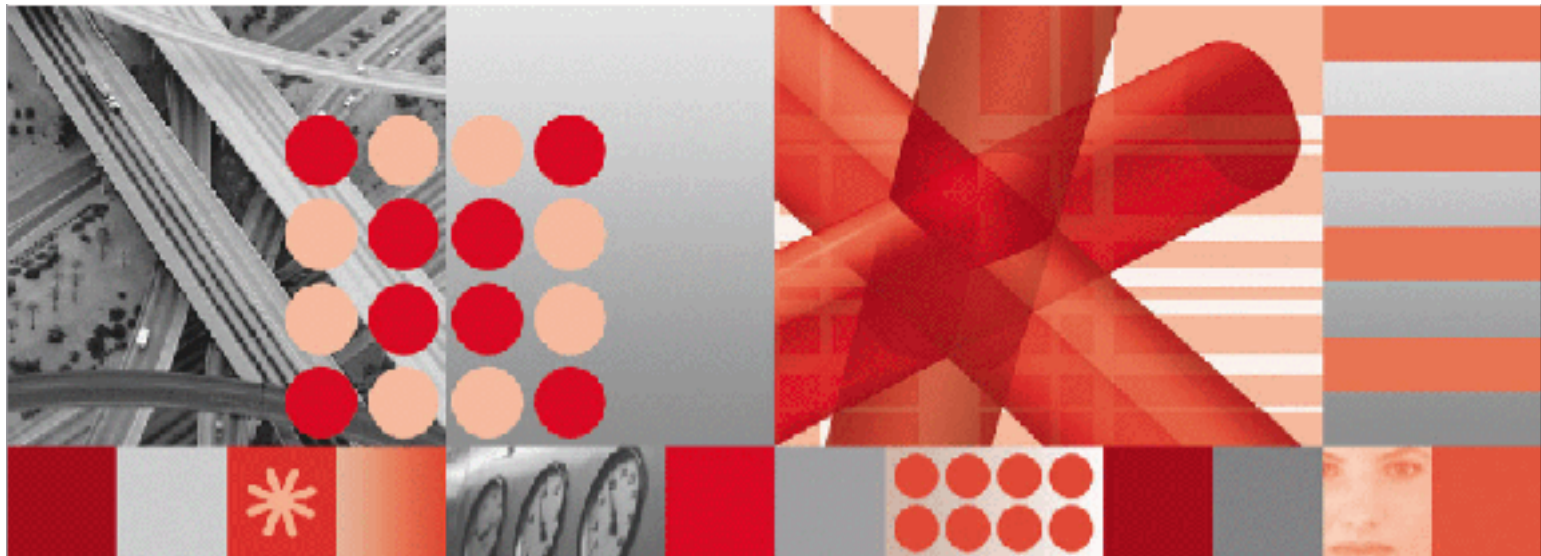


Tivoli.

IBM Maximo Asset Management
IBM Tivoli Asset Management for IT
IBM Tivoli Service Request Manager



Version 7.1



Workflow Implementation Guide

Note

Before using this information and the product it supports, read the information in "Notices" on page 109.

This edition applies to version 7, release 1, modification 0 of IBM Maximo Asset Management, IBM Tivoli Asset Management for IT, and IBM Tivoli Service Request Manager, and to all subsequent releases and modifications until otherwise indicated in new editions.

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About This Publication

This guide provides information about planning, designing, building, testing, implementing, and managing Workflow processes.

Intended Audience

The *Workflow Implementation Guide* is for both novice and experienced system administrators, Workflow designers, and Workflow administrators.

Intended Audience

Workflow Overview

Workflow features let you automate repetitive business processes and record management processes. Automating these processes provides a means for greater efficiency and accountability throughout your enterprise.

Workflow Purpose

Workflow provides a means of electronically reproducing your business processes so that they can be applied to records. Using Workflow to manage records lets you do the following tasks:

- ▼ Consistently apply your business practices to records.
- ▼ Manage the movement of a record through a process from start to finish.
- ▼ Route a record and appropriate instructions to the appropriate individuals so that they can act on it.
- ▼ Ensure that individuals act on records assigned to them in a timely manner.
- ▼ Guide users through their interaction with a record.
- ▼ Ensure that an audit trail exists for each record and process.

Workflow Capabilities

Workflow is an integrated part of the software and includes the following capabilities:

- ▼ Workflow processes and their supporting records are at the system level in a multisite implementation, and therefore can be used for all organizations and sites. You can design processes or subprocesses that are organization-specific or site-specific through the use of logical branching.
- ▼ You can create a Workflow process for any business object (MBO). Because all the applications are associated with MBOs, you can build Workflow processes for any application, including cloned and custom applications.
- ▼ A record can be routed into a Workflow process automatically or manually.

Workflow Capabilities

- ▼ When a process task requires a user decision, the record can be assigned to a role. At run time, the role resolves to a person group, person, or delegate (alternate).
- ▼ Assignees can receive notifications of assignments in their Workflow Inbox, or in their e-mail inbox, eliminating the need for users to search for their assignments.
- ▼ You can specify a delegate when workers are unavailable.
- ▼ Workers or administrators can reassign Workflow tasks.
- ▼ Assignees can link from their Workflow Inbox directly to the assigned record.
- ▼ When a process requires user input, the system can display a dialog box with a menu of context appropriate options specified in the process.
- ▼ When a process requires user interaction, the system can direct a user to a specific application, tab, or action.
- ▼ If there is only a single choice of actions, the system can move a record through a step in a process.
- ▼ You can define a time limit for completing a task, after which the system can escalate the record.
- ▼ You can specify at what point in a process you want e-mail notifications generated.
- ▼ Workers or administrators can stop a process instance and remove a record from the control of Workflow.
- ▼ A Workflow process can run a program (batch file or .exe) stored on a local server in the system directory.
- ▼ A Workflow can run a custom Java™ class.
- ▼ A Workflow process for one type of record can launch a process for another type of record. For example, a service request can launch a process for an incident.
- ▼ A Workflow process can contain subprocesses, for example, for different subcategories of records, or records from different Sites.

Workflow Applications

The following applications either directly or indirectly support Workflow:

Application	Description
Actions	Used to create and manage actions and action groups. Actions are associated with connection lines in a Workflow process and are triggered by the routing that moves a record from one node to another.
Communication Templates	Used to create and manage templates that the system uses when generating e-mail messages. Workflow uses communication templates for notifications.
Escalations	Used to create and manage escalation processes. An escalation is a mechanism that can monitor time-sensitive records and key performance indicators (KPIs), which can take actions or send notifications when a record reaches a defined escalation point. Workflow can use escalations with task assignments.
Inbox/Assignments Setup	Used to configure the Workflow Inbox on the Start Center of a user.
People	Used to create and manage records for individuals who are listed on records in any capacity. Workflow uses person records when generating assignments and notifications.
Person Groups	Used to create and manage records for groups of individuals. Workflow uses person group records when generating assignments and notifications.
Roles	Used to create and manage records for roles. All roles resolve to a person, person group, or e-mail address. All Workflow assignments and notifications are made to roles.
Workflow Administration	Used to view and modify assignments and active instances of Workflow processes.
Workflow Designer	Used to create, view, and modify Workflow processes.
Workflow Inbox	Used to view and respond to Workflow assignments. A Workflow process routes assignments to the Inbox of a user.

Planning Workflow Processes

2

Business rules and processes vary from enterprise to enterprise, and can vary even within an enterprise. Because of this variation, design and build your own custom Workflow processes.

Before you can build Workflow processes, research and document the business practices of your enterprise. The amount of time required for this planning stage varies depending some factors, including whether the business practices are already documented.

This chapter includes general questions to help you start researching the business processes of your enterprise, and guidelines to help you convert your business processes into Workflow processes. The questions that you must ask during your research can vary depending on whether your enterprise is implementing the software for the first time, or has been using the software and is implementing Workflow for the first time.

Analyzing Your Business Processes

Your business practices encompass how you manage your enterprise. As you begin to ask questions about your business practices, concentrate on practices that you manage using the software. For example, how you process and manage records and how the individuals make decisions about those records.

Start collecting data by asking questions about your enterprise and your implementation. Your implementation team might have already documented the answers to some of these questions.

Questions about your enterprise

The answers to the following questions provide background information for planning Workflow processes. These answers also help you to determine what types of processes you might want to use Workflow to automate.

- ▼ How is your enterprise organized? Does a written organizational chart exist?
- ▼ Is your enterprise multinational? Are Workflow processes in different languages required?
- ▼ Do you have business process flows documenting the various business units of your organization? Are there different process flows for the same organizations at different locations? Do the business practices at different locations have major or minor differences?
- ▼ Does your enterprise have written standard operating procedures (SOPs)? For example, does your enterprise have an ISO™ 9000 quality management or ISO™ 14000 environmental management system in place?

Analyzing Your Business Processes

- ▼ What are the regulatory requirements for your industry? How do they impact your business processes?
- ▼ Does your enterprise have written policies that define who is responsible for creating budgets? Are there written policies that define financial approval limits and which individuals have the authority to approve spending?
- ▼ What types of records at your enterprise require approval? Are there written policies that define the levels of approval that are required for each type of record?

Questions about your implementation

The answers to the following questions help you to determine which of the business processes of your enterprise apply to the records that you create and manage.

- ▼ Does your enterprise have a multisite implementation? How many organizations and sites exist? You create Workflow processes at the system level. Are separate processes or subprocesses for different organizations or sites required?
- ▼ Are you using the Integration Framework to integrate with any external systems?
- ▼ Have you purchased any options, for example, IBM Maximo Asset Navigator?
- ▼ Which applications has your enterprise implemented? What types of records do you use the software to create or manage?
- ▼ Have you configured the system to generate records? For example, inventory reorder, PM work orders, scheduled payment invoices, and so forth.
- ▼ Does your implementation use any Start Centers that do not include the Workflow Inbox? If users cannot access the Inbox, design your Workflow processes to send an e-mail message to notify to users.

Identifying Processes That Will Use Workflow

The answers to the following questions help you to determine the types of records that can benefit from being managed via a Workflow process.

- ▼ What types of new records must be reviewed by someone at your enterprise? For example records for new employees, or new inventory item records.
- ▼ What types of new records must be processed by more than one individual at your enterprise? For example purchasing records, tickets, or work orders.
- ▼ Are there records that must be approved or activated before they can be used? For example new asset records, contracts, solution records, and so forth.
- ▼ Does the life cycle of a record require one or more individuals to review the record and then take action, such as approving the record or changing its status?
- ▼ Do you want to handle status changes for new records manually or via a Workflow process?

- ▼ Are industry standard processes available to follow that can be formalized in the various affected applications (ITIL, Service Management angles)?

Identifying Steps in a Process

The answers to the following questions help you to start listing the different steps in a business process. These steps can become nodes or connection lines in a Workflow process diagram.

- ▼ What are the common paths that a record can follow? Which factors decide where a record goes next? Can the system determine which path a record takes based on data contained on the record? Or, does the record require that an individual review or act on the record? Do these common paths have any exceptions?
- ▼ What are the decision points for a particular record?
- ▼ What actions must be taken at each decision point? Who must initiate these actions?
- ▼ Who must be notified of actions and decisions?
- ▼ When must the record be evaluated, reviewed, or approved by an individual or group? Examples might include safety checks, environmental approval, financial approval, legal approval, and so forth.
- ▼ When must a record be assigned to an individual or group? Assignments might include performing work associated with the record, or reviewing the record.
- ▼ How quickly must a task assignment be performed? Does the task need a time limit and escalation?
- ▼ What are the different statuses that a record can go through during its life cycle?

Identifying People and Roles

When you create Workflow processes, identify the individuals who create and manage a record throughout its life cycle. The answers to the following questions help you to determine whether to create person records, user records, or labor records for individuals. An individual can have more than one record type.

Workflow processes make assignments to roles, which represent either individual persons or person groups. As you generate a list of individuals associated with each process, consider whether you can create person groups for individuals with similar job responsibilities, levels of authority, and security clearances.

- ▼ How will individuals be notified of Workflow assignments? Individuals who are going to be assigned tasks must have person records and user records.
- ▼ Which individuals must be notified of the progress of a record? The system can send e-mail messages to notify individuals, but creating person records for all individuals who will be receiving notifications is more efficient.

- ▼ Does the individual who must be notified vary by shift?
- ▼ Which individuals supervise other workers? You must list these individuals as a **Supervisor** on person records for escalations and notifications.
- ▼ Does your enterprise hire contract labor? Will any contractors be required to interact with a record in a Workflow process? Must contract workers have person records and labor records?
- ▼ Which level of security applies to individuals in different roles at your enterprise? Which applications and actions are workers in each security group allowed to view? When you design your security groups and Workflow processes, ensure that users in a role have the security permissions that let them perform their assigned tasks.

Identifying Standard Notifications

Many individuals come into contact with a record as it moves through its life cycle, and typically those individuals must be notified about the progress of the record. The answers to the following questions help you to determine what kinds of notifications must be sent as part of a Workflow process. The answers also help you to determine whether you can create communication templates to use when generating those notifications.

- ▼ Which individuals must be notified when a new record is created?
- ▼ Which individuals must be informed when a record is approved?
- ▼ Which individuals must be informed when records are rejected?
- ▼ Which individuals must be informed when records are modified? For example, when the status of the record changes?
- ▼ Which individuals must be informed when records are canceled?
- ▼ Which individuals must be informed when records are closed?
- ▼ What information must be contained in the text of the message? Which information, such as a work order number, description, or location, must you include to describe the record?

Identifying Time-Sensitive Records and Tasks

You can specify that task assignments must be completed within a specified time limit. If the assignee does not complete the assignment within the allotted time, the system can escalate the record. The answers to the following questions help you to determine what kinds of escalation records to create for use with your Workflow processes.

- ▼ Which records must be processed in a timely manner? For example, emergency work orders, or tickets subject to service level agreements.
- ▼ Which kinds of records require that someone be notified when a record is created, modified, updated, or passes a certain date? For example password expirations, asset lease renewals, contract expirations, and so forth.

- ▼ Under what conditions must a record be escalated? For example, if a work order has passed the **Target Start** date and the status is still waiting for approval (WAPPR).
- ▼ What types of actions must be taken when an assignment is escalated? For example, changing the status of the record, or reassigning the task to another user.
- ▼ Who must be notified when an assignment is escalated? For example, the assignee, their supervisor, and so forth.

Identifying Automated Tasks

The answers to the following questions help you to determine which kinds of action records to create for use with your Workflow processes. Action records also can be used when creating escalations.

- ▼ Do you want the system to generate ticket or work order records during a process?
- ▼ Do you want the system to apply a service level agreement during a process?
- ▼ Do you want the system to change the status of a record during a process?
- ▼ Do you want the system to initiate a Workflow process for a different object from within a process? For example, to launch the incident process from within a service request process?
- ▼ Do you want the system to enter a value in a field during a process?

Documenting Processes for Workflow

After you gather information about your business processes, the next task is to document your business processes. Be sure your documentation includes information that answers the following questions:

- ▼ Who interacts with records during a process?
- ▼ Which processes manage which records?
- ▼ How do records enter the process, and where do they go when they exit the process?
- ▼ How are the records managed during the process?
- ▼ When are the records managed by a process, and how long does it take a record to go through the process?
- ▼ What parts of your current processes are working well and should be kept? What parts of your current process do not work or are inefficient and should be changed?

After you answer these questions, you can begin to format your information into a flowchart. You can also use a spreadsheet to generate lists of process elements to

help you identify whether there are process elements that you can reuse. Ensure that you define the beginning and end of the life cycle of a record. Also, define what parts of the life cycle will be managed by a Workflow process.

You might choose to diagram your business process on paper, on a blackboard, or using software such as Visio® to create a flowchart. Writing or diagramming a business practice helps you to analyze it. It also provides you with a map of your process flows that you can use when you create a Workflow process using the Workflow Designer application. Your goal is to produce a detailed diagram that shows all possible routes that a record can take through your enterprise during its life cycle.











As you document your business process, note possible trouble spots, such as undocumented procedures, or different ways to complete the same task. Address these issues and refine your business processes before you create and implement a Workflow process.

Using Workflow's Process Design Elements

When you draw out a business process, use standard symbols to indicate the different elements of the process. The following table lists the symbols that the Workflow Designer application uses to represent the decision points (nodes) and paths (connection lines).

TIP Prior to creating diagrams of your business processes, you might find it helpful to read Chapter 7, "Understanding the Workflow Designer Application," on page 51.

Workflow Symbols

Symbol	Represents
	Start Node
	Condition Node
	Interaction Node
	Manual Input Node
	Subprocess Node
	Task Node
	Wait Node
	Stop Node
	Positive Connection Line
	Negative Connection Line

Designing Workflow Processes

Workflow lets you automate your business processes. To ensure that you receive the maximum benefit from Workflow, design your Workflow processes carefully. In your Workflow process, incorporate the most efficient and effective ways of completing the various business tasks required by a business process.

During your research, you might have discovered that the business processes at your enterprise were not well defined. If so, evaluate your current practices and determine how you can improve or standardize them before you design Workflow processes.

Remember that the system can direct records only through paths that you define when you create a Workflow process. When you design a process, be sure to consider what can happen at each decision point and include all possible paths that a record can take. You might choose to begin your Workflow implementation with simple processes. You can always build in more complexity in a later revision.

Creating Different Kinds of Workflow Processes

Workflow process elements gives you great flexibility when designing Workflow processes. The types of Workflow processes that you can design fall into several general categories. These categories are based on the number of individuals who must interact with the record and the amount of freedom they have to make decisions regarding the record.

When a process does not require user interaction with the record, you can create an **automated** type process. With an automated process, the system uses the information contained on Condition nodes to trigger actions regarding the record.

When you have a process where several different individuals must interact with a record, you can create a **routing** type process. With a routing type process, the system uses the information specified on Manual Input and Task nodes to route the record to the individuals who must make decisions or take actions regarding the record. The system "pushes" the record to each individual who must act on the record.

When you have a process where a single individual interacts with a record you can create an **interaction** type process. The system uses the information specified on Interaction and Manual Input nodes to guide the user through a structured interaction with the record. The system "pulls" the individual through the process.

You also can create a process that includes elements of both routing and interaction type processes. **Hybrid** type processes can include Interaction, Manual Input, and Task nodes to manage the different types of user interaction with the record. Hybrid type processes are useful when some individuals have guided interaction with a record, while others have more flexibility in how they interact with the record.

Design Considerations

As you design your Workflow processes, remember the following design considerations:

- ▼ Generic processes require less maintenance. For example, you might modify roles that resolve to an individual more frequently than roles that resolve to a person group.
- ▼ When designing processes, consider when you want the system to generate notifications. The system can generate notifications when any of the following occur in a process:
 - when a record reaches a decision point (node)
 - when a record follows a specific path (connection line) in a process
 - when task assignments are made
- ▼ When designing processes, consider how you want to handle null values. What happens if a process reaches a decision point that evaluates data on the record and that data is missing?
- ▼ What happens when a record takes the negative path? Does it have another chance to be modified and take the positive path, or does it exit the process permanently?

- ▼ If a record can go through a process again after it has been rejected, is there any limit to the number of times a record can repeat the process?
- ▼ Try to avoid having separate groups of nodes and connection lines that perform the same function at different points in a process. It is more efficient to reuse the same code via looping or creating a subprocess.
- ▼ The number of nodes that you can include in a process has no limit. However, simple processes are easier to troubleshoot and maintain. If the number of nodes in your process grows too large, you might want to consider whether you can break down the process into subprocesses.
- ▼ When writing SQL statements, consider how your SQL syntax affects how the system interprets the statements. For example:
 - ASSETNUM — (no colon) Instructs the system to go to the database for the asset record.
 - :ASSETNUM — (with colon) Instructs the system to use the asset record in memory (the record currently on screen).

Sample Workflow Processes

To give you an idea of some different ways that you can use Workflow to manage records, this document includes some sample Workflow processes. Because the page size of this document limits the number of nodes that can be displayed, these examples are simplistic. The Maximo demonstration database also includes several Workflow processes that demonstrate simple processes.

The examples are designed only to illustrate some of the capabilities of Workflow. Do not use them in a production environment. Design and build your own Workflow processes that reflect the needs of your business. The Workflow processes that you design probably will be more complex than these examples.

Sample Purchase Requisition Business Process

When users create a purchase requisition, their supervisor must approve it. If the requisition total is less than \$500, the requisition is routed to the purchasing department. If the requisition total exceeds \$500, it also requires the approval of the department manager before it can be routed to the purchasing department. If the requisition total exceeds \$1,000, it also requires the approval of a vice president before it can be routed to the purchasing department. If the requisition total exceeds \$5,000, it also requires the approval of the chief financial officer before it can be routed to the purchasing department.

When an approved purchase requisition reaches the purchasing department, a purchasing agent evaluates the record, and then takes one of three steps:

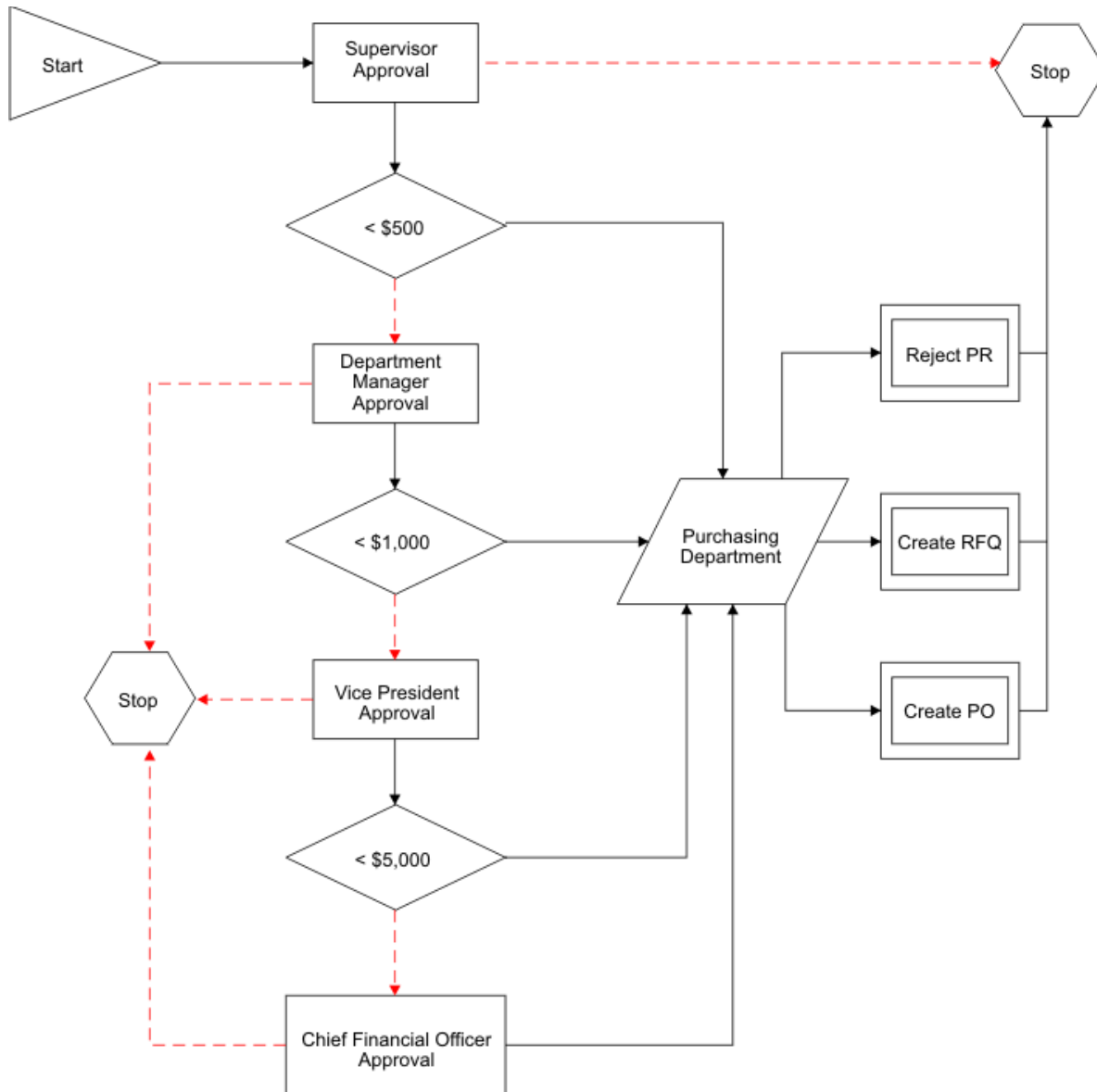
- ▼ Rejects the requisition
- ▼ Creates a request for quotation to receive bids for the purchase
- ▼ Creates a purchase order from the requisition

The record then exits the purchase requisition Workflow process.

Sample Purchase Requisition Process Diagram

The following diagram illustrates one way that you might map the scenario described in the previous section. The nodes and connection lines in this example are arranged so that they fit on the page. You can arrange the nodes and connection lines differently and add or remove Stop nodes, and the Workflow process still would illustrate the exact same business process.

Sample Purchase Requisition Workflow



Sample Work Order Business Process

Our example enterprise has configured the system to route all new PM work orders that are generated via the PM work order generation cron task into a Workflow process.

The first step is to evaluate the priority of the work order.

- ▼ If the PM work order is high priority or has a null value in the **Priority** field, it is routed to a work planner for immediate review and approval.
- ▼ If the PM work order has a low priority, it is routed to a Stop node and exits the process.

All PM work orders then go through a financial approval process. Work orders with an estimated total cost of less than \$500 are automatically approved. The maintenance supervisor must review and approve work orders with an estimated total cost of more than \$500.

After a work order passes the financial approval process, it must be assigned to a work group.

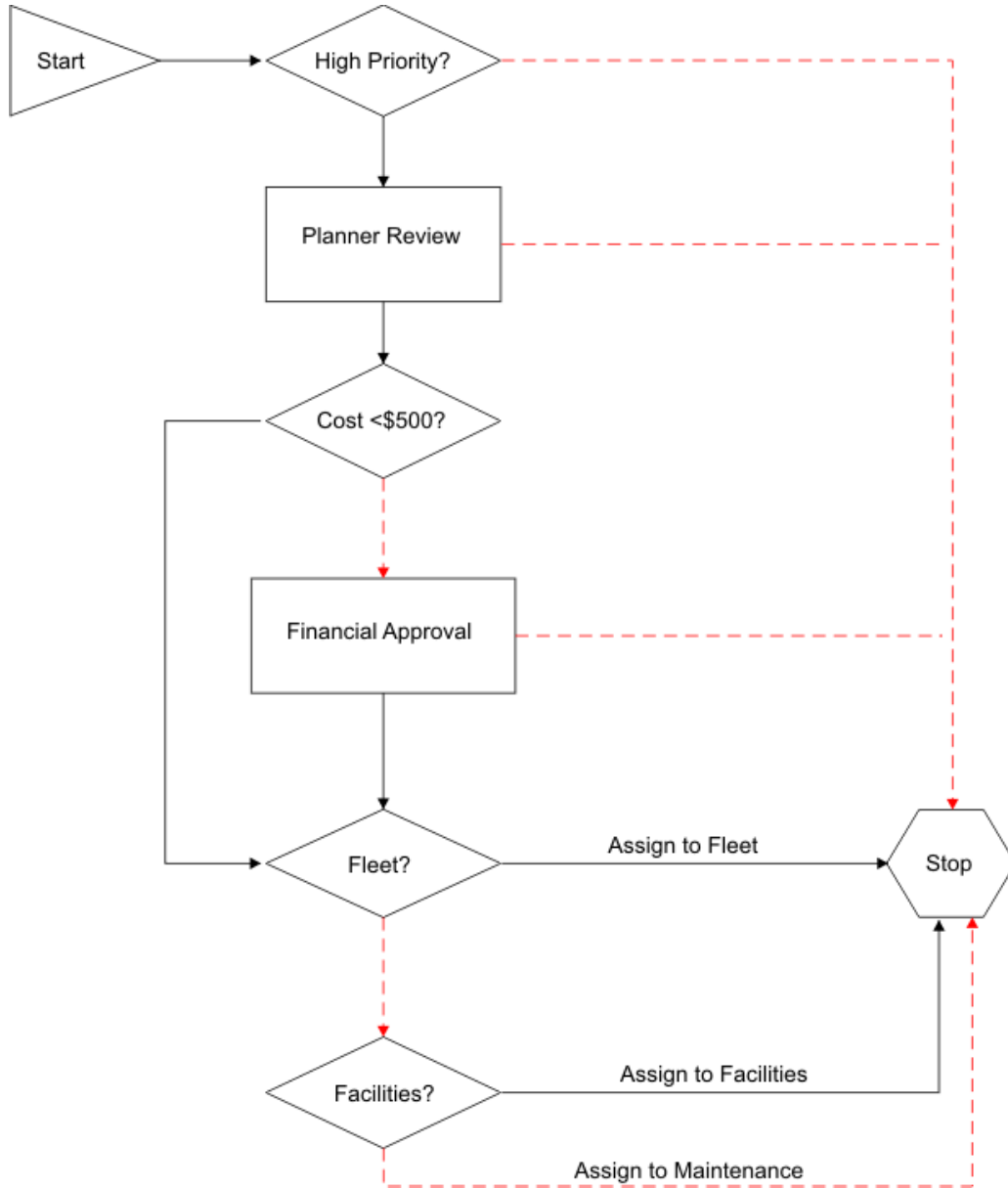
- ▼ If the PM work order is for a vehicle, the system assigns it to the fleet maintenance group.
- ▼ If the PM work order is for a building or location, the system assigns it to the facilities maintenance group.
- ▼ The system assigns all other PM work orders to the maintenance group.

After the system assigns the work order to a maintenance group, the work order exits the Workflow process.

Sample Work Order Process Diagram

The following diagram illustrates one way that you might map the scenario described in the previous section.

Sample PM Work Order Workflow



Sample Service Request Business Process

Our example enterprise uses the software for their Service Desk functions, and they have designed a Workflow process that guides the Service Desk agent through the initial steps of the record management process.

When Service Desk agents take an incoming telephone call, they create a service request ticket to record the interaction. The enterprise has configured the database to require the agent to record the caller's name and telephone number.

The agent also must enter a short description of the service request, for example, a request for information, IT service, or maintenance. The agent must also enter a classification for the service request. Depending on the type of service request, the agent also might enter information about the asset or location.

When the agent saves the service request ticket, the system launches the SR Workflow process. The system displays a Manual Input dialog box with the following options:

- ▼ I must enter additional information regarding this service request.
- ▼ I must enter information about tickets or work orders related to this service request.
- ▼ I must make an entry in the Work Log or Communications Log.
- ▼ I have completed data entry for this ticket.

If agents indicate that they must enter additional information, the system displays either the Service Request tab, the Related Records tab, or the Log tab, depending on which option the agent selected. When agents indicate that they have completed data entry for a service request, the system evaluates the data on the record.

If the agent has not entered asset or location data, the system displays a Manual Input dialog box with the following options:

- ▼ Close ticket - informational call.
- ▼ Close ticket - unauthorized caller
- ▼ Close ticket - misdirected call.
- ▼ Take no action.

If an asset or location is specified on the record, the system displays a Manual Input dialog box with the following options:

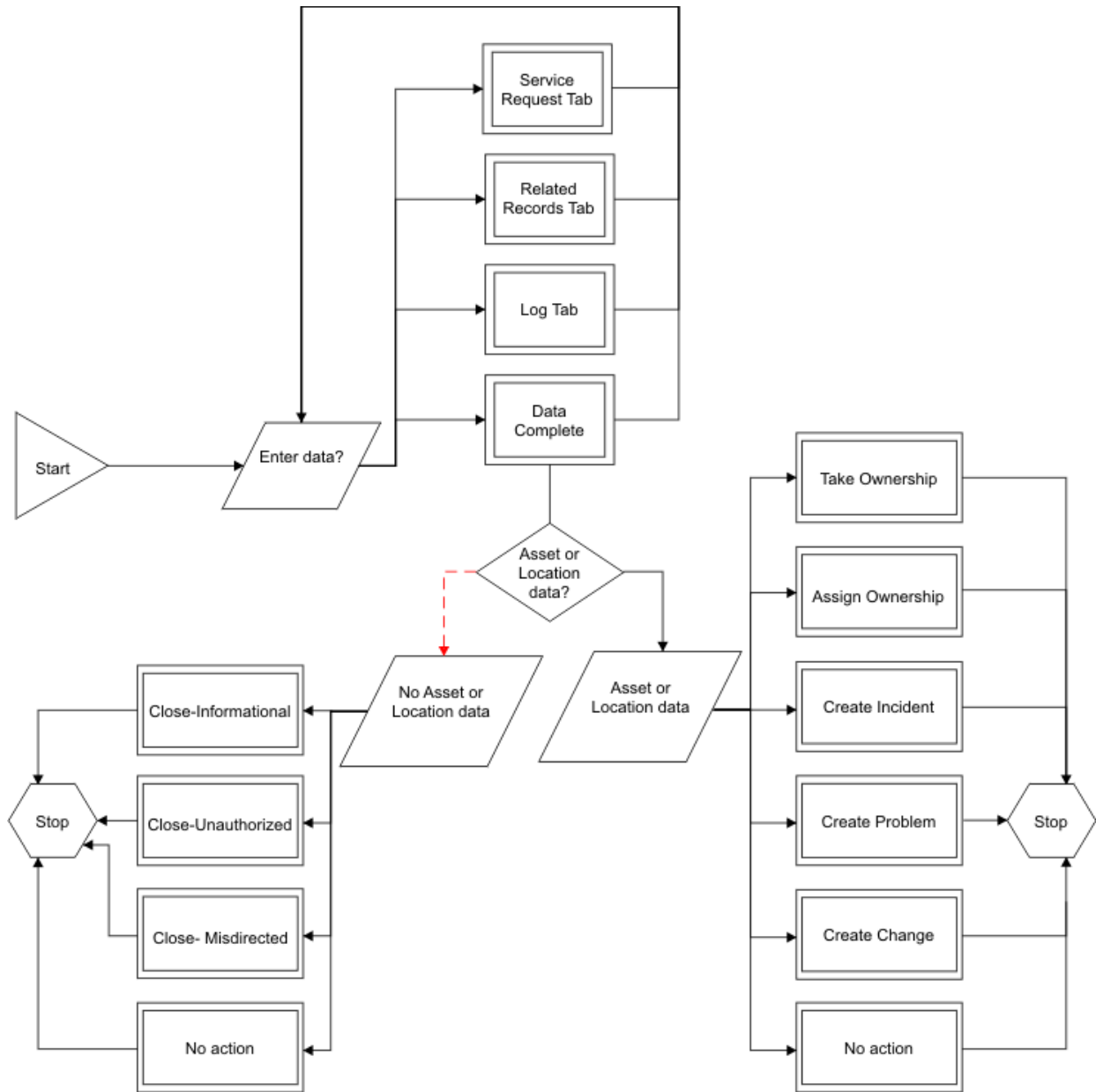
- ▼ Take Ownership of ticket. (**Take Ownership** action)
- ▼ Assign Ownership of ticket. (**Assign Ownership** action)
- ▼ Create Incident record. (**Create Incident** action)
- ▼ Create Problem record. (**Create Problem** action)
- ▼ Create Change work order for an IT asset. (**Create Change** action)
- ▼ Create Work Order for a non-IT asset. (**Create Work Order** action)
- ▼ Take no action on this ticket.

After the agent selects an option from a manual input dialog box, the record exits the Workflow process.

Sample Service Request Process Diagram

The following diagram illustrates one way that you might map the scenario described in the previous section.

Sample Service Request Workflow



Configuring for Workflow

3

Workflow requires minimal configuration before you can create Workflow processes.

Workflow Designer Requirements

Individuals who design and create Workflow processes should be familiar with the following:

- ▼ Your business processes
- ▼ Maximo Asset Management applications
- ▼ Maximo database and data relationships
- ▼ Structured query language (SQL)
- ▼ SQL syntax required by your database

Installing the Java Virtual Machine

The Workflow Designer application requires a Java™ Virtual Machine (JVM) on the client workstation. If you do not have a JVM installed, the system cannot display the Workflow canvas. For more information about JVM requirements, see the *System Administrator Guide*.

Configuring Workflow Administrator E-mail Notifications

During the installation process, you are prompted you to enter an e-mail address for the Workflow Administrator. When errors occur, system messages are sent to this address. The address is recorded in the `maximo.properties` file, which is located in the following directory:

```
<Maximo Root> applications\maximo\properties
```

for example, `C:\Maximo\applications\maximo\properties`

To modify the `maximo.properties` file, complete the following steps:

- 1 Open the `maximo.properties` file using a text editor.

Granting Security Permissions

2 Search for the following property in the Workflow Related Properties section:

```
mxe.workflow.admin=
```

3 Enter or modify the e-mail address, for example:

```
mxe.workflow.admin=jane.doe@ibm.com
```

4 Save your changes.

NOTE Whenever you modify the `maximo.properties` file, you must rebuild and redeploy your EAR files, then restart the server.

Granting Security Permissions

The person designing your Workflow processes must be a user and belong to a security group with security permissions to the following applications:

- ▼ Actions
- ▼ Communication Templates
- ▼ Escalations
- ▼ Inbox/Assignments Setup
- ▼ People
- ▼ Person Groups
- ▼ Roles
- ▼ Workflow Administration
- ▼ Workflow Designer
- ▼ Workflow Inbox (portlet)

NOTE The person or group testing your Workflow processes needs security permissions to additional applications, depending on the processes they are testing.

Modifying Domains

If your business processes for record approvals or status changes involves multiple steps for each approval or status change, you can create synonym statuses. For example, your business process might call for three different people to review a record before it is considered "approved." There is only a single status for waiting for approval (WAPPR) and a single status for approved (APPR). You can create synonym statuses of waiting for approval (WAPPR) that represent each of the preliminary approvals before the record is considered approved.

You use the Domains application to add new synonym values to a value list. For more information about creating synonym statuses, see the *System Administrator Guide* or the Domains Help.

Configuring Workflow for Eastern Asian Languages

For information about configuring the Workflow canvas to properly display Chinese and other Eastern Asian languages, see the *System Administrator Guide*.

Creating a Development (Test) Environment

Because Workflow processes are generally automated, use a test environment where you can design and test Workflow processes without affecting records in your production environment. Design your test environment to duplicate your production environment as closely as possible. Your test database should include enough data and users to let you thoroughly test each Workflow process.

You can use the applications in the Integration module to migrate a Workflow process from your test environment to your production environment. For more information about using the applications in the Integration module, see the *Integration Guide*.

Creating Records for Workflow

4

In addition to the applications in the Workflow module, you use records from other applications when you create Workflow processes. This chapter explores how records that you create in the following applications contribute to Workflow processes:

- ▼ People application (Resources module)
- ▼ Person Groups application (Resources module)
- ▼ Communication Templates application (Administration module)
- ▼ Escalations application (Configuration module)

Creating People Records

A **person record** is a record for an individual who might appear somewhere on a record, for example, in a **Reported By** or **Affected Person** fields on a service request, as a **Supervisor** on a labor record, or as the value in a **Ship To** or **Bill To Attention** field on a purchasing record.

You use the People application to create, modify, view, and delete records for individuals. This application stores personal and official information about individuals, such as users, laborers, asset owners, supervisors, and individuals who receive Workflow notifications.

People Records and Workflow

Workflow assignments are made to roles. And all roles resolve to either a person, a person group, or an e-mail address.

You must create a person record for any individual who will be assigned tasks as part of a Workflow process. When you create records in the Labor and Users applications, you are required to create a person record. Additional individuals, who do not have records in the Labor or Users applications, might also need person records created for them.

Person records that you create for use as part of Workflow processes should contain values in the following fields:

- ▼ **Supervisor** — Person who oversees or manages the individual. This information is used for escalations.
- ▼ **Primary E-mail** — E-mail address where notifications are sent.
- ▼ **Primary Calendar** — Specifies the work calendar that the individual follows. This information is used when determining assignments and escalations.

- ▼ **Primary Shift** — Specifies the shift that the individual works. This information is used when determining assignments and escalations.
- ▼ **Workflow E-mail Notification** — Specifies the circumstances when the individual should receive e-mail notifications for task assignments. The default value is PROCESS.

For information about creating and managing person records, see the People Help.

Understanding Workflow Delegates

If an individual is unavailable for any extended period of time, for example, on vacation, and cannot receive their Workflow assignments, Workflow can route their assignments to a designated alternate. You use the **Workflow Delegate** field to specify the person ID for the alternate, and the **Delegate From** and **Delegate To** fields to indicate the time period when Workflow processes should route assignments to the delegate. If **Workflow Delegate** contains a value, but **Delegate From** and **Delegate To** are empty, *all* Workflow assignments are routed to the delegate.

Creating Person Groups

A **person group** is a list of individuals who might have similar job responsibilities, levels of authority, and security clearances. After you define person groups, responsibility for records such as tickets and work orders can be assigned to a group rather than an individual.

A person group also can receive a record routed by a Workflow process. Which member of a group receives a routed record depends on their calendar and shift. For example, if a purchase order or a work order is routed to a person group, everyone in the group can receive the record unless the Workflow process is configured to send it only to the member whose calendar shows that they are available.

Person Groups and Workflow

Person and person group records exist at the system level. You can specify that a group member for a specific Organization or Site be used when making Workflow assignments.

Workflow assignments are made to roles. Because different workers can fill the same role on different shifts, creating person groups for roles such as "supervisor" or "safety engineer" can simplify a Workflow process, as well as reduce the need for revisions as workers move in and out of roles.

When Workflow makes an assignment to a person group type role, the following logic is used to determine who the task is assigned to:

- ▼ If the **Broadcast** check box is selected on the role record, the task is assigned to all members of the person group.

- ▼ If the **Broadcast** check box is cleared on the role record, the following logic is used to determine a single person to assign the task to:
 - 1 The system checks for a person record with an appropriate **Calendar** and **Shift** for the assignment, checking the group members in the order specified by the **Sequence** field. If no sequence values are specified, the assignment is made to the first group member with an appropriate **Calendar** and **Shift**. The search logic depends on whether the Workflow process is for an application at the Site, Organization, or System level.
 - ▼ If the application is at the Site level, the first check is for person records where the value in the **Use for Site** field matches the Site of the record in the Workflow process. The next check is for person records where the value in the **Use for Organization** field matches the Site of the record in the Workflow process. The third check is for person records where there is no value in either the **Use for Site** field or the **Use for Organization** field.
 - ▼ If the application is at the Organization level, the system checks for person records where the value in the **Use for Organization** field matches the Organization of the record in the Workflow process. The next check is for person records where there is no value in either the **Use for Site** field or the **Use for Organization** field.
 - ▼ If the application is at the System level, the system checks for person records where there is no value in either the **Use for Site** field or the **Use for Organization** field.
 - 2 If there is no person whose **Calendar** and **Shift** match the assignment, the system checks for a person record who is selected as the **Site Default**. You are not required to specify a Site default, however you can specify only a single Site default per Site.
 - 3 If no Site default is specified, the system checks for a person record who is checked as the **Organization Default**. You are not required to specify an Organization default, however you can specify only a single Organization default per Organization.
 - 4 If no Organization default is specified, the system makes the assignment to the person who is the **Group Default**. By default the first person added to a person group becomes the group default, but you can modify this setting.

When you create person groups, you also can define one or more alternates for each person in the group.

For more information about creating and managing person group records, see the Person Groups Help.

Planning Person Groups

When you are planning person groups, keep the following guidelines in mind:

- ▼ Ensure that you include members for each **Calendar** and **Shift** in the group.

- ▼ Ensure that you designate sufficient alternates to cover unavailable group members. Alternates should have the same **Calendar** and **Shift** as the group member they will be replacing.

Creating Communication Templates

You use the Communication Templates application to create and manage generic templates to use when generating e-mail messages.

When you create a communication template, you can specify the following information:

- ▼ The business object that the template can be used for.
- ▼ The applications where the template can be used.
- ▼ The address that the e-mail should be sent from.
- ▼ The address that replies should be sent to.
- ▼ The subject line of the message.
- ▼ The body of the message.
- ▼ One or more recipients of the message. You can send messages to roles, persons, person groups, and e-mail addresses.
- ▼ Whether each recipient should receive the message (To), a carbon copy of the message (CC), or a blind carbon copy of the message (BCC).
- ▼ Documents to include as attachments when the message is generated.

The Communication Templates application lets you use substitution variables when creating the subject line and body of your message. When an e-mail is generated using that template, it replaces the substitution variables from the template with the corresponding values from the record.

Communication Templates and Workflow

Workflow uses communication templates for notifications. Many individuals come into contact with a record as it moves through its life cycle, and often those individuals want or need to know about the progress of the record. You can design your Workflow process to generate notifications as required by your business process. Notifications can be made via e-mail or via pager, providing that your paging system supports e-mail.

You can configure the following Workflow components to generate notifications:

- ▼ escalations
- ▼ negative connection lines
- ▼ positive connection lines
- ▼ Manual Input nodes
- ▼ Task nodes
- ▼ Wait nodes

You can create each notification manually in the Workflow Designer, or you can create communication templates to use for frequently generated notifications, for example, record approvals, rejections, or status changes. When you create communication templates for Workflow notifications you should specify roles as the recipients rather than persons or person groups.

NOTE You cannot modify a communication template in the Workflow Designer application. You should create separate templates for your different notification requirements.

Communication Templates and Escalations

You can use escalations to monitor time-sensitive records and key performance indicators (KPIs). When you create escalation records, you can specify the generation of one or more e-mail notifications when a record reaches the defined escalation point. You can create each notification individually in the Escalations application, or you can create communication templates for frequently generated notifications.

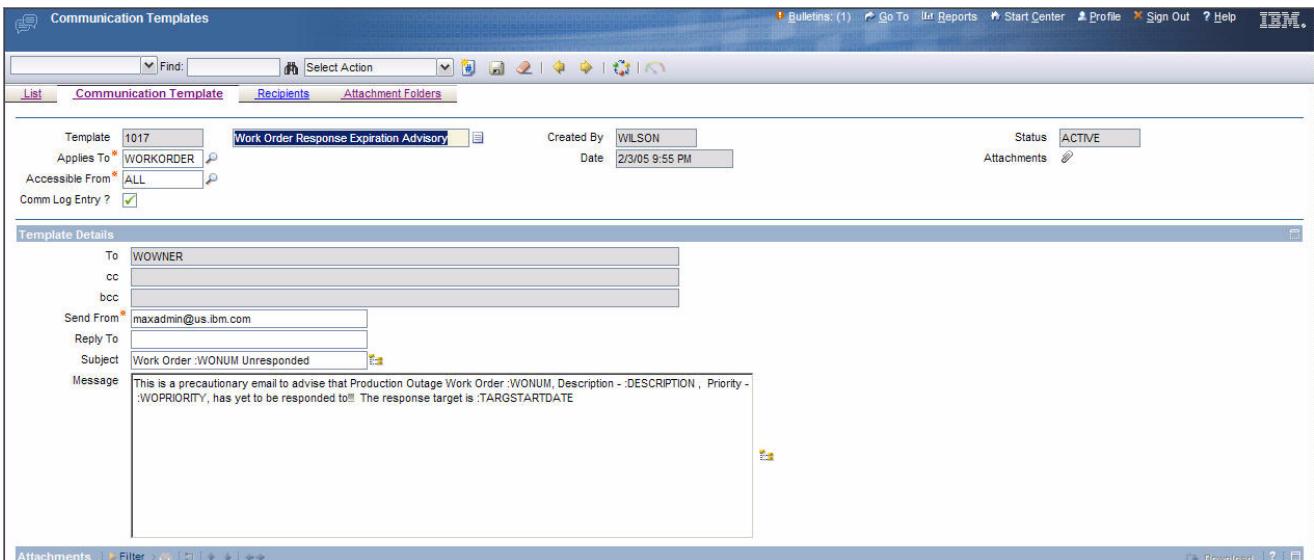
NOTE You also can create escalations on the Escalations tab of the Service Level Agreements application.

Creating Communication Templates

For procedures for the following tasks, see the *System Administrator Guide* or the Communication Templates Help:

- ▼ Creating a Communication Template
- ▼ Adding a Recipient to a Communication Template
- ▼ Associating Attachments with a Communication Template
- ▼ Modifying a Communication Template
- ▼ Changing the Status of a Communication Template
- ▼ Duplicating a Communication Template

Communication Template



Using Substitution Variables

You can use substitution variables in the **Subject** and **Message** field of a communication template. A **substitution variable** is code that represents a column in the database related to the object specified in the **Applies To** field on the communication templates. When a notification for a record is generated, it replaces the variable with the database value for that column.

You can click the **Detail Menu** button next to the **Subject** and **Message** fields to select a field from the tables and related tables for the object specified in the **Applies To** field on the communication template.

When you enter a substitution variable manually, you enter a colon (:), followed by the database column name, for example :WONUM.

- ▼ If the column is from the main database table for the object, the format is a colon (:) and the column name, for example :WONUM.
- ▼ If the column is from a database table *related* to the main object, the format is a colon (:), one or more relationship names separated by periods (.), and then the column name, for example :ASSET.STATUS.

NOTE Be sure to include a space before and after each substitution variable to ensure that the generated text is formatted properly.

For example, if you were creating a communication template to notify the system administrator to create a new user record, your message might be similar to the following message:

Subject — New employee

Message — :FIRSTNAME :LASTNAME was hired on :HIREDATE. Please create a user record for this individual and e-mail them their user name and password at :EMAIL.EMAILADDRESS.

When a communication template is used to generate a notification, it replaces the substitution variables with the corresponding values from the record that is generating the notification. A notification generated from the previous example might resemble the following notification:

Subject — New employee

Message — Julie Stickler was hired on 6/01/01. Please create a user record for this individual and e-mail them their user name and password at Julie.Stickler@us.ibm.com.

TIP To find out the column name for any field, place the cursor in the field and press Alt+F1. You see the table and column name associated with the field.

If you are including a substitution variable for a non-required field, phrase the message so that it still makes sense to the reader if the field is null.

Inserting Hyperlinks

You can insert a hyperlink to a record within the body of your communication template message that includes the application name and record ID.

To insert a hyperlink in a Workflow communication template, insert the following link into the body of your message:

```
http://:HOSTNAME/maximo/ui/
maximo.jsp?event=loadapp&value=:APP&uniqueid=:OWNERID
```

where HOSTNAME is the name or IP address of the MXServer.

When a notification is generated, the application name and record ID appear in the message as a hyperlink that leads directly to the record.

NOTE To be able to view the record, the e-mail recipient must be a registered user with security permission to the specified application.

Modifying Communication Templates

You also can use the Communication Templates application to modify communication templates. You can modify a template without inactivating it. However, you cannot modify a communication template if it is in use on an escalation record, or an enabled or active Workflow process. If you cannot modify a communication template, an error message is displayed.

Creating Escalations

An **escalation** is a mechanism for monitoring time-sensitive records which can take actions or send notifications when a record reaches a defined escalation point. You can create an escalation for any business object. Because all applications are associated with MBOs, you can create escalations for any application.

You use the Escalations application to create, view, modify, and delete escalation records. Creating an escalation record consists of the following tasks:

- 1 Defining the header information for the escalation, including the object and records to which the escalation applies.
- 2 Defining one or more escalation points, which specify the threshold that triggers the escalation.
- 3 Defining actions, notifications, or both that you want initiated when an escalation point is reached. You define actions, notifications, or both separately for each escalation point.
- 4 Validating the escalation record.
- 5 Activating the escalation record.

Escalations and Workflow

You can create an escalation for any business object. Workflow uses escalations primarily with the following objects:

- ▼ **WFASSIGNMENT** — object associated with Workflow task assignments. You can create escalations that monitor whether an assignee completes a task assignment within the specified time limit. If the task is not completed within the time limit, it can trigger one or more actions. For example, those actions

can include reassigning the task to a work group, or generating notifications to the supervisor.

- ▼ **WFINSTANCE** — object associated with active instances of Workflow processes. You can create escalations to monitor how long it takes a record to exit the control of a process, for example, if the process design includes one or more Wait nodes.

Escalations and Actions

An **action** is an event that you want triggered when records are found that meet the conditions defined by the escalation point. You create action records in the Actions application.

An **action group** is a type of action record that includes multiple actions and a **Sequence** to use when performing the actions. Escalations are always associated with action groups.

You can associate an action group with an escalation in either of the following ways:

- ▼ You can create action groups using the Actions application, then click the **Detail Menu** button next to the **Action Group** field on the Actions subtab to associate the action group with the escalation.
- ▼ You can create action groups in the Escalations application using the **New Row** button on the Actions subtab. When you create an action group in the Escalations application, the action group receives a generated name and the actions receive assigned Sequence numbers. The sequence numbers are based on the order that you add the actions to the group.

Creating Escalation Records

You use the Escalations application to create escalation records. An escalation record consists of the following elements:

- ▼ **Object** — [Applies To field] You create escalation records for a specific business object, and apply to records in the applications associated with the object.
- ▼ **SQL Statement** — [Condition field] An escalation record can apply to all application records, or to a specific set of records. You can create a SQL statement that specifies records to which the escalation should be applied. The conditions can apply to one or more tables associated with the object.
- ▼ **Organization** and/or **Site** — Escalations are at the System level. You can create escalations for use with a specific Organization or Site.
- ▼ **Schedule** — A schedule that defines how often the system checks for records meeting the criteria for the escalation. The polling interval can be seconds, minutes, hours, days, weeks, or months.
- ▼ **Escalation Point** — Date and time based criteria for when to trigger the actions and/or notifications specified on the escalation record. An escalation record can have one or more escalation points.

- ▼ **Actions** — Any actions that must be taken when a record reaches an escalation point. You define actions separately for each escalation point.
- ▼ **Notifications** — Any notifications that must be generated when a record reaches an escalation point. You define notifications separately for each escalation point.

To create an escalation, complete the following steps:

- 1 On the toolbar, click **New Escalation**. If the **Escalation** field is empty, enter a value.
- 2 Enter a description in the **Escalation Description** field.
- 3 In the **Applies To** field, enter the object to which to apply the escalation, or click **Select Value**.
- 4 If appropriate, enter values in the **Organization** and **Site** fields.
- 5 If appropriate, you can enter an expression in the **Condition** field to indicate to which records the escalation applies. For example, if you only want to escalate task assignments that have a value specified in the **Time Limit** field, you would include the following in your SQL statement: `TIMELIMIT is not null`. You can enter the SQL condition manually, or use the Expression Builder as described in "Using the Expression Builder," on page 31.
- 6 In the **Schedule** field, click **Set Schedule** to set how frequently to poll the database for records.
- 7 Click **Save Escalation**.

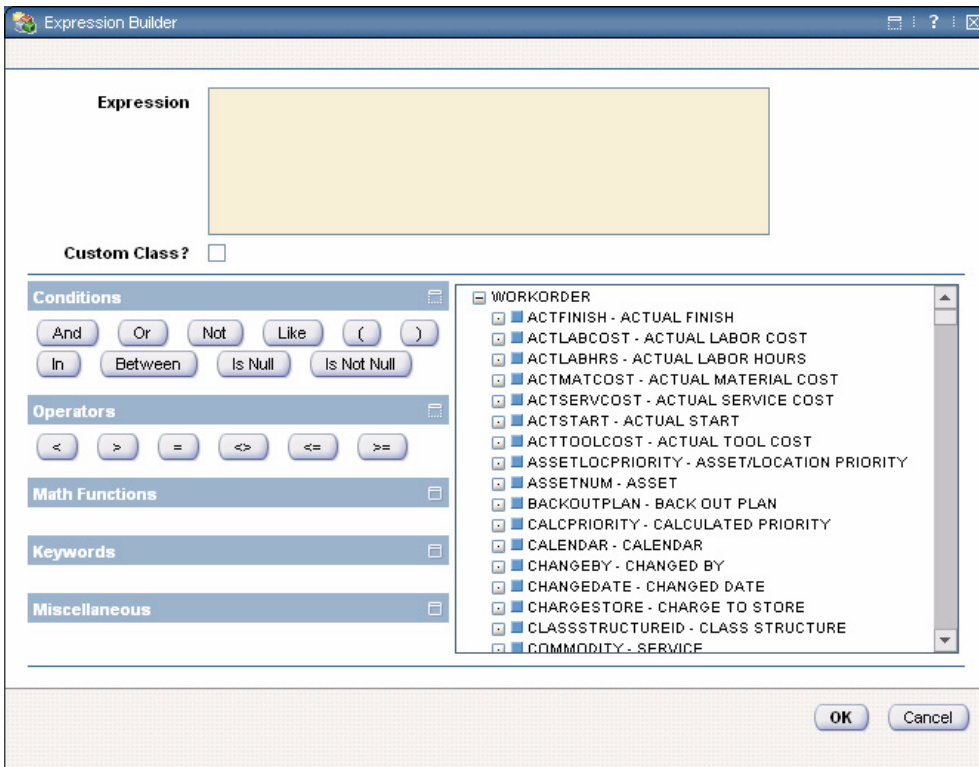
NOTE You can save an escalation record after you enter the header information. Before you can activate and use an escalation record, you *must* define at least one escalation point, and at least one action or notification for the escalation point. These procedures are described in "Defining Escalation Points," on page 33, "Defining Actions," on page 34, and "Defining Notifications," on page 34.

Using the Expression Builder

An escalation record can contain SQL statements in the **Condition** and/or **Escalation Point Condition** fields specifying to which records the escalation applies, and what data on the record triggers the escalation. These conditions can apply to one or more tables associated with the object.

You can enter a SQL condition manually, or use the Expression Builder to help you to construct a SQL statement. The Expression Builder includes common SQL conditions, operators, mathematical functions, keywords, a calendar look up, and a link to Classifications. The Expression Builder also includes a relationship tree that lets you drill down through the fields and related tables for the specified object or application and select a value.

SQL Expression Builder



NOTE The SQL Expression Builder is a tool for building SQL expressions. It requires a basic understanding of SQL structure and syntax.

To use the SQL Expression Builder, complete the following steps:

- 1 In the Escalations application, create or display an escalation record.
- 2 In a **Condition** field, type a value or click the **SQL Condition Builder** button.
- 3 In the SQL Expression Builder dialog box, select one or more of the following options to build an SQL expression:
 - ▼ Type text in the **Expression** field.
 - ▼ Click one or more buttons in the Conditions section to add conditions to your expression.
 - ▼ Click one or more buttons in the Operators section to add SQL operators to your expression.
 - ▼ Click one or more columns in the relationship tree to add a database column to your expression.
 - ▼ Click the **Maximize** button in the Miscellaneous section to access the following buttons:
 - Test Expression
 - Calendar
 - Classifications

- 4 To close the Expression Builder, click **OK**.
- 5 Click **Save Escalation**.

Defining Escalation Points

An escalation point defines the attributes of a record that trigger the escalation. You can define one or more escalation points for an escalation, and specify one or more actions and/or notifications for each escalation point.

In general, you can create the following categories of escalation points:

- ▼ **Elapsed time since a past event** — Compares the current date and time to the specified field that represents an event in the past. You can select from a list of DATETIME fields on the record, for example, a **Start Date** on a Workflow assignment, an **Actual Start** date on a work order, or a **Status Date** on a statusable record.
- ▼ **Time until a future event** — Compares the current date and time to the specified field that represents an event in the future, for example, a **Renewal Date** on a contract, a **Due Date** on an invoice, or a **Target Finish** date on a work order.
- ▼ **Condition** — Condition without a time measurement. If you want to trigger the actions and notifications of an escalation based on a condition that does not have a time measurement, you can specify the condition in the **Escalation Point Condition** field.

NOTE You also can use the **Condition** field to specify that the escalation point should be applied to only the subset of records specified by the condition.

To define an escalation point, complete the following steps:

- 1 In the Escalations application, create or display an escalation record.
- 2 In the Escalation Points table window, click **New Row**. The Row Details open.
- 3 To specify the condition that should trigger the escalation point, select one of the following options:
 - ▼ If you are creating a time-based escalation point, enter values in the **Elapsed Time Attribute**, **Elapsed Time Interval** and **Interval Unit of Measure** fields. Enter a positive number in the **Elapsed Time Interval** field to indicate a time period in the past, enter a negative number to indicate a time in the future.
 - ▼ If you are creating a condition-based escalation point, enter an SQL statement in the **Escalation Point Condition** field to specify the condition that should trigger the escalation. You can type a value manually, or click the **SQL Expression Builder** button.
- 4 If you want the actions and notifications of the escalation point triggered more than once, select the **Repeat** check box.
- 5 Click **Save Escalation**.

Defining Actions

You must define at least one action or notification for each escalation point on an escalation record. You define actions separately for each escalation point.

You use the Actions application to create action records. For more information about creating actions, see "Creating Action Records," on page 47.

To define actions for an escalation point, complete the following steps:

- 1 In the Escalations application, create or display an escalation record.
- 2 In the Escalation Points table window, select the escalation point for which you want to define actions.
- 3 If necessary, click the Actions subtab.
- 4 In the Actions table window, click **New Row**. The Row Details opens.
- 5 In the **Action** field, enter a value or click **Detail Menu** to select an option and retrieve a value.
- 6 If appropriate, you can modify the **Sequence** field to indicate the order in which the action is performed.
- 7 Click **Save Escalation**.

Defining Notifications

You must define at least one action or notification for each escalation point on an escalation record. You define notifications separately for each escalation point.

You can use a communication template to create a notification, or type the subject, message, and recipients manually. You use the Communication Templates application to create communication templates. For more information about creating communication templates, see "Creating Communication Templates," on page 26.

To define notifications for an escalation point, complete the following steps:

- 1 In the Escalations application, create or display an escalation record.
- 2 In the Escalation Points table window, select the escalation point for which you want to define notifications.
- 3 If necessary, click the Notifications subtab.
- 4 In the Notifications table window, click **New Row**. The Row Details opens.
- 5 Select one of the following options:
 - ▼ In the **Template** field, enter a value or click **Detail Menu** to select an option and retrieve a value.
 - ▼ Enter a **Role/Recipient**, **Subject**, and **Message**.
- 6 Click **Save Escalation**.

Duplicating Escalations

You can use the **Duplicate Escalation** action to copy an existing escalation record, for example, if you wanted to create similar escalations for different objects. After you duplicate an escalation record, you then can modify it as needed.

To duplicate an escalation, complete the following steps:

- 1 In the Escalations application, display the record that you want to duplicate.
- 2 From the Select Action menu, select **Duplicate Escalation**.
- 3 If the **Escalation** field is empty, enter a name for the escalation.
- 4 You can modify the description of the escalation in the **Escalation Description** field. To enter additional information, click **Long Description**.
- 5 If appropriate, modify the **Applies To** field.
- 6 Modify the record as needed.
- 7 Click **Save Escalation**.

Validating Escalations

An escalation record must be validated before you can activate it. Validation checks the SQL statements in the **Condition** and/or **Escalation Point Condition** fields to ensure that the SQL is valid and that the escalation engine can run it.

The Validation process checks for the following:

- ▼ Syntax errors.
- ▼ Tables and columns in conditions must exist for the specified object.

NOTE The system does not validate actions or notifications.

If an error is discovered in one or more SQL statements, the errors are written to the Validation Results section of the escalation record.

To validate an escalation, complete the following steps:

- 1 In the Escalations application, display the record that you want to validate.
- 2 From the Select Action menu, select **Validate**. The system displays a message in the Navigation Bar.
- 3 If the validation fails, click the **Maximize** button to expand the Validation Results section and view the error log. The SQL error might be in the **Condition** field, or in an **Escalation Point Condition** field. Correct the SQL statements and validate the record again.
- 4 Click **Save Escalation**.

Activating Escalations

An escalation record must meet the following criteria before you can activate it:

- ▼ Have at least one escalation point
- ▼ Have at least one action or notification defined for each escalation point

Activating an escalation does not trigger an escalation process. The escalation process is triggered only when the escalation engine finds records meeting the criteria defined by the escalation points. When you activate an escalation, the system polls for records meeting the criteria set by the escalation, according to the frequency in the **Schedule** field of the escalation record. If records are found that match, and any of those records meet the conditions defined by the escalation points, then the escalation mechanism triggers the appropriate actions, notifications, or both.

When you activate an escalation, all fields on the record become read-only. You cannot edit an escalation record while it is active.

NOTE An escalation record must be validated before it can be activated. The escalation is automatically validated when you activate it.

To activate an escalation, complete the following steps:

- 1 In the Escalations application, display the record that you want to activate.
- 2 From the Select Action menu, select **Activate/Deactivate Escalation**. The system selects the **Active** check box in the record heading and creates an instance of the ESCALATION cron task.
- 3 Click **Save Escalation**.

Deactivating Escalations

When you activate an escalation, all fields become read-only, and you cannot edit the definition of the escalation while it is active. To modify or delete an escalation, you first must deactivate it.

To deactivate an escalation, complete the following steps:

- 1 In the Escalations application, display the record that you want to deactivate.
- 2 From the Select Action menu, select **Activate/Deactivate Escalation**. The **Active** check box is cleared in the record heading. The system deactivates the instance of the ESCALATION cron task associated with the escalation.
- 3 Click **Save Escalation**.

Modifying Escalations

All fields on an activated escalation are read-only. To modify an escalation record, you first must deactivate it as described in , see "Deactivating Escalations," on page 36.

You can modify the following elements of a deactivated escalation:

- ▼ You can delete one or more escalation points. To activate an escalation, it must have at least one escalation point. When you delete an escalation point, the links to the associated actions and notifications are deleted.
- ▼ You can delete one or more actions or notifications associated with an escalation point. To activate an escalation, it must have at least one action or notification defined for each escalation point.

For instructions on how to delete escalations, refer to the Escalations Help.

5

Creating Roles

You use the Roles application to create and manage role records. Role records can be used with communication templates, escalations, service level agreements (SLAs), and Workflow processes.

Creating Role Records

A **role** is a function or position within a business. A role can represent a specific job title, for example, a department manager, or an assigned duty, for example, a watch officer. You can use a role to represent a specific person or a group of people. You also can create roles for class files and datasets.

You use the Roles application to create, modify, view, and delete role records that can be used as part of a communication template, escalation, service level agreement (SLA) or Workflow process. When a role is used within a process, the system determines the correct individuals to route the process to based on information within the role record.

Understanding Roles and Workflow

Workflow Inbox assignments and Workflow notifications are always made to roles. All role records point to one or more person IDs or to a table and column in the database that represent a person. When a role is encountered in a Workflow process, it resolves the role to a person group or individual person record.

You use roles when you create and configure the following Workflow elements:

- ▼ Communication templates (recipients)
- ▼ Escalations
- ▼ Negative connection lines (notifications)
- ▼ Positive connection lines (notifications)
- ▼ Manual Input nodes (notifications)
- ▼ Task nodes (assignments and notifications)
- ▼ Wait nodes (notifications)

Using role records instead of person records for assignments and notifications lets you create more generic Workflow processes that require less maintenance as individuals move in and out of different roles within your company.

Understanding Role Types

You can use a role to represent different functions or positions. When you create role records, specify a role **Type** to help determine how to resolve the role when it is encountered in a process.

You can create the following types of roles:

- ▼ **CUSTOM** — Used when you want to use a custom class file that resolves to one or more people. Custom class files are Java programs written to perform specific data management processes. The record is routed to one or more persons based on the data returned by the custom class program.
- ▼ **DATASET** — Used when you route a record based on a specific field on a record, or a field on a related record or child record. Specify a value in the **Object** field when creating DATASET type roles. The record is routed to one or more persons based on the field that you specify in the **Value** field. Examples of fields that can be used with a DATASET type role include **Affected User**, **Reported By**, **Supervisor**, **Work Group**, and so forth.
- ▼ **EMAILADDRESS** — Used when you want to send e-mail notifications to one or more e-mail addresses. Because e-mail addresses might or might not represent individuals who have person records, these addresses can be used for notifications, but not for assignments.
- ▼ **PERSONGROUP** — Used when you want to route a record to one or all members of a person group. You use the Person Groups application to create person groups.
 - If the **Broadcast** check box is selected, assignments and notifications are sent to all members of the group.
 - If the **Broadcast** check box is cleared (the default), the assignment or notification is not routed to all members of the group. Instead, the assignment or notification is routed to the first available group member based on their calendar and shift, or to the individual who is the group default assignee. For more detail about how the assignee is determined, see "Person Groups and Workflow," on page 4-24.
- ▼ **PERSON** — Used when you want to route a record to a specific individual. You use the People application to create person records.
- ▼ **USERDATA** — Used when you want to route a record based on a specific field within the person record of the logged in user.

Creating Role Records

You use the Roles application to create role records that can be used as part of a communication template, escalation, service level agreement (SLA), or Workflow process.

You can create different types of roles. The value in the **Type** field determines which fields on the role record can be edited, and the values that can be entered in those fields.

To create a role, complete the following steps:

- 1 On the toolbar, click **New Role**. If the **Role** field is empty, enter a name for the role.
- 2 Enter a description in the **Role Description** field. To enter additional information, click **Long Description**.
- 3 If you are creating a DATASET type role, enter a value in the **Object** field or click **Select Value**. If you are creating another role type, do not enter a value in the **Object** field.
- 4 In the **Type** field, select a value from the menu of role types.
- 5 In the **Value** field, enter a value that specifies how to resolve the role at run time.
 - ▼ If **Type** = CUSTOM, enter the name and path of a class file that resides in the Maximo directory.
 - ▼ If **Type** = DATASET, click **Select Value** to select a field from the object specified in the **Object** field.
 - ▼ If **Type** = EMAILADDRESS, enter one or more e-mail addresses.
 - ▼ If **Type** = PERSONGROUP, enter a person group record or click **Detail Menu** to select an option and retrieve a value.
 - ▼ If **Type** = PERSON, enter a person record or click **Detail Menu** to select an option and retrieve a value.
 - ▼ If **Type** = USERDATA, click **Select Value** to select a field from the person object.
- 6 If you are creating a CUSTOM type role, use the **Parameter** field to specify a parameter to be used with or passed to the custom class.
- 7 If you are creating a DATASET or USERDATA type role, you can select the **E-mail** check box to indicate that the data set consists of e-mail addresses for individuals who might not have person records.

- 8 If you are creating a PERSONGROUPID, CUSTOMCLASS, DATASET, or USERDATA type role, you can select the **Broadcast** check box to indicate that assignments and notifications should be sent to all members in a group.
- 9 Click **Save Role**.

Duplicating Roles

You can use the **Duplicate Role** action to copy an existing role record. For example, if you want to create roles for different person groups, you can duplicate a role. After you duplicate a role record, you then can modify it as needed.

To duplicate a role, complete the following steps:

- 1 In the Roles application, display the record that you want to duplicate.
- 2 From the Select Action menu, select **Duplicate Role**.
- 3 If the **Role** field is empty, enter a name for the role.
- 4 Enter a description in the **Role Description** field. To enter additional information, click **Long Description**.
- 5 Modify additional fields as needed.
- 6 Click **Save Role**.

Modifying Roles

You can modify a role record at any time.

CAUTION Role records are not copied when a Workflow process instance is created. Modifying a role record affects ALL process instances that use the role, including existing process instances.

To modify a role, complete the following steps:

- 1 In the Roles application, display the record that you want to modify.
- 2 Modify the fields as needed.
- 3 Click **Save Role**.

Deleting Roles

You can delete a role record using the **Delete Role** action available from the Select Action menu. A role cannot be deleted if it is being used with any of the following records or Workflow elements:

- ▼ Communication templates
- ▼ Escalations
- ▼ Service level agreements
- ▼ Workflow negative connection lines
- ▼ Workflow positive connection lines
- ▼ Workflow Manual Input nodes
- ▼ Workflow Task nodes
- ▼ Workflow Wait nodes

To delete a role, complete the following steps:

- 1** In the Roles application, display the record that you want to delete.
- 2** From the Select Action menu, select **Delete Role**. The role record is deleted from the database.

Creating Actions

6

You can use the Actions application to create and manage actions and action groups. Actions and action groups can be used with escalation, service level agreement (SLA), and Workflow processes.

Creating Action Records

An **action** is an event that is triggered when the escalation engine finds records that meet the conditions defined by an escalation point, service level agreement, or Workflow process. You can create actions that initiate an application action, change the status of a record, run a custom class or a specified executable program, or set the value of a field on a record.

You use the Actions application to create and manage both individual action records and action group records. An action group contains multiple actions that are initiated or processed in sequence.

Understanding Actions and Workflow

Workflow processes use actions to move records through a process and to trigger events, for example, status changes. You use actions when you create and configure the following Workflow elements:

- ▼ Escalations
- ▼ Negative connection lines
- ▼ Positive connection lines

Creating records in the Actions application lets you define actions once, then reuse them when creating multiple Workflow processes.

Understanding Actions and Escalations

An escalation is a mechanism for monitoring time-sensitive records automatically, which can take actions or send notifications when a record reaches a defined escalation point. You create the actions that are associated with an escalation record in the Actions application.

Understanding Action Types

You can create several different types of actions using the Actions application. When you create an action record, you specify an action **Type** to help determine what kind of action to take when the action is encountered in a process.

An action can be one of the following types:

- ▼ **APPACTION** — Used to specify that an application action be initiated. For this type of action, there must be values in the **Object** and **Value** fields. When creating an APPACTION type action, you can specify one of the following actions if it is available for the specified object:
 - **Apply SLA** — Apply the specified service level agreement.
 - **Create Change** — Create a change work order.
 - **Create Incident** — Create an incident ticket.
 - **Create Problem** — Create a problem ticket.
 - **Create Release** — Create a release work order.
 - **Create SR** — Create a service request ticket.
 - **Create WO** — Create a work order.
 - **WF Accept** — Workflow auto-accept. Accepts the record and routes it to the positive path in the Workflow process.
 - **WF Escalate** — Escalate the record in the Workflow process and reassigns the assignment to its escalation role.
 - **WF Initiate** — Initiate a Workflow process. This option requires a value in the **Parameter/Attribute** field.
 - **WF Reject** — Workflow auto-reject. Rejects the record and routes it to the negative path in the Workflow process.
- ▼ **CHANGESTATUS** — Used to specify that the status of a record will change. There must be a value in the **Object** field and a status in the **Value** field for this type of action.
- ▼ **CUSTOM** — Used to specify that a custom class file should run. There must be a value in the **Object** field and the name and path of a class file in the **Value** field for this type of action.
- ▼ **EXECUTABLE** — Used to specify that a program on the server should run. For this type of action, the name of a program file must be in the **Value** field.

- ▼ **GROUP** — Used to specify that the system should run the sequence of actions that you specify in the Members table window.
- ▼ **SETVALUE** —Used to specify that the system should set the value of a specified field. For this type of action, values are required in the **Object**, **Value**, and **Parameter/Attribute** fields.

Creating Action Records

You use the Actions application to create action records that can be used as part of an escalation, service level agreement (SLA), or Workflow process.

You can create different types of actions. The value in the **Type** field determines which fields on the action record you can edit, which fields are required, and the values that can be entered in those fields.

To create an action, complete the following steps:

- 1 On the toolbar, click **New Action**. If the **Action** field is empty, enter a name for the action.
- 2 Enter a description in the **Action Description** field. To enter additional information, click **Long Description**.
- 3 In the **Value** field, enter a value that specifies the type of action to initiate.
 - ▼ If you are creating an APPACTION type action, click **Detail Menu** to select from the list of available actions. For this type of action, a value is required in the **Object** field.
 - ▼ If you are creating a CHANGESTATUS type action, enter a status for the specified object. For this type of action, a value is required in the **Object** field.
 - ▼ If you are creating a CUSTOM type action, enter the name and path of a class file that resides in the Maximo directory.
 - ▼ If you are creating an EXECUTABLE type action, enter the name and path of an executable file that exists on the server.
 - ▼ If you are creating a GROUP type action the **Value** field is read-only.
 - ▼ If you are creating a SETVALUE type action, enter the value to which you want the field set. You can click **Detail Menu** to use the SQL Expression Builder. For this type of action, values are required in the **Object** and **Parameter/Attribute** fields.
- 4 If you are creating an APPACTION, CHANGESTATUS, CUSTOM, or SETVALUE type action, enter a value in the **Object** field, or click **Select Value**. Specifying an **Object** is optional for GROUP and EXECUTABLE type actions.

- 5 If you are creating a SETVALUE type action, enter a value in the **Parameter/Attribute** field, or click **Detail Menu**.

NOTE The **Parameter/Attribute** field contains a relationship tree containing relationships associated with the main object.

- 6 In the **Type** field, select a value from the menu of action types.
- 7 If you are creating a CHANGESTATUS type action, you can use the **Memo** field to add remarks regarding the status change.
- 8 If you are creating an action specifically for use with Escalations or Workflow, you can change the value in the **Accessible From** field. Click **Detail Menu** to select an option and retrieve a value.
- 9 Click **Save Action**.

Creating Action Groups

You can create a GROUP type action containing two or more action records, and specify a sequence to use when the actions in the group are activated.

The following rules apply to action groups:

- ▼ If you specify an object for the group, all members of the action group must be for the same object.
- ▼ Group type actions cannot be members of an action group.

NOTE When you create a GROUP type action the **Value**, **Parameter/Attribute**, and **Memo** fields are all read-only.

To create an action group, complete the following steps:

- 1 On the toolbar, click **New Action**. If the **Action** field is empty, enter a name for the role.
- 2 Enter a description in the **Action Description** field. To enter additional information, click **Long Description**.
- 3 If appropriate, enter a value in the **Object** field.
- 4 In the **Type** field, select GROUP from the menu of action types.
- 5 If you are creating an action specifically for use with Escalations or Workflow, you can change the value in the **Accessible From** field. Click **Detail Menu** to select an option and retrieve a value.

- 6 Click **Select Members**. You see a list of actions that exist for the specified object. If you do not specify an object, you see a list of action records that do not have a specified object.
 - a To select an action, select the **Select Row** check box. You can select more than one action. To cancel a selection, clear the check box.
 - b Click **OK**. Your selections are copied to the Members table window and sequence numbers are assigned to each action.
- 7 If necessary, you can modify the **Sequence** field to change the order in which the actions are initiated.
- 8 Click **Save Action**.

Duplicating Actions

You can use the **Duplicate Action** action to copy an existing action record, for example, if you wanted to create the same application action for two different objects. Once you duplicate an action record, you can then modify it as needed.

To duplicate an action, complete the following steps:

- 1 In the Actions application, display the record that you want to duplicate.
- 2 From the Select Action menu, select **Duplicate Action**.
- 3 If the **Action** field is empty, enter a name for the action.
- 4 Enter a description in the **Action Description** field. To enter additional information, click **Long Description**.
- 5 Modify additional fields as needed.
- 6 Click **Save Action**.

Modifying Actions

You can modify an action record at any time.

CAUTION Action records are not copied when a Workflow process instance is created. Modifying an action record affects ALL process instances that use the action, including existing process instances.

To modify an action, complete the following steps:

- 1 In the Actions application, display the record that you want to modify.
- 2 Modify the fields as needed.
- 3 Click **Save Action**.

Deleting Actions

You can delete an action record using the **Delete Action** action available from the Select Action menu. An action cannot be deleted if it is being used with any of the following records or Workflow elements:

- ▼ Escalations
- ▼ Negative connection lines
- ▼ Positive connection lines
- ▼ Service level agreements

To delete an action, complete the following steps:

- 1** In the Actions application, display the record that you want to delete.
- 2** From the Select Action menu, select **Delete Action**.

Understanding the Workflow Designer Application

7

You use the Workflow Designer application to create, view, modify, and delete Workflow process records, including the following requirements:

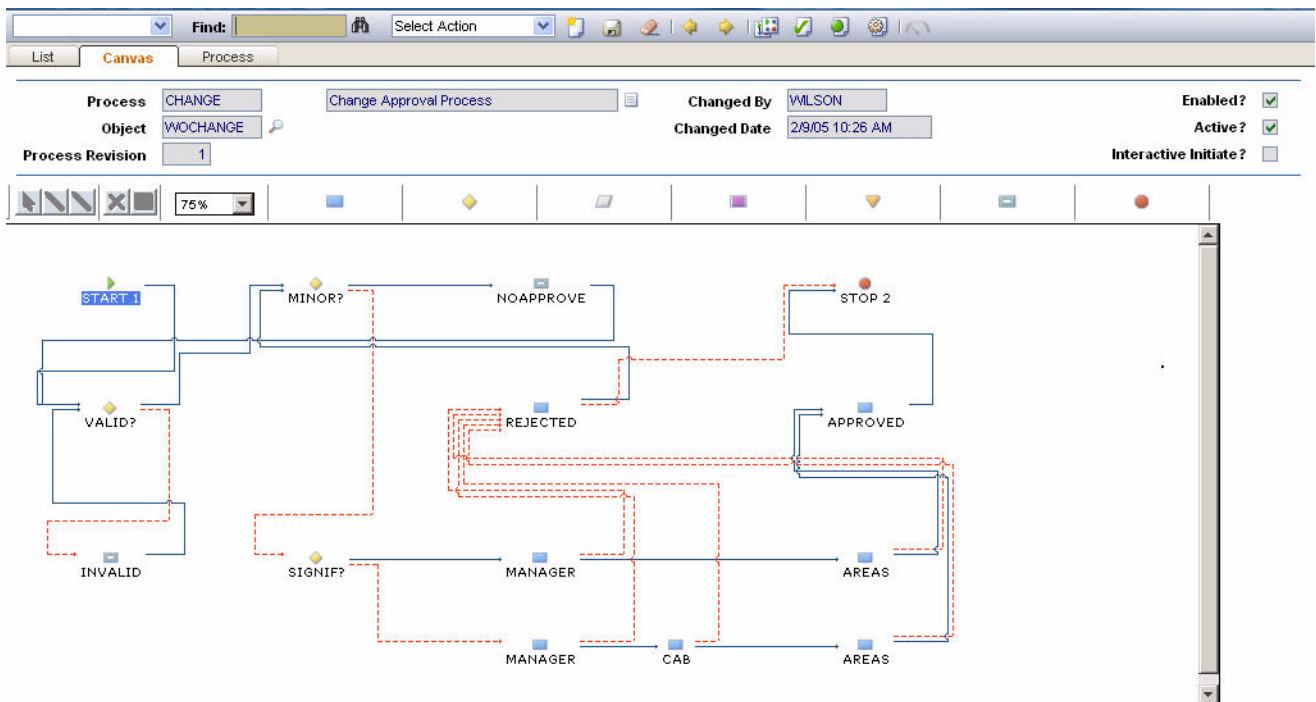
- ▼ What should happen to the record as it goes through the process
- ▼ What manual input users must perform
- ▼ Which actions are performed automatically
- ▼ Which notifications are sent, and to whom

This chapter describes the Workflow Designer application and the graphical elements used to construct a Workflow process. For information about creating Workflow processes, see Chapter 8, "Creating Workflow Processes," on page 63.

Understanding the Workflow Canvas

The Workflow Canvas tab provides the tools and work space to create, view, and modify Workflow processes. The Workflow canvas is a graphical representation of a Workflow process that lets you see the process elements and how they are connected.

The Workflow Canvas Tab



The Workflow Canvas tab consists of the following sections:





- ▼ Record header
- ▼ Workflow tool palette
- ▼ Workflow canvas

You use the canvas to add nodes and connection lines as you construct a process and to configure the properties of each process element.

Understanding the Workflow Designer Toolbar Buttons

The following table lists application specific buttons that appear in the Workflow Designer toolbar.






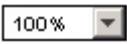


Workflow Designer Toolbar Buttons






Icon	Function
	Create Process Revision — Click to create a revision of an enabled or activated process.
	Validate Process — Click to validate a process.
	Enable Process — Click to enable a completed process.
	Activate Process — Click to activate an enabled process.

Understanding the Workflow Tool Palette

The Canvas tab includes a tool palette just below the record heading. You use the tools on this palette to add, manipulate, and delete Workflow process nodes and connection lines. The following table lists the buttons that appear in the Workflow tool palette.

Workflow Tool Palette Buttons

Icon	Function
	Move/Add Nodes Tool — Click to manipulate nodes.
	Connect Nodes Tool — Click to draw a line between nodes that indicates a positive outcome or a true condition.
	Negative Connection Tool — Click to draw a line between nodes that indicates a negative outcome or a false condition.
	Delete Nodes Tool — Click to delete the highlighted node or connection line. You also can right-click a canvas element and select Delete.
	Properties Tool — Click to specify properties for the highlighted node or connection line. You also can right-click a canvas element and select Properties.
	Zoom Tool — Select a magnification level from the Zoom menu to increase or decrease the magnification of the Workflow canvas.
	Task Node Tool — Click to drag a new Task node onto the canvas.
	Condition Node Tool — Click to drag a new Condition node onto the canvas.

Icon	Function
	Manual Input Node Tool – Click to drag a new Manual Input node onto the canvas.
	Subprocess Node Tool – Click to drag a new Subprocess node onto the canvas.
	Wait Node Tool – Click to drag a new Wait node onto the canvas.
	Interaction Node Tool – Click to drag a new Interaction node onto the canvas.
	Stop Node Tool – Click to drag a new Stop node onto the canvas.

Understanding Workflow Nodes

A **node** is a graphical element representing a point in your business process. The Workflow designer includes different types of nodes that can represent different points in your business process, including:

- ▼ A record's entry into the process
- ▼ Decision points
- ▼ Points when a path branches
- ▼ Manual input from an individual or group
- ▼ Automated actions
- ▼ Record exit from the process

You can drag and drop nodes from the palette onto the canvas. You can add any number of nodes to a process. However, if a process exceeds 50 – 100 nodes, you might want to consider whether you can break the process down into subprocesses to simplify managing and maintaining it.

NOTE The Move/Add Nodes Tool must be selected in order to manipulate nodes on the canvas.

Understanding Start Nodes

A Start node indicates the point when a record enters or starts a Workflow process. The tool palette does not include a Start Node Tool because when you create a new process, a single Start node is placed on the canvas. Each process can have only one Start node, and you cannot delete Start nodes.

Connecting Lines

A single positive connection line must exit the Start node.

Properties

You cannot define properties for Start nodes.

Understanding Task Nodes

A Task node indicates when a user has two choices, for example, to approve or reject a record. Use Task nodes when your business process requires a user to evaluate the record and you want to create a task assignment that routes the record to one or more individuals.

When a Task node is encountered while a record is routed through the process, the process stops. The system generates one or more task assignments, based on the node properties. Individuals can receive task assignments via the Workflow Inbox portlet on their Start Center, or via e-mail. The assignee views and completes the assignment in the Complete Workflow Assignment dialog box.

Use the Task Node Tool in the palette to place a new Task node on the canvas. A process can have one or more Task nodes, but you do not have to include Task nodes in a process.

Connecting Lines

You can have one or more positive connection lines entering a Task node. You can have one or more negative connection lines entering a Task node. Only one positive and one negative connection line can exit a Task node. The properties of the connection lines exiting the Task node define the instructions displayed to the user in the Complete Workflow Assignment dialog box.

Properties

You can define the following properties for a Task node:

- ▼ **Assignments** — Specify one or more roles to which to assign the record. You create role records in the Roles application. The node properties and the role definition are used to determine which persons the record is assigned to when a record is routed through a process. You also can specify a time limit for completing the assignment.
- ▼ **Notifications** — You can use a communication template to create one or more notifications, or enter a subject, message, and role recipients manually.
- ▼ **Perform Accept Action** — You can specify whether one or all assignees must approve the record in order for the record to follow the positive connection line as it leaves the Task node.

Understanding Condition Nodes

A Condition node indicates an evaluation of the record, based on data in the record. Use a Condition node to have a true/false evaluation made on the record and then direct the record based on that evaluation. When a Condition node is encountered, the record is evaluated based on the SQL statement defined in the node properties. The record is then routed to either the positive or negative connection line exiting the node.

Use the Condition Node tool in the palette to place a new Condition node on the canvas. A process can have one or more Condition nodes, but you do not have to include Condition nodes in a process.

Connecting Lines

You can have one or more positive connection lines entering a Condition node. You can have one or more negative connection line entering a Condition node. One positive and one negative connection line must exit a Condition node.

Understanding the Workflow Canvas

Properties

You can define the following properties for a Condition node:

- ▼ **Expression** — Specify a SQL statement to use to evaluate the record. This SQL statement indicates which fields to evaluate and the condition against which the field values should be tested.
- ▼ **Custom Class** — Specify that a custom class file be used to evaluate the record. Custom class files should be located in the Maximo directory.

Understanding Manual Input Nodes

A Manual Input node indicates a need for user input because there are multiple directions that a record can take in a process. Use a Manual Input node to have a person decide what should happen next. When a Manual Input node is encountered, the user sees a dialog box. The Manual Input dialog box contains a menu of options for routing the record. When the assignee selects an option, such as Create Change, Create Problem, or Return to Start Center, the system triggers any actions or notifications associated with the option.

Use the Manual Input Node Tool in the palette to place a new Manual Input node on the canvas. A process can have one or more Manual Input nodes, but you do not have to include Manual Input nodes in a process.

Connecting Lines

You can have one or more positive connection lines entering a Manual Input node. You can have one or more negative connection lines entering a Manual Input node. You can have multiple positive connection lines exiting a Manual Input node. You cannot have negative connection lines exiting a Manual Input node. The properties of the connection lines exiting the Manual Input node define the options displayed to the user in the Manual Input dialog box.

Properties

You can define the following properties for a Manual Input node:

- ▼ **Display One** — The options that are displayed to the user in the Manual Input dialog box are determined by the security permissions of the user and any conditions specified on the connection lines. Used to specify what to do if the user has security permissions to only one specified option.
 - If the check box is selected, users see the single option in the Manual Input dialog box.
 - If the check box is cleared, the option is automatically selected and the record is routed through the node.
- ▼ **Actions** — The Actions table window is read-only and displays the actions associated with connection lines exiting the node.
- ▼ **Notifications** — The Notifications table window displays the notifications associated with connection lines exiting the node. You can use a communication template to create one or more notifications, or enter a subject, message, and role recipients manually.

Understanding Subprocess Nodes

A Subprocess node indicates that a separate Workflow process is contained within a Workflow process. Use a Subprocess node to break a complicated business process down into smaller self-contained units. For example, you might use a different process for different subcategories of records, such as records from different Sites, or different classes of work orders. When a Subprocess node is encountered while routing a record through a process, the record is routed into the subprocess. When the record encounters a Stop node within the subprocess, it returns to the main process at the same point where it had left the process.

Use the Subprocess Node tool to place a new Subprocess node on the canvas. A process can have one or more Subprocess nodes, but you do not have to include Subprocesses nodes in a process. A Workflow can have one or more Subprocess nodes based on the complexity of your business process and how you choose to design the process.

Connecting Lines

You can have one or more positive connection lines entering a Subprocess node. You can have one or more negative connection lines entering a Subprocess node. A record might be traveling a positive or a negative connection line when it exits a subprocess. Therefore you must have a single positive and a single negative connection line exiting a Subprocess node.

Properties

You can define the following property for a Subprocess node:

- ▼ **Subprocess** — You can specify the name of an existing enabled Workflow process to use as a subprocess.

Understanding Wait Nodes

A Wait node indicates that the progress of a record through a process should pause until a required condition is met. Use a Wait node to create a reaction to a database event, for example, a status change, or a record being updated.

You might use a Wait node when your implementation is integrated with another system. For example, you might have an external financial system with which you must exchange data.

When a record encounters a Wait node, it pauses at the node indefinitely, until any event specified in the node properties occurs. After the specified event occurs, the record resumes its progress through the process. Any actions or notifications specified on the properties of the connection line exiting the node are triggered.

Use the Wait Node tool in the palette to place a Wait node on the canvas. A process can have one or more Wait nodes, but you do not have to include Wait nodes in a process. A Wait node cannot precede a node that requires user interaction (Interaction node or Manual Input node).

Connecting Lines

You can have one or more positive connection lines entering a Wait node. You can have one or more negative connection lines entering a Wait node. You are required to have a single positive connection line exiting the Wait node.

Properties

You can define the following properties for a Wait node:

- ▼ **Wait List** — You can specify two events, record updates and status changes, on a Wait node. The first event that occurs triggers the record to resume its progress through the process.
 - ▼ Event Names consist of three or 4 words delimited by periods, all in lower-case. For example: **maximo.workorder.add**. The first word is always “maximo.” The second work is the name of the mbo. The third word is one of the following: init, add, update, delete, or statuschange. Currently only statuschange events have a fourth word, which is the internal name of the status to which the record is changed. Business objects with different names for status levels will have different event names. Business objects which do not implement the Stateful Mbo interface will never create an event with name using statuschange. The following event names are additional examples:
 - maximo.pr.delete
 - maximo.po.add
 - maximo.change.update
 - maximo.workorder.statuschange.appr
 - maximo.sr.statuschange.resolved
 - maximo.asset.init
- ▼ **Notifications** — You can use a communication template to create one or more notifications, or enter a subject, message, and role recipients manually.

Understanding Interaction Nodes



An Interaction node provides one option for a user interaction with a record. Use Interaction Nodes with Manual Input nodes to guide a user through a structured interaction with a record.

When an Interaction node is encountered while routing a record through a process, the result depends on how the node is configured. You can configure an Interaction node in the following ways:

- ▼ Specify that the record be displayed in the specified application.
- ▼ Specify that a certain application tab display.
- ▼ Specify that an action is triggered from the application’s toolbar or Select Action menu.
- ▼ Specify that a process is triggered. For example, trigger another Workflow process.

In addition, a message dialog box can display, containing instructions to the user.

Use the Interaction Node tool in the palette to place a new Interaction node on the canvas. A process can have one or more Interaction nodes, but you do not have to include Interaction nodes in a process. A Manual Input node usually precedes an Interaction node. If an Interaction node leads to an application not related to the object specified on the process record, a Stop node should follow the Interaction node.

Connecting Lines

You can have one or more positive connection lines entering an Interaction node. You can have one or more negative connection lines entering an Interaction node. You can have only one positive action line exiting an Interaction node.

Properties

You can define the following properties for an Interaction node:

- ▼ **Application and Tab** — You can direct the user to a specific application and tab.
- ▼ **Action** — You can direct the user towards a specific application action.
- ▼ **Relation** — You can create an interaction that leads to another application. The information in the **Relation** field is used to determine which record to display in the specified application.
 - If the interaction involves creating a new ticket or work order, you use the **Relation** field to specify what kind of new record has been created, for example, NEWWORKORDER.
 - If the interaction does not involve creating a new record, you can use the Select Relationship dialog box to specify a data relationship, for example, the asset record that is listed on a work order.
- ▼ **Process** — You can direct the launch of an active Workflow process for the specified application. For example, if you create an incident record from a service request you could launch a Workflow process for the incident record.
- ▼ **Directions** — You can specify instructions to display to users when they select the interaction.

Understanding Stop Nodes



A Stop node marks the end of a Workflow process, that is, the point where a record leaves control of the process. When you create a new process, a single Stop node is placed on the canvas. Use the Stop Node tool in the palette to place additional Stop nodes on the canvas.

You use a Stop node to have a record exit the process. If you are creating a subprocess, you use a Stop node when you want the record to return to the main process. When a Stop node is encountered while routing a record through the process, the record exits the process.

Each process must have at least one Stop node. A process can have multiple Stop nodes.

Connecting Lines

You can have any combination of positive and negative connection lines entering a Stop node. Because a Stop node is the end of the process, connection lines cannot exit a Stop node.

Properties

You cannot define properties for Stop nodes.

Understanding Connection Lines

All nodes in a process must be connected to at least one other node, and all nodes except Start and Stop nodes must be connected to two other nodes. You can draw two types of connections between nodes:

- ▼ **Positive Connections** — You use the Connect Nodes Tool to draw a positive line between nodes. A solid black line on the canvas represents a positive connection. A positive connection indicates a positive outcome, for example, that an action was performed, a record was approved, or that a record meets the condition specified by the node.
- ▼ **Negative Connections** — You use the Negative Connection Tool to draw a negative line between nodes. A dashed red line on the canvas represents a negative connection. A negative connection indicates a negative outcome, for example, that a record was cancelled, a record was rejected, or a record does not meet the condition specified by the node.

Understanding Actions

An action is an event that is triggered by the progress of a record through a Workflow process. For example, changing the status of a record. You define actions in the Actions application.

You can configure the following Workflow components to trigger actions:

- ▼ Negative connection lines
- ▼ Positive connection lines

Understanding Notifications

A notification is an e-mail message that is generated by a record's progress through a Workflow process. You can use a communication template to create a notification, or enter a subject, message, and recipients manually.

You can configure the following Workflow components to generate notifications:

- ▼ Negative connection lines
- ▼ Positive connection lines
- ▼ Manual Input nodes
- ▼ Task nodes
- ▼ Wait nodes

Understanding the Process Tab

While the Canvas tab provides a graphical view of the elements in a process, the Process tab lists the process elements in a pair of table windows.

Workflow Designer Process Tab

The screenshot displays the Workflow Designer interface for the 'Purchase Order Status Cycle' process. The 'Process Nodes' table lists the following nodes:

Title	Description	Node Type
START	START	START
APPR?	Check for Approved Status	CONDITION
STOP	STOP	STOP
APPROVE	Move from WAPPR to APPR	TASK
WAPPR?	Check for Waiting for Approval Status	CONDITION
COST	PO Total Cost > \$500	CONDITION

The 'APPROVE Actions' table shows the following actions:

Action	Instruction	To Node	Positive ?
PO CANCEL	Cancel this purchase order.	STOP	<input type="checkbox"/>
PO APPR	Approve this purchase order.	STOP	<input checked="" type="checkbox"/>

The Process Nodes table window displays all nodes in the process. Each row includes the node **Title**, **Description**, and **Type**.

The row that you select in the Process Nodes table window determines the data that is displayed in the Actions table window. The Actions table window displays any actions associated with the connection lines exiting the selected node. Each row includes the name of the action record, the instructions to the assignee, the node to which the connection line leads, and whether it is a positive or negative connection.

You can click the **Edit Properties** button for any node or action to access the Properties dialog box for the node or connection line.

Creating Workflow Processes

8

You use the Workflow Designer application to create a Workflow process record that reflects your business process. A Workflow process record defines the different paths that a record can take as it moves through the business process, and the different actions and notifications that should take place at different points in the process.

Creating a Workflow process involves three phases:

- 1 Designing the process — Described in "Planning Workflow Processes," on page 2-5.
- 2 Creating the Workflow process record — Described in this chapter.
- 3 Activating the process — Described in "Testing Workflow Processes," on page 9-77.

Objects and Workflow Processes

You create each Workflow process record for a specific business object. An **object** is a self-contained software entity that consists of both data and functions for manipulating data. Every application is associated with an object, and you can create a Workflow process for any main object or any object with its own applications.

When you create a Workflow process, you must specify an object for the process. When you specify an object on the process record, the appropriate actions, communication templates, escalations, Expression Builder relationships, and roles are filtered and displayed as you create the process. The object association also determines which records can be routed through the completed process.

You can create one or more Workflow processes for any object. However, records can be automatically initiated into only one process per object.

Creating a Process Record

A Workflow process record consists of the header information on the record, nodes, connection lines, and properties for the nodes and connection lines. You can save a process record after you enter the header information.

TIP When multiple active processes exist for an object, the process names are displayed in a dialog box so that the user can select the process into which to route the record. Create process names and descriptions that your users will understand.

To create a Workflow process, complete the following steps:

- 1** On the toolbar, click the **New Process** button. If the **Process** field is empty, enter a name for the process.
- 2** Enter a description in the **Process Description** field. To enter additional information, click the **Long Description** button.
- 3** In the **Object** field, enter a value, or click the **Select Value** button.
- 4** Click **Save Process**.

Adding Process Nodes

You use the tools on the Workflow canvas palette to add, modify, and delete nodes as you design a Workflow process. For an overview of the canvas palette tools, see "Understanding the Workflow Canvas," on page 53.

As you drag and drop each new node onto the canvas, a name and number is assigned to the node. The node name describes the type of node, and the number indicates the order in which the node was added to the canvas. You can modify the name of a node when you configure the node properties.

TIP Whenever possible give nodes user friendly titles. Users can view node titles in the Workflow Map.

Except for Start and Stop nodes, all nodes have properties, which you can use to configure the node to match the requirements of your business process. You specify properties for a node by using the node's Properties dialog box. Each type of node has a different Properties dialog, and you must configure each node individually. You can configure nodes at any point while you build a process, but as a best practice, you should configure nodes as you add them to the canvas.

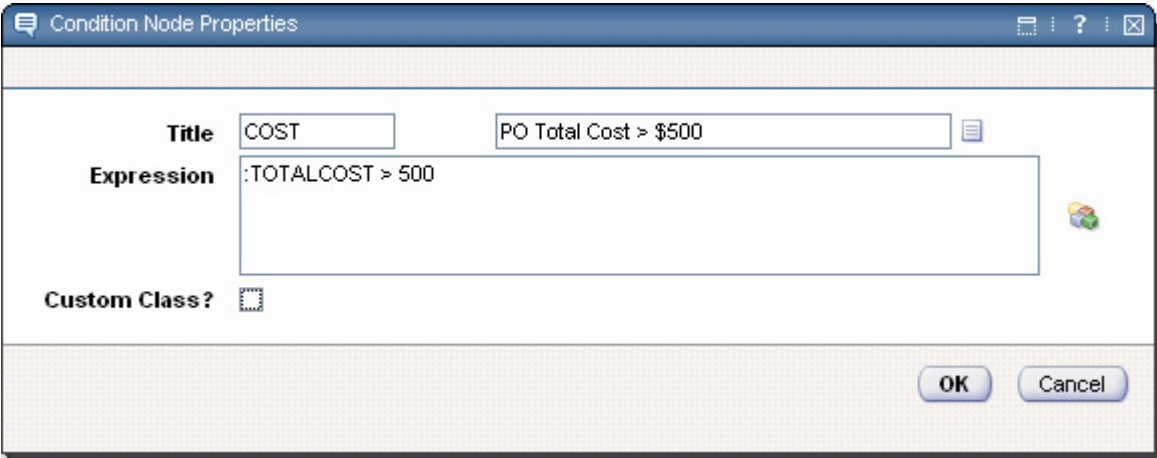
You can access the node properties in any of the following ways:

- ▼ On the Canvas tab:
 - Highlight the node and click the **Properties** button in the tool palette.
 - Right-click the node and select Properties.
 - Double-click the node.
- ▼ On the Process tab:
 - In the Process Nodes table window, click the **Properties** button for the node.

Adding and Configuring Condition Nodes

You place a new Condition node on the canvas by using the Condition Node Tool in the palette. To display the node properties, double-click the node.

Condition Node Properties dialog box



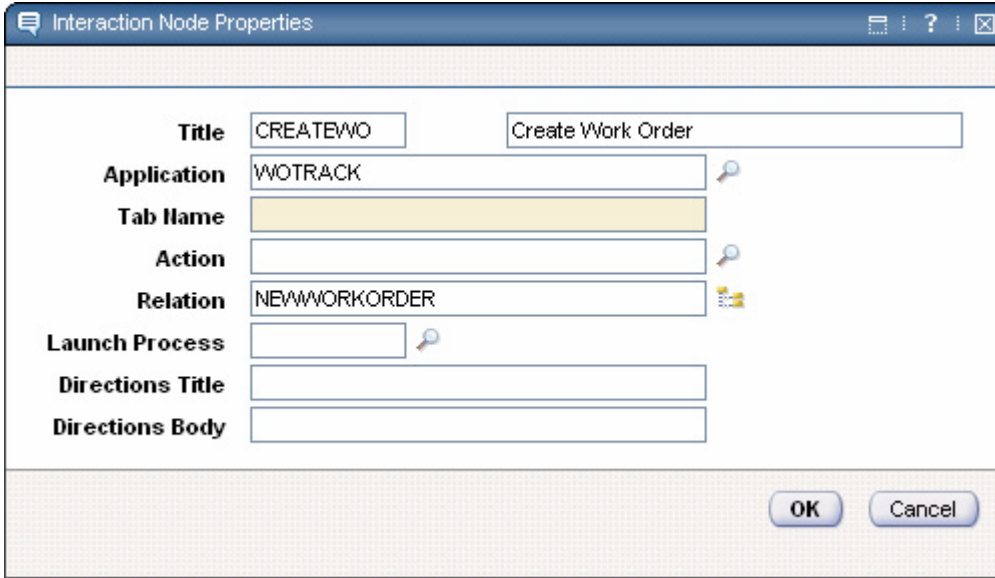
You can specify the following properties for a Condition node:

- ▼ **Title** — Used to enter or modify the node name and description.
- ▼ **Expression** — Used to enter the SQL Expression that should be used to test one or more field values on the record, and return either a true or a false result. The expression that you define can be simple or quite complex, based on the needs of your business process. The SQL expression allows substitution variables. When a Condition node is encountered, values from the current record are substituted for the table and column information specified by the substitution variable when it performs the condition test. You can use the **Expression Builder** to help you to create your SQL expression.
- ▼ **Custom class** — Used to specify that a custom class file is used to perform the condition test. Custom class files should be located in the Maximo directory.

Adding and Configuring Interaction Nodes

You place a new Interaction node on the canvas by using the Interaction Node Tool in the palette. To display the node properties, double-click the node.

Interaction Node Properties dialog box



You can specify the following properties for an Interaction node:

- ▼ **Title** — Used to enter or modify the node name and description. The **Description** is displayed to the user in the Manual Input dialog box.
- ▼ **Application** — Used to specify the application to present to the user.
- ▼ **Tab** — Used to specify the tab to present to the user. The value for the **Tab Name** should be the tab identifier from the XML presentation file. Tab identifiers are not in the database. You must enter them manually.

To determine a tab identifier, complete the following steps:

- 1 Navigate to the following directory:
 - <Maximo root>\resources\presentations
- 2 Using a text editor, open the XML file for the application.
- 3 Search for the following phrase "tab id=" until you locate the appropriate tab identifier, for example:

```
<tab id="relatedrec" label="Related Records">
```

NOTE Copy the tab id exactly as it is written in the XML file. Do not enter the tab label in the **Tab Name** field.

- ▼ **Action** — Used to specify an action that should be presented to the user or performed by the system. You can select from actions available to the user via toolbar button or the application Select Action menu.

- ▼ **Relation** — You can create an interaction that leads to another application. The information in the **Relation** field is used to determine which record to display when it opens the application.
 - If the interaction involves creating new ticket or work order, you use the **Relation** field to specify what kind of new record has been created, using one of the following values:
 - ▼ NEWACTIVITY
 - ▼ NEWCHANGE
 - ▼ NEWINCIDENT
 - ▼ NEWPROBLEM
 - ▼ NEWRELEASE
 - ▼ NEWSR
 - ▼ NEWTICKET
 - ▼ NEWWORKORDER
 - If the interaction does not involve creating a new record, you can use the Select Relationship dialog box to specify a data relationship, for example, the asset record that is listed on a work order.
- ▼ **Process** — Used to specify an active Workflow process for the specified **Application**.
- ▼ **Directions Title** — Used to specify the title of the message dialog box that users see.
- ▼ **Directions Body** — Used to specify the text of the instructions that users see in a message dialog box. The user must click the **Route** button to indicate that they have completed the interaction. For example, your instructions might read, "Enter X data, then click the **Route** button to complete the assignment."

Adding and Configuring Manual Input Nodes

You place a new Manual Input node on the canvas by using the Manual Input Node Tool in the palette. To display the node properties, double-click the node.

Manual Input Node Properties dialog box

Title

Display One?

Sequence	Action	Instruction	To Node	Positive?
	<input type="text"/>	Send for Financial Approval	FIII APPR1	<input checked="" type="checkbox"/>
	WO CANCEL	Cancel this Work Order	STOP	<input checked="" type="checkbox"/>

Notifications

...No rows to display...

Creating a Process Record

You can specify the following properties for a Manual Input node:

- ▼ **Title** — Used to enter or modify the node name and description.
- ▼ **Display One** — Used to specify what to do if the user has security permissions to only one specified option.
 - If the check box is selected, users see the single option in the Manual Input dialog box.
 - If the check box is cleared, the action is performed. The Manual Input dialog box is not displayed.
- ▼ **Actions** — The Actions table window displays actions associated with the connection lines exiting the node. You add rows to the Actions table window by drawing connection exiting the node. You can enter a number in the **Sequence** column to specify what order the options should be presented to the user. Users see the **Instruction** for each row in the Manual Input dialog box. For information about defining properties for connection lines, see "Adding Connecting Lines," on page 71.
- ▼ **Notifications** — Used to specify any notifications to generate if the record travels a specific connection line exiting the node. You can use a communication template to create one or more notifications, or specify the subject, message, and role recipients manually.

Adding Stop Nodes



You place a new Stop node on the canvas by using the Stop Node Tool in the palette. Stop nodes have no properties associated with them.

Adding and Configuring Subprocess Nodes



You place a new Subprocess node on the canvas by using the Subprocess Node Tool in the palette. To display the node properties, double-click the node.

Subprocess Node Properties dialog box

Title	SUBPROC	Status Subprocess
Subprocess *	WOSTATUS	Work Order Status Cycle

OK Cancel

You can specify the following properties for a Subprocess node:

- ▼ **Title** — Used to enter or modify the node name and description.
- ▼ **Subprocess** — Used to enter the name and description of a Workflow process record. The subprocess must meet the following criteria

- The process already must exist in the Workflow Designer application.
- The process must be associated with the same object as the main process.
- The process must be enabled, but not activated.

Adding and Configuring Task Nodes

You place a new Task node on the canvas by using the Task Node Tool in the palette. To display the node properties, double-click the node.

Task Node Properties dialog box

You can specify the following properties for a Task node:

- ▼ **Title** — Used to enter or modify the node name and description. The user sees the task **Description** in the Workflow Inbox.
- ▼ **Time Limit** — Used to specify the time limit for the assignee to complete the task before it is escalated.
- ▼ **Application** — Used to specify which application to use to display the assigned record. In most cases, the object is associated with a single application, but in some cases, for example, Quick Reporting and Work Order Tracking, an object can be associated with more than one application.
- ▼ **Display One** — Used to specify what to do if the user has security permissions to only one specified option.
 - If the check box is selected, users see the single option in the Complete Workflow Assignment dialog box.
 - If the check box is cleared, the action is performed.

Creating a Process Record

- ▼ **Assignments** — Used to specify one or more roles that should receive the task assignment. You must specify at least one assignment per Task node.
- ▼ **Notifications** — Used to specify the notifications to generate as a record leaves the node. You can use a communication template to create one or more notifications, or specify the subject, message, and role recipients manually.
- ▼ **Perform Accept Action** — Used to specify how to route the record when the assignment is made to a group.
 - When any assignment is accepted — Used to specify that only one positive action is needed to route the record to the positive connection line.
 - When All assignments are accepted — Used to specify that all assignees must select the positive action in order to route the record to the positive connection line. If a single assignee selects the negative option, the record is routed to the negative connection line.

The options that the users see in the Complete Workflow Assignment dialog box are defined on the connection lines that exit the node. You can define an action and instructions for the user for each possible path.



Adding and Configuring Wait Nodes

You place a new Wait node on the canvas by using the Wait Node Tool in the palette. To display the node properties, double-click the node.

Wait Node Properties dialog box

The screenshot shows the 'Wait Node Properties' dialog box. It has a title bar with the text 'Wait Node Properties'. The main content area is divided into two sections: 'Wait List' and 'Notifications'.
The 'Wait List' section has a 'Title' field containing 'WAITAPPR' and a text area containing 'Waiting for an approval event'. Below this is a table with one row: 'Event' with the value 'maximo.workorder.statuschange.appr'. There is a 'New Row' button to the right of the table.
The 'Notifications' section has a 'Communication Template' field and a 'Send To' field, both currently empty. Below these fields is the text '...No rows to display...'. There is a 'New Row' button to the right of this text.
At the bottom of the dialog are 'OK' and 'Cancel' buttons.

You can specify the following properties for a Wait node:

- ▼ **Title** — Used to enter or modify the node name and description.
- ▼ **Wait List** — Used to specify one or more system events. The first event to occur triggers the record to resume its progress through the process. Event names consist of three or four lower case words, delimited by periods. For example, `maximo.workorder.add` or `maximo.po.statuschange.appr`.
 - 1 The first word in an event name is always `maximo`.
 - 2 The second word in an event name is the name of the business object, for example, `po`.
 - 3 The third word in an event name is one of the following words:
 - ▼ `add`
 - ▼ `delete`
 - ▼ `init`
 - ▼ `statuschange`
 - ▼ `update`
 - 4 If the event is a status change, the event name has a fourth word, which is the name of the status, for example, `appr`.
- ▼ **Notifications** — Used to specify the notifications to generate as a record leaves the node. You can use a communication template to create one or more notifications, or specify the subject, message, and role recipients manually.

Adding Connecting Lines

Connection lines indicate the direction that records travel between nodes. You can draw positive or negative connections between nodes. The type and number of connections that you can draw between nodes depends on the type of node. For more information about the rules governing connection lines, see "Guidelines for Connecting Nodes," on page 72.

You use the tools on the Workflow tool palette to draw connection lines.

- ▼ The Connect Nodes tool draws a positive line. A solid black line represents a positive connection line.
- ▼ The Negative Connection tool draws a negative line. A red dashed line represents a negative connection line.

You might want to place your nodes on the canvas and arrange them before you begin drawing connection lines. A connection line simply can connect two nodes, or it can have actions or notifications associated with it.









Each connection line in a process has an associated Properties dialog box, and you must configure each connection line individually. As a best practice, you should configure connection lines as you add them to a process.

Guidelines for Connecting Nodes

Each node except the Start node must have at least one line entering it. Each node except a Stop node must have at least one line exiting it.

The following table lists guidelines for the number and types of connection lines that you can draw between nodes.

Guidelines for Node Connections

Lines Entering Node	Type of Node	Lines Exiting Node
None.	 Start Node	One positive required.
One or more positives allowed. One or more negative allowed.	 Condition Node	One positive AND one negative required.
One or more positives allowed. One or more negatives allowed.	 Interaction Node	One positive allowed.
One or more positives allowed. One or more negatives allowed.	 Manual Input Node	Generally more than one positive. Negative connections exiting the node are not allowed.
One or more positives allowed. One or more negatives allowed.	 Subprocess Node	One positive AND one negative required.
One or more positives allowed. One or more negatives allowed.	 Task Node	One positive required. One negative allowed.
One or more positives allowed. One or more negatives allowed.	 Wait Node	One positive required.
One or more positives allowed. One or more negatives allowed.	 Stop Node	None.

Adding and Configuring Connections

You use the Connect Nodes tool to draw a positive connection between two nodes. You use the Negative Connection tool to draw a negative connection between two nodes.

You can access the connection line properties in any of the following ways:

- ▼ On the Canvas tab:
- ▼ Highlight the connection line, then click the **Properties** button in the canvas palette.
- ▼ Right-click the connection line and select Properties.
- ▼ Double-click the connection line.

On the Process tab:

- ▼ In the <Node> Actions table window, click the **Properties** button for the connection line.

Action Properties Dialog Box

The screenshot shows the 'Action Properties' dialog box. It includes the following elements:

- Action:** A dropdown menu with a pencil icon for editing.
- Instruction:** A text input field containing the text "Send the Work Order on to next Approval".
- Positive?:** A checked checkbox.
- Expression:** A large, empty text area.
- Custom Class?:** An unchecked checkbox.
- Notifications:** A table with the following structure:

Communication Template	Send To
...No rows to display...	
- Buttons:** 'New Row', 'OK', and 'Cancel' buttons are located at the bottom right.

You can specify the following properties for a connection line:

- ▼ **Action** — Used to specify an action to be performed. You use the Actions application to create actions.
- ▼ **Instructions** — Used to indicate instructions to present to the user in a Complete Workflow Assignment or Manual Input dialog box.
 - Manual Input nodes— Positive connection lines should include instructions that label each option. For example, an option might indicate that the record meets a certain condition, or that an action is performed.
 - Task nodes— Positive connection lines should include instructions that indicate that the record will be approved, accepted, or a similar action. Negative connection lines should include instructions that the record will be canceled, rejected, or a similar action.

- ▼ **Positive** — Read-only field used to indicate whether the connection line is a positive or negative connection.
- ▼ **Expression** — Read-only unless the action line connects a Manual Input node to an Interaction node. Specifies a SQL condition that evaluates record data to determine if the option defined on the Interaction node should be presented to the user. For example, you could have one or more conditional status change options that are displayed based on the status of the current record. You also can create conditions that evaluate data about the signed in user to determine if an option should be presented to them. For example, the user's craft, skill level, work group, and so forth.
- ▼ **Custom Class** — Read-only unless the action line connects a Manual Input node to an Interaction node. Used to specify that a custom class file should be used to test the condition specified in the **Expression** field.
- ▼ **Notifications** — Used to specify the notifications to generate when a record follows the connection line to the next node. You can use a communication template to create one or more notifications, or specify the subject, message, and role recipients manually. You might want to specify different notifications for positive and negative connection lines if different people must be notified depending on the path that the record follows.

CAUTION You can configure both nodes and connection lines to generate notifications. Avoid configuring a node and the connection lines exiting the node to generate duplicate notifications.

Editing Process Elements

You can add, modify, or delete process elements at any time, until the process has been enabled. After you enable a process, you must create a revision to modify it. For more information about modifying enabled processes, see "Modifying Workflow Processes," on page 87.

Guidelines for Arranging Nodes

Keep in mind the following guidelines as you arrange the nodes in your Workflow processes:

- ▼ The first node in a process must be a Start node.
- ▼ An Interaction node is usually preceded by a Manual Input node.
- ▼ An Interaction node that launches an application, action, or process in another object should be followed by a Stop node.
- ▼ A Wait node cannot precede an Interaction node.
- ▼ A Wait node cannot precede a Manual Input node.

Moving Canvas Elements

When the Move/Add Nodes Tool is selected, you can click a node and drag it to change its position on the canvas. If you move a node that is already connected to another node, the canvas is redrawn to adjust the connection lines.

NOTE After you enable a process, it is locked and you no longer can move canvas elements. The Move/Add Nodes Tool is disabled.

Deleting Canvas Elements

You can delete nodes and connection lines at any time before you enable a Workflow process. After you enable a process, you create a revision of the process in order to modify it.

You can delete a process element using any of the following procedures:

- ▼ Highlight the element, then click the **Delete** button in the canvas palette.
- ▼ Highlight the element, then click the **Delete** key on your keyboard
- ▼ Right-click the element, then select Delete.

Duplicating Workflow Processes

You can use the **Duplicate Process** action to create a copy of an existing Workflow process, for example, if you wanted to create similar processes for different objects. After you duplicate a Workflow process, you then can modify it as needed.

NOTE You use the **Create Process Revision** action to create a revision of an enabled process.

To duplicate a Workflow process, complete the following steps:

- 1** In the Workflow Designer application, display the record that you want to duplicate.
- 2** From the Select Action menu, select **Duplicate Process**. The process is copied with the **Enabled** and **Active** check boxes cleared.
- 3** If the **Process** field is empty, enter a name for the action.
- 4** You can modify the description of the process in the **Process Description** field. To enter additional information, click **Long Description**.
- 5** If appropriate, modify the **Object** field.
- 6** Modify canvas elements as needed.
- 7** Click **Save Process**.

Deleting Workflow Processes

You can delete a Workflow process record using the **Delete Process** action available from the Select Action menu.

You cannot delete a process record if any of the following is true:

- ▼ The process is activated.
- ▼ The process is enabled.
- ▼ Any record has ever been routed through the process.

To delete a Workflow process, complete the following steps:

- 1** In the Workflow Designer application, display the record that you want to delete.
- 2** From the Select Action menu, select **Delete Process**. Users see a message asking "Are you sure you want to delete this record?"
- 3** Click **Yes**.

Testing Workflow Processes

9

After you design a Workflow process, the record must go through the following steps so that you can use it to manage records:

- ▼ Validation — Validating a process checks the structural integrity of the process.
- ▼ Enabling — Enabling a process includes the validation process. A check mark in the **Enabled** check box indicates that you no longer can edit the process, and is ready for use, for example, as a subprocess.
- ▼ Activation — Activating a process adds Workflow actions and buttons to applications associated with the object. A check mark in the **Active** check box indicates that the process is being used to manage records. Active processes appear in the **Process** menu of the Start Workflow dialog box in the target application(s).

In addition, you should test your Workflow processes in a test environment by routing a record through each possible path. You should perform these tests before you export your processes to your production environment to ensure that each Workflow process accurately reflects your business process.

Enabling a Process

Workflow process records are in a draft or development stage until you enable the process record. Enabling a process involves two steps: validating the structure of the process, and enabling the process. After you enable a process record, it is locked and ready for use, for example, as a subprocess.

Validating a Process

Before you can enable a process it must be validated to verify the structural integrity of the process. A Workflow process is automatically validated when you select the **Enable Process** action. To run the validation process without enabling the record, use the **Validate Process** action.

CAUTION Enabling a process locks the process so that you can no longer modify it without creating a revision.

TIP If you are validating a process that includes subprocesses, validate the subprocess records *before* you validate the main process.

The validation process checks the following conditions:

- ▼ That each node is connected to another node so that a record can travel each path in a process uninterrupted.
- ▼ That all nodes except the Start node have at least one line entering the node, and all nodes except Stop nodes have at least one line exiting the node. For more information about the rules governing connection lines, see "Guidelines for Connecting Nodes," on page 72.
- ▼ That Start nodes have one and only one positive connection exiting the node.
- ▼ That the SQL syntax of any conditions or conditional assignments is valid.
- ▼ That Condition nodes have either a valid WHERE clause or a custom class file specified in the node properties. The WHERE clause must execute to a true or false. Condition nodes have both a positive and a negative connection line exiting the node.
- ▼ That Manual Input nodes have at least one positive connection exiting the node.
- ▼ That Subprocess nodes have an enabled process specified in the node properties.
- ▼ That Task nodes have at least one assignment specified in the node properties.
- ▼ That Wait nodes have at least one event specified in the node properties.

NOTE The validation process cannot check the following conditions:

- ▼ Whether notification e-mail addresses are valid addresses
- ▼ Whether custom class files are in the Maximo directory
- ▼ Whether custom class files will run
- ▼ Whether executable files will execute
- ▼ Whether a process accurately reflects your business process

To validate a process, complete the following steps:

- 1** In the Workflow Designer application, display the record that you want to validate.
- 2** On the toolbar, click the **Validate Process** button. A progress dialog box is displayed.
 - ▼ If the process fails the validation, a dialog box opens, listing the errors.
 - ▼ If the process passes the validation, a message is displayed in the navigation bar.

Troubleshooting Validation Errors

If a Workflow process fails the validation tests, a dialog box is displayed, listing the validation errors. The format for node errors is:

```
Node type, node NAME:description, description of the configuration
error.
```

The following table lists some sample error messages.

Error	Example error messages
Node configuration errors	<pre>Start START:START must have one and only one positive line exiting it. Condition EVALUATE:EVALUATE has both custom class and condition where clause empty. Interaction Node INTERACT:INTERACT is blank. Manual input INPUT:INPUT does not have a positive action. Subprocess SUBPROCE:SUBPROCESS must have a valid process defined for it. Cannot find enabled revision of subprocess. Task APPROVE:APPROVE must have at least one assignment. Wait node WAIT:WAIT must have at least one event. Node STOP:STOP must have at least one line entering it.</pre>
Connection line errors	<pre>Node type, NAME:NAME must have at least one line entering it. Node type, NAME:NAME must have at least one line exiting it.</pre>

For guidelines for configuring nodes, see "Adding Process Nodes," on page 64.

For guidelines for the number of connection lines entering and exiting a node, see "Guidelines for Connecting Nodes," on page 72.

Enabling a Process

Before you can use a Workflow process, enable it. When you enable a Workflow process record, the system performs the following tasks:

- 1 Runs the validation process that checks the structural integrity of a Workflow process. Validation tests whether a record can travel each path in the process without interruption. You can perform the validation process separately using the **Validate Process** action.
- 2 Locks the record so that it can no longer be edited without creating a revision.
- 3 Selects the **Enabled** check box to indicate that the record is no longer a draft, but is ready for use. Process records must be enabled in order to function as subprocesses.

NOTE Subprocess records must be enabled, but not activated.

To enable a process complete the following steps:

- 1 In the Workflow Designer application, display the record that you want to enable.
- 2 On the toolbar, click the **Enable Process** button. A progress dialog box is displayed.
- 3 If the process fails the validation, a dialog box opens, listing the errors.
 - ▼ If the process passes the validation, a message is displayed in the navigation bar. The **Enabled** check box in the record heading becomes selected.

Disabling a Process

After a record has been routed through an enabled process, the process cannot be deleted, since other records might be under the control of the process. You use the **Disable Process** action to disable a previously enabled Workflow process record.

Disabling a process prevents new records from being routed into the Workflow process, but it does not affect records that are currently under the control of the process. You must use the Workflow Administration application to stop any active instances of the process.

NOTE When you enable a new process revision, the previous revision is automatically disabled.

To disable a process, complete the following steps:

- 1 In the Workflow Designer application, display the enabled record that you want to disable.
- 2 From the Select Action menu, select **Disable Process**. A message is displayed in the navigation bar that indicates the process was disabled. The check mark is cleared from the **Enabled** check box.

Deploying a Process

You deploy a Workflow process record by activating it. Activating a process involves two steps: adding the Workflow actions and buttons to the application(s) associated with the object, and activating the record. After a process record has been activated records can be routed into the process.

Preparing to Deploy

Deploying a Workflow process record means that the records that are managed by the process will now be handled in a consistent manner, without the flexibility that a manual system allows. Because you are changing the tools and procedures used at your company to process records, you might want to consider user training sessions as part of the deployment phase of your Workflow implementation.

The following documentation is available to help you to teach your users about Workflow:

- ▼ The "Managing Workflow Assignments" appendix in this guide.
- ▼ Workflow Inbox Help — Available via the main Help.

Routing Records into Workflow

Activating a Workflow process indicates that the process is ready to have records routed through it. Before you activate a record, you should consider whether you want records to be routed into the process manually or automatically.

A record can enter a Workflow process via any of the following means:

- ▼ A user clicks the **Route** button on the toolbar.
- ▼ A user selects the **Route Workflow** action from the Select Action menu.
- ▼ You can set one process per object to initiate automatically. When a user creates and saves a new record, the record is routed into the Workflow process.
- ▼ You can set Workflow options in the Organizations application that specify that generated records should be routed into a specified Workflow process. You can specify a Workflow process to manage the following records:
 - Work orders that are generated from a preventive maintenance record.
 - Purchase requisitions that are generated via the inventory reorder process.
 - Purchase orders that are generated via the inventory reorder process.
 - Work orders that are generated when a purchase order for a rotating asset is approved.

- ▼ A record can be routed from one Workflow process to another in any of the following ways:
 - via an Interaction node
 - via a Subprocess node
 - via a WFINITIAATE action specified on a connection line leaving a node
- ▼ A record can be automatically routed into a process via an escalation action.

Adding Workflow to Applications

Workflow actions or buttons are not included with any of the applications when you install them. An application must support Workflow before you can route application records into a process. The Workflow actions and buttons are added to an application when you select the **Activate Process** action.

You can add the Workflow actions and buttons to an application without activating a process by using the **Add Workflow to Applications** action. For example, if you want the actions and buttons visible for user training, or if you want to create customized toolbar buttons before activating the process.

The **Add Workflow to Applications** action performs the following tasks:

- ▼ Add a **Route** button to the application toolbar. You can customize this button using the **Edit Workflow Go Buttons** action.
- ▼ Adds the following Workflow-related actions to the application's Select Action menu:
 - **Route Workflow**
 - **Stop Workflow**
 - **View Workflow History**
 - **View Workflow Assignments**
 - **View Workflow Map**
 - **Workflow Help**
- ▼ Automatically supplies the Workflow options to all users in security groups with access to that target application.

NOTE The **Add Workflow To Applications** action does not validate, enable, or activate the current process.

To add Workflow Support to an application complete the following steps:

- 1 In the Workflow Designer application, display a process record.
- 2 From the Select Action menu, select **Add Workflow to Applications**. If an application does not support Workflow, the **Add Support** check box for the application is selected in the Add Workflow Support to Applications dialog box.
- 3 Clear the **Add Support** check box for an application if you do not want to add Workflow support to it.

- 4 Click **OK** to add Workflow support to the application.

Granting Users Security Access to Workflow

When you add workflow support to a Workflow process, the following Workflow actions are added to the application:

- ▼ **Route Workflow**
- ▼ **Stop Workflow**
- ▼ **View Workflow History**
- ▼ **View Workflow Assignments**
- ▼ **View Workflow Map**
- ▼ **Workflow Help**

Users are not automatically granted access to these actions. An administrator must use the Security Groups application to grant users security permissions to these Workflow actions. The Workflow actions appear in the Security groups application when you add Workflow support to an application, allowing you to grant users access to these actions before you activate the process.

Activating a Process

Before you can route records into a Workflow process, you must activate it. When you activate a Workflow process record, the following tasks are performed:

- 1 The Workflow actions and buttons are added to the applications associated with the object if they do not yet support Workflow. You can perform this action separately using the **Add Workflow To Applications** action.
- 2 The **Active** check box is selected to indicate that the record is being used currently to manage records.
- 3 When you activate a process revision, the current revision is automatically deactivated. The system does not disable the revision because active process instances might exist.

NOTE Before you can activate a Workflow process, it must be validated and enabled. Validation tests whether a record can travel each path in a process without interruption. When you enable a Workflow process, the process is validated before it is enabled.

NOTE Subprocess records should be enabled, but not activated. Records are routed to a subprocess through the main process.

To activate a Workflow process, complete the following steps:

- 1 In the Workflow Designer application, display the enabled record that you want to activate.
- 2 On the toolbar, click the **Activate Process** button.
 - ▼ If the applications associated with the object do not support Workflow, the Add Workflow Support to Applications dialog box opens. The **Add Support** check box for each application is selected by default. Click **OK** to add Workflow actions to the application. A message is displayed in the

navigation bar indicating that the process was activated and selects the **Active** check box in the record heading.

- ▼ If the applications associated with the object already support Workflow, for example, if you are activating a process revision, a message is displayed in the navigation bar indicating that the process was activated. Also, the **Active** check box is selected in the record heading.

Setting a Process to Automatically Initiate

You can specify that when a user creates and saves a new record in an application, the record is automatically routed into a Workflow process. Each object can only have a single process that is automatically initiated. A process must be validated, enabled, and activated before you can set it to automatically initiate.

NOTE This action only routes records created by users. Records that the system creates automatically, for example, via a PM cron task or the inventory reorder function, cannot be automatically routed into a process via this method.

To specify automatically routing new user-created records into a process, complete the following steps:

- 1 In the Workflow Designer application, display an activated process record.
- 2 From the Select Action menu, select **Set Process to Auto-Initiate**. A message is displayed in the navigation bar. Also, the **Interactive Initiate** check box is selected in the record heading.

Setting a Process to Not Automatically Initiate

You can specify that when a user creates and saves a new record in an application, the record is automatically routed into a Workflow process. Each object can only have a single process that is automatically initiated.

To specify that a process not automatically initiate, complete the following steps:

- 1 In the Workflow Designer application, display the automated process record.
- 2 From the Select Action menu, select **Set Process to not Auto-Initiate**. A message is displayed in the navigation bar, and the **Interactive Initiate** check box in the record heading is cleared.

Deactivating a Process

You can use the **Deactivate Process** action to deactivate a previously activated Workflow process record. Deactivating a process prevents new records from being routed into the Workflow process, but it does not affect records that are currently under the control of the process. You must use the Workflow Administration application to stop any active instances of the process.

To deactivate an active Workflow process, complete the following steps:

- 1 In the Workflow Designer application, display the active process that you want to deactivate.

- 2 From the Select Action menu, select **Deactivate Process**. A message is displayed in the navigation bar and the **Active** check box in the record heading is cleared.

Setting Workflow Options

The Organizations application is used to create and manage the Organizations and Sites that make up a Multisite implementation. You also use the Organizations application to set System, Organization, and Site level options.

You use the Workflow Options dialog box to specify whether any of the following generated records should automatically enter a Workflow process. You also specify which active process to route the records to.

- ▼ Work orders generated from a preventive maintenance record.
- ▼ Purchase requisitions generated via the inventory reorder process.
- ▼ Purchase orders generated via the inventory reorder process.
- ▼ Work orders generated when a purchase order for a rotating asset is approved.

Even though Workflow process records are at the System level, Workflow options are set separately for each Organization, and each Site within an Organization.

NOTE You need security permissions to the Organizations application to perform the following procedure.

To set Workflow options in the Organizations application, complete the following steps:

- 1 In the Organizations application, display the Organization that you want to specify options for.
- 2 From the Select Action menu, select **Workflow Options**.
- 3 In the Workflow Options dialog box, in the Sites table window, click the Site that you want to apply the settings to.
- 4 In the Workflow Options table window, click the **Select Value** button next to a field. All activated processes for that object are displayed.
- 5 If appropriate, select another Site and set Workflow options as needed.
- 6 Click OK.

Additional Process Testing

Validating a Workflow process only checks the structure and syntax of your process, it cannot test whether the process accurately reflects your business process, or if a process meets the needs of your business. Before you deploy your

Workflow processes to your production environment, you should perform additional testing in a test environment. This testing should include the following steps:

- 1 Validate, enable, and activate each Workflow process in a test environment that contains sufficient sample data to test the process. Your test environment must include records for test users who can receive assignments and notifications.
- 2 Route records through all possible paths in the process, including all possible paths through any subprocesses. You might want to create test plans to help you verify that you have tested all possible routes in a process.
- 3 Verify that assignments appear in users' Workflow Inbox and that e-mail notifications are being generated.
- 4 Determine whether the process is complete, or if additional steps must be added.
- 5 Determine whether the process needs to be modified. Have you configured the process to make the necessary assignments, notifications, and so forth that are required by your business process.
- 6 Make any necessary additions, modifications, or deletions.
- 7 Retest the process.
- 8 Use the integration applications to export your tested processes from your test environment to your production environment.

NOTE To avoid generating large volumes of unwanted e-mail, correct or delete any test e-mail addresses that exist in your records before you export them to your production environment.

Exporting and Importing Workflow Processes

The Integration Framework can import or export a Workflow process and its supporting data (including actions, roles, and communication templates) to XML. This lets you to build and test your process in a test environment, then use the integration framework to export the process to your production environment.

For information about importing and exporting data using the integration framework, see the following documentation:

- ▼ *IBM Maximo Integration Guide*
- ▼ External Systems Help
- ▼ Integration Interfaces Help
- ▼ Integration Objects Help

Modifying Workflow Processes

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Testing your Workflow processes might reveal areas for improvement, or over time your processes might evolve due to changes in your business, increased efficiencies, and so on.

You can add, modify, or delete process elements at any time until the process has been enabled. Once a process has been enabled, create a revision of the process if you want to modify it.

Creating a Revision

You can modify a process at any time until it has been enabled. Once a process has been enabled, it is locked. You can no longer modify the process without creating a process revision because there might be records under the control of the process. You also can create a revision of a process that has not yet been activated or enabled.

NOTE Creating a revision does not deactivate or disable an activated or enabled process record. However, when you activate a new process revision, the previous revision is automatically deactivated.

To revise an enabled process, complete the following steps:

- 1** In the Workflow Designer application, display the enabled process record.
- 2** On the toolbar, click the **Create Process Revision** button. A copy of the process is created, and one is added to the value in the **Process Revision** field.
- 3** Make any necessary modifications to the process.
- 4** Click **Save Process**.

NOTE You must validate, enable, and activate a process revision before it can be used to process records.

Synchronizing Workflow Processes

A Workflow process can include one or more subprocesses. When you modify a subprocess, update the main process so that it uses the revised subprocess. This process is known as synchronization.

NOTE You must enable the subprocess revisions before you can synchronize a Workflow process.

To update the versions of one or more subprocesses that an active Workflow process is using, complete the following steps:

- 1 In the Workflow Designer application, display the main process record that you want to update.
- 2 From the Select Action menu, select **Resynchronize an Active Process**. A message displays in the navigation bar indicating that the process has been resynchronized.
- 3 Click **Save Process**.

Viewing Subprocess Revisions

You can use the **View Synchronized Processes** action to view the name and revision number of each subprocess associated with a main process.

NOTE The main process record must be activated before you can use this action.

To view the version of each subprocess being used by the main process, complete the following steps:



- 1 In the Workflow Designer application, display the process record that you want to view.
- 2 From the Select Action menu, select **View Synchronized Processes** to open the View Synchronized Processes dialog box.
- 3 Click **OK**.

Creating Workflow Toolbar Buttons

When you add Workflow support to an application via either the **Add Workflow to Applications** action or by activating a process, a **Route** button is added to the application toolbar.

- ▼ If a single active process exists for an object, the **Route** button routes the current record into the process.
- ▼ If multiple active processes exist for an object, a Start Workflow dialog box opens. It lets the user select which process to route the record into.
- ▼ If the record is already routed to one or more Workflow processes, the Workflow dialog box opens. The user can either initiate a new Workflow process, or complete a Workflow task assignment.

There are two separate icons for the **Route** toolbar button, to indicate whether a record is in Workflow. You can customize the **Route** buttons, or if multiple processes exist for an application, you can create different buttons for each process.

Icon	File name	Function
	nav_icon_route.gif	Indicates that the application supports Workflow. Users can click the icon to route the current record into a process.
	nav_icon_route_active.gif	Indicates that the current record is under the control of one or more Workflow process. Users can click this toolbar button to <ul style="list-style-type: none"> ▼ Complete a Workflow assignment. ▼ Route the record into another Workflow process.

When you create customized images to use as toolbar buttons, create pairs of icons for each process.

IBM Corporation uses the following standards for toolbar button images:

- ▼ images are GIF files. Using the GIF format lets you have a transparent background for the icon image.
- ▼ image resolution is 72 dpi.
- ▼ image height for toolbar icons is 17 pixels. The width of the icon can vary from 12 to 26 pixels.
- ▼ Images used for toolbar buttons must be located in the following directory:

```
<MAXIMO>\applications\maximo\maximouiweb\webmodule
\webclient\images
```

Adding Workflow Toolbar Buttons

If multiple active processes exist for an object you have the following options:

- ▼ Use a single toolbar button for all active Workflow processes. The Start Workflow dialog box opens. Users can select a process from the menu of active processes in the dialog box.
- ▼ Create separate toolbar buttons for different active process.

NOTE If you exceed the number of icons that can fit on the toolbar, users see a downward pointing arrow (▼) to indicate that there is a menu of options to choose from.

To add a Workflow toolbar button, complete the following steps:

- 1 In the Workflow Designer application, display a process record.
- 2 From the Select Action menu, select **Edit Workflow GO Buttons** to open the Edit Workflow GO Buttons dialog box. Applications that are associated with the object and support Workflow are listed in the Toolbar Buttons for <object name> table window.

NOTE If there are no applications listed in the table window, use the **Add Workflow To Applications** action to add Workflow support to the applications.

- 3 Click **New Row**. The Row Details opens.
- 4 Enter values in the following fields:
 - ▼ **Application** — Enter the application that should display the button.
 - ▼ **Process Name** — If the button is for a specific process, enter the process name. If you are creating a single button for all active processes, leave this field empty.
 - ▼ **Sequence** — Enter a number that indicates the order, from left to right, that you want the Workflow buttons displayed on the toolbar. If you exceed the number of icons that can fit on the toolbar, the sequence number determines the order that each process appears in the menu.
 - ▼ **Description** — Enter a name for the button. When a user moves the cursor over the button, that name is displayed.
 - ▼ **Toolbar Icon** — Enter the file name of the image that you want to use in the toolbar as the **Route** button. For example, nav_icon_route.gif.
 - ▼ **Active Icon** — Enter the file name of the image that you want to use in the toolbar. The Active icon indicates that the record is under the control of the Workflow process. For example, nav_icon_route_active.gif.
- 5 Click **OK** to add the icons to the toolbar for the specified application.
- 6 Click **Save Process**.

Modifying Workflow Toolbar Buttons

You can modify the toolbar buttons associated with an application at any time during the design process, or after a process has been activated.

To modify a Workflow toolbar button, complete the following steps:

- 1 In the Workflow Designer application, display a process record.
- 2 From the Select Action menu, select **Edit Workflow GO Buttons** to open the Edit Workflow GO Buttons dialog box. Applications that are associated with the object and support Workflow are listed in the Toolbar Buttons for <object name> table window.
- 3 To delete a toolbar button, click **Mark Row for Delete**.
- 4 To modify a toolbar button, select a row and click **View Details** and modify the values in the following fields as needed:
 - ▼ **Application** — Application that displays the button.
 - ▼ **Process Name** — If the button is for a specific process, enter the process name. If you are creating a single button for all active processes, leave this field empty.
 - ▼ **Sequence** — Enter a number that indicates the order, from left to right, that you want the Workflow buttons displayed on the toolbar. If you exceed the number of icons that can fit on the toolbar, the sequence number determines the order that each process appears in the menu.
 - ▼ **Description** — Enter a name for the button. When a user moves the cursor over the button, that name is displayed.
 - ▼ **Toolbar Icon** — File name of the image that should appear in the toolbar as the **Route** button. For example, nav_icon_route.gif.
 - ▼ **Active Icon** — File name of the image that should appear in the toolbar to indicate that the record is under the control of the Workflow process. For example, nav_icon_route_active.gif.
- 5 Click **OK** to modify the toolbar buttons.
- 6 Click **Save Process**.

Managing Active Workflow Processes

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Each time a record is routed into a Workflow process, an active instance of the process is created. A unique identifying number is assigned to each active instance.

You use the Workflow Administration application to view and manage active instances of Workflow processes. The Workflow Administration application contains a single table window, which contains a row for each record that is currently under the control of a Workflow process. You can see which version of a revised process was used to create each instance, the person ID of the individual who routed each record into Workflow, and the date and time that the process was initiated.

You use the Processes table window to view, modify, and stop active process instances. When a record leaves the control of Workflow, it is removed from the Processes table window. Using the Workflow Administration application you can:

- ▼ View Workflow assignments
- ▼ Reassign Workflow assignments
- ▼ Delete Workflow assignments
- ▼ Stop active processes, removing the record from the control of the process.

Managing Records in a Process

When a record is routed into a Workflow process, the system creates an active instance of that process, and then generates assignments based on the information contained in the process. You use the Workflow Designer application to create, enable, and activate Workflow processes. You can use the Workflow Administration application to view and modify Workflow assignment. You cannot create assignments using the Workflow Administration application.

Viewing Active Task Assignments

You use the Workflow Administration application to view and manage active instances of Workflow processes.

When a record is routed into a Workflow process that includes task nodes, task assignments are generated based on the information contained in the process record. You can view and manage task assignments for individuals and groups using the Workflow Administration application.

Viewing Active Task Assignments

To view active task assignments for a process, complete the following steps:

- 1 If necessary, you can use the table filter to locate a process instance.
- 2 In the Processes table window, click the **View/Modify Active Assignments** button. The View Active Assignments dialog box opens. You can view all active task assignments for the record.
- 3 Click **OK**.

Modifying Task Assignments

You can use the Workflow Administration application to delete or reassign a Workflow task assignment.

Reassigning an Assignment

Sometimes you must reassign a Workflow task that had been assigned to an individual or group. You can use the Workflow Administration application to reassign Workflow task assignments.

To reassign an assignment, complete the following steps:

- 1 If necessary, you can use the table filter to locate a process instance.
- 2 In the Processes table window, click the **View/Modify Active Assignments** button. The View Active Assignments dialog box opens.
- 3 To modify an assignment, click the **Reassign Assignment** button. The Reassign dialog box opens.
- 4 In the **Person** field, enter a value or click **Select Value**.
- 5 If appropriate, enter a message in the **Memo** field. The new assignee can view this message in the Complete Workflow Assignment dialog box.
- 6 Optional: to send one or more notifications about the reassignment, perform the following steps:
 - a Click **New Row**.
 - b Select one of the following options:
 - 1 In the **Communication Template** field, enter a value or click **Detail Menu** to select an option and retrieve a value.

OR

- 1 In the **Send To** field enter a person identifier, or click **Detail Menu** to select a person record.
- 2 In the **Subject** field, enter a subject for the e-mail message.
- 3 In the **Message** field, enter the text of the e-mail message.

- 7 Click **OK** to close the Reassign dialog box.
- 8 Click **OK** to close the View Active Assignments dialog box.

Deleting an Assignment

All task nodes must have at least one task assignment. If a task node has two or more task assignments, you can delete assignments. You cannot delete the last active assignment for a given task.

Deleting an assignment changes the status of the task assignment record from ACTIVE to INACTIVE.

To delete active assignments, complete the following steps:

- 1 If necessary, you can use the table filter to locate a process instance.
- 2 In the Processes table window, click the **View/Modify Active Assignments** button. The View Active Assignments dialog box opens.
- 3 To delete an assignment, click the **Delete Assignment** button. The status of the task assignment is changed to INACTIVE. The assignment record is removed from the View Active Assignments dialog box.
- 4 Click **OK** to close the View Active Assignments dialog box.

Stopping an Instance of a Workflow Process

When you route a record into a Workflow process, an active instance of that process is created to manage that individual record. You can use the **Stop Workflow** action in an application to stop the Workflow process for a particular record. Administrators can use the Workflow Administration application to view and stop Workflow processes for records for any Workflow-enabled application.

NOTE When you stop a Workflow process, you are only stopping the single instance of the Workflow process that controls a particular record. To deactivate a Workflow process, use the Workflow Designer application.

When you stop a process instance, the following tasks are performed:

- ▼ The record is removed from the control of the Workflow process.
- ▼ A transaction is written to the Workflow history of the record. Workflow history remains with a record permanently, even after the record has left the control of Workflow.
- ▼ Specified notifications are sent to past assignees, current assignees, or both. You can use a communication template to create a notification, or type the subject, message, and role recipients manually.

To stop a Workflow process instance, complete the following steps:

- 1 In the Workflow Administration application, select the active process instance that you want to stop.
- 2 Click **Stop Process**. The Stop Workflow dialog box opens.

Viewing Active Task Assignments

- 3** You can specify that a notification be sent to one or more assignees indicating that the record was removed from Workflow. You can use a communication template to create a notification, or specify the subject, message, and recipients.
- 4** Click **OK** to close the Stop Workflow dialog box. The record is removed from Workflow and the specified notifications are sent.

A Workflow process is a record that determines how other records are managed and processed at your company. A Workflow process map consists of decision points (known as nodes), and connecting lines (also known as action lines) between the decision points. The information in a Workflow process is used to automatically direct a record to the individuals who must act on that record, and then to guide them through their interaction with the record.

This appendix describes the components of a Workflow process that are visible to a user, for example, the Complete Workflow Assignment dialog box. It also describes the Workflow actions and buttons that appear in an application that has been Workflow-enabled.

Understanding User Interactions with Workflow

As a user, you might be responsible for deciding whether to route a record into a Workflow process. Use the **Route Workflow** button or action to initiate a Workflow process for a record. If there are two or more active processes for an application, you might have to decide which Workflow process the record should be routed into. Your Workflow administrator also can configure automatically routing records into a Workflow process.

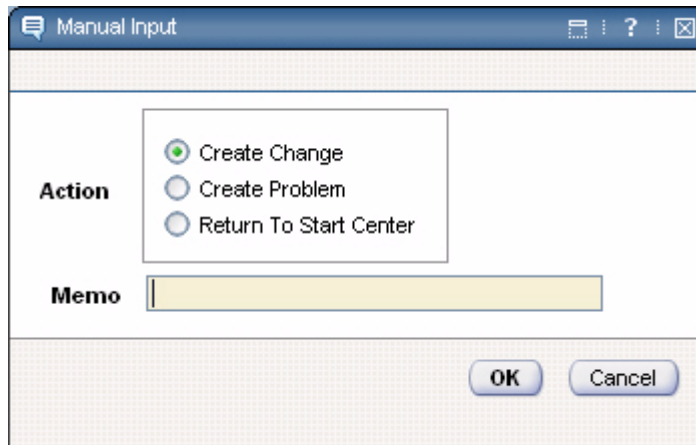
When a record is under the control of a Workflow process, you might be presented with one of the following types of Workflow user interactions:

- ▼ Manual Input dialog boxes
- ▼ Interaction message dialog boxes
- ▼ Complete Workflow Assignment dialog boxes

Understanding Manual Inputs

A Workflow process might require that a user make the decision about what action to take regarding the record. When a Manual Input node is encountered in a Workflow process, a Manual Input dialog box opens. The dialog box contains a list of options. These options allow you to select what happens to the record, for example, performing an action, changing the status of a record, or creating a related record.

Example Manual Input Dialog Box



To enter manual input, complete the following steps:

- 1 Select an action in the Manual Input dialog box.
- 2 If appropriate, you can enter a **Memo**. The memo is added to the Workflow history of the record. The next person in the process flow can view your memo in the Earlier Memos table window in the Complete Workflow Assignment dialog box.
- 3 Click **OK**.
- 4 Click the **Route** button in the toolbar or select the **Route Workflow** action from the Select Action menu to complete your input.

Understanding Interactions

Selecting an option in a Manual Input dialog box might display a second dialog box containing instructions. Your Workflow administrator might have designed the Workflow process to guide you through your interaction with the record. For example, the process might prompt you to enter data in one or more fields, or to select an action from the Select Action menu of the application.

When an Interaction node is encountered in a Workflow process, any of the following actions are performed:

- ▼ Display an application tab with instructions for adding or modifying data.
- ▼ Display instructions to perform a particular application action.
- ▼ Automatically trigger an action from the toolbar or Select Action menu.
- ▼ Automatically trigger a process, for example, another Workflow process.

When a Workflow message dialog box opens, follow the instructions in the message dialog box.

Understanding Task Assignments

A Workflow process might require that someone review and approve a record. When a Task node is encountered in a Workflow process, a task assignment is generated. A **task assignment** is a record that has been directed to you for action. You can receive notifications of an assignment via e-mail and in your Workflow Inbox.

When you receive an assignment in your Inbox or in an e-mail message you have two options.

- ▼ You can click the link to the record to view the record.
- ▼ You can click the **Route** button to complete the assignment.

Example Complete Workflow Assignment Dialog Box

The screenshot shows a dialog box titled "Complete Workflow Assignment". It contains the following elements:

- Task:** A text field with the value "Review this WO for level 1 approval".
- Action:** Two radio buttons. The first, "Send the Work Order on to next Approval", is selected. The second is "Cancel this work order".
- Memo:** A text area for entering notes.
- Earlier Memos:** A table with columns "Memo", "Person", and "Transaction Date". The table is currently empty, displaying "...No rows to display...".
- Buttons:** "OK", "Reassign", and "Cancel" buttons at the bottom right.

You complete a task assignment using the Complete Workflow Assignment dialog box. You can view memos entered by individuals who have previously

reviewed the record, and write memos to individuals who might review the record after you. Task assignments can have a time limit. If the assignment is not completed within the specified time limit, the record can be escalated.

For instructions for completing a task assignment, see "Completing Assignments," on page A-102.

Understanding Escalations

An **escalation** is a mechanism for automatically monitoring time-sensitive records, which can take actions or send notifications when a record reaches a defined escalation point. Your Workflow administrator can specify that a task assignment has a time limit. If the assignment is not completed within the specified time limit, an escalation can be triggered for the record.

There is not one standard escalation. Your administrator creates custom escalation records that trigger a variety of actions and/or notifications. For example, an escalation might automatically approve or cancel a record, or reassign the task assignment. An escalation might generate a reminder notification to the assignee regarding the task assignment, or send a notification to a supervisor that the assignment has not been completed by the assignee.

Understanding Notifications

A **notification** is an e-mail message that is automatically generated by a Workflow process. You might receive a notification for any of the following reasons:

- ▼ To update you on the status of a record that you created, or that was created on your behalf.
- ▼ To notify you of assignments performed by other users, for example, workers that you supervise.
- ▼ To notify you of a task assignment or reassignment.
- ▼ To notify you that a record has been escalated.






Other users also can be notified of your interactions with a record in a Workflow process, for example, if you approve or reject a record.

Using the Workflow Inbox

Workflow processes are designed to mirror the business processes at your company. A Workflow process can route a record to your Workflow Inbox when you need to make a decision or perform a task regarding the record.

The Workflow Inbox is one of the portlets that might appear on your Start Center. If your company has implemented the Workflow feature, a list of your task assignments are displayed in your Inbox. The number of records contained in your Inbox is displayed in the Inbox/Assignments table header. For example, Inbox/Assignments (5) means that you have five records in your inbox.

The Workflow Inbox/Assignments Portlet

Inbox / Assignments (2)   			
Next Assignment Due: 10/28/2005 6:48:37 PM			Refresh
Description	Due Date	Priority	Route
Review this WO for level 1 approval	10/28/05 6:48 PM		
Review this WO for level 1 approval	10/28/05 6:48 PM		

1 to 2 of 2

You use the Workflow Inbox to review, route, and complete your task assignments. A task assignment is a record that has been routed to you for action, based on the information contained in a Workflow process. Records displayed in your Workflow Inbox are assigned to you and you must complete the assignment before the record can move to the next step in the process.

NOTE The description that appears in the Inbox portlet is the description of the step from the Workflow process, not the description of the record. For example, the description for a purchase order task might be "Supervisor approval."

Configuring the Workflow Inbox

If you have security permissions to do so, you can configure the portlets that display on your Start Center, including configuring the Workflow Inbox.

To configure your Workflow Inbox, complete the following steps:

- 1 Click the **Edit Portlet** button (pencil icon) in the Inbox/Assignments header to display the Inbox/Assignments Setup application.
- 2 You can perform the following actions in the Inbox/Assignments Setup application:
 - ▼ Change the **Display Name** of the portlet.
 - ▼ Indicate how many **Rows to Display** in the portlet.
 - ▼ Select the columns that are displayed in the portlet and modify their **Descriptions**.
 - ▼ Indicate the order that the columns are displayed by entering a value in the **Order** column.
- 3 Click **Finished**. The changes are made to the Inbox/Assignments portlet.

Managing Your Workflow Assignments

There are several different actions that you can perform from the Workflow Inbox/Assignments portlet on your Start Center. You can view, sort, route, or reassign records.

Viewing Records

The **Description** column in the Workflow Inbox displays instructions from the Workflow process that should describe what action you are expected to perform

to complete a task assignment, for example, "approve or reject record." If you want to view the record before taking action, you can click the **Description** for the assignment. The associated application opens, displaying the record. You can view and modify the record, and perform any required actions that are not controlled by the Workflow process.

You can update the list of records in your Inbox by clicking the Refresh link.

Sorting Records

As with all records in a table window, you can click any underlined column heading in the Workflow Inbox to sort the records in the column. For example, if you wanted to complete your task assignments based on when they are due you could sort by the **Due Date** column.

Completing Assignments

Each assignment in your Inbox has a **Route** button that you use to complete your assignment.

To complete a task assignment, complete the following steps:

- 1 Select one of the following choices:
 - ▼ If you are viewing the assignment in your Inbox, click the **Route** button for the record.
 - ▼ If you are viewing the assigned record in the application, click the **Route** button in the application toolbar.

The Complete Workflow Assignment dialog box opens.

- 2 Select an action. If you do not have security authorizations to both actions, you might only see one option.
- 3 If appropriate, you can enter a **Memo**. The memo is added to the Workflow history of the record. The next person in the process flow can view your memo in the Earlier Memos table window in the Complete Workflow Assignment dialog box.
- 4 Click **OK**.

Reassigning Records

If necessary, you can reassign a task assignment to another individual. For example, if you have to make a decision whether to approve a replacement part for a work order, and a co-worker has more experience with the type of repair, you might forward the task assignment to them and include a note asking for their opinion.

To reassign a task assignment, complete the following steps:

- 1 Click the **Route** button for the record in your Workflow inbox. If you are viewing the assigned record in an application, you can click the **Route** button in the application toolbar. The Complete Workflow Assignment dialog box opens.
- 2 If appropriate, you can enter a **Memo**. The memo is added to the Workflow history of the record.
- 3 Click **Reassign** to open the Reassign dialog box.

Reassign Dialog Box

Reassign

You have chosen to reassign this task to someone else. Please choose a person and optionally enter a memo. To send a notification that this assignment has been reassigned, enter notifications.

Reassign to:

Person *

Memo

Notifications 0 - 0 of 0 [Download](#)

Communication Template	Send To	Subject
...No rows to display...		

[New Row](#)

[OK](#) [Cancel](#)

- 4 Enter a **Person** or click **Select Value**.
- 5 If appropriate, you can enter a **Memo**. The memo is added to the Workflow history of the record.
- 6 If appropriate, click **New Row** to create an e-mail notification of the reassignment. You can use a communication template to create a notification, or specify the subject, message, and role recipients manually.
- 7 Click **OK**. The task assignment is routed to the selected individuals, and any specified notifications are sent.

Workflow-Enabled Applications



When the Workflow Administrator activates a Workflow process, Workflow toolbar buttons and Select Action options are added to the application.

When a record is under the control of a Workflow process, by default, you can change its status. To block status changes, put the NOSTATUS action in the process design in the appropriate place. At a subsequent point in the process, use the OKSTATUS action just prior to performing the next status change.

Understanding the Workflow Toolbar Buttons

Your Workflow administrator can configure the application to display one or more Workflow buttons in the toolbar, depending on the number of active processes that exist for the application. You use these toolbar buttons to route a record into a Workflow process.

The following table shows the two standard Workflow toolbar buttons. Your Workflow administrator can customize Workflow toolbar buttons, and create additional toolbar buttons if more than one process is available for an application.

Icon	Function
	Indicates that the application is Workflow-enabled, but that the current record is not in Workflow.
	Indicates that the current record is under the control of a Workflow process.

Understanding the Workflow Actions

When a Workflow process record is activated for a type of record, the Workflow actions and buttons are added to the application used to create and manage those records. There are six actions available from the Workflow menu:

- ▼ Route Workflow
- ▼ Stop Workflow
- ▼ View Workflow History
- ▼ View Workflow Assignments
- ▼ View Workflow Map
- ▼ Workflow Help

Route Workflow

You can route a record into a Workflow process manually using the **Route Workflow** action or toolbar button.

To route a record into Workflow, complete the following steps:

- 1 In a Workflow-enabled application, display the record that you want to route into a Workflow process.
- 2 Click the **Route** button in the application toolbar.
- 3 If there are two or more active processes for the application, select a process from the **Process** menu in the Start Workflow dialog box.
- 4 If appropriate, enter a **Memo**.
- 5 Click **OK**. The record is routed into the Workflow process, and the Workflow toolbar icon is changed to indicate that the record is under the control of Workflow.

Stop Workflow

You can stop the Workflow process for a record by selecting **Workflow > Stop Workflow** from the Select Action menu.

To remove a record from Workflow, complete the following steps:

- 1 In a Workflow-enabled application, display the record that you want to remove from Workflow.
- 2 From the Select Action menu, select **Stop Workflow**.
 - ▼ If there are multiple active Workflow instances, the Active Instances dialog box opens. Click a process name to select it, then click **Stop**. The Stop Workflow dialog box opens.
 - ▼ If there is a single active Workflow instance, the Stop Workflow dialog box opens. The Assignees table window displays all persons with current task assignments.
- 3 If appropriate, you can create an e-mail notification. The WFSTOP communication template is the default. You can use this communication template to create the notification, or specify the subject, message, and role recipients manually.
- 4 Click **OK**. The record is removed from Workflow, and any specified notifications are sent.

View Workflow History

For auditing purposes a record is maintained of all records that are routed through a Workflow process. You can view the Workflow History for a record by selecting **Workflow > View Workflow History** from the Select Action menu.

The View Workflow History dialog box shows a list of all *user* initiated actions in the Workflow process, for example, routing a record into a Workflow process, or completing an assignment. Because some transactions are performed automatically, they are not displayed in this dialog box even though they are recorded in the Workflow History of the record in the database.

The processes table window includes the name of the Workflow process, the type of transaction, a description of the action that took place, the date the action occurred, and the person ID of the individual who initiated the action.

NOTE If the record has been routed through more than one Workflow process, the Workflow History is sorted by process name, then by transaction date.

View Workflow Assignments

You can view the Workflow assignments for a record from within a Workflow-enabled application by selecting **Workflow > View Workflow Assignments** from the Select Action menu. The View Workflow Assignments dialog box lets you perform the following tasks:

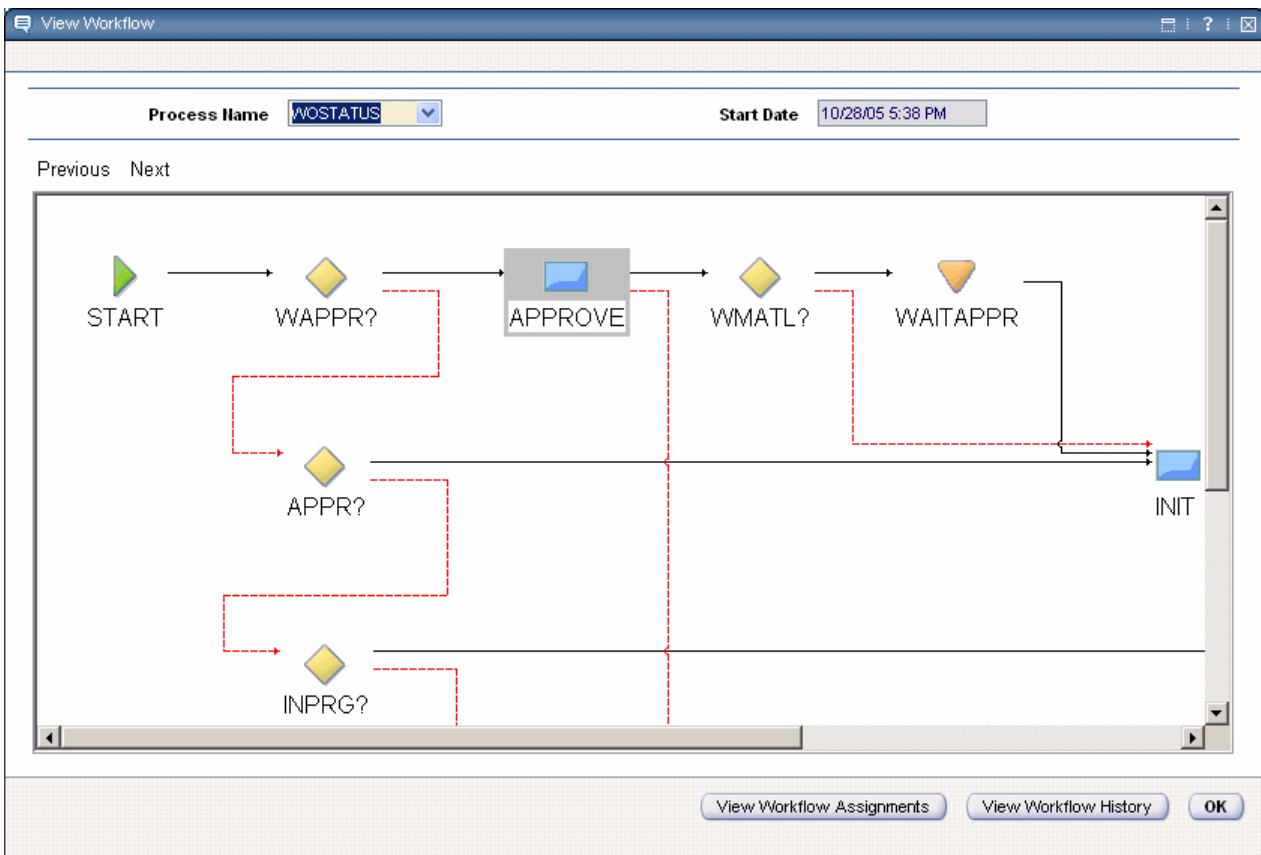
- ▼ view a list of the active Workflow assignments for the record
- ▼ view the Workflow History for a record.
- ▼ view the Workflow Map for any processes that are currently managing the record.

View Workflow Map

A Workflow process consists of decision points (known as nodes), and connecting lines between the decision points. The nodes indicate points in a process where a decision is made, and the connection lines show the path that the record takes after a decision point. The Workflow Map shows a picture of a Workflow process. The record's current location in the process is highlighted by a box around the node. The Workflow Map lets you see where your assignment falls in the context of the process as a whole.

You can view a visual representation of a Workflow process by selecting **Workflow > View Workflow Map** from the Select Action menu of any Workflow-enabled application.

View Workflow Map Dialog Box



To view the Workflow Map, complete the following steps:

- 1 Select **Workflow > Workflow Map** from the Select Action menu of any Workflow-enabled application. You also can access the Workflow Map from the View Assignments dialog box.
- 2 If there are multiple Workflow processes for the application, select the process from the **Process Name** menu.
- 3 Click **OK** to close the Workflow map.

Workflow Help

By default the Workflow Help dialog box opens every time you view an assignment from your Inbox.

To prevent opening the Workflow Help dialog box every time you view an assigned record, clear the **Show this help when launching records from the Inbox** check box in the Workflow Help dialog box.

To access the Workflow Help dialog box, select **Workflow > Workflow Help** from the Select Action menu of any Workflow-enabled application.

You can find additional Workflow Help in the following places:

- ▼ In the index of the main help
- ▼ In the How Do I topics of most application help

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