user IDs.
 10. Click **Next**. The **Select QMF Catalog** page of the **QMF Catalog Wizard** opens.

About collection IDs

Collection IDs identify a group of static SQL packages or stored procedures that serve a particular purpose or function.

QMF includes a set of embedded SQL statements for working with databases. These statements are installed as queries on the database server during the QMF configuration, through a process commonly referred to as *binding*.

The database type determines whether the queries are bound as packages of static SQL statements (for Db2 UDB databases) or as a set of stored procedures (for all supported databases, but this option is not recommended for Db2 UDB). This group of installed packages or stored procedures is called a *collection*.

Each version of QMF has its own collection. When QMF connects to database server, it automatically detects proper installed collection and uses it. However, it is useful practice to incorporate the application version in the collection ID name to help users differentiate collections from one version of QMF to another.

Depending on the database type, the length of the collection ID can have some restrictions.

In the case of stored procedures, the notion of a collection is usually synonymous with *owner ID* or *schema*. The maximum length for collection ID field is determined by database restriction on the maximum schema length. For more details on schema length limits see the database documentation.

The collections of packages are supported by Db2 databases only. Db2 databases can function in either short names or long names mode, depending on their configuration. In short names mode the maximum number of characters allowed in collection ID field is 8.

The following Db2 databases can be set up to support long names:

- iSeries V5R1 or later
- DB2 UDB V8 or later

For these Db2 databases the maximum length of the collection ID is 128 characters.

Servers that support long names

Long names apply to the names of objects that reside in the QMF catalog.

iSeries servers V5R1 or later support long names.

Long names for objects

Long names apply to the names of objects that reside in the QMF catalog.

Long names for QMF objects that can be saved in the QMF catalog tables that support long names can be up to 128 characters for the owner and name fields.

Short names for objects

Long names apply to the names of objects that reside in the QMF catalog.

Short names for QMF objects that can be saved in the QMF catalog tables can be up to eight (8) characters for the owner and up to eighteen (18) characters for the name.

Selecting the QMF catalog

The last step to configuring a data source so that it can access a QMF catalog is to select a QMF catalog.

About this task

To select the QMF catalog for the data source:

Procedure

1. Open the **Select QMF Catalog** page of the **QMF Catalog Wizard**.
2. From the **Data source name** list, select the data source that hosts the QMF catalog that you want the data source that you are configuring to use. This could be the same data source as the one you are currently configuring or a different data source that has already been configured in your repository.
3. From the **Catalog** list, select the catalog that you want the current data source that you are configuring to use. You can choose one of the following types of catalogs:
 - **Default:** This is the main QMF catalog. It is created automatically as a result of running the SQL statements to create objects on the data source. All objects saved to a default catalog are saved together. The Default catalog is the only catalog that can be used by QMF for TSO/CICS and versions of QMF prior to 7.2.
 - **Extended:** Extended catalogs are extensions of the default catalog. While a data source can only host a single default QMF catalog, it can host multiple extended catalogs. Extended catalogs are useful when several data sources share one QMF catalog. Without extended catalogs, all objects would be saved into the default QMF catalog. With extended catalogs, each data source can isolate their saved objects in a particular catalog extension.
4. Optional: To create a new extended catalog that will reside on the current data source, select the **Add** icon. The **Add Catalog** window opens.
5. Optional: To edit the name or the CCSID of an existing extended QMF catalog, select the **Edit** icon. The **Edit Catalog** window opens. You can also use this window to edit the CCSID for the Default QMF catalog.
6. Optional: To delete an existing extended catalog from the current data source select the **Remove** icon. You should use caution when deleting extended catalogs as QMF for Workstation removes the extended catalog and all of its contents regardless of whether other data sources might be configured to use the extended catalog.
7. Optional: Select **Refresh List** to refresh the list of available extended catalogs in the list box.
8. If you want your users to always use the current QMF catalog when working with the current database, select the **Require the use of this catalog server when accessing the current server** check box.

9. Click **Finish**. The **QMF Catalog Wizard** closes. This is the last step to configuring a data source to use a QMF catalog. Control returns to the **Enable data source plug-ins** page of the **Create Relational Data Source** wizard.

Creating an extended catalog

You can create extended QMF catalogs to organize user access to objects within the overall default QMF catalog.

About this task

Instead of all objects being in the main default catalog, they can be isolated in smaller extended catalogs. There are many reasons to use extended catalogs. You can use them to control a user's view of objects. You can use them to isolate objects from one data source that is sharing a QMF catalog on another data source. An extended catalog can contain only the selected objects from a specific data source. You can also set up extended catalogs that have different CCSID settings from the main **Default** catalog.

Note: Performance, a user's views of objects, and the overall maintenance of your query environment can be adversely impacted when a data source uses an extended catalog (or a **Default** catalog) that resides on a different data source.

To create an extended catalog:

Procedure

1. Open the **Add Catalog** window.
2. Specify a unique name for the extended catalog in the **Name** field.
3. Select a CCSID code page for the extended catalog from the **CCSID** list.
4. Optional: Select the **Create system profile entry** check box to create an entry in the System Profile table that is stored on the catalog server. A catalog server is a database server on which a QMF catalog resides. If you select this check box, QMF will create a user profile entry so that users can access the database with their own user IDs; otherwise the user IDs must be assigned to a group.
5. Click **OK**. The new extended catalog is created.

Editing an extended catalog's properties

You can change the name or CCSID properties of an extended QMF catalog. You can also change the CCSID property of the default QMF catalog.

About this task

To edit the properties of an extended or default QMF catalog:

Procedure

1. Open the **Edit Catalog** window.
2. Specify a new name for the extended catalog in the **Name** field. You can not change the name of the **Default** QMF catalog.
3. Select a new CCSID code page for the extended catalog from the **CCSID** list. You can change the CCSID of the **Default** QMF catalog.
4. Click **OK**. The changes to the QMF catalog; property values are saved.

Creating a QMF Data Service data source

QMF Data Service data sources allow users to work with tables provided by QMF Data Service.

Before you begin

To be able to work with data sources from QMF Server, make sure that Java Runtime Environment (JRE) version 8 or later is installed in your environment.

About this task

To create a QMF Data Service data source, perform the following steps:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, click **Create a Data Source**. The **Create New Data Source** wizard opens.
2. In the wizard, select **QMF Data Service** and click **Next**.
3. In the **Data Source Name** field, specify the name for the data source.
4. In the **Connection Parameters** area, specify host server name, port number, and encoding.
Note: If the encoding that you want to specify for the data source is not present in the **Encoding** list, you can type it manually.
5. Click **Set User Information**.
6. In the **User Information** window, you can specify user information for accessing the data source and allow users to save password.
7. If you want to access tables that are provided by one of the server subsystems, select the **Subsystem** check box. From the list, select the subsystem that you want to work with.
If you want to access virtual tables, leave the check box clear.
8. To test the connection, click **Test Connection**.
9. Click **Finish**.

Creating a Hive data source

You can create Hive data sources to work with Apache Hadoop, which is the open source software framework, used to reliably managing large volumes of structured and unstructured data.

Before you begin

Make sure you have defined the Hive driver library JAR files so that QMF can connect to Hive data sources.

About this task

Hive data source is a data warehouse infrastructure that provides data summarization and ad hoc querying. Hive data sources are accessed using special drivers for JDBC. The current JDBC interface for Hive only supports running queries and fetching results.

To create a Hive data source:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, click **Create a Data Source**. The **Create New Data Source** wizard opens.
2. In the wizard, select **Hive** and click **Next**.
3. Type the data source name in the **Data Source Name** field.
4. Specify the necessary parameters in the **Connection Parameters** area. You must set the **Host name**, **Port** number, and **Database** name.
5. Click **Set User Information** button to specify the necessary user parameters.
6. Click **Advanced** button to select the advanced parameters supported by the installed Hive driver.
7. In the **Comment** field, you can enter the description of the created data source.
8. Click **Finish** to create the Hive data source and close the **Create Hive Data Source** wizard.

Creating a virtual data source

Create a virtual data source to tailor the way users view enterprise data. Virtual data sources introduce a database metadata layer that allows you to optionally hide the complexities of your underlying database structures.

About this task

To create a new virtual data source:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, click **Create a Data Source**. The **Create New Data Source** wizard opens.
2. In the wizard, select **Virtual** and click **Next**.
3. Enter a name for the new virtual data source in the **Data Source Name** field.
4. Specify the virtual data source parameters in the **Parameters** area:
 - a) Select **In-memory** check box to create an inner in-memory database for the work of the virtual data source.
 - b) If you want to save the inner database in to the file system, select **Back up server on shutdown** check box. Then when you shut down the application in normal mode the database will be saved to the file system and retrieved at the next launch of the application.
5. Click **Finish**.

Creating a JavaScript data source

Create a JavaScript data source to collect data from a web service as a data source and process it in the form of relational tables.

About this task

To create a JavaScript data source, perform the following steps:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, click **Create a Data Source**. The **Create New Data Source** wizard opens.
2. In the wizard, select **JavaScript** and click **Next**.
3. Enter a name for the data source in the **Data Source Name** field.
4. In the **Connection Parameters** area:
 - a) In the **URL** field, enter the URL of the web resource to that you want to connect and get data.
 - b) Select the **User ID and password are required** check box to request user information each time when the web resource is accessed. If the web resource does not require logon information, leave the check box clear.
 - c) Select the **Allow users to save password** check box if you want to allow the application to remember the password for the entered user ID.
5. Click **Next**. On the **JavaScript Parameters** page of the wizard, specify the global parameters for the data source. You can easily modify these parameters if you need to connect to other web resource or with other user credentials.
 - a) Click **Add Parameter**, enter the parameter name and value in the corresponding columns.
 - b) To delete parameters from the data source, select them and click **Remove Parameter**.
6. Click **Finish**.

Scheduling cache expiration for virtual and JavaScript data sources

You can use expiration schedules for virtual data sources and tables that they store on the **Cache Settings** page of virtual data source **Properties** window.

About this task

When the **Use expiration schedules** check box is clear the caching expiration mode equals *Always Expired* for a virtual data source. Records from the tables stored in this data source are updated each time on-demand.

To specify particular cache schedule for virtual data sources or their tables, complete the following procedure:

Procedure

1. From the **Repositories**, right-click a virtual data source and select **Properties**.
2. In the **Properties for [data source]** window, select **Cache Settings**.
3. On the **Cache Settings** page, select the **Use expiration schedules** check box. The schedule expiration settings become available.
4. From the **Default expiration schedule** list, select the schedule that you want to use as the default one for the whole data source.

Note: A created data source has *Always Expired* default settings.

5. To assign a particular cache expiration schedule to a particular table click the **Schedule name** column of the table the settings of which you want to modify and select the required scheduler from the list of available ones.

Note: If tables contain any substitution variables, only *Always Expired* expiration schedule is applied to such tables.

6. If you have any tables that require authorization for accessing them, you must specify the authorization settings for the data source. Click the **Manage Authorization** button.
The **Manage Authorization** dialog opens.
7. All the data sources that require authorization are listed there. This authorization data will be used for updating the cache. Click **Login** column for the required data source.
The **Edit Data Source Login** dialog opens.
8. Enter the proper values in the **Login**, **Password**, and **Verify Password** fields and click **OK**.
9. When you finish specifying authorization data for all required data sources, click **OK** in the **Manage Authorization** dialog.
10. Click **Apply** and then click **OK** to close the **Properties for [data source]** window.

Enabling automatic cache refresh for virtual and JavaScript data sources

Enabling the application to automatically refresh the cache of virtual and JavaScript data sources allows users to run queries against these types of data sources faster.

About this task

To enable the automatic cache refresh option for a virtual or JavaScript data source, complete the following steps:

Procedure

1. From the main menu, select **Preferences > Virtual Data Source**.
2. Select the **Enable automatic cache refresh** check box.
3. Click **Apply**, then click **OK**.

4. Optional: To invalidate the cache manually, right-click a data source and select **Invalidate Data Source Cache** from the menu.

Creating a multidimensional data source

You must add configuration information to your repositories for all multidimensional data sources.

About this task

Multidimensional data sources are accessed using XMLA. Multidimensional data is organized by one or more dimensions. Multidimensional data structures are often referred to as cubes. Queries for multidimensional data sources accessed using XMLA are written in MDX.

To configure multidimensional data source information in a repository:

Procedure

1. In the **Repositories** view, on the **Data Sources** tab, click **Create a Data Source**. The **Create New Data Source** wizard opens.
2. In the wizard, select **Multidimensional** and click **Next**.
3. In the **Data Source Name** field, type a name that will be used to identify the data source in the repository. This can be any name.
4. QMF will use XML for Analysis (XMLA) via HTTP protocol to connect to a multidimensional data source. You specify the URL that will point to the data source in the **HTTP URL** field.
5. Select **User ID and password are required** to require the use of a user ID and password when accessing this multidimensional data source. If the data source allows access without a user ID and password, selecting this option will override that allowance, and a user ID and password will be required to access the data source.
6. Specify the user ID and password that will be used to access the data source in the **User name** and **Password** fields. To test the connection, click the **Test Connection** button.
7. Select the multidimensional data source that you want to add to the repository from the **Data Source** list box. All the data sources that are located at the specified URL address are listed in the **Data Source** list box. You can refresh the list using the **Refresh** button.
8. Optional: Type a comment that describes the data source in the **Comment** field. This comment will display with the properties for the data source.
9. Click **Finish**.

Setting up login mapping for a data source

Login mapping enables a user to login to a repository and gain access to one or more of the database data sources that have been configured in that repository using a single user ID and password.

About this task

With login mapping, administrators can set up users so that they can login to a repository and access any data source without specifying another user ID and password that is specific to the database data source. By setting up login mapping, users do not have to continually reenter login information every time they access a database data source, and they do not have to know the login information for each database data source.

You set up login mapping for each data source that you include in the repository. Login mapping can only be set up for data sources that reside in protected repositories. Protected repositories are those repositories that were created with the security option **Internal**, **LDAP**, or **Database-based**. When setting up login mapping for a Db2 database users, you can use a trusted connection if a trusted context is created for the managed data source. In this case, the specified connection to the application is recognized as trusted and the database does not require individual user credentials.

When users are assigned several login, it is required to specify priority for each of them. To better understand how it works, consider the following:

- User X is a member of two groups, Group A and Group B. You have assigned a login mapping ID and password for Group A that gives all users assigned to Group A a certain level of access to the data source. You have assigned a login mapping ID and password for Group B that gives all users assigned group B a lesser level of access to the database data source. As a member of both groups, when User X accesses the data source, it is unclear what login information that should be used. Should it be based on the user as a member of Group A or Group B. The **Priority** field resolves this issue. You would assign a priority value to the login information. For example, Group A is assigned a priority of 10 and Group B is assigned a priority of 5. When a user that is a member of both groups accesses the data source, access is granted based on the login information of the group, to which the user is a member, with the highest priority. In this example that would be Group A. It is important to note that in this scenario, you can not assign the same priority value to more than one group.
- User X is a member of two groups, Group A and Group B. However, User X must have a distinct level of access to a data source that is different than any other member of either group. You will use the **Priority** field to resolve this issue. You will assign a login mapping user ID and password to Group B and assign a priority value of 5 to the mapping information. You will assign a login mapping user ID and password to Group A and assign a priority value of 10 to the mapping information. You will assign a login mapping user ID and password for User X and assign a priority value of 25 to mapping information. When User X accesses the data source, the mapping information with the highest priority value will be used. It is important to note that in this scenario, you can not assign the same priority value to a group and individual user that is a member of the group.

The topics below describe how to set up login mapping with and without trusted connection.

Login mapping without trusted connections

This topic describes the procedures of setting up login mapping without trusted connections.

About this task

To set up login mapping for a data source without trusted context:

Procedure

1. Right-click a data source in the **Repositories** view. Select **Properties** from the menu. The **Properties** window opens. Select **Login Mapping** from the tree. The **Login Mapping** page of the window opens. All users and groups that have been defined for the repository are listed in the **Data source login list**. This list is empty if you have not defined any users or groups.
2. If you set up login mapping for a Db2 database, make sure the **Use trusted connections** check box is deselected.
3. To set up mapping for a user or group, select a user or group and click the **Edit data source login** button above the list box. The **Edit Data Source Login** window opens.
4. Specify the user ID that will be used to login to the database data source in the **Login** field.
5. Specify the password that will be used to login to the database data source in the **Password** field.
6. Verify the password by retyping it in the **Verify password** field.
7. Specify the priority that will be placed on this login information in the **Priority** field. You can enter any numerical value in this field with the value of 1 having the lowest priority. The **Priority** value is used to determine what login mapping ID and password will be invoked for a user that is a member of multiple groups. To find more information about priority, see [“Setting up login mapping for a data source”](#) on page 82.
8. Click **OK**. The data source login information for the selected user or group is listed in the **Data source login** list as follows:

- **Login mapping owner** lists the name of the user or group that will use this login to access the data source. For more information about users and groups, see [“Managing users and user groups” on page 86](#).
- **Auth ID** specifies the login user ID that will be used to access the data source for the user or group.
- **Priority** specifies the priority that is assigned to the login information. This priority value determines which login information will be invoked for users that are members of multiple groups.

You will repeat this process for each user or group for which you want to set up login mapping information.

9. To edit existing data source login information, select the data source login information from the **Data source login list** table and click the **Edit data source login** button located above the list box. The **Edit Data Source Login** window opens. You can make changes to any of the fields. Click **OK** to close the **Edit data source login** window.
10. To delete existing data source login information, select the data source login from the **Data source login list** table and click the **Remove data source login** button located above the list box.
11. Click **OK**. The login mapping parameters that you have specified for each user or group are in effect for the data source. You must set up login mapping information individually for each data source in the repository.

Login mapping for Db2 databases with trusted connections

This topic describes the procedure of setting up login mapping by means of trusted connections.

About this task

When you set up logging mapping for users who connect to Db2 data sources, you may use a trusted context. Trusted context is an entity created by a database administrator that determines whether a connection to the database can be used as a trusted connection. The database does not require individual credentials to authenticate users of such trusted connection. It is very practical when an administrator has a lot of user credentials to manage. To use a trusted context, you specify system authorization credentials that were used when creating the trusted context for the current connection to be recognized as trusted. For users who work over a trusted connection, you can assign Auth ID attributes that are specified in the trusted context to define their privileges when connected to the database.

Note: You can only use this option if there is a trusted context created for the data source.

To set up login mapping for a data source using a trusted connection:

Procedure

1. Right-click a data source in the **Repositories** view. Select **Properties** from the menu. The **Properties** window opens. Select **Login Mapping** from the tree. The **Login Mapping** page of the window opens. All users and groups that have been defined for the repository are listed in the **Data source login list**. This list is empty if you have not defined any users or groups.
2. Select the **Use trusted connections** check box. The **System Authorization Credentials** dialog opens.
3. Enter the system authorization credentials for the connection to be recognized as trusted. In the **ID** field, enter the SYSTEM AUTHID specified in the trusted context.
4. Click **OK** to close the **System Authorization Credentials** dialog.

Note: If the entered information is incorrect, an error message is shown to prompt you to try again.
5. To edit the system authorization credentials, click the **Edit system authorization credentials** button.
6. Select the **Use repository login if Auth ID is not specified** check box if you want a repository login to be used when an Auth ID is not assigned.
7. To assign an Auth ID or edit an assigned Auth ID, select them in the **Data source login list** table and click **Edit user account information**. The **User Account Information** window opens.
8. In the **Auth ID** field, specify an Auth ID from the list provided by the trusted context.

9. In the **Priority** field, specify the priority that will be placed on this login information. You can enter any numerical value in this field with the value of 1 having the lowest priority. The **Priority** value is used to determine which Auth ID will be invoked for a user that is a member of multiple groups. To find more information about priority, see [“Setting up login mapping for a data source”](#) on page 82.
10. Click **OK**. The data source login information for the selected user or group is listed in the **Data source login list** table as follows:
 - **Login mapping owner** lists the name of the user or group that will use this login to access the data source. For more information about users and groups, see [“Managing users and user groups”](#) on page 86.
 - **Auth ID** specifies the login that is used when a trusted connection is established.

Note: If the Auth ID is not specified, the repository login will be used. If the login is not found in the trusted context, a connection error is registered and the user is returned to the log on dialog.
 - **Priority** specifies the priority that is assigned to the login information. This priority value determines which Auth ID will be invoked for users that are members of multiple groups.

You will repeat this process for each user or group for which you want to set up login mapping information using the trusted context.
11. To delete existing data source login information, select the data source login from the **Data source login list** table and click the **Remove data source login** button located above the list box.
12. Click **OK**. The login mapping parameters that you have specified for each user or group are in effect for the data source. You must set up login mapping information individually for each data source in the repository.

Setting up workspaces

Use the **Workspaces** tab of the **Repositories** view to create workspaces for QMF users.

As the administrator you can choose to have your QMF users work with repository objects from a workspace, or directly from the repository. Every repository that you create has one default workspace that is created automatically. Initially, all users have access to the default workspace.

Advantages of using workspaces

There are advantages to having your users access repository objects from a workspace. If you have chosen the **Internal** or **LDAP** security option for the repository, you can create one or more workspaces and assign specific users and groups varying levels of access to the entire workspace or to specific objects within the workspace. If you have chosen no additional security for the repository, then one or more workspaces can help organize repository objects.

Creating a user workspace

You can optionally choose to set up additional workspaces for your users and groups.

About this task

To create a user workspace, perform the following procedure:

Procedure

1. On the **Workspaces** tab of the **Repositories** view, click **Create a User Workspace**. The **Create New User Workspace** dialog opens.
2. Specify the name for the new workspace in the **Name** field.
3. Specify a comment that describes the workspace in the **Comment** field.
4. Click **Finish**.

Managing users and user groups

Use the **Users and Groups** tab of the **Repositories** view to create and manage secured repository users or user groups.

Procedure

1. In the **Repositories** view, click the secured repository that you want to work with.
2. Switch to the **Users and Groups** tab. Each user that can access the selected repository is listed in the **Users** list and each group of users is listed in the **Groups** list.
3. To create a user or a group, click **Create a Repository User** or **Create a Repository Group**. For more information, see [“Creating a repository user”](#) on page 86 and [“Creating a repository group”](#) on page 86.
4. To change the password of an existing user, right-click that user and select **Set Password** from the menu.
5. To assign a user or a group different security permission levels and control their access to workspaces and objects that they store, follow the instructions in [“Assigning users and groups permission to use workspaces and data sources”](#) on page 87.
6. Click **Finish**.

Creating a repository user

Use the **New Repository User** dialog to create a secured repository user.

Procedure

1. On the **Repositories** view, switch to the **Users and Groups** tab and click **Create a Repository User**.
2. In the **User name** field, specify the name of a new repository user.
3. Optional: In the **Full name** field, specify the real name of a user.
4. Use the **Password** and **Confirm password** fields to set the password.
5. Optional: In the **Description** field, enter some additional information about the new user.
6. Optional: To automatically create a workspace for the new user, select the **Has a home workspace** check box.
7. Optional: In the **Group Membership** area, include the new user into an existing group of users.
8. Click **Finish**.

Creating a repository group

Use the **New Repository Group** dialog to create a secured repository group.

Procedure

1. On the **Repositories** view, switch to the **Users and Groups** tab and click **Create a Repository Group**.
2. In the **Group Name** field, specify the name for the new group.
3. In the **Members** area, select the users that you want to include in the group.
4. In the **Parent** area, specify the parent group.
5. Optional: In the **Description** field, enter some additional information about the group.
6. Click **Finish**.

Assigning users and groups permission to use workspaces and data sources

You can assign security permission levels for users and groups and control their access to workspaces and data sources.

About this task

Security permission levels for users and groups can only be assigned for secured repositories (those created with Internal or LDAP security). To assign users and groups different levels of permission to use workspaces and data sources, complete the following steps:

Procedure

1. In the **Repositories** view, switch to the **Workspaces** tab.
2. Right-click the workspace that you want to work with and click **Properties**.
3. In the **Properties** window, select **Security**.
4. Each user or group that has been granted permission to use this repository is listed in the **Group or user names** field. To add a user or a group, click **Add** and use the **Select Users or Groups** window.
5. Each user or group can be assigned a different permission level for the selected workspace. The available permission levels are listed in the **Permissions for** list. To assign a permission level, select a user or a group and then select the permission level that you want to assign. The following permission levels are available:
 - **Full**: grants the user or group permission to perform all functions (edit, view, browse and delete) on the workspace or data source. In addition, full permission level allows users to modify permissions that have been assigned to workspaces and data sources.
 - **Edit**: grants the user or group permission to make changes to the workspace or data source, as well as view and browse it.
 - **Browse**: grants the user or group permission to see the contents of the workspace or data source. For example, browse privileges on a directory in the repository allows a user to see what is inside that directory. Browse privileges on a query object allows a user to open and run the query object.
 - **View**: grants the user or group permission to see the repository objects listed in the workspace or data source. For example, view privileges on a directory in the repository allows the user only to see the directory. The user cannot open the directory or see the contents of the directory. View privileges on a query object only allow users to see the object. They cannot open or run the object.
 - **None**: denies the user or group permission to access the workspace/data source and its child objects.
6. Click **Apply permissions to child folders and objects** to apply the selected level of permission to all of the workspace/data source child objects.
7. To remove permission from a user or group, select the user or group from the **Group or user names** list and click **Remove**.
8. Click **Apply**.
9. Click **OK**.

Using the Scheduled Tasks view

Use the **Scheduled Tasks** view to create and manage QMF scheduled tasks.

Scheduled tasks are invaluable tools that help to automate business processes to run at specified dates and times. This is especially useful for actions that must be run on a regular basis, such as weekly sales reports that are supposed to be distributed to several different locations, or quarterly earnings reports.

The following topics describe working with scheduled tasks:

Creating scheduled tasks

Scheduled tasks allow you to create automated actions such as running queries and exporting query results without taking direct action from the user interface.

Procedure

1. On the **Scheduled Tasks** view, select the repository that you want to work with from the **Repository** list.
2. Optional: If authorization information is required, you are prompted to enter it in the **Log on to** window.
3. To create a scheduled task, click **Add Task**.
4. In the **Task name** field, specify a name for the task.
5. Click **Add Action**.
6. In the **Action** wizard, specify a name for the action in the **Action name** field.
7. Select what type of action you want to add and click **Next**.
8. Specify the options for the selected task type and click **Finish**.
The **Action Wizard** closes and the new action is added to the **Actions** list. For detailed information about creating actions, see the linked topics below.
9. Add as many actions as you want the task to run and click **OK** to finish creating the task.

Adding an execute object action

The execute object action allows you to automatically execute queries, a visual report, procedure, or quick report, and export or email it.

About this task

To add an execute object action to a scheduled task:

Procedure

1. In the **Scheduled Tasks** view, select the task that you want to work with and click **Edit Task**.
2. Click **Add Action**.
The **Action Wizard** opens.
3. Specify a name for the action in the **Action name** field, click **Execute object**, and then click **Next**.
The **Specify object** page opens.
4. Select the type of object that you want to execute.
5. Specify the location of the object.
There are two options:
 - a) To specify the static source location of the object, click **Path** and then click the ellipsis (...) at the bottom right of the **Source** area. In the **Open** window, navigate to the object, select it, and click **Finish**.
 - b) To specify a conditional source location for the object, click **Formula** and then click the ellipsis (...). In the **Formula editor**, specify the formula to use to determine the location of the object and click **OK**.
6. Optional: This option is only available for procedures. Select **Set a new data source** check box to specify a particular data source against which you want to execute the procedure. Then click the ellipsis (...), the **Add Data Source** window opens, select the required data source and click **OK**.
Note: If you do not select this check box, the procedure is executed against its original data source.
7. Optional: To add one or more additional data sources, perform the following steps:
 - a) Click **Add Data Source**.
The **Add Data Source** window opens.

- b) Navigate to and select the data source that you want to add, specify a login name and password for the data source, and click **OK**.
The **Add Data Source** window closes.
8. Click **Next**.
If the object that you specified in step [5](#) is a procedure or includes a prompt, the **Specify variables** page opens. Otherwise, the **Specify operations** page opens, and you must go to step [13](#).
9. On the **Specify variables** page, double-click the variable that you want to work with.
The **Edit Variable** window opens.
10. In the **Edit Variable** window, specify the value for the variable or use the Formula Editor to create an expression.
11. Click **OK** to close the **Edit Variable** window, then click **Next**.
The **Specify operations** page opens.
12. On the **Specify operations** page, click **Add Operation**.
The **Operation Wizard** opens.
13. Select an operation and click **Next**.
14. Specify the options for the selected operation and click **Finish**.
The **Operation Wizard** closes.
15. When you have finished adding all of the operations that you want the action to run, click **Finish**.
16. Click **OK**.

Specifying export query operation options

You use the export query operation to export query results to a file.

About this task

To add an export query operation to an action:

Procedure

1. Open the **Specify operations** page of the **Action Wizard** and click **Add Operation**.
The **Operation Wizard** opens.
2. Click **Export query** and then click **Next**.
The **Specify export parameters** page opens.
3. If the query has multiple result sets, select the result set that you want to export from the **Result set** list.
4. If the query has multiple display modes, select the display mode that you want to export from the **Display mode** list.
5. Select the file type that you want to export from the **Export type** drop-down list.
Valid file types are:
 - **Text** (*.txt)
 - **CSV** (*.csv)
 - **PDF** (*.pdf)
 - **HTML** (*.html)
 - **IXF** (*.ixf)
 - **XML** Extensible Markup Language file (*.xml)
 - **XLS** Microsoft Excel 97-2003 (*.xls)
 - **XLSX** Microsoft Excel 2010 and later (*.xlsx)
 - **PNG** (*.png)
6. Specify the location to save the object.

Note: The file will be exported if the **Root output directory** is specified by administrator.

There are two options:

- a) In case the **Root output directory** is specified on the **Server-Side File System** page of the **Preferences** window, you can just type a path and a file name or only a file name in the **Path** field. The file will be exported to this root directory automatically. In QMF for WebSphere you can specify only the path, lying in the root directory set by administrator. Otherwise, the export will be forbidden and an error will occur.
 - b) To specify a conditional save location for the object, click **Formula** and then click the ellipsis (...). In the **Formula editor**, specify the formula to use to determine the location to save the object and click **OK**.
7. Select the **Delete after task completion** check box if you want to remove the exported file from the specified location when the scheduled task is completed.
 8. Select the **Mark as attachment** check box if you want to be able to attach this query result set to the email automatically.
 9. Click **Next**.
 - If you selected the Text or CSV export formats, the **Specify [file type] export options** page opens. On this page you can select additional options that are available depending on the type of file that you are creating. Then, the **Specify delimiter options** page opens. On this page, specify the detailed information about how the result set will be displayed in the selected format.
 - If you selected any other export format except XML, the **Specify [file type] export options** page opens. On this page you can select additional options that are available depending on the type of file that you are creating.
 - If you selected the XML format, click **Finish** instead of clicking **Next**.
 10. Click **Finish**.

The **Operation Wizard** closes.

Specifying export query to mail operation options

You use the export query to mail operation to send query results in an email.

About this task

To add an export query to mail operation to an action:

Procedure

1. Open the **Specify operations** page of the **Action Wizard** and click **Add Operation**.

The **Operation Wizard** opens.
2. Click **Export query to mail** and then click **Next**.

The **Specify export parameters** page opens.
3. If the query has multiple result sets, select the result set that you want to export in the **Result set** field.
4. If the query has multiple display modes, select the display mode that you want to export from the **Display mode** list.
5. Select the file type that you want to export from the **Export type** drop-down list.

Valid file types are:

 - **Text** (*.txt)
 - **CSV** (*.csv)
 - **PDF** (*.pdf)
 - **HTML** (*.html)
 - **IXF** (*.ixf)
 - **XML** Extensible Markup Language file (*.xml)

- **XLS** Microsoft Excel 97-2003 (*.xls)
 - **XLSX** Microsoft Excel 2010 and later (*.xlsx)
 - **PNG** (*.png)
6. Specify the name of the file attachment in the email in the **Attachment name** field.
 7. If you want to specify a conditional file attachment name, click ellipses (...) next to the field.
The **Formula Editor** opens.
 8. Specify the formula to use to determine the name of the attachment and click **OK**.
The **Formula Editor** closes.
 9. Click **Next**.
 - If you selected any export format except XML, the **Specify [file type] export options** page opens. On this page, select additional options that are available depending on the type of file that you are creating and click **Next**.
 - If you selected the XML format, the **Specify mail settings** page opens. Proceed from step “10” on page 91.
 - If you selected the Text of CSV export formats, the **Specify [file type] export options** page opens. On this page you can select additional options that are available depending on the type of file that you are creating. Then, the **Specify delimiter options** page opens. On this page, specify the detailed information about how the result set will be displayed in the selected format.
 10. On the **Specify mail settings** page, specify the following information:
 - From the **Format** list, select the format of the body text. The available formats are Text and HTML.
 - Specify the recipient’s email address in the **To** field.
 - Specify additional recipients in the **Cc** field.
 - Specify the subject of the email in the **Subject** field.
 - Specify the content of the email in the **Message** field.

Note:

If you want to include an embedded image in the text of the email, you must insert the following HTML snippet into the text:

```
</img>
```

where *cid*: is the standard abbreviated content identifier required when referencing an embedded image within a formatted email, and where *[image name]* is the name of the image file. For example, to embed an image file named *image1.png*, you would insert the following HTML snippet into the text of the email:

```
</img>
```

- Specify the email address from which the email is sent in the **From** field.
- For each of the fields on the **Specify mail settings** page you can click the ellipses button (...) to access the Formula Editor. Use the Formula Editor to specify conditional values.
- Note:** The values that you set on this page can be specified dynamically during iterator work with the help of substitution variables. You can use an action group with iterator to send separate email messages to several recipients. To do so, you need to specify the iterator query that returns all necessary email information, define iterator variables, and type the variable names in the corresponding fields on the **Specify mail settings** page using the equality sign (=Form, =SMTP). When you run the task, iterator goes over the iterator query records, extracts a set of email parameters at each iteration, and passes it to the *Export query to mail* operation.
11. To specify SMTP server parameters, click **SMTP Settings**. In the SMTP Settings window, specify whether to use a server predefined by administrator or a custom one.
 - a) If you decide to use a predefined SMTP server, select the required server from the list of predefined servers or click **Add Server** to create one.

- b) If you decide to use a custom server, specify server parameters including its address and port number. If the SMTP server requires authentication, select **Use SMTP authentication**, and then specify user name and password. If it is necessary to specify additional access preferences, click **Advanced** to open the **Advanced SMTP Settings** window where you can add required keywords supported by javamail. Click **OK**.

Click **OK** to close the **SMTP Settings** window.

12. Click **Finish** to close the **Operation** wizard.

Sending HTML tables in email

You can send query results as HTML tables in the email when you work with scheduled tasks.

Before you begin

Make sure that the selected format of a letter is HTML and the table you want to add is saved in the HTML format too.

About this task

The inserted tables appear in the body of the letter in HTML format.

Adding an HTML table is available only for the following tasks of the scheduler:

- Exporting query to mail task. As a result of this task you get query result set in HTML format, which can be sent in the email.
- Sending mail resource manipulation task. In this task you can insert the necessary HTML tables created when performing other tasks.

To insert an HTML table in the body of an HTML letter:

Procedure

1. On the **Specify mail settings** page of the **Operation Wizard** window, click an ellipsis button (...) in the **Message** field. The **Formula Editor** opens.
2. From the list of the functions expand the **Scheduler** and select **insertHTMLTable** or type the name of this function in the **Filter** field.
3. Double-click the function and specify its parameters.
4. Click **OK** to add the function and close the **Formula Editor**. The specified function is added to the **Message** field.

Example

You can add *grid.html* table to the letter with the following parameters:

- When you work with export task, just add the function without any parameters

```
=insertHTMLTable()
```

- When you work with resource manipulation task, you can specify only one parameter, in case the exported HTML file has UTF-8 encoding.

```
=insertHTMLTable("grid.html")
```

- You must specify both parameters if the encoding of the exported HTML file differs from UTF-8.

```
=insertHTMLTable("grid.html", "UTF-16")
```

Specifying export quick report to mail operation options

Use the export quick report to mail operation to send a quick report in an email.

About this task

To specify export quick report to mail operation options, perform the following procedure:

Procedure

1. Open the **Specify operations** page of the **Action Wizard** and click **Add Operation**.
The **Operation Wizard** opens.
2. Click **Export quick report to mail** and then click **Next**.
The **Specify export parameters** page opens.
3. Select the file type that you want to export from the **Export type** drop-down list.
Valid file types are:
 - **PDF** (*.pdf)
 - **HTML** (*.html)
4. Specify the name of the file attachment in the email in the **Attachment name** field.
5. If you want to specify a conditional file attachment name, click the ellipsis (...).
The **Formula Editor** opens.
6. Specify the formula to use to determine the name of the attachment and click **OK**.
The **Formula Editor** closes.
7. Click **Next**.
 - If you selected the PDF format, the **Specify PDF export options** page opens. On this page, select additional export options that are available for the PDF format and click **Next**.
 - If you selected the HTML format, the **Specify mail settings** page opens.
8. On **Specify mail settings** page, specify values for the following parameters:
 - Select the format of the body text from the **Format** list. The available formats are Text and HTML
 - The address that the email will be sent to in the **To** field
 - The address that a carbon copy of the email will be sent to in the **Cc** field
 - The subject of the email in the **Subject** field
 - The body text of the email in the **Message** field
 - The address that will send the email in the **From** field

For each of the fields on the **Specify mail settings** page you can click the ellipses button (...) to access the Formula Editor. Use the Formula Editor to specify conditional values.
9. To specify SMTP server parameters, click **SMTP Settings**. In the SMTP Settings window, specify whether to use a server predefined by administrator or a custom one.
 - a) If you decide to use a predefined SMTP server, select the required server from the list of predefined servers or click **Add Server** to create one.
 - b) If you decide to use a custom server, specify server parameters including its address and port number. If the SMTP server requires authentication, select **Use SMTP authentication**, and then specify user name and password. If it is necessary to specify additional access preferences, click **Advanced** to open the **Advanced SMTP Settings** window where you can add required keywords supported by javamail. Click **OK**.
Click **OK** to close the **SMTP Settings** window.
10. Click **Finish**.
The **Operation Wizard** closes.

Specifying export quick report operation options

Use the export quick report operation to export quick report results to a file.

About this task

To specify export quick report operation options, perform the following procedure:

Procedure

1. Open the **Specify operations** page of the **Action Wizard** and click **Add Operation**.

The **Operation Wizard** opens.

2. Click **Export quick report** and then click **Next**.

The **Specify export parameters** page opens.

3. Select the file type that you want to export from the **Export type** drop-down list.

Valid file types are:

- **PDF** (*.pdf)
- **HTML** (*.html)

4. Specify the location to save the object.

Note: The file will be exported if the **Root output directory** is specified by administrator.

There are two options:

- In case the **Root output directory** is specified on the **Server-Side File System** page of the **Preferences** window, you can just type a path and a file name or only file name in **Path** field. The file will be exported to this root directory automatically. In QMF for WebSphere you can specify only the path, lying in the root directory set by administrator. Otherwise, the export will be forbidden and an error will occur.
- To specify a conditional save location for the object, click **Formula** and then click the ellipsis (...). In the **Formula editor**, specify the formula to use to determine the location to save the object and click **OK**.

5. Select the **Delete after task completion** check box if you want to remove the exported file from the specified location when the scheduled task is completed.

6. Select the **Mark as attachment** check box if you want to be able to attach this quick report to the email automatically.

7. If you selected the PDF format, click **Next**.

The **Specify PDF export options** page opens. On this page you can select additional options that are available depending on the type of file that you are creating.

8. Click **Finish**.

The **Operation Wizard** closes.

Specifying export visual report to mail operation options

You use the export visual report to mail operation to send a visual report in an email.

About this task

To specify export visual report to mail operation options, perform the following procedure:

Procedure

1. Open the **Specify operations** page of the **Action Wizard** and click **Add Operation**.

The **Operation Wizard** opens.

2. Click **Export visual report to mail** and then click **Next**.

The **Specify export parameters** page opens.

3. Select the file type that you want to export from the **Export type** drop-down list.

Valid file types are:

- **PDF** (*.pdf)
 - **HTML** (*.html)
4. Specify the name of the file attachment in the email in the **Attachment name** field.
 5. If you want to specify a conditional file attachment name, click the ellipsis (...).
The **Formula Editor** opens.
 6. Specify the formula to use to determine the name of the attachment and click **OK**.
The **Formula Editor** closes.
 7. Click **Next**.
The **Specify [file type] export options** page opens. On this page you can select additional options that are available depending on the type of file that you are creating.
 8. On **Specify mail settings** page, specify values for the following parameters:
 - Select the format of the body text from the **Format** list. The available formats are Text and HTML
 - The address that the email will be sent to in the **To** field
 - The address that a carbon copy of the email will be sent to in the **Cc** field
 - The subject of the email in the **Subject** field
 - The body text of the email in the **Message** field
 - The address that will send the email in the **From** fieldFor each of the fields on the **Specify mail settings** page you can click the ellipses button (...) to access the Formula Editor. Use the Formula Editor to specify conditional values.
 9. To specify SMTP server parameters, click **SMTP Settings**. In the SMTP Settings window, specify whether to use a server predefined by administrator or a custom one.
 - a) If you decide to use a predefined SMTP server, select the required server from the list of predefined servers or click **Add Server** to create one.
 - b) If you decide to use a custom server, specify server parameters including its address and port number. If the SMTP server requires authentication, select **Use SMTP authentication**, and then specify user name and password. If it is necessary to specify additional access preferences, click **Advanced** to open the **Advanced SMTP Settings** window where you can add required keywords supported by javamail. Click **OK**.
Click **OK** to close the **SMTP Settings** window.
 10. Click **Finish**.
The **Operation Wizard** closes.

Specifying export visual report operation options

Use the export visual report operation to export a visual report to a file.

About this task

To specify export visual report operation options, perform the following procedure:

Procedure

1. Open the **Specify operations** page of the **Action Wizard** and click **Add Operation**.
The **Operation Wizard** opens.
2. Click **Export visual report** and then click **Next**.
The **Specify export parameters** page opens.
3. Select the file type that you want to export from the **Export type** drop-down list.
Valid file types are:
 - **PDF** (*.pdf)

- **HTML** (*.html)
4. Specify the location to save the object.
There are two options:
 - To specify a static save location for the object, click **Path** and enter the directory location where you want to save the object.

In case the **Root output directory** is specified on the **Server-Side File System** page of the **Preferences** window, you can just type a path and a file name or only a file name in the **Path** field. The file will be exported to this root directory automatically. In QMF for WebSphere you can specify only the path, lying in the root directory set by administrator. Otherwise, the export will be forbidden and an error will occur.
 - To specify a conditional save location for the object, click **Formula** and then click the ellipsis (...). In the **Formula editor**, specify the formula to use to determine the location to save the object and click **OK**.
 5. Select the **Delete after task completion** check box if you want to remove the exported file from the specified location when the scheduled task is completed.
 6. Select the **Mark as attachment** check box if you want to be able to attach this visual report to the email automatically.
 7. Click **Next**.
The **Specify [file type] export options** page opens. On this page you can select additional options that are available depending on the type of file that you are creating.
 8. Click **Finish**.
The **Operation Wizard** closes.

Adding a resource manipulation task

The resource manipulation action allows you to automatically copy, paste, delete, and email resources that are generated by the scheduled task.

About this task

To add a resource manipulation action to a scheduled task:

Procedure

1. In the **Scheduled Tasks** view, select the task that you want to work with and click **Edit Task**.
2. Click **Add Action**.
The **Action Wizard** opens.
3. Specify a name for the action in the **Action name** field, click **Resource manipulation**, and then click **Next**.
The **Specify resource manipulation type** page opens.
4. Click **Copy** or **Send mail** and then click **Next**.
The next page of the wizard opens.
5. Specify the **Copy** or **Send email** options and click **Finish**.
The **Action Wizard** closes and control returns to the **Task** window.
6. Click **OK**.

Specifying copy resource parameters

The copy resource manipulation action allows you to automatically copy, paste, and delete resources that are generated by the scheduled task.

About this task

To specify copy resource parameters:

Procedure

1. Open the **Specify resource manipulation type** page of the **Action Wizard**.
2. Click **Copy** and then click **Next**.
The **Specify copy resource parameters** page opens.
3. Specify the resource that you want to copy.
There are two options:
 - To specify the static source location of the object, click **Path** and enter the source location of the object.
 - To specify a conditional source location for the object click **Formula** and then click ellipsis (...). In the **Formula Editor**, specify the formula to use to determine the location of the object and click **OK**.
4. Specify where you want to save the resource.
There are two options:
 - In case the **Root output directory** is specified on the **Server-Side File System** page of the **Preferences** window, you can just type a path and a file name or only a file name in the **Path** field. The file will be exported to this root directory automatically. In QMF for WebSphere you can specify only the path, lying in the root directory set by administrator. Otherwise, the export will be forbidden and an error will occur.
 - To specify a conditional source destination for the resource, click **Formula** and then click the ellipsis (...). In the **Formula editor**, specify the formula to use to determine where to save the resource and click **OK**.
5. To cut and paste the resource from the source location to the destination location, select the **Move** check box.
6. To create a new folder to contain the moved resource, select the **Create folders** check box.
Note: The **Create folders** check box is selected and cannot be cleared in QMF Server and QMF for WebSphere.
7. To delete the moved copy of the resource once the task has been completed, select the **Delete after task completion** check box.
8. Select the **Mark as attachment** check box if you want to be able to attach this resource copy to the email automatically.
9. Click **Finish**.
The **Action Wizard** closes and control returns to the **Task** window.

Specifying mail settings

The send mail resource manipulation action allows you to automatically send generated resources in an email.

About this task

To specify mail settings:

Procedure

1. Open the **Specify resource manipulation type** page of the **Action Wizard**.
2. Click **Send mail** and then click **Next**.
The **Specify mail settings** page opens.
3. Specify the format of the body text in the **Format** list. The available formats are Text and HTML
4. Specify the recipient of the email in the **To** field.
5. Specify any additional recipients in the **Cc** field.
6. Specify the subject of the email in the **Subject** field.
7. Specify the text of the email in the **Message** field.

You can attach images as well as files of other available types.

If you want to include an embedded image in the text of the email, you must insert the following HTML snippet into the text:

```
</img>
```

where *cid*: is the standard abbreviated content identifier required when referencing an embedded image within a formatted email, and where *[image name]* is the name of the image file. For example, to embed an image file named `image1.png`, you would insert the following HTML snippet into the text of the email:

```
</img>
```

8. Specify the email address that will send the email in the **From** field.

For each of the fields on the **Specify mail settings** page you can click the ellipses button (...) to access the Formula Editor. Use the Formula Editor to specify conditional values.

9. To specify SMTP server parameters, click **SMTP Settings**. In the SMTP Settings window, specify whether to use a server predefined by administrator or a custom one.
 - a) If you decide to use a predefined SMTP server, select the required server from the list of predefined servers or click **Add Server** to create one.
 - b) If you decide to use a custom server, specify server parameters including its address and port number. If the SMTP server requires authentication, select **Use SMTP authentication**, and then specify user name and password. If it is necessary to specify additional access preferences, click **Advanced** to open the **Advanced SMTP Settings** window where you can add required keywords supported by `javamail`. Click **OK**.

Click **OK** to close the **SMTP Settings** window.

10. Click **Add**.

The **Enter a path as a text or formula** window opens.

11. Specify the path to the resource that you want the task to send in an email and click **OK**.

The **Enter a path as a text or formula** window closes.

12. In the **Attachments** area, select the required options from two lists.

- a) From the first list select the attachment that you want to add automatically. The available options are:
 - **No automatic attachments** not to attach any resource automatically.
 - **Attach marked only** to attach only the resources that were marked in the export or copy operations.
 - **Attach all** to attach all resources created in the export or copy operations.
- b) From the second list select the procedure that you want to apply to the attachments after the action execution. The available options are:
 - **Clear all automatic attachments** to delete all attachments sent automatically after the action execution.
 - **Clear automatic attachments in the group** to delete all automatic attachments, which are created for a group of actions with the sending an email action, after the action execution.
 - **Do not clear automatic attachments** to store all automatic attachments after the action execution.

13. Click **Finish**.

The **Action Wizard** closes and control returns to the **Task** window.

Adding an action group

You can use action groups to create a series of actions that should be performed successively.

Before you begin

Before creating an action group, you must first create a scheduled task.

About this task

To add an action group to a scheduled task:

Procedure

1. In the **Scheduled Tasks** view, select the task that you want to work with and click **Edit Task**.
2. In the **Task** window, click **Add Action** to open the **Action** wizard.
3. Type a name in the **Action name** field.
4. Select **Action Group**, and then click **Finish**.

Adding actions to an action group

You can use drag-and-drop method to add actions to an action group.

Before you begin

You must create an action group.

You must create an action.

About this task

To add an action to an action group:

Procedure

1. In the **Scheduled Tasks** view, select the task that you want to work with and click **Edit Task**.
2. In the **Task** window, select an action that you want to add to a group.
3. Drag the selected action onto an action group item.

What to do next

Next: [Setting iterator parameters](#)

Removing actions from an action group

You can use drag-and-drop method to remove actions from an action group.

Before you begin

You must create an action group and populated it with actions.

About this task

To remove an action from an action group:

Procedure

1. In the **Scheduled Tasks** view, select the task that you want to work with and click **Edit Task**.
2. In the **Task** window, expand an action group that you want to edit.
3. Select an action that you want to remove from the action group.
4. Drag the selected action outside the action group.

Setting iterator parameters

You can use iterator to run an action group for several times in a cycle. You use the Iterator Parameters window to manage iterator preferences.

Before you begin

You must create an action group.

About this task

To set iterator parameters:

Procedure

1. In the **Actions** list of the **Task** window, right-click the action group that you want to run in a cycle, and then select **Set Iterator** from the pop-up menu.
2. In the iterator **Parameters** window, click the ellipsis (...) to specify a query for iterator.
The columns of this query define iterator variables and the number of rows specifies the number of iterations.
3. In the **Open** window navigate to and select an object that you want to use as a query for iterator.
The following objects can be used as a query:
 - Charts
 - Visual Queries
 - Analytical Queries
 - Dynamarts
 - Compound Dynamarts
 - Tables
4. Click **Finish**. The path to the selected object is displayed in the **Query path** field.
5. The data source that contains the selected object is added to the **Data Sources** list. You can specify your login information for a data source in the **Login** and **Password** fields.
6. To add another data source to the list, perform the following procedure:
 - a) Click **Add Data Source** to open the **Add Data Source** window.
 - b) From the **Data Source** list, select a data source that you want to add.
 - c) Type your login information in the **User name** and **Password** fields.
 - d) Select the **Remember the password** check box if you want QMF to remember the password for the user ID that you entered in the **User name** field.
7. To remove a previously added data source from the list, select this data source, and then click **Remove Data Source**.
8. In the **Variables** list, link the query columns with the prompts used in the source object that you specify in Execute object actions. Click in the **Prompt name** cell and select the prompt from the drop-down list.
9. Use the **Continue on failure** check box to specify whether to continue iterator work when an error occurs. If the check box is selected and an error occurs within any iteration, iterator skips this iteration and continues working. If an error occurs and the check box is cleared, iterator stops working.
Note: All error messages can be viewed in the **Output** view.
10. Click **OK** to close the **Iterator Parameters** window.

Managing prompts in an action group

You can create a scheduled task that runs a variety of data objects such as queries, quick reports, visual reports, and procedures containing parameters.

About this task

You use the **Manage Shared Prompts** window to define how the parameter values must be passed to the source objects specified in the task.

Note: Depending on the type of an object, parameters are represented by different elements. For queries, parameters are prompts defined for these queries. For quick reports and visual reports, parameters are prompts specified in queries on which these reports are based. For procedures, parameters are variables defined in these procedures.

You can group similar prompts used in the source objects so that all the prompts within one prompt group receive the value passed to this group. By default, there are as many groups as prompts in the source objects within the action group. Each group stores one particular prompt and borrows its name. You can move prompts between the groups. If you move the last prompt from the group, this group is removed automatically because empty groups are not allowed.

You must create an action group and populated it with execute object actions.

To manage shared prompts:

Procedure

1. In the **Scheduled Tasks** view, select the task that you want to work with and click **Edit Task**.
2. In the **Task** window, right-click an action group, and then select **Manage Prompts**.
3. From the **Available prompts** list in the **Manage Shared Prompts** window, select a prompt that you want to add to a group.
4. From the **Shared prompts** list, select a group that you want to add the prompt to.
5. Click **Add to Group**. The selected prompt is added to the prompt group.
6. To remove a prompt from a prompt group, select a prompt from the **Shared prompts** list, and then click **Detach Prompt**.
7. To rename a prompt group, select the prompt group that you want to rename, and then click **Rename prompt group**.
8. In the **Prompt Group** window, specify the name and string to display, and then click **OK**.
9. To change the order of the prompt groups in the **Shared prompts** list, select the node of the prompt group or a prompt in the group, and click **Move Prompt Group Up** or **Move Prompt Group Down**.
10. Add an iterator query for the action group and link the query columns with the parameters used in the source objects that you specified in actions within the action group.

Specifying variables for actions and action groups

You can create a scheduled task that runs a variety of data objects such as queries, quick reports, visual reports, and procedures containing parameters.

About this task

You use the **Set Variables** window to define how the parameter values must be passed to the source objects which are specified in the task. You can also use the specified parameters in actions themselves as substitution variables. For example, you can form the file system path by using parameters.

Note: Depending on the type of an object, parameters are represented by different elements. For queries, parameters are prompts defined for these queries. For quick reports and visual reports, parameters are prompts specified in queries on which these reports are based. For procedures, parameters are variables defined in these procedures.

You can set parameter values for both action groups and single actions. You can also set the iterator for the same group. The parameters provided by the single action take precedence, then goes parameter values set for the group, then parameter values set by the iterator.

To specify parameter values:

Procedure

1. In the **Scheduled Tasks** view, select the task that you want to work with and click **Edit Task**.
2. In the **Task** window, right-click the action or action group that you want to work with and select **Set Variables** from the menu. All the parameters specified for the selected data object are displayed in the list of parameters in the **Set Variables** window.

Note: If you decide to set parameter values to an action group to which you have already assigned shared prompts, the specified shared prompts are displayed instead of parameters defined in the source object.

3. To add a parameter, click **Add Variable**, and then specify its name and the value in the **Add Variable** window.
4. To edit or remove a variable, select the variable you want to edit or remove, and click **Edit Variable** or **Remove**.
5. To set the parameter value, open the **Add Variable** or **Edit Variable** window and enter either the constant value or a formula in the **Value** field. To open the **Formula Editor** window, click the ellipsis (...) next to the **Value** field.

Note: You can also set the parameter value directly in the **Set Variables** window by simply typing it in the required cell of parameters table.

6. You can change the order in which parameters are calculated by clicking **Move Up** and **Move Down**. Parameters are calculated sequentially as they appear in the list and those that have already been calculated can be used to calculate other parameters.
7. Click **OK** to close the **Set Variables** window.

Editing user credentials for scheduled tasks

You can change the user credentials for repositories, repository storages, and data sources that are used in a scheduled task.

About this task

User information, such as user name and password, is used in scheduled tasks to access repositories and data sources. The user information is changed regularly for the security reasons. To change the user credentials for one or several repositories, repository storages, or data sources, perform the following procedure:

Procedure

1. In the **Scheduled Tasks** view, select the tasks whose user credentials you want to edit and click **Task Credentials**.

The **Task Credentials** window opens.

2. To see the repository, repository storage, or data source whose user credentials need to be edited, select all check boxes on the **Specify tasks credentials** page and click **Validate**.
3. Double-click the repository, repository storage, or data source whose user name and password you want to edit.

The **User Information** window opens.

4. Specify the new user credentials for the selected object and click **OK**.

Note: If you want to change the passwords for all repositories, repository storages, or data sources that are associated with the same user, select the **Change all [ObjectName] passwords for this user** check box.

5. To ensure that the entered user information is correct, select the check boxes of the edited objects in the **Task Credentials** window and click **Validate**.
6. Click **OK**.

Copying scheduled tasks

You can add a scheduled task by copying an existing one and modifying it.

About this task

To copy a scheduled task:

Procedure

1. In the **Scheduled Tasks** view, from the **Tasks** list, select the task you want to copy and click **Copy Task**. The **Task** window opens.
Note: You can select only one task from the **Tasks** list to copy.
2. In the **Task name** field, type a name for the copied task
3. From the **Repository** list, select the repository that you want the task to access.
4. Click **Set User Information** to specify the login name and password for the repository and password for the repository storage.
5. In the **Actions** list, you can edit the actions you want to copy with the task, add, or remove them.
6. Click **OK**. The scheduled task will be copied and added to the **Tasks** list on the **Scheduled Tasks** view.

Note: The time settings of scheduled tasks execution are not copied.

Scheduling tasks

You can configure scheduled tasks to run at a specified time.

Procedure

1. In the **Scheduled Tasks** view, select the task that you want to schedule and click **Schedule Task**.
2. Specify the schedules that you want to apply to the task in the **Schedules** list.
3. To add a schedule, click **Add Schedule**.
4. To remove a schedule, which you do not need, click **Remove Schedule**.
5. Select the execution frequency of the task from the **Type of Schedule** list.
6. Specify the details in the area next to the **Type of Schedule** list. The options vary depending on the selected type of schedule.
7. To enable or disable the task execution, select or clear the **Disable task** check box.
8. Click **OK**.

Specifying email notifications for failed tasks

You can specify the email notifications that are sent to particular addresses with the debug information for failed tasks.

About this task

To specify an email notification for a particular task failure:

Procedure

1. In the **Scheduled Tasks** view, select a task to that you want to add the notification and click **Email Notification**.

2. In the **Task Notification Settings** window, select the **Send email notifications if task fails** check box.
3. Select the **Use predefined settings** option to use one of the configurations that are set globally by the administrator on the **Email** page in the **Email Notifications** area of the **Preferences** window.
 - a) Select the configuration that you want to use in the notification.
 - b) If the list is empty, you can add a global configuration by clicking **Add Settings**.
The global configuration is added and becomes available on the **Email** page in the **Email Notifications** area of the **Preferences** window.
4. Select the **Custom** option to specify the notification settings for this particular task.
5. In the **Message Properties** area, specify the following settings:
 - Select the format of the body text from the **Format** list. The available formats are Text and HTML.
 - The address to that the email must be sent in the **To** field.
 - The address to that a carbon copy of the email must be sent in the **Cc** field.
 - The address from that the email must be sent in the **From** field.
6. To specify SMTP server parameters, click **SMTP Settings**. In the **SMTP Settings** window, specify whether to use the server that is predefined by administrator or a custom one.
 - a) If you decide to use a predefined SMTP server, select the server from the list of predefined servers or click **Add Server** to create one.
 - b) If you decide to use a custom server, specify server parameters: its address and port number. If the SMTP server requires authentication, select **Use SMTP authentication**, and then specify user name and password. If it is necessary to specify extra access preferences, click **Advanced** to open the **Advanced SMTP Settings** window where you can add keywords that are supported by `javamail`. Click **OK**.
Click **OK** to close the **SMTP Settings** window.
7. Select the **Attach support data** check box if you want to send the support data in the email attachment.
8. Click **OK** to save the specified notification settings.

Exporting and importing scheduled tasks

Use the **Scheduled Tasks** view to export and import scheduled tasks.

Procedure

1. Open the **Scheduled Tasks** view.
2. To export a scheduled task, select the task that you want to export and click **Export Task**. Your web browser automatically downloads the exported scheduled task. Scheduled tasks are exported in the JDFX format.
3. To import a scheduled task, click **Import Task**.
4. In the **Open File** window, click **Browse**, navigate to the JDFX file that you want to import, and click **Open**.
5. Click **OK** to import the scheduled task and close the **Open File** window.

Using the QMF Catalogs view

Use the **QMF Catalogs** view to create and manage QMF Catalogs. QMF Catalogs are sets of database tables that contain saved objects (queries, procedures, and forms), user resource limits and profiles, reports, miscellaneous settings and information. QMF Catalogs reside on database servers that host a Db2 database. For more information about QMF Catalogs, see QMF for Workstation documentation.

Use the **QMF Catalogs** view to perform the following actions:

1. In the **QMF Catalog Name** area, see the list of available QMF catalogs. Use the **Type filter text** field to filter the list.

2. The **Label** field displays the name by which QMF client components will be able to access the list of QMF catalogs that are registered on the current QMF Server. Click **Edit Label** to change the heading.
3. To add a new QMF catalog to the list, click **Register QMF Catalog**. For more information, see [“Registering a QMF catalog” on page 105](#).

Note: For QMF client components, all registered QMF catalogs will be available as a separate connection option.

4. To rename, duplicate, or remove a QMF catalog, right-click it and select the action that you want to perform.
5. To edit a QMF catalog, right-click it and select **Properties** from the menu.

Registering a QMF catalog

Use the **Register QMF Catalog** wizard to register QMF Catalogs.

About this task

To register a QMF Catalog, complete the following steps:

Procedure

1. In the **QMF Catalogs** view, click **Register QMF Catalog**.
2. In the **QMF Catalog Name** field, specify the name for the QMF catalog.
3. In the **JDBC Driver** field, specify the library for the JDBC driver that will be used to access the database. Select an existing library from that you defined when you set up the JDBC driver information or click the **Configure libraries** to open the **JDBC Libraries** dialog, where you can create additional JDBC driver libraries.
4. In the **Host** field, specify the address of the server that hosts the QMF catalog that you want to register.
5. In the **Port** field, specify the server port that you want to use.
6. In the **Database** field, specify the name of the database that stores the QMF catalog that you want to register.
7. Optional: To manage any driver-specific connections string keywords for the repository, click **Advanced**.
8. Optional: To configure a PassTickets-based Single Sign-on connection between QMF and Db2 for z/OS database, click **Single Sign-on**.
9. Optional: If you are using the Direct DRDA Connection to connect to the QMF catalog for the first time, you must bind Direct DRDA packages. To do so, complete the following steps:
 - a) Click **Bind Packages**.
 - b) In the **Owner ID** field, enter a privileged SQLID with the necessary rights for the binding process.
 - c) Click **Install**.
10. In the **User name** and **Password** fields, specify the user credentials that are necessary to connect to the database.
11. Click **Next** to open the **Create or update catalog objects** page.

Creating or updating QMF catalog objects

Use the **Create or update catalog objects** page of the **Register QMF Catalog** wizard to choose whether the QMF catalog objects will be created or updated on the current database.

About this task

To create or update QMF catalog database objects:

Procedure

1. Open the **Create or update catalog objects** page of the **Register QMF Catalog** wizard.
2. Specify whether a set of QMF catalog tables has ever been created on the database and what kind of object names (long or short) are or will be supported by the QMF catalog that exists or will be created. Select one of the following:
 - Select **Catalog tables have already been created** if the QMF catalog tables already exist on this database and you do not want to update them. A set of catalog tables would have been created for the database when it was originally configured in either a repository or by a prior version of the application. You would select this option if you know the tables have already been created and you only want to rerun stored procedures or rebind the catalog packages.
 - Select **Create or update catalog tables to support short names** if you are registering the QMF catalog for the database that has never had QMF catalog tables installed before and you will only use short names for objects, or you are upgrading from a previous version of the application and the existing QMF catalog tables will continue to support only short names for objects. If no QMF catalog tables exist on the database, then they will be created. If you are upgrading to a new version, and a set of tables exist on the database, they will be checked and updated or added as necessary. You are given the opportunity to confirm and modify the SQL statements used to create the tables. Any data that is in the existing catalog tables is maintained.
 - Select **Create or update catalog tables to support long names** if you are registering the QMF catalog for this database for the first time and want to create a set of QMF catalog tables that use long names; you are upgrading from a previous version of the application and the existing QMF catalog tables will continue to support only long names for objects; or you want to convert the existing catalog tables that support short names to catalog tables that support long names. To select this option, the current database must support long names. If you choose to create the QMF catalog tables so that they support long names, QMF applications prior to Version 8.1 will not be able to use the long names QMF catalog tables.

If no QMF catalog tables exist on the database, then they will be created and they will support long names. If a set of QMF catalog tables that support long names are detected on the database, they will be updated or added to as necessary. If an existing set of QMF catalog tables that use short names are detected on the database, they will be converted to support long names. The database will be checked to ensure that the support for long names is available. There is no requirement to use long names in the QMF catalog tables. If the database uses long names, the QMF catalog tables can still use short names. Once converted, only 8.1 or later of QMF applications can use these QMF catalog tables.

You are given the opportunity to confirm and modify the SQL statements used to create or update the tables. Any data that is in the existing catalog tables is maintained.

3. If catalog tables have not been created, you can select the **Enable customization of database object names** check box to open a window where you can customize how database objects are named.
4. Click **Next** to open the next page of the wizard. If you selected:
 - **Catalog tables have already been created** option, the **Protect QMF Catalog tables** page of the wizard opens.
 - **Create or update catalog tables to support short names** or **Create or update catalog tables to support long names** option and you did not check the **Enable customization of database object names** check box, the **Choose object listing option** page of the wizard opens.
 - **Create or update catalog tables to support short names** or **Create or update catalog tables to support long names** option and you did check the **Enable customization of database object names** check box, the **Enter Substitution Variable Values** window opens. Enter your customized database object names in the **Value** column and click **OK**.

Note: The **Value** column of the dialog displays the default name of each database object. This gives you an opportunity to review and/or rename the objects that will be created. For example, one could preface all index names with the IX .

The **Choose object listing option** page of the wizard opens.

Creating database objects for the QMF catalog

The next step to registering a QMF catalog is to review and run the SQL that is used to create the database objects for the QMF catalog.

About this task

This step of the process is necessary only if catalog objects were created on the database or the existing catalog objects need to be updated.

To modify the SQL statements that will be used to create or update the required database objects:

Procedure

1. If you chose to create or update catalog tables, the **Choose object listing option** page of the **Register QMF Catalog** wizard opens.
2. Select an object listing option from the radio group:
 - **Include all objects** - This option includes all objects that are saved in the database, regardless of a user's ability to access them.
 - **Include only objects accessible by either the user's primary or current authorization ID**
 - **Include only objects accessible by any of the user's primary or current authorization ID**
3. Click **Next**.

The **Create objects** page of the **Register QMF Catalog** wizard opens.
4. The SQL that will be used to create or update the tables is displayed in the field. Type any changes that you want to make to the SQL statements directly in the field. You can modify any of the SQL statements to customize any parameters. You can not change the name of any of the objects. You must use a semi-colon(;) to separate multiple statements. Unless absolutely necessary, it is recommended that you run the SQL as it is displayed.

Note: You can switch the RDBI . PROFILE_VIEW to use RDBI . PROFILES or Q . PROFILES tables by specifying them in SQL. When you switch the table, you must specify correct values for the ENVIRONMENT column for each CREATOR.

 - In the existing table row for a particular CREATOR, specify <NULL> to make the creator available for both QMF for TSO and CICS and QMF for Workstation.
 - Copy the existing table row for a particular creator and replace TSO or CICS with WINDOWS. The creator is available for both QMF for TSO and CICS and QMF for Workstation.
5. Click **Next**. A QMF catalog named **Default** will be created when this step is run. The **Protect QMF Catalog tables** page of the wizard opens.

Protecting QMF catalog tables and granting user permissions

The next step to registering a QMF catalog is to specify whether the QMF catalog tables will be protected from unauthorized users and to specify the users that will have permission to access the tables.

About this task

Several tables in the QMF catalog store sensitive information that should not be available to the public. You can choose to protect the QMF catalog tables. In protection mode, the QMF catalog tables are accessed using a collection of stored procedures or SQL packages depending on what the database that is hosting the QMF catalog supports. Users of the QMF catalog must then be granted permission to run the stored procedures or static SQL packages.

To protect the QMF catalog tables:

Procedure

1. Open the **Protect QMF Catalog tables** page of the wizard.
2. To specify the type of protection that will be applied to the QMF catalog tables, select one of the following from the **Connect Using Protected Mode** radio group:
 - **Never:** You select this option to specify that no protection will be placed on the QMF catalog tables. This method will expose the QMF catalog tables to unauthorized use. With no protection the QMF catalog tables can be accessed by any user using dynamic queries. When the database administrator grants permissions to a user to access the QMF catalog that resides on the database, that permission will extend to the whole QMF catalog including the tables in the QMF catalog that store sensitive information.
 - **If possible:** You select this option to specify that the QMF catalog tables will be protected using either stored procedures or static SQL packages if they are available on the database. You will specify the users that can run the stored procedures or static SQL packages. If a set of stored procedures or static SQL packages is not available, access to the QMF catalog tables will be as if they are unprotected.
 - **Always:** You select this option to specify that the QMF catalog tables will always be protected using either stored procedures or static SQL packages. You will specify the users that can run the stored procedures or static SQL packages. If a set of stored procedures or static SQL packages is not available, the query to access the QMF catalog tables will fail.
3. If you selected **If possible** or **Always** from the **Connect Using Protected Mode** radio group, the **Protect** check box becomes available.
4. Select the **Protect** check box. The protection method options become available.
5. Select one of the following protection methods:
 - Select **Stored procedures** to specify that you will use stored procedures to protect the QMF catalog tables. You can select this option if the repository storage tables are located on one of the following databases:
 - DB2 UDB LUW V9 and above
 - DB2 iSeries (when accessed with IBM Toolbox JDBC driver)
 - Select **Static SQL packages** to specify that you will use static SQL packages to protect the QMF catalog tables. You can select this option if the repository storage tables are located on a Db2 database that you will connect to using the IBM DB2 Universal driver for JDBC.
6. Type, or select from the drop-down list, the name that you want to use to identify the collection of stored procedures or static SQL packages in the **Collection ID** field.
7. Optionally you can type the owner name in the **Owner ID** field, if you work with Db2 databases. The Owner ID provides the administrator privileges to the user who operates under the login without SYSADM authority.
8. Click **Create**. The stored procedures are created or the static SQL packages are bound. A message is issued that informs you of the success of either process. You can also use **Delete** to remove a collection of stored procedures or static packages.
9. You must specify which users will have permission to run the stored procedures or static SQL packages for the QMF catalog tables on this database. To grant permission to all users, highlight PUBLIC in the User IDs list and click **Grant**. To grant permission to specific users, type their user IDs in the field, highlight one or more of the user ID(s) and click **Grant**. A message is issued that informs you that the selected user IDs have been granted permission to run the stored procedures or static SQL packages. Optionally, you can revoke permission to run the stored procedures or SQL packages from any user that is listed in the **User IDs** list box. To revoke permission from one or more users, highlight one or more of the user IDs and click **Revoke**. A message is issued informing you that permission to run the stored procedures or static SQL packages has been revoked from the selected user IDs.
10. Click **Next**. The **Select QMF Catalog** page of the **Register QMF Catalog** wizard opens.

Selecting the QMF catalog

The last step to registering a QMF catalog is to select a QMF catalog.

About this task

To select the QMF catalog for the data source:

Procedure

1. Open the **Select QMF Catalog** page of the **Register QMF Catalog** wizard.
2. From the **Catalog** list, select the catalog that you want the current data source that you are configuring to use. You can choose one of the following types of catalogs:
 - **Default:** This is the main QMF catalog. It is created automatically as a result of running the SQL statements to create objects on the data source. All objects saved to a default catalog are saved together. The Default catalog is the only catalog that can be used by QMF for TSO/CICS and versions of QMF prior to 7.2.
 - **Extended:** Extended catalogs are extensions of the default catalog. While a data source can only host a single default QMF catalog, it can host multiple extended catalogs. Extended catalogs are useful when several data sources share one QMF catalog. Without extended catalogs, all objects would be saved into the default QMF catalog. With extended catalogs, each data source can isolate their saved objects in a particular catalog extension.
3. Optional: To create a new extended catalog that will reside on the current data source, select the **Add** icon. The **Add Catalog** window opens.
4. Optional: To edit the name or the CCSID of an existing extended QMF catalog, select the **Edit** icon. The **Edit Catalog** window opens. You can also use this window to edit the CCSID for the Default QMF catalog.
5. Optional: To delete an existing extended catalog from the current data source select the **Remove** icon. You should use caution when deleting extended catalogs as QMF for Workstation removes the extended catalog and all of its contents regardless of whether other data sources might be configured to use the extended catalog.
6. Optional: Select **Refresh List** to refresh the list of available extended catalogs in the list box.
7. If you want your users to always use the current QMF catalog when working with the current database, select the **Require the use of this catalog server when accessing the current server** check box.
8. Click **Finish**.

Using the Memory Usage view

Use the **Memory Usage** view to monitor and manage the QMF Server memory usage. The **Memory Usage** view incorporates a Garbage Collector function that reclaims memory occupied by objects that are no longer being used by the application. By running the Garbage Collector function you can improve the application performance.

To access the **Memory Usage** view, click **View > Memory Usage**.

The memory usage information is displayed in the table, which is updated every 5 seconds. When there is less than 20% of available memory left, the text in the corresponding table cell turns red. To refresh the table, click **Refresh**.

To run the Garbage Collector function, click **Run Garbage Collector**.

Using the audit system

QMF provides an audit system to collect detailed information on user actions.

The audit system covers the following categories of user actions:

- Connecting to and disconnecting from various types of repositories

- Working with **Repository Explorer** objects in QMF client components
- Working with QMF objects in QMF client components
- Using Web API
- Using repository objects in the task scheduler

Accessing audit records

The topic describes how you can access the audit system records for QMF.

About this task

Before you access the audit records, make sure the audit system is configured. For more information about setting the audit system, see [“Setting the audit system”](#) on page 10.

To access the audit records:

Procedure

1. Create a relational data source using the following URL:

```
jdbc:h2:{user.home}\Application Data\IBM\QMF
Server\Audit\audit;AUTO_SERVER=TRUE, where {user.home} depends on the account under
which the application is run.
```
2. In the **JDBC Driver** field, specify the library for the JDBC driver that will be used to access the H2 database.
3. When configuring the data source, clear the **User ID and password are required** check box in the **User Information** dialog.
4. Audit records can be found in the AUDIT.AUDIT_VIEW table that is stored in the created data source. Use QMF client components to access that table.

Note: For more information about creating relational data sources, see [“Creating a relational data source”](#) on page 46.

Reading the audit record table

This topic describes the AUDIT_VIEW table that presents all information gathered by the audit system.

To find information about how to access the AUDIT_VIEW table, see the *Accessing audit records* topic. The AUDIT_VIEW has the following content.

Column name	Description
EVENT TIME	Indicates the time of the event.
USER IP	Indicates the IP address of the system on which the action was performed.
USER LOGIN	Indicates the name of the user who connects to the repository indicated in the REPOSITORY NAME column.
REPOSITORY STORAGE	Indicates the URL of the repository storage where the specified event occurred.
REPOSITORY NAME	Indicates the name of the repository in the indicated repository storage where the specified event occurred.
OBJECT NAME	Indicates the name of the event object.
OBJECT PATH	Indicates the path to the event object.
OBJECT TYPE	Indicates the type of the event object.

<i>Table 5. AUDIT_VIEW (continued)</i>	
DATABASE	Indicates the data source that is used by the event object.
EXECUTION CONTEXT	Indicates the path to the object that runs the event object. For example, a path to a procedure or visual dashboard.
DURATION	Indicates the time to process the specified event.
CATEGORY	Indicates the subsystem where the specified event occurred.
EVENT TYPE	Indicates the event type.
ERROR CODE	Indicates the code of the error that occurred during the specified event. The complete list of error messages is provided in Appendix D. Messages in the <i>Installing and managing Db2 QMF for Workstation and Db2 QMF for WebSphere</i> <i>Installing and managing IBM QMF Analytics for Multiplatforms</i> publication.
ROWS FETCHED	Indicates the number of rows retrieved by an SQL query against the database.
ROWS UPDATED	Indicates the number of rows affected by an UPDATE or INSERT SQL query against the database.
DATABASE LOGIN	Indicates the login of the user who connects to the data source indicated in the DATABASE column.
SQL TEXT	Provides access to the text of an executed SQL query. Double-click the <LOB locator> to view the SQL text.
QUERY TYPE	Indicates the type of an executed query.
RESULT	Indicates whether the specified event was successful or failed.

To find the descriptions of the tables that contribute to the AUDIT_VIEW table, see [“Auxiliary audit record tables”](#) on page 111.

Auxiliary audit record tables

This topic describes the structure of the auxiliary audit record tables that contribute to the formation of the AUDIT_VIEW table.

To find information about how to access the tables that store data gathered by the audit system, see the *Accessing audit records* topic. Under the AUDIT schema, you can find the following auxiliary audit record tables.

- The AUDIT_RECORDS is the basic table that provides information for the AUDIT_VIEW table. It has the following content:

<i>Table 6. AUDIT_RECORDS</i>	
Column name	Description
ID	Record ID
EVENT TIME	Indicates the time of the event.

Table 6. AUDIT_RECORDS (continued)	
USER IP	Indicates the IP address of the system on which the action was performed.
USER LOGIN	Indicates the name of the user who connects to the repository indicated in the REPOSITORY NAME column.
REPOSITORY STORAGE	Indicates the URL of the repository storage where the specified event occurred.
REPOSITORY NAME	Indicates the name of the repository in the indicated repository storage where the specified event occurred.
OBJECT NAME	Indicates the name of the event object.
OBJECT PATH	Indicates the path to the event object.
OBJECT TYPE	Indicates the type of the event object.
DATABASE	Indicates the data source that is used by the event object.
EXECUTION CONTEXT	Indicates the path to the object that runs the event object. For example, a path to a procedure or visual dashboard.
DURATION	Indicates the time to process the specified event.
CATEGORY	Indicates the ID of the subsystem where the specified event occurred according to the EVENT_CATEGORY table.
EVENT TYPE	Indicates the event type ID according to the EVENT_TYPES table.
ERROR CODE	Indicates the code of the error that occurred during the specified event. The complete list of error messages is provided in Appendix D. Messages in the <i>Installing and managing Db2 QMF for Workstation and Db2 QMF for WebSphere</i> <i>Installing and managing IBM QMF Analytics for Multiplatforms</i> publication.
ROWS FETCHED	Indicates the number of rows retrieved by an SQL query against the database.
ROWS UPDATED	Indicates the number of rows affected by an UPDATE or INSERT SQL query against the database.
DATABASE LOGIN	Indicates the login of the user who connects to the data source indicated in the DATABASE column.
SQLTEXTID	Indicates the ID of the row with the text of the executed SQL query according to the AUDIT_RECORDS_SQL table.
QUERY TYPE	Indicates the ID of the executed query type according to the QUERY_TYPE table.
RESULT	Indicates the ID of the specified event result according to the EVENT_RESULTS tables.

- The EVENT_TYPES table that provides data for the **EVENT TYPE** column of the AUDIT_RECORDS table and contains the following content:

<i>Table 7. EVENT_TYPES</i>	
ID	NAME
1	READ
2	LOGOUT
3	DELETE
4	ENUMERATE
5	CREATE
6	UPDATE
7	RUN
8	LOGIN

- The EVENT_CATEGORIES table that provides data for the **CATEGORY** column of the AUDIT_RECORDS table contains the following content:

<i>Table 8. EVENT_CATEGORIES</i>	
ID	NAME
1	REPOSITORY
2	SECURITY

- The EVENT_RESULTS table that provides data for the **RESULT** column of the AUDIT_RECORDS table and contains the following content:

<i>Table 9. EVENT_RESULTS</i>	
ID	NAME
1	SUCCESS
2	FAILED
3	ACCESS DENIED
4	CANCELED

- The EVENT_OBJECT_TYPES table provides data for the **OBJECT TYPE** column of the AUDIT_RECORDS table and has the following structure:

<i>Table 10. EVENT_OBJECT_TYPES table structure</i>	
Column name	Description
ID	Object type ID
NAME	Object type name

- The QUERY_TYPES table provides data for the **QUERY TYPE** column of the AUDIT_RECORDS table and contains the following content:

<i>Table 11. QUERY_TYPES</i>	
ID	NAME
1	RENAME
2	ALTER
3	CALL

<i>Table 11. QUERY TYPES (continued)</i>	
4	SET
5	CREATE
6	REVOKE
7	REFRESH
8	LOCK
9	SELECT
10	COMMENT
11	DROP
12	ACQUIRE
13	DELETE
14	GRANT
15	EXPLAIN
16	LABEL
17	INSERT
18	UPDATE
19	UNKNOWN

- The AUDIT_RECORDS_SQL table provides data for the **SQLTEXTID** column of the AUDIT_RECORDS table and has the following structure.

<i>Table 12. AUDIT_RECORDS_SQL table structure</i>	
Column name	Description
ID	SQL statement ID
SQLTEXT	SQL statement text presented as LOB

Appendix A. Accessibility

Software accessibility features help those with physical disabilities, such as restricted mobility or limited vision, use their computers.

Standard keyboard navigation

Keyboard navigation refers to using keys instead of a mouse to move from item to item on your screen.

The movement is usually in the order specified by the operating system or your application. QMF applications follow the standards with regard to the typical keys used for keyboard navigation such as using **TAB** and **SHIFT+TAB** to move between controls, and arrow keys to move up, down, and sideways between items.

Operating system accessibility

Most operating systems have a set of accessibility options that enable individuals with disabilities to customize system-wide settings.

QMF applications:

- Inherit their settings from the operating system
- Do not interfere with keyboard accessibility features built into the operating system

Assistive technology products

QMF applications support assistive technology products, such as screen readers and voice synthesizers.

Each QMF application interface requires special navigation when using a screen reader with query results. See [“Navigation in QMF Server”](#) on page 115 for more information.

Navigation in QMF Server

The following table shows how to accomplish various tasks using keystrokes.

To:	Process:
Move focus through each element	Press TAB to move forward or SHIFT+TAB to move in the opposite direction.
Emulate clicks on a button	Use the TAB key to jump from button to button, then press Space or Enter key to activate the button.
Within a dialog, activate the default action	Press the Enter key.
Within a dialog, cancel the action	Press the ESC key.
Move focus to the main menu	Press the left ALT key. Navigate through the menu commands using the arrow keys or use the keys that correspond to the underscored letters in the names of menu items.
Open context menus	Press the pop-up menu key if you have an extended keyboard. Press the right Ctrl key. Navigate through the menu commands using the arrow keys.
Switch between open views	Press Shift+Ctrl+F7

Appendix B. Customizing QMF objects

This topic gives examples of the SQL that is used to create the QMF objects. It also describes some modifications that you might make to the SQL.

Sample generated SQL

This example shows the SQL that can be generated to create required database objects; this SQL is proposed and it can be modified

You can edit the SQL. For example:

```
CREATE NODEGROUP RDBING1 ON NODE (0);
CREATE NODEGROUP RDBING2 ON NODE (0);
CREATE REGULAR TABLESPACE RDBITSSC
  IN NODEGROUP RDBING1
  MANAGED BY SYSTEM USING('RDBITSSC');
CREATE TABLE RDBI.AUTHID_TABLE
(
  PRIMARY_ID CHAR(8) NOT NULL,
  SECONDARY_ID CHAR(8) NOT NULL
)
  IN RDBITSSC
  PARTITIONING KEY (SECONDARY_ID) USING HASHING
;
COMMENT ON TABLE RDBI.AUTHID_TABLE
  IS 'Secondary authorization ID table FOR RDBI';
```

Listing physical and logical files for iSeries

You can list physical and logical files for iSeries from the **Create Objects**

Follow these steps to list iSeries physical and logical files:

1. On the **Create Objects** page, scroll down to the following statement:

```
CREATE VIEW RDBI.TABLE_VIEW2
```

2. In the "CREATE" statement, modify the "WHERE" clause by adding a 'P' for physical files and an 'L' for logical files. For example:

```
WHERE A.TABLE_TYPE IN ('T','V','P','L')
```

3. Click **OK** to create the object.

Granting EXECUTE privilege for iSeries

You can use the built-in stored procedure **QSYS.QCMDEXC()** to grant the EXECUTE privilege for iSeries libraries.

If the built-in stored procedure **QSYS.QCMDEXC()** is registered on the target server, QMF finds it at runtime and invokes it either explicitly when QMF generates SQL DDL scripts during installation, or implicitly when binding static packages or creating stored procedures depending upon the selected protection method, stored procedures or static SQL packages.

If the built-in stored procedure **QSYS.QCMDEXC()** is not registered on the target server, then QMF does not invoke it at all. However, the libraries RSBI, Q, RDBI, and the library where QMF stored procedures or static SQL packages are created may not be granted the proper privileges. In this case, the database administrator must perform the following grant privilege operations for iSeries libraries:

- GRTOBJAUT OBJ(RSBI) OBJTYPE(*LIB) USER(*PUBLIC) AUT(*EXECUTE);

- GRTOBJAUT OBJ(Q) OBJTYPE(*LIB) USER(*PUBLIC) AUT(*EXECUTE);
- GRTOBJAUT OBJ(RDBI) OBJTYPE(*LIB) USER(*PUBLIC) AUT(*EXECUTE);
- GRTOBJAUT OBJ(QFWPKG) OBJTYPE(*LIB) USER(*PUBLIC) AUT(*EXECUTE);

where QFWPKG is the library of QMF stored procedures or static SQL packages.

Object views

Object views determine how lists are built.

The following views are created when objects are created:

- RDBI.TABLE_VIEW
- Q.RAA_OBJECT_VIEW

You can alter these views when you install QMF to tailor the list building. These views differ based on the Db2 platform.

Lists for the extended catalog are built by the views that are created when you select the Create Objects option. For queries, forms, and procedures, the view Q . RAA_OBJECT_VIEW_X is the key and it interacts with other views and tables.

Q.RAA_OBJ_DIR_X

Look at the catalog_ids and owner names in Q.RAA_OBJ_DIR_X and display or fail to display each object based on the conditions below.

"Yes" to any of the following questions causes the query, procedure or form to be displayed in the list:

1. Does the object owner match the current user ID?
2. Does the object owner match the current SQLID?
3. Does the object owner match the secondary authorization ID of the current user ID having the same catalog ID?
4. Is the object SHARED? (Restricted = N)
5. Is the user a SYSADM having the same catalog_ID?

RDBI.USER_ADMIN_VIEW_X

This view determines whether the user or a secondary authorization ID of the user is a SYSADM.

It checks RDBI.ADMIN_VIEW and RDBI.CATALOG_DIR_X for:

- The current user ID or SQLID
- Secondary authorization ID of the current user having the same catalog_ID in RDBI.CATALOG_DIR_X

RDBLUSER.USER_AUTHID_VIEW_X

This view retrieves all rows from the base table RDBI.AUTHID_VIEW_X, where the primary ID is that of the current user. It will list all secondary authorization IDs for the current user.

RDBLADMIN_VIEW

This view obtains a list of GRANTEE's from the base table SYSIBM.SYSUSERAUTH. It takes GRANTEE's who have been granted G or Y for SYSADMAUTH.

RDBI.CATALOG_DIR_X

This table contains all rows of internal identifier of the distinct catalog and name of the distinct catalog.

RDBI_AUTHID_VIEW_X

This table copies all rows from the base table RDBI.AUTHID_TABLE_X.

SYSIBM.SYSUSERAUTH

This table contains the SYSUSERAUTH information.

RDBI_AUTH_TABLE_X

A base table listing primary and secondary authorization IDs. This table must be populated by the system or database administrator. QMF for Workstation does not have access to the preexisting RACF/Db2 relationships during or after installation, unless they are stored in a custom Db2 table of the administrator's design.

Q.RAA_OBJECT_VIEW_X

For queries, forms, and procedures, the view Q.RAA_OBJECT_VIEW_X is the key and it interacts with the other views and tables, as shown below.

Note: This view is for the Object Listing Option:

"Include only those objects that any of the user's primary or secondary authorization IDs are authorized to access. This option requires the most database resources when producing lists."

The following SQL statements create this view:

```
CREATE VIEW Q.RAA_OBJECT_VIEW_X
(
    CATALOG_ID,
    OWNER, NAME, TYPE, SUBTYPE, OBJECTLEVEL, RESTRICTED, MODEL,
    REMARKS
    DELETED_BY_USER, DELETED_BY_SQLID, DELETED_TIMESTAMP
)
AS
SELECT A.CATALOG_ID,
    A.OWNER, A.NAME, A.TYPE, A.SUBTYPE,
    A.OBJECTLEVEL, A.RESTRICTED, A.MODEL,
    B.REMARKS,
    A.DELETED_BY_USER, A.DELETED_BY_SQLID, A.DELETED_TIMESTAMP
FROM Q.RAA_OBJ_DIR_X A, Q.RAA_OBJ_REM_X B
WHERE (A.CATALOG_ID = B.CATALOG_ID AND
    A.OWNER = B.OWNER AND
    A.NAME = B.NAME AND
    A.DELETED_TIMESTAMP IS NULL AND B.DELETED_TIMESTAMP IS NULL)
AND (A.RESTRICTED = 'N'
    OR A.OWNER IN (USER, CURRENT SQLID)
    OR A.OWNER IN (SELECT C.SECONDARY_ID
        FROM RDBI_USER_AUTHID_VIEW_X C
        WHERE C.CATALOG_ID = A.CATALOG_ID)
    OR EXISTS (SELECT D.AUTHID
```

```
FROM RDBI.USER_ADMIN_VIEW_X D
WHERE D.CATALOG_ID = A.CATALOG_ID))
```

RDBI.USER_ADMIN_VIEW_X

These SQL statements create the RDBI.USER_ADMIN_VIEW_X table.

```
CREATE VIEW RDBI.USER_ADMIN_VIEW_X
(
    CATALOG_ID,
    "AUTHID"
)
AS
SELECT B.ID, A."AUTHID"
FROM RDBI.ADMIN_VIEW A, RDBI.CATALOG_DIR_X B
WHERE A."AUTHID" IN (USER, CURRENT SQLID)
    OR A."AUTHID" IN (SELECT C.SECONDARY_ID
                      FROM RDBI.USER_AUTHID_VIEW_X C
                      WHERE B.ID = C.CATALOG_ID)
```

RDBI.USER_AUTHID_VIEW_X

These SQL statements create the RDBI.USER_AUTHID_VIEW_X table.

```
CREATE VIEW RDBI.USER_AUTHID_VIEW_X
(
    CATALOG_ID,
    PRIMARY_ID,
    SECONDARY_ID
)
AS
SELECT A.CATALOG_ID, A.PRIMARY_ID, A.SECONDARY_ID
FROM RDBI.AUTHID_VIEW_X A
WHERE A.PRIMARY_ID = USER
```

RDBI.ADMIN_VIEW

These SQL statements create the RDBI.ADMIN_VIEW table.

```
CREATE VIEW RDBI.ADMIN_VIEW
(
    "AUTHID"
)
AS
SELECT A.GRANTEE
FROM SYSIBM.SYSUSERAUTH A
WHERE A.SYSADMAUTH IN ('Y', 'G')
```

RDBI.CATALOG_DIR_X

These SQL statements create the RDBI.CATALOG_DIR_X table.

```
CREATE TABLE RDBI.CATALOG_DIR_X
(
    ID SMALLINT NOT NULL
    NAME VARCHAR (128) NOT NULL
)
IN RDBIDBX.RDBITSX1
CCSID EBCDIC
```

RDBI.AUTHID_VIEW_X

These SQL statements create the RDBI.AUTHID_VIEW_X table.

```
CREATE VIEW RDBI.AUTHID_VIEW_X
(
    CATALOG_ID,
    PRIMARY_ID,
    SECONDARY_ID
)
```

```
AS
SELECT A.CATALOG_ID, A.PRIMARY_ID, A.SECONDARY_ID
FROM RDBI.AUTHID_TABLE_X A
```

RDBI.AUTHID_TABLE_X

These SQL statements create the RDBI.AUTHID_TABLE_X table.

```
CREATE TABLE RDBI.AUTHID_TABLE_X
(
  CATALOG_ID SMALL INT NOT NULL,
  PRIMARY_ID CHAR (8) NOT NULL,
  SECONDARY_ID CHAR (8) NOT NULL
)
IN RDBIDBX.RDBITSX
CCSID EBCDIC
```

Note: This table must be populated by the system or database administrator. QMF for Workstation does not have access to the pre-existing RACF/Db2 relationships during or after installation.

For other tables, the view RDBI.TABLE_VIEW2_X is the key and interacts with the other views and tables, as shown below.

RDBI.TABLE_VIEW2_X

RDBI.TABLE_VIEW2_X constructs a list of tables. First, it checks for tables listed in the base table SYSIBM.SYSTABAUTH. All tables in SYSIBM.SYSTABAUTH have, by definition, already had some type of authority granted to at least one user.

SYSIBM.SYSTABAUTH must answer "Yes" to one of the following questions:

1. Is the GRANTEE = the current user?
2. Is the GRANTEE = the current SQLID?
3. Is the GRANTEE = PUBLIC?
4. Is the GRANTEE = PUBLIC*?
5. Is the GRANTEE = a secondary authorization ID of the current USER having the same catalog_ID?
6. Is the user a SYSADM having the same catalog_ID?

The table must have one of the following GRANTEE types:

- ''
- U
- G

The GRANTEE of the table must have Y or G authority on one of the following four categories:

- DELETEAUTH
- INSERTAUTH
- SELECTAUTH
- UPDATEAUTH

RDBI.USER_ADMIN_VIEW_X

This view determines whether the user or a secondary user ID of the user is a SYSADM.

It checks the RDBI.ADMIN_VIEW and RDBI.CATALOG_DIR_X for:

- The current user ID
- Secondary user ID of the current user having the same catalog ID

RDBI.USER_AUTHID_VIEW_X

This view retrieves all rows from the base table RDBI.AUTHID_VIEW_X where the primary ID is that of the current user. It will list all secondary authorization IDs for the current user.

RDBI.ADMIN_VIEW

This view retrieves a list of GRANTEEES from the base table SYSIBM.SYSUSERAUTH. It takes GRANTEEES who have been granted G or Y for SYSADMAUTH.

Note: If you are setting up under an iSeries database, the RDBI.ADMIN_VIEW refers to the RDBI.ADMIN_TABLE.

RDBI.AUTHID_VIEW_X

This view copies all rows from the base table RDBI.AUTHID_TABLE_X.

RDBI.AUTHID_TABLE_X

A base table listing catalogued, and primary and secondary authorization IDs.

Note: This table must be populated by the system or database administrator. QMF for Workstation does not have access to the pre-existing RACF/Db2 relationships during or after installation, unless they are stored in a custom Db2 table of the administrator's design.

Also, for tables, the view RDBI.TABLE_VIEW2_X is the key and interacts with the other views and tables, as shown below.

RDBI.ADMIN_TABLE

A base table used exclusively by iSeries databases that lists user IDs with administrative privileges.

Note: This table must be populated by the system or database administrator. This table takes the place of the base RDBI.AUTHID_TABLE for Db2 databases.

Also, for tables, the view RDBI.USER_ADMIN_VIEW and RDBI.USER_ADMIN_VIEW_X are the keys and interact with the other views and tables, as shown below.

RDBI.USER_ADMIN_VIEW_X

The following SQL statements create the RDBI.USER_ADMIN_VIEW_X table.

```
CREATE VIEW RDBI.USER_ADMIN_VIEW_X
(
    CATALOG_ID,
    "AUTHID"
)
AS
SELECT B.ID, A."AUTHID"
FROM RDBI.ADMIN_VIEW A, RDBI.CATALOG_DIR_X B
WHERE A."AUTHID" IN (USER, CURRENT SQLID)
    OR A."AUTHID" IN (SELECT C.SECONDARY_ID
                     FROM RDBI.USER_AUTHID_VIEW_X C
                     WHERE B.ID = C.CATALOG_ID)
```

RDBI.USER_AUTHID_VIEW_X

These SQL statements create the RDBI.USER_AUTHID_VIEW_X table.

```
CREATE VIEW RDBI.USER_AUTHID_VIEW_X
(
    CATALOG_ID,
    PRIMARY_ID,
    SECONDARY_ID
)
AS
SELECT A.CATALOG_ID, A.PRIMARY_ID, A.SECONDARY_ID
```

```
FROM RDBI.AUTHID_VIEW_X A
WHERE A.PRIMARY_ID = USER
```

RDBL.ADMIN_VIEW

These SQL statements create the RDBL.ADMIN_VIEW table.

```
CREATE VIEW RDBI.ADMIN_VIEW
(
  "AUTHID"
)
AS
SELECT A.GRANTEE
FROM SYSIBM.SYSUSERAUTH A
WHERE A.SYSADMAUTH IN('Y', 'G')
```

RDBI.AUTHID_VIEW_X

These SQL statements create the RDBI.AUTHID_VIEW_X table.

```
CREATE VIEW RDBI.AUTHID_VIEW_X
(
  CATALOG_ID,
  PRIMARY_ID,
  SECONDARY_ID
)
AS
SELECT A.CATALOG_ID, A.PRIMARY_ID, A.SECONDARY_ID
FROM RDBI.AUTHID_TABLE_X A
```

RDBI.AUTHID_TABLE_X

These SQL statements create the RDBI.AUTHID_TABLE_X table.

```
CREATE TABLE RDBI.AUTHID_TABLE_X
(
  CATALOG_ID SMALLINT NOT NULL,
  PRIMARY_ID CHAR (8) NOT NULL,
  SECONDARY_ID CHAR (8) NOT NULL
)
IN RDBIDBX.RDBITSX2
CCSID EBCDIC
```

Note: This table must be populated by the system or the database administrator. QMF for Workstation does not have access to the pre-existing RACF/Db2 relationships during or after installation.

RDBI.ADMIN_TABLE

These SQL statements create the RDBI.ADMIN_TABLE table for iSeries support.

QMF long name catalog support:

```
CREATE TABLE "RDBI"."ADMIN_TABLE"
(
  "AUTHID" VARCHAR(128) NOT NULL
)
;
COMMENT ON TABLE "RDBI"."ADMIN_TABLE"
IS 'Administrator authorization ID table for RDBI';
COMMENT ON COLUMN "RDBI"."ADMIN_TABLE"."AUTHID"
IS 'Authorization ID (user ID)';
```

QMF short name catalog support: The only difference is that VARCHAR(128) changes to VARCHAR(8):

```
CREATE TABLE "RDBI"."ADMIN_TABLE"
(
  "AUTHID" VARCHAR(8) NOT NULL
)
;
COMMENT ON TABLE "RDBI"."ADMIN_TABLE"
```

```
IS 'Administrator authorization ID table for RDBI';  
COMMENT ON COLUMN "RDBI"."ADMIN_TABLE"."AUTHID"  
IS 'Authorization ID (user ID)';
```

Note: This table must be populated by the iSeries system or database administrator.

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Glossary

The glossary provides brief descriptions of product terms.

accessibility

Features that help those with physical disabilities, such as restricted mobility or limited vision, use their computer.

command bar

An interface that allows you to run procedure commands directly from the QMF for Workstation interface.

data sources

Data sources allow you to create virtual tables that can be edited and manipulated by users without altering the original tables' content. Virtual data sources work by introducing a metadata layer which mediates between an administrator-defined, virtual data source and the underlying data sources that contain the physical tables and views.

Expression Designer

The Expression Designer is used to specify any property value that is associated with a selected object. The Expression Designer is an alternative way of specifying an object's properties. For each property that can be specified for an object, you are given templates that can help you format the value of that property. In addition, you have more space available to work and view your property value (which can grow quite large if expressions are used).

file-based repositories

If you are using QMF for Workstation, you can create a file repository connection to set up the information that enables you to connect to a file-based repository that is stored on a local or network drive. File connections can only be created for legacy, file-based repositories.

formatting options

You can customize how the query results will appear in the editor window. You can specify different fonts, colors and text alignments for each column heading and each cell of the column. You can also specify that column and cell formatting be applied based on the results of a conditional expression. You can apply formatting options to entire columns, individual cells, column headings, and summary cells.

global variables

Global variables are variables that stay active while the current session of QMF for Workstation/WebSphere is active. This is in contrast to substitution variables that are active only during the execution of an object (query, procedure, form). For objects that use global variables, the value currently defined for the global variable is used.

JDBC drivers

QMF for Workstation/WebSphere uses JDBC to connect to all database repositories and data sources. QMF for Workstation/WebSphere does not include JDBC drivers. The location of the JDBC drivers that QMF for Workstation/WebSphere will use to connect to repositories and data sources must be defined.

QMF for Workstation/WebSphere administrators are responsible for identifying where each instance of the application interface will find the JDBC drivers.

task scheduler

QMF for Workstation/WebSphere has the ability to schedule procedures, queries, quick reports, and visual reports to be executed on a periodic, recurring basis or at a specific date and time. You can schedule your object to run at any given time using your local scheduler or the QMF for WebSphere scheduler.

LOB data

A large object (LOB) is a Db2 for Linux, UNIX®, and Windows data type that houses nontraditional data such as text, multimedia, image, video, photograph, sound, or any very large data file inside a database table. Retrieving or saving LOB data can consume a substantial amount of resources.

QMF catalogs

A set of database tables that contain saved objects (queries, procedures and forms); user resource limits and profiles; reports; and other miscellaneous settings and information. QMF catalogs reside on database servers that host a Db2 database.

resource limits

QMF for Workstation/WebSphere resource limits control your data source access and resource consumption. You must be connected to the data source in order to view the resource limits that are in effect for your user ID when you access that data source.

scheduled tasks

You can schedule your procedure, query, quick report, or visual report to run at any given time using your local scheduler or the QMF for WebSphere scheduler. Objects that have been scheduled to run at another time are referred to as scheduled tasks.

shared repositories

Shared repositories are located on a database and can be shared by many users. Only QMF for Workstation/WebSphere administrators can create shared repositories.

static SQL packages

Several tables in repository storage are used by QMF to store processing information. Some of these tables store sensitive information, for example the permissions table. By default all users can access these repository storage tables and make changes to the tables. You can choose to protect the repository storage tables. In protection mode, the repository storage tables are accessed using a collection of stored procedures or static SQL packages depending on what the database that is hosting the repository storage supports. Users of the repository storage must then be granted permission to run the stored procedures or static SQL packages.

user preferences

The **Preferences** dialog is used to set user preferences that will apply to specific functions in the current QMF for Workstation/WebSphere application interface session. The **Preferences** dialog consists of two panes. The left pane displays a hierarchical tree to organize the preferences and the right pane displays the pages of actual preference values.

views

QMF for Workstation/WebSphere views support editors and provide alternative presentations as well as ways to navigate the information in your window. Each view displays as a pane in the main workstation window. Each perspective of QMF for Workstation/WebSphere initially displays the views that are most commonly used to perform specific functions.

workspaces

All of the data sources and objects that you can access are contained in one or more workspaces that have been pre-populated for you by the QMF for Workstation/WebSphere administrator. Each workspace to which you have access is listed in the Workspaces view. From the Workspaces view, you can perform the majority of query and reporting functions.

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