IBM

IBM MQSeries Workflow

Getting Started with Runtime

Version 3.2

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> **Note!**
>
> Before using this information and the product it supports, be sure to read the general information under
> "Appendix. Notices" on page 29.

Contents

About this book

This book introduces you to the Client component of IBM MQSeries (R) Workflow, hereafter referred to as MQ Workflow. It describes some of the tasks you can carry out with the Client to run your workflow.

This book does not contain an overview of all the MQ Workflow components or how to install them. For a list of additional publications that describe other components of MQ Workflow, refer to "MQ Workflow publications" on page 39.

Who should read this book

Read this book if you want to know:

- How to use worklists to ensure timely completion of your work
- How to use process instance lists to manage the workflow in your organization

If you want to get familiar with the concepts of workflow and the architecture of MQ Workflow, see the *IBM MQSeries Workflow: Concepts and Architecture*.

Conventions and terminology used in this book

Convention used	How it is used
Book titles are shown in italics.	*IBM MQSeries Workflow: Concepts and Architecture*
Menu-bar choices and push buttons are shown in bold.	Click **OK**.
Variables are shown in italics. Important information is also shown in *italics*.	The program *program name* is assigned to the activity.
	This symbol flags suggestions, important hints, and practical techniques.

How to get additional information

Visit the MQSeries Workflow home page at
http://www.software.ibm.com/ts/mqseries/workflow

For a list of additional publications, refer to "MQ Workflow publications" on
page 39.

How to send your comments

Your feedback is important in helping to provide the most accurate and
high-quality information. If you have any comments about this book or any
other MQSeries Workflow documentation, use one of the following methods:

- Send your comments by e-mail to: swsdid@de.ibm.com

  Be sure to include the name of the book, the part number of the book, the
  version of MQSeries Workflow, and, if applicable, the specific location of
  the text you are commenting on (for example, a page number or table
  number).

- Fill out one of the forms at the back of this book and return it by mail, by
  fax, or by giving it to an IBM representative.

Part 1. Getting Started with Runtime

Chapter 1. Introducing MQ Workflow

With MQ Workflow you can design, refine, document, and control your business processes. MQ Workflow assists you in daily business operations, in planning and management, and also in the design of applications tailored to your business. With MQ Workflow you can:

- Define and document your processes
- Run your processes to manage the workflow in your organization

MQ Workflow is a client/server system and the Client is the component that you use to run your business processes.

Modeling processes with MQ Workflow Buildtime

The first stage of using MQ Workflow is to build a workflow model representing the 'real' processes of your enterprise. Process models define, for example:

- Work items in the process and the order in which they occur
- Staff assigned to manage and perform each work item
- Process-relevant data used in each work item and passed to subsequent ones
- Programs needed to perform work items
- Conditions for starting and ending each work item
- Maximum duration of each work item and process

This information can also be defined using the Workflow Definition Language of MQ Workflow (FDL).

Running processes with the MQ Workflow Client

A modeler defines the workflow model with Buildtime using a graphical user interface. When the model is completed, it must be exported from Buildtime and imported into Runtime. A process model must then be imported and translated into a Runtime *process template*. Before you can actually work with your processes using the Client, you must create a runnable copy of a process template. Such a copy is called *process instance*, which you can then start.

Once an authorized person starts a process instance, MQ Workflow maintains the worklists of the people to whom work items are assigned. Each person's worklist receives all assigned and ready work items in all running process instances.

When a person starts a work item, MQ Workflow starts a program if this is specified in the process model. MQ Workflow can also pass any necessary data to the program. The person then generally interacts with the program to perform the work item. Work items can also be defined to start automatically.

When a work item is finished, MQ Workflow adds the next work item in the process to the worklists of all eligible people. Authorized people can intervene to suspend, resume, stop, and restart process instances. The icons of process instances change their appearance to show different types of status information as work flows through the process.

For detailed information about modeling your processes and importing them into Runtime, see *IBM MQSeries Workflow: Getting Started with Buildtime*.

Chapter 2. The steps to running a process

This chapter provides an overview of the main tasks you can perform using the MQ Workflow Client. For more details about the tasks, see the relevant chapters and use the online information that is given for each task.

Starting a process

You can start a process in one of the following ways:
- Create a process instance from a process template.
- Start a process activity on a worklist.
- A program you are running determines a process needs starting. In this case, MQ Workflow creates a process instance from a process template and starts the process.

When you start a process instance, MQ Workflow routes activities that can be started to users according to the staff assignments in the process model. The activities are placed in **ready** status.

Program and process activities appear on worklists of eligible users or are automatically started for the first time, depending on definition. For details, see "Identifying type and status of work items" on page 15.

Activities that are not started automatically must be started manually by one of the eligible users. Blocks do not appear on worklists; only the start activities within them do as they become ready. For details, see "Starting a work item on a worklist" on page 13.

Starting and ending activities

When a program activity starts, the program specified in the program registration begins. When a process activity starts, the process template is instantiated and the process instance is started, with the calling process as parent process. The process instance appears in the **Process Instances** window.

For both program and process activities, the status of the activity changes from **ready** to **running**. A block is always started automatically.

Activities run as follows:

- The program assigned to a program activity is run
- The subprocess assigned to a process activity is run
- The activities in a block that must run for the process instance are run

If an exit condition for the activity is specified, it is evaluated as follows:
- If the exit condition evaluates to true, the activity ends (either automatically or manually), and the status of the activity changes to **finished**.
- If the exit condition evaluates to false, the activity returns to **ready** status.

When an activity is finished, control connectors originating from it are processed and the next activity in the process becomes **ready**.

Suspending and resuming a process

You can suspend a running process and its activities must have the status **ready** or **running**. Whenever it is appropriate, you can resume the suspended process.

Terminating and restarting a process

You can terminate a process with the status of **running** or **suspended**. All activities in a terminated process are automatically **force-finished**. You can also delete or restart a terminated process. When you restart a terminated process, the process starts from the beginning, that is, from the first activity in the process.

Notified activities and processes

In Buildtime, the process modeler can specify a maximum duration for a process and the individual activities in it. For example, a certain activity could be limited to one day and the entire process to four days. If an activity is not completed in the specified duration, a notification icon is sent to a specified user's worklist. If this user does not act on the notification in a period also specified in Buildtime, then a second notification icon is sent to the administrator's worklist. If a process itself becomes overdue, a process notification is sent to the worklist of the administrator.

Process completion

A process ends when there are no activities with a status of **ready**, **suspended**, or **running**. A process that has completed successfully is shown with the status **finished** in the **Processes Instances** window.

Chapter 3. Working with the Client

This chapter describes some of the tasks you can do when you use the MQ Workflow Client. Information is provided about the following:

- What you can do with the Client
- Using the Client interface
- Logging on and starting the Client
- Getting help

What you can do with the Client

When you work with the MQ Workflow Client, you can perform the following tasks on worklists:

- Start activities on a worklist
- Select how to filter and sort items in worklists
- Create and delete worklists
- Force a change to the status of an activity
- Work on notified activities and processes
- Delete finished activities
- Monitor the progress of activities within a process instance

In addition to using worklists, you can intervene in the workflow and for example, change the status of an activity.

You can also work with process templates, which represent the workflow model created by a modeler in Buildtime. To start a process, you can create a process instance from a template as explained in "Running processes with the MQ Workflow Client" on page 3.

Starting the Client

Before you start the Client, check with the person who is responsible for your MQ Workflow installation how the system is set up for you.

To start the Client and to display the **Logon** window, do the following:

1. On the **Start** menu, click **Programs**
2. Click **MQSeries Workflow**.
3. Then click **MQSeries Workflow Client**

The **Logon** window appears.

The alternatives for you to log on to the Client are as follows:

- Depending on your MQ Workflow server installation, you can use unified logon for the MQ Workflow Client in the Windows environment.
- Enter your user ID and your password.

  You do not have to enter the default system or the system group.

  For your initial logon, consult your administrator to find out what to enter in the fields.

Using the Client interface

When you first start the Client, you see the **Tree View** window as shown in Figure 1 on page 9.

The **Tree View** contains the following:

- System Group / System – *userid*

  This shows you the default System Group, System and your user ID with which you are logged on.
- Process Template Lists

  This contains all process template lists that are available.
- Process Instance Lists

  This contains all process instance lists that available.
- Worklists

  This contains all worklists that are available.

You can collapse or expand the objects listed in the tree.
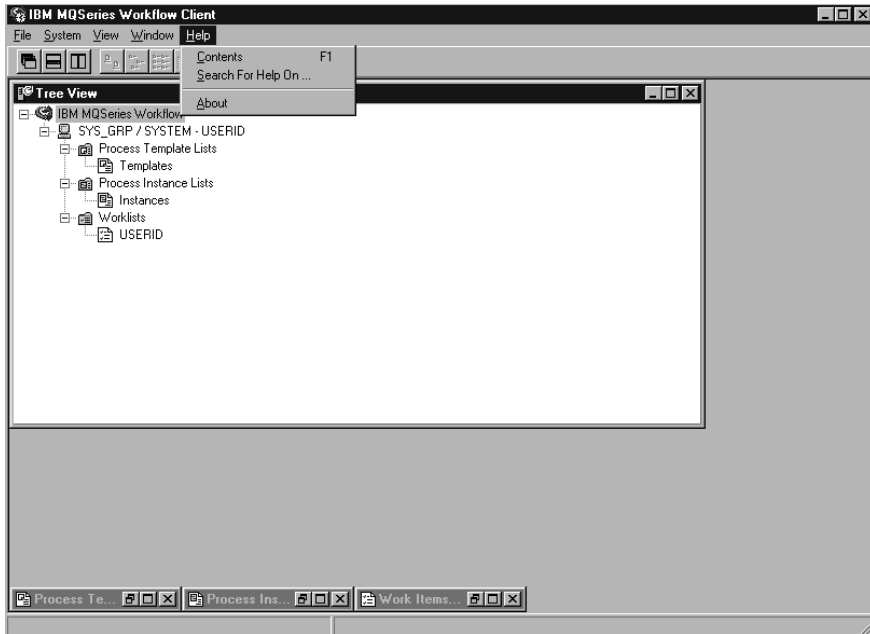
Figure 1. Client tree view

Depending on the type of window that is active, different menus are displayed in the menu bar. For example, as shown in Figure 1, there is a **System** menu in addition to the standard menus **File**, **View**, **Window**, **Help**.

You can use the **Window** menu to control the display of windows, to list them, or to select one of them.

See the online help for details on how to:

- Select and deselect items in a window
- Use pop-up menus
- Filter and sort worklists
- Create and delete worklists

Accessing online help

Online help is provided in the MQ Workflow Client. To see this help information, select one of the options from the Help menu as shown in Figure 1.

Logging on with another user ID

To log on to a new user ID, on the **File** menu, click **Logon** and enter the user ID and password. You need not enter the system group and system, because the default is used.

A new item containing the new user ID is added to the **Tree View** window.

Logging off

To log off a user ID, in the **Tree View** window, on the **System** menu, click **Logoff**.

To log on again, on the **File** menu or pop-up menu, click **Logon** as shown in Figure 2.

To exit completely, on the **File** menu, click **Exit**. This stops the client altogether.
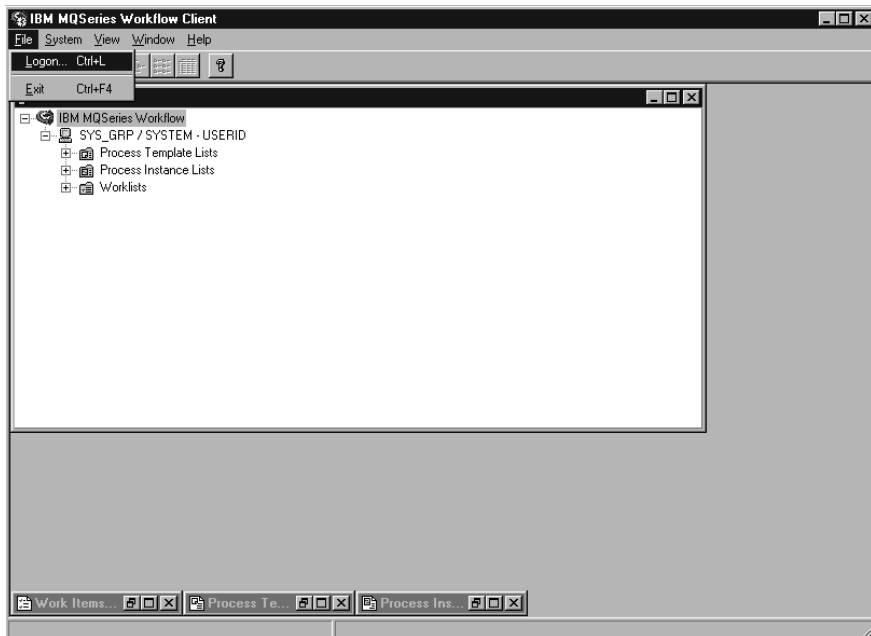
Figure 2. Logon and exit choice

Displaying user properties

The **Tree View** window displays the System Group / System you are logged on to.

To open the **User Properties** window:
1. Select the System Group / System in the **Tree View** window
2. On the **System** menu, click **User Information**

   This opens the window as shown in Figure 3.
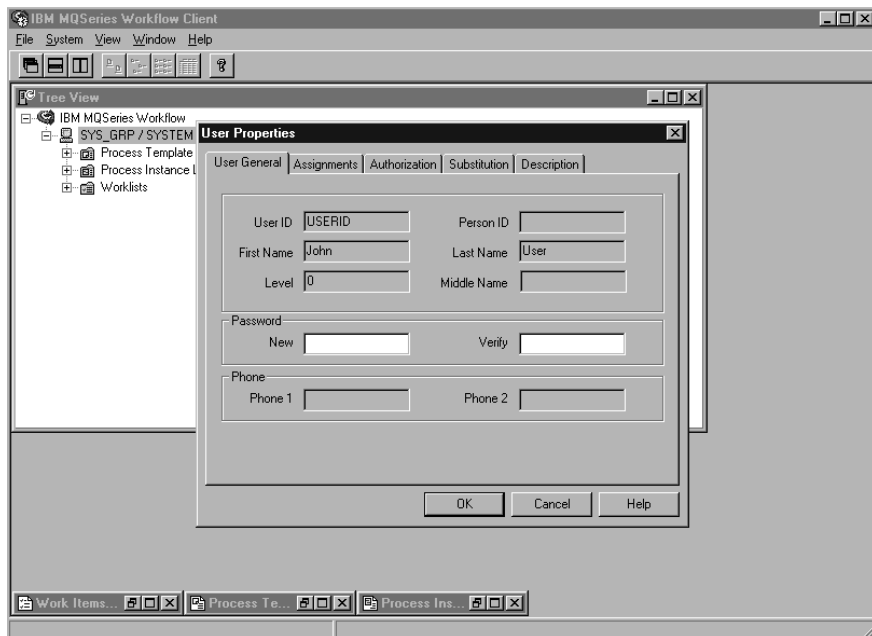
Figure 3. User Properties

Some of the fields displayed in the **User Properties** window are predefined for you in Buildtime. You can only view these properties here, but you cannot change them. However, you can change your password on the **User General** page of the **User Properties**.

For details about the contents of these fields, see the online help.

Chapter 4. Using worklists and work items

This chapter introduces worklists and describes how you can use them to do your work. This includes information on:

- Starting an activity on a worklist
- Status of activities
- Using support tools

You find more information in the online help, for example, on:

- Controlling the display of the work items window
- Assigning work items
- Displaying work items properties
- Deleting a work item
- Force-restarting and force-finishing
- How to automatically refresh your worklist (Push)

Starting a work item on a worklist

Open the **Work Items** window. If it is minimized at the bottom of the **Tree View**, double-click on it. This opens the **Work Items** window as shown in Figure 4 on page 14.

You can start work items:

- Automatically, that is, the work item is started by MQ Workflow without user intervention. This applies to the first occurrence when a work item is started.
- Manually, that is, you need to start the work item again, if the exit condition is not met. The work item must be in **ready** status.

To start a work item:

1. Double-click the work item or select one or more work items to be started
2. On the **Activity** menu, click **Start**
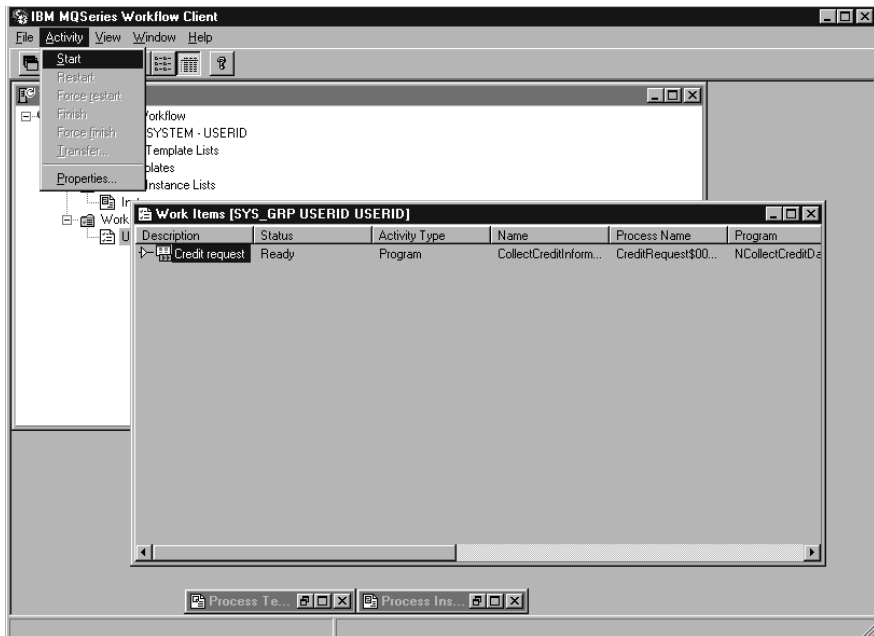
Figure 4. Starting a work item

When you start a work item:

- For a program activity, the associated program starts
- For a process activity, the associated process template is instantiated, the process instance is started, and the input container of the work item is filled with data. Work items in the associated process appear on the worklists of the people assigned to perform them.

> Once a work item is started, its properties cannot be changed. If several people are assigned to a work item that is started, the work item changes to **disabled** and **finished** on the worklists of all other people.

Using support tools

You can use support tools for the activities on your worklists. The following examples show when you might use a support tool:

- To display help information that has been defined for a particular activity.
- To list users who can be of assistance if you have problems with an activity.
- To find additional information. For example, you have an activity on your work list and you are asked to approve a request from a customer. You start the program for the activity, but in order to approve or reject the

request you need to look up further information on the customer. You start the support tool that is available for this request to find the information in the appropriate database or folder.

Support tools are defined in Buildtime when the modeler assigns programs to activities. To start a support tool, on the **Activity** menu click **Support tool**. A window displays the available support tools. Select the appropriate tool from those that are listed and click **Start** to start the tool. Support tools in MQ Workflow work independently of the execution of the activities for which the tools are started. These tools are available for the activity whatever status the activity is in.

Identifying type and status of work items

The status of a work item is shown in the **Details** view of the worklist.

The following icons are provided to identify different types of activities as shown in Figure 5:

 Identifies a program activity.

 Identifies a process activity.

 Identifies a block activity.

 Identifies the first notification for an activity.

 Identifies the second notification for an activity.

 Identifies the first process instance notification..

 Identifies the second process instance notification..
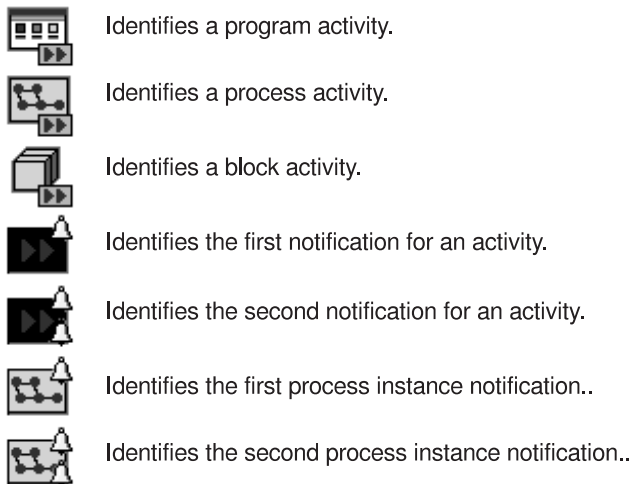
Figure 5. Icons to identify different types of activities

In addition, there is a separate icon to show the status of a work item. To get an overview of these icons, see the online help.

Chapter 5. Intervening in the workflow

This chapter describes how you can:

- Force a change to the status of an activity.
- Work with the activities of other people. To do this, you need special authority. You can find out whether you are allowed to work with the activities of other people by checking your **User Properties** as shown in Figure 3 on page 11.
- Work with notifications.

For more information as well as hints and tips, see the online help.

Force-restarting a work item

You can force to restart a work item of a program activity or a process activity. The status must be **running** to change it to **ready**.

To force a restart, select the work items to be restarted:

1. Click the **Activity** menu
2. Click **Force restart**

Selected work items return to **ready** status and can be started again. Force-restarted work items use the same input data as when started for the first time.

Force-finishing a work item

You can force-finish a work item of a process activity or a program activity. The status must be **ready** or **running** to change it to **finished**.

To force-finish a work item, select the work items to be changed.

1. Click the **Activity** menu
2. Click **Force finish**

Programs started for work items that have been **force-finished**, continue to run and must be terminated separately. Data in the output containers of work items is set or defined only after finishing normally.

Terminating a work item

You can terminate a work item of a process activity or a program activity. The status of the work item must be **ready** or **running**.

To terminate a work item, select the work item to be changed:
1. Click the **Activity** menu
2. Click **Terminate**

This terminates the activity.

Working with other people's work items

Select the **Authorization** page of the **User Information** window to display the names of the users whose work items you are authorized to view and transfer.

If you have the necessary authorization, you can transfer work items that have a status of **ready** or **suspended** from one person to another. This is useful, for example, if you cannot act on the work item, because of absence or an increased workload of someone else.

To find out who is eligible for a work item, you can start the process instance monitor as described in "Monitoring the progress of a process instance" on page 23.

Working on notifications

In MQ Workflow Buildtime, the process modeler can specify a period of time in which:
- A process must finish
- Each activity defined for the process must finish
- The person who receives a notification has to act on it

Designated people are notified if these processes, work items, and notifications are not completed in the specified time. Notifications can be sent for work items and processes that have the status ready, running, or suspended.

	An interval setting, which is defined in MQ Workflow Buildtime, determines when checks for notifications are made.

Working on notified work items and activities

If a work item in a process is not completed in a specified time, a user receives a first notification. It the user who receives the first notification does not act on the notification in a specified time, the process administrator receives a second notification.

For a list of the icons that are displayed, see the online help.

The icon displayed depends on the status of the work item for which the notification has been sent. In the **Details** view of the worklist, the type of work item is shown as first or second notification as appropriate. The notification has the same status as the work item or process for which it was created.

The status of the work item changes on the worklist of the user to whom the work item was assigned. In the **Details** view, the status is shown as **ready**, **running**, or **suspended** notified.

When the problem is solved:
- The overdue work item is **force-finished**, or the process to which the overdue work item belongs is terminated. The notification icon changes to the force-finish notification icon and can be deleted.
- The overdue work item is **finished**. The notification icon changes to the finished notification icon and can be deleted.
- The person notified must select the notification icon and must click **Finish** on the **Activity** menu. The notification icon can then be deleted from the worklist.

Working on notified process instances

If a process does not finish in the specified time period, the person defined in MQ Workflow Buildtime as process administrator receives a notification.

> If there is no process administrator defined in Buildtime, the person who starts the process instance is assigned as the process administrator and receives the notification.
>
> The process administrator is notified that the process is overdue by a notification icon on a worklist.

For more details and a list of the icons that are used, see the online help.

Chapter 6. Using process templates and process instances

This chapter describes some of the tasks you can perform on process templates and process instances. The tasks described are:

- Creating a process instance
- Starting a process instance
- Identifying the status of a process instance
- Monitoring the progress of a process instance
- Stopping a process instance that is already running
- Resuming a suspended process instance
- Restarting a finished or terminated process instance

You find more information in the online help, for example, on:

- Controlling the display of the Process Templates and Process instances windows
- Displaying data for a process template and a process instance
- Deleting a process template and a process instance
- Refreshing the status of process templates and process instances
- Controlling the display
- Supplying data for a process instance

Introducing process templates and process instances

The modeler creates a process model in Buildtime and then imports and translates it into a form that can be used in Runtime. This translated form is called a process template.

To start an instance of a process, you must first create the process instance from the process template. The process instance can then be started.

Creating a process instance

For each process that you can start, a process template appears in your **Process Templates** window. If the **Process Templates** is minimized at the bottom of the MQ Workflow Client window, double-click on it. This opens the **Process Templates** window as shown in Figure 6 on page 22.

To create an instance, you can do the following:

1. Select a process template by clicking it

2. On the **Process** menu, click **Create Instance**

   For each of the selected templates, a process instance is created with a status of **ready**. The process instance is named after the translated process with a unique numeric suffix. You can edit the name and description.
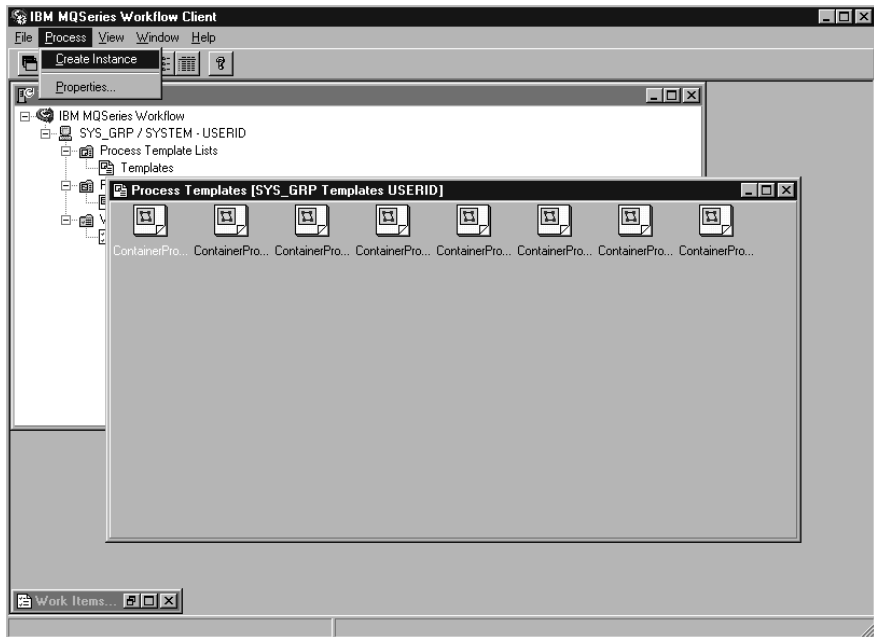
Figure 6. Process templates window

Once a process instance is created, it is not affected by changes to the process model or template on which it is based. Subprocesses are not instantiated at this time. When a process work item is started, an instance of the process to which it refers is created and started automatically.

Starting a process instance

To start a process instance that is in **ready** status in the **Icons** or **Details** view of the **Process Instances** window:

- Double-click the process instance

If the selected process instances, for example, do not require any special data to be entered, they start and the started work items are placed on the

worklists of the people to whom they are assigned. If a work item is defined to start automatically, it starts immediately or as soon as an assigned user logs on.

While MQ Workflow is starting, the process instance changes to **running** status.

For information about the status of a process instance, see the online help.

Supplying data for a process instance

In MQ Workflow Buildtime, an input data structure is assigned to each process. To supply values for the data structure members, the process modeler can define to open the **Change Input** window when the process instance is started.

This window is displayed if:
- The process instance contains a source node.
- The process instance is defined with the **Prompt for data at process start** feature activated.
- The data structure of the process input container has members other than the default data structure.

> You can only enter or edit data when you start a process instance for the first time. If an instance is restarted or resumed, you are not prompted for data any more. The data that you have entered or edited for the first program start is used.

Monitoring the progress of a process instance

A process instance monitor is provided to allow you to view the progress of a process instance. You can use the process instance monitor on any process instance in the **Process Instances** window. To use the process instance monitor:

1. Right-click the process instance you want to monitor
2. Click **Monitor**

A diagram view displays the activities in the process instance, as created in Buildtime. The process instance monitor shows the activities and their status. For a list of the status symbols and their meaning, see the online help.

To display the properties for an activity:

1. Right-click the activity

2. Then click **Activity properties**

This opens the **Activity properties** window. You can choose the information you want to display by clicking the appropriate tab. For example, the **Staff** tab shows a list of user IDs. The list contains user IDs of users who were assigned the activity, or, if the activity has been started, the user ID of the user who started the activity.

Control connectors, which are responsible for the sequence of activitities within a process, are also shown in the process monitor. For a list of the colors for connectors and their meaning, see the online help.

Blocks are also shown in the process monitor. When you double-click on a block icon, a new monitor opens showing you the activities in the block.

Stopping a process instance that is running

If you have started the wrong process instance, for example, or, if one or more people are absent, you can stop a process instance. You can stop it before it has completed, because it cannot progress and you want to avoid a series of notifications. Select the process instance and on the **Process** menu, select one of the following:

- Click **Suspend**

  if a process instance has started and you want to stop its progress temporarily.

- Click **Suspend deep**

  to suspend a process instance and all its subprocesses.

Terminating a process instance

To immediately stop a **running** or **suspended** process instance, select the process instance:

- On the **Process** menu, click **Terminate**

Terminating an instance also terminates its subprocesses, that is, instances started by process work items. The process instance stops running and any work items it has generated on worklists are **force-finished**. Programs that have been started for these work items must be stopped explicitly, otherwise they continue running, but no more navigation tasks take place. The data they produce is not used, because the instance has terminated. Work items that have not yet been started change to **finished** status. The process instance is not erased and can later be **restarted** or **deleted**.

Resuming a suspended process instance

If you want to continue with a **suspended** process instance, select the process instance and then on the **Process** menu, click one of the following:

- **Resume** to resume the process instance, but not its subprocesses
- **Resume deep** to resume a process instance and all its subprocesses

The selected instances return to **running** status and resume from the point of their suspension. You are not prompted for new values, MQ Workflow analyzes the container information collected so far, including the output data of work items that finished after suspension, and navigation continues:

- Suspended work items become **ready** again.
- Work items whose programs have finished running now show a status of **finished**.
- Work items whose programs are still running show a status of **running** and continue to completion.

Restarting a finished or terminated process instance

To restart **finished** or **terminated** top-level process instances, select the process instance, and on the **Process** menu, click **Restart**.

The process instance starts again from the beginning, regardless of the point where it was previously terminated. During restart of a process instance, the container input data of the first process instance start is used.

For more information about tasks that you can perform with the Client, see the online help as described in "Accessing online help" on page 9.

Part 2. Appendixes

Appendix. Notices

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Glossary

This glossary defines important terms and abbreviations used in this publication. If you do not find the term you are looking for, refer to the index or the *IBM Dictionary of Computing*, New York: McGraw-Hill, 1994.

A

administration server.   The MQ Workflow component that performs administration functions within an MQ Workflow system. Functions include starting and stopping of the MQ Workflow system, performing error management, and participating in administrative functions for a system group.

activity.   One of the steps that make up a process model. This can be a program activity, process activity, or block activity.

activity information member.   A predefined data structure member associated with the operating characteristics of an activity.

API.   Application Programming Interface.

application programming interface.   An interface provided by the MQ Workflow workflow manager that enables programs to request services from the MQ Workflow workflow manager. The services are provided synchronously.

audit trail.   A relational table in the database that contains an entry for each major event during execution of a process instance.

authorization.   The attributes of a user's staff definition that determine the user's level of authority in MQ Workflow. The system administrator is allowed to perform all functions.

B

bend point.   A point at which a connector starts, ends, or changes direction.

block activity.   A composite activity that consists of a group of activities, which can be connected with control and data connectors. A block activity is used to implement a Do-Until loop; all activities within the block activity are processed until the exit condition of the block activity evaluates to true. See also *composite activity*.

Buildtime.   An MQ Workflow component with a graphical user interface for creating and maintaining workflow models, administering resources, and the system network definitions.

C

cardinality.   (1) An attribute of a relationship that describes the membership quantity. There are four types of cardinality: One-to-one, one-to-many, many-to-many, and many-to-one. (2) The number of rows in a database table or the number of different values in a column of a database table.

child organization.   An organization within the hierarchy of administrative units of an enterprise that has a parent organization. Each child organization can have one parent organization and several child organizations. The parent is one level above in the hierarchy. Contrast with *parent organization*.

cleanup server.   The MQ Workflow component that physically deletes information in the MQ Workflow Runtime database, which had only been deleted logically.

composite activity.   An activity which is composed of other activities. Composite activities are block activities and bundle activities.

container API. An MQ Workflow API that allows programs executing under the control of MQ Workflow to obtain data from the input and output container of the activity and to store data in the output container of the activity.

control connector. Defines the potential flow of control between two nodes in the process. The actual flow of control is determined at run time based on the truth value of the transition conditions associated with the control connector.

coordinator. A predefined role that is automatically assigned to the person designated to coordinate a role.

D

data connector. Defines the flow of data between containers.

data container. Storage for the input and output data of an activity or process. See *input container* and *output container*.

data mapping. Specifies, for a data connector, which fields from the associated source container are mapped to which fields in the associated target container.

data structure. A named entity that consists of a set of data structure members. Input and output containers are defined by reference to a data structure and adopt the layout of the referenced data structure type.

data structure member. One of the variables of which a data structure is composed.

default control connector. The graphical representation of a standard control connector, shown in the process diagram. Control flows along this connector if no other control path is valid.

domain. A set of MQ Workflow system groups which have the same meta-model, share the same staff information, and topology information. Communication between the components in the domain is via message queuing.

dynamic staff assignment. A method of assigning staff to an activity by specifying criteria such as role, organization, or level. When an activity is ready, the users who meet the selection criteria receive the activity to be worked on. See also *level*, *organization*, *process administrator*, and *role*.

E

end activity. An activity that has no outgoing control connector.

execution server. The MQ Workflow component that performs the processing of process instances at runtime.

exit condition. A logical expression that specifies whether an activity is complete.

export. An MQ Workflow utility program for retrieving information from the MQ Workflow database and making it available in MQ Workflow Definition Language (FDL) or HTML format. Contrast with *import*.

F

fixed member. A predefined data structure member that provides information about the current activity. The value of a fixed member is set by the MQ Workflow workflow manager.

(FDL) MQ Workflow Definition Language. The language used to exchange MQ Workflow information between MQ Workflow system groups. The language is used by the import and export function of MQ Workflow and contains the workflow definitions for staff, programs, data structures, and topology. This allows non-MQ Workflow components to interact with MQ Workflow. See also *export* and *import*.

fork activity. An activity that is the source of multiple control connectors.

form. In Lotus Notes, a form controls how you enter information into Lotus Notes and how that information is displayed and printed.

formula. In Lotus Notes, a mathematical expression that is used, for example, to select documents from a database or to calculate values for display.

fully-qualified name. A qualified name that is complete; that is, one that includes all names in the hierarchical sequence above the structure member to which the name refers, as well as the name of the member itself.

I

import. An MQ Workflow utility program that accepts information in the MQ Workflow definition language (FDL) format and places it in an MQ Workflow database. Contrast with *export*.

input container. Storage for data used as input to an activity or process. See also *source* and *data mapping*.

L

level. A number from 0 through 9 that is assigned to each person in an MQ Workflow database. The person who defines staff in Buildtime can assign a meaning to these numbers such as rank and experience. Level is one of the criteria that can be used to dynamically assign activities to people.

local user. Identifies a user during staff resolution whose home server is in the same system group as the originating process.

local subprocess. A subprocess that is processed in the same MQ Workflow system group as the originating process.

logical expression. An expression composed of operators and operands that, when evaluated, gives a result of true, false, or an integer. (Nonzero integers are equivalent to false.) See also *exit condition* and *transition condition*.

M

manager. A predefined role that is automatically assigned to the person who is defined as head of an organization.

message queuing. A communication technique that uses asynchronous messages for communication between software components.

N

navigation. Movement from a completed activity to subsequent activities in a process. The paths followed are determined by control connectors, their associated transition conditions, and by the start conditions of activities. See also *control connector*, *exit condition*, *transition condition*, and *start condition*.

node. (1) The generic name for activities within a process diagram. (2) The operating system image that hosts MQ Workflow systems.

notification. An MQ Workflow facility that can notify a designated person when a process or activity is not completed within the specified time.

notification work item. A work item that represents an activity or process notification.

O

organization. An administrative unit of an enterprise. Organization is one of the criteria that can be used to dynamically assign activities to people. See *child organization* and *parent organization*.

output container. Storage for data produced by an activity or process for use by other activities or for evaluation of conditions. See also *sink*.

P

parent organization. An organization within the hierarchy of administrative units of an enterprise that has one or more child organizations. A child

is one level below its parent in the hierarchy. Contrast with child *child organization*.

parent process. A process instance that contains the process activity which started the process as a subprocess.

pattern activity. A single and simple activity in a bundle activity from which multiple instances, called pattern activity instances, are created at run time.

person (pl. people). A member of staff in an enterprise who has been defined in the MQ Workflow database.

predefined data structure member. A data structure member predefined by MQ Workflow and used for communication between user applications and MQ Workflow Runtime.

process. Synonymously used for a process model and a process instance. The actual meaning is typically derived from the context.

process activity. An activity that is part of a process model. When a process activity is executed, an instance of the process model is created and executed.

process administrator. A person who is the administrator for a particular process instance. The administrator is authorized to perform all operations on a process instance. The administrator is also the target for staff resolution and notification.

process category. An attribute that a process modeler can specify for a process model to limit the set of users who are authorized to perform functions on the appropriate process instances.

process definition. Synonym for *process model*.

process diagram. A graphical representation of a process that shows the properties of a process model.

process instance. An instance of a process to be executed in MQ Workflow Runtime.

process instance list. A set of process instances that are selected and sorted according to user-defined criteria.

process instance monitor. An MQ Workflow client component that shows the state of a particular process instance graphically.

process management. The MQ Workflow Runtime tasks associated with process instances. These consist of creating, starting, suspending, resuming, terminating, restarting, and deleting process instances.

process model. A set of processes represented in a process model. The processes are represented in graphical form in the process diagram. The process model contains the definitions for staff, programs, and data structures associated with the activities of the process. After having translated the process model into a process template, the process template can be executed over and over again. *Workflow model* and *process definition* are synonyms.

process monitor API. An application programming interface that allows applications to implement the functions of a process instance monitor.

process-relevant data. Data that is used to control the sequence of activities in a process instance.

process status. The status of a process instance.

process template. A fixed form of a process model from which process instances can be created. It is the translated form in MQ Workflow Runtime. See also *process instance*.

process template list. A set of process templates that have been selected and sorted according to user-defined criteria.

program. A computer-based application that serves as the implementation of a program activity or as a support tool. Program activities reference executable programs using the logical

names associated with the programs in MQ Workflow program registrations. See also *program registration*.

program activity. An activity that is executed by a registered program. Starting this activity invokes the program. Contrast with *process activity*.

program execution agent. The MQ Workflow component that manages the implementations of program activities, such as .EXE and .DLL files.

program registration. Registering a program in MQ Workflow so that sufficient information is available for managing the program when it is executed by MQ Workflow.

R

role. A responsibility that is defined for staff members. Role is one of the criteria that can be used to dynamically assign activities to people.

S

scheduling server. The MQ Workflow component that schedules actions based on time events, such as resuming suspended work items, or detecting overdue processes.

server. The servers that make up an MQ Workflow system are called Execution Server, Administration Server, Scheduling server, and Cleanup Server.

sink. The symbol that represents the output container of a process or a block activity.

source. The symbol that represents the input container of a process or a block activity.

specific resource assignment. A method of assigning resources to processes or activities by specifying their user IDs.

standard client. The MQ Workflow component, which enables creation and control of process instances, working with worklists and work items, and manipulation of personal data of the logged-on user.

start activity. An activity that has no incoming control connector.

start condition. The condition that determines whether an activity with incoming control connectors can start after all of the incoming control connectors are evaluated.

subprocess. A process instance that is started by a process activity.

substitute. The person to whom an activity is automatically transferred when the person to whom the activity was originally assigned is declared as absent.

support tool. A program that end users can start from their worklists in the MQ Workflow Client to help complete an activity.

symbolic reference. A reference to a specific data item, the process name, or activity name in the description text of activities or in the command-line parameters of program registrations. Symbolic references are expressed as pairs of percent signs (%) that enclose the fully-qualified name of a data item, or either of the keywords _PROCESS or _ACTIVITY.

system. The smallest MQ Workflow unit within an MQ Workflow domain. It consists of a set of the MQ Workflow servers.

system group. A set of MQ Workflow systems that share the same database.

system administrator. (1) A predefined role that conveys all authorizations and that can be assigned to exactly one person in an MQ Workflow system. (2) The person at a computer installation who designs, controls, and manages the use of the computer system.

T

top-level process. A process instance that is not a subprocess and is started from a user's process instance list or from an application program.

transition condition. A logical expression associated with a conditional control connector. If

specified, it must be true for control to flow along the associated control connector. See also *control connector*.

translate. The action that converts a process model into a Runtime process template.

U

user ID. An alphanumeric string that uniquely identifies an MQ Workflow user.

V

verify. The action that checks a process model for completeness.

W

workflow. The sequence of activities performed in accordance with the business processes of an enterprise.

Workflow Management Coalition (WfMC). A non-profit organization of vendors and users of workflow management systems. The Coalition's mission is to promote workflow standards for workflow management systems to allow interoperability between different implementations.

workflow model. Synonym for *process model*.

work item. Representation of work to be done in the context of an activity in a process instance.

work item set of a user. All work items assigned to a user.

worklist. A list of work items assigned to a user and retrieved from a workflow management system.

worklist view. List of work items and notifications selected from a work item set of a user according to filter criteria which are an attribute of a worklist. It can be sorted according to sort criteria if specified for this worklist.

Bibliography

To order any of the following publications, contact your IBM representative or IBM branch office.

MQ Workflow publications

This section lists the publications included in the MQSeries Workflow library.

- *IBM MQSeries Workflow: List of Workstation Server Processor Groups*, GH12-6357, lists the processor groups for MQ Workflow.
- *IBM MQSeries Workflow: Concepts and Architecture*, GH12-6285, explains the basic concepts of MQ Workflow. It also describes the architecture of MQ Workflow and how the components fit together.
- *IBM MQSeries Workflow: Getting Started with Buildtime*, SH12-6286, describes how to use Buildtime of MQ Workflow.
- *IBM MQSeries Workflow: Getting Started with Runtime*, SH12-6287, describes how to get started with the Client.
- *IBM MQSeries Workflow: Programming Guide*, SH12-6291, explains the application programming interfaces (APIs).
- *IBM MQSeries Workflow: Installation Guide*, SH12-6288, contains information and procedures for installing and customizing MQ Workflow.
- *IBM MQSeries Workflow: Administration Guide*, SH12-6289, explains how to administer an MQ Workflow system.

Related publications

- *Frank Leymann, Dieter Roller, "Workflow-based Applications", IBM Systems Journal 36, no. 1(1997): 102–123*, you can also refer to the Internet: http://www.almaden.ibm.com/journal/sj361/leymann.html
- *Workflow Handbook 1997, published in association with WfMC*, edited by Peter Lawrence

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