PeopleSoft

EnterpriseOne Workflow Tools 8.9 PeopleBook

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Why Workflow Is Important

In the past, companies benefited greatly from economies of scale, that is, the reduction of production costs that is achieved with increased output. These economies were possible because companies typically manufactured large quantities of standard products for relatively large and stable consumer groups. However, economies of scale are becoming less important in today's marketplace, due in large part to the increasing fragmentation of the consumer base. With so many products available, customers are more discriminating than ever and often expect highly complex services to go with the products that they purchase.

As a result, the definition of productivity as it relates to business success is changing rapidly and radically. Productivity is no longer defined simply as creating more with less. Increasingly, value is linked not only to sheer output but to innovation, or the ability to correctly anticipate and creatively respond to new and changing market opportunities. Today, a keen competitive advantage is enjoyed by those organizations with the flexible business infrastructures and tools in place to quickly develop new products and services and continuously outperform the time to market of their competitors.

The dependence of today's business enterprises on innovation and fast delivery of product cannot be overestimated. With the new emphasis on relentless innovation and the advantages that it breeds, successful companies are constantly searching for ways to reshape their corporate structures to streamline their business processes.

Workflow Management: Streamlining Business

Goods and services must be produced both faster and smarter through teamwork and efficiency. Only those companies with innovative staff, products, services, and short development cycles will prosper.

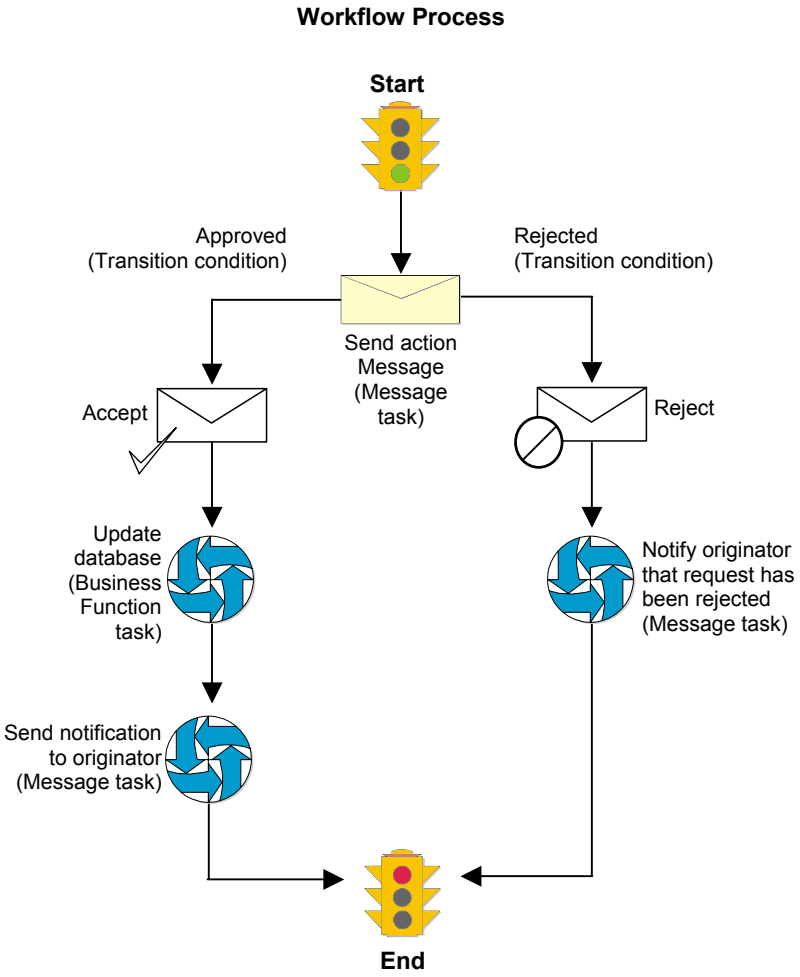
Workflow management, a strategy for automating business processes, is a powerful tool for translating the collaborative vision into real-world business applications with clear and measurable paybacks. The aim of workflow management is to streamline the components of various office systems by eliminating unnecessary tasks (and the costs associated with the performance of those tasks) and automating the remaining tasks in a process.

Workflow management is the effective application of information technologies to internal business processes in order to accelerate the collaborative and creative processes that drive innovation. The goal of workflow software technology is the creation of a single environment for managing the complexities multiple-office automation environments. As software has moved from individualized solutions with dedicated functionality to integrated groupware solutions, workflow has evolved as a metaphor for the efficient coordination of multiple workgroups using multiple technologies.

Most workflow products support two basic functions:

- Tools for mapping business processes, which might be defined sets of routes, roles, and rules for the movement of documents and tasks
- Implementation of those business processes through linkages with a company's computer network, shared databases, and e-mail systems so that information can flow through the organization at a controlled and efficient pace

Following is an illustration of a basic workflow process for approving an increase to a customer's credit limit:



The Benefits of Workflow

Because organizations are made up of a series of intricately intertwined business cycles, these cycles are a logical place to look first when attempting to streamline. According to the Workflow Management Coalition, almost 90 percent of all time that used to perform tasks within the business setting is classified as transfer time, whereas 10 percent is used for the actual performance of those tasks. The objective of workflow analysis is to redefine and then reconstruct the components of lengthy business cycles so that the time required to execute a task is minimized and the transfer time between tasks is eliminated entirely.

Other key benefits of workflow management include:

- Improved efficiency through the elimination of many unnecessary task steps
- Better business process control achieved by standardizing work methods and creating audit trails
- Improved customer service when consistency in the processes leads to greater predictability in levels of response to customers
- Flexibility bred from software control over processes, which enables their future redesign in response to changing business needs

Workflow Enhancement Scenario

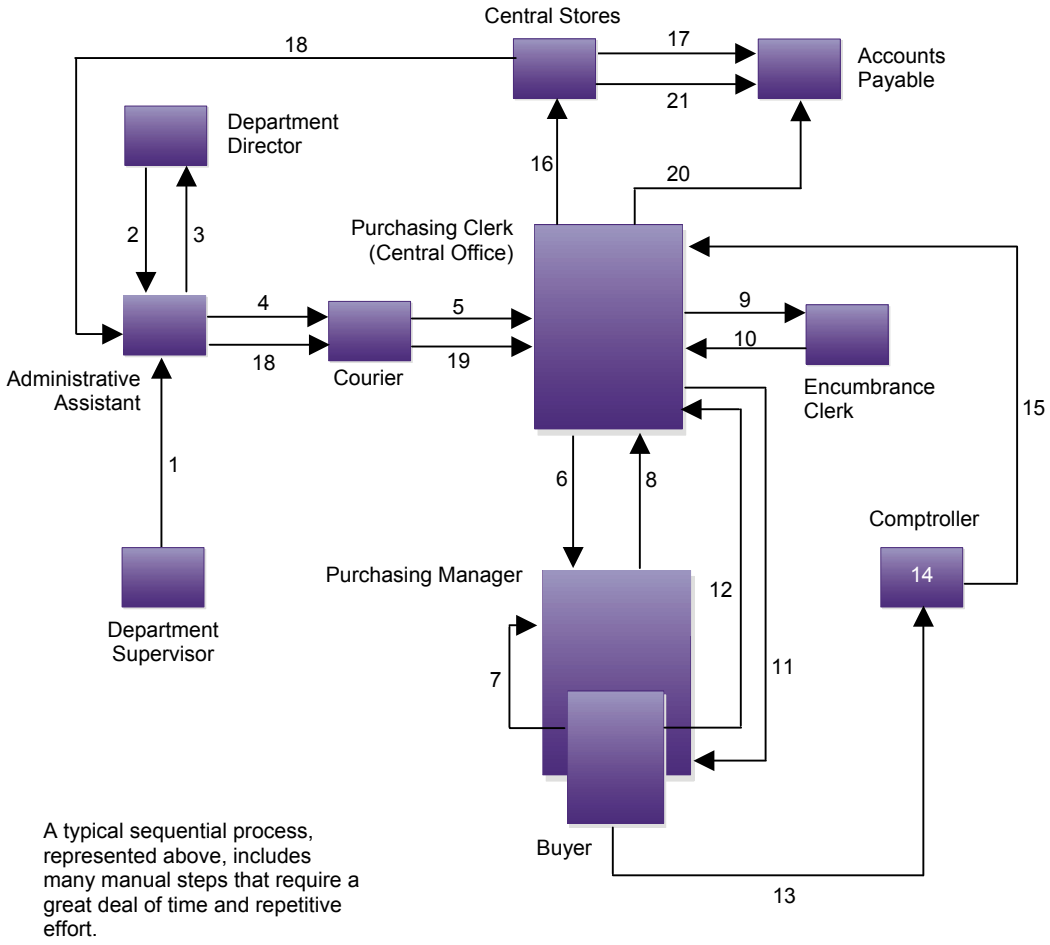
Information that is critical to a workflow process can be defined and stored in database tables, allowing a computer system to automate the flow of information and tasks. This automation minimizes the reliance on physical meetings to enter redundant data and to physically exchange paper. For example, using an automated workflow process, purchase orders and work orders can be processed to completion without a single printout. The defined workflow information might include order activity rules, workflow steps, and expenditure authorization requests, all of which can be routed automatically via e-mail.

The following scenario demonstrates the savings in labor and time that can be achieved when J.D. Edwards Workflow Tools technology is applied to a typical business process like procurement.

Conventional Workflow

The following graphic illustrates the paper trail of a typical procurement process that is not automated. The step-by-step tasks of this conventional workflow and the total time required to complete the procurement process are explained following the graphic.

Paper Trail of Typical Procurement Process



- The department supervisor at a remote office fills out a requisition form to request goods.
- The administrative assistant processes the requisition form, looks through two catalogs, and locates the items. The assistant then fills out the paper portion of the requisition and walks it to the department director.
- The department director reviews the requisition, signs it, and puts it in an Out basket.
- The administrative assistant retrieves the requisition and places it in a courier pack to the central office.

- A courier drives to the remote office, picks up the courier pack, and delivers it to the purchasing clerk at the central office.
- The purchasing clerk reviews the requisition, audits central stores, and sends the requisition to the purchasing manager if the item is in stock, or to the buyer if the item is not in stock.
- The buyer reviews the document, selects the supplier, calls for a quote, and passes the requisition to the purchasing manager.
- The purchasing manager reviews, signs, and places the requisition in an Out basket.
- The purchasing clerk retrieves the requisition and passes it to the encumbrance clerk.
- The encumbrance clerk reviews the items, assigns account codes, and checks the budget. If funds are available, the requisition is passed back to the purchasing clerk.
- The purchasing clerk sends the requisition to the comptroller if the item is in central stores, or to the buyer if it is not in stock and must be bought and delivered to central stores.
- The clerk retrieves the purchase order and delivers it to the comptroller or buyer.
- The buyer consolidates the requisition into a single purchase order per vendor and places the order in the out basket for delivery to the comptroller.
- The comptroller reviews and signs the purchase order. At this step, the routing can take longer, based on the amount of the request and the level of authorization of the person approving the purchase.
- The clerk retrieves the document and places it in interoffice mail. Another day passes.
- A multipart document arrives one day later via interoffice mail in the purchasing department. The purchasing clerk tears out the white copy and sends the rest of the multipart form to central stores.
- The purchasing clerk logs and files the white copy.
- The central stores clerk retrieves the item from the shelf, tears out the pink copy, places it in the accounts payable stack, and ships the item and the remaining copies to the remote office.
- The administrative assistant receives the item, tears out, logs, and files the blue copies, and places the green receiving and yellow accounts payable copy in a courier pack to go back to the central office.
- A courier retrieves the pack and returns the green and yellow copies to the central office.
- The purchasing clerk attaches the white original and green receiving copies to each other, puts them in the file, and sends the yellow copy to accounts payable.
- The accounts payable clerk receives the invoice from central stores, retrieves the open yellow receiver copy from the file, and matches and enters the voucher.

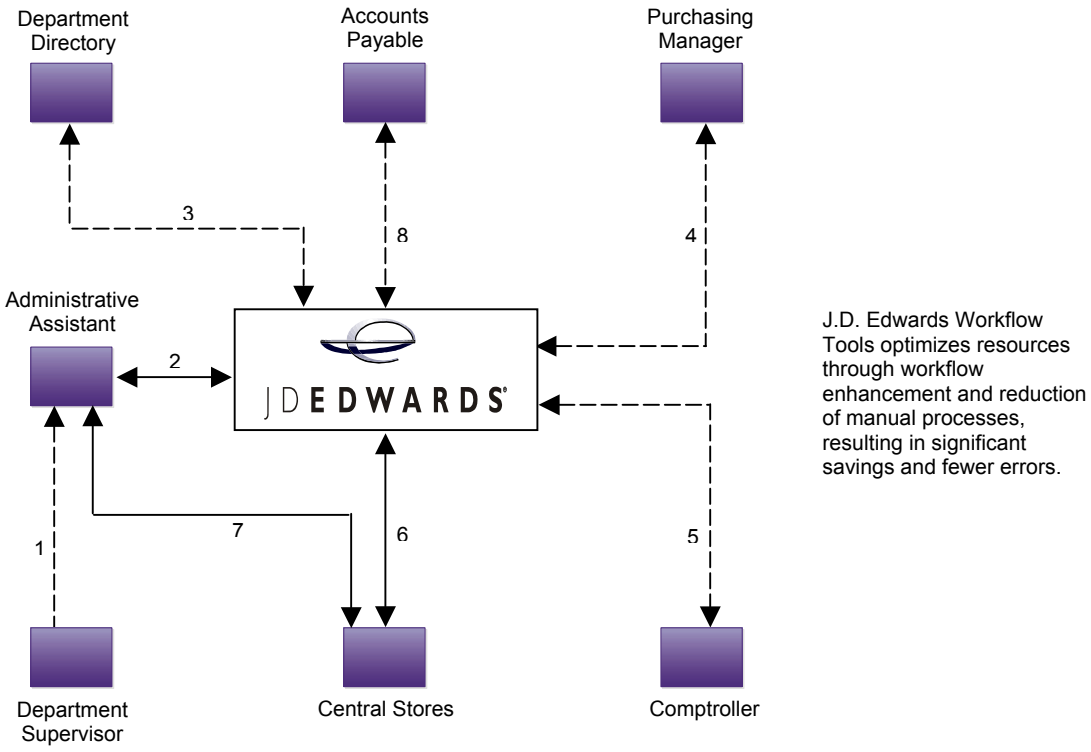
Total time (in minutes) per item if the item is not in stock: 172.5

Total time (in minutes) per item if the item is in stock: 147.5

Enhanced Workflow with J.D. Edwards Workflow Tools

The following graphic illustrates how J.D. Edwards Workflow Tools enhances this workflow by reducing the paper trail, minimizing redundant data and data entry, and reducing errors or the need to redo work.

Workflow Enhancement



Using J.D. Edwards Workflow Tools, the organization streamlined its workflow process as described in the following steps:

- The department supervisor fills out a requisition form to request goods.
- The administrative assistant processes the requisition form online. The system checks the budget and automatically routes the request to the next approver based on the workflow table hierarchy and the amount of the item.
- The department director reviews and approves the requisition online. The system automatically routes the requisition to the appropriate buyer or purchasing manager.
- The purchasing manager consolidates the requisition with others for the same vendor into a purchase order. The system automatically routes the purchase order to the next approver.

- The comptroller reviews and approves the purchase order as required.
- The purchase order is automatically routed to central stores. A clerk takes the pick slip, retrieves the item from the shelf, and ships it for next-day delivery.
- The administrative assistant receives the item on the next day.
- The accounts payable clerk receives the invoice online and matches it to the open receipt that is also online. The system automatically creates a voucher.

Total time (in minutes): 27

J.D. Edwards Workflow Tools Overview

J.D. Edwards Workflow Tools (Workflow) allows you to automate your high-volume, formerly paper-based process into an e-mail-based process flow across a network. Documents, information, and tasks pass from one participant to another for action based on a set of procedural rules. The result is an automated and efficient process with minimal user involvement, which allows you to streamline your existing business processes, increase efficiency, and reduce process time. Moreover, Workflow uses the tools already in place in the J.D. Edwards system.

Using Workflow, any application can be workflow-enabled. This flexibility and ease of use allows you to enable new, innovative business process ideas in your existing system without major system changes.

Workflow allows you and your employees to access workflow messages or tasks from several places:

- Work Center
- Employee Queue Manager
- Third-party e-mail systems
- Work Item Manager (J.D. Edwards Web Client users only)

You can monitor your workflow processes and tasks in the following ways:

- As a Workflow administrator, from the Process Task Monitor. This monitor allows an administrator to override authority at the execution of certain tasks or to monitor the workflow for potential delays in workflow queues.
- Graphically from the Solution Modeler Server (sold separately). This product provides an HTML view of workflow process instances within the J.D. Edwards Portal and provides Workflow administrators the ability to Suspend, Terminate, or Resume any workflow process instance.
- As a user, from the Work Center, which displays action or error messages that require user interaction. For example, when a user receives notification that a document requires her review, the routing and the document appear within the Work Center.

The Workflow model is based on the following principles:

Routes Routes define the path along which the Workflow engine moves work. This work could involve a message, batch process, business function, halt in the system, or form. Routing can be simple, meaning that it is typically sequential; or it can be complex, meaning that it involves joins or splits, parallel routing, or iterative routing (looping).

Rules Rules define to whom or to where the work should be routed. Rules define the conditions that must be met for the Workflow engine to progress from one step to the next. Rules can be contingent on predefined threshold values or as simple as moving to the next step in a process.

Key Concepts

The following table contains definitions of key concepts that are essential in understanding the J.D. Edwards Workflow Tools. Before you create a workflow process, you should familiarize yourself with the following concepts:

Workflow system	All of the tools that facilitate the design of a workflow process, as well as the workflow engine.
Workflow engine	All of the J.D. Edwards ERP mechanisms that move the workflow process from one task to another.
Process definition	A template or model of the workflow process. The process definition contains all the information about the tasks, transitions, and conditions that make up a workflow process. That is, the process definition defines each component of the process and defines each path the process might follow.
Process instance	An active process in the system. When an event rule activates a workflow process, the system creates a process instance. The process instance follows a path that is defined in the process definition. You can have several concurrent process instances of the same process in the system. **Note** If you are familiar with object-oriented programming, a process definition is comparable to a class and the process instance is comparable to an object.
Process version	A specific workflow process definition. The system uses process versions to allow for the modification of processes without disrupting currently running process instances. Before you modify a process, you should copy the workflow process version to a new version number, edit the new version, and then make the new version active. Use this versioning mechanism during workflow development to allow process instances that started using the old version to finish using that same version.

J.D. Edwards Workflow Tools Features

J.D. Edwards Workflow Tools (Workflow) give you the ability to do the following:

- Attach a workflow process with event rules to any event within an application, batch process, or named event rule (NER). You can also attach a workflow process through table event rules in Table Design Aid.
- Execute conditional processing, which is logic contingent upon supplied criteria, such as quantity and dollar amount. This criterion can be any parameter used in the decision-making process that the system can evaluate.

- Create messages specific to the process by setting up message templates (text substitution messages) in the data dictionary.

Workflow also:

- Integrates seamlessly with J.D. Edwards ERP interactive and batch applications
- Offers multiple level approvals
- Offers automatic escalation of messages which have not been acted upon
- Offers manual escalation of processes in which the administrator has the ability to override or bypass certain tasks or users in the workflow process
- Automatically time stamps all tasks within a process for auditing and improvement analysis through the Process Task Monitor (P98860) or Workflow Advanced Analysis (P98870)

All of the technology, rules, and principles explained above allow you to work more efficiently and reduce cycle time. The automated process reduces errors and generates less paperwork. Furthermore, Workflow helps you develop workflow-enabled applications or quickly and smoothly enable existing applications for workflow. You have the ability to attach a workflow process that sends a message or calls an application to any event within an application. All you have to do is attach a Start Process call to an event within an application to initiate the workflow process. Because this process is defined outside of your application, it offers you unlimited flexibility to incorporate your innovative ideas into the J.D. Edwards ERP system.

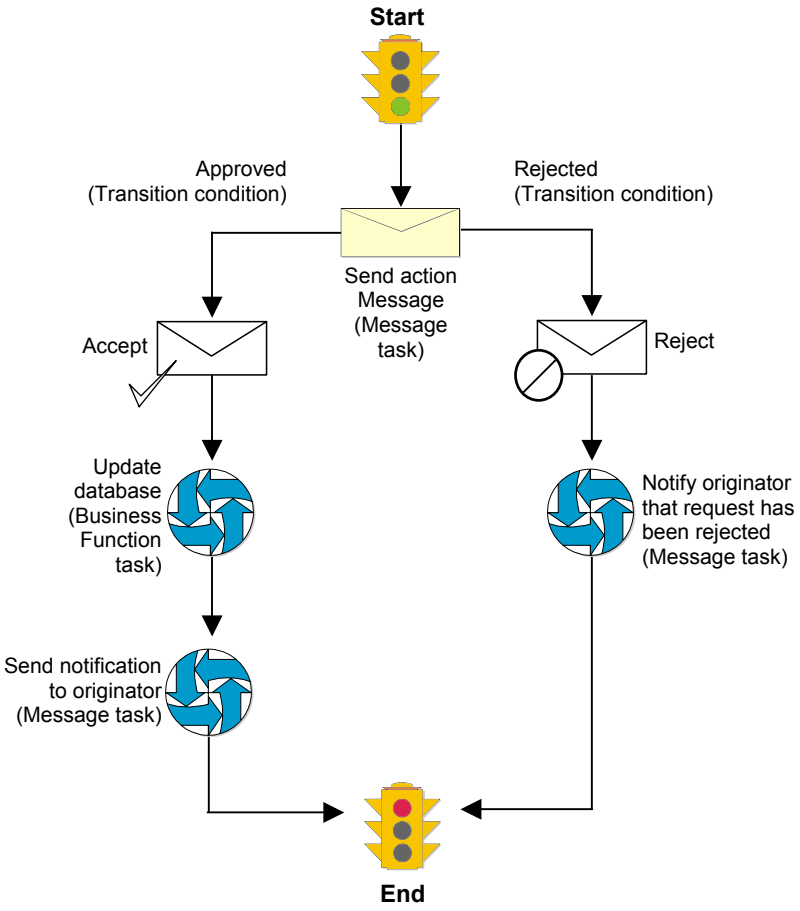
Components of a J.D. Edwards Workflow Process

A workflow process consists of tasks and transitions. A task represents an action that takes place in the workflow process, such as starting a workflow process, sending an approval message, or updating a table in a database. A transition links workflow tasks together. Transitions can contain transition conditions, which are logical criteria that determine which task will occur next in the workflow process.

The following graphic illustrates a J.D. Edwards workflow process. Each icon represents a task in the process. The Start task begins the process when triggered by an event within an application, such as someone changing a customer's credit limit. Based on that change, the system invokes a message task, which sends a message to a designated user (an approver) to review the change and either approve or reject it.

The lines in the graphic labeled Approved and Rejected illustrate transition conditions. If the approver approves the change, a business function updates the database with new information (such as the customer's new credit limit). The system then sends a message back to the originator, acknowledging that the changes were made. If the approver rejects the change, the system sends a message to the originator informing him or her that the request was rejected. The database remains unchanged if the request is rejected.

Workflow Process



Workflow Tasks

The following tasks can be used in a workflow process:

Start — A task that begins a workflow process when triggered by an event. This task is automatically included in the process when you create a workflow process.

End — A task that completes a workflow process. As with Start, this task is automatically included in the process when you create a workflow process.

Batch Application — A task that starts a J.D. Edwards batch application.

Interactive Application — A task that starts a J.D. Edwards interactive application, such as Work With Journal Entries.

Business Function — A task that uses a business function for special logic processing, including any business functions written in C programming language or named event rules. For example, you can set up a Business Function task that updates the database if a user approves an active message.

Local Subprocess — A task that starts another workflow process, which includes its own set of tasks.

Message — A task that generates a message. A Message task can include the following items:

- A recipient specifying to whom the message will be sent.
- Recipient rules and recipient conditions containing the logic that can override the original recipient.
- A shortcut to the Generic Workflow Approval Forms (P98805) or any other form.
- A message template containing boilerplate text and values that are substituted from data items within key data and additional data structures of the workflow process.
- Escalation options enabling the system to forward (escalate) unread messages after a certain period of time to another user. You add escalation to a message so that if the original recipient of the message is not available to respond to the message, another person will receive the message.

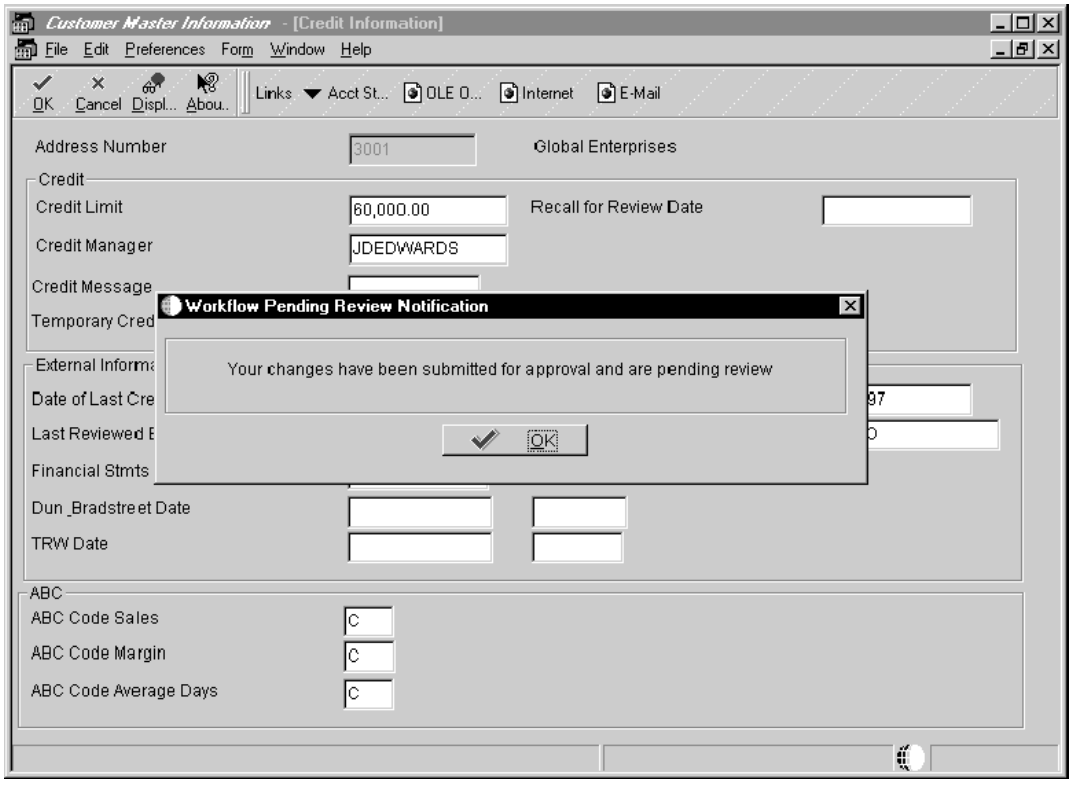
Windows Executable — A task that launches an executable program that you specify, such as a batch file or a virus scanner. Typically a process without a user interface.

Halt — A task that suspends the workflow process for a certain period. Once a period of time has passed or when an event occurs, the process starts again. The process is permanently halted until some outside event restarts it. You specify the earliest date and time that the task can be restarted within the instance record.

Example: A Workflow Process

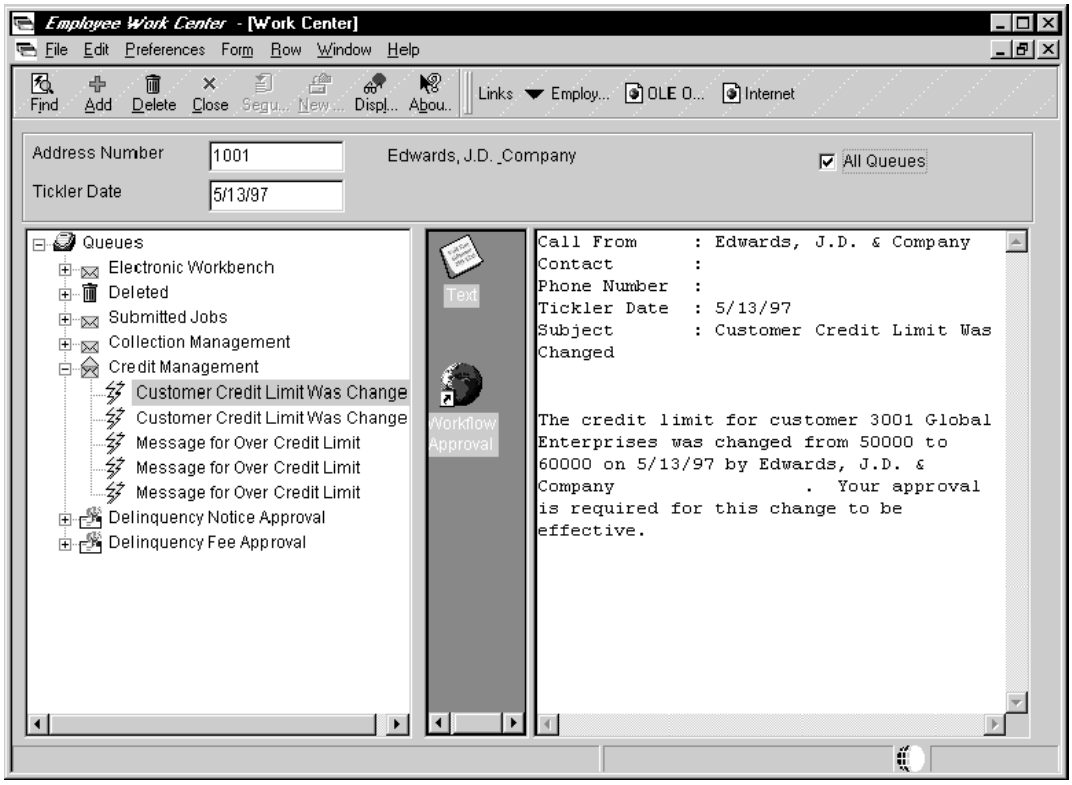
The Accounts Receivable system can detect when a user changes a customer's credit limit. This ability to detect a change allows an approval process to automatically route a message to the appropriate people for their approval or rejection.

In the following example, a user changes a customer's credit limit from 50,000 USD to 60,000 USD. The system displays a message box that notifies the user that the changes have been submitted for approval. The system does not reflect the new credit limit in the customer record until the change is approved.



Note that the message in this example is specific to the Credit Limit Changed process and does not appear automatically in a process that you set up. You can add a message similar to this one through a form interconnect when you attach a process to an application.

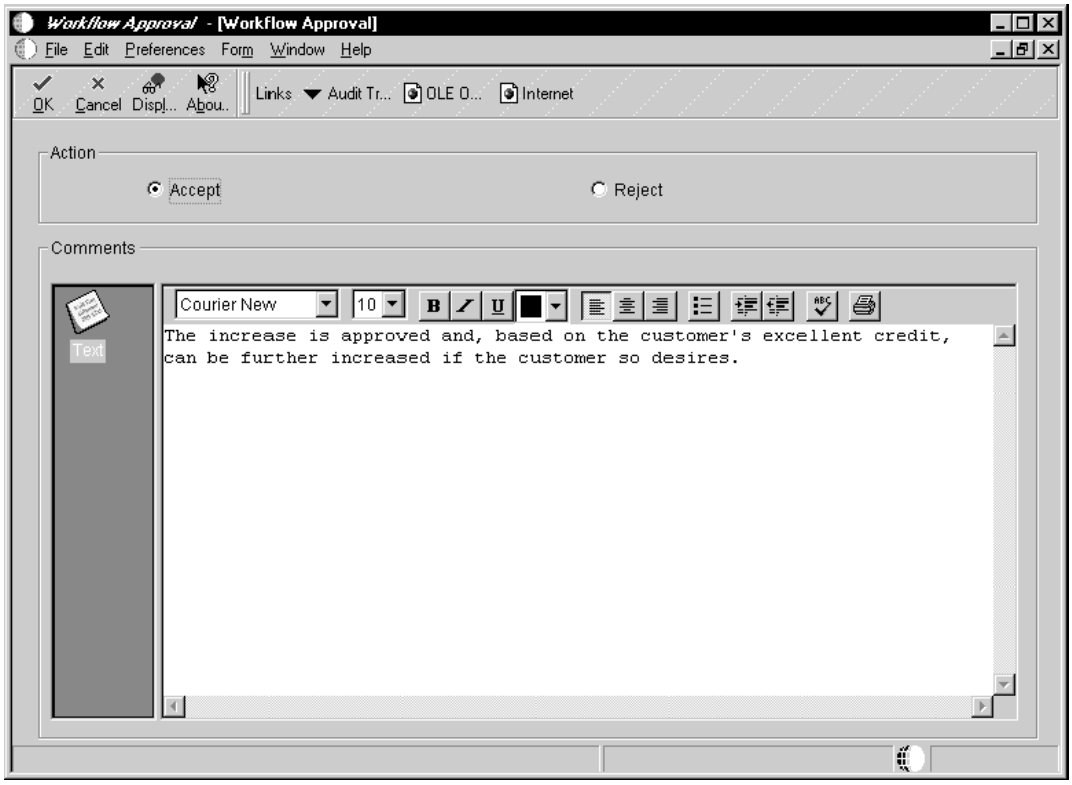
The approver receives a message in the Credit Management Queue through the Employee Work Center. The message indicates that the change is pending approval.



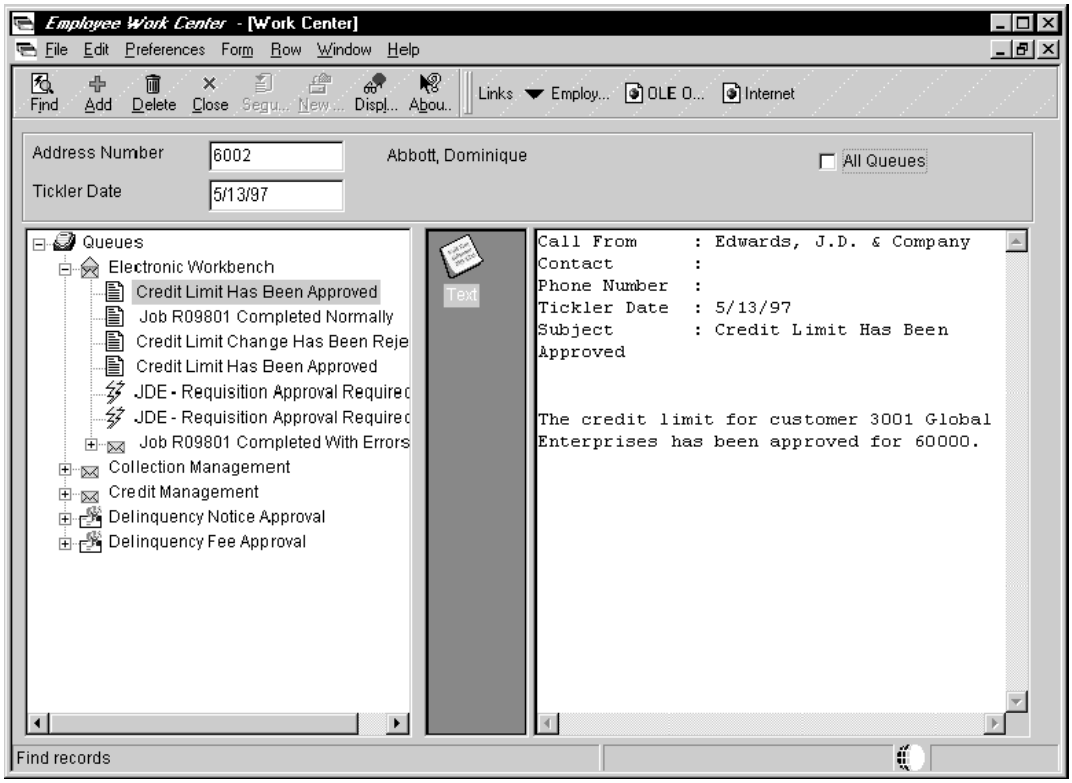
To approve or reject the change, the approver clicks the Customer Credit Limit Was Changed message and clicks the Workflow Approval icon, which opens a form used to approve or reject the message. This form also allows the approver to add supplemental information about the approval or rejection action for audit purposes.

If the approver rejects the change, the system retains the customer's old credit limit information and sends a message to the originator, informing her or him of the rejection, which completes the workflow process.

If the approver approves the change, a function activity initiates a Named Event Rule (NER) that updates the database with the customer's new credit limit.



The process sends a message to the user who originated the credit limit change, indicating that the credit limit change was approved.



Planning for Workflow

The workflow system enables a well-managed business to operate even more efficiently. The workflow system is essentially value-neutral, meaning that it does not substantially improve the efficiency of processes that are poorly designed originally. Therefore, before thinking about ways to better manage your internal workflows, your company should first consider some degree of business process reengineering. This planning process is vital for ensuring that your current business processes and management approaches are synchronized with today's volatile competitive environment, and not a hindrance to flexibility and growth. To assist with this process, J.D. Edwards sells Solution Modeler, an enterprise-class tool for business process modeling. Solution Modeler reflects best practice usage of J.D. Edwards software.

Setting Up Message Templates

When you create a Message task (a task that sends messages to individuals or to members of a distribution list), you can choose to use a message template. Message templates allow you to send boilerplate text along with information that is substituted from data items used within the process.

You can create a new message template before you begin creating a workflow process or set up the template during creation of a Message task.

Use the following naming convention when creating message templates:

LM*xxxxyyy*

where LM identifies the message as a workflow message

xxxx = the system code (use system codes 55 through 59 for customer-specific messages)

yyy = a sequential number

► To set up a message template

1. In OMW, highlight the project to which you want to add the message template, and the click Add.
2. On Add J.D. Edwards Object to the Project, choose Data Item in the Control Table Objects area, and then click OK.
3. On the Data Dictionary Item Type dialog box, click Yes to add a glossary data item.
4. On Glossary Items, click the Item Specifications tab, and then complete the following fields:
   - Glossary Group

     Enter Y to identify the message as a workflow message. The system disables the Data Structure Template tab. This tab is used for creating error messages, not workflow messages.
   - Product Code
   - Product Code Report

     Enter a user defined code that specifies the system number for reporting and jargon.
   - Description
   - Error Level

     If this is an informative message, such as a message notifying a recipient that an employee's salary has been increased, enter 3.

5. Click the Item Glossary tab and enter the text for the message.

   If the message contains values that will be substituted by data items from your key data and additional data, leave a placeholder for them by using an ampersand (&) and the number of the value.

6. Click OK when you have finished setting up the message template.

See Also

- *Creating a Text Substitution Error Message* in the *Development Tools Guide*
- *Message Tasks* in the *J.D. Edwards Workflow Tools Guide* for information on how to attach a message template to a Message task

Setting Up Queues

Queues categorize messages within the system and organize them in the Work Center. For example, messages can be categorized into queues for priority mail or submitted jobs. Through a queue, users can approve or reject certain activities in the process flow. You set up a queue in the same way as you set up any user defined code (UDC).

Workflow includes several predefined queues, but you might want to set up a custom queue for messages generated by processes that you create. For example, you might want to set up a queue for messages generated by a credit limit approval process. This queue could gather any approval or rejection messages related to credit limits for customers. A user can then open that queue and act on the message contained within it.

► To set up a queue

From Workflow Management Setup (G0241), choose Workflow User Defined Codes (G02411), and then choose Employee Task Queues (P0004A).

1. On Work With User Defined Codes, click Add.
2. On User Defined Codes, complete the following fields in an empty row in the detail area and click OK:
   - Codes

     Enter a unique number for the queue.
   - Description 1
   - Description 2
   - Special Handling
   - Hard Coded

     Enter N in this field.

See Also

- *User Defined Codes* in the *Foundation Guide*

Setting Up External Mail Access

J.D. Edwards ERP software provides an integrated mail system that allows users to communicate with external e-mail software packages such as Microsoft Outlook or Lotus Notes. The system uses the Simple Mail Transfer Protocol (SMTP) to do this.

SMTP is a TCP/IP protocol for sending messages from one computer to another on a network. SMTP is used on the Internet to route messages. In J.D. Edwards ERP, the Send Message system function uses SMTP to route messages to external e-mail addresses.

Benefits of Using an SMTP Server

The following are benefits of using an SMTP server:

- You can separate mail functions along client/server lines, which facilitates the creation of front-end client mail software that is independent of the back-end mail engine. An SMTP server is not dependent on what kind of external mail software is being used in your company.
- You can send messages to anyone with an external mail address by using the Send Message system function. You must pass a valid e-mail address in the recipient field.

► To enable sending external mail using SMTP

Add the following lines to the [JDEMAIL] section in the jde.ini file of each Windows client:

- Rule1=90|OPT|MAILSERVER=*smtp_server_name*

  The MAILSERVER setting identifies the name of the SMTP server responsible for sending messages. This setting must be equal to the name of the machine on which the SMTP service is running. This server name is the same as it is listed in the TCP/IP host file on the server.

- Rule2=100|DEFAULT|OWMON=*address@your_company.com*

  When the Send Message system function is initiated from the Server Administration Workbench, the OWMON parameter is used to determine the From address for the mail message. Set this parameter to an appropriate mail address for your company.

- Rule3=110|DEFAULT|JDE_SYSTEM=*address@your_company.com*

  When the Send Message system function is initiated within application or business function event rules, the JDE_SYSTEM parameter is used to determine the From address for the mail message. Set this parameter to an appropriate mail address for your company.

- Rule4=120|DEFAULT|WORKFLOW_SYSTEM=*address@your_company.com*

  When the Send Message system function is initiated from an activity in a workflow process, the WORKFLOW_SYSTEM parameter is used to determine the From address for the mail message. Set this parameter to an appropriate mail address as the originator of a workflow message for your company.

- Rule5=130|OPT|MERGELOCAL=1

  For current installations, the MERGELOCAL parameter setting should be equal to 1.

- Rule6=140|OPT|UPDATELOCAL=0

  For current installations, the UPDATELOCAL parameter setting should be equal to 0.

Creating a Workflow Process

A workflow process is an object in the J.D. Edwards system. It is created and managed in Object Management Workbench (OMW) like any other object. After you add the workflow process to your project in OMW, you use Workflow Modeler to add and configure the tasks and transitions that make up your workflow process.

See Also

- *Working with Objects* in the *Object Management Workbench Guide* for more information about how to create and manage objects in OMW
- *Components of a J.D. Edwards Workflow Process* in the *J.D. Edwards Workflow Tools Guide* for more information about tasks and transitions

Before You Begin

Before you begin creating workflow processes, do the following:

- See the *Workflow Modeler Installation Guide* for Workflow Modeler installation instructions. You must install Workflow Modeler before you can create and design a workflow process.
- Understand the concepts of J.D. Edwards ERP development tools. See *J.D. Edwards Tools* and other topics in the *Development Tools Guide* for more information.
- Define your users and distribution lists in Address Book before setting up your workflow processes. See *Address Book Maintenance* in the *Address Book Guide* for information about entering address book profiles for new users.
- If you are going to integrate with a third-party e-mail system, see *Setting Up External Mail Access* in the *J.D. Edwards Workflow Tools Guide*.

Naming Conventions for Workflow Processes

When you create a workflow process, you must name it. The name can be as many as 10 characters and should be in the following format:

Kxxxxyyyyy

Where:

K designates a workflow process

xxxx specifies a system code

This value is typically two digits, but can be as many as four digits. Use codes 55 through 59 for customer-specific processes.

yyyyy represents a sequential number

This value is typically two digits, but can be as many as five digits.

You also must provide a description about the purpose of the workflow process. This description can be as many as 40 characters.

See Also

- *Understanding J.D. Edwards Naming Conventions* in the *Development Guidelines for Application Design Guide* for more information about object naming conventions

Key and Additional Data Structures

A workflow process requires the following two data structures:

- Key
- Additional

A key data structure contains the data items that make an instance of a process unique, similar to how the primary key in a table is the unique index in a table. Key data is the basis of the workflow process. You can use multiple data items in your key data structure.

An additional data structure contains all of the other data that the process, and any task within the process, needs to complete the process flow. Workflow can use the additional data structure to pass information to tasks within the process and to users. The system also uses additional data to track audit information. The parameters of the key and additional data structures are stored in the Process Instance table (F98860).

Another distinction between the two data structures is that the values in the key data structure do not change during the life of a process instance. The values in the additional data structure can change as the instance is executed.

Note

Do not include the same data items in both the key and additional data structures.

If key and additional data structures do not exist for your new workflow process, you can define new ones. You also can use existing key and additional data structures when you create a new workflow process, but this action is not recommended because of the interdependencies it will create.

Naming Conventions for Key and Additional Data Structures

Names of key and additional data structures begin with WF and use the following format:

WFxxxxyyyA or *WFxxxxyyyB*

Where

WF indicates a key data or additional data selection

xxxx specifies the system code

Use codes 55 through 59 for customer-specific keys and additional data structures.

yyy represents a sequential number

A identifies key data

B identifies additional data

► To create a data structure for key data or additional data

On the Cross Application Development Tools menu (GH902), choose Object Management Workbench.

1. On the Object Management Workbench form, click the project to which you want to add the data structure.

   Note
   You should add the data structures to the same project in which you are creating a workflow process. See *Adding Objects to Projects* in the *Object Management Workbench Guide* for more information.

2. Click Add.
3. On Add J.D. Edwards Object to the Project, click the Data Structure option under the Object Librarian Objects heading, and then click OK.
4. On Add Object, complete the following fields:
   - Object Name

     Use the data structure naming conventions to name the data structure.

   - Description
   - Product Code
   - Product System Code
   - Object Use
5. Click the Regular Data Structure option and then click OK.

   The system displays the Data Structure Design form.

6. On Data Structure Design, click the Design Tools tab and then click Data Structure Design.
7. On Data Structure, choose the data dictionary items you want to include in the key data or additional data, and drag them to Structure Members on the left.

   You can rename structure member items by clicking the data item and typing a new name.

8. When you are finished choosing data items, click OK.

   The data structure appears under your project in OMW.

Note
After you create your key data and additional data structures, you can attach them to your workflow process. See *To create a workflow process* in the *J.D. Edwards Workflow Tools Guide*.

See Also

- *Data Structures* in the *Development Tools Guide* for more information about how to design and create data structures

► To create a workflow process in OMW

From the Cross Application Development Tools menu (GH902), choose Object Management Workbench.

1. On Object Management Workbench, choose the project in which you want to create a workflow process and click Add.
2. On Add J.D. Edwards Object to the Project, click Workflow Process under the Workflow heading and then click OK.
3. On Add Non-OL Object, complete the following fields:
   - Process

     Name the workflow process using the format *Kxxxxyyyyy*, where:

     K designates a workflow process

     xxxx specifies a system code

     This value can be as many as four digits. Use codes 55 through 59 for customer-specific processes.

     yyyyy = represents a sequential number

   - Version
   - Description

     Provide a description that indicates the purpose of the workflow process. This description can be as many as 40 characters.

   - Product Code
4. Choose a data structure for the key data by clicking the Search button in the following field:
   - Key Data Structure

Note
If you have not created the data structures for the key data and additional data, see *Key and Additional Data Structures* in the *J.D. Edwards Workflow Tools Guide*.

If you want to create a diagram of your workflow process in Workflow Modeler before you create these data structures, use existing data structures and then replace them with your own when you are ready to configure each component of the workflow process.

5. On Data Structure Search and Select, type the name of the data structure in the Object Name field and then click Find.
6. Choose the data structure that you want to use for your key data and click Select.
7. On Add Non-OL Object, click the Search button in the following field to choose a data structure for the additional data:
   - Additional Data Structure
8. On Data Structure Search and Select, type the name of the data structure in the Object Name field and then click Find.
9. Choose the data structure that you want to use for your additional data and click Select.
10. If you want the workflow engine to keep audit records of all instances of the workflow process, click the History Tracking option.

Note
J.D. Edwards recommends that you choose the History Tracking option. When a workflow process is started, audit records are saved in the instance tables (F98860 and F98865) and can be used for historical analysis. If you do not choose this option, the audit records are deleted after the workflow process completes

Periodically, you can purge audit records that you no longer need using the Purge Completed Workflow Processes (R98860P) batch application. See *Purging Workflow Data Files* in the *J.D. Edwards Workflow Tools Guide*.

11. Click OK.
12. On Workflow Design, click OK to save the workflow process in OMW.

Note
After you create the workflow process in OMW, see *Workflow Modeler* in the *J.D. Edwards Workflow Tools Guide* for information about designing and configuring each component of the workflow process.

► To modify the properties of a workflow process

1. On the Object Management Workbench form, choose the workflow process and then click the Design button in the center-column toolbar.
2. On Workflow Design, click the Summary tab.
3. On the Summary tab, you can modify the following information:
   - Description
   - Product Code
   - History Tracking
4. If you want to use a different data structure for key data or additional data, click the Data tab and then click the Search button in either of the following fields:
   - Key Data
   - Additional Data
5. Click the Category tab and complete the appropriate fields if you want to include any customizable data in the properties.
   - Category Code 1
   - Category Code 2
   - Category Code 3

   Note
   You must first customize the category codes with descriptions and values using the User Defined Codes (P0004A) program. See *User Defined Codes* in the *Foundation Guide* for more information about category codes and customizing UDCs.

6. If you want to include an attachment, click the Attachment tab. In the left panel, right-click, choose New, and then choose one of the following types of attachments:
   - Text
   - Image
   - OLE
   - Shortcut
   - URL/File

   Note
   Any attachment that you include does not transfer when moving the workflow process from one environment to another.

   See *Attaching Media Objects* in the *Foundation Guide* for more information about how to create attachments.

7. Click OK.

Workflow Modeler

Workflow Modeler is a graphical design tool that you can use to design and configure each component of a workflow process. Workflow Modeler contains icons that represent all of the tasks and transitions that make up a workflow process. You drag the icons onto the Workflow Modeler workspace to create a diagram of a workflow process from beginning to end. After you add tasks and transitions, you can right-click any task or transition and choose one or more dialogs to configure that component of the process.

Workflow Modeler Toolbar

Workflow Modeler uses a dockable toolbar called Object Creation Tools, which contains the icons needed for adding tasks and transitions to a workflow process. Each icon in the toolbar is described below. You can use the hover help to identify each icon.

Icon	Function
Default (pointer)	Allows you to move tasks and transitions in the graphical user interface.
Transition	Attaches one task to another, indicating flow within the process. You can add a transition condition to a transition. Transition conditions contain the logic for determining which task is acted upon next in the workflow process.
Batch Application	Identifies the task as one that executes a batch process or report.
Interactive Application	Identifies the task as one that launches a J.D. Edwards interactive application.
Business Function	Identifies the task as one that executes a business function for special logic processing. For example, the Update task in the Credit Limit Changed example is a business function that updates the database with changes.
Local Subprocess	Identifies the task as a workflow subprocess.
Message	Identifies the task as one that sends a message to a user or users.
Windows Executable	Identifies the task as one that launches an executable program, such as a word processing or spreadsheet application.
Halt	Halts all activity on the line beyond itself until the specified date occurs or the specified amount of time passes.

Note

The icons at the bottom of the toolbar, including the Remote Subprocess icon, are reserved for future use.

Working with Existing Workflow Processes

As your business processes change, you can change your workflow processes accordingly. Workflow Modeler displays diagrams of your existing workflow processes and allows you to modify them through the Workflow Modeler interface. You also can display workflow processes that are shipped with J.D. Edwards software. You can customize existing workflow processes to meet the needs of your business processes, rather than changing your business processes to conform to the software.

Occasionally, when you attempt to open an existing workflow process, the system might detect that another instance of the workflow process is running. The system will not allow you to edit a workflow process with an active instance, although you can view a read-only version of the workflow process. In most cases, you should copy the workflow process version to a new version number, edit the new version, and then make the new version active. Doing so acts as a versioning mechanism during your workflow development, allowing process instances that started using the old version to finish using that same version.

The system will open a read-only version of the workflow process if any of the following conditions are true:

- The version of the workflow process is running or historical instance records for that version exist.

  Editing a workflow process version introduces the possibility of invalidating historical data, which would prevent process instances from completing properly or prevent the accurate analysis of historical data. Therefore, you must run the Purge Completed Processes UBE (R98860P) before editing a process version. All active instances must be terminated before running this UBE to enable the historical data to be completely purged.

- The version of the workflow process you are trying to edit is active.

  On Workflow Design, click Change Workflow Status to toggle the status of the current version between active and inactive. The version must be inactive before you can edit it.

- Someone else is editing the current workflow process.

  If any version of the workflow process is open for editing on another workstation, then the system will not allow you to edit the process.

- The system crashed while the workflow process in question was open for editing.

  In case of a system crash, the system allows you to open the workflow process on which you were working in read-only mode, in a mode that preserves the data but does not preserve the formatting, or as it was in its previously saved version.

See Also

- *Purging Workflow Data Files* in the *J.D. Edwards Workflow Tools Guide* for instructions on how to purge data from the instance tables
- *Transferring Workflow Processes* in the *J.D. Edwards Workflow Tools Guide* for more information about versioning and promoting workflow processes through the development cycle

► To open a workflow process in Workflow Modeler

1. In OMW, click the project to which you want to add the workflow process.
2. Click the Search tab and then complete the following fields:
   - Category

     Choose Workflow from the drop-down menu.
   - Search Types

     Choose Process Name|Process Version from the drop-down menu.
   - Search (optional)

     Type the name of the workflow process for which you are searching. Entries in this field are case sensitive.
3. Click the Search button next to the Search field.
4. Click the workflow process that you want to open and then click the *Add Object or User to Project* button in the center column.

   The workflow process appears in your project.
5. Under the Objects menu in your project, click the workflow process that you just added and then click the Design button in the center column.
6. On Workflow Design, click the Design Tools tab and then click Start Workflow Modeler.

   A diagram of the workflow process appears in Workflow Modeler.

Adding Tasks to a Workflow Process

You can use Workflow Modeler to add the following tasks to the workflow process:

- Batch Application
- Interactive Application
- Business Function
- Local Subprocess
- Message
- Windows Executable
- Halt

Before You Begin

- ❑ Create a workflow process in OMW. See *Creating a Workflow Process* in the *J.D. Edwards Workflow Tools Guide*.

► To add a task

In OMW, click the workflow process to which you want to add the task, and then click the Design Tools button. On Workflow Design, click the Design Tools tab, and then click Start Workflow Modeler.

1. In Workflow Modeler, click one of the following icons, which represent the tasks that you can add to the process (the name of each task appears when you hover over the icon):
   - Batch Application
   - Interactive Application
   - Business Function
   - Local Subprocess
   - Message
   - Windows Executable
   - Halt

   Note
   The icons at the bottom of the toolbar, including Remote Subprocess, are reserved for future use.

2. Drop the task onto the diagram by clicking anywhere in the diagram.

   The Workflow Task Revisions form appears with the name of the task that you chose to add in the title bar.

3. On Workflow Task Revisions, complete the following fields:
   - Task

     Type the name of the task that you are adding to the workflow process. The name must contain no more than 10 alphanumeric characters.

   - Description
4. Complete the following optional fields if you want to include any customizable data:
   - Category Code 1
   - Category Code 2
   - Category Code 3

   Note
   You must first customize the category codes with descriptions and values using the User Defined Codes (P0004A) program. See *User Defined Codes* in the *Foundation Guide* for more information about category codes and customizing UDCs.

5. If you want the task to be a Join task, turn on the following option:
   - And Join (Y/N)

Note
See *Joining Tasks* in the *J.D. Edwards Workflow Tools Guide* for more information.

6. Click OK.

   The task appears in the Workflow Modeler diagram.

Note
To make the task a component of the workflow process, you must connect the task to other tasks by adding transitions. See *To add a transition* in the *J.D. Edwards Workflow Tools Guide*.

Transitions and Transition Conditions

A transition is the path between tasks. It connects one task to the next task in a workflow process. Transitions can contain a transition condition, which is a user-defined rule that determines if the workflow process will continue to the next task.

You can attach multiple transitions to a task. Each transition is a possible path that the workflow process may follow. The transition condition attached to each transition contains the criteria that determine if the process will follow that transition path. For example, a transition condition named "IFAPPROVE" might trigger the system to invoke a task that updates the database if a user approves a message, and then invoke a task that sends a message notifying the originator that the message was approved. A transition condition called "IFREJECT" might trigger the system to invoke a task that sends a message notifying the originator that a message was rejected.

► To add a transition

1. On Workflow Modeler, click the Transition icon on the toolbar.
2. Click and drag the mouse from the task at which you want the transition to originate to the task to which you want the transition to connect.

   The transition appears in the diagram.

Note
If you want to add a transition condition to a transition, see *To attach a transition condition to a transition* in the *J.D. Edwards Workflow Tools Guide*.

► To create a transition condition

1. In Workflow Modeler, right-click anywhere in the background of the diagram. From the pop-up menu, choose Transition Conditions and then choose Add.

   Alternatively, you can create and attach a transition condition at the same time. To do so, right-click a transition and, from the pop-up menu, choose Transition Conditions, and then choose Add and Attach.

2. On Process Rule Revisions, type the name of the transition condition in the following field:

   - Rule

3. Complete the following optional fields and click OK:

   - Description
   - Category Code 1
   - Category Code 2
   - Category Code 3

   Note
   Category codes are fields that you can customize to include additional data about the object. See *User Defined Codes* in the *Foundation Guide* for more information about customizing category codes.

4. On Criteria Design, create the rule and then click OK.

   The system returns to the Workflow Modeler.

   Note
   If you chose Add as opposed to Add and Attach, you must attach this transition condition to a transition. See *To attach a transition condition to a transition* in the *J.D. Edwards Workflow Tools Guide*.

► To attach a transition condition to a transition

1. In Workflow Modeler, right-click the transition to which you want to attach the transition condition.
2. From the pop-up menu, choose Transition Conditions and then choose Select and Attach.

Note
If you want to create a transition condition and attach it to a condition at the same time, choose Add and Attach from the pop-up menu. The Process Rule Revisions form will appear. See *To create a transition condition* in the *J.D. Edwards Workflow Tools Guide* for information about how to use this form to create a transition condition.

3. Choose the transition condition that you want to attach to the task, and click Select.

   The system returns to Workflow Modeler with the name of the transition condition next to the transition.

Working with Properties

Workflow Modeler allows you to change some of the properties of a task or a transition condition.

Joining Tasks

Every task has an "and-join" property. This property only matters if a task has multiple transitions leading into it. If the and-join property is checked, it requires that each transition leading to the task must complete before the task will begin. If the and-join property is not checked, only one transition leading to the task must complete for the task to begin.

► To change the properties of a task

1. In Workflow Modeler, right-click a task and then click Properties.
2. On Workflow Task Revisions, you can change the following items:
   - Description
   - Category Code 1
   - Category Code 2
   - Category Code 3
   - And Join (Y/N)
3. Click OK to return to the workflow diagram in Workflow Modeler.

► To change the properties of a transition condition

1. In Workflow Modeler, right-click the transition.
2. From the pop-up menu, choose Transition Conditions and then Properties.

3. On Process Rule Revisions, you can change the following items:
    - Description
    - Category Code 1
    - Category Code 2
    - Category Code 3
4. Click OK to return to the workflow diagram in Workflow Modeler.

Deleting Tasks and Transitions from a Workflow Process

When you delete a task from a workflow process, any transitions that are attached to the task are deleted as well. Therefore, if you want to delete only the task, you should first move all transitions attached to the task to another location in the diagram.

When you delete a transition that was defined with a transition condition, the transition condition still exists in the system. You must delete this transition condition separately.

► To delete a task or transition from a workflow process

1. In Workflow Modeler, right-click the task or transition that you want to delete.
2. Click Delete.

Note
You cannot delete Start and End tasks.

Detaching and Deleting Transition Conditions

When you detach a transition condition, you remove it from the transition, but the transition condition is still available for use in other transitions. When you delete a transition condition, the system removes that transition condition from the system and the transition condition no longer appears in the list of available transition conditions in the Transition Condition Search and Select form.

Note

Before you delete a transition condition, you must detach it from all transitions. If you delete a transition condition that is still attached to a transition, the name of the transition condition still appears next to the transition, giving the impression that it still exists in the workflow process. However, the transition condition is no longer functional.

► To detach a transition condition

1. In Workflow Modeler, right-click the transition from which you want to detach the transition condition.
2. From the pop-up menu, choose Transition Conditions and then Detach.

   The system removes the transition condition from the transition, but the transition condition is still available for use in other transitions.

► To delete a transition condition

1. In Workflow Modeler, right-click anywhere on the background of the workflow process diagram.
2. From the pop-up menu, choose Transition Conditions and then Delete.
3. On Transition Condition Search and Select, click the transition condition that you want to delete and then click Select.

   The system deletes the transition condition.

Replacing a Task

In Workflow Modeler, if you want to change the type of task that you are using in your process, you must first add a new task using the icons in the toolbar. Move the transition lines from the task that you are replacing to your new task. You then can delete the old task.

Batch Application Tasks

A Batch Application task starts a J.D. Edwards batch application, such as a report or batch process. For example, you can create a task that runs the General Ledger Post Report (R09801) or the Leadtime Rollup batch process (R30822A).

► To configure a Batch Application task

1. In Workflow Modeler, right-click the Batch Application task that you added to the diagram, and then choose Event Rules from the menu.
2. On Work With Applications, search for the batch process that you want to attach to the task and then highlight it.
3. In the Select Version area at the bottom of the form, choose one of the following options to determine how the UBE will be selected:

   - Yes

     Choose this option to select a particular version from the list of available versions.

   - No

     Choose this option if you want the users to choose the version at runtime.

4. Click Select.
5. If you chose Yes on Work with Versions, choose a version and then click Select.

Note
If the batch process contains processing options, you must enter the required data for the processing options before continuing.

6. On UBE Interconnections, from the Available Objects list, choose the object that you want to pass. Click the > button to add the object to the Data Structure-Value column.

Note
You might not need to pass data in your workflow process. Whether you pass data in or receive data from a workflow process, the Batch Application task must have a report interconnect data structure to be able to call it.

The Include in Transaction option has no affect on the system. Do not use.

7. Indicate the direction of data flow between Value and Data Items by clicking the Directional arrow between the two columns.

   If you do not want data to pass between the task and the batch process, set all Direction values to ⦸ by clicking the icon in the Dir field

Note
The values of the key data structure cannot change. Therefore, you cannot map a data item back to an item in the key data structure.

8. Click OK.

See Also

- *Creating Report Interconnections* in the *Development Tools Guide*

Interactive Application Tasks

The Interactive Application task invokes a J.D. Edwards interactive application; for example, Work With Journal Entries.

Interactive Application tasks cannot be run on a server. They are only available on the Windows client, not the Web client.

Note

Because of the Windows-only limitation, instead of using an Interactive Application task, J.D. Edwards recommends that you include a shortcut to an interactive application in a Message task. See *Message Tasks* in the *J.D. Edwards Workflow Tools Guide* for information on how to include a shortcut to an application in a Message task.

► To configure an Interactive Application task

1. In Workflow Modeler, right-click the Interactive Application task that you added to the diagram, and then choose Event Rules from the menu.
2. On Work With Applications, click the application that you want the task to invoke and click Select.
3. On Work With Forms, find and choose the form that you want to appear when the application launches, and click Select.
4. On Form Interconnections, from the Available Objects list, choose the data item from the key or attribute data structures that you want to pass to the form that you are calling. Click the > button to add the object to the Data Structure-Value column.
5. Indicate the direction of data flow between the Value and Data Item columns by clicking the Directional arrow between the two columns.
6. If you do not want data to pass between forms, set all Directional values to ⦸ by clicking the icon in the Dir column.

   Note
   The values of the key data structure cannot change. Therefore, you cannot map a data item back to an item in the key data structure.

7. Click OK.

Business Function Tasks

A business function task attaches a business function for special logic processing, including any business functions written in C programming language or NERs written with event rules.

Before You Begin

- Create a business function or an NER if one does not exist. See *Business Functions* in the *Development Tools Guide*.

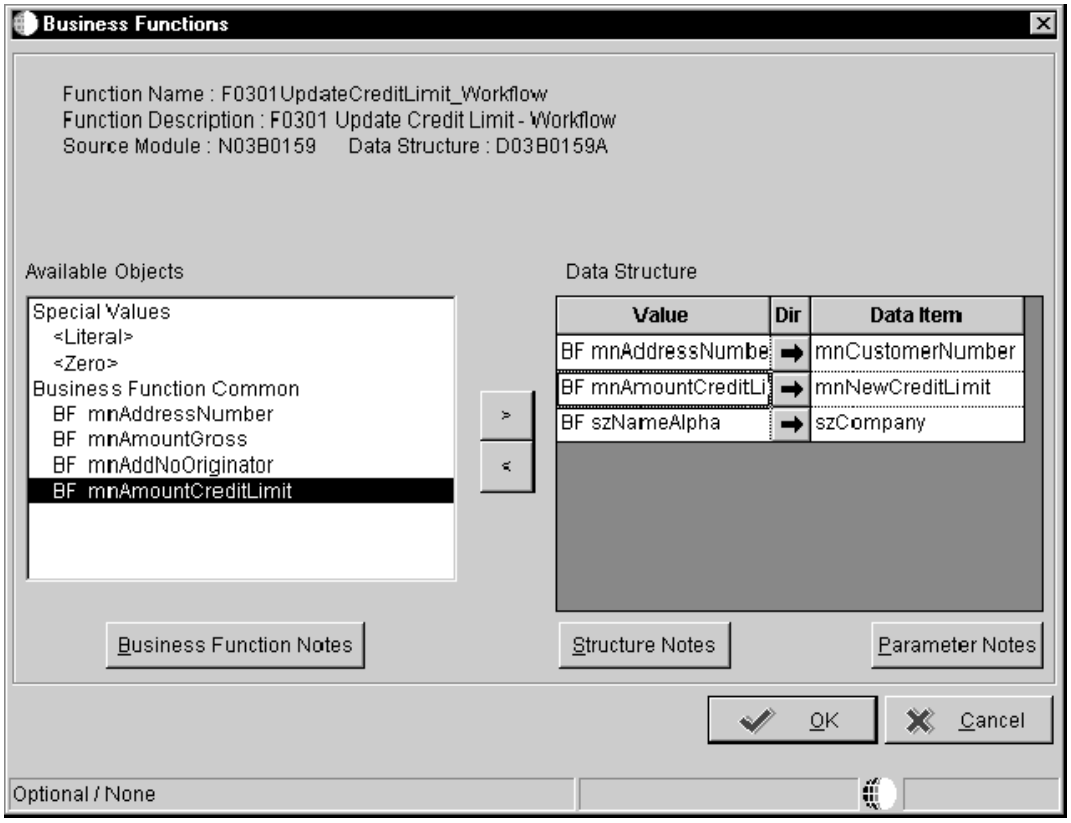
► To configure a Business Function task

1. In Workflow Modeler, right-click the Business Function task that you added to the grid, and then choose Event Rules from the menu.
2. On Business Function Search, choose the business function that you want to attach to the Business Function task and then click Select.
3. On Business Functions, map the parameters that you want to pass to the data item.

   For example, map BF mnAddressNumber to mnAddressNumber and map BF mnCurrentCreditLimit to mnCurrentCreditLimit.

   The only values available to pass to the business function are those from the key and additional data selections. When you pass these values to the Data Item column of the form, you send the corresponding data items from the workflow key and additional data selections to the function.

   The following example shows the data items that are passed to the function so it can update the customer's credit limit to the new credit limit.



Note
The values of the key data structure cannot change. Therefore, you cannot map a data item back to an item in the key data structure.

4. Click OK.

Local Subprocess Tasks

A Local Subprocess task starts another process, also referred to as a subprocess. A subprocess includes its own set of tasks. When you add a Local Subprocess task, you are attaching an existing workflow process to the workflow process that you are creating.

Subprocesses are useful when you have groups of tasks common to multiple workflow processes or a subset of tasks that recur within the same workflow process. However, Local Subprocess tasks cannot return values to the calling process, so they cannot be used in all situations.

► To configure a Local Subprocess task

1. In Workflow Modeler, right-click the Local Subprocess task that you added to the grid, and then choose Event Rules from the menu.
2. On System Functions, define parameters for the following data items:
   - Process Name
   - Key Data Structure
   - Additional Data Structure
3. Click OK.

Windows Executable Tasks

A Windows Executable task starts a specific application, such as a word processing application or spreadsheet.

After a user closes the Windows application, the workflow process continues regardless of the data or information the user may have entered into the application. In other words, you cannot enforce users to perform any particular action in the application because the workflow process has no way to evaluate the data. As a result, J.D. Edwards recommends using this task for launching applications that do not require user interaction, such as an application that automatically prints confirmation letters.

Note

Windows Executable tasks only work on the Windows client. Therefore, this task type will not work for users of the Web client.

► To configure a Windows Executable task

1. In Workflow Modeler, right-click the Windows Executable task that you added to the diagram, and then choose Event Rules from the menu.
2. For each data item, map the appropriate parameters.
3. When you are finished, click OK.

Halt Tasks

A Halt task stops the workflow process and specifies a period of time that must pass before the process can continue.

For example, suppose you have a process for submitting a contract proposal to a client. The client has two weeks to accept the proposal or the contract is voided. After the contract is entered, the system activates a workflow process, using a Halt task, that puts the contract on hold for two weeks. At the end of the two weeks, when the workflow process resumes, a Business Function task checks the status of the contract. If the contract has been accepted, nothing happens. If the contract has not been accepted, the status is changed to Void and a notification is sent to the client.

When you set up a Halt task, you specify either hours and minutes or the date and time at which you want the process to resume.

If you add Halt tasks to your workflow process, you must run the Start Escalation Monitor batch process (R98810) regularly. You can run it manually or by using the Scheduler application. If you do not run the Start Escalation Monitor, the process will remain halted. The Start Escalation Monitor resumes the process after the date and time are met.

See Also

- *Activating the Escalation Monitor* in the *J.D. Edwards Workflow Tools Guide*

► To configure a halt task

1. In Workflow Modeler, right-click the halt task that you added to the grid, and then choose Expiration from the menu.
2. On Expiration Information, complete the Hours and Minutes fields or the Date and Time fields with the values for when you want the system to move to the next task in the workflow process.
3. Click OK.

   For example, you enter 8 hours and 30 minutes in the Hours and Minutes fields. If the escalation monitor is run to check for expired activities 8 hours and 30 minutes from when that task within the process is started, the task is expired. The system expires the halted condition and moves to the next task.

Note
A halt task has no event rule definition.

Message Tasks

A Message task sends workflow messages to users in the system. You can create a Message task to send notification messages or messages that contain shortcuts to an interactive application such as a message approval form.

A workflow process can contain several different Message tasks. For example, a workflow process designed for approving credit limit increases can include Message tasks that send the following workflow messages:

- A request for a credit limit increase with a shortcut to the Credit Limit Approval form
- A notification of the approval of a credit limit increase
- A notification of the rejection of a credit limit increase

Note

You can also use the Send Message system function to send a message directly from an interactive or batch application, instead of using a Message task. There is typically no reason to create a workflow process that only contains a Message task. See *Working with the Send Message System Function* in the *Development Tools Guide* for instructions on how to attach a Send Message system function to an application.

To create a Message task, you must define the contents and the recipients of the message. You can also add logic that contains conditions for routing messages.

The Contents of a Workflow Message

When you create a Message task, you must define the contents of the message. You can include the following items in a workflow message:

- Subject line and message text

  You can enter the message text directly into the Message task or you can use a message template. A message template contains text that you enter, along with substituted values that are populated from the workflow process key and additional data selections. After you create the message template, you attach it to the event rules in the Message task.

  Alternatively, you can use a single object from the Available Objects list for the text of the message.

  Note
  You can create a new message template using Workflow Messages (P92002). See *Setting Up Message Templates* in the *J.D. Edwards Workflow Tools Guide*.

- Shortcut to an interactive application such as the Generic Workflow Approval Form (P98805)

Note
To design a Message form, see the *Message Forms* and *Creating a Form* topics in the *Form Design Aid Guide*.

Workflow Message Recipients

An integral part of creating a Message task involves determining to whom a message is sent. You can configure the event rules of a Message task to route messages to the following types of recipients:

- Members of a role

  J.D. Edwards software uses roles to define tasks and menus for different groups of users. Roles are created and maintained by a system administrator. If a role exists that contains the members that you want to include as the recipients of a workflow message, you can attach the role to the event rules of the Message task.

- Members of a distribution list

  Workflow uses distribution lists to group into categories for message routing purposes. You can further define how messages are routed to members of a distribution list by assigning routing criteria such as threshold values, escalation, and other conditional routing options.

Note
See *Distribution Lists* and *Setting Up Distribution Lists* in the *J.D. Edwards Workflow Tools Guide* for more information about creating distribution lists.

- Single recipient

  For workflow processes that are designed to send a message to a single user, enter the address book number of a user as the recipient.

Note
If you use the address book number of a single user, you will have to revise the event rules of the workflow process every time a new person is responsible for handling the messages sent by the workflow process. J.D. Edwards recommends that you enter a role for the recipient, even if the role contains only one member.

Understanding Workflow Message Recipients

Workflow can send messages to roles, to distribution lists that use group processing, to distribution lists that use hierarchical processing, or to single recipients. Workflow can send messages to these different recipients or groups of recipients regardless of whether the message recipient is specified in the event rules of a Message task, in a Recipient Rule, or in the Escalation event rules.

In all cases, the recipient is determined by the combination of two fields: the recipient address (address book number) and structure type. If you specify only the recipient address, the message is sent directly to the address book number, regardless of whether it is a role or a single recipient. If you specify only the structure type, the message is sent to the distribution list using hierarchical processing. If you specify the recipient address and structure type, the message is sent to a distribution list using group processing.

The three possible combinations of recipient address and structure type are detailed below.

Recipient Address Only

When you enter only a recipient address, Workflow sends the message directly to the address book number that you entered. This recipient address field is labeled Address Number in the Message task event rules and Address Book Number in the Recipient Rules form. Both field names refer to the same thing.

If you specify the recipient in the Message task event rules, make sure that you specify the structure type as Single Recipient—do not leave it blank. Blank is the Accounts Receivable structure type; therefore, specifying blank for the Structure Type field in the Message task event rules will result in your message being sent to the Accounts Receivable distribution list using group processing.

If you specify the recipient on the Recipient Rules form, leave the structure type blank. Single Recipient is not an available choice on the Recipient Rules form.

Note

If the address number is the parent number of a distribution list (for example, 7000 - the Accounting Group), the message is sent to only that address book number. Therefore, no members of that distribution list receive the message. You must fill in the structure type if you want to send to a distribution list.

Structure Type Only

When you enter a structure type but no recipient address, Workflow sends the message to a distribution list using hierarchical processing. Specifically, Workflow finds the address number for the person who originated the initial request, and then finds that person in the specified structure type. Next, it finds the parent of the originator and sends the message to that parent.

For example, suppose the message is to be sent to structure type WFS. The originator (for example, 7101 - Clerk #1) must be a member of structure type WFS. The system looks up Clerk #1 in structure type WFS and finds the parent. In this scenario, the message is sent to the manager of 7101, which is 7201 (Manager #1). If 7201 approves the message, the system then sends it to 7301. If 7301 approves the message, it then sends it to 7402 (Vice President #2), and so on up the distribution list (unless threshold values are used and the threshold value for one of the members is reached). The message is never sent to a level below or lateral to 7101, such as 7102 (Clerk #2) or 7202 (Manager #2).

If you specify the recipient in the Message task event rules, make sure that you specify the Address Book Number as blank. To do this, double-click Literal and then click OK without typing anything in the Single value field. This action places the characters “” in the Address Number field, which represents blank.

If you specify the recipient in the Recipient Rules form, you must enter 0 for the address book number.

Note

See *Distribution Lists Used for Hierarchical Processing* in the *J.D. Edwards Workflow Tools Guide* for an illustration and more information about distribution lists and hierarchical processing.

Recipient Address and Structure Type

When you specify both a recipient address and a structure type, Workflow sends the message to a distribution list using group processing. Specifically, Workflow determines to whom the message is sent based on the specified address book number; finds its direct children in the particular structure type and the groups to which they belong; and then sends the message to Group 1, and then to Group 2, and so on. The recipient address and structure type combination that you enter must be a valid combination in the Address Book Parent/Child table (F0150) for this process to work.

For example, suppose you enter Address Book number 7000 (Accounting Group) from the distribution list and structure type EML. If an approval message is sent to this group specifying that a customer's credit limit needs to be raised to 40,000 USD, the system first finds the employees within Group 1 of the Accounting Group distribution list and routes the message to them for approval. Routing continues for all groups in the list as long as the threshold values of the members of that list are less than or equal to 40,000 USD.

Note

See *Distribution Lists Used for Group Processing* in the *J.D. Edwards Workflow Tools Guide* for an illustration and more information about distribution lists and group processing.

Methods for Routing Messages

In addition to specifying a role, distribution list, or a single recipient as the message recipient, you can use the following rules to further define how messages are routed:

- Recipient rules

  You can attach one or more recipient rules to a Message task to override the recipient defined in the event rules of the Message task. A recipient rule will route messages to different recipients depending on whether certain criteria are met.

- Escalation rules

  Escalation rules will resend the message to a new recipient if the original recipient does not act on the message within a certain time. You set up escalation so that a workflow process continues if one of the original recipients of a workflow message does not respond.

See Also

- *Adding a Recipient Rule* in the *J.D. Edwards Workflow Tools Guide*
- *Adding Escalation Rules to a Message Task* in the *J.D. Edwards Workflow Tools Guide* for information on how to set up escalation

Configuring a Message Task

Configuring a Message task involves defining event rules, which contain parameters that specify the content of the workflow message, the recipient of the message, and the conditions for sending messages.

Before You Begin

- See *Understanding Workflow Message Recipients* in the *J.D. Edwards Workflow Tools Guide* for information on how to use a combination of Address Book number and structure type to specify the Message task recipient.
- If you are routing the message to a distribution list, determine which distribution list you want to send the message to. If necessary, first create the distribution list from Group Revisions (P02150). See *Distribution Lists* and *Setting Up Distribution Lists* in the *J.D. Edwards Workflow Tools Guide*.
- If you are using a recipient rule, you must first create the recipient rule. See *Adding a Recipient Rule* in the *J.D. Edwards Workflow Tools Guide* for instructions on how to create recipient rules.
- If you are attaching a message template to a message, determine which message template the message will use. If necessary, first create the message template. See *Setting Up Message Templates* in the *J.D. Edwards Workflow Tools Guide*.

► To configure a Message task

1. In Workflow Modeler, right-click the Message task and then choose Event Rules from the pop-up menu.

   Note
   You must insert a value for every data item in the Parameters area.

2. On System Functions, complete a combination of the following fields to specify the recipient:

   - Address Book Number

     Enter the address book number of the distribution list, role, or single recipient to whom the message will be sent. Leave this field blank to send to a distribution list using hierarchical processing.

     If you are using recipient rules to determine the recipient, use the <Use Recipient Rule> value for this field. If you use recipient rules, you must make sure that your recipient rules cover all conditions.

     If you are specifying a single recipient, you can enter an external e-mail address as a literal. However, you cannot send a message that contains a shortcut to an external e-mail address.

     Note
     If you are specifying a single recipient, J.D. Edward recommends that you use a role instead of an individual's address book number, even if the role contains only one member. If you use a single user's address book number, you will have to revise the event rules of the workflow process every time a new person is responsible for handling the messages sent by the workflow process.

   - Structure Type

     Enter the structure type of the distribution list to which the message will be sent. If the recipient is a role or single recipient, leave this field blank.

3. Specify the mailbox to which you want the message delivered in the Work Center.

   For example, you might choose the Credit Management queue for a credit limit approval message.

   a. Highlight the Mailbox row.

   b. In the Available Objects area, choose a mailbox (or queue).

      Note
      You can use one of the existing queues in the system or create a new queue. See *Setting Up Queues* in the *J.D. Edwards Workflow Tools Guide* for information on how to create a new queue.

If the Message task sends messages to an external messaging system, the workflow engine will ignore the value that you specify for the Mailbox.

4. To include a subject line in the message, highlight the Subject row and then choose the corresponding data item that contains the subject text, if applicable. You can also enter a subject as a literal value.

   If your message does not require a subject, choose <Blank>. You would most likely choose <Blank> when using a message template (a data dictionary message), which would already contain a subject line.

5. To add static text to the message, highlight the Text row and choose the corresponding data item that contains the text for the body of the message. You can also enter the text as a literal value. If you do not need to use the Text data item, choose <Blank>.

   Note
   You can use the Text parameter to add supplemental text to a message template. This text will appear above the message template text when the user opens the message.

6. To attach a shortcut to a workflow message, highlight the Active row, and then perform the following steps. If you are not attaching a shortcut, choose <None> from the Available Objects area.

   Caution
   Attaching a shortcut to a message will suspend the workflow process until the message is acted upon.

   a. In the Available Objects area, double-click <Define Active Message>.

   b. On Work With Applications, in the Query by Example row, enter the application that you want the shortcut to launch, and then click Find.

      For example, if you want to use the Generic Workflow Approval Form, enter P98805 and click Find.

   c. On Work With Forms, double-click the row containing the form that you want to use.

   d. On Form Interconnections, map the data structures to the appropriate available objects.

      Note
      See *Creating Form Interconnections* in the *Development Tools Guide* for more information about form interconnections.

   e. Click OK.

      The system returns to the System Functions form.

7. To attach a message template, highlight the Message row, and then perform the following steps. If you are not using a message template, choose <None> from the Available Objects area.

   a. In the Available Objects area, double-click <Define Message>.

   b. On Text Substitution, enter the name of the message that you want to use in the Dictionary Item field and click Find.

      For example, you might enter LM1235 for the Credit Limit Approval message.

      Note
      If you have not created a message template to attach to the Message task, see *Setting Up Message Templates* in the *J.D. Edwards Workflow Tools Guide* for instructions on how to create a message template.

   c. From the Available Objects list, choose each data item that contains the value that you want to substitute into the message and click OK.

8. For the Message Key parameter, choose <None> from the available objects.

   The workflow engine no longer uses this parameter, but it needs to be mapped.

9. After you have finished mapping all of the parameters for the Message task, click OK.

Adding Escalation Rules to a Message Task

You set up escalation so that a workflow process continues if one of the original recipients of a workflow message does not respond. To add escalation to a Message task, you must add escalation rules, which are conditions that will resend a message to a new recipient if the original recipient does not act on a message within a certain time.

When you use an escalation rule, you can attach a new message to the original message and then define to whom or to which distribution list the escalated message is sent. You must also activate the Check for Expired Tasks (R98810), which is a batch program that checks for Message tasks containing escalation and forwards any messages that have not been acted upon by the escalation recipient.

Escalation only works in the following instances:

- The original message contains a shortcut.
- The original recipient of the workflow message is part of a distribution list.

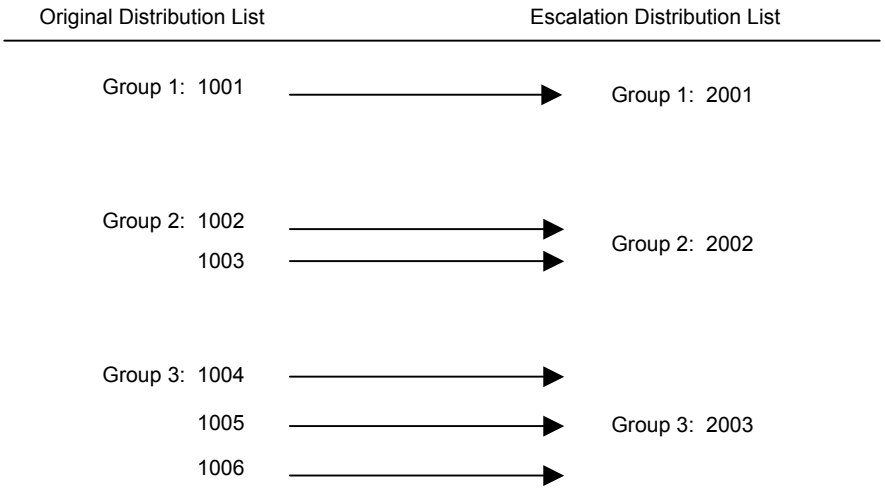
Note
While the system allows you to set up escalation rules even if the original recipient is a single recipient or a member of a role, the escalation rules will not work properly.

You can set up escalation rules so that an escalated message is sent to one of the following types of recipients:

- Distribution List

  The escalated message is sent to a distribution list. This requires that the original message be sent to a distribution list, and that the two lists have the same number of groups. This is because the message is escalated to members of the same group number in the next distribution list. For example, in the following two lists, when the message is escalated while the message is sitting in group 2 (1002 and 1003), then the message will be escalated to group 2 in the escalation distribution list, i.e. 2002. Notice that you don't need to have the same number of members in the corresponding groups of the two distribution lists.

Escalation Distribution List



- Original Distribution List

  If the original message is sent to a distribution list with multiple groups, then you can also set up the escalation to send the message up to the next group. In the above example, if the current message is sitting at group 1 (1001) while the message is escalated, it will be escalated to group 2 (1002 and 1003). To escalate the message to the next higher group, enter the address book number and the structure type of the original distribution list in the escalation rules.

- Single Recipient

  The escalated message is sent to one person only. The escalated message will be sent to the same person for all groups.

Note
Escalating messages to a single user is not recommended. If you use a single user's address book number, you will have to revise the workflow process's event rules every time a new person is responsible for handling the escalated message sent by the workflow process.

You cannot send a message that contains a shortcut to an external email address. Since escalated messages contain shortcuts, you cannot use an external email address as the recipient of an escalated message.

See Also

- See *Activating the Escalation Monitor* in the *J.D. Edwards Workflow Tools Guide* for information on how to use the Escalation Monitor to escalate messages

Before You Begin

- See *Understanding Workflow Message Recipients* in the *J.D. Edwards Workflow Tools Guide* for information on how to use a combination of Address Book number and Structure type to specify the recipient of the escalated message.

► To add escalation rules to a Message task

1. Right-click the Message task, choose Escalation, and then choose Add and Attach.
2. On Escalation Rules, complete the following fields:
   - Escalation Rule

     Type a unique name for the escalation rule.

   - Description
3. At this time, do not complete any of the fields in the grid and click OK to continue.

   The system returns you to the workflow diagram in Workflow Modeler.
4. Right-click the Message task, choose Escalation, and then choose Event Rules.
5. On System Functions, complete a combination of the following fields to specify the recipient of the escalated message:
   - Address Book Number

     Enter the address book number of the distribution list, role, or single recipient to whom the escalated message will be sent.

     Note
     If you do not want to specify a default recipient, but instead will rely on recipient rules to determine the recipient, use the <Use Recipient Rule> value for the Address Book Number. If you use recipient rules, you must make sure that your recipient rules cover all conditions. See *Adding a Recipient Rule* in the *J.D. Edwards Workflow Tools Guide*.

   - Structure Type

     Enter the structure type of the distribution list to which the escalated message will be sent. If the recipient is a role or single recipient, leave this field blank.
6. Specify the mailbox to which you want the escalated message delivered in the Work Center.

   For example, you might choose the Credit Management queue for a credit limit approval message.

   a. Highlight the Mailbox row.

   b. In the Available Objects area, choose a mailbox (or queue).

Note
You can use one of the existing queues in the system or create a new queue. See *Setting Up Queues* in the *J.D. Edwards Workflow Tools Guide* for information on how to create a new queue.

7. To include a subject line in the escalated message, highlight the Subject row and then choose the corresponding data item that contains the subject text, if applicable. You can also enter a subject as a literal value.

   If your message does not require a subject, choose <Blank>. You would most likely choose <Blank> when using a message template (a data dictionary message), which would already contain a subject line.

8. To add static text to the escalated message, highlight the Text row and choose the corresponding data item that contains the text for the body of the message. You can also enter the text as a literal value. If you do not need to use the Text data item, choose <Blank>.

   Note
   You can use the Text parameter to add supplemental text to a message template. This text will appear above the message template text when the user opens the message.

9. For the Shortcut parameter, choose <None> from the Available Objects list.

   The escalated message uses the shortcut from the original message.

10. To attach a message template, highlight the Message row, and then perform the following steps. If you are not using a message template, choose <None> from the Available Objects area.

    a. In the Available Objects area, double-click <Define Message>.

    b. On Text Substitution, enter the name of the message that you want to use in the Dictionary Item field and click Find.

       For example, you might enter LM1235 for the Credit Limit Approval message.

    Note
    If you have not created a message template to attach to the Message task, see *Setting Up Message Templates* in the *J.D. Edwards Workflow Tools Guide* for instructions on how to create a message template.

    c. From the Available Objects list, choose each data item that contains the value that you want to substitute into the message and click OK.

11. For the Message Key parameter, choose <None> from the available objects.

    The workflow engine no longer uses this parameter, but it needs to be mapped.

12. After you have finished mapping all of the parameters for the escalated message, click OK.

► To add recipient rules to the escalation rules

Right-click the Message task, choose Escalation, and then choose Properties.

Complete the steps required to add a recipient rule.

Note

See *To add a recipient rule* in the *J.D. Edwards Workflow Tools Guide*.

► To delete escalation from a Message task

1. Right-click the Message task to which you added escalation.
2. From the pop-up menu, choose Escalation and then Delete.

Distribution Lists

Workflow uses distribution lists to place employees into groups for message routing purposes. You assign users to a distribution list and then define the event rules of a Message task, or the recipient rules, to determine how messages will be sent to the members of that list.

Distribution lists are based on an address book number and a structure type. The address book number serves as the parent node of the distribution list. The members of the distribution list are then organized as children under this parent address book number. How you set up the children is dependent upon the type of processing that you want to use.

Workflow uses two different types of processing to route messages to members of a distribution list: group processing and hierarchical processing. Group processing sends messages to the members of a distribution list one group at a time. These groups are defined when you create the distribution list. Hierarchical processing sends messages to the members of a distribution list based on the organizational hierarchy defined in the distribution list.

Distribution Lists Used for Group Processing

When you can create a distribution list for group processing, you assign all the members as the direct children of the distribution list's address book number. You then divide the members of the distribution list into groups. For example, you might organize six members of a distribution list into Group 1, five members into Group 2, and two members into Group 3. When the system sends a message to this distribution list, it first sends the message to Group 1, then it sends the message to Group 2, and finally it sends the message to Group 3.

Note

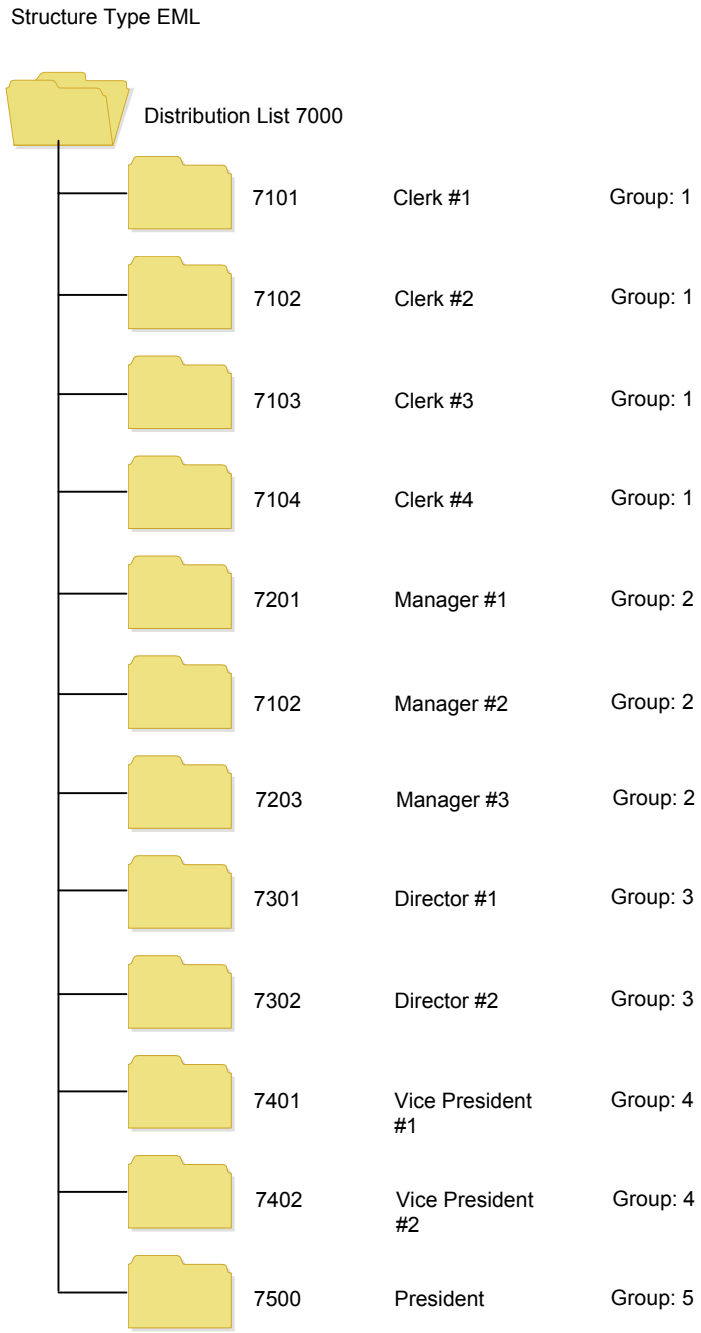
J.D. Edwards recommends using roles as the members of a distribution list using group processing rather than address book numbers of individuals. In general, this practice will results in easier maintenance of the list as people change positions within the enterprise.

When you use group processing, do not send a message to the parent address book number of the distribution list. Since this parent address book number is just a placeholder and not a user, the message will never be acted upon and, therefore, the workflow process will not complete.

Example: A Distribution List Used for Group Processing

The following example shows a distribution list with its members organized into groups for group processing. A message will be sent to everyone within each group in the distribution list, one group at a time, starting with Group 1.

Distribution List for Group Processing



Additional Routing Features for Distribution Lists

You can further define distribution lists in Workflow using the following features:

- Threshold values
- Routing options
- Escalation hours and minutes

Threshold Values

Workflow uses threshold values in conjunction with distribution lists to determine if a member of the list will be involved in a particular approval process. That is, the threshold value will determine whether a particular member has authority or if the members of the next higher group must also approve the message.

When you set up a distribution list, you can enter a threshold value for each employee on the list. If a particular workflow process contains a value that is below a member's threshold value, then the system does not send a message to that member.

For example, if you use the associated data item AG (Amount-Gross) and enter a threshold value of 30,000 USD, the system compares the AG data item of the workflow process against the threshold value. If a customer's credit limit amount has been increased, the system sends a notification message regarding the change to those people whose threshold value is less than or equal to the amount in the Amount-Gross field on the Credit Information form.

You can also use groups in conjunction with threshold values. For example, in Group 1, two members might have threshold values of 10,000 USD and two other members might have threshold values of 25,000 USD. Group 2 also has two members who have threshold values of 25,000 USD. If the system sends a message to the distribution list for a credit limit approval of 20,000 USD, the two members within Group 1 that have a threshold value of 10,000 USD receive the message.

Routing Options

You can specify conditional routing to control the path of approvals within a distribution list. These routing options are as follows:

First Response

Indicates that if a Workflow message is sent to the members of a group within a distribution list and all members in that group have the same threshold value, then only one of them must respond. After the first response is received by the Workflow system, messages to the other members of that same group are deleted from their queues, and the approval process continues. For example, if Clerk 7101 from Group 1 responds to a message first, then messages are deleted from the other recipient queues for that group.

The First Response routing option is normally used when members of a group have the same authority in the approval process.

If you do not choose this option, all members of the group to which the Workflow message is sent must respond before the approval process continues.

Higher Level Overrides

Indicates that a member in a higher-level group can approve a change through the Process Task Monitor. All lower-level approvals are marked as Bypassed in the monitor, and messages to other members are deleted from their queues. If you do not choose this option, then a member in the higher-level group cannot approve the change before the lower group approves it.

For example, if the Vice President (7401) approves a change through the monitor, all the messages that were sent to others within the distribution list below the Vice President are deleted from their queues. If the Vice President is the last person who needs to approve the message, then the message is complete; if not, the message goes to the next highest group member.

Authorization Required

Indicates that if a member in the distribution list initiates a Workflow transaction (such as a salary increase), it requires authorization from a higher-level member. The higher-level member receives the message regardless of the threshold value of the higher-level member. If you do not choose this option, no higher-level person is required to act on the message if it is below the threshold value.

For example, if Manager #2 (7202) approves a salary increase for himself, his employee information is not updated with that change unless his supervisor authorizes or approves the Workflow message.

Escalation Hours and Minutes

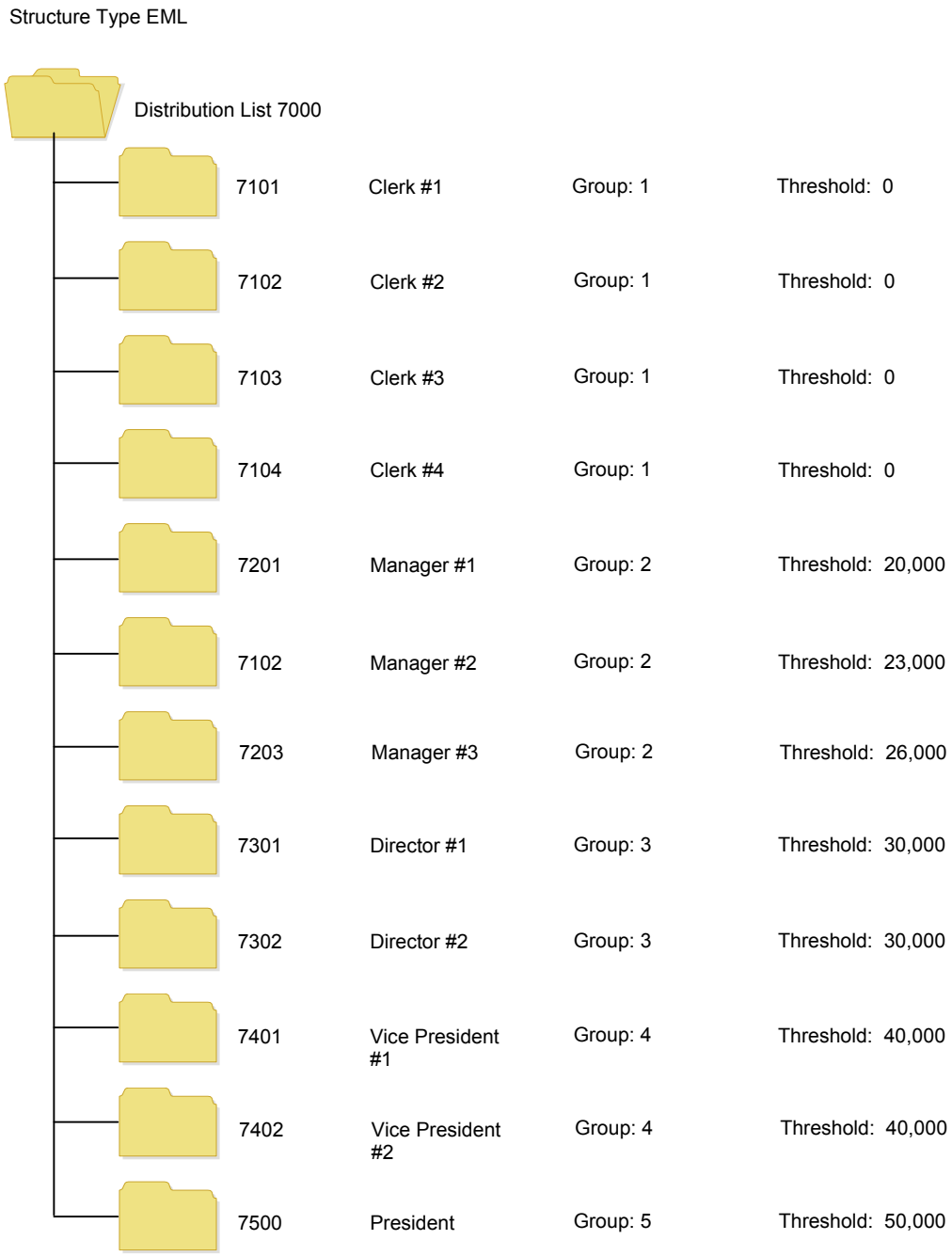
Along with threshold values and routing options, you can also add escalation hours and minutes for each employee on a distribution list. Escalation hours and minutes specify the amount of time that the recipient has to respond before a message is escalated to another recipient.

If you categorize members of a distribution list into groups, you must add the same escalation hours and minutes for each member within one group. For example, if one member of Group 1 has 8 escalation hours and 30 escalation minutes assigned to him, then all other members of Group 1 must have 8 escalation hours and 30 escalation minutes assigned to them.

Example: Using Additional Routing Features with Group Processing

The following example shows a distribution list designed for group processing. All of its members are organized into groups. Notice that each member is assigned a threshold value. The scenarios that follow the illustration describe how messages would be routed based on various criteria.

Distribution List For Group Processing



Scenario 1

A message with a value of 25,000 is first sent to Group 1 (members 7101, 7102, 7103, and 7104) because their threshold values are less than 25,000. If any of these recipients reject the message, the Message task completes and the message is not sent to the other groups. However, if all of these members approve the message, it is sent to Manager #1 and Manager #2 in Group 2 (members 7201 and 7202) for their approval because they are in the next highest group on the distribution list and have threshold values that are less than 25,000. Manager #3 and members in groups 3, 4, and 5 (members 7301, 7302, 7401, 7402, and 7500) do not receive the message because their threshold values are greater than 25,000.

An exception is if the message originator is a member of the distribution list to which the message is sent. In this case, the message is sent to the first group above the originator's group. For example, a message that is sent by 7202 and has a value of 35,000 is first sent to Group 3 (members 7301 and 7302) because these members are in the group above 7201. Only after both 7301 and 7302 accept the message does the Message task complete. The system does not need to send the message to the next group (Group 4) because the value in the message does not meet the threshold values assigned to that group. The thresholds for the next group (Group 4) are greater than 35,000.

Scenario 2

Manager #1 (7201) enters a credit limit increase request for 24,000 USD. Since Manager #1 is in Group 2 of the distribution list, the system will start looking at the next group, Group 3. Because this value is under the threshold value for Group 3, no message will be sent. The following two exceptions to this scenario exist:

- If Authorization Required is turned on in this distribution list, then the message will be sent to Group 3 even though the credit limit request of 24,000 is smaller than the threshold value of Group 3.
- If the originator is in the highest group, then the system starts looking at the level of the originator since there is no higher level at which to start. For example, if the president enters a credit limit increase request for 24,000, the system starts checking threshold value criteria against Group 5. In this case, no message will be sent because 24,000 is smaller than the threshold value of Group 5.

See Also

- *Distribution List Scenarios* in the *J.D. Edwards Workflow Tools Guide* for additional scenarios regarding group processing of distribution lists

Distribution Lists Used for Hierarchical Processing

You can arrange distribution lists into a hierarchical or organizational tree structure, such as the president and all vice presidents within the company, with the employees listed under each of the parents. Hierarchical processing sends messages to the parents within the distribution list, one parent at a time, based on the originator's position in the hierarchy. After the first-level parent in the list receives the message, the system then determines whether the members above that parent should receive the message based on threshold value. If no threshold values exist for the members beneath a particular parent, the message is sent to all members beneath that parent.

Note

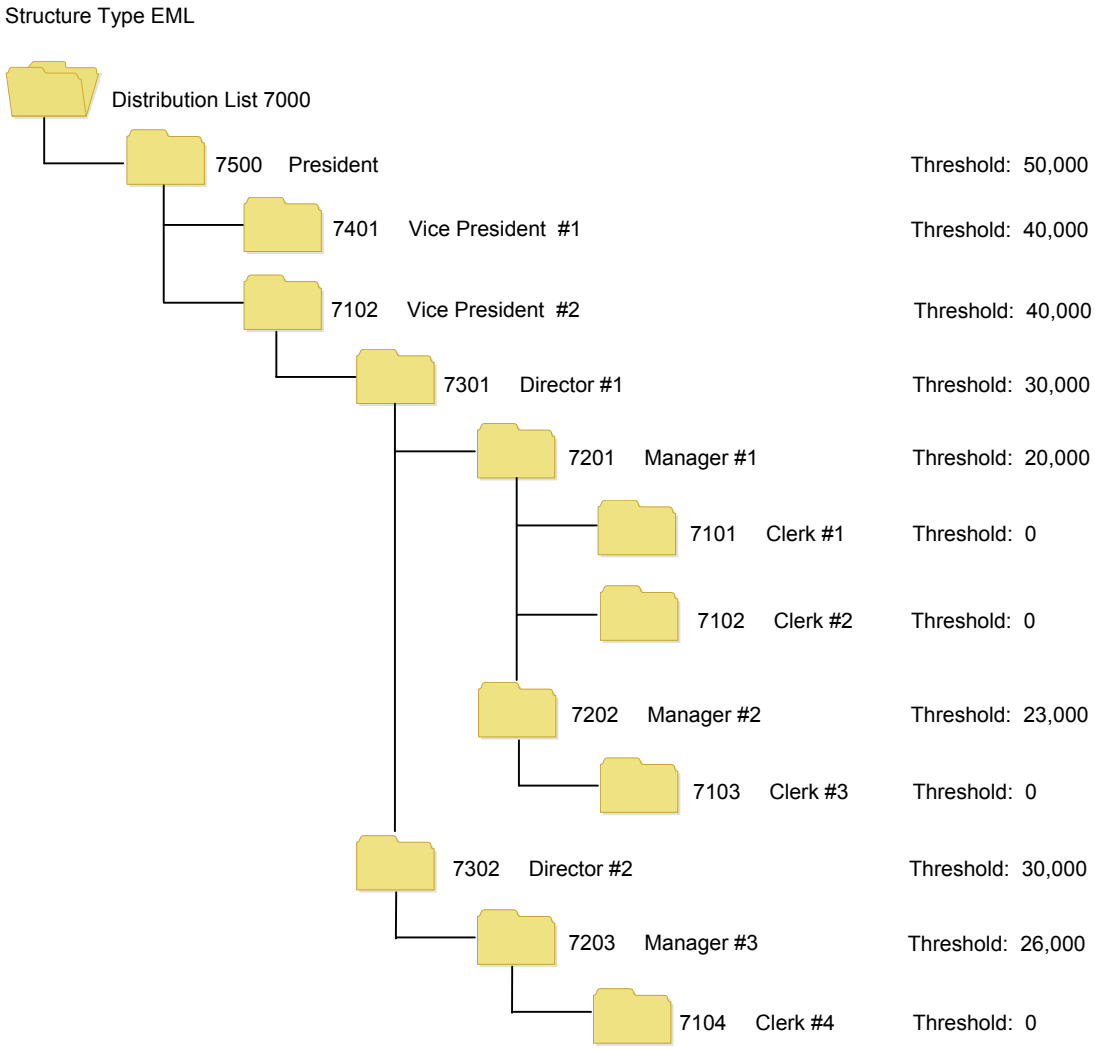
In a distribution list that uses hierarchical processing, the originator of a message must be a member of the distribution list. The message routing always starts with the parent of the originator.

For hierarchical processing, you cannot include an individual in more than one distribution list of the same structure type. This inclusion can result in circular or ambiguous hierarchies that Workflow is unable to reconcile.

Example: A Distribution List Used for Hierarchical Processing

In the following example, each member of the distribution list has only one direct parent. A message with a value of 45,000 that is sent by 7102 (Clerk #2) is first sent to 7201 (the manager of Clerk #1). If this manager approves the message, then 7301 (Director #1) receives the message. After 7301 approves it, the message is sent to 7402. The Message task is then complete because the parent of 7402 (7500) has a threshold value of 50,000, which is greater than the value of the message, which is 45,000. If any parent within this structure rejects the message, the Message task completes.

Distribution List For Hierarchical



See Also

- *Distribution List Scenarios* in the *J.D. Edwards Workflow Tools Guide* for additional scenarios regarding hierarchical processing of distribution lists

Setting Up Distribution Lists

You set up distribution lists to route messages to certain groups of employees. When you create a distribution list, you first add a parent address book number using Address Book (P01012). Next, you use Group Revisions (P02150) to add members to the distribution list as children of the parent address book number. Finally, you attach the distribution list to a Message task. When a workflow process invokes a Message task, Workflow uses the distribution list that is attached to the Message task to determine to whom the message is sent.

Before you create a distribution list, you must decide whether the distribution list will use group processing or hierarchical processing. Also, if you do not want to use an existing structure type for the distribution list, you must add one to the system using the User Defined Codes (P0004A) program.

For group processing, create a distribution list in which all members are first-level children of the address book number of the distribution list. You can then arrange members into groups.

For hierarchical processing, create a distribution list that reflects the hierarchical structure of the organization. For example, multiple managers might have multiple employees. J.D. Edwards recommends setting up a new structure type for each distribution list that uses hierarchical processing.

You can use Work With Distribution lists to view all the distribution lists of which a child is a member.

Structure Types

Structure types are used to identify and categorize distribution lists. Every distribution list is identified by a unique address book number (the parent number for the distribution list) and a structure type. For example, you can set up a structure type of SAL for salary changes, and then set up a distribution list of employees involved in the salary change approval process.

You can use the predefined structure types of WFS, ORG, or EML to identify the distribution list as a Workflow group, an Organizational group, or e-mail. However, you typically add your own structure types by adding to the xx/xx UDC values using the User Defined Codes program (P0004A).

See Also

- *Adding a User Defined Code* in the *Foundation Guide* for information on how to add a user defined code for a new structure type

Roles

In addition to assigning individual users to a distribution list, you can also assign one or more roles to a distribution list using group processing. In J.D. Edwards software, roles are assigned to groups of users that share similar tasks. When sending a workflow message to a distribution list that includes a role, all users assigned to that role receive the message. Only one person in the role needs to act on the message in order for it to advance to the next group.

You can only assign a role to a distribution list used for group processing.

Note

For a distribution list using group processing, J.D. Edwards recommends using roles rather than individual address book numbers for members of the list. Roles are easier to maintain as people change positions within the enterprise.

Do not assign a role to a distribution list for hierarchical processing. If an individual in a role is included in more than one list of the same structure type, this inclusion can result in circular or ambiguous hierarchies that Workflow is unable to reconcile.

Distribution List Guidelines

Consider the following guidelines when creating distribution lists:

- Do not include an individual in more than one list of the same structure type. A user cannot appear twice in one structure type if the list is used with hierarchical processing.
- Threshold values assigned to members of a group must be higher than the threshold values assigned to members of the next lower group. For example, the members of Group 2 must have higher threshold values than the highest threshold value in Group 1.
- Depending on how you set up distribution lists and threshold values, situations might arise for which an action message is not sent to any member of a distribution list. In these cases, the application developer, workflow process designer, or both should take steps to ensure that a process instance completes successfully. Specifically, developers must code for the possibility that an action message is not sent and the approval code field in the additional data structure is not updated.

  Use one of the following two options to allow a process to complete successfully, even when no action messages are sent:

  - Make sure all additional data structure variables used to store action message results (the approve or reject response) are initialized with an appropriate default value. For example, use A for automatic approval and R for automatic rejection.
  - Make sure that any conditional rule that evaluates action message response variables after the action message task considers values other than A or R. For example, if the approval code variable is not initialized, the field may have a blank value (` ') by default.

Before You Begin

- ❑ Set up the address number of the distribution list in Address Book. Assign search type M (Mail Distribution List) to the distribution list when you add the distribution list to the Address Book.
- ❑ Make sure that all members that you want to include in the distribution list are entered into the address book.

- Set up a structure type using the User Defined Codes (P0004A) program. J.D. Edwards recommends setting up a new structure type for each distribution list that uses hierarchical processing. Structure types are added to xx/xx.
- Understand the two ways in which distribution lists can be processed and decide which type of processing you want to use (group processing or hierarchical processing). This choice will determine how you will create your distribution list. See *Distribution Lists* in the *J.D. Edwards Workflow Tools Guide* for more information.

► To create a distribution list for group processing

From Workflow Management Setup (G0241), choose Group Revisions (P02150). Alternatively, you can access this application from OMW by choosing a workflow process, clicking Design, and then clicking Group Revisions on the Workflow Operations tab.

1. On Work With Distribution Lists, complete the following fields:
   - Parent Number

     Click the Search button and then choose the address book number of the distribution list to which you want to add members.

   - Structure Type

     Click the Search button and then choose a structure type from the list.

     Note
     Do not leave this field blank. Every distribution list must have a structure type. Blank is the value for the Accounts Receivable structure type.

2. From the Form menu, choose Revise Parent.
3. On Address Parent/Child Revisions, complete the following fields:
   - Group

     Enter a group number for each member. Group numbers must be sequential, starting with one.

     Note
     See *Distribution Lists Used for Group Processing* in the *J.D. Edwards Workflow Tools Guide* for more information on how to organize members of a distribution list into groups for group processing.

   - Address Number

     Enter the address book number of the individual that you want to add to the distribution list.

4. If you will be using threshold values, complete the following fields:

   - Associated Data Item

     You must use a data item that is also included in the additional data structure of the workflow process. The system compares the value for this data item against the threshold values of the distribution list members to determine to whom messages are sent.

   - Threshold Value

     Enter the threshold value for each member of the distribution list.

     Caution
     Make sure that at least one threshold value in the distribution list is lower than or equal to any value that could be entered into the associated data item. Otherwise, if the value in the associated data item is lower than the lowest threshold value in the distribution list, the process does not have anywhere to send the message because all of the possible recipients are out of the specified threshold range.

5. If you are adding escalation to a Message task, complete the following fields to assign hours and minutes to each member of the distribution list.

   - Escalation Hours
   - Escalation Minutes

   These values determine when a message will be escalated.

   Note
   Escalation hours and minutes must be the same for all members of a group. For example, if members 7101, 7102, 7103, and 7104 are all members of Group 1, then each of these members must have the same escalation hours and minutes.

6. If you want to specify a period of time during which the members of the distribution list can receive a message, complete the following fields:

   - Begin Eff Date
   - End Eff Date

   The workflow engine will not send messages to members of the distribution list unless the current date falls between the beginning effective date and the ending effective date that you specify in these fields.

7. Specify the routing options by choosing one or more of the following options:

   - First Response
   - Higher Level Override
   - Authorization Required

8. Click OK.

See Also

- *Adding a Recipient Rule* in the *J.D. Edwards Workflow Tools Guide* for information about recipient rules
- *Adding Escalation Rules to a Message Task* in the *J.D. Edwards Workflow Tools Guide* for information about creating Message tasks with escalation

► To create a distribution list for hierarchical processing

From Workflow Management Setup (G0241), choose Group Revisions (P02150). Alternatively, you can access this application from OMW by choosing a workflow process, clicking Design, and then clicking Group Revisions on the Workflow Operations tab.

1. On Work With Distribution Lists, complete the following fields:

   - Parent Number

     Click the Search button and then choose the address book number of the distribution list to which you want to add members.

   - Structure Type

     Click the Search button and then choose a structure type from the list.

     Note
     Do not leave this field blank. Every distribution list must have a structure type. Blank is the value for the Accounts Receivable structure type.

2. From the Form menu, choose Revise Parent.
3. On Address Parent/Child Revisions, complete the following fields:

   - Group

     Hierarchical processing ignores values in the Group field. However, J.D. Edwards recommends that you assign each member to group 1.

   - Address Number

     Enter the address book number of the individual that you want to add to the distribution list.

4. If you will be using threshold values, complete the following fields:

   - Associated Data Item

     You must use a data item that is also included in the additional data structure of the workflow process. The system compares the value for this data item against the threshold values of the distribution list members to determine to whom message are sent.

   - Threshold Value

     Enter the threshold value for each member in the distribution list.

Caution
Make sure that at least one threshold value in the distribution list is lower than or equal to any value that could be entered into the associated data item. Otherwise, if the value in the associated data item is lower than the lowest threshold value in the distribution list, the process does not have anywhere to send the message because all of the possible recipients are out of the specified threshold range.

5. If you are adding escalation to a Message task, complete the following fields to assign hours and minutes to each member of the distribution list.
   - Escalation Hours
   - Escalation Minutes

   These values determine when a message will be escalated.

Note
Escalation hours and minutes must be the same for all members of a group. For example, if members 7101, 7102, 7103, and 7104 are all members of group 1, then each of these members must have the same escalation hours and minutes.

6. If you want to specify a period of time during which the members of the distribution list can receive a message, complete the following fields:
   - Begin Eff Date
   - End Eff Date

   The workflow engine will not send messages to the members of the distribution list unless the current date falls between the beginning effective date and the ending effective date that you specify in these fields.

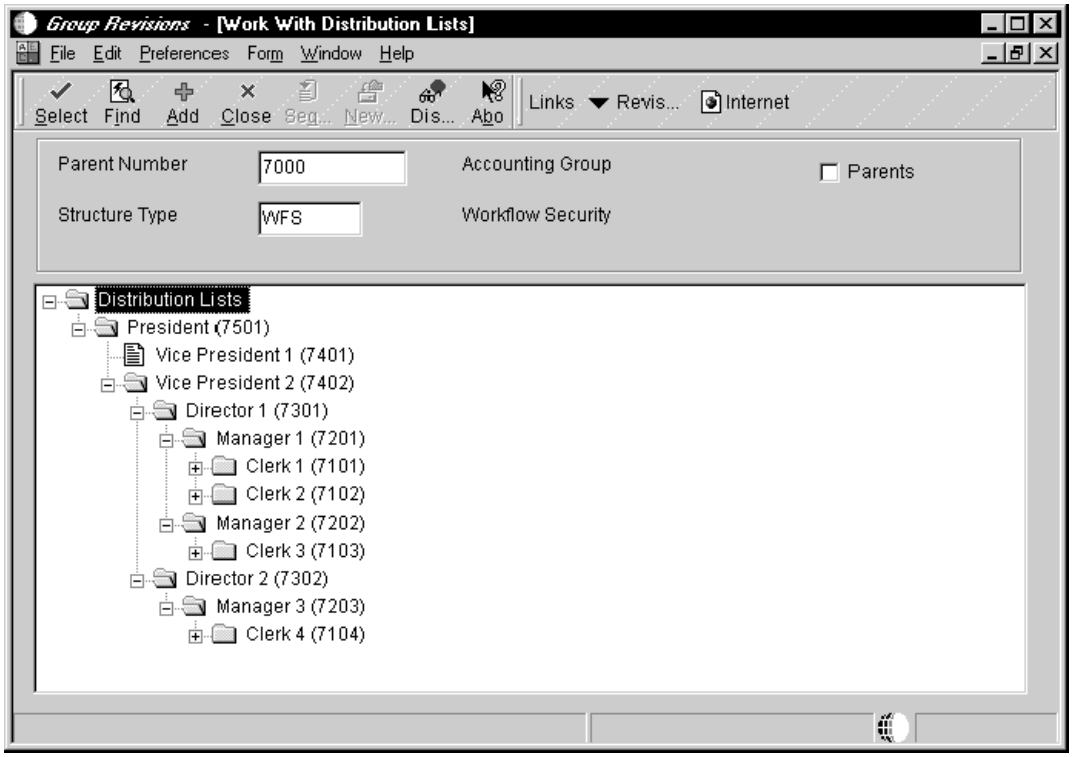
7. Specify the routing options by choosing one or more of the following options:
   - First Response
   - Higher Level Override
   - Authorization Required
8. Click OK.
9. To add a level beneath the member that you just added (for example, if you added a vice president and you want to add directors beneath the vice president), do the following:
   a. Return to Work With Distribution Lists and choose the vice president you just added in the tree.

      You might need to click Find to refresh the display.

   b. Click Add, and then enter the directors.

Each time you add another level to the distribution list, you choose the parent address book number and then click Add to add children under that parent. You can also enter the parent's address book number and the structure type, click Find, and then choose Revise parent from the Form menu.

When finished, your distribution list might look something like the following example.



► To view the distribution lists of which a child is a member

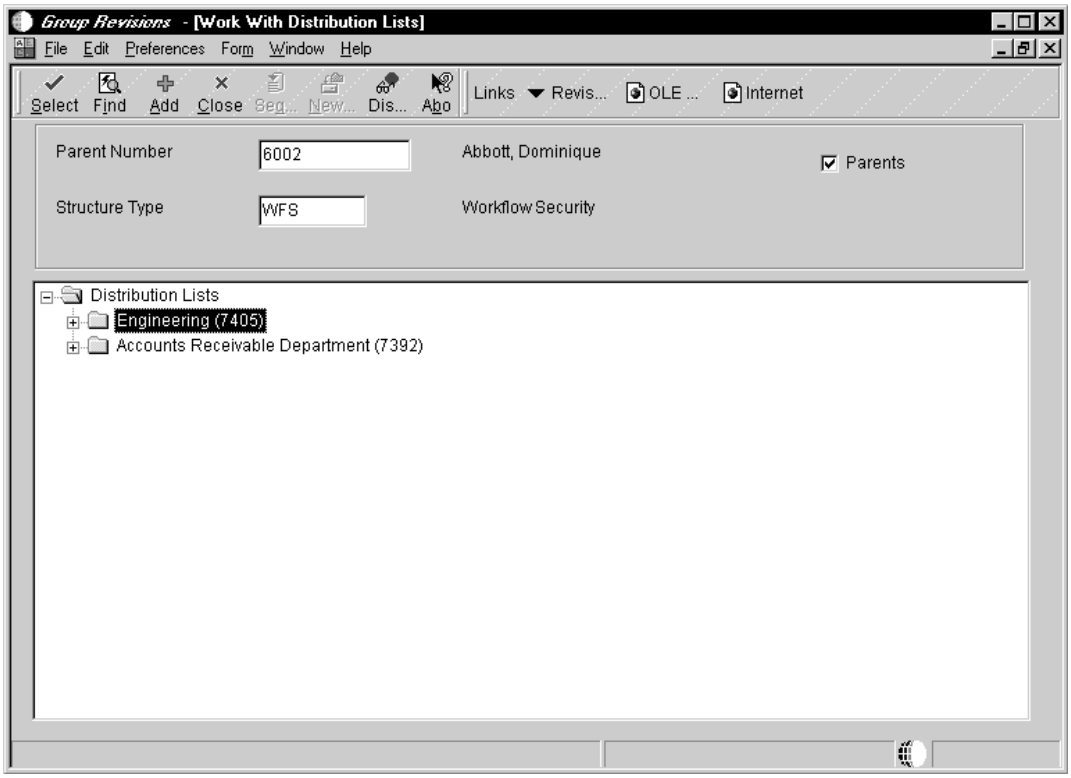
From Workflow Management Setup (G0241), choose Group Revisions (P02150). Alternatively, you can access this application from OMW by choosing a workflow process, clicking Design, and then clicking Group Revisions on the Workflow Operations tab.

1. On Work With Distribution Lists, complete the following fields:
   - Parent Number

     Enter the address book number of the child for which you want to view all distribution lists.

   - Structure Type
2. Turn on the following option, and then click Find:
   - Parents

   The system displays the name of each distribution list of which the child is a member. In the following example, Dominique Abbot is a member of the Engineering and Accounts Receivable Department distribution lists.



Working with Recipient Rules

You can specify the recipients of a workflow message in the event rules of a Message task. Another way to specify the recipients is to attach a recipient rule to the Message task. A recipient rule can contain a recipient (either a single recipient, a role or a distribution list) and a recipient condition. A Message task can have one or more recipient rules.

Just as in the event rules of a Message task, the recipient in a recipient rule is defined by the combination of the address book number and the structure type. If the structure type is blank, the recipient is a single recipient or a role. If the structure type is not blank, the recipient is a distribution list.

If you attach a recipient rule to a Message task that already has a recipient assigned to the event rules of the Message task, the recipient in the event rules is the default recipient. If the recipient condition for any of the recipient rules is correct, that recipient rule will override the event rules of the Message task. If none of the recipient conditions is true, the recipient in the event rules is used.

Recipient Conditions

A recipient condition contains a statement that Workflow evaluates to determine whether or not to route messages to a particular recipient. For example, you might set up a recipient condition named ACCTG that uses customer address book numbers as the criterion to determine where to send messages. You could add logic to the recipient condition to tell the system that if the customer number is equal to a range of 1 through 3001, and then send messages for those customers to the accounting department distribution list.

When you add a recipient condition in the Workflow Modeler, the recipient condition has no affect on the workflow process until you attach it to a recipient rule. You can add a recipient condition to a recipient rule at any time when you are creating a workflow process.

Note

If you add multiple recipient rules to a Message task, the system does not evaluate them in any particular order. The first recipient criterion that evaluates to true is the recipient rule that will be used.

Example: Using Recipient Conditions

You have an accounting department distribution list and a payroll department distribution list, and you want messages to be sent to one or the other based on a rule. You set up a two recipient condition called IFACCTG and IFPAYR. These recipient conditions would use the address book numbers of the customers as the criteria for determining where to send messages. IFACCTG would specify that if the customer number is equal to a range of 1 through 3001, then messages regarding those customers should be sent to the accounting department's distribution list.

► To add a recipient condition

1. Right-click the background of the Workflow Modeler diagram, choose Recipient Conditions, and then choose Add.
2. On Process Rule Revisions, complete the following fields:
   - Rule

     Type a name for the recipient condition. The name can be up to 10 characters in length.

   - Description

     Type a description for the purpose of the recipient condition.

   - Category Code 1 Code 1
   - Category Code 2 Code 2
   - Category Code 3 Code 3

   Note
   Category codes are optional fields that you can customize to include additional data about the object. See *User Defined Codes* in the *Foundation Guide* for more information about customizing category codes.

3. Click OK.
4. On Criteria Design, enter the criteria that will make up the recipient condition and click Save.

Note
If the Message task specifies Use Recipient Rules as the recipient, make sure that all values sent to the recipient rules are covered by the recipient conditions. Otherwise, you might have a value that does not satisfy any conditions, and no message will be sent.

See Also

- *To add escalation rules to a Message task* in the *J.D. Edwards Workflow Tools Guide* for information on how to use recipient conditions for escalation

Adding a Recipient Rule

When you add a recipient rule, you must define it using the following information:

- Recipient condition
- Recipient, which is defined by the following:
  - Address book number
  - Structure type

Note

If you attach a recipient rule to a Message task that already specifies the recipient in its event rules, the recipient rule overrides the recipient in the event rules.

If you add multiple recipient rules to a message task, the system does not evaluate them in any particular order. The first recipient criterion that evaluates to true is the recipient rule that will be used.

Before You Begin

- See *Understanding Workflow Message Recipients* in the *J.D. Edwards Workflow Tools Guide* for information on how to use a combination of Address Book Number and Structure type to specify the recipient in the recipient rule.
- If it does not already exist, you must first create the recipient condition. See *Recipient Conditions* in the *J.D. Edwards Workflow Tools Guide*.
- If you are attaching a distribution list to the recipient rule, you must first create the distribution list. See *Setting Up Distribution Lists* in the *J.D. Edwards Workflow Tools Guide*.

► To add a recipient rule

1. On Workflow Modeler, right-click the Message task, and then choose Recipient Rules from the menu.
2. On Workflow Recipient Rule Revisions, complete the following field to add a recipient condition:
   - Recipient Condition

     Enter the name of the recipient condition that you want to use. Click the Search button to view recipient conditions.
3. On Workflow Recipient Rule Revisions, complete a combination of the following fields to specify the recipient:
   - Address Book Number

     Enter the address book number of the distribution list, role, or single recipient to whom the message will be sent. Leave this field blank to send to a distribution list using hierarchical processing.
   - Structure Type

     Enter the structure type of the distribution list to which the message will be sent. If the recipient is a role or single recipient, leave this field blank.

Note
See *Understanding Workflow Message Recipients* in the *J.D. Edwards Workflow Tools Guide* for information on how to use a combination of Address Book number and Structure type to specify the recipient.

See Also

- *Understanding Workflow Message Recipients* in the *J.D. Edwards Workflow Tools Guide* for information on how the address book number and the structure type interact to specify the workflow recipient

Validating a Workflow Process Version

After you use Workflow Modeler to create the tasks within the process and you add transition conditions and distribution lists, you must validate the workflow process version. When validating a version, the system verifies that the version contains start and end points. It also verifies that all tasks that need event rules contain event rules, and that transitions exist among all the tasks.

You must validate a workflow process version before you can activate it in the system. You cannot activate a process that contains errors.

► To validate a workflow process version

1. Find the workflow process version that you want to validate in Object Management Workbench.
2. Move the workflow process version to a project folder.
3. Click the workflow process version and then click the Design button in the center column.
4. On Workflow Design, click the Design Tools tab and then click Validate workflow.

   If the version contains no errors, the message Workflow is VALID appears. You can now attach the workflow process version to an application.

5. If the version contains errors, a dialog box appears with a list of errors. Click Start Workflow Modeler to open the version in Workflow Modeler and correct the errors.

Activating a Workflow Process

Only one version of any workflow process can be active at any time. This active version is the one that will be used if a workflow process is started. However, once a process is started it will continue running with the version it started with, regardless of the status of that version.

You must make a version of a workflow process active in the system before you can attach it to an application. However, you cannot edit an active workflow process version. To edit an active workflow process version, you must first deactivate it. Next, you must terminate any running instances of that version (or wait for them to complete), and then you must purge the process instance data. After this, you can edit the process version. Alternatively, you can copy a version of a process and rename it.

Note

You should not modify a workflow process version that has been promoted (to PROD) and used. Instead, make a copy of that version in DEV; edit, test and promote it; and then deactivate the current version and activate the new version.

You cannot activate a process if it contains errors. Therefore, you must validate the workflow process before you activate it.

► To activate or deactivate a workflow process version

1. Find the workflow process version you want to modify in the Object Management Workbench.
2. Move the workflow process version to a project folder.
3. Click the workflow process version, and then click the Design button in the center column.
4. On Workflow Design, click the Design Tools tab and then click Change Workflow Status to toggle between inactive and active.

Attaching a Workflow Process to an Application

After you create, validate, and activate a workflow process, you attach it to an event within an application using Event Rules in Form Design Aid (FDA). You only need to define the system function Start Process in an application to attach a workflow process. The Start Process system function invokes the tasks within the process.

You can also attach workflow processes in Event Rules within Report Design Aid (RDA), Table Design Aid (TDA), or through named event rules (NER).

Caution

You should not attach a workflow process that initiates interactive applications or executables through RDA, TDA, or NER because they typically run on the server; therefore, no one sees the applications initiated by the process. Use discretion when designing processes that run on servers, including processes that will be started by interactive applications running on the Web.

The following tasks explain how to attach the process called CREDLIMIT to an application and how to call a *pending approval* message that appears within the application when a user makes a change to a customer's credit limit. The example used is specific to the Credit Limit Revisions process; the way in which you attach your processes varies.

Before You Begin

- Understand how to attach event rules to applications. See *Event Rules* in the *Development Tools Guide*.

► To attach the Start Process to an application

1. From the Object Management Workbench, find and check out the application to which you want to attach the workflow process.
2. Click the Design button in the center column.
3. On Interactive Application Design, click the Design Tools tab.
4. Click Start Form Design Aid.
5. Find the form to which you want to attach the Start Process.
6. Open the event rules for the form, position the cursor where you want to add the Start Process, and click the System Function button.
7. On System Functions, click the Function Selection tab, double-click the Workflow folder, and then choose Start Process.
8. Click the Parameter Mapping tab and double-click Choose Process.
9. On Process Search and Select, find the process that you want to attach to the application and click OK.

   The Workflow engine only runs an active process version. Even if you have two versions for a process, such as with CREDLIMIT version 1 and CREDLIMIT version 2, it will run the active version.

10. On System Functions, choose the Key Data Structure data item, and double-click the Define Mapping object.
11. On Data Structure Mapping, map the Key Data Structure to the corresponding object in the Available Objects list.
12. Repeat steps 10 and 11 to map the Additional Data Structure, and then click OK.

See Also

- *Workflow System Functions* in the *J.D. Edwards Workflow Tools Guide* for information on message system functions and workflow system functions

Attaching a Message Form to an Application

You can attach a form interconnection event rule that calls a message form. For example, you might want the system to call a form that notifies a user that the requested changes are made and pending approval from others.

► To attach a form interconnection

1. On Event Rules, click the Form Interconnect button.
2. On Work With Applications, find and choose the application that you want to use.
3. On Work With Forms, choose the form that you want to use.
4. On Form Interconnections, map the appropriate parameters, if applicable.

   In the Credit Limit Revisions example, the form that is called when a user makes a change to a customer's credit limit is for informational purposes only; you do not need to pass any values to this form.

See Also

- *Event Rules Design* in the *Development Tools Guide* for information about attaching event rules to applications
- *System Functions* in the *J.D. Edwards Workflow Tools Guide* for information about message system functions and workflow system functions

Administrative Tasks

Workflow Tools allows you to complete administrative tasks such as monitoring an individual employee's queues or all the queues for each group within your organization. You can also analyze processes for improvement analysis, activate the escalation monitor, and transfer process data to another data environment.

You can monitor Accounts Receivable queues and Purchasing queues using the Workflow Management Setup menu (G0241). If necessary, you can add menu items that access other queues. For example, you can add a menu item to Workflow Management Setup that invokes Shop Floor Control queues.

See Also

- *Working with Menus* in the *Foundation Guide* for more information about adding applications to menus

Monitoring Process Tasks

You use the Process Task Monitor to monitor the process flow in the Workflow system and to retrieve audit data for process improvement analysis. You can also terminate, suspend, resume, or override instances of a process. The Process Task Monitor lists all of the tasks that apply to the process and the status of each task; for example, whether the task is complete or active. You can also review the resource (or employee) assigned to that task, the start and end time of each task, and the time and date that a task expired.

Furthermore, you can review what was attached to messages when acted upon. If you designed your workflow process to allow for higher-level overrides, you can override the message approval process for messages that have not been answered by a lower-level recipient.

The Process Task Monitor also shows back-to-back processes (that is, processes that contain the same process keys). Back-to-back processes can be in the queue until the first one is completed. For example, several credit limit change requests can be waiting to be accepted or rejected for the same primary key. These requests show a status of Awaiting until the first one is accepted or rejected.

Note

You can also monitor processes graphically using the Solution Modeler Server (sold separately). This product provides an HTML view of workflow process instances within the J.D. Edwards Portal and provides Workflow administrators the ability to suspend, terminate, or resume any workflow process instance.

See Also

- *Additional Routing Features for Distribution Lists* in the *J.D. Edwards Workflow Tools Guide* for information about higher level overrides

Reviewing a Process Status

You review a process status to see if tasks have been acted upon and to retrieve audit data.

► To review a process status

On Workflow Advanced & Technical Operations (G0231), choose Process Task Monitor.

1. On Process Task Monitor, complete the following field:
   - Process

     Enter the name of the process that you want to monitor.
2. Complete the following optional fields:
   - Status
   - Start Date From
   - Thru
3. Click Find to display the status of the process.

Terminating, Suspending, or Resuming an Instance of a Process

You might want to terminate an instance of a process if it contains errors or if the process cannot continue, such as when an employee has not yet answered his or her messages because of vacation or termination. In this case, subsequent requests for the same process queue behind the original request. Terminating the process in error allows the subsequent requests to begin processing.

You might want to suspend an instance of a process if you want other processes to finish before a certain process. You can also restart a suspended instance of a process.

► To terminate, suspend, or resume an instance of a process

From Workflow Advanced & Technical Operations (G0231), choose Process Task Monitor.

1. On Process Task Monitor, find the process with which you want to work.
2. Choose one of the following from the Row menu:
   - Terminate
   - Suspend
   - Resume

Reviewing Attachments to a Task

You can review attachments associated with a task. For example, if a recipient approves a message, and then adds additional text to that message and sends it, you can view that message text through an attachment from the Process Task Monitor.

► To review attachments to a task

From Workflow Advanced & Technical Operations (G0231), choose Process Task Monitor.

1. Find the process with which you want to work.
2. Choose the row for which you want to view attachments.
3. From the Row menu, choose Attachments.

   If a task does not contain attachments, the Attachments option on the row menu is not enabled.

Overriding the Message Approval Process

You might want to override the message approval process if a message has not been answered by a recipient in a lower level. For example, if a clerk has not approved or rejected a message and the manager wants the message to be approved to move it to the next level, the manager can override the approval process in the Process Task Monitor and approve or reject the message. The manager can only override the message approval process for messages sent to a distribution list that includes higher-level overrides.

The Overrides option is enabled if *all* of the following conditions are met:

- You exist in the address book.
- You are a member of a higher-level group than the recipient for whom the message was intended.
- The message is unopened.
- The message has an active shortcut.

See Also

- *Additional Routing Features for Distribution Lists* in the *J.D. Edwards Workflow Tools Guide* for more information about higher level overrides

► To override the message approval process

From Workflow Advanced & Technical Operations (G0231), choose Process Task Monitor.

1. On Process Task Monitor, find the process and task with which you want to work.
2. Choose the row for which you want to override message approval.
3. Choose Override from the Row menu.

   The system displays the Higher Level Override form.

4. Accept or reject the message.

   The system returns to Process Task Monitor.

5. Click OK.

Changing Queue Security

You can change the security status for a user or group of users for a message queue. You can either give a user authority to monitor queues within a group or give public security to queues for all groups.

You can add security by user, group, or role. For example, you might want to set up security for a manager so that she or he can monitor all messages within a group for certain queues. Or you might set up security by group only so that users within a group have authority to monitor messages within a group for certain queues.

When you add security by group or role, the system applies that security to all members of that group or role. You can also give only a few people within a group access to certain queues by entering the user address book number and the group to define which queues a user in a particular group can access.

Note

Using the Employee Queue Manager (P012501) to view mail ignores security and all messages can be viewed.

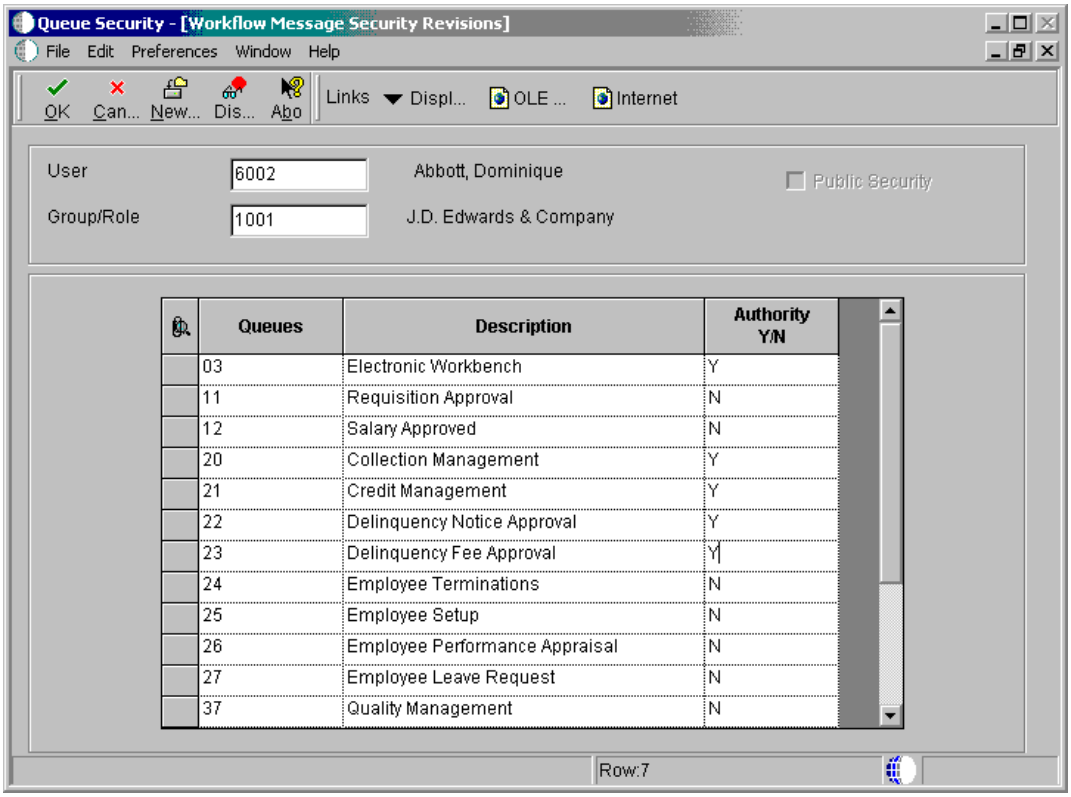
Specifying the Queues that a User Can View

When you set up a new user in a group, you must specify which queues that user can view within that group.

► To specify the queues that a user can view in a group

From Workflow Management Setup (G0241), choose Queue Security.

1. On Work With Workflow Message Security, click Add.



In this illustration, Dominique Abbott has access to the Electronic Workbench, Collection Management, Credit Management, Delinquency Notice Approval, and Delinquency Fee Approval queues for group 1001. She can monitor all messages within these queues for group 1001.

2. On Workflow Message Security Revisions, complete the following fields:
   - User
   - Group/Role
3. Specify the queues that a user can view by completing the following field and clicking OK:
   - Authority Y/N

Changing Public Security

When you assign the Public Security option, all users have access to queues that you specify. For example, if you choose the Public Security option and give authority to the Collection Management queue, all users in the system are able to view all messages in that queue.

▶ To change public security

From Workflow Management Setup (G0241), choose Queue Security.

1. On Work With Workflow Message Security, click Add.
2. On Workflow Message Security Revisions, turn on the following option:

- Public Security

  When you choose this option, the system protects the User and Group/Role fields because you are specifying that you want to give authority for specific queues to all users in the system.

3. Complete the following fields and click OK:

   - Authority Y/N

Note
If you complete the User field, the system protects the Public Security field.

See Also

- *Setting Up Queues* in the *J.D. Edwards Workflow Tools Guide* for information on how to create a queue

Activating the Escalation Monitor

The escalation monitor, or Check for Expired Tasks program (R98810), checks for any Message task instances that have escalation associated with them. When the monitor finds Message tasks with escalation, it forwards those messages that have not been acted upon after a specified period of time to the next user. It also resumes Halt tasks after the specified delay.

This chapter describes how to start the escalation monitor manually by submitting its batch version, as you do with any other batch process. However, the Scheduler application provides a convenient alternative for automatically restarting the escalation monitor at predefined intervals. Using the Scheduler is the recommended way of running the escalation monitor.

Caution

If the Scheduler is not used, you should restart the escalation monitor each time that it stops, with an acceptable duration between starts that depends on the urgency of Halts and Escalations. The escalation monitor does not automatically restart. If you do not restart the monitor, the processes that contain messages with escalation will not be reactivated. Therefore, it is recommended that you use the Scheduler application to automatically restart the escalation monitor.

See Also

- *Adding Escalation Rules to a Message Task* in the *J.D. Edwards Workflow Tools Guide* for information about adding escalation to Message tasks
- *Scheduling Jobs* in the *System Administration Guide* for information about using the Scheduler

► **To activate the escalation monitor**

From Workflow Advanced & Technical Operations (G0231), choose Start Escalation Monitor.

1. On Work With Batch Versions - Available Versions, choose version XJDE0002, and then click Select.
2. On Version Prompting, choose any of the following options, if necessary, and click the Submit button:
   - Data Selection

     If you choose Data Selection, on Data Selection, enter the condition for the data that you want to appear in the report, and then click OK to continue.

   - Data Sequencing

     If you choose Data Sequencing, on Section Data Sequencing, choose the columns that you want to sort on, and then click OK to continue.
3. On Report Output Destination, choose the appropriate output option, and then click OK.

   When you run the monitor, the system produces a summary of Message tasks and Halt tasks that have not yet been completed.

Analyzing Workflow Processes

You analyze workflow processes using the Advanced Analysis application. Through Advanced Analysis, you can see how long it takes for a process to run and where processes might be queued. This analysis can help you make your processes more efficient and less time consuming. You can view an analysis using actual or average duration in days or hours, depending on your needs.

You can export the data displayed in the Advanced Analysis form to a spreadsheet, or create graphs and charts of the information.

You can use several combinations of process, task, version, and instance to analyze process data. Following are some possible combinations:

Process, version, instance, actuals	The actual duration for each instance of the process and version from the Process Instance table (F98860).
Process, version, instance, task, actuals	The actual duration for each task within each instance from the Task Instance table (F98865).
Process	The average duration for all versions of a process.
Process, version, averages	The average duration of the instances for that version. The instances are averaged together, regardless of the instance keys.
Process, version, instance, averages	The average duration for instances, if instances with the same key exist.
Process, version, instance, task, averages	The average duration for each task within the instance, if instances with the same key exist.
Process, instance, task, averages	The average of tasks for like instance keys across versions.
Process, version, task, averages	The average duration for each task across instances. The tasks are averaged together, regardless of whether the instances to which they belong have the same key.
Process, task, averages	The average of task duration across versions.
Process by user	The average duration for all versions of the process for which that the user is responsible.
Process, version, by user	The average duration of the instances for that version for which the user is responsible. The instances are averaged together, regardless of the instance keys.
Process, version, instance, by user	The average duration for instances with the same key for each responsible user.
Process, version, instance, task, by user	The average duration of each task within instances that contain the same key for each responsible user.
Process, instance, task, by user	The average of tasks for like instances keys across versions for each responsible user.
Process, version, task, by user	The average duration for each task across instances for which the user was responsible. The tasks are averaged together, regardless of whether the instances to which they belong have the same key.
Process, task, by user	The average of task duration for each responsible user.

See Also

- See *Working with the Grid* in the *Foundation Guide* for more information about exporting data from a grid

► To analyze a process

From Workflow Advanced & Technical Operations (G0231), choose Advanced Analysis.

1. On Workflow Advanced Analysis, click Find to query all processes, or complete the following field and click Find to query a process:
   - Process ID
2. Complete the following optional fields:
   - Version
   - Start Date From
   - Thru
3. To analyze a process by day or by hour, click the Search button in the following field to choose the appropriate unit of measure field.
   - Duration UOM
4. Turn on one of the following options:
   - Actuals

     If you choose Actuals, the system automatically includes the process, version, and instance in the analysis. You can choose whether to include task in the analysis.

   - Average

     If you choose Average, the system automatically includes the process in the analysis, and you can then choose whether to view averages based on version, instance, or task.
5. If you want to analyze the Actuals for a process and you want to include tasks in the analysis, turn on the following option:
   - Task
6. If you want to analyze the averages for a process, turn on one or more of the following options:
   - Version
   - Instance
   - Task
7. If you want to view the user responsible for a process, turn on the following option:
   - User

     If you choose the User option, a resource column appears in the detail area. The User column identifies the user who was assigned to that particular task.

8. Click Find.

   The system displays audit information based on your choices. You can manipulate the information in the grid as you can any other grid information; for example, you can graph, export, and print it.

9. To remove a row of data, choose Remove Row from the Row menu.

   For example, you might want to create a graph of the data contained in the analysis but do not want to include certain rows of data.

   The system removes the row from the grid but does not delete the information from the database.

Printing Process Instance Reports

You can print process instance reports to review information about the workflow process task on paper rather than online or to archive process task information on paper for future reference.

► To print process instance reports

From the Workflow Advanced & Technical Operations menu (G0231), highlight Process Task Print.

1. Right-click Process Task Print and choose Prompt For and then click Version from the pop-up menu.
2. Choose a version in the detail area and click Select.
3. On Version Prompting, choose any of the following, if necessary, and click the Submit button:
   - Data Selection
   - Data Sequencing
4. On Report Output Destination, choose the appropriate output option for your report and then click OK.

See Also

- *Submitting a Report for Batch Processing* in the *Enterprise Report Writing Guide* for more information about how to submit reports

Purging Workflow Data Files

When a workflow process is run, the system creates Process Instance (F98860) and Task Instance (F98865) tables of the workflow process. If you choose to have your workflow process retain these records for historical purposes, the files may become very large and occupy storage resources. The presence of large amounts of data in the F98860 and F98865 tables will also hinder performance of the Workflow engine.

You should purge workflow data files periodically to minimize the amount of data in the tables and recover disk space. You can purge completed tasks or completed processes. Purging completed tasks deletes Message tasks, whereas purging completed workflow processes deletes instances.

Caution

Purging data files might affect your metrics analysis. Because of this, J.D. Edwards recommends that you restrict access to this application.

► To purge completed workflow processes

Note

It is recommended that you purge completed processes regularly to minimize the amount of data in the tables. This process only purges records that do not affect active processes in the system and purges F98860 and F98865 records that possess a status of complete, terminated, or error.

From Workflow Advanced & Technical Operations (G0231), choose Data File Purges and then Purge Completed Processes (R98860P).

1. On Work With Batch Versions - Available Versions, choose a version from the detail area and click Select.
2. On Version Prompting, click Submit.

   By default, the batch process uses the following condition to delete the records that possess a status of complete, terminated, or error:

   Where BC Process Status (F98860) is equal to “03,05,06”

3. On Report Output Destination, choose the appropriate output option and then click OK.

► To purge completed tasks

From Workflow Advanced & Technical Operations (G0231), choose Data File Purges, and then choose Purge Completed Tasks.

1. On Work With Batch Versions – Available Versions, choose a version from the detail area and click Select.
2. On Version Prompting, click Submit.

Note
The default condition for this batch process deletes all messages that have been sent to the Deleted queue. You should not use Data Selection or Data Sequencing to modify this batch process.

3. On Report Output Destination, choose your print destination and click OK.

Transferring Workflow Processes

You must be careful when promoting workflow processes through the development cycle. Workflow processes are transferred by OMW much like any other non-OMW object. However, a key difference is that instances of the modified process version may already be running in the target environment. Because of the wide range of changes that can be made while editing a workflow process version, it cannot be guaranteed that the old instances will be able to complete under the new definition.

For example, if you delete a task from the workflow definition and an instance in the target environment is currently executing task, the instance will not be able to determine what to do next once the task is completed. In a similar manner, all the historical data used for analysis can become invalid if the process is changed dramatically before it is transferred.

To keep this type of problem from occurring, J.D. Edwards recommends never modifying a workflow process version that has been promoted and used in the target environment. Instead, make a copy of that version; edit, test and promote it; and then deactivate the current version and activate the new version. OMW helps enforce this by not allowing you to transfer a workflow process version into an environment if any historical instances of that particular version exist in the target environment.

Caution

The same types of problems can occur if you are using a particular process version and you receive and deploy an update to that version. This problem can be avoided if you do not use J.D. Edwards versions of workflow processes. Instead, always make a copy of the J.D. Edwards version and activate your copy.

In OMW, workflow data transfer is accomplished with object transfer activity rules. Consequently, you must add workflow processes that need to be transferred from one environment to another to an OMW project.

Your system administrator usually sets up object transfer activity rules. These rules dictate the source and target locations for transferring objects and, in the case of workflow processes, these values correspond to data source names. The rules are executed when a project is advanced from one status to another. The same transfer rules apply regardless of the logon environment.

See Also

The following topics in the *Package Management Guide* for more information about the deployment process:

- *Object Management*
- *Package Build*
- *Deployment*

Synchronous and Asynchronous Processing

J.D. Edwards Workflow Tools can execute a workflow process either synchronously or asynchronously. Asynchronous processing allows various workflow processes to run at the same time. By starting a workflow process asynchronously, you are simply running the workflow in the background of the calling application.

Although asynchronous workflow processes might process faster, synchronous processing is sometimes preferred. If a calling application depends on information from the workflow process, you should run the workflow process synchronously to ensure that the calling application gets the information it needs from the workflow process before the workflow finishes and the application closes.

A workflow process runs asynchronously by default, with the following exceptions:

- When it contains a form interconnect or run executable activity
- When it is run from a batch application
- When the workflow process is specifically designed to run synchronously

In the first two cases, the system forces the workflow to run synchronously. In the third case, the designer specifically chooses for the workflow to run synchronously.

System Functions for Synchronous and Asynchronous Processing

You can use the system functions *Start Process* and *Complete Activity* for asynchronous processing. You can use the system functions *Start Process In Line* and *Complete Activity In Line* for synchronous processing.

If an application depends on a workflow process to complete before continuing with subsequent event rule logic, then you must use *Start Process In Line*.

The *Start Process* and *Complete Activity* system functions run asynchronously in interactive applications, named event rules (NER), and table event rules (TER).

The *Start Process In Line* and *Complete Activity In Line* system functions run synchronously in interactive applications, named event rules (NER), and table event rules (TER).

Workflow processes in batch applications and subprocess tasks within a workflow always run synchronously, so only the *Start Process In Line* and *Complete Activity In Line* system functions are available in Report Design Aid and subprocess task definition. All event rules for existing batch applications that call *Start Process* and *Complete Activity* continue to be displayed as they are, but the workflow processes run synchronously.

Several system functions for workflow processing are available. Refer to the online APIs for more information about specific system functions.

Transaction Processing

If a named event rule that is included in a transaction calls any workflow system function, regardless of whether the workflow processes are synchronous or asynchronous, the workflow process is not included in the transaction. Therefore, the workflow process is permanently written to the tables even if the transaction rolls back.

Workflow Processing Location

Workflow can run either on the client or the server. The location for workflow processing is determined by the default Object Configuration Manager mapping for business functions. An exception is that when the logon environment is local, the workflow must run locally; this is because, in this case, the server cannot write to or update a database on a client workstation.

System Functions

Refer to the system function documentation in the online API guide for more information about these system functions.

Message System Functions

Message system functions include the following:

Delete Message	Removes a message that was created using Send Message.
Forward Message	Automatically forwards a message using a system function.
Send Message	Sends a message through the J.D. Edwards ERP mail system.
Template Substitution	Allows the user to fill the message template with the substitution values and then receive the completed message template back in a text string. The output string can be displayed on the screen or printed on a report as generic text.
Update Message	Modifies information associated with a message that has already been added using Send Message.

Workflow System Functions

Workflow system functions include the following:

Complete Activity	Completes an activity instance
Complete Activity In Line	Completes an activity instance and resumes the workflow process in line
Get Activity Instance For Key	Retrieves the active workflow activity instance information for a given key
Get Process Instance Attributes	Retrieves the key and attribute data structures for a given process instance
Get Process Instance For Key	Retrieves the workflow process instance for a given key
Start Composer Process	Obsolete
Start Process	Starts a workflow process
Start Process In Line	Starts a workflow process in line for synchronous processing
Update Process Instance Attributes	Updates the attributes for a given process instance
Update Process Instance Attribute Single	Updates a single process attribute for a given process instance

Workflow Admin System Functions

Workflow Admin system functions are intended only for use by workflow administrative applications developed and maintained by J.D. Edwards.

Distribution List Scenarios

This section includes several scenarios that illustrate how Workflow processes use group processing or hierarchical processing to send messages to distribution lists. These scenarios follow the same Credit Limit example that is used throughout this guide. Each scenario includes the setup used for a specific workflow process and the results that occur when that setup is used.

Before You Begin

You should understand how to create a Message task and how to attach a distribution list to a Message task. You should also understand the difference between group processing and hierarchical processing. For more information, see the following topics in the *J.D. Edwards Workflow Tools Guide*:

- *Creating a Workflow Process*
- *Message Tasks*
- *Distribution Lists*

Group Processing Scenarios

The following examples illustrate how a workflow process uses group processing to route messages to members of a distribution list.

Scenario 1: Group Processing

This scenario illustrates how group processing sends messages to members of a distribution list.

Setup

The following information illustrates a typical distribution list setup for the Credit Limit example.

A/B #	Description	Group #	Threshold Value
7101	Clerk #1	1	5000
7102	Clerk #2	1	5000
7103	Clerk #3	1	10000
7201	Manager #1	2	10000
7202	Manager #2	2	15000
7203	Manager #3	2	20000
7301	Director #1	3	20000

7302	Director #2	3	25000
7303	Director #3	3	25000
7401	VP #1	4	30000
7402	VP #2	4	30000
7501	President	5	31000

Results

The following results illustrate to which A/B numbers that messages would be passed. The value passed is the dollar amount used to determine which address book numbers receive the message. The address book numbers to the right are the result.

Value Passed												
4500	Not sent to list											
9500	7101	7102										
14500	7101	7102	7103	7201								
19500	7101	7102	7103	7201	7202							
24500	7101	7102	7103	7201	7202	7203	7301					
29500	7101	7102	7103	7201	7202	7203	7301	7302	7303			
30500	7101	7102	7103	7201	7202	7203	7301	7302	7303	7401	7402	
31500	7101	7102	7103	7201	7202	7203	7301	7302	7303	7401	7402	7501

Scenario 2: Group Processing

This scenario uses the same setup as Scenario 1 except that all threshold values are 0.

Setup

A/B #	Description	Group #	Threshold Value
7101	Clerk #1	1	0
7102	Clerk #2	1	0

7103	Clerk #3	1	0
7201	Manager #1	2	0
7202	Manager #2	2	0
7203	Manager #3	2	0
7301	Director #1	3	0
7302	Director #2	3	0
7303	Director #3	3	0
7401	VP #1	4	0
7402	VP #2	4	0
7501	President	5	0

Results

No matter what value is passed, the process goes through the entire distribution structure. Every address book number gets a message.

Scenario 3: Group Processing

In this scenario of group processing, all members are in the same group and have the same threshold values.

Setup

Each group level in the distribution list is set to 1. A threshold value of 100 is used for each person.

Group	Name	Threshold Value
1	Tom	100
1	Barb	100
1	Tim	100
1	Dan	100

Results

Every address book number is given a message if the amount sent is greater than the threshold.

Data Value	Sent to All #'s in Group
90	Did Not Send
110	Yes

Scenario 4: Group Processing with Higher Level Overrides

This scenario shows how group processing routes messages to a distribution list with threshold values and higher level overrides.

Setup

The value passed in is 31500.

A/B #	Description	Group #	Threshold Value
7101	Clerk #1	1	5000
7102	Clerk #2	1	5000
7103	Clerk #3	1	10000
7201	Manager #1	2	10000
7202	Manager #2	2	15000
7203	Manager #3	2	20000
7301	Director #1	3	20000
7302	Director #2	3	25000
7303	Director #3	3	25000
7401	VP 1	4	30000
7402	VP 2	4	30000
7501	President	5	31000

Results

After Group #1 approves the message, all address book numbers above Group #1 show up in Process Task Monitor in an awaiting status except for Manager #1 and Manager #2, which show an unopened status.

At this point, a user of higher group number can come in and override the workflow process to continue to the next task. For example, in this scenario, if you log on to the J.D. Edwards

ERP system as President and do a higher level override on Clerk #1, all users display as bypassed, and the process ends as expected.

Scenario 5: Group Processing with First Response

This scenario uses the same setup as Scenario 1. It uses group processing and the originator of the process is not included in the distribution list. This scenario shows what would happen if the First Response option was checked during the distribution list setup.

Setup

A/B #	Description	Group #	Threshold Value
7101	Clerk #1	1	5000
7102	Clerk #2	1	5000
7103	Clerk #3	1	10000
7201	Manager #1	2	10000
7202	Manager #2	2	15000
7203	Manager #3	2	20000
7301	Director #1	3	20000
7302	Director #2	3	25000
7303	Director #3	3	25000
7401	VP #1	4	30000
7402	VP #2	4	30000
7501	President	5	31000

Results

At a specific group level, the first individual to respond dictates how the process continues. For example, the response might tell the process to end the task or to move on to the next higher group level in the distribution list.

Note

The First Response option is not necessary when using hierarchical processing of distribution lists. In hierarchical processing, if you have a situation where a clerk has two managers directly above him or her, both managers receive the message. The first manager to respond dictates how the process proceeds.

Hierarchical Processing Scenarios

The following examples illustrate how a workflow process uses hierarchical processing to route messages to members of a distribution list.

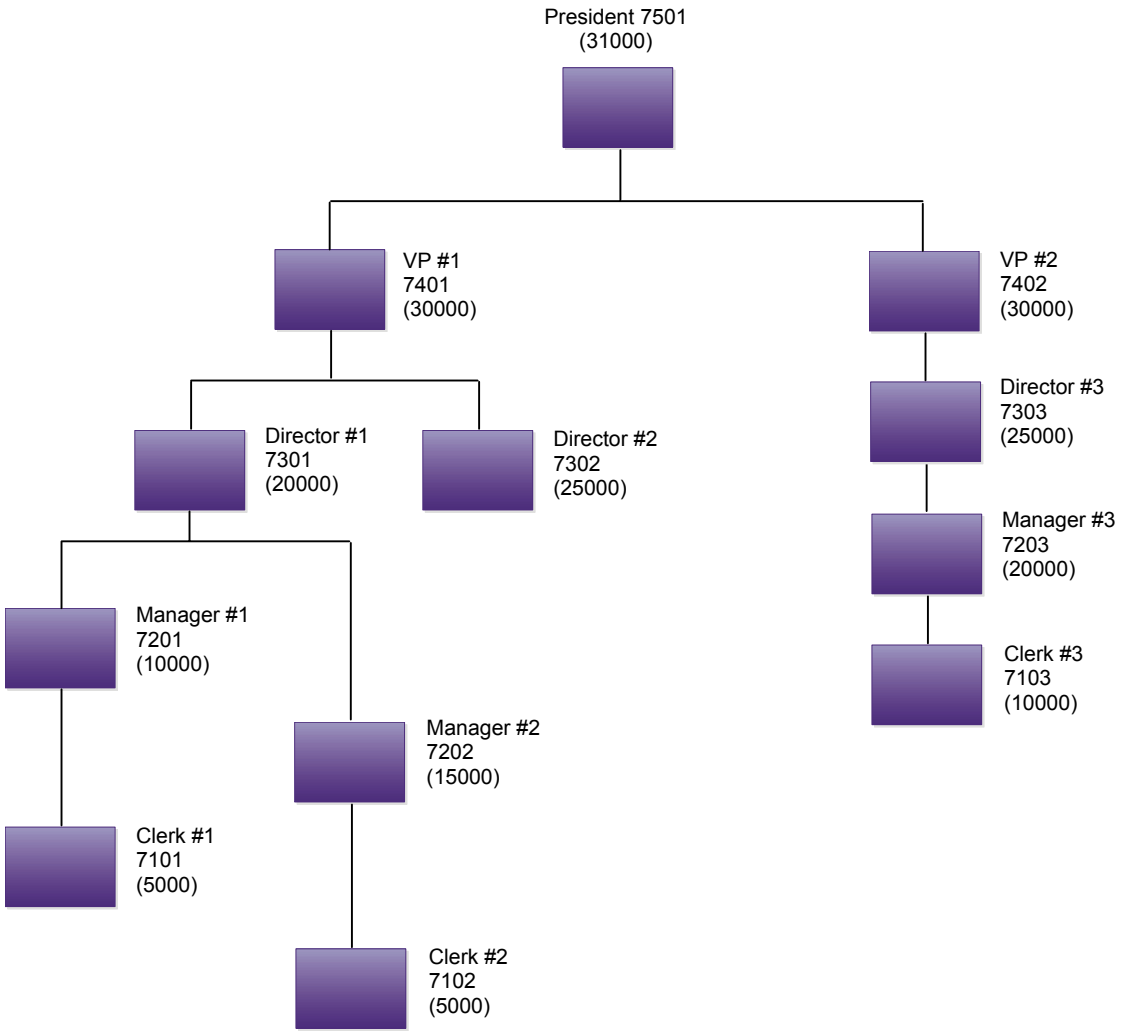
Scenario 6: Hierarchical Processing

This scenario illustrates how hierarchical processing of a distribution list sends messages to members of a distribution list with threshold values. The originator is in the distribution list. If the originator is not in the distribution list, the workflow process ends in error.

Setup

Threshold values are denoted in parentheses. The originator is 7101.

Distribution List Setup



Results

If the value passed is lower than the originator’s threshold or the originator's manager's threshold, the workflow will not send the message. To prevent this situation, set a default value for the messages that are not sent. For the Credit Limit scenario, you would probably accept the value passed amount because it is not a significant amount.

Value Passed				
4500	Not sent to list			
9500	Not sent to list			
14500	7201			
19500	7201			
24500	7201	7301		
29500	7201	7301		
30500	7201	7301	7401	
31500	7201	7301	7401	7501

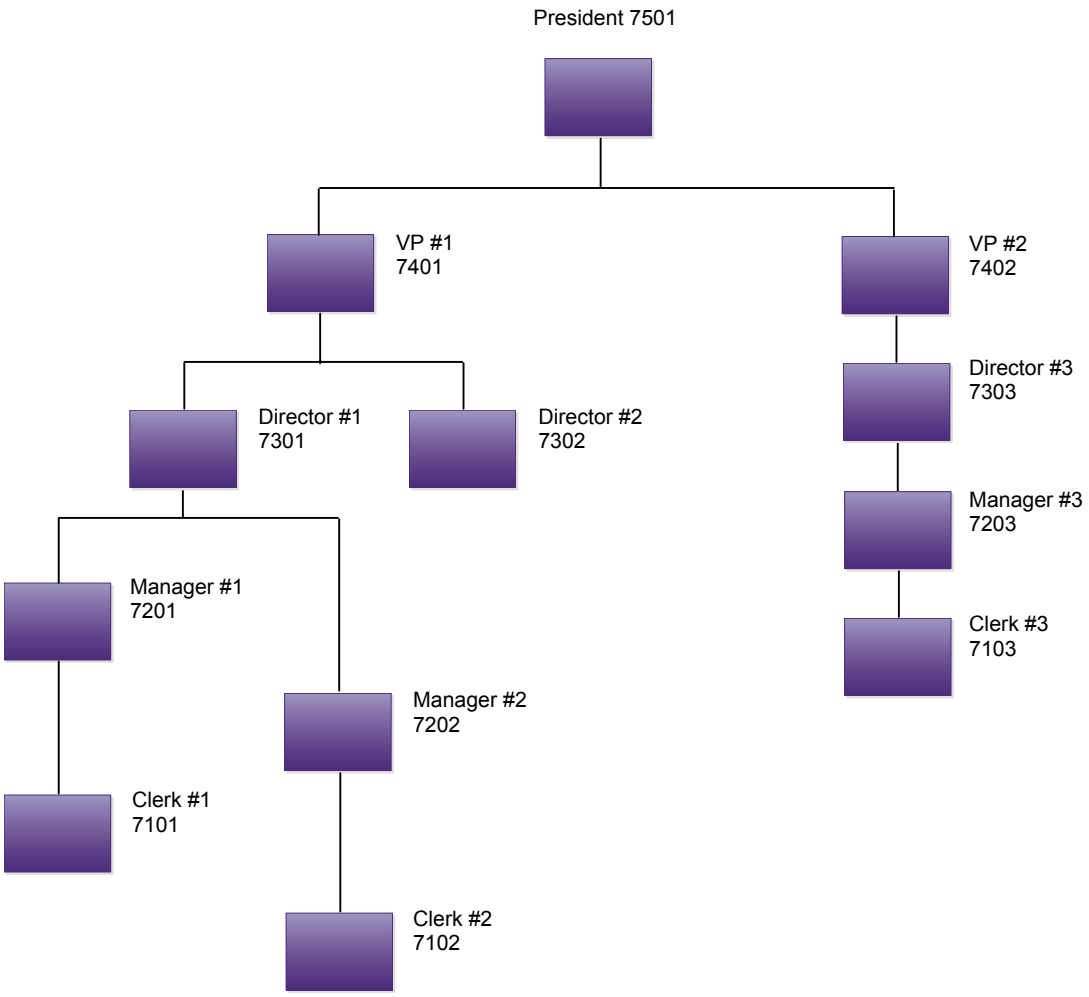
Scenario 7: Hierarchical Processing

This scenario illustrates how hierarchical processing routes messages to a distribution list with threshold values all set to 0. The originator is in the distribution list.

Setup

The originator is Clerk #1.

Distribution List Setup



Results

Since there are no threshold values, the workflow process sends a message to all of the members.

Value Passed				
4500	7201	7301	7401	7501
9500	7201	7301	7401	7501
14500	7201	7301	7401	7501
19500	7201	7301	7401	7501
24500	7201	7301	7401	7501
29500	7201	7301	7401	7501
30500	7201	7301	7401	7501
31500	7201	7301	7401	7501

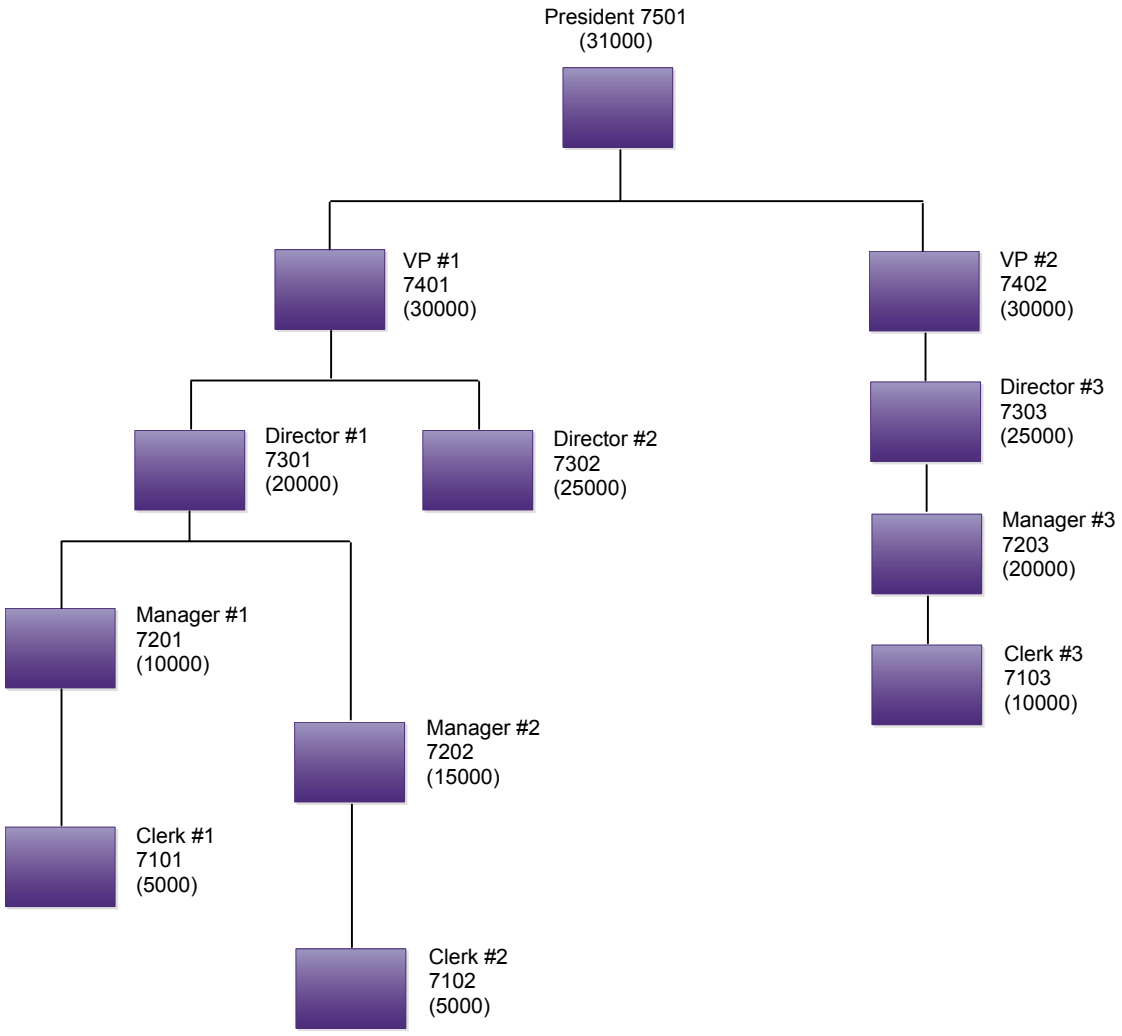
Scenario 8: Hierarchical Processing with Higher Level Overrides

This scenario demonstrates higher level overrides in a distribution list with threshold values. The originator is in the distribution list.

Setup

Threshold values are in parentheses. The originator is Clerk #1. The value passed in by the workflow is 31500.

Distribution List Setup



Results

When the message is first sent, all address book numbers show up in the Process Task Monitor in an awaiting status except for Manager #1, which shows in an unopened status.

At this point, a user of higher group number can override the workflow process to continue to the next task. For example, in this scenario, if you sign into the J.D. Edwards ERP system as President and do a higher level override on Manager #1, all users display as bypassed, and the process ends as expected.