# WFi Product Guide

### Publication Information

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# Contents

# About this guide

This guide documents the functionality of products within the WFi product set.

## Intended audience

This guide is intended for Process Designers, who wish to create Business Processes for their Enterprise, and for Systems Administrators, who wish to maintain these Business Processes.

## Organization

This table shows the chapters of the guide:

| Section | Description |
| --- | --- |
| Module Overview | Overview of the components that make up the WFi product set. |
| Introduction to WFi Modeler | Summary of the common features of WFi Modeler to help a user familiarize themselves with the product. |
| Using WFi Modeler | Creating Business Process models within WFi Modeler. |
| Advanced Features | Advanced features within WFi and the WFi Modeler product. |
| The WFi Components | Overview of the WFi Components, their properties, functionality, and usage advice. |

## Related documents

You can find the documents in the product documentation section of the Infor Support Portal, as described in "Contacting Infor" on page 14.

*WFi Installation Guide*

*WFi Administrator Guide*

# Contacting Infor

If you have questions about Infor products, go to Infor Concierge at https://concierge.infor.com/ and create a support incident.

The latest documentation is available from docs.infor.com or from the Infor Support Portal. To access documentation on the Infor Support Portal, select **Search > Browse Documentation**. We recommend that you check this portal periodically for updated documentation.

If you have comments about Infor documentation, contact documentation@infor.com.

# Chapter 1 Module Overview

## Introduction

### WFi Modeler

WFi Modeler is part of the WFi family of products (formerly known as process.connect), which also consists of the WFi Engine, WFi Components and System Manager.

WFi Modeler is a powerful yet simple-to-use graphical business process modelling product designed and developed to enable business users to model the organizational elements, key processes, and systems within their enterprises.

By modelling their business, a company can understand how its business works, the way the company is structured, identify key relationships, and highlight flaws in the processes.

Through its use, business, software and execution models can be produced and deployed, providing a clear and concise method to define what a business does, how it does it, what software is used to support its processes, how activities are carried out and by whom.

Execution models can then be activated as “live” business processes to your System i ERP, that automate and control the flow of data and activities from start to finish, adding measurable value to any enterprise.

### WFi Engine

The WFi Engine is an IBM i Server based business transaction processor that can control the flow of data through a system based on user defined business models created using WFi Modeler.

### WFi Components

A set of complementary programs to aid live business processes. The components are as follows:

- **Document Handler**

  Used to process XML/XSL documents that are written to an IBM WebSphere MQ Series input queue. The document may contain any W3C valid XML/XSL statements.

- **Email Reader**

  Receives e-mail messages into a business process. Incoming e-mails can be replies to messages sent from a process or used to initiate a new process. Supports e-mail attachments.

- **Email /Writer**

  Sends e-mail messages from a business process. E-mail can be in HTML or plain text formatting. Supports e-mail attachments.

- **Trigger Handler**

  Processes database trigger events (which can be placed on any System i database table). Triggers can be used to fire off business events/processes dependent on database changes.

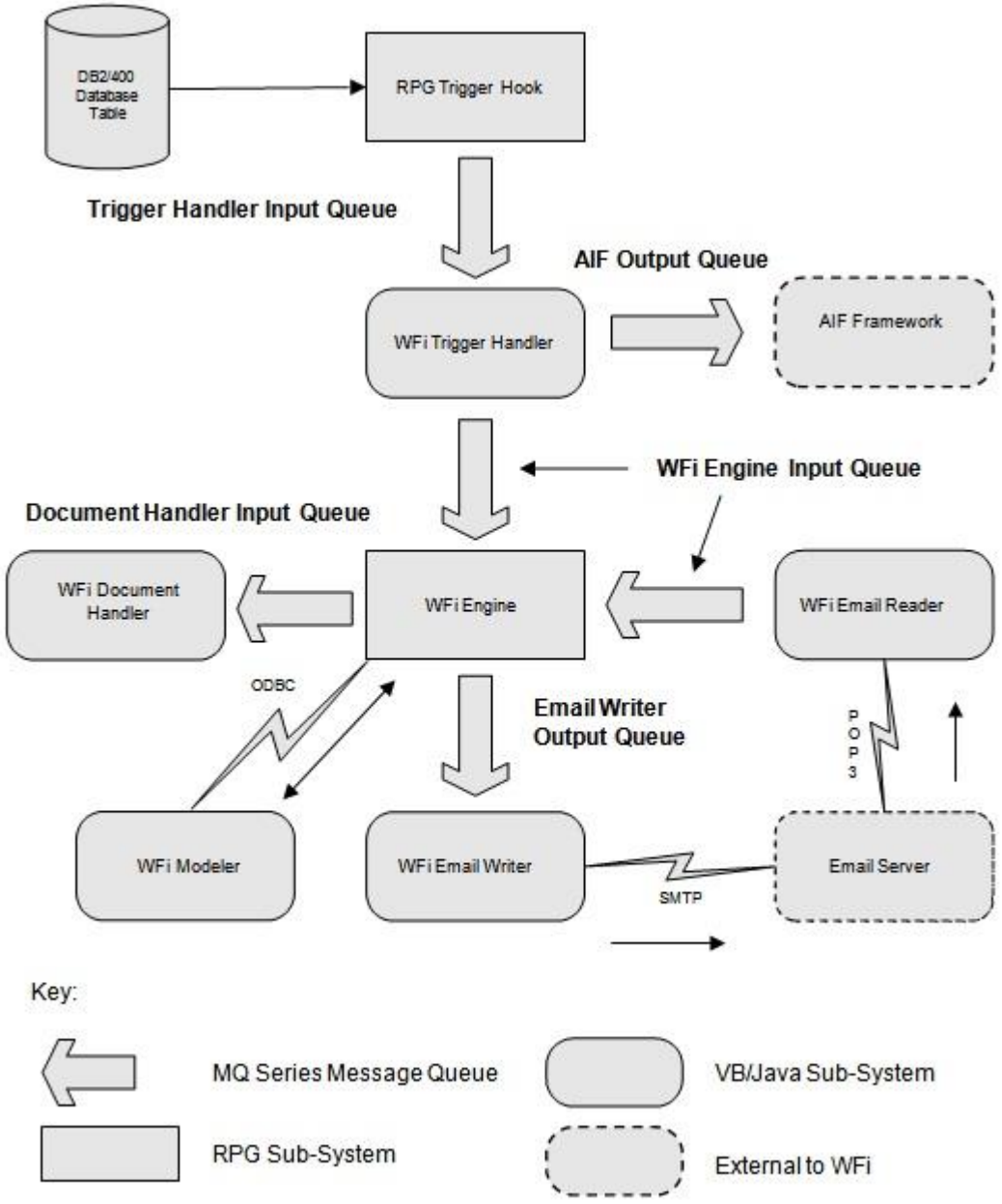
- **WFi Extension Functions**

  These can be called from any XSL stylesheet. They allow direct access to Work Management data from within a stylesheet (i.e. web-based access).

## System Manager

The System Manager (formerly also known as Application Manager) is an IBM i Server based program suite that contains all the function required for creating and maintaining environments, companies, tasks, roles, users, and other meta-data required for the successful execution of a WFi installation. All the programs are accessed from a single menu.

# Overview Diagram



# Chapter 2 Introduction to WFi Modeler

## Introduction

WFi Modeler supports four distinct stages in the successful application of a software solution to achieve business performance improvement. The stages are:

- Business Model
- Reference Model
- Software Model
- Execution Model

## Business Model

The business model is a software independent representation of an organization, in terms of both its structure and processes.

Within WFi Modeler it is possible to create both the Organizational model and the Business model. An Organization Model focuses on the key departments and Users within a Company. It acts as a reference model on which the Business Processes are based.

WFi Modeler enables the Organization Models to be overlaid on to the Business Process Models creating colored Swimlanes. Swimlanes help to immediately identify which elements of the Business Process fall into which area of responsibility and which tasks are assigned to specific roles.

Also known as the AS-IS model.

## Reference Model

A Reference Model provides a structure upon which developments and ideas specific to an organization may be based. Comparison with the best market models may help re-structure the flow of a business. A reference model should provide a solid platform upon which to base development and ideas specific to the organization.

Also known as the TO-BE model.

## Software Model

The Software Model is the stage where software solutions are applied to the organizations business processes. This involves incorporating existing Infor ERP System i activities and usage as well as extending the usage of Infor ERP System i to interface with third party systems and products.

### Execution Model

The Execution Model is the work management solution, designed to proactively drive the business. Once a Business Model has been designed within WFi Modeler, it can be uploaded and activated to the IBM i server to implement a fully managed and automated process workload.

## Data grouping within WFi Modeler

Within WFi Modeler, data is grouped together under the term Application Version. Each Application Version can contain multiple business models, data definitions and user-defined activities. On first installation, the only Application Version available is called Default and it contains only the standard modelling definitions.

Application Versions can be used to separate distinctly different groups of modelling data e.g. an Application Version per company, environment (e.g. live and test) or customer. Data can only be moved between Application Versions via the import/export functions within WFi Modeler.

# Getting started with WFi Modeler

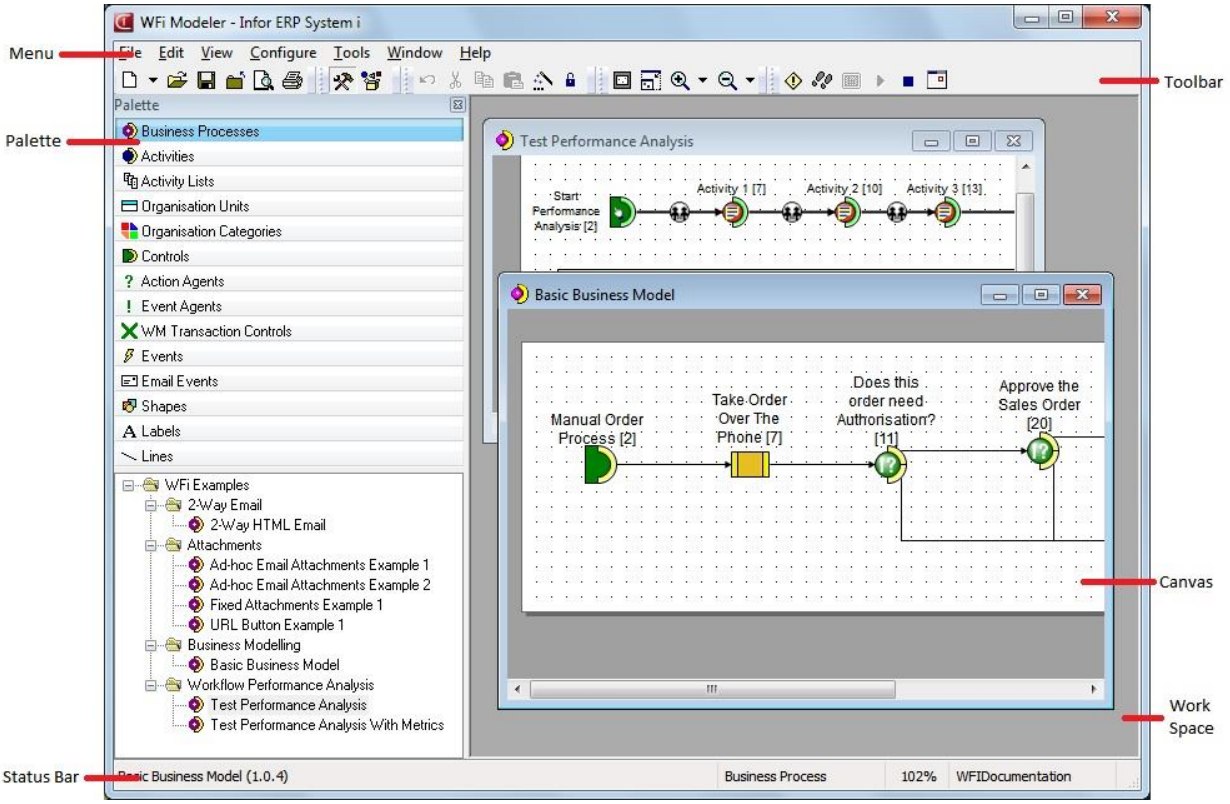
**Caution:** WFi Modeler comes in several editions. Some of the features described below may not appear in some editions (see the Installation Guide for more details). The Developer Edition has been used to produce the documentation below.

## Starting WFi Modeler

To start WFi Modeler, go to the Microsoft Windows Start Menu and select Programs, Infor ERP System i, WFi Modeler, WFi Modeler.

## WFi Modeler Interface

The illustration below presents the WFi Modeler interface…




If the WFi Modeler palette does not show all the items displayed above, then right click on the palette's title bar and select the Show WM Controls options.

WFi Modeler has a multi-document interface (MDI). It allows multiple process models to be open at any time and the facility to switch between them. Each process model is contained within its own child window within the Work Space. The active window is the one whose title bar is highlighted. Windows can be moved and sized within the Work Space. On opening/creation each process model is maximized to fill the entire Work Space area. The child windows can be arranged and selected via the Windows menu.

The content of each child window is known as the Canvas. Elements can be dragged onto the Canvas from the Palette tree view using the mouse to create process models. Items on the Canvas can be moved, and altered, using the mouse to amend and alter the process model. Right clicking on the Canvas and process elements within the Canvas and the Palette tree view displays context-sensitive menus that allow further customization to be applied to the process model.

# WFi Modeler Menus

Several menus are available within WFi Modeler. An overview of their content follows:

| Menu | Description |
|---|---|
| File Menu | Create new models, save, import, and export, print. |
| Edit Menu | Cut, copy, paste data, undo changes, select all modelling objects, arrange objects. |
| View Menu | Controls how the model is viewed. Provides access to the child map. |
| Configure Menu | Configure modelling data, activate, retrieve, and modify data on the Work Management server. |
| Tools Menu | Validate and review processes. Customize WFi Modeler. |
| Windows Menu | Select and arrange child windows within the WFi Modeler MDI. |

## WFi Modeler Toolbar

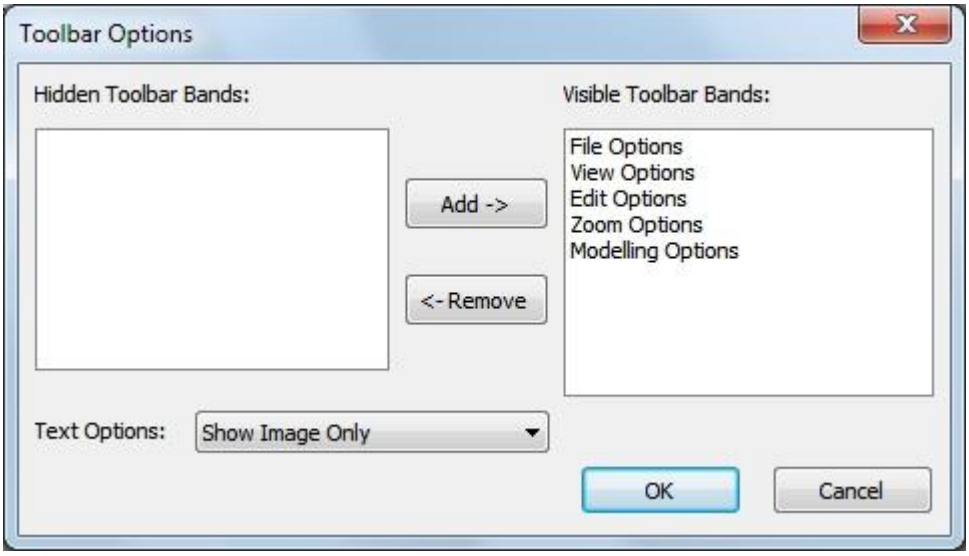
The Toolbar contains the most used commands, which are also accessible through the menus. Here is a brief overview of each item on the toolbar.

| Icon | Overview |
|---|---|
|  | Create a new Business Process / Assembled Activity / Activity List / Organization Unit. |
|  | Open an existing Business Process / Assembled Activity / Activity List / Organization Unit. |
|  | Save any modelling data on the active Canvas within the Work Space. |
|  | Close the active model dialog within the Work Space. |
|  | Preview how the current model will look when printed. |
|  | Print the modelling data on the active Canvas within the Work Space. |
|  | Hide or show the Palette. |
|  | Child Map, which displays the Definition Hierarchy dialog. |
|  | Undo the last change to the model |
|  | Remove and copy the currently selected object(s) on the Canvas. |

| Icon | Overview |
|---|---|
|  | Copy the currently selected object(s) on the Canvas. |
|  | Paste the contents of the copy buffer onto the current Canvas. |
|  | Shows the entire Canvas area within the Work Space dialog adjusting the zoom as necessary. |
|  | Zooms into the Canvas so that the entire design fits onto the dialog. |
|  | Zooms into the Canvas. |
|  | Zooms out from the Canvas. |
|  | Applies a quick alignment algorithm to the current Canvas contents |
|  | Unlocks/locks the Canvas so that elements of the design can/cannot be repositioned using the mouse. |
|  | Validates the modelling data on the active Canvas within the Workspace. This checks whether the Business Process meets the basic design criteria. WFi Modeler displays a validation list, which may be used to correct any errors. |
|  | Starts a walkthrough, which steps logically through the whole process, stopping at each item on the Canvas. |
|  | Stop the current walkthrough of a Business Process or Activity. |
|  | Open the planned schedule dialog for the modelling data on the active Canvas within the Workspace. |
|  | Open the WFi Modeler help. |

If no Business Processes are opened, the Toolbar does not contain **Validate**, **Walkthrough** and **Stop** and some of the options are unavailable.

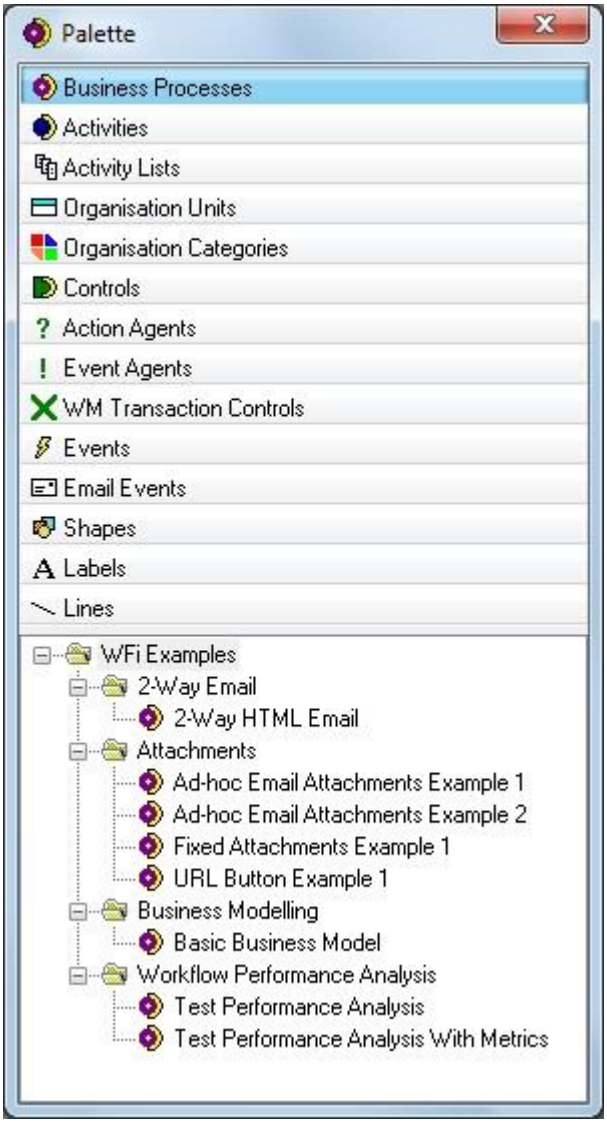
The layout and content of the Toolbar can be altered by clicking the right-mouse button on the Toolbar and selecting the customize option.




The various bands can be shown or hidden by moving them between the two lists. The toolbar can show images, images with text to the right or images with text beneath.

## The Palette

The Palette is the main interface to all the modelling data and controls within the current Application Version.




Selecting each tab alters the data displayed in the tree view. The available Tabs are…

| Tab | Description |
|---|---|
| Business Processes | On selection, the tree view is populated with all the Business Processes within the current Application Version. Business Processes within the tree view can be moved and grouped into folders. |

| Tab | Description |
|---|---|
| Activities | On selection, the tree view is populated with all the Elemental Activities within the current Application Version. Each Elemental Activity represents an actual Infor ERP System i program. This tree view can also include other saved controls such as User Activities and External Activities. Activities within the tree view can be moved and grouped into folders. |
| Activity Lists | No longer used in Infor ERP System i. |
| Organization Units | On selection, the tree view is populated with all the Organization Units within the current Application Version. Organization Units within the tree view can be moved and grouped into folders. |
| Organization Categories | On selection, the tree view is populated with all the Organization Categories within the current Application Version. An Organization Category is a property that can be used by an Organization Unit. Organization Categories within the tree view can be moved and grouped into folders. |
| Components | No longer used in Infor ERP System i. |
| Controls | On selection, the tree view is populated with all the Controls within the current Application Version. Controls are the building blocks of Business Process models and are discussed in more detail below. |
| Action Agents | On selection, the tree view is populated with all the saved Action Agents within the current Application Version. Action Agents can be saved to the palette from within a model so the same definition can be used in other models. Action Agents within the tree view can be moved and grouped into folders. |
| Event Agents | On selection, the tree view is populated with all the saved Event Agents within the current Application Version. Event Agents can be saved to the palette from within a model so the same definition can be used in other models. Event Agents within the tree view can be moved and grouped into folders. |
| WM Transaction Controls | On selection, the tree view is populated with all the saved WM Transaction Controls within the current Application Version. WM Transaction Controls can be saved to the palette from within a model so the same definition can be used in other models. WM Transaction Controls within the tree view can be moved and grouped into folders. |

| Tab | Description |
|---|---|
| Events | On selection, the tree view is populated with all the saved Events within the current Application Version. Events are always automatically saved to the palette from within a model so the same definition can be used in other models. Events within the tree view can be moved and grouped into folders. |
| Email Events | On selection, the tree view is populated with all the saved Email Events within the current Application Version. Email Events are always automatically saved to the palette from within a model so the same definition can be used in other models. Email Events within the tree view can be moved and grouped into folders. |
| Shapes | On selection, the tree view is populated with all the saved Shapes within the current Application Version. Shapes can be saved to the palette from within a model so the same definition can be used in other models. Shapes within the tree view can be moved and grouped into folders. |
| Labels | On selection, the tree view is populated with all the saved Labels within the current Application Version. Labels can be saved to the palette from within a model so the same definition can be used in other models. Labels within the tree view can be moved and grouped into folders. |
| Lines | On selection, the tree view is populated with all the saved Lines within the current Application Version. Lines can be saved to the palette from within a model so the same definition can be used in other models. Lines within the tree view can be moved and grouped into folders. |

The Palette can be docked on the left or the right of the Workspace area or it can be made to float so it can be moved anywhere within the Workspace. To change its position right click on the Palette's title bar and select the desired orientation.

Search through the data within the Palette by either right clicking within the tree view and selecting the Find option or right clicking on the Palette title bar and selecting Find.

## Modelling Controls

Select the Controls tab within the palette to see the various modelling controls that are available.

Create new controls by right clicking the mouse on the Canvas and selecting **New** displays a list of all the controls that can be created.

**Caution:** Elemental Activities (e.g. Infor ERP System i tasks) can only be created using the right-click popup menu. Normally the data for Elemental Activities would be extracted from the server (see below) or imported from standard WFi Processes. Elemental Activities can be configured to execute non-Infor ERP System i tasks, but these still have to be executed through System Manager.


**Caution:** If tree view does not show all the items displayed above then right click on the palette's title bar and select the Show WM Controls option.

Here is a brief overview of each control within the tree view.

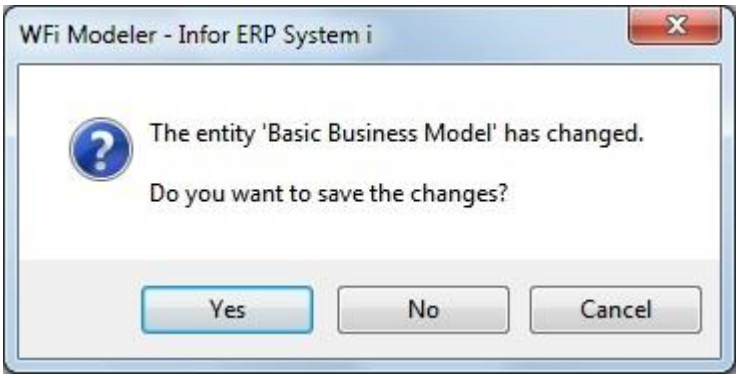
| Icon | Control Description |
|---|---|
| | Start Condition control. Denotes an entry point into the Business Process. Only one path can come out of a Start Condition. A process model must contain one or more Start Conditions. |
| | End Condition control. An exit point for a particular path through the process. Multiple paths can be linked to a single End Condition. A process model must contain one or more End Conditions. |

| Icon | Control Description |
|---|---|
|  | Parallel Path control. Unconditionally splits the incoming path into one or more routes that will be simultaneously executed. |
|  | The User Activity control. This non-WM control is used to denote the manual action of a named user within a business process. A User Activity can have one or more exit paths but will only traverse one of them through any given iteration of the process. |
|  | The Action Agent control. This represents a programmatic decision within the process (that will be evaluated by the WFi Engine). Based on user-defined tests the agent will exit via one or more exit paths but will only traverse one of them through any given iteration of the process. This control should only be used in Execution models. |
|  | The Manual Activity control. This represents a message that allows the recipient to contribute to the flow of a process model. The recipient can be a user, role, sent via email or to an IBM WebSphere MQ Series queue (or combinations of these recipients). Based on the recipient selected option the activity will exit via one or more exit paths but will only traverse one of them through any given iteration of the process. |
|  | The PC Shortcut control. A PC Shortcut is used to insert a PC application function into the process model e.g. Word / Excel documents. This control has a single exit path. |
|  | The Document Splitter control. This is used to apply separate processing to parent and child records within the same Document Type. The parent processing occurs only once but the child processing occurs once for each child record. The exit path can be either just the child document or the child and its parent. This control should only be used in Execution models. |
|  | The External Activity. An External Activity is used to describe a step in a business process. These are process steps that are not related to software. This control has a single exit path. |
|  | The WM Transaction control. This control can be used to cancel any pending activities within the process based on user-defined conditions. This control should only be used in Execution models. |
|  | The Event Agent control. This represents a programmatic decision within the process (that will be evaluated by the WFi Engine). Based on user-defined tests the agent will exit via each path that passes the defined condition. This control should only be used in Execution models. |
|  | The Line control. This is a purely cosmetic control that allows business models to be annotated with lines. The shape, color, style and orientation of the line can be altered. |
|  | The Label control. This is a purely cosmetic control that allows business models to be annotated with text. The font, style, size and orientation of the label can be altered. |
|  | The Shape control. This is a purely cosmetic control that allows business models to be annotated with shapes. The shapes supported are Polygons, Ellipse, Rounded Box and Image. |

| Icon | Control Description |
|---|---|
| | The Event control. An Event is a user-defined condition that initiates a business process. Database events allow complex rules to be applied to Infor ERP System i database changes to determine whether to initiate the process. The Trigger Handler processes database events. This control also supports external events that allow a process to be initiated from a Java program or web site. This control should only be used in Execution models. |
| | The XML Activity control. This control is used to imbed XML technology within a business process. It acts the same as a Manual Activity in that it can be sent to the same recipient set but instead of being a hard-coded message the resulting message data can be generated using a XSL stylesheet. Program calls and logic can be imbedded within this control allowing access to Infor ERP System i and third-party systems at runtime. |
| | The Email Event control. An Email Event is a user-defined condition that initiates a business process when an email is received. The Email Reader processes incoming Email Events. This control should only be used in Execution models. |

# Saving Modifications

When a Business Process that has been modified is being closed, the User is prompted to save the changes.




If an Activities' properties are modified from within the Palette, the changes are local and are not automatically reflected on the Canvas or applied to all the existing copies of those Activities. That is, the copies of the Activity contained in other Business Processes do not contain the changes made.

If items are modified from within the Canvas, the changes are automatically applied to the Palette.

If an Element is present in more than one Business Process and subsequently modified, these changes are not automatically applied to all the existing instances of that Element in other Business Processes. In Child Map is possible to apply the changes made to that Element to all of its instances. Refer the "Auto Update" facility within the Child Map section for further information.

## Closing WFi Modeler

Before closing WFi Modeler, ensure that all processes that have been used are saved and closed.

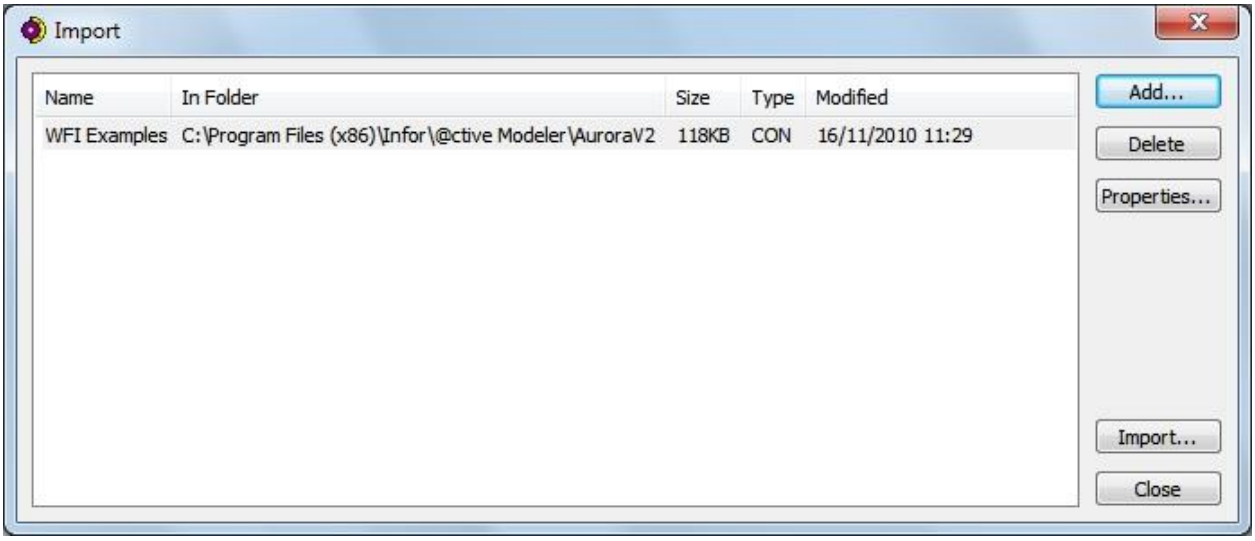
# Importing and Exporting Business Processes

When a Business Process is created, all the information related to it is saved within the Application Version. To share Business Processes, they need to be exported, and then imported into the current Application Version.

## Importing a Business Process

Go to the *File* menu and select the *Import* menu item. The *Import* dialog is displayed.

### The Import dialog




### Fields

| Field | Description |
|---|---|
| Name | Name of the Business Process |

| Field | Description |
|---|---|
| In Folder | Location from where the Business Process is being imported from. |
| Size | Size, in Kilobytes, of the Business Process file. |
| Type | The Entity type of the Business Process. |
| Modified | The date the Business Process file was exported. |

## Functions

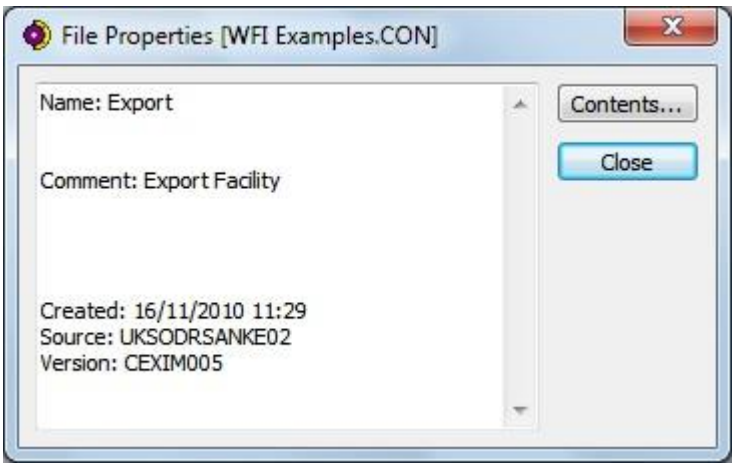
The table contains all the Business Process files that will be imported when the **Import** function is selected. Select a row in the table to carry out the **Delete**/**Properties** functions.

| Action | Description |
|---|---|
| Add… | Select **Add** and select the Business Process to import. This must be stored with a CON extension. The Business Process is added to the list view within the dialog. |
| Delete | Select **Delete** to remove the highlighted Business Process from the import list. This does not delete the physical Business Process file. |
| Properties… | Select **Properties** to open the File Properties dialog, showing the creation date and the author of the CON file. |
| Import… | Select **Import** to import the Business Process. |
| Close | Close this dialog. |

The Properties option opens the File Properties dialog.

The Import option starts the Import process and displays the Progress dialog.

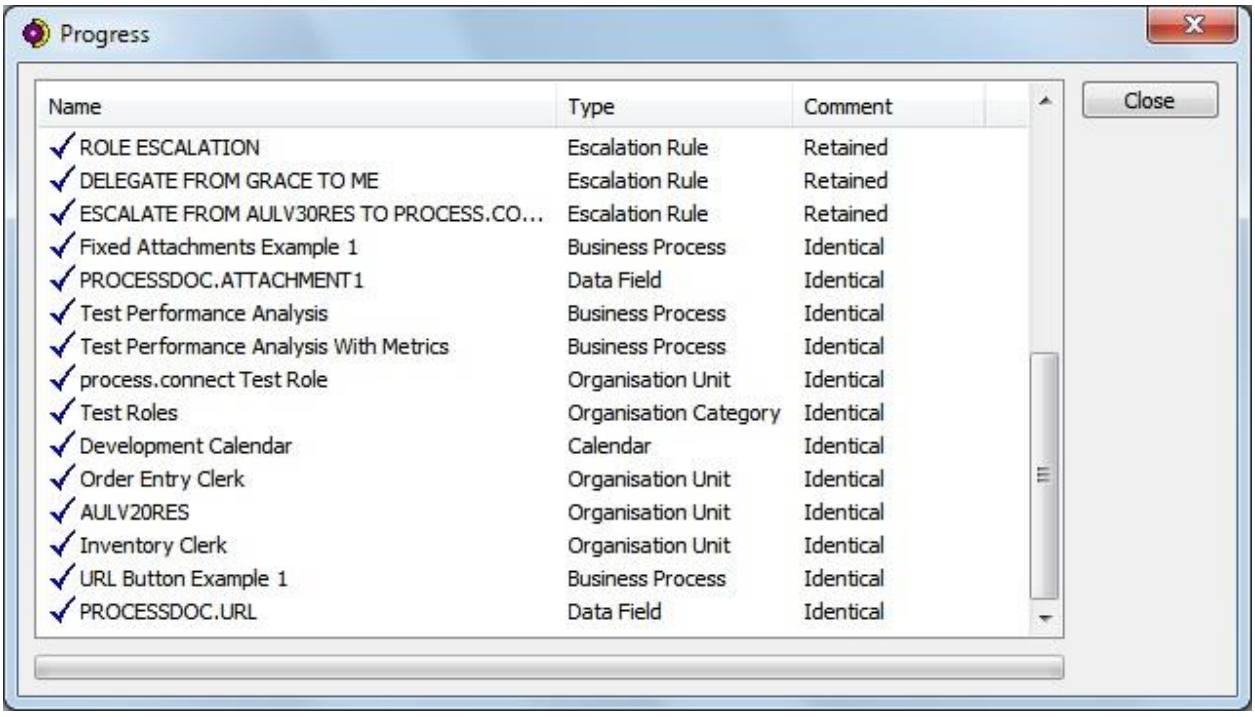
# The File Properties dialog



## Functions

| Action | Description |
|---|---|
| Contents | The detailed contents can be viewed by selecting Contents. |
| Close | Close this dialog and go back to the Import dialog. |

# The Progress dialog



## Fields

| Field | Description |
|---|---|
| Name | Name of the imported Entity. |
| Type | The type of the imported Entity. |
| Comment | The import action performed for the Entity. |

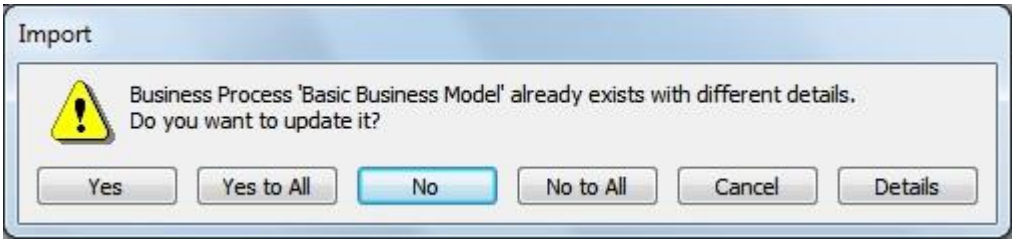
## Functions

| Action | Description |
|---|---|
| Contents | The detailed contents can be viewed by selecting Contents. |
| Close | Close this dialog and go back to the Import dialog. |

A message box is displayed to inform the User when all the Business Process's elements are imported, showing them alongside a blue tick.

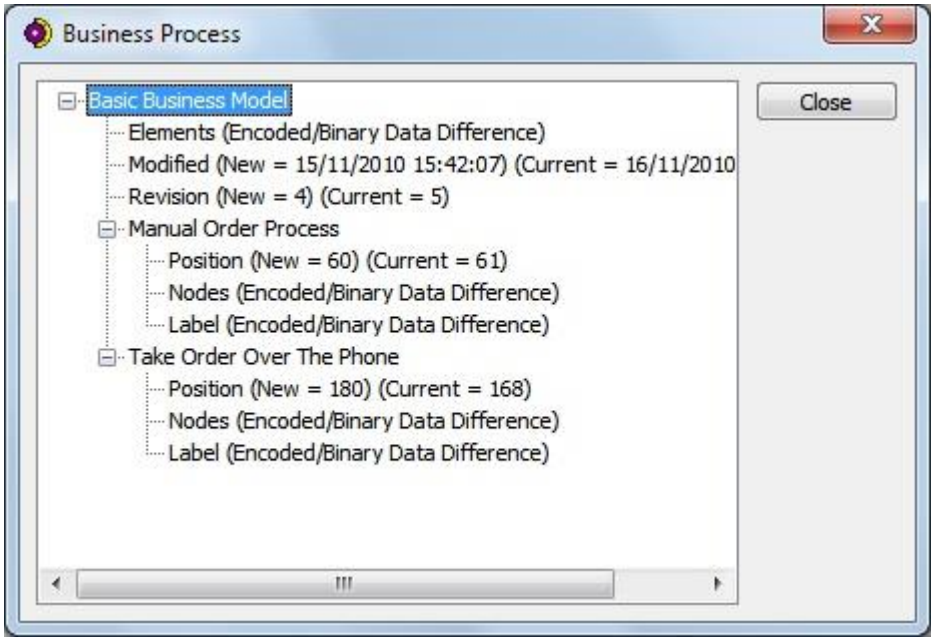
During the import, messages may be displayed if conflicts exist against existing data in the current Application Version.

# The Import Prompt dialog




## Functions

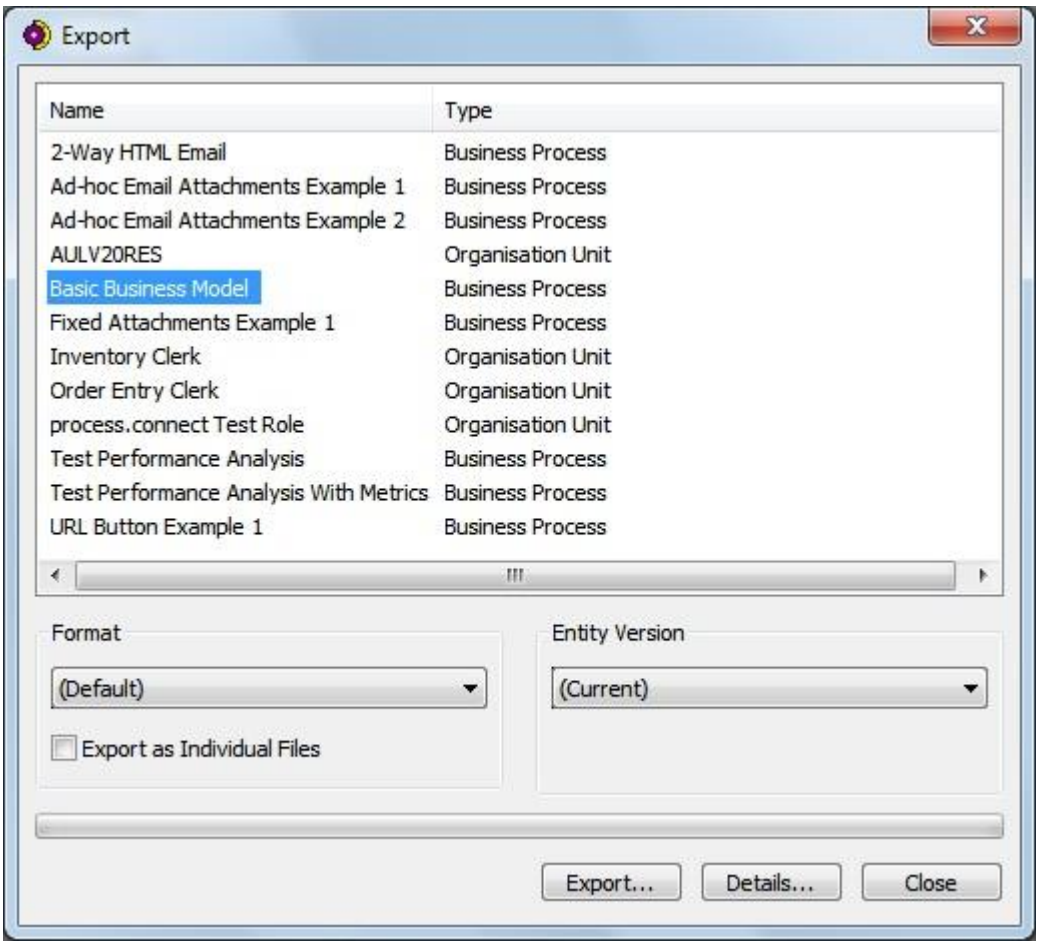
| Action | Description |
|---|---|
| Yes | Select to accept the new version. |
| Yes to All | Select to accept ALL imported data items that conflict with existing data (no further prompts are issued). |

| Action | Description |
|---|---|
| No | Select to keep the existing version. |
| No to All | Select to reject ALL imported data items that conflict with existing data (no further prompts are issued). |
| Cancel | Select to abort the import procedure. |
| Details | Select to show more information about the conflict between the new and existing items. The Business Process dialog will open…   Press the Close button to dismiss the dialog. |

## Exporting a Business Process

Go to *File* menu and select the *Export* menu item. The Export dialog is displayed, showing a list of the Business Processes within WFi Modeler.

# The Export dialog




Select the Business Process in the list to be exported.

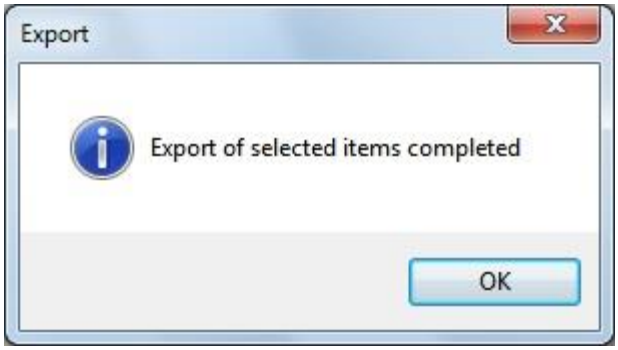
## Fields

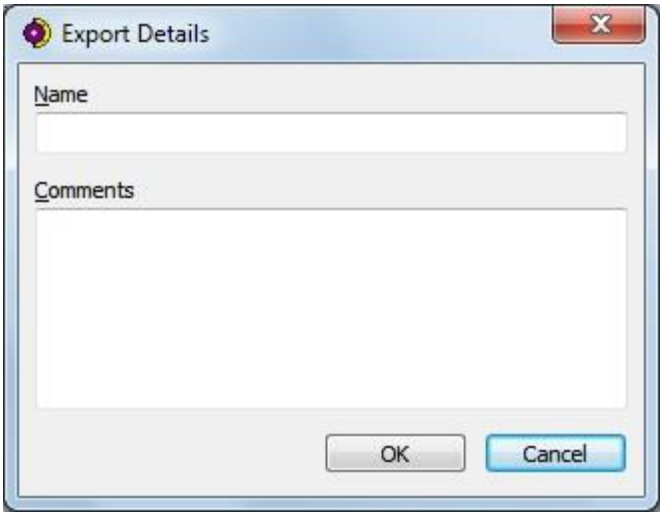
| Field | Description |
|---|---|
| Format | Select the file format of the exported file.<br>• Default<br>You are exporting to a file compatible with the latest version of WFi Modeler.<br>• Pre-Unicode<br>You are exporting to a file compatible with WFi Modeler version June 1999 through to the commerce.platform 2.3 release.<br>• Double Byte (March 99 Edition or Earlier)<br>You are exporting to a file compatible with WFi Modeler version March 1999 or earlier.<br>• XML<br>Converts the internal file format to XML<br>• XML (Indented)<br>As the above but in a more readable form with spaces and line breaks<br>Use one of the XML formats if you are exporting the file for use with the SVG process modelling features, otherwise use the Default option. |
| Export As Individual Files | Unchecked (Default) - You can create a single compressed standalone file, with a .con extension, from one or more files on the Design-Time Database.<br>Checked - You can create individual standalone files, from one or more files on the Design-Time Database.<br>Check this box to create export files in any of the following formats:<br>• Business Process Files (.bpr)<br>• Assembled Activity Files (.act)<br>• Activity Task List Files (.tsk)<br>• Export Files (.con)<br>• Organization Units (.org). |

| Field | Description |
|---|---|
| Entity Version | Select the Entity Version format within the exported file.<br>• Current<br>Format exported entities so they are compatible with versions of WFi Modeler since the September 2001 edition.<br>• January 2000<br>Format exported entities so they are compatible with the January 2000 edition of WFi Modeler.<br>• August 2000<br>Format exported entities so they are compatible with the August 2000 edition of WFi Modeler.<br>• September 2001<br>Format exported entities so they are compatible with the September 2001 edition of WFi Modeler. |

## Functions

| Action | Description |
|---|---|
| Export… | Select to create the file.<br>The Business Process is saved in the User specified directory (with .CON extension if Export As Individual Files is unchecked). A message box informs the User that the Business Process was completely exported… |



| Action | Description |
|---|---|
| Details… | Select to add text to the export file. The Export Details dialog will open…<br>  <br><br>Use the *Name* field to enter the name of the process developer.<br>Use the *Comments* field to enter any details relating to the process.<br>Click **OK** to confirm the details or click **Cancel** to abort them. |
| Close | This closes the Export dialog. |

**Caution:** Where a Business Process contains references to other Business Processes, Elemental Activities, or any other form of WFi Modeler design entity, the Export process ensures that all referenced items are included within the export file generated. It is therefore only necessary to export the top-level Business Process in a large multi-level Business Process design.

# Retrieving Modelling Data

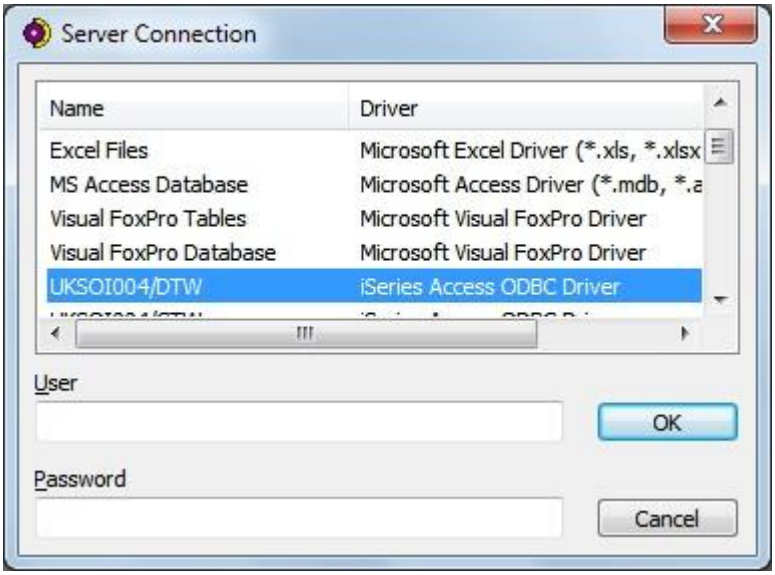
**Caution:** See section 4.3 of the WFi Installation Guide for information on how to configure an ODBC driver for use with WFi Modeler

# Select a Server

To activate or retrieve data from the WFi Engine or System Manager, an ODBC connection is required.

Select *Configure, Work Management, Select Server* option from the WFi Modeler main menu. The Server Connection dialog is displayed.

## The Server Connection dialog

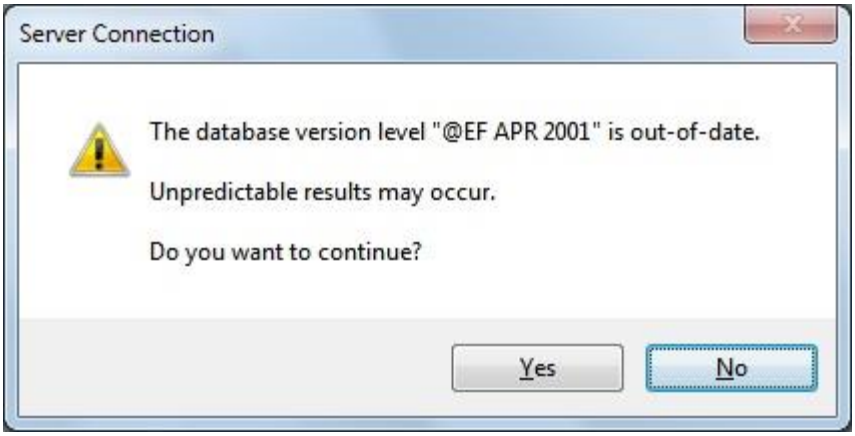



Select an IBM i compatible ODBC connection from the list then enter the login information.

## Fields

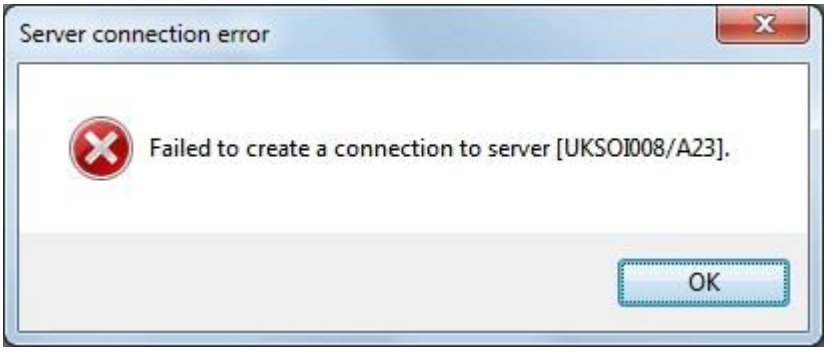
| Field | Description |
|---|---|
| User | An IBM i user account that has authority to write and read data from the WFi Engine and System Manager (e.g. the AULWFADMIN profile created as part of the WFi installation). |
| Password | The password for the IBM i user account. |

## Functions

| Action | Description |
|---|---|
| OK | Connect the ODBC connection.<br>If the version of the WFi Engine files you are connecting to is not correct, you may see the following error...<br>  <br><br>This means you are connecting to an older version of the WFi Engine. If this is intended, click **Yes**, otherwise click **No** and review your WFi Engine installation. |
| Cancel | Abort the connection |

On successful connection, the Connection Succeeded dialog will be displayed…


On un-successful connection, the Server Connection Error dialog will be displayed…



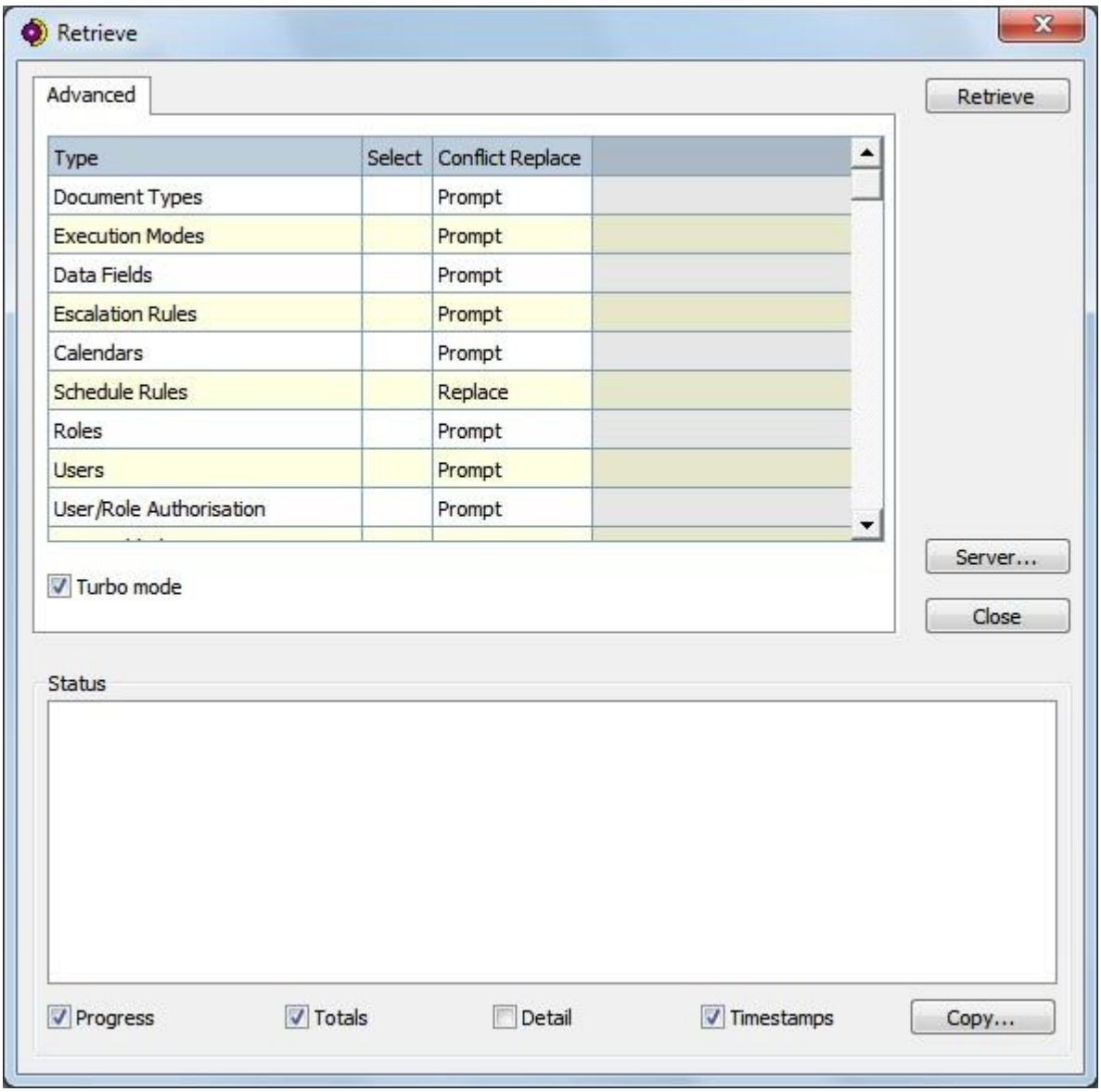

If this dialog is shown you will need to re-connect again to use the Retrieve/Activate function of WFi Modeler.

## Retrieving Modelling Data from System Manager

Modelling data can be retrieved from the IBM i server into the current Application Version being used within WFi Modeler.

Select *Configure, Work Management, Retrieve* option from the WFi Modeler main menu. The Retrieve dialog is displayed.

# The Retrieve dialog



## Fields

| Field | Description |
|---|---|
| Type | There are several types of data that can be retrieved. Put a tick in the Select column to retrieve that data set. The data sets are:<br><br>• Execution Modes - Defines how the WFi Engine runs an activity. There are 5 Execution Modes shipped with WFi Modeler by default but the properties for these can be altered.<br>• Data Fields - Data fields are items of information that can be used within a business model.<br>• Escalation Rules - Escalation rules define what to do with certain activities and/or processes that have not been completed within a user-defined period.<br>• Calendars - Calendars are used within WFi Modeler for Organization modelling and metrics.<br>• Schedule Rules - Schedule rules define when to perform certain activities and/or processes.<br>• Roles - Roles are defined within System Manager and are used to assign certain activities and/or processes to within a process model. Any Activities that are associated with the role within System Manager can also be associated with the role within WFi Modeler (affects recipient links).<br>• Users - Users are defined within System Manager and are used to assign certain activities and/or processes to, with in the process model.<br>• User/Role Authorization - Users can be assigned to zero or more roles within System Manager.<br>• WFi Enabled Activities - Work Management enabled activities within a process are activated to the WFi Engine server during process activation. They appear in the palette under Activities.<br>• Activities from System Manager (by Role) - All activities within a process are defined within System Manager. Activities in System Manager have no WFi Properties associated with them. Activities can be retrieved from the System Manager, if this option is checked, based on which role they are associated with. You will always be prompted to select the Role(s) to retrieve tasks for. They appear in the palette under Activities under folders named after the role.<br>• Activities from System Manager (by Application) - All activities within a process are defined within System Manager. Activities in System Manager have no WFi Properties associated with them. Activities can be retrieved from the System Manager, if this option is checked, based on which Application they are associated with. You will always be prompted to select the Application(s) to retrieve tasks for. They appear in the palette under Activities under folders named after the application. |

| Field | Description |
|---|---|
| Conflict Replace | This defines what to do when the data read from the server already exists within the current Application Version.<br>• Replace - automatically overwrites any existing definition.<br>• Retain - ignores the new data is a matching element already exists, preserving the existing data.<br>• Prompt -shows a dialog containing all the new and existing data conflicts, which allows the user to select which individual data items they wish to update. |
| Status | This text area shows information messages for the retrieval process. The check boxes can be used alter the information shown. |

### Functions

| Action | Description |
|---|---|
| Retrieve | Once the required data to be retrieved has been checked select Retrieve to begin the process. If WFi Modeler does not currently have an active database connection a prompt appears to select the ODBC connection to use. Once the process is complete select Close to begin using the imported modelling data. |
| Server… | For selecting an ODBC connection to use for data retrieval. |
| Copy… | Copy the information from the Status text area into the Windows clipboard for copying to other applications (e.g. Email). |
| Close | Close the dialog. |

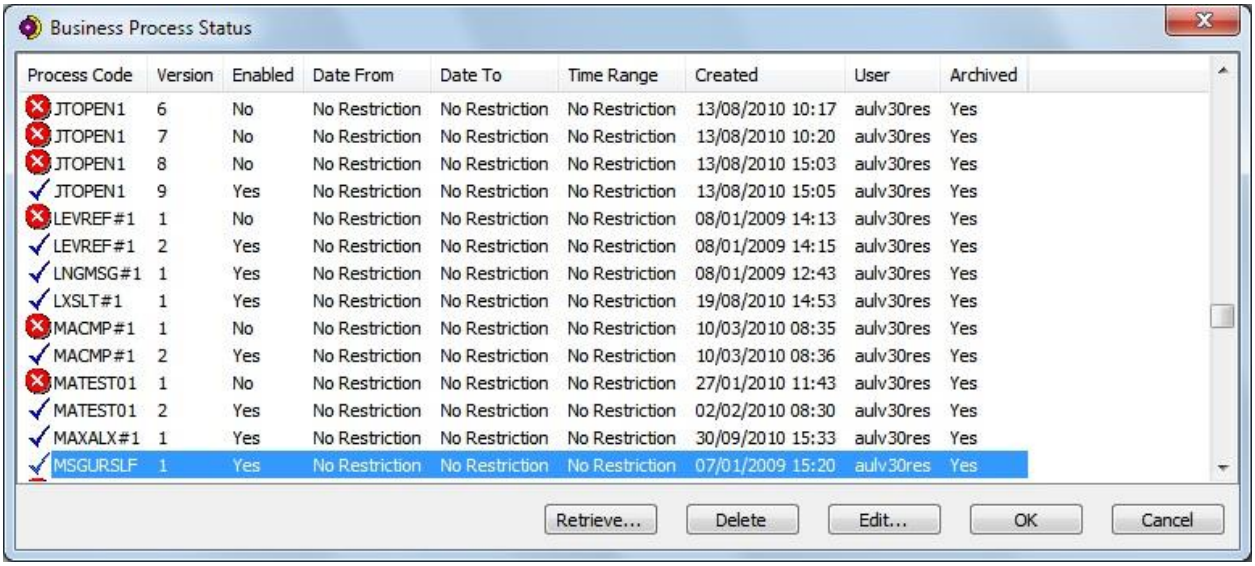
**Caution:** By default, the System Manager data is read from the **AULAMF3** library. If this is not correct for the WFi Engine version installation then it can be altered by opening the **Tools, Preferences** dialog, switching to the **Advanced** tab and then entering the required library name in the **System Manager Files Library** field.

## Retrieving Process Data from the WFi Engine

During process activation, modelling data can be archived within the WFi Engine. To retrieve a process model archived this way open the *Configure, Work Management, Server Management, Manage Processes* dialog. The Business Process Status dialog will be displayed.

**Caution:** This menu option only becomes available once an ODBC connection has been chosen.

## The Business Process Status dialog



## Fields

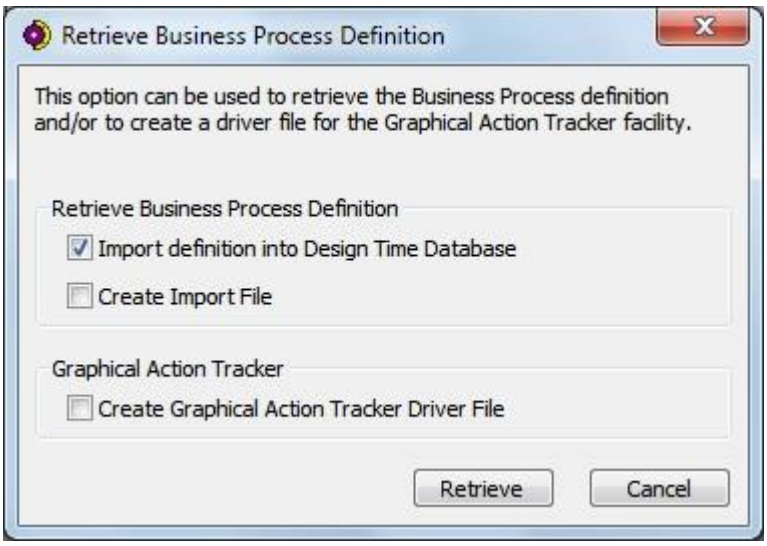
| Field | Description |
|---|---|
| Process Code | The unique Business Process code |
| Version | The version number of the process |
| Enabled | Yes, if enabled, No, if not enabled within the WFi Engine. |
| Date From | Date process is active from. |
| Date To | Date process is active to. |
| Time Range | The time range the process is active. |
| Created | The date and time the process was activated. |
| User | The user who activated the process. |
| Archived | Whether the Business Process model data is archived within the WFi Engine or not (Yes, or No) |

## Functions

| Action | Description |
|---|---|
| Retrieve | See the Retrieve Business Process Definition section |
| Delete | Delete this business process from the WFi Engine. |
| Edit | Edit the Business Process properties within the WFi Engine. You can change the date and time when the Business Process is enabled or permanently enable/disable the Business Process. |
| OK | Apply any changes made to the WFi Engine processes. |
| Cancel | Abort and close the dialog. Any changes will be discarded. |

The archived column shows the processes that can be retrieved from the server. Selecting an archived process enables **Retrieve**. Selecting **Retrieve** displays the Retrieve Business Process Definition dialog…

## The Retrieve Business Process Definition dialog…



### Fields

| Field | Description |
|---|---|
| Import definition into Design Time Database | Check this option to upload the data into the current Application Version. The imported process will appear in the WFi Modeler palette under Business Processes. |
| Create Import File | Check this option to create a file on the local PC that can be given to other WFi Modeler users to import the model into their installations. A File Open dialog will be displayed to define where to put the import file. |
| Create Graphical Action Tracker Driver File | Check this option to create a file for use with the Process Viewer program. The file will be automatically named and put into the runtime data directory. |

### Functions

| Action | Description |
|---|---|
| Retrieve | Select **Retrieve** to begin the process. |
| Cancel | Abort the retrieval process. |

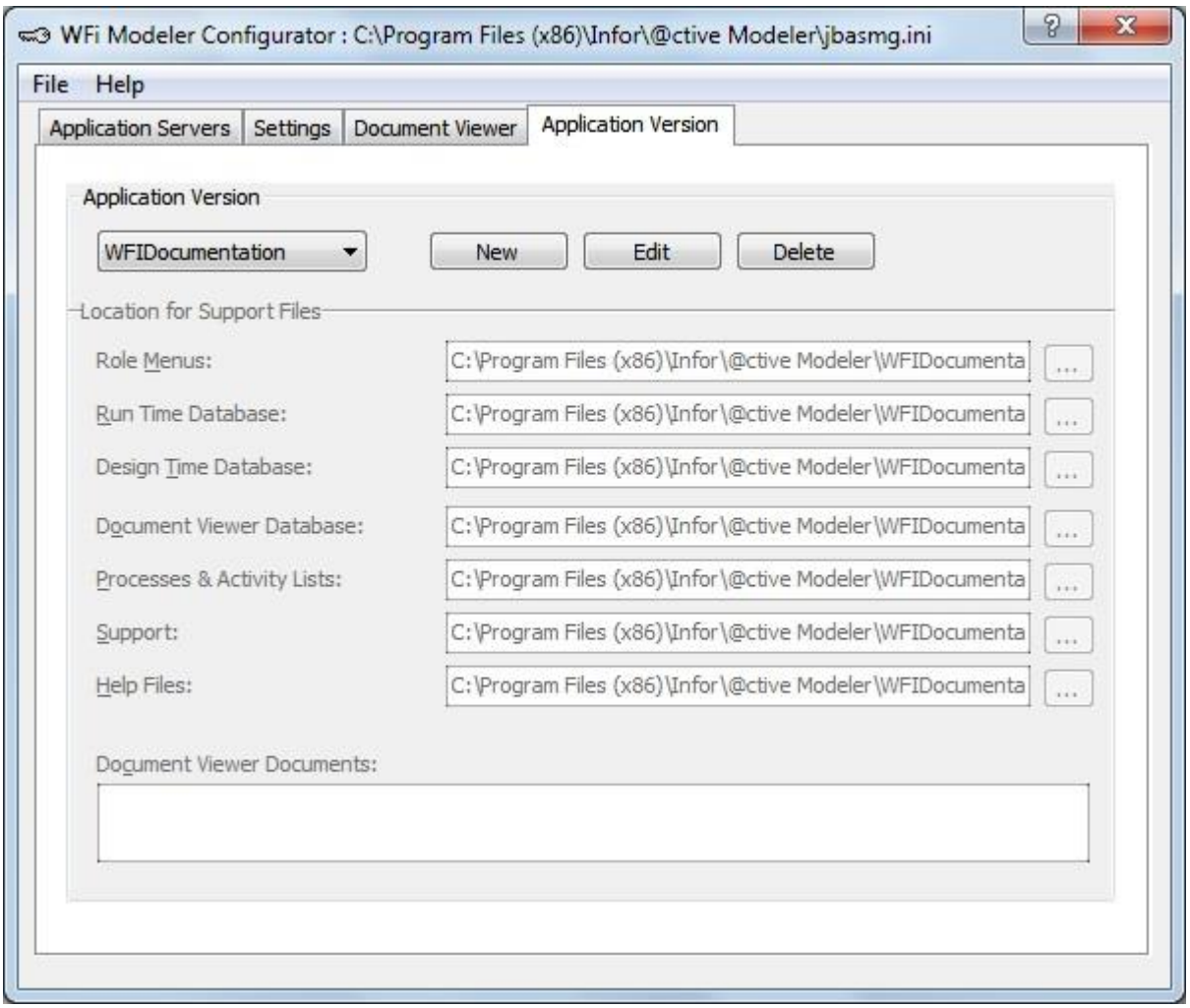
# Configuring WFi Modeler

## WFi Modeler Application Versions

Accessed via Microsoft Windows *Start* menu, *Programs*, *Infor ERP System i, WFi Modeler, WFi Modeler Configurator*.

Use this program to create a new application version. Multiple WFi Modeler Application Versions may be created. A possible reason for wanting to create a new Application Version is when dealing with different companies or departments within an organization. In this case an Application Version for each company may be created to hold their individual design time information. Select the Application Version tab.

# WFi Modeler Configurator's Application Version tab

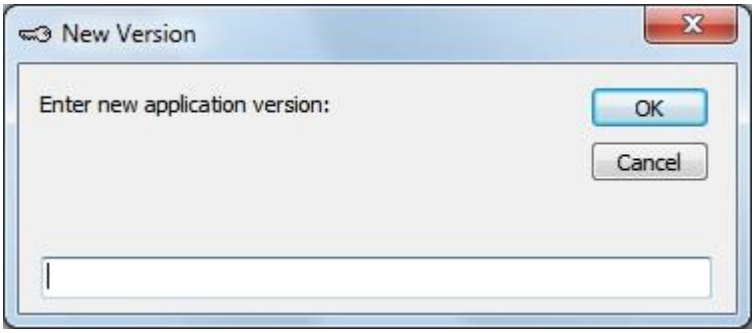



## Fields

| Field | Description |
|---|---|
| Location for Support Files | These paths are set up automatically when creating a new application, but most of them do not actually need to be modified. |
| Role Menus | The path to the Role Menu files. |
| Run Time Database | The path to JBARTime.mdb, the database holding the run time details. This includes details for roles and users. |
| Design Time Database | The path to JBADTime.mdb, the database holding the design time details. |

| Field | Description |
|---|---|
| Processes & Activity Lists | The path to the files imported and exported within WFi Modeler. |

## Functions

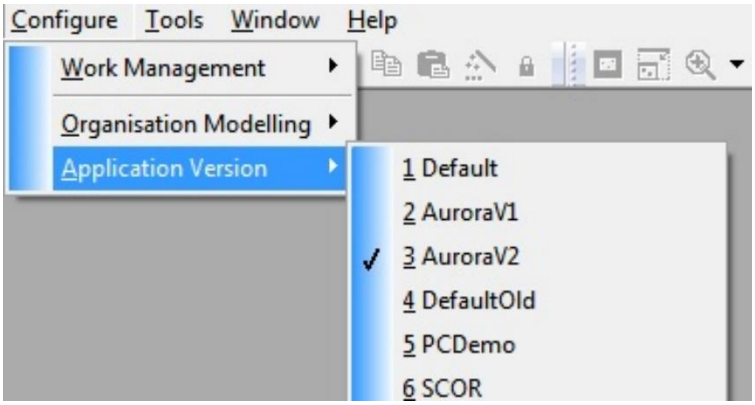
| Action | Description |
|---|---|
| New | Select **New** and, when prompted, give a name to the new Application Version, e.g. Education.<br>  <br><br>This sets up a new sub-directory within the WFi Modeler installation directory, where all the local relevant files may be stored. WFi Modeler automatically changes all the paths within the Location for Support Files frame.<br><br>**Caution:** The information related to every item created within WFi Modeler is stored in a design time database. Do not attempt to edit this database using tools such as Microsoft Access as data corruptions will occur.<br><br>**Caution:** The design time database may not be shared between multiple copies of WFi Modeler (i.e. placed on a central server). Doing this can cause program failure and data corruption. |
| Edit | Edit the paths for the existing Application Version selected. |
| Delete | Delete the Application version.<br><br>**Caution:** This does not delete the physical Application Version files and folders from your PC. |

Before closing WFi Modeler Configurator, save the new configuration. Chose the Save Configuration File option from the File menu.

When System Configuration is exited, a message box prompts for the creation of the *Data* subdirectory within the new application version directory (answer yes to this prompt). By default, this directory is empty. Copy into it the two databases, `JBADTime.mdb` and `JBARTime.mdb` (either from the installation disk or from an existing installation).

If WFi Modeler is open, it needs to be closed and restarted for the changes to take effect.

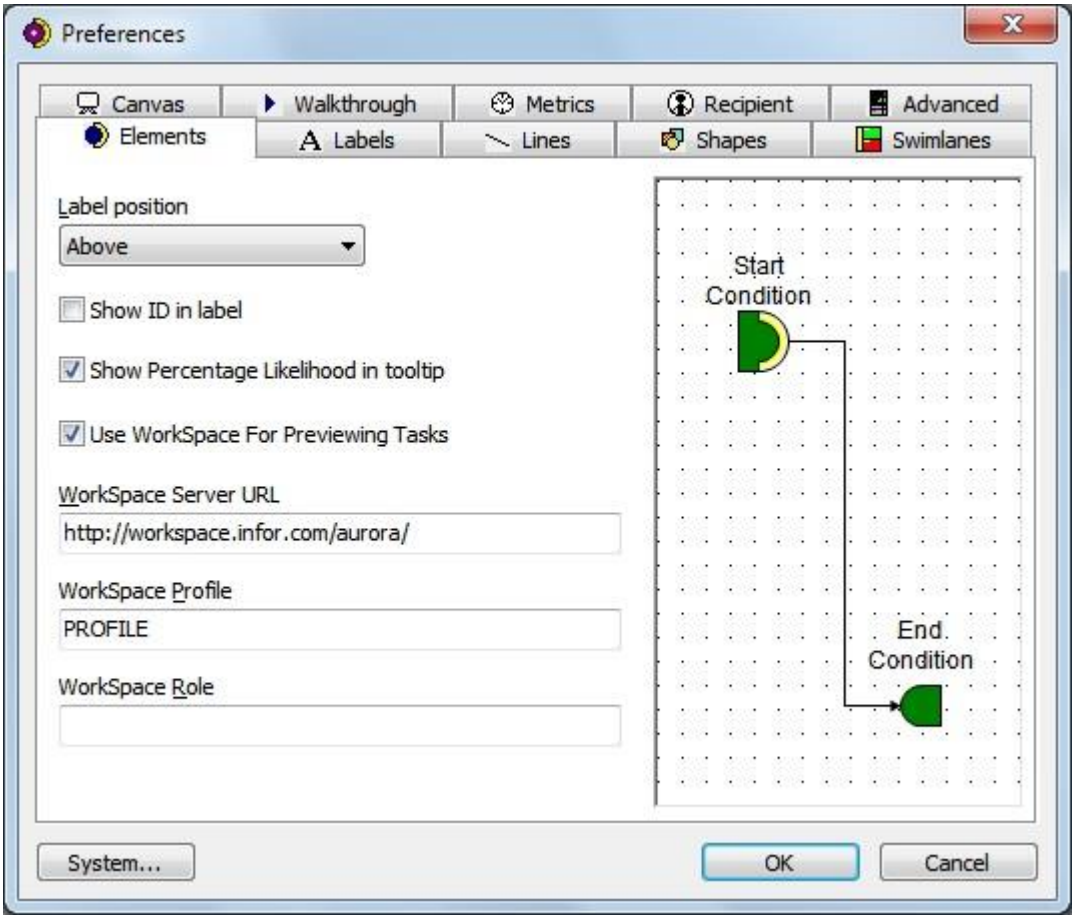
Select the required application version from the *Configure, Application Version* option off the main menu in WFi Modeler.




# Preferences

To customize the look of the Canvas and other WFi Modeler features, select *Preferences* from the *Tools* menu in WFi Modeler. The Preferences dialog will open…

# The Preferences dialog




**Caution:** WFi Modeler does **not** need to be restarted for changes made in this dialog to take effect.

The **System** button within the Preferences dialog launches the WFi Modeler Configurator. Click **OK** to apply any changes or click **Cancel** to discard any changes. The Preferences tabs contain the following functionality…

| Tab | Description |
|---|---|
| The Elements Tab | Alter the default label position, choosing from the positions supplied in the Label Position list. To display the labels ID, select the Show ID in label option. The user can also define the System i Workspace name, profile, and role code to be used when launching Elemental Activities (either from the Preview option on the elements context menu or during a Walkthrough). |

| Tab | Description |
|---|---|
| The Labels Tab | The default font, color and alignment for labels may be modified. The value within the Word-wrap width field sets the default width of the label. |
| The Lines Tab | The lines that link the design items may be either orthogonal or straight and may contain arrows of different styles and dimensions. |
| The Shapes Tab | Alter the default shape, fill color, fill pattern, and border line color for the shape control. |
| The Swimlanes Tab | Swimlanes allow the subdivision of the Canvas into different colored bands, each of which identifies a different responsibility area within the organization. Swimlanes may be turned on or off. They may contain a caption and a colored rectangle around it; this is referred to as a tab. The caption's font and color and the tab color and may be changed. If more than one person is responsible for the same Element, a line from that Element may be drawn to another Swimlane. This line is referred to as spanning. The spanning may be set to be visible or not. |
| The Canvas Tab | A plain color for the background may be chosen, by selecting it amongst the colors available within the Color palette. A picture to be used as the Canvas background may be opened from the Picture field. The default Canvas size can be selected along with the default Zoom settings. A grid is available to facilitate the positioning and alignment of items on the Canvas. Different grid granularities are provided. |
| The Walkthrough Tab | The walkthrough of the Business Process may be animated: an icon may move on the links between the items on the Canvas. |
| The Metrics Tab | The default cost and time units can be set. |
| The Recipients Tab | Define the default recipient type/priority and the default recipient values for the Role, User, Email and MQ recipient types |
| The Advanced Tab | The default paths and libraries used by WFi Modeler can be set. |

# Other Useful WFi Modeler Features

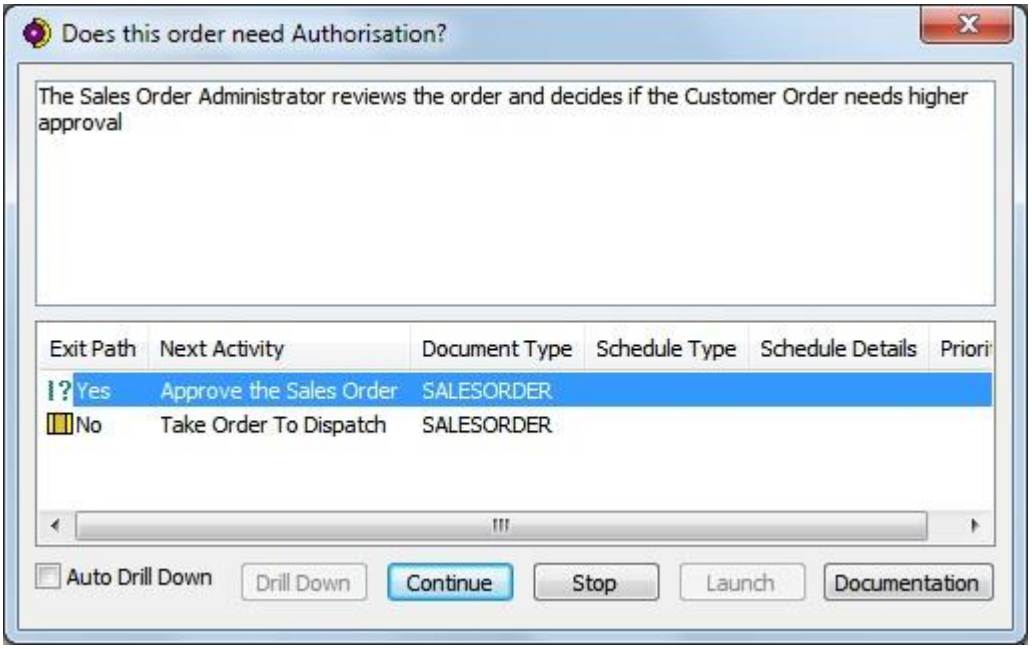
The following features of WFi Modeler were designed to help in the development of business models.

# Walkthrough the Business Process

To check the flow of the process a Walkthrough may be performed. This follows the flow of the process and displays the steps involved at each stage. A Walkthrough may be performed on the whole process or from a selected point. Walkthroughs are initiated using the button on the toolbar or from the *Tools* menu. Walkthroughs can be used from a higher-level process through each tier of embedded processes or they may be used at a single tier only.

The Walkthrough stops at each activity and provides a list of actions relevant to that activity. This allows the designer to select the subsequent path and hence trace each possible step in a process.

## The Walkthrough an Activity dialog




## Functions

| Action | Description |
|---|---|
| Auto Drill Down | The Auto Drill Down check box is used when a Business Process contains an embedded Business Process. When Auto Drill Down is checked, the Walkthrough automatically enters all embedded processes from that point onward. |

| Action | Description |
|---|---|
| Drill Down | Drill Down is used when a Business Process contains an embedded Business Process. This allows the full path to be shown by ‘drilling down’ into the embedded process and to follow the steps involved in that process before returning to the parent process. Drill Down applies only to selected embedded processes. |
| Continue | Continue will move to the next Element selected in the Exit Path list. |
| Stop | Stop halts the walkthrough at that point. |
| Launch | Launch starts the associated application, hence allowing the designer to determine if the correct application has been selected. |
| Documentation | Launches the Document Viewer and allows the designer to check the standards and associated documentation where available. |

The User can decide the path of the Walkthrough by selecting the appropriate exit path and selecting Continue. The Walkthrough continues onto the next activity or the end condition as appropriate.

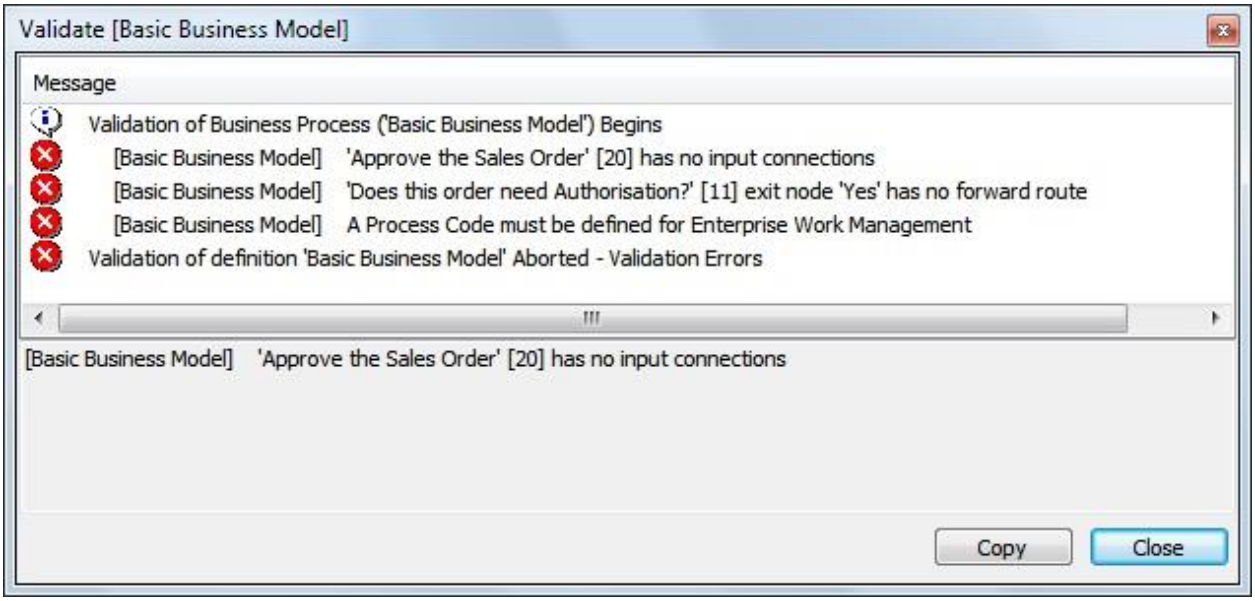
As each link is completed within the model, it changes color to highlight the followed path. The progress icon indicates the current stage of the Walk Through.

# Validating a Process

Validation of Business Processes may be performed to ensure that the contents meet the design criteria. Select the Validation from the Tools menu in WFi Modeler to open the Validate dialog.

## The Validate dialog

WFi Modeler shows a validation list to allow you to examine and correct possible errors…




## Fields

| Field | Description |
|---|---|
| Message | A list of Validation messages.<br>The “red-cross” icon denotes an error (the Business Process is invalid, fix the problem(s) reported).<br>The “yellow triangle” denotes a Warning (the Business Process is valid, but you should review this). The “speech bubble” denotes an informational message. |

## Functions

| Action | Description |
|---|---|
| Copy | Copy the selected message to the Windows Clipboard. |
| Close | Close the dialog. |

The list denotes whether all the output nodes are correct, whether document flow is correct, whether all the input conditions are satisfied and whether all the necessary connections have been made.

Validation is mainly a Work Management tool, though basic tests might be performed also for Software Modelling. When the *Validate* menu is selected for Software Modelling, a lot of warnings and/or errors are listed too; most of them are Work Management related and should not be considered.

**Caution:** The messages you see will vary dependent on the version of WFi Modeler you are using.

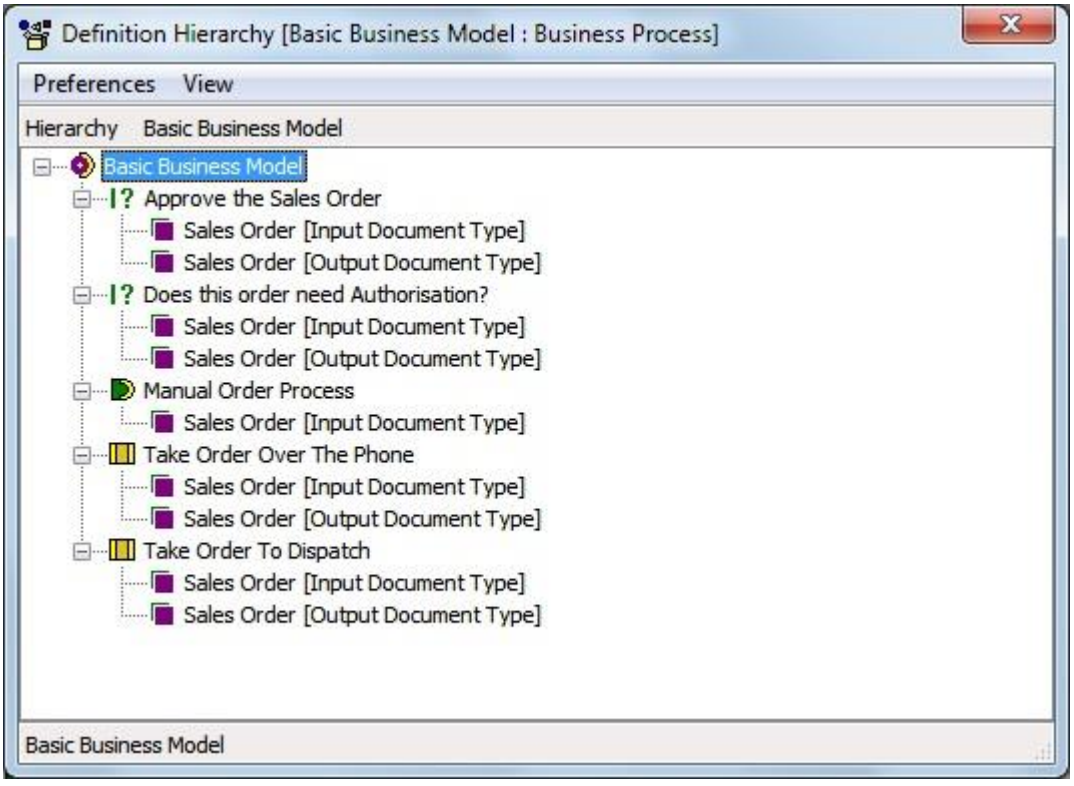
# Child Map

The *Child Map* menu item opens the *Definition Hierarchy* dialog

## The Definition Hierarchy dialog

The *Definition Hierarchy* dialog provides different views of where an item is used. If an item is used in more than one Business Process, and these Business Processes have a parent/child relationship, it is also possible to view that hierarchy.

If the *Where Used/Parent Hierarchy* menu item of the *View* menu is not selected, Child Map shows the process and its constituents, but not where it is used i.e. if it was a constituent of another process this would not be shown.



## Functions

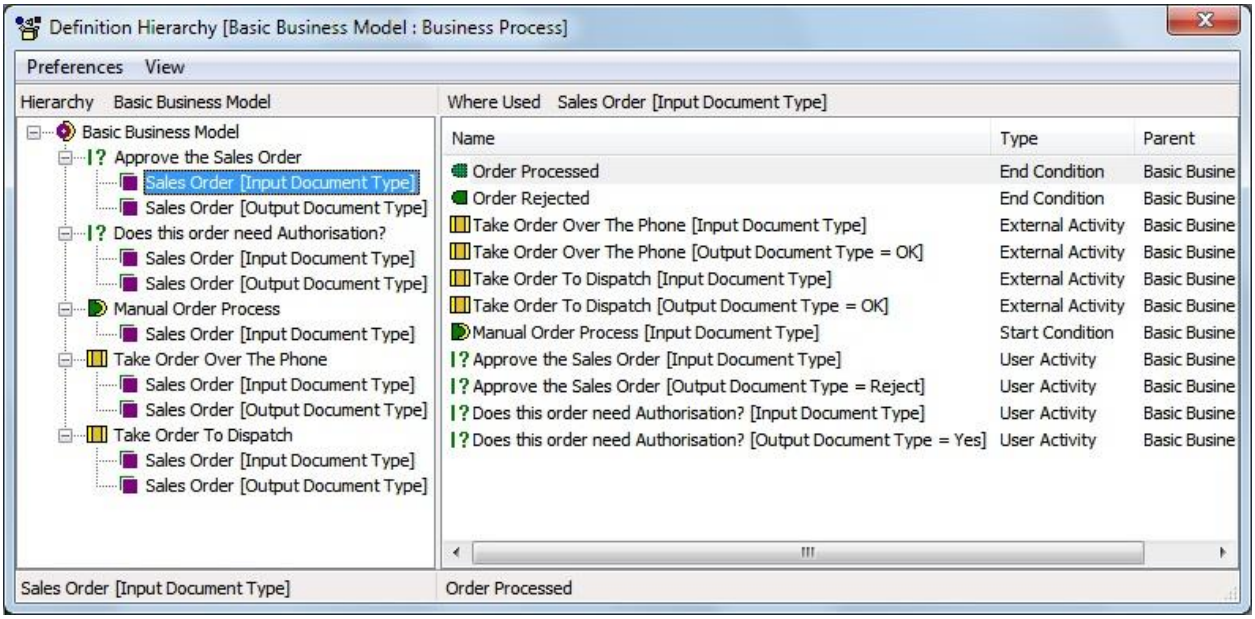
### Preferences Menu

| Action | Description |
|---|---|
| Path Preferences | Displays the Child Map Path Settings dialog. |

### View Menu

| Action | Description |
|---|---|
| Where Used/Parent Hierarchy | Show/hide the Where Used/Parent Hierarchy section of the Child Map dialog. |
| Configure, Where Used | Select to show the Where Used data. |
| Configure, Parent Hierarchy | Select to show the Parent Hierarchy data. |
| Show Entity Hierarchy Only | Toggle the detail shown in Hierarchy section of the Child Map display. |
| Refresh | Refresh the data within the Child Map. |

By selecting the Where *Used/Parent Hierarchy* menu item, a second area appears on the dialog. Its content depends on what is selected within the *View*, *Configure* sub menu.



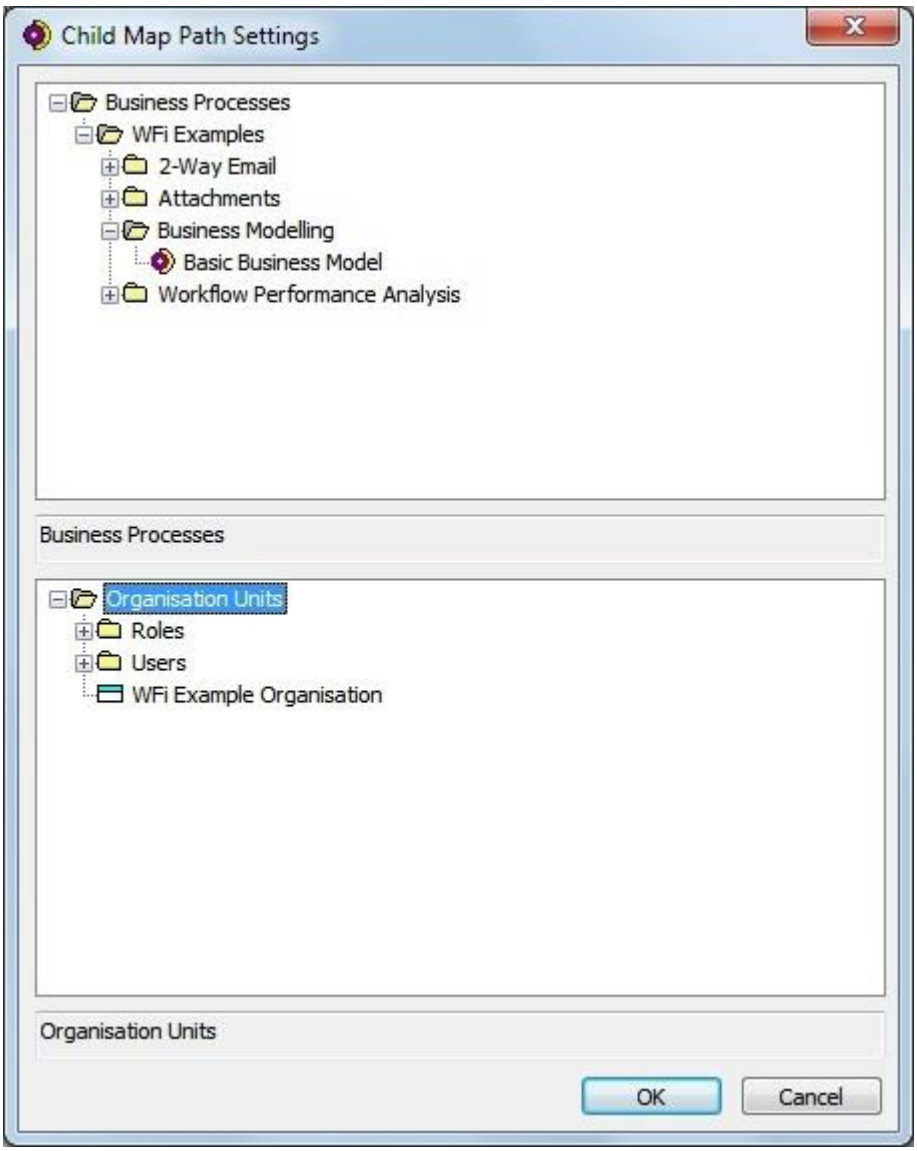

The content of the *Configure* sub menu changes by selecting it: *Parent Hierarchy* changes to W*here Used*. If the *Where Used* sub menu item is selected, the area on the right hand-side of the dialog shows only the Business Process in which a process is directly contained.

When an Elemental Activity is contained in more than one Business Process and its properties are amended in one of the Business Process, those changes are not automatically applied to all the copies of the Activity. In the Child Map there is an option available to update all the Business Processes with the changes made. From *Where Used* view selects one or more Business Processes on the right hand-side area and from their context sensitive menus select *Auto Update*.

If the Parent Hierarchy sub menu item is selected, the right hand-side area of the dialog shows the hierarchy of Business Processes in which a process is contained.

The *Path Preferences* menu item allows you to restrict the Child Map to only a subset of Business Processes or Organization Units via the Child Map Path Settings dialog.

## The Child Map Path Settings dialog.




You can only select a single Business Process or Organization Unit.

If the Processes are grouped in the Palette, then the Child Map Path Settings dialog can subset the Application Version to only review the group selected. This may be preferred because it results in a quicker search, as only a subset of Business Processes are searched.

### Functions

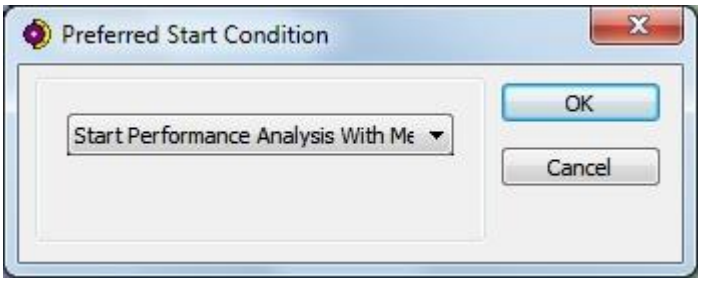
| Action | Description |
|---|---|
| OK | Use the selected Entity in the Child Map. |
| Cancel | Discard and return to the Child Map. |

## Business Process Metrics and Analysis

As part of the support for Process Rescheduling as exploited by the WFi Engine, several metrics can be associated with each activity within a business process definition. By using the *Planned Schedule* feature, it is possible to size a complete business process definition in terms of total execution time, where the process is deemed to execute down the configured preferred path. The actual time taken to execute a process from start to finish can therefore be estimated using the same metrics meta-data as that which is activated and utilized by the WFi Engine to implement checking of activity starting and termination time-stamps.

If your Business Process has multiple Start Conditions that are set as Preferred Paths, you will be prompted to select the Start Condition to use to calculate the Planned Schedule.

### The Preferred Start Condition dialog



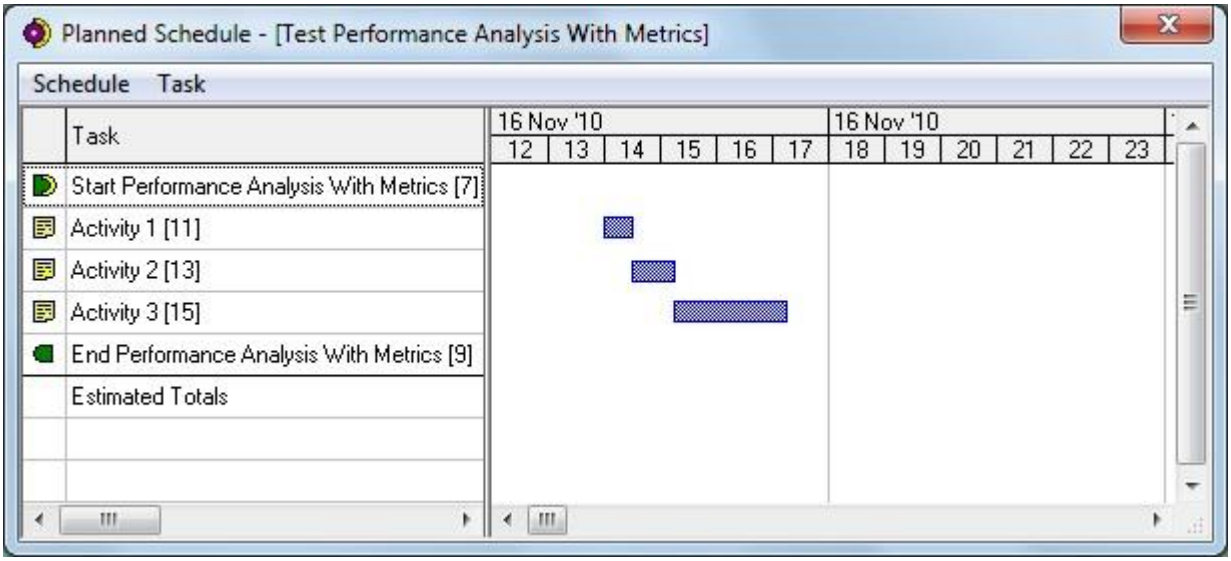

Use the drop-down list to select the Start Condition to use.

## Functions

| Action | Description |
|---|---|
| OK | Open the Planned Schedule using the selected Start Condition. |
| Close | Abort the Planned Schedule. |

# The Planned Schedule dialog

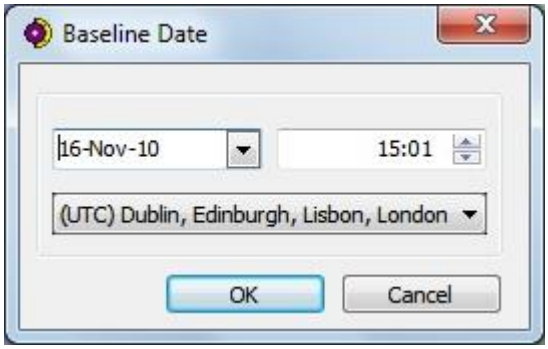
The Planned Schedule dialogue presents the process flow in a linear fashion, considering parallel paths and multi-level business processes. A Gantt chart view is also available which displays the process in a time-oriented view.




## Functions

**Schedule Menu Options**

| Action | Description |
|---|---|
| Start Condition | Change the selected Start Condition. Displays the Preferred Start Condition dialog. |

| Action | Description |
|---|---|
| Baseline Date | Set the start date for the Start Condition to take place on. Select the date using the Baseline Date dialog.<br>  |
| Timeline Unit | Set the time unit used by the Gantt chart from one of minutes, hours, days and weeks. |
| Move to Baseline | Reposition the Gantt chart back to the current Baseline Date. |
| Save | Save any changes made to the metrics back to the Business Process. |
| Print | Print the Planned Schedule data. This does not include the Gantt chart. |
| Export | Export the Planned Schedule data to Microsoft Office Excel, Lotus 1-2-3 or the Windows Clipboard. |
| Exit | Close the Planned Schedule dialog. Additionally, when the Planned Schedule is terminated, an option is available to update any processes to reflect any meta-data changes made. |

**Caution:** The Task Menu options only become available when you select an activity within the list (also available via the Context Menu).

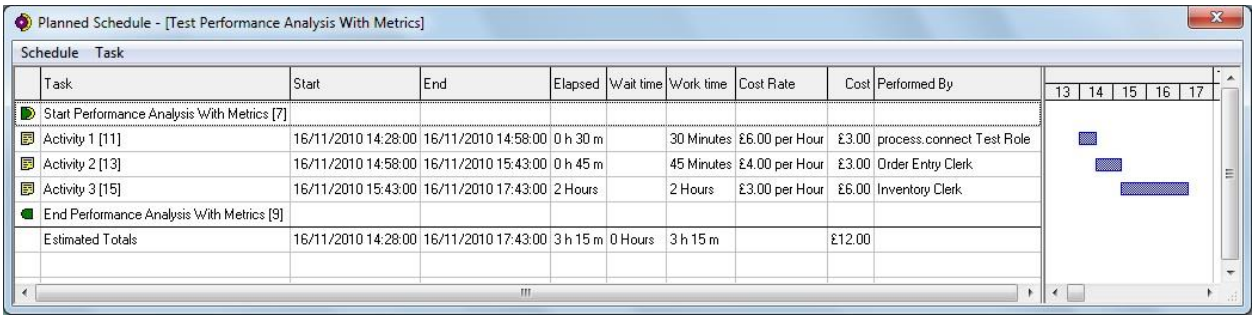
### Task Menu Options

| Action | Description |
|---|---|
| Metrics | Allows the alteration of the metrics for the selected activity. Displays the Task Metrics dialog. |

| Action | Description |
|---|---|
| Calendar | Allows the alteration of the calendar associated for the selected activity. Displays the Edit Calendar dialog. |

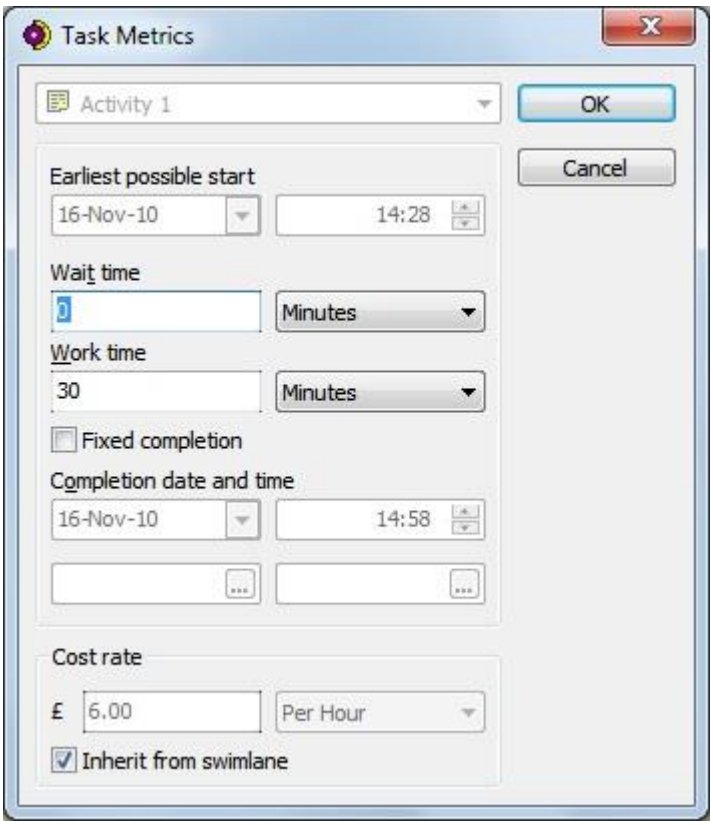
Where costs have been configured against either Organization Units or explicitly against an activity recipient, the Planned Schedule also includes a breakdown of costs. Where calendar data has been configured against Organization Units, the Gantt chart and timings take this into account by using a "seed" process starting timestamp.

To view the full cost data, click and hold the mouse on the vertical bar and drag to the right.




The metrics meta-data can be edited in-situ from within the Planned Schedule such that changes envisaged can be previewed immediately. Double-click on a task or use Metrics from the File or Context Menu.

# The Task Metrics dialog



## Fields

| Field | Description |
|---|---|
| Earliest Possible Start | Displays the earliest date and time this activity can start. |
| Wait Time | Change the delay time before this activity can commence. |
| Work Time | Change the time this activity takes to process. |
| Fixed Completion | Check this to hard code the time this activity will complete. |
| Completion date and time | Set the date and time that this activity will complete. Data fields can be used to compute these values. |
| Cost Rate | The per-unit cost of this Activity. Only enabled if Inherit from Swimlane is unchecked. |
| Inherit From Swimlane | Check to inherit per-unit cost data from the Swimlane (Organization) properties for the role/user associated with this activity. |

## Functions

| Action | Description |
|---|---|
| OK | Apply the changes to the Planned Schedule. |
| Cancel | Discard the changes. |

# Chapter 3 Using WFi Modeler

## Introducing Business Modelling

The business model is a software independent representation of an organization, in terms of both its structure and processes.

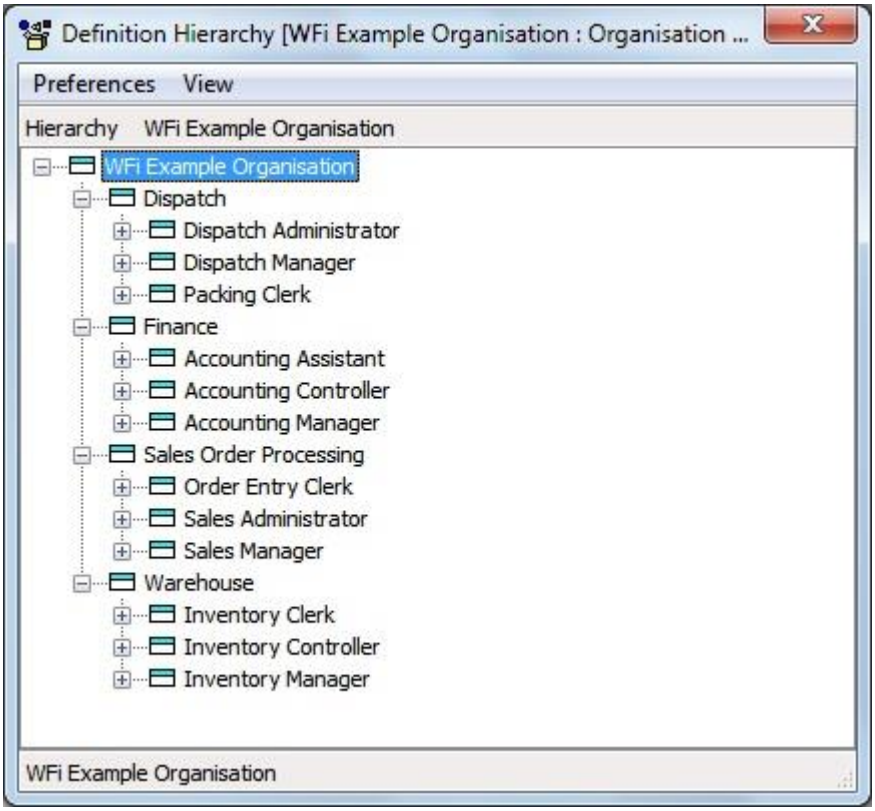
Within WFi Modeler, it is possible to create both the Organizational Model and the Business Model.

## The Organizational Model

An Organization Model focuses on the key departments and Users within a Company. It acts as a reference model on which the Business Processes are based.

Within WFi Modeler, you can create Organization Units to represent the departments, roles and users within your company. You can link these units together to create a hierarchy.

The view that WFi Modeler within the Organization Unit canvas offers is restricted to two levels at a time, however it is fully hierarchical. The full hierarchy can be viewed via the Child Map facility, E.g.

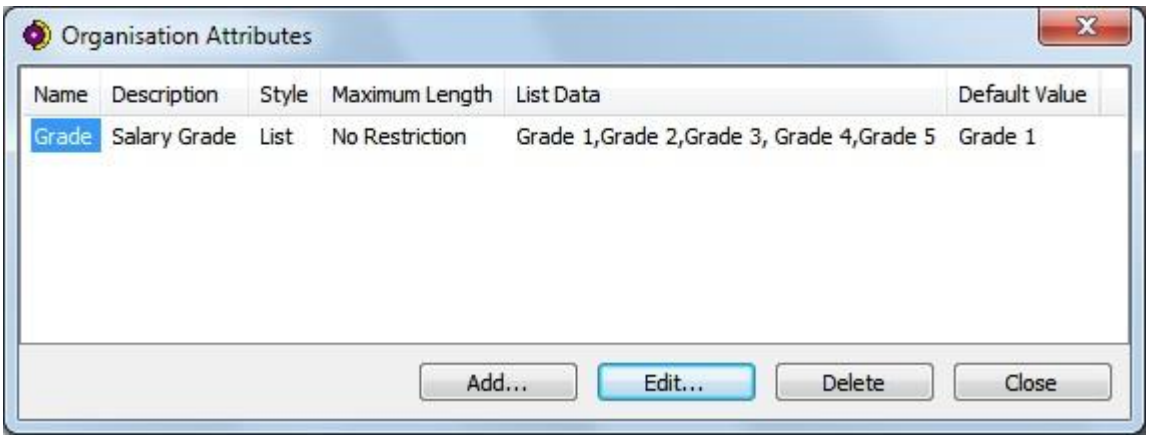



# Organizational Modelling Attributes

Attributes are entered for memorandum purposes. They are not actively used in WFi Modeler. They allow the User to be prompted for informational data on creating Organization Units, e.g. location, notes, contact information, manager, etc.  It is useful to create Attributes first as they are to be applied to the Categories and then to Organization Units. They can, however, be created at any stage of the design.

From the *Configure* menu select Organization Modelling and then *Organization Attributes*. The *Organization Attributes* dialog opens.

# The Organization Attributes dialog



## Fields

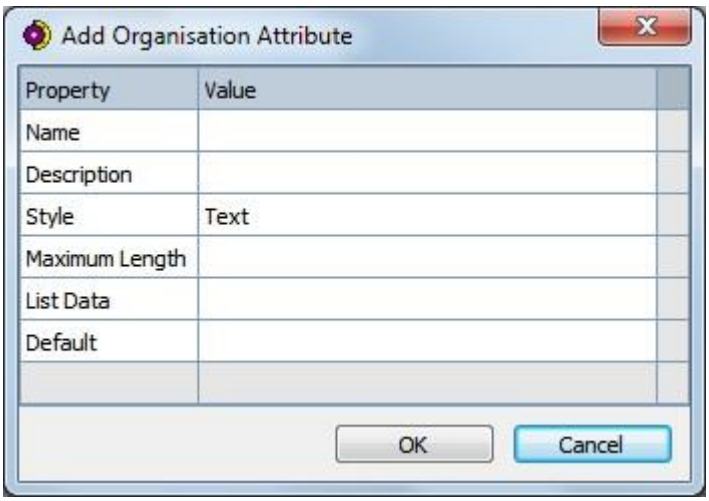
| Field | Description |
|---|---|
| Name | Unique name for this Organization Attribute. |
| Description | User-defined description of the purpose of the Organization Attribute. |
| Style | The type of this Organization Attribute. |
| Maximum Length | The user-defined field size. |
| List Data | For Organization Attributes with the List Style. Contains the list data values. |
| Default Value | The default value for this Organization Attribute. |

## Functions

| Action | Description |
|---|---|
| Add | Add a new Organization Attribute. |
| Edit | Edit the selected Organization Attribute. |
| Delete | Delete the selected Organization Attribute. |
| Close | Close the dialog. |

To add a new Attribute, select **Add**. This opens the *Add Organization Attribute* dialog.

## The Add Organization Attribute dialog




## Fields

| Field | Description |
|---|---|
| Name | Enter the attribute name. This is that which appears in the *Attribute* list when creating a Category. |
| Description | Add some text to be used as reference. |
| Style | Choose between different styles for the Attribute:<br>• *Text* for a text box<br>• *List* for a combo box<br>• *Yes/No* for a check box<br>• *Color* for a Palette of colors<br>• *Numeric* for a numeric field.<br>They define the styles used to represent the Attribute's values within Organization Units. |
| Maximum Length | This represents the maximum length allowed for that new value. It ranges from 0 to 256. |
| List Data | Add a list of items, separated by a comma. They represent the possible values for the attribute. |

| Field | Description |
|---|---|
| Default | Default Value is shown in Organization Unit after applying a Category that uses this Attribute. |

### Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

When an Organization Unit contains a Category, which is associated with an Attribute, the Attribute Default Value may be changed with another value.

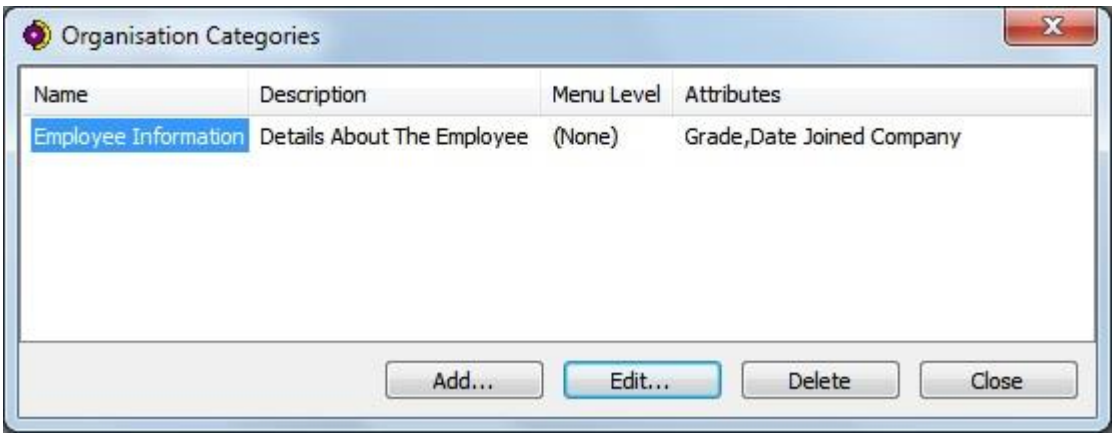
**Caution:** If the style chosen is List, its values cannot be changed.

Once all the details are entered, select **OK** to add the Attribute to the list.

## Organizational Modelling Categories

A Category is a template for a Unit, a logical group of attributes. From the *Configure* menu select *Organization Modelling* and then *Organization Categories*. This opens the *Organization Categories* dialog.

# The Organization Categories dialog




## Fields

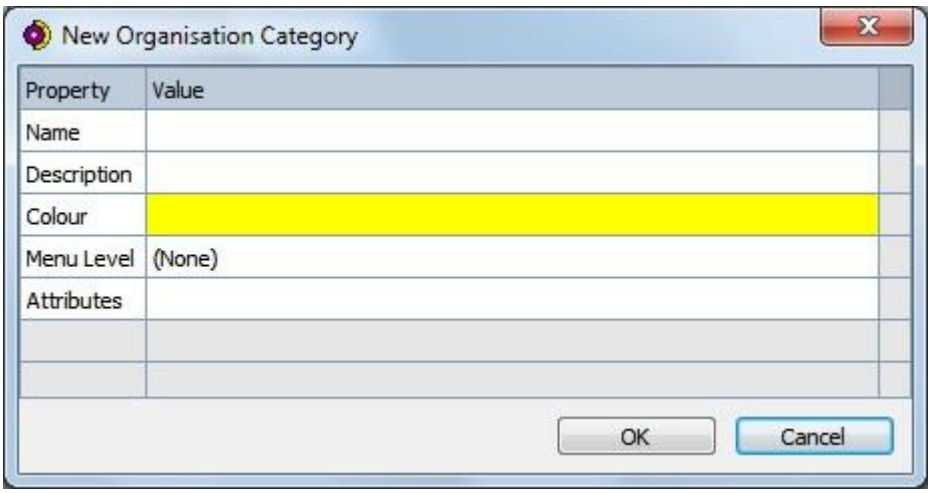
| Field | Description |
|---|---|
| Name | Unique name for this Organization Category. |
| Description | User-defined description of the purpose of the Organization Category. |
| Menu Level | The Menu Level with which this Organization Category is associated. |
| Attributes | The Organization Attribute with which this Organization Category is associated. |

## Functions

| Action | Description |
|---|---|
| Add | Select **Add** to add a new Category. |
| Edit | Edit the selected Organization Category. |
| Delete | Delete the selected Organization Category. |
| Close | Close the dialog. |

To add a new Category, select **Add**. This opens the *New Organization Category* dialog.

# The New Organization Category dialog




## Fields

| Field | Description |
|---|---|
| Name | Give a name to the Category. |
| Description | Give a Description to the Category. |
| Color | Associate a color with this Category. |
| Menu Level | This is used in Role Menu generation. This is no longer used as Role Menu creation and maintenance is now managed under the System Manager. |
| Attributes | Clicking in the Attributes field opens the *Organization Attributes* dialog. Select from there the required Attributes for the Category. To remove an unwanted Attribute, highlight it in the *Attributes* list and delete it. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

# Organization Units

Select *File* menu, *New* and *Organization Unit*. A message box appears prompting for a name for the new Organization Unit.

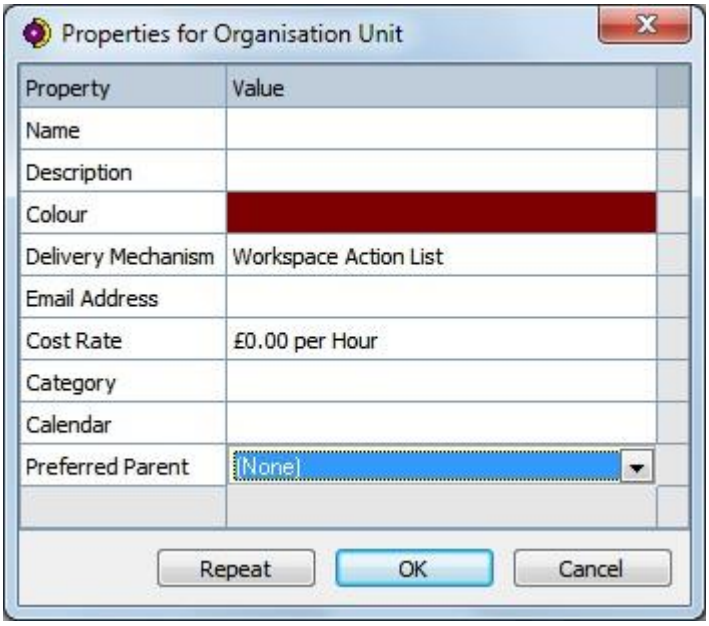
The Organization Unit is placed at the top left of the Canvas. It may be repositioned if desired, but not resized.

Right clicking on the Organization Unit opens its context sensitive menu. Selecting *New* allows adding Child Organization Units. A label and a new line may also be added to the parent Organization Unit by selecting *Label* or *Line*.

The menu item *Properties* opens the *Properties for Organization Unit* dialog.

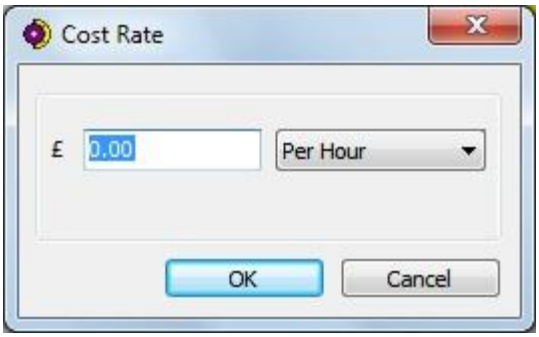
*Properties* is the default action of the Organization Element so double clicking on the item within the Canvas window opens this dialog too.

## The Properties for Organization Unit dialog




### Fields

| Field | Description |
|---|---|
| Name | This shows the Organization Unit name. To change it, right click on the Unit from within the Palette and select **Rename**. |
| Description | This is for reference purposes only. |

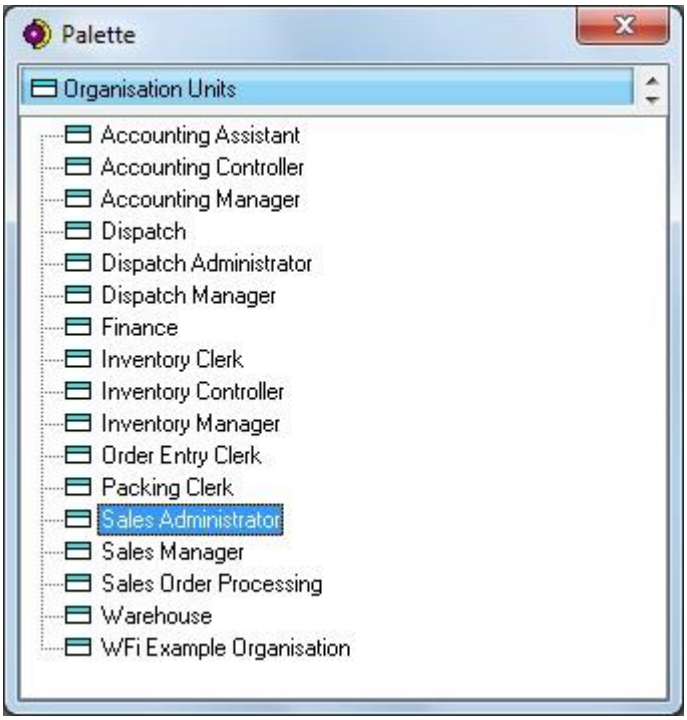
| Field | Description |
|---|---|
| Color | The color of the top of the Organization Unit box may be changed, by selecting a new color amongst the colors available in the *Color* palette. This color is used when the Organization Unit is used as a Swimlane. |
| Delivery Mechanism | The Delivery Mechanism becomes the default mechanism for any Recipient configured with this Organization Unit. That is, if an Activity is pinned into a Swimlane then this default is reflected in the recipient details listed in the *Properties For Links Window.* It is shown in blue text, to represent a Swimlane default and cannot be overridden. |
| Email Address | This only needs to be completed if one of the Email options for the Delivery Mechanism field is selected. |
| Cost Rate | This rate allows metrics to be applied to this Organization Unit. The rate that is selected here becomes the default rate for any Recipient configured with this Organization Unit. That is, if an Activity is pinned into a Swimlane then this default is reflected in the Metrics Window and the Task Metrics Window (from the Planned Schedule Window). Select the prompt to open the *Cost Rate* dialog.<br>  <br>This allows the entry of a currency value and the metric unit. |
| Category | Use the prompt facility to open the Organization Categories dialog. Here it is possible to select a Category to associate with the parent Organization Unit. If a Category is selected, and the Category has an Attribute associated with it, the Attribute's name appears as a new field. The default value of this field is automatically entered. |
| Calendar | Use the prompt facility to open the Calendars Window from which a Calendar can be selected. Calendars form an essential part of the overall Process Rescheduling mechanism within WFi Modeler, together with Planned Schedules and Organization Units. |

| Field | Description |
|---|---|
| Preferred Parent | Where the Organization Unit is a child then there is the option to select a Preferred Parent. This enables the Child to inherit the availability details from the Parent. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |
| Repeat | This option only appears when you create a new Organization Unit within the Palette. This will create a new Organization Unit with Palette and then re-show the dialog so you can create another new Organization Unit. |

Once the parent Organization Unit has been created, it appears in the Palette under the Organization Unit tree view.



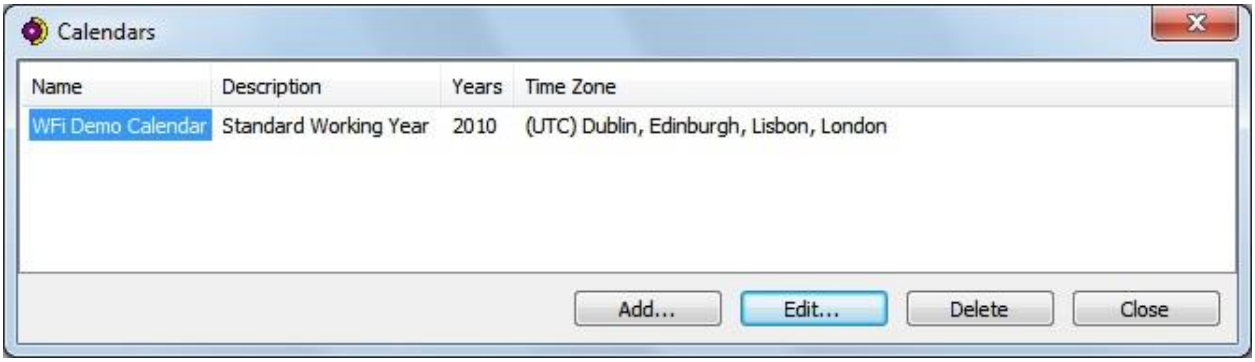
# Calendars

Use the Organization Modelling, Calendars option, from the Configure Menu, to create and maintain Calendars.

Calendars may be attached to any level of the organization. Therefore, it is possible to define an overall corporate Calendar, individual department Calendars and user specific Calendars. Each Organizational Unit may have a Calendar attached.

Calendars form an essential part of the overall Process Rescheduling mechanism within WFi Modeler, together with Planned Schedules, Organization Units and Swimlanes.

## The Calendars dialog




### Fields

| Field | Description |
|---|---|
| Name | Unique name for this Calendar. |
| Description | User-defined description of the purpose of the Calendar. |
| Years | The year or years that this Calendar covers. |
| Time Zone | The Windows Locale Time Zone that this Calendar works under. |

## Functions

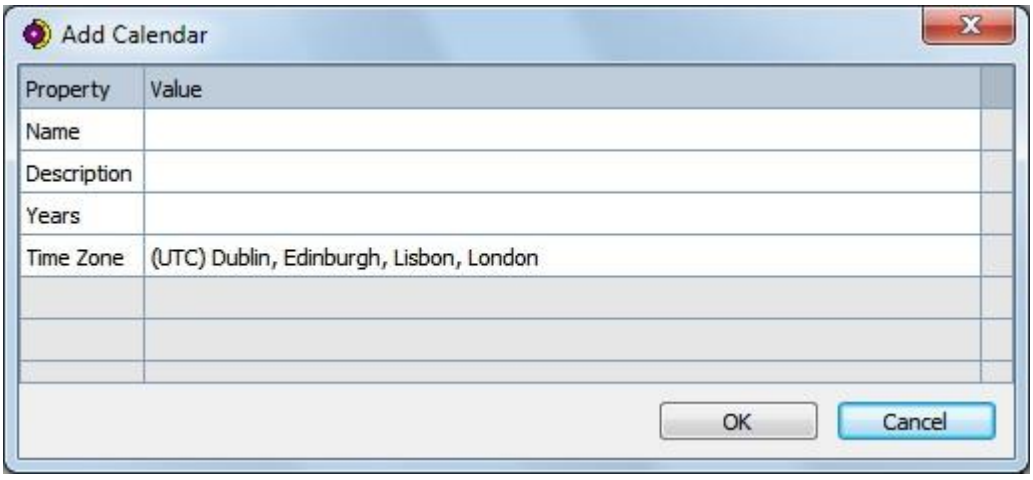
| Action | Description |
|---|---|
| Add… | Create a new Calendar. |
| Edit… | Select an existing Calendar in the list and select this to alter it. |
| Delete | Select an existing Calendar in the list and select this to delete it. You will be prompted to confirm the deletion. |
| Close | Close the Calendars dialog. |

**Caution:** When a Calendar is attached to an Organization Unit it can be maintained directly from the *Properties for Organization Unit* Window, by selecting the browse button on the Calendar field.

However, please note that Add, Edit and Delete buttons are no longer available but are provided via a popup menu which is displayed when you right-click in the list.

Selecting **Add** or editing an existing Calendar displays its properties.

## The Add Calendar dialog



## Fields

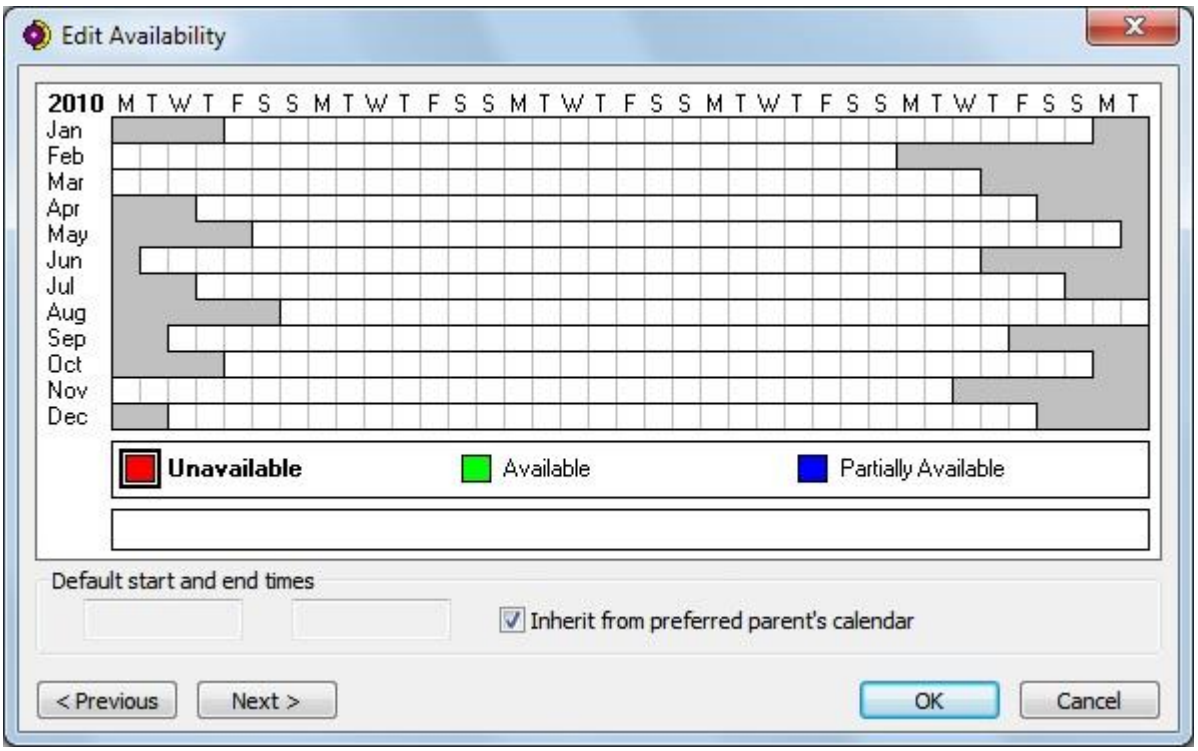
| Field | Description |
|---|---|
| Name | Unique name for this Calendar. |
| Description | User-defined description of the purpose of the Calendar. |
| Years | The Years field stores each Calendar with different availability details for each year, for an unlimited number of years. This column displays all of them. |
| Time Zone | A Time Zone can be selected for each Calendar to represent an offset, in hours, from the Greenwich Mean Time. This is essential where users are in different parts of the world and the progress of their activities needs to be coordinated for planning and scheduling purposes. Where there are different Time Zones then different Calendars need to be set up. The default is the Time Zone configured on the PC. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

Select the browse button within the “Years” field to open the Edit Availability dialog.

# The Edit Availability dialog




## Fields

| Field | Description |
|---|---|
| Calendar | A grid-based representation of a complete calendar year. The year is shown in the top-left corner. The X-axis represents the days. The Y-axis represents the months. The grid is made up of colored squares where each grid square represents one day of the year and each color represents the availability status. The mouse must be used to select a grid square and change its color. The left button changes the color. The right button undoes the change. Holding down the left mouse button, and dragging can change several grid squares at once, either across or down. |
| Unavailable | Select this to mark days within the grid as being unavailable (i.e. no work will be carried out on this day). |
| Available | Select this to mark days within the grid as being available (i.e. work will be carried out on this day). |

| Field | Description |
|---|---|
| Partially Available | Select this to mark days within the grid as being partially available. For each day you select, you will be prompted to enter the time period within this day that is available as work time.<br>  <br><br>Use the Start and End times to set the working period. |
| Default Start and End Times | Set the default start and end times within the day that work will be carried out (i.e. the time that the Organization Unit associated with the Calendar starts and ends their day of work). Only available if Inherit from Preferred Parent's Calendar is checked. |
| Inherit from Preferred Parent's Calendar | Check to Inherit the Default Start and End work times from the Parent Organization Unit of the Organization Unit to which this calendar is associated.<br>**Caution:** This check box can be set regardless of how this window was arrived at and, at this point, it is not necessary to know whom the Preferred Parent is; i.e. Whoever the Preferred Parent turns out to be, the Calendar inherits the Start and End Times. |

## Functions

| Action | Description |
|---|---|
| Previous | Move to the previous year. |
| Next | Move to the next year. |
| OK | Accept the changes. |
| Cancel | Discard the changes. |

Each Calendar can be stored with different availability details for each year, for an unlimited number of years.

Having created a Calendar, attach it to an Organization Unit. The same Calendar can be attached to one or many Organization Units.

## Completing the Organization Model

To complete the Organization Unit, add child Organization Units. To add a new child, right click on the parent Organization Unit's Canvas and select *New, Organization Unit*.

Alternatively drag and drop an Organization Category from the Palette onto the Canvas. By using this method, a category is already associated with the Organization Unit and attributes may be immediately viewed.

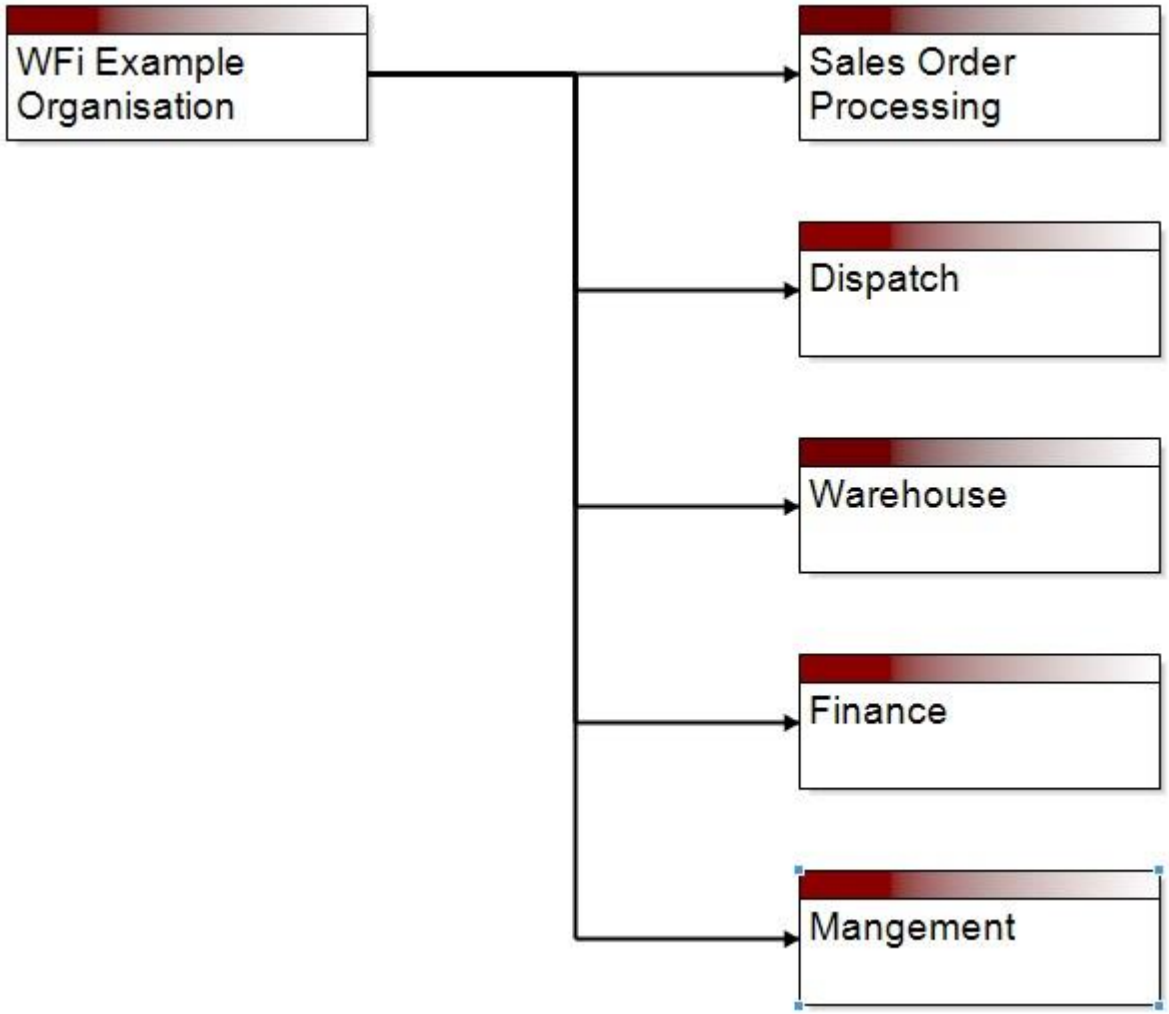
Enter the details. After all the information is added, select **OK** to save the child Organization Unit details. The child box is added to the Canvas and it is automatically linked to its parent.

The child Organization Unit is added to the Palette.

**Caution:** The icons used for parent and child Organization Units are identical.

Other child boxes may be added in the same way or selecting **Repeat** on the *Properties for a New Organization Unit* dialog.

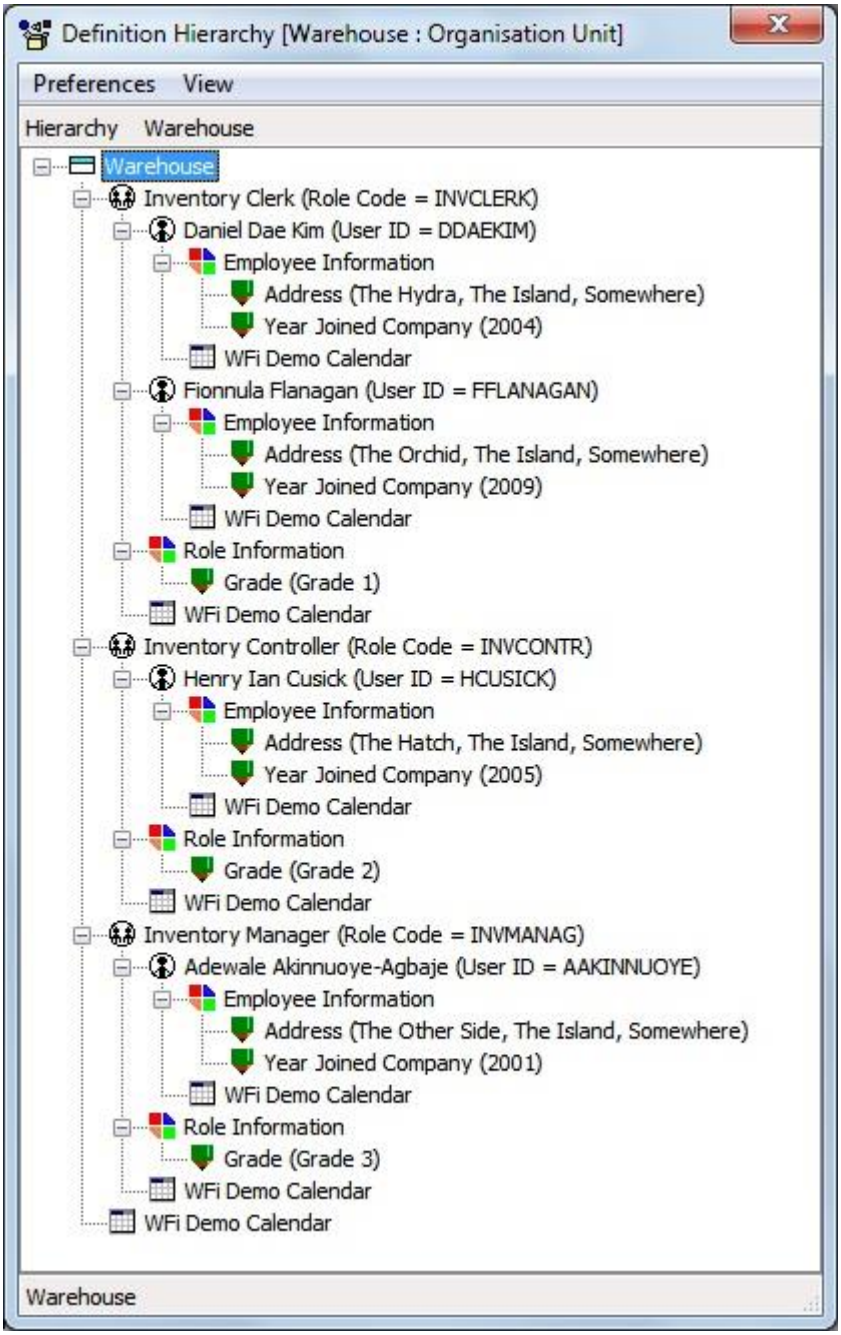
Here is an example of an Organization Unit with multiple child units…




To show all the Child Organization Units within the Canvas with hues from the color of the Parent Organization Unit, right click on the Canvas and select *Shade Colors*.

Within the canvas, right-click on a child Organization Unit, select *Organization* to open up the Canvas for that child. You can then add child units for that Organization Unit to build up your hierarchy.

Once you have created your Organization Model, you can use the Child Map to view not only the Organization Units, but all the associated attributes.


Definition Hierarchy [Warehouse : Organisation Unit]
Preferences
View
Hierarchy
Warehouse
Warehouse
Inventory Clerk (Role Code = INVCLERK)
Daniel Dae Kim (User ID = DDAEKIM)
Employee Information
Address (The Hydra, The Island, Somewhere)
Year Joined Company (2004)
WFi Demo Calendar
Fionnula Flanagan (User ID = FFLANAGAN)
Employee Information
Address (The Orchid, The Island, Somewhere)
Year Joined Company (2009)
WFi Demo Calendar
Role Information
Grade (Grade 1)
WFi Demo Calendar
Inventory Controller (Role Code = INVCONTR)
Henry Ian Cusick (User ID = HCUSICK)
Employee Information
Address (The Hatch, The Island, Somewhere)
Year Joined Company (2005)
WFi Demo Calendar
Role Information
Grade (Grade 2)
WFi Demo Calendar
Inventory Manager (Role Code = INVMANAG)
Adewale Akinnuoye-Agbaje (User ID = AAKINNUOYE)
Employee Information
Address (The Other Side, The Island, Somewhere)
Year Joined Company (2001)
WFi Demo Calendar
Role Information
Grade (Grade 3)
WFi Demo Calendar
WFi Demo Calendar
Warehouse

# Types of Business Process Models

There are two types of Business Process Model, the **As-Is Model** and the **To-Be Model.**

The As-Is Model describes the way the Company presently works, prior to any changes.

The To-Be Model describes the way a company is going to be restructured. This model may be built making comparisons with reference models such as the Supply Chain Councils SCOR model.

**Caution:** *It is not essential to create both an AS-IS and TO-BE models. The techniques described in the following section apply to both types of model. It is important to recognize that business process models are geared to describing how an organization functions independent of the implemented software.*

# Creating the As-Is Model

## Creating a New Business Process

There are two ways of creating a new Business Process either select **New** on the Toolbar and choose *Business Process* or, from *File* menu, select *New* and *Business Process.*

In both ways an input box appears prompting for a name for the new Business Process.

## The New Business Process dialog

## Fields

| Field | Description |
|---|---|
| Business Process | Enter the name for the new Business Process. |

## Functions

| Action | Description |
|---|---|
| OK | Create the new Business Process. |
| Cancel | Abort the creation. |

After a name is assigned, the new Business Process' Canvas appears. The WFi Modeler's title bar contains the name of the new Business Process.


A Start Condition and End Condition are automatically placed on the Canvas.

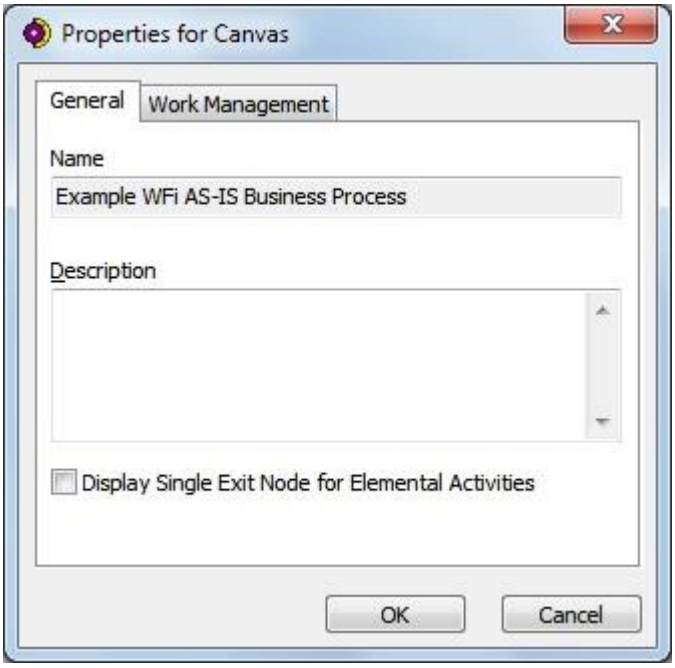
# Canvas Properties

Right click on the Canvas to open its context sensitive menu. Selecting the *Properties* menu item opens the *Properties for Canvas* dialog.

## The Properties for Canvas dialog (General tab)

This contains two tabs: *General* and *Work Management*.

The *General* tab displays the name of the open Business Process and allows adding a *Description* of it, to appear as a ToolTip.




## Fields

| Field | Description |
|---|---|
| Name | The name for the Business Process. Cannot be altered with this dialog. |
| Description | Enter further detail about this Business Process. |
| Display Single Exit Node for Elemental Activities | Check this to restrict the number of Exit Nodes on Elemental Activities to one. Used in TO-BE model creation. The activities left border will appear green when this option is on. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

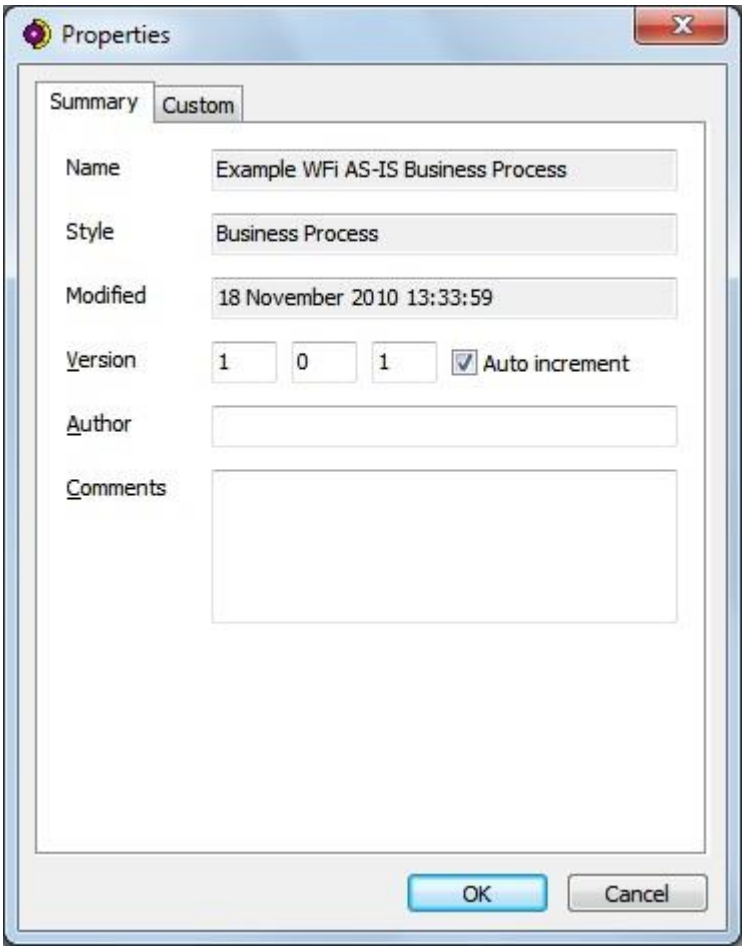
**Caution:** The Work Management tab will be explained in a later section.

# Custom Properties

Right click on the Canvas to open its context sensitive menu. Selecting the *Custom* menu item opens the *Properties* dialog.

## The Custom Properties dialog

This contains two tabs: *Summary* and *Custom*.



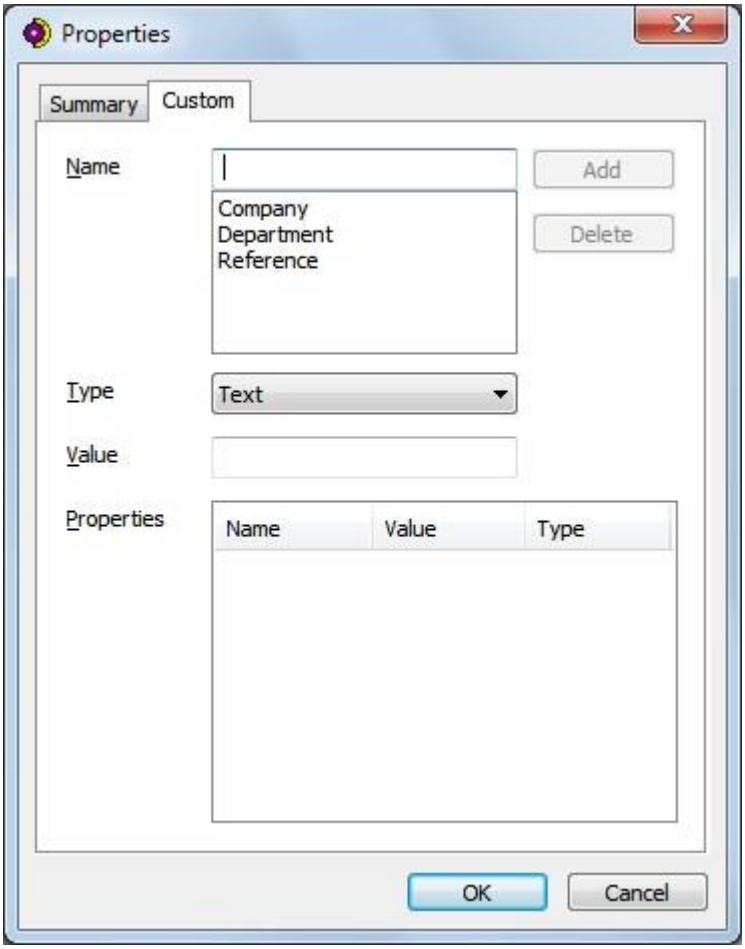

## Fields

| Field | Description |
|---|---|
| Name | The name for the Business Process. Cannot be altered with this dialog. |
| Style | The Entity type. Cannot be altered with this dialog. |

| Field | Description |
|---|---|
| Modified | The date and time this Entity was last saved. Cannot be altered with this dialog. |
| Version | Three fields holding the version number for the Entity. Check the Auto increment field to automatically update the version each time the Entity is saved. |
| Author | Enter the name of the creator of this Entity |
| Comments | Enter custom data about this entity |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |




## Fields

| Field | Description |
|---|---|
| Name | The name for the custom attribute (or select one from the list). |
| Type | The Type of the custom attribute. |
| Value | The value for the custom attribute. |
| Properties | The list of custom attributes. |

### Functions

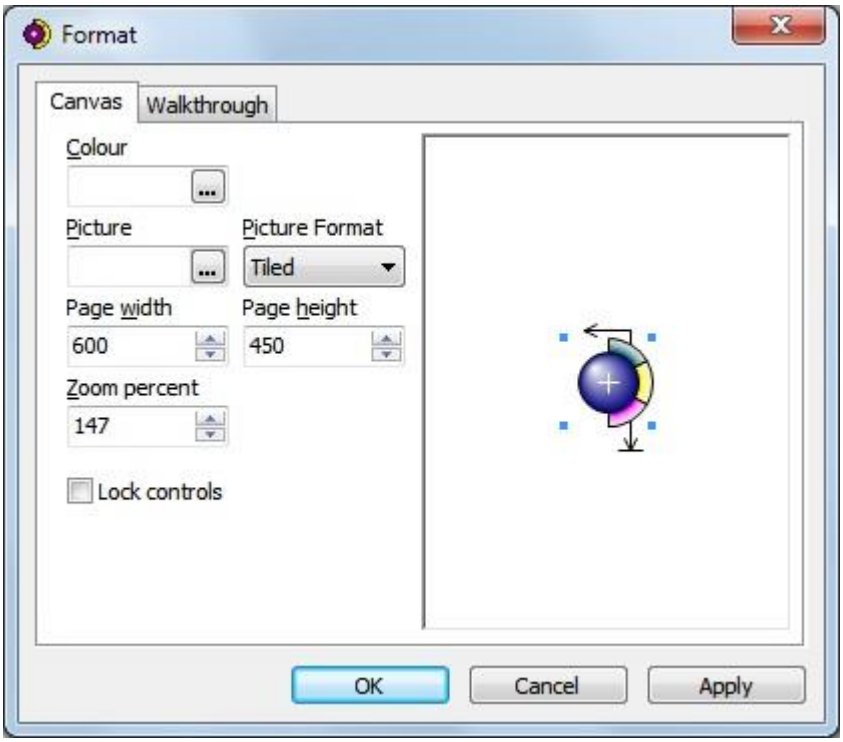
| Action | Description |
|---|---|
| Add | Add the entered details to the list of custom attributes. |
| Delete | Delete the selected custom attribute from the list. |

## Format Properties

Right click on the Canvas to open its context sensitive menu. Selecting the *Format* menu item opens the *Format* dialog.

### The *Format* dialog

This contains two tabs: *Canvas* and *Walkthrough*.

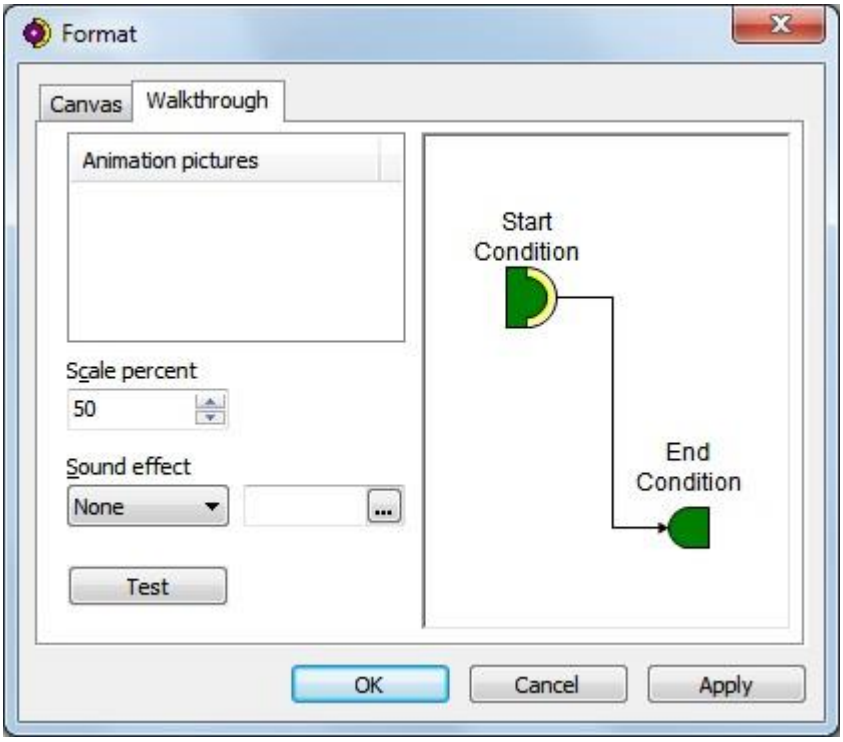


## Fields

| Field | Description |
|---|---|
| Color | Pick a color from the standard Windows color dialog for the Canvas background. |
| Picture | Use the prompt button to select an image to be used as the background for the Canvas. |
| Picture Format | Select how the image is displayed on the Canvas; Tiled or Centered. |
| Page Width and Height | The dimensions of the Canvas in Pixels |
| Zoom Percent | The current Zoom level as a percentage. |
| Lock Controls | Check to prevent controls on the palette being re-positioned. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |
| Apply | Apply the changes but do not close the Format dialog. |


Format
Canvas
Walkthrough
Animation pictures
Start Condition
End Condition
Scale percent
50
Sound effect
None
...
Test
OK
Cancel
Apply

### Fields

| Field | Description |
|---|---|
| Animation Pictures | Use the Context Menu to Add, Delete and alter the order of one or more animation pictures used during the Walkthrough process. |
| Scale Percent | The amount to scale the pictures in the list. |
| Sound Effect | Select a sound file and when to play the sound. |

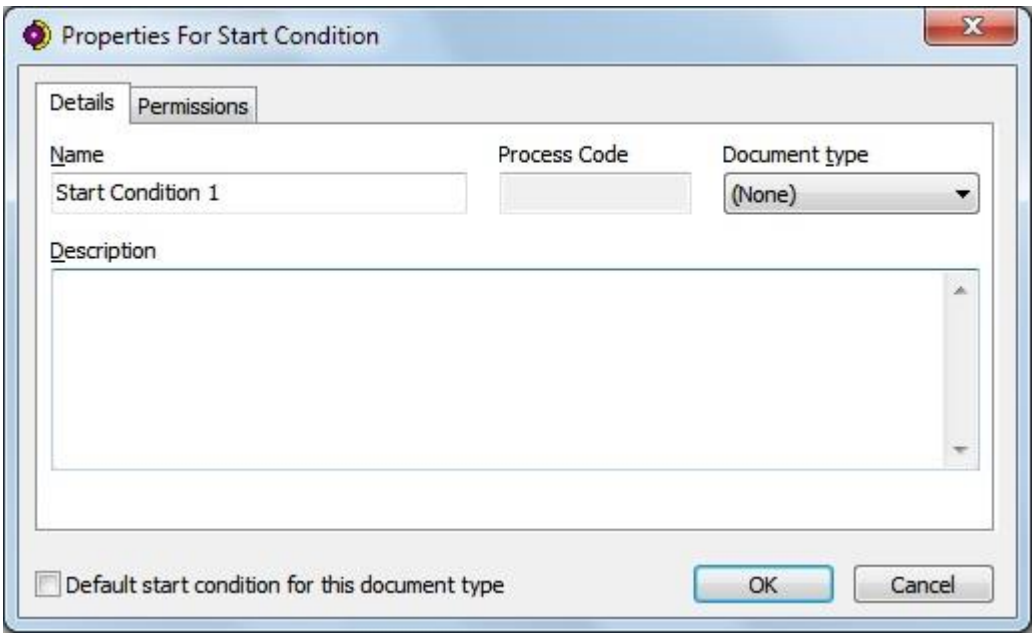
### Functions

| Action | Description |
|---|---|
| Test | Test the pictures and sound on the mini process on the right of the Format dialog. |

## Start Conditions

A Start Condition determines the initial point of a Process. Either double click on the Start Condition or use the right-click context menu *Properties* option to open the *Properties for Start Condition* dialog.

# The Properties for Start Condition dialog



### Fields

| Field | Description |
|---|---|
| Name | Alter the name that appears on the Canvas by changing the name. The name of the Start Condition must be unique. |
| Process Code | Execution Model Business Process code. Read-only. |
| Document Type | This can be set to define the document used by this process path. A Start Condition with a Document Type set denotes an entry point to an existing process (e.g. cancellation of an existing order). |
| Description | Descriptive text may be added. This text is displayed during the walkthrough. |
| Default start condition for this document type | For when a Business Process has multiple Start Nodes for the same Document Type. Check this box to make this the default Start Node. |

### Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

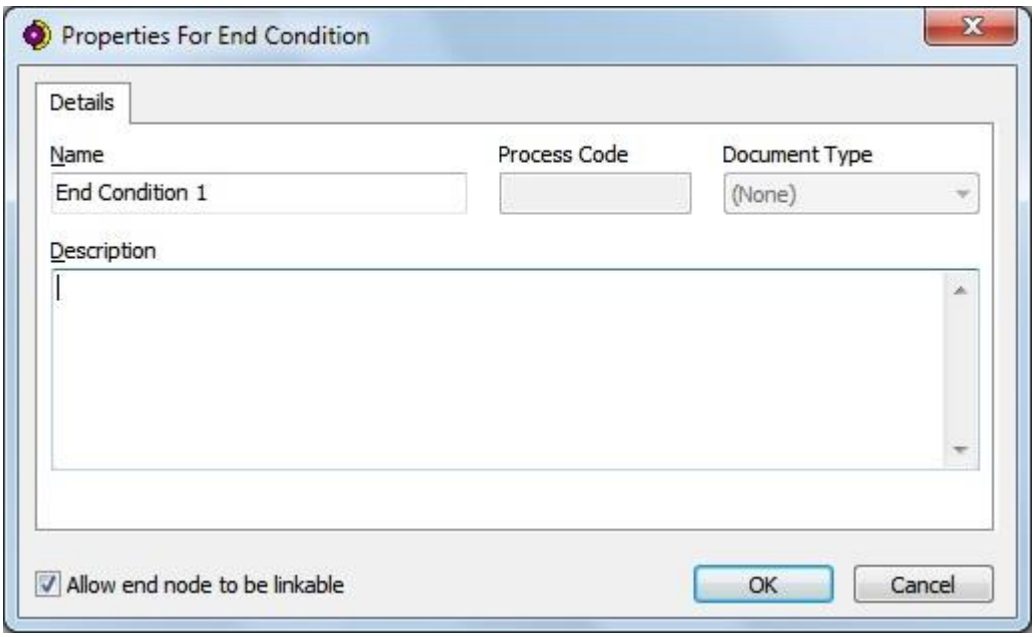
**Caution:** The Permissions tab is used for Execution Business Process modelling and will be covered later within the User Guide.

**Caution:** A Business Process may contain more than one Start Condition. Multiple Start Conditions should be used where more than one state could start the process or where it is possible to join a process subsequently.

## End Conditions

An End Condition represents an end point of a process. Multiple End Conditions should be used where the process could end in more than one way or state. Either double click on the End Condition or use the right-click context menu *Properties* option to open the *Properties for End Condition* dialog.

# The Properties for End Condition dialog



### Fields

| Field | Description |
|---|---|
| Name | Alter the name that appears on the Canvas by changing the name. The name of the End Condition must be unique. |
| Description | Descriptive text may be added. This text is displayed during the walkthrough. |
| Allow end node to be linkable | This check box determines whether this exit node can be linked to other activities when this Business Process is embedded within another Business Process. |

### Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

## Adding Items to the Canvas

A new item may be added to a Business Process either from the Palette or from the Canvas. All the items contained in the Palette may be added to the Canvas.

To add an item from the Palette, click on the item within the Tree View with the left mouse button and, while holding the left mouse button down, drag it onto the Canvas.

Another way of adding a new item to a Business Process is right clicking on the Canvas and, from its Context Menu, selecting **New** and the required item.

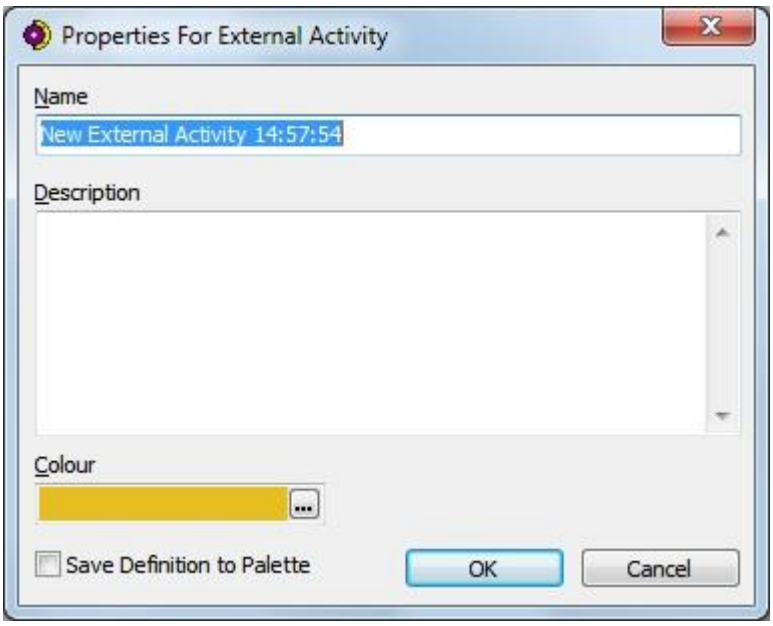
## External Activities

An External Activity may be used to describe a physical step in a process that is not software related.

External Activities are mainly used to build Business Models (i.e. stages in the modelling where Infor ERP System i software is not involved).

To create a new External Activity, select the Controls section within the Palette and drag the External Activity Control onto the Canvas. The Properties for External Activity dialog is displayed.

# The Properties for External Activity dialog




## Fields

| Field | Description |
|---|---|
| Name | Set the name for this activity. This will be displayed with the Activity on the Canvas |
| Description | Descriptive text may be added. This text is displayed during the walkthrough. |
| Color | Change the color using the standard Windows color picker. |
| Save Definition to Palette | If you plan to re-use this External Activity in other Business Models, check this box and the External Activity Properties will be stored within the Activities section of the Palette where it can be re-used by dragging it onto other models. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |

| Action | Description |
|---|---|
| Cancel | Discard the changes. |

External Activities have only one Exit Node (the path out of the activity to another) but can accept a multiple input.

## Linking Activities

Once Elements are placed on the Canvas they can be linked together. To create a link, click on the Exit Node of the first Element and drag the mouse pointer into the Element it needs to be linked to.


When the mouse button is released, a line is drawn between the two Elements. This is referred to as a *link*.

Only one line can be drawn from each Exit Node, though more than one link can be drawn into an Element.

## Element Context Menus

Upon right clicking on each Element on the Canvas, their Context Menu appears. Most of the menu items are common to all the Elements.

## Aligning and Changing the Order of an Element

Elements may be aligned to other Elements on the Canvas. Within an Element's Context Menu, select the *Align* menu item and then either *Horizontal* or *Vertical*. The cursor changes to a question mark. Clicking on another Element, it aligns the first Element horizontally or vertically with it.

Elements automatically stack in individual layers as they are added to the Canvas. Individual Elements may be moved in the stack. Within an Element's Context Menu, the *Order* submenu contains two options: *Bring to Front* and *Send to Back,* which allow the User to move Elements to the top or bottom of a stack.

# Selecting Multiple Elements

There are three ways to select multiple Elements.

First, you can click with the left-mouse button on the first Element then, holding down either the Control or Shift key, click on one or more other Elements.

Second, click with the left-mouse button on the Canvas and, holding the button down drag the dotted rectangle around all the Elements you wish to select. Release the mouse to apply the selection.

Thirdly, from the Canvas Context Menu, use the Select menu to select All Elements or sub-sets of Elements.

# PC Shortcuts

The PC Shortcut control may be used to attach the different levels of documentation to all model types. They are only used for Software Modelling and can only be launched during a Walkthrough of the model.

It is possible to specify paths to PC programs, pictures, or documents.

To create a new PC Shortcut, select the Controls section within the Palette and drag the PC Shortcut Control onto the Canvas. The Properties for Shortcut dialog is displayed.

## The Properties for Shortcut dialog

### Fields

| Field | Description |
|---|---|
| Name | Set the name for this Shortcut. This will be displayed with the PC Shortcut on the Canvas |
| Description | Descriptive text may be added. This text is displayed during the walkthrough. |
| File Path | Enter a valid path to the external program or file. Use the browse button to use the standard Windows File Selection dialog to select the program or file. |
| Startup Folder | The folder where the program will be executed from (i.e. the program will run as if the current directory is set to this folder). Use the browse button to use the standard Windows File Selection dialog to select the folder. |
| Command Line Arguments | Enter any command line arguments to pass into the program. |
| Startup Style | Define how any external program windows will open. |
| Save to Palette | If you plan to re-use this PC Shortcut in other Business Models, check this box and the PC Shortcut Properties will be stored within the Activities section of the Palette where it can be re-used by dragging it onto other models. |

### Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

# Applying the Organization Model

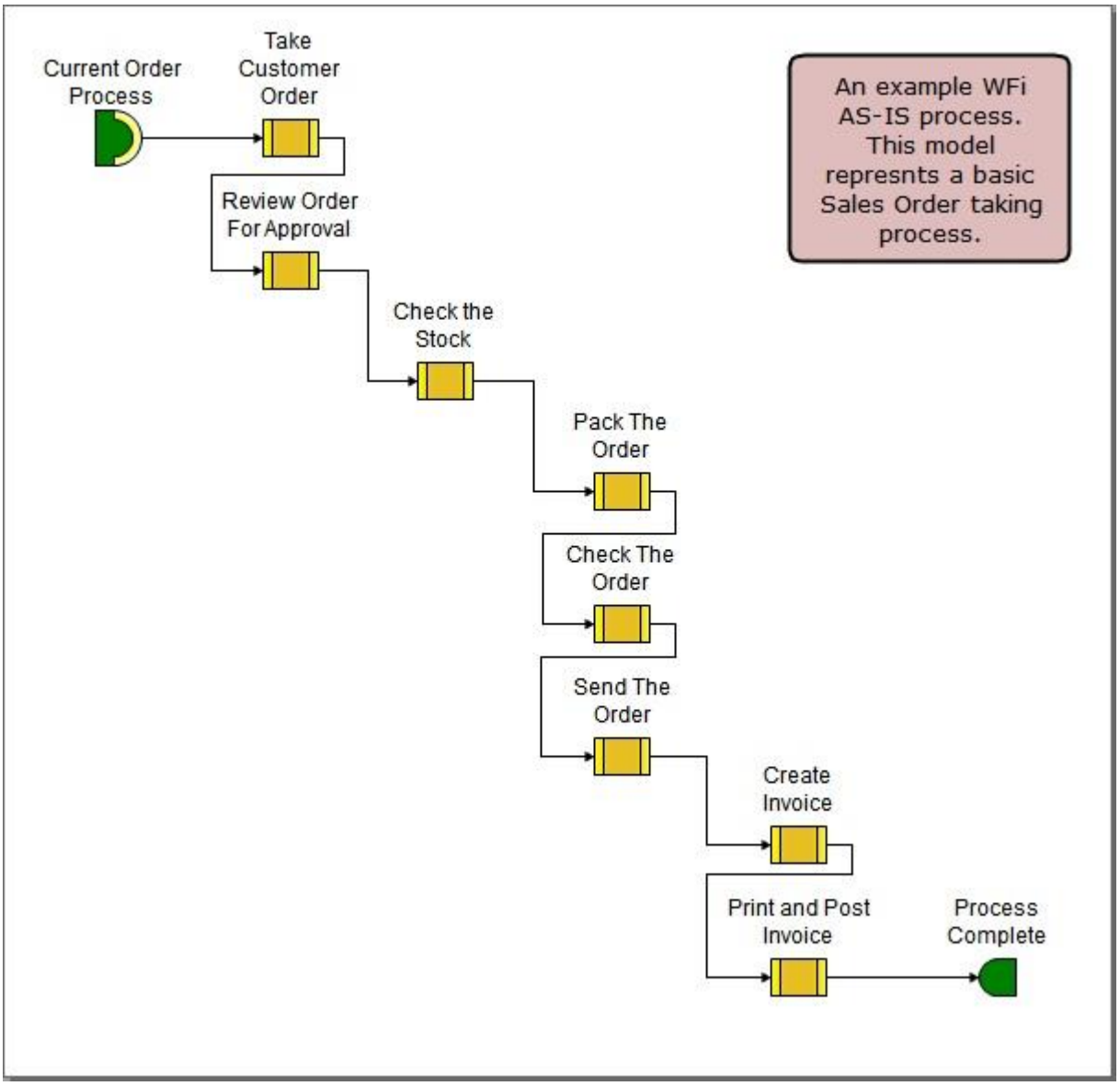
The model just created provides a good working model. However, overlaying the Organizational Model can enhance this.

The Business Process Canvas may be subdivided into vertical or horizontal colored bands. These bands are referred to as *Swimlanes* and may be added at any stage of the design and their colors changed.

A colored Swimlane identifies each department within the process. The benefits can easily be seen as within one model not only is the process identified but also the responsibilities within the process can be easily viewed.

To add existing Swimlanes to a model drag Organization Units from the Palette onto the current Canvas. Right clicking on the Canvas and selecting *New, Swimlane* from the context menu creates a new Swimlane.

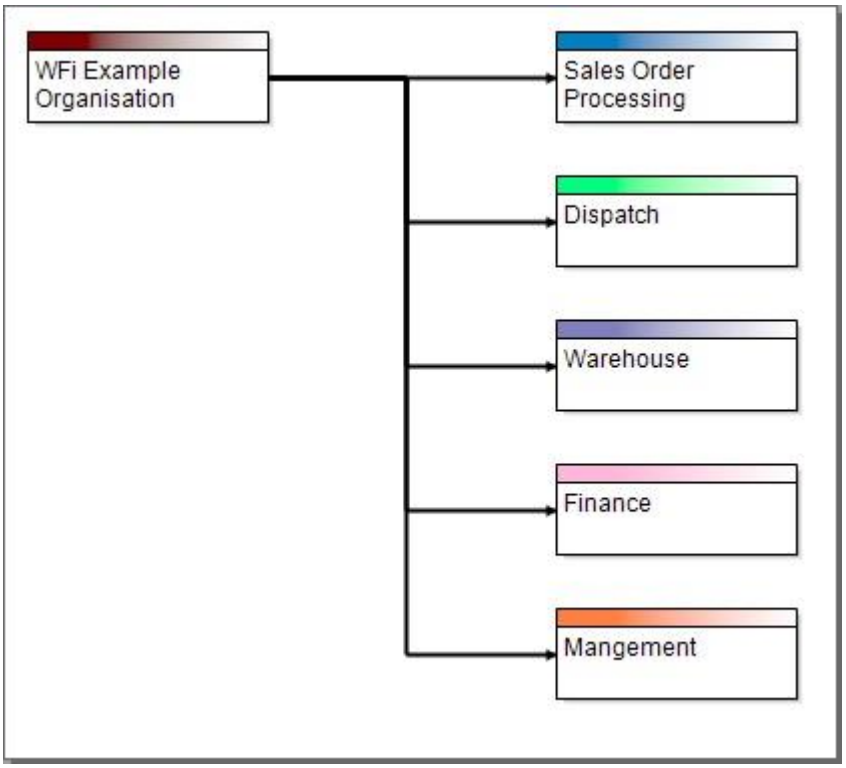
Here is an example AS-IS Business Process...




**Caution:** This example Business Process, Example WFi AS-IS Business Process, is provided with the WFi Modeler Sample Business Processes that are supplied with your installation (in

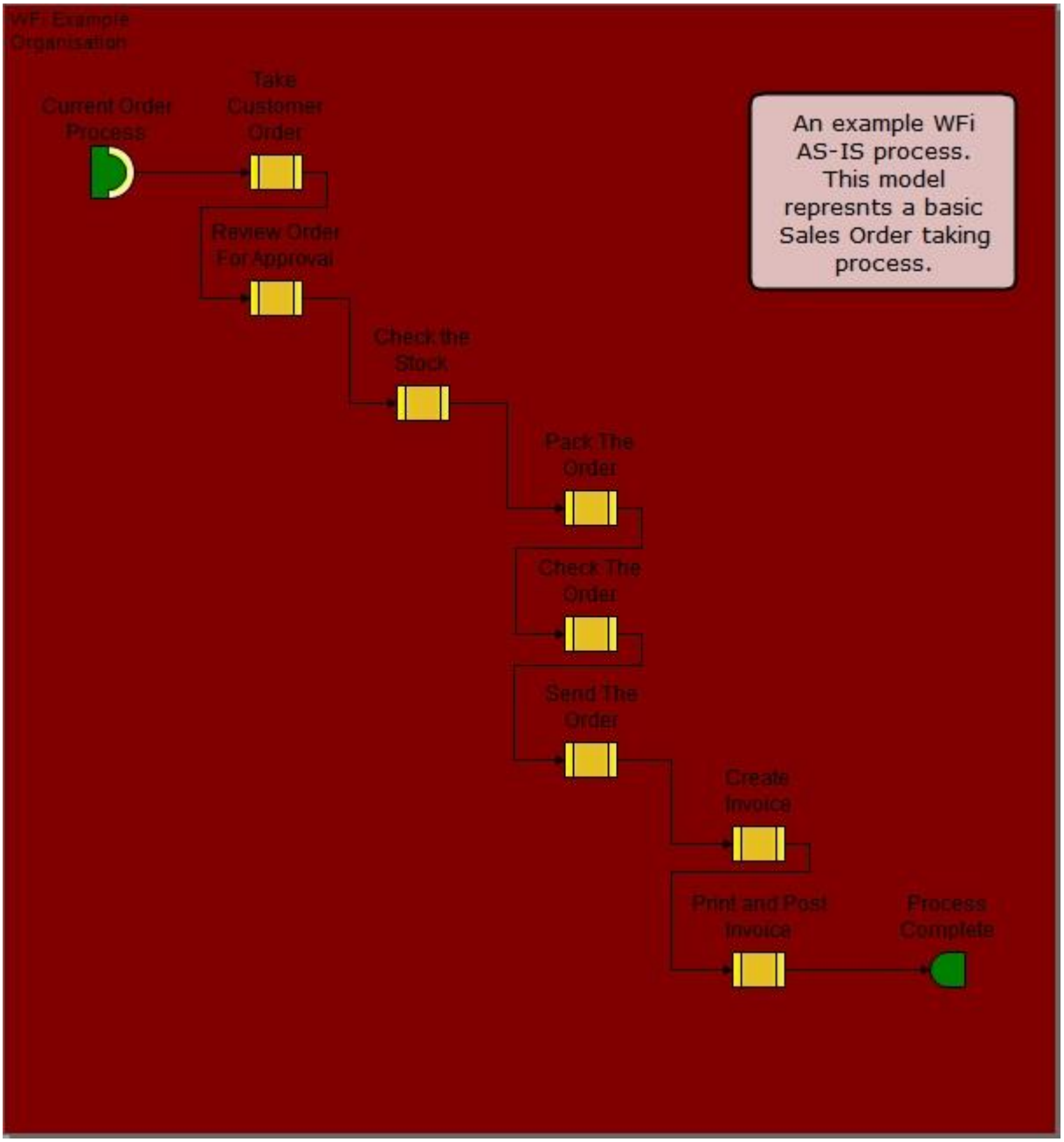
the Samples/Processes sub-folder of you WFi Modeler Installation folder). You can import this process using the File -> Import option covered in the previous chapter.

Here is an example Organization hierarchy...

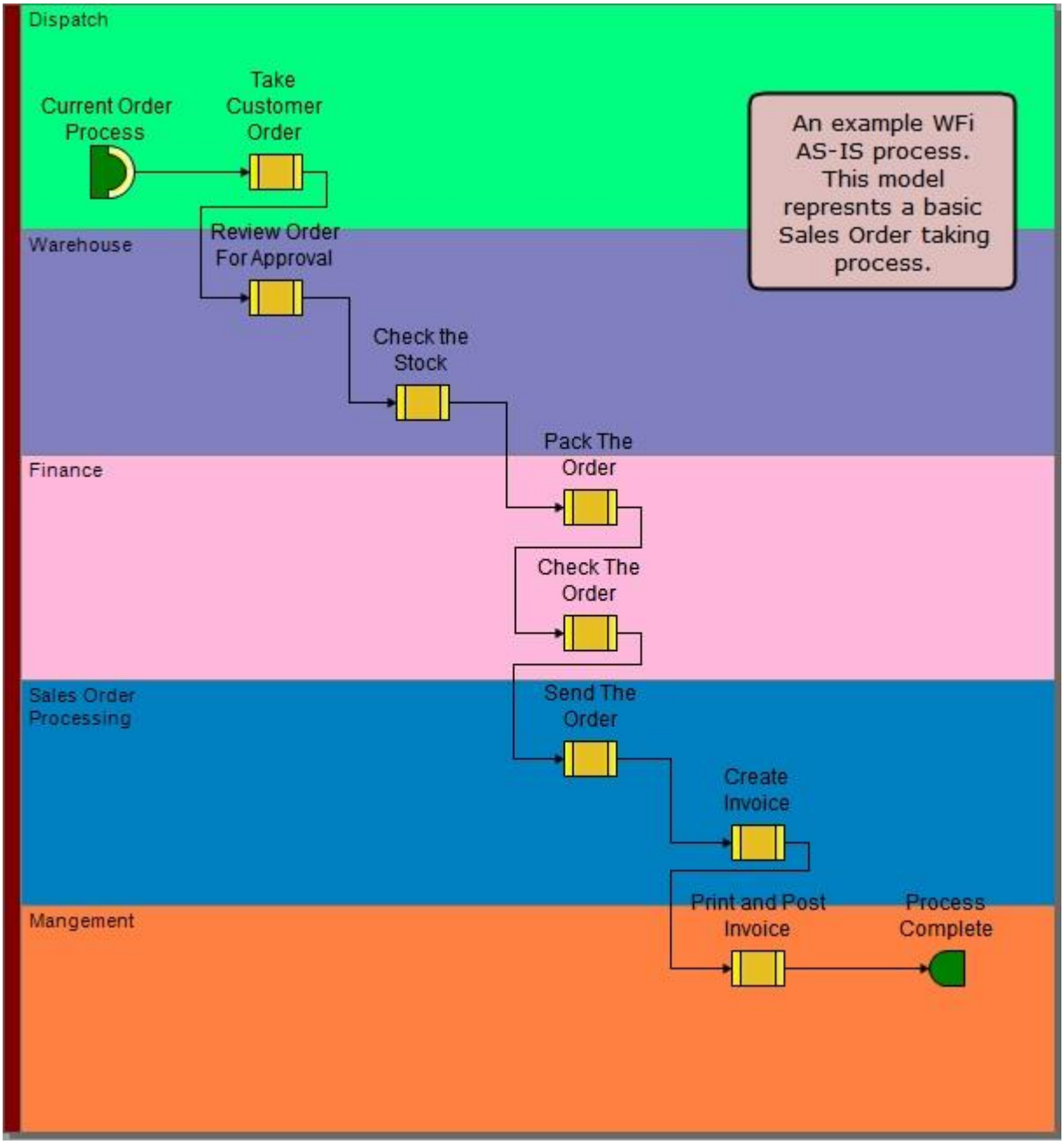



**Caution:** This Organization hierarchy, WFi Example Organization, is provided with the WFi Modeler Sample Business Processes that are supplied with your installation (in the Samples/Processes sub-folder of you WFi Modeler Installation folder). You can import this process using the File -> Import option covered in the previous chapter.

By dragging the top-level Organization Unit (WFi Example Organization) onto the AS-IS model, a Swimlane is created on the Canvas to represent the Organization Unit.




To expand the Swimlane to display the next level of child Organization Units, right-click on the Swimlane Label (top-left corner) and select *Expand*. The Canvas is divided up between the child Organization Units, one Swimlane per Organization Unit.



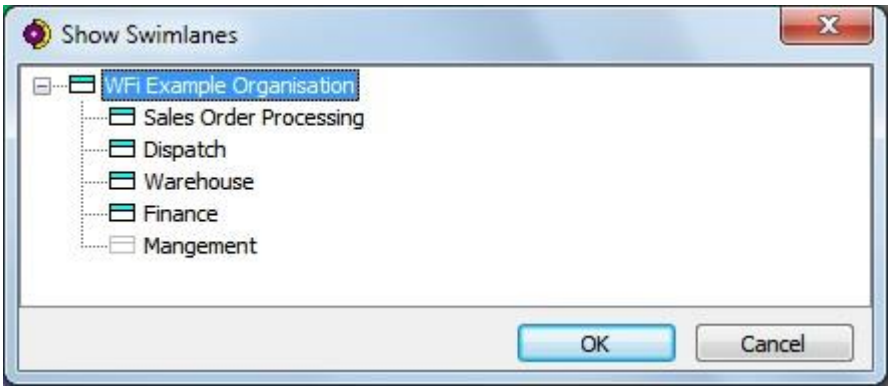

You can expand each Swimlane to reach the level of granularity you require.

If you wish to hide all child Swimlanes, right-click on the Parent Swimlane's label and select *Collapse*.

If you wish to alter the order of the Swimlanes, right-mouse click inside the Swimlane you wish to re-position and select Move. The Mouse cursor will now appear with a question mark icon. Left click on the Swimlane position you wish to re-position to. The order of the Swimlanes will be updated.

If you wish to hide individual Swimlanes, right-click within any Swimlane and select *Show/Hide*. The Show Swimlanes dialog will be displayed.

## The Show Swimlanes dialog




### Fields

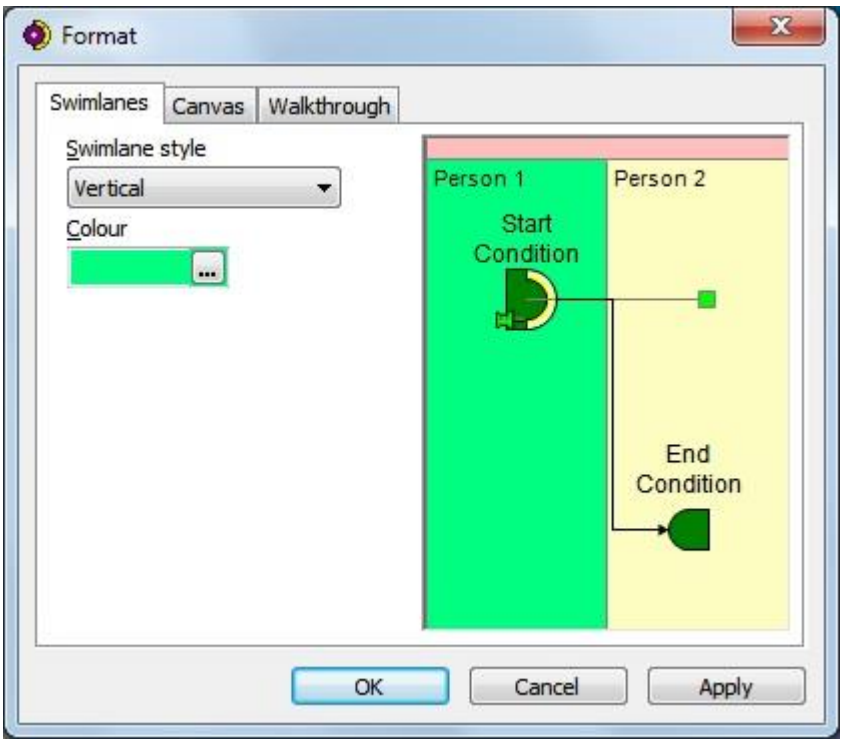
| Field | Description |
|---|---|
| Tree View | A Tree View shows all the available Swimlanes. If a Swimlane is visible, an icon with a blue bar is shown next to it. If a Swimlane is hidden, an icon with a light-grey border is shown next to it. Click the left mouse button on a Swimlane to toggle the show/hide state. |

### Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

Swimlanes can be displayed horizontally, vertically or as halos around an Element. To change the Swimlane style, right-click on a Swimlane's label and select *Format*.

# The Swimlane Format dialog



## Fields

| Field | Description |
|---|---|
| Name | Change the Swimlane style between None (turn Swimlanes off), Horizontal, Vertical or Halo |
| Color | Change the color of the selected Swimlane using the standard Windows color picker dialog. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

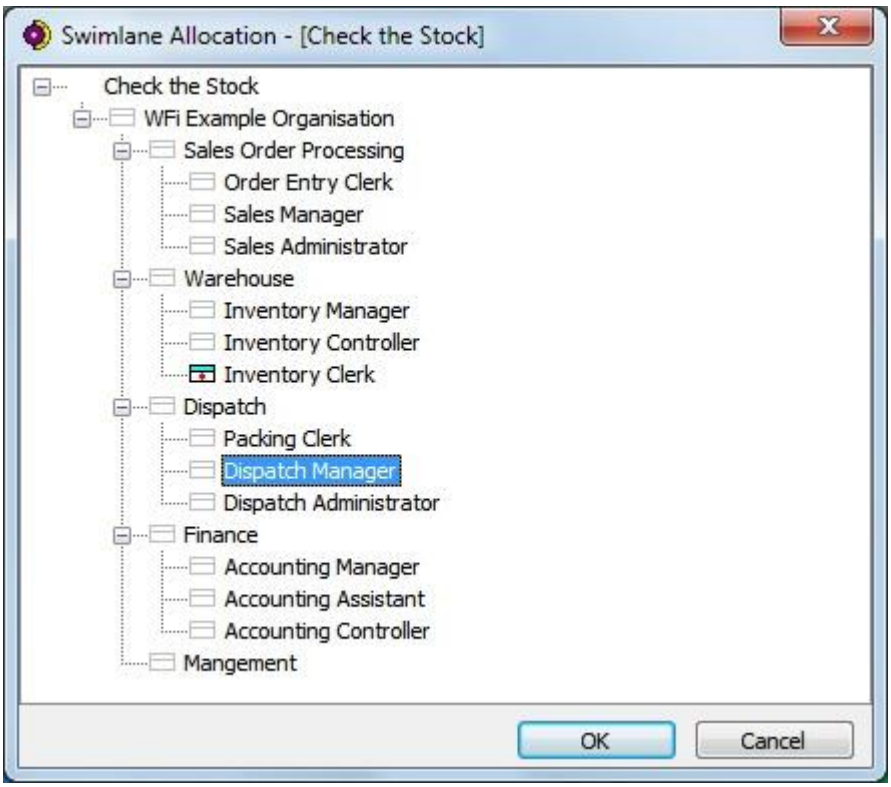
If you wish to change the height (for horizontal Swimlanes) or width (for vertical Swimlanes), move the border over the border between two Swimlanes. The mouse cursor will change to a sizing icon. Press and hold the left mouse button down and drag the sizing line to increase/decrease the size of the Swimlane. Release the mouse button to set the size.

You can associate an Element with a Swimlane. From the Element's Context Menu, select the *Swimlane, Allocate* option to associate the Element with the Swimlane it currently resides in.

If an Element is already associated with a Swimlane, you can remove the association using the *Swimlane, Deallocate* option.

To choose a different Swimlane, use the *Swimlane, Select* option. The Swimlane Allocation dialog is displayed.

# The Swimlane Allocation dialog




## Fields

| Field | Description |
|---|---|
| Tree View | A Tree View shows all the available Swimlanes. If a Swimlane is allocated, an icon with a blue bar is shown next to it. If a Swimlane is allocated and set as the Primary, an icon with a blue bar with a red dot is shown next to it. If a Swimlane is unselected, an icon with a light-grey border is shown next to it. Click the left mouse button on a Swimlane to toggle the allocation state. To set a Swimlane as the Primary Swimlane, click the right mouse button on the Swimlane and select Set as Primary.<br><br>An Element can be associated with one or more Swimlanes. |

## Functions

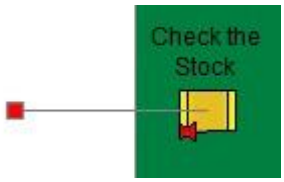
| Action | Description |
|---|---|
| OK | Accept the changes. |

| Action | Description |
|---|---|
| Cancel | Discard the changes. |

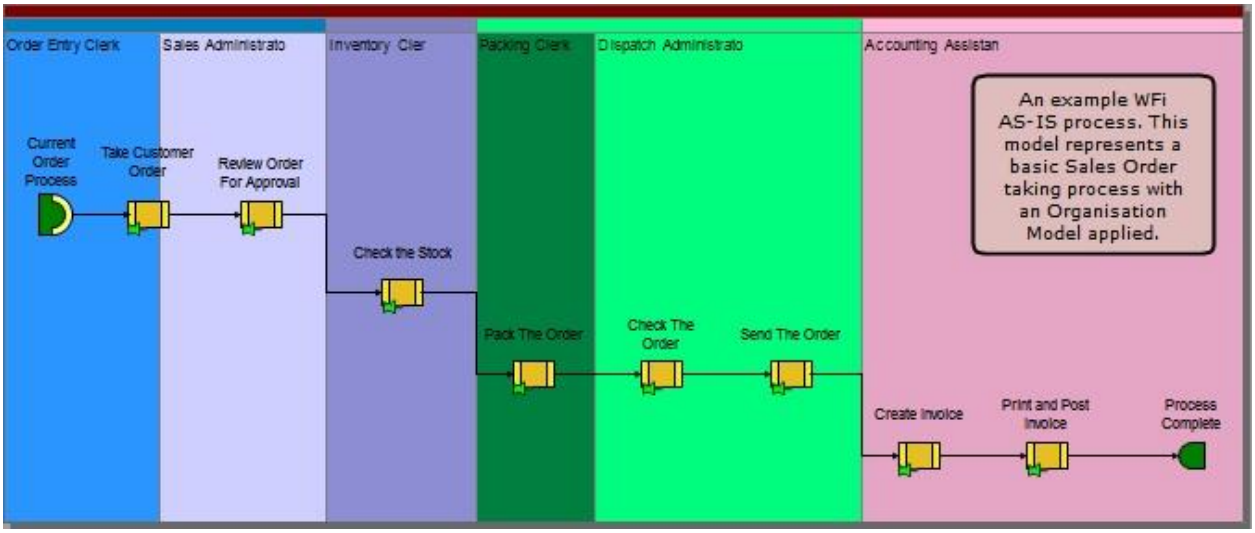
When an Element is allocated to a Swimlane, a pin icon will be shown next to the element. If the Element resides within the Swimlane it is allocated to, the pin will be colored Green.

If the Element resides within a parent of the Swimlane it is allocated to, the pin will be colored White.

If the Element resides within a Swimlane it is not allocated to, the pin will be colored Red and a line will be drawn to the Swimlane it is allocated to.




After applying the Organization Model to your AS-IS Model and assigning Elements to Swimlanes, you should have a complete model.




**Caution:** This Business Process, Example WFi AS-IS Process With Organization Data, is provided with the WFi Modeler Sample Business Processes that are supplied with your installation

(in the Samples/Processes sub-folder of you WFi Modeler Installation folder). You can import this process using the File -> Import option covered in the previous chapter.

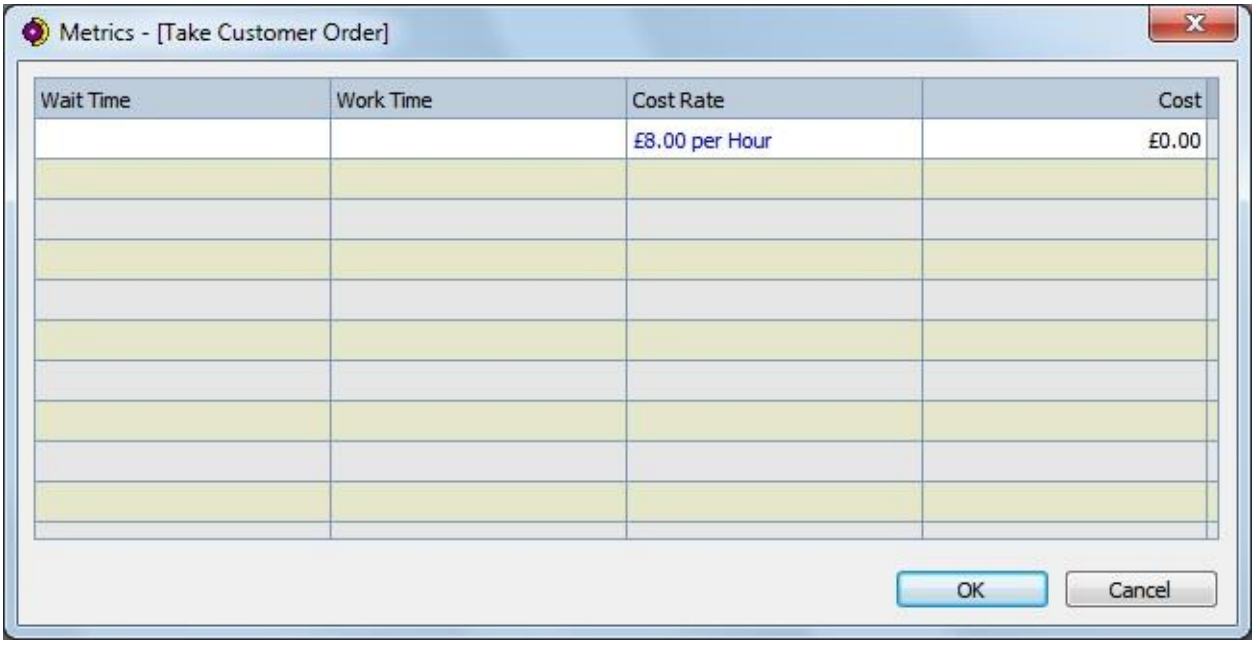
# Applying Metrics

At this point, we can apply Metrics to the AS-IS Business Process to help understand where the bottlenecks in the process are and to give us a basis for improving the process performance.

**Caution:** The metrics are usually measured using a time & motion study (or similar) for manual processes or, for existing software models, you may have the ability to generate metric data. Accurate data will help in the creation of a stream-lined Business Process.

For each Activity Element within the process, right-click on the link leading into the process and select *Metrics* from the Context Menu. The Metrics dialog is displayed.

## The Metrics dialog



## Fields

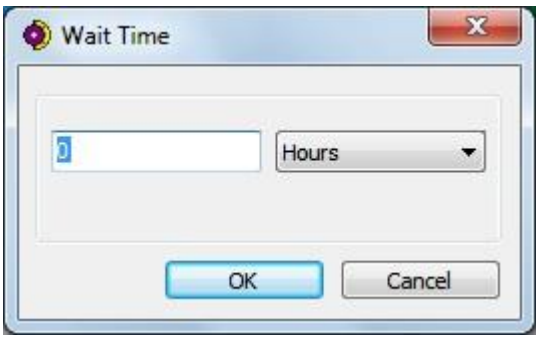
| Field | Description |
|---|---|
| Wait Time | The delay time before this Activity can begin. |
| Work Time | The time this Activity takes to complete. |
| Cost Rate | The rated Cost of this Activity. If the Element is associated with an Organization Unit, the Organization Units Cost rate will be used by default. |
| Cost | The calculated cost based on the above time and rate values. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

To change the Wait or Work time, click within the grid cell and press the prompt button. The Wait/Work Time dialog will open.

# The Wait/Work Time dialog



## Fields

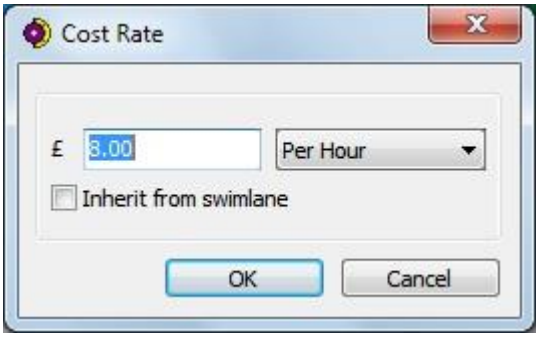
| Field | Description |
|---|---|
| Time | Enter a positive integer value. |
| Unit | Select the time unit |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

To change the Cost Rate, click within the grid cell and press the prompt button. The Cost Rate dialog will open.

# The Cost Rate dialog




## Fields

| Field | Description |
|---|---|
| Cost | Enter the cost value. The format will be inherited from your current Windows Locale. |
| Unit | Select the cost unit |

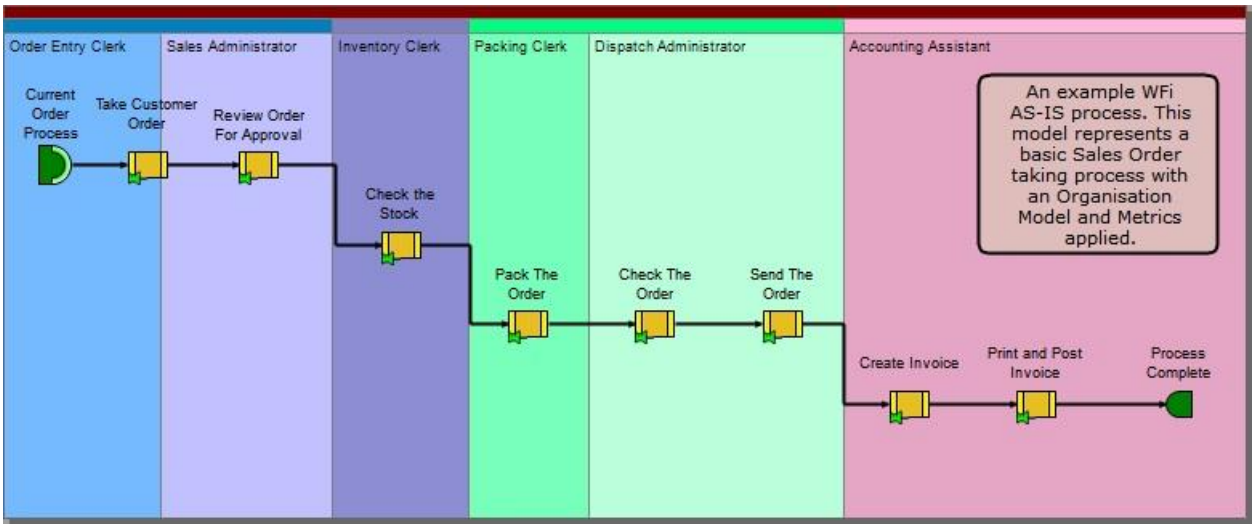
| Field | Description |
|---|---|
| Inherit from Swimlane | Check this to use the Cost Rate of the associated Swimlane for this value. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

Apply Metric data to each Element in the process.

To be able to display the Metric data within the Planned Schedule, you must select a Preferred Path. To do this, right-click on the link into the first Activity in the process and select the *Preferred Path* option from the Context Menu. The Preferred Path will be displayed with a bold line.



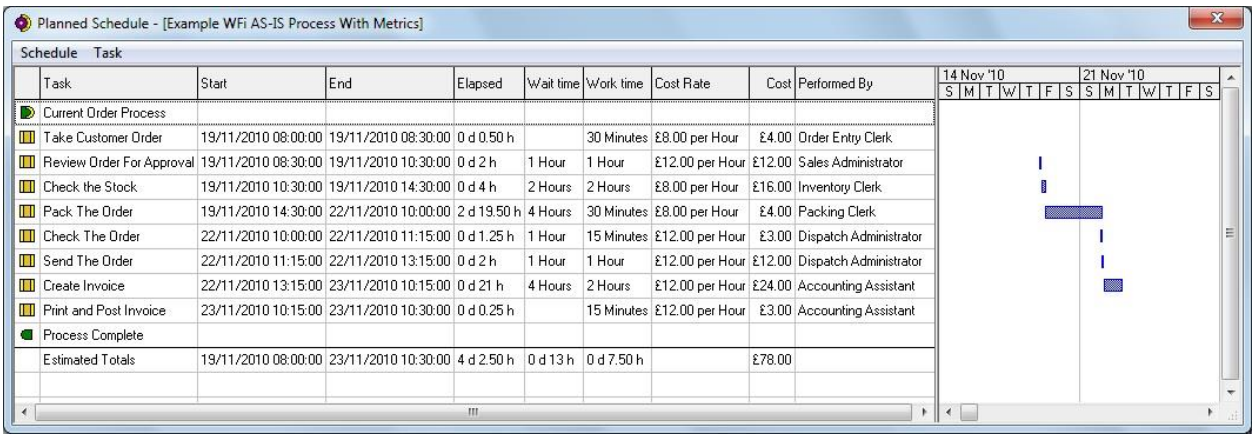

**Caution:** This Business Process, Example WFi AS-IS Process With Metrics, is provided with the WFi Modeler Sample Business Processes that are supplied with your installation (in the Samples/Processes sub-folder of you WFi Modeler Installation folder). You can import this process using the File -> Import option covered in the previous chapter.

**Caution:** You can apply the Preferred Path to any link within the process flow. It becomes more important when you create a Business Process with decision points. Using the Preferred

Path, you can view Metrics for different routes through your process to work out the optimum route. Metrics can only be shown for one path at a time.

To remove a link from the Preferred Path, right-click on the link and select the *Preferred Path* option from the Context Menu. The Preferred Path will be displayed with a normal line-style.

You can now use the Planned Schedule to view the time and cost of the selected Preferred Path. Open the Planned Schedule dialog to see this (see previous chapter for details on using the Planned Schedule dialog).




| Task | Start | End | Elapsed | Wait time | Work time | Cost Rate | Cost | Performed By |
|---|---|---|---|---|---|---|---|---|
| Current Order Process | | | | | | | | |
| Take Customer Order | 19/11/2010 08:00:00 | 19/11/2010 08:30:00 | 0 d 0.50 h | | 30 Minutes | £8.00 per Hour | £4.00 | Order Entry Clerk |
| Review Order For Approval | 19/11/2010 08:30:00 | 19/11/2010 10:30:00 | 0 d 2 h | 1 Hour | 1 Hour | £12.00 per Hour | £12.00 | Sales Administrator |
| Check the Stock | 19/11/2010 10:30:00 | 19/11/2010 14:30:00 | 0 d 4 h | 2 Hours | 2 Hours | £8.00 per Hour | £16.00 | Inventory Clerk |
| Pack The Order | 19/11/2010 14:30:00 | 22/11/2010 10:00:00 | 2 d 19.50 h | 4 Hours | 30 Minutes | £8.00 per Hour | £4.00 | Packing Clerk |
| Check The Order | 22/11/2010 10:00:00 | 22/11/2010 11:15:00 | 0 d 1.25 h | 1 Hour | 15 Minutes | £12.00 per Hour | £3.00 | Dispatch Administrator |
| Send The Order | 22/11/2010 11:15:00 | 22/11/2010 13:15:00 | 0 d 2 h | 1 Hour | 1 Hour | £12.00 per Hour | £12.00 | Dispatch Administrator |
| Create Invoice | 22/11/2010 13:15:00 | 23/11/2010 10:15:00 | 0 d 21 h | 4 Hours | 2 Hours | £12.00 per Hour | £24.00 | Accounting Assistant |
| Print and Post Invoice | 23/11/2010 10:15:00 | 23/11/2010 10:30:00 | 0 d 0.25 h | | 15 Minutes | £12.00 per Hour | £3.00 | Accounting Assistant |
| Process Complete | | | | | | | | |
| Estimated Totals | 19/11/2010 08:00:00 | 23/11/2010 10:30:00 | 4 d 2.50 h | 0 d 13 h | 0 d 7.50 h | | £78.00 | |

**Caution:** If you have applied a Calendar to your Organization Units then this will be used within the calculations for the start and end times. Either full or partial non-working days within the Calendar will alter the time it takes to complete the process.

# Creating the To-Be Model

At this point it may be appropriate to utilize a reference model, such as the SCOR models, to help in process improvement.

You can find out more about SCOR models at http://www.supply-chain.org/resources/scor

The TO-BE model is software independent. It states how the organization would like to function. Before creating the TO-BE model it is important to understand the organizations objectives.

At this point, it's good practice to define the objectives that you want to achieve in the TO-BE model. For example, for a Purchase Order Business Process, you may wish to distinguish between high and low value Purchase Order values and perform different actions for high value Purchase Orders.

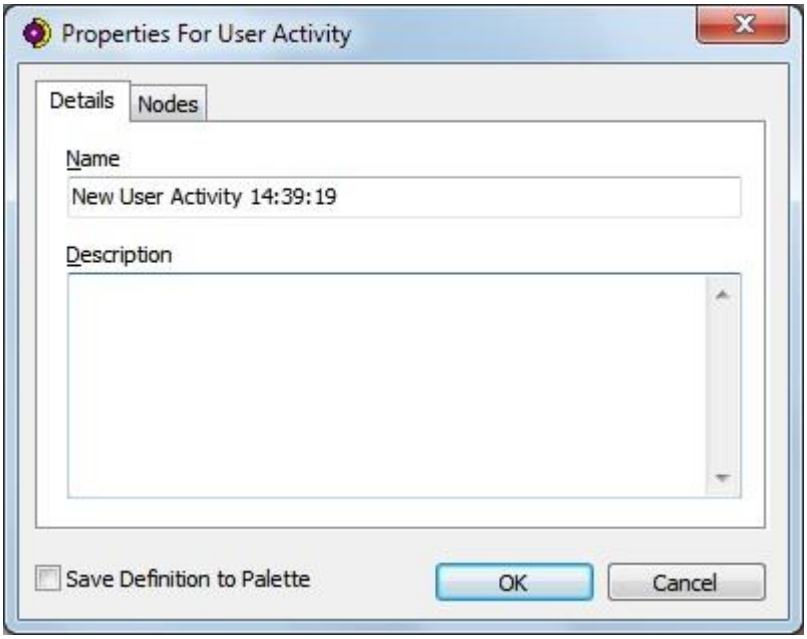
Whilst the AS-IS model may require decision points, it is usually during the TO-BE model that decisions are required. These can be modelled using User Activities.

# User Activities

A User Activity may be used where a manual decision must be made to take one of two or more mutually exclusive options.

To create a new User Activity, select the Controls section within the Palette and drag the User Activity Control onto the Canvas. The Properties for User Activity dialog is displayed.

## The Properties for User Activity dialog



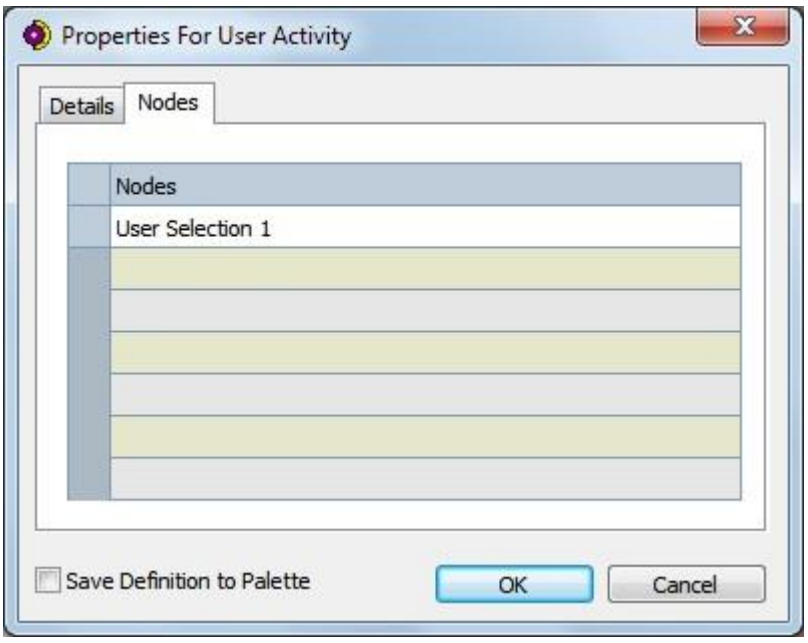
## Fields

| Field | Description |
|---|---|
| Name | Set the name for this activity. This will be displayed with the Activity on the Canvas. |
| Description | Descriptive text may be added. This text is displayed during the walkthrough. |
| Save Definition to Palette | If you plan to re-use this User Activity in other Business Models, check this box and the User Activity Properties will be stored within the Activities section of the Palette where it can be re-used by dragging it onto other models. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

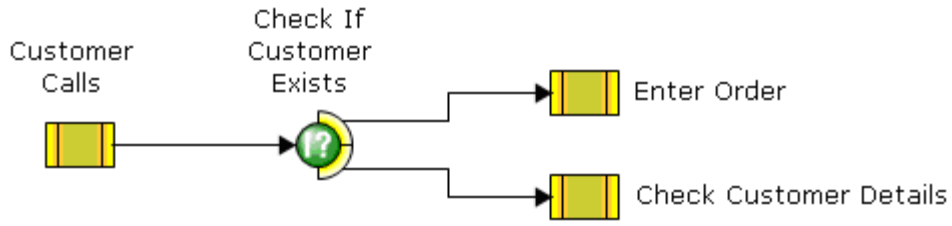
To amend the Exit Nodes, display the Nodes tab.



### Fields

| Field | Description |
|---|---|
| Nodes | To enter a new Exit Node right click on the grid and select Add from the context sensitive menu. Click in the grid cell to change the node text. To remove an unwanted Exit Node, right click on it and select Delete. |

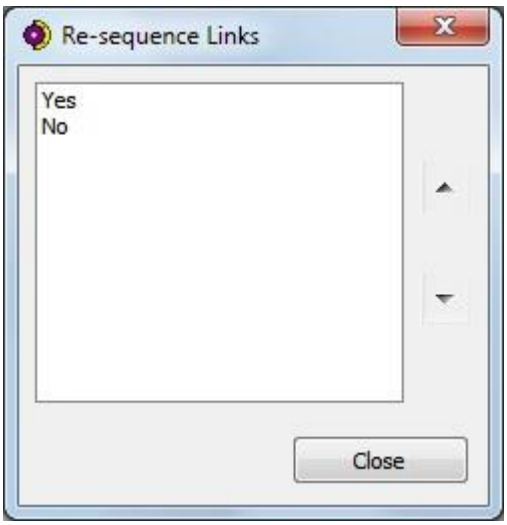
Once you have created a User Activity with multiple Exit Nodes, you will see that the yellow semi-halo at the right of the Activity becomes segmented. From each segment you can create a link to another Activity.




## Re-sequencing Exit Nodes

Within the Element's Context Menu, the Configure sub menu contains the Re-sequence Links… menu item. This opens the *Re-sequence Links* dialog in which the Element's Exit Nodes may be repositioned.

## The Re-sequence Links dialog




The *Re-Sequence Links* dialog shows a list of the Element's Exit Nodes. Select an Exit Node and use the arrows up and down to change its position in the sequence. The result of this can be viewed after closing this dialog, when moving the mouse pointer over the Exit Nodes.

### Functions

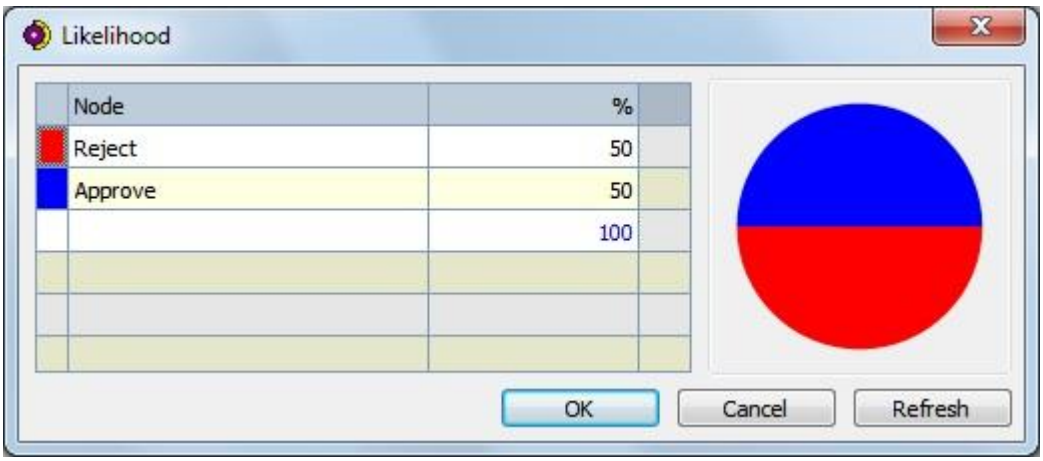
| Action | Description |
|---|---|
| Close | Close the dialog. |

# Likelihood

When a decision point is reached, you can use the Likelihood setting to define the percentage value that a particular path will be followed.

Within the Element's Context Menu, the *Configure* sub menu contains the *Likelihood* menu item. This opens the *Likelihood* dialog.

# The *Likelihood* dialog




## Fields

| Field | Description |
|---|---|
| Node | The Exit Node name. |
| % | Click in the grid cell to change the percentage value or use the spinner control within the cell. Only enter numeric integer values. The last cell of the grid shows the percentage total. If this says Refresh, click the refresh button to make sure the percentages add up to 100%. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |
| Refresh | Refresh the pie chart with the data from the grid. |

Once you have set Likelihood values, you can view them by hovering the mouse over the Exit Node segment within the Activity. The Percentage is shown in the Tooltip.


**Caution:** To see Percentages within Tool Tips, you must enable them by checking the Show Percentage Likelihood in Tooltip option within the Tools, Preferences dialog in the Elements tab.

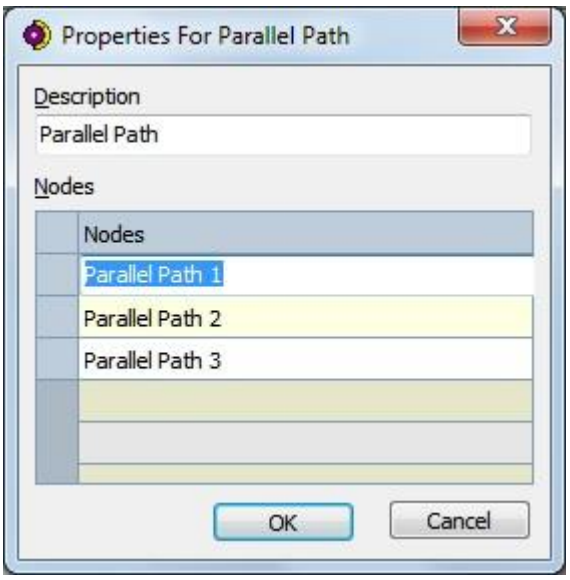
## Parallel Paths

A Parallel Path supplies a way to connect one Exit Node to two or more Elements or Controls. This allows following two or more simultaneous paths in a Process that are not mutually exclusive. These should be labelled to describe the action to be taken next in the process.

To create a new Parallel Path, select the Controls section within the Palette and drag the Parallel Path Control onto the Canvas.


Double-click on the Activity icon to display the Properties for Parallel Path dialog.

# The Properties for Parallel Path dialog




## Fields

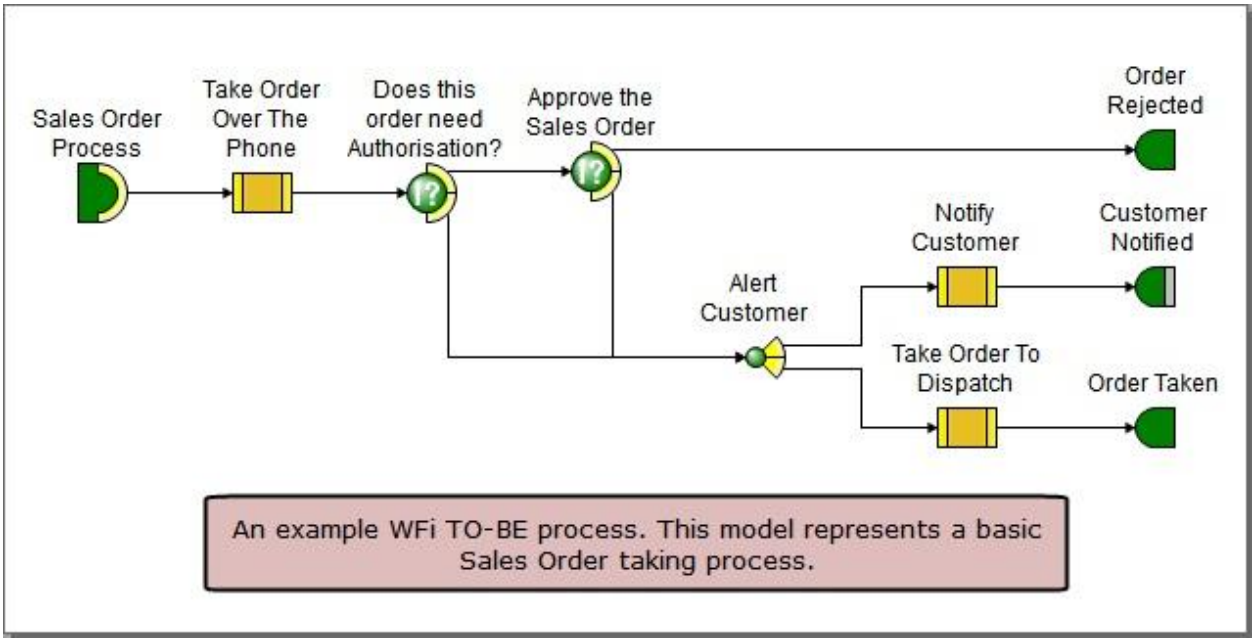
| Field | Description |
|---|---|
| Name | Set the name for this activity. This will be displayed with the Activity on the Canvas |
| Nodes | To enter a new Exit Node right click on the grid and select Add from the context sensitive menu. Click in the grid cell to change the node text. To remove an unwanted Exit Node, right click on it and select Delete. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

# Example TO-BE Model

Here is an example TO-BE model using some of the Activities discussed above.




**Caution:** This Business Process, Example WFi TO-BE Business Process, is provided with the WFi Modeler Sample Business Processes that are supplied with your installation (in the Samples/Processes sub-folder of you WFi Modeler Installation folder). You can import this process using the File -> Import option covered in the previous chapter.

# Software Modelling

The next phase in the modelling process is to take the Business Process model and convert it into a model that can be implemented with Infor ERP WFi. This is often the most time-consuming phase of the process.

To do this the process designer must have a good understanding of what the Infor ERP System i applications in the associated business area can do.

Infor Professional Services can provide implementation assistance and training on how to build Infor ERP WFi solutions. Contact your Infor representative for more information.

# Creating the Software Model

The user may either take an existing Reference Model that matches their requirements and amend/remove the Activities or create a new toolkit from scratch using knowledge of the Infor ERP System i application to map activities correctly.

This process step usually involves replacing the External Activities of the TO-BE model with Elemental Activities.

**Caution:** Elemental Activity definitions can be imported either directly from your System Manager installation. See the previous chapter for details on how to retrieve model data from WFi Engine and System Manager

For the TO-BE model example that we created in the previous section, the tasks can be mapped in the following way…

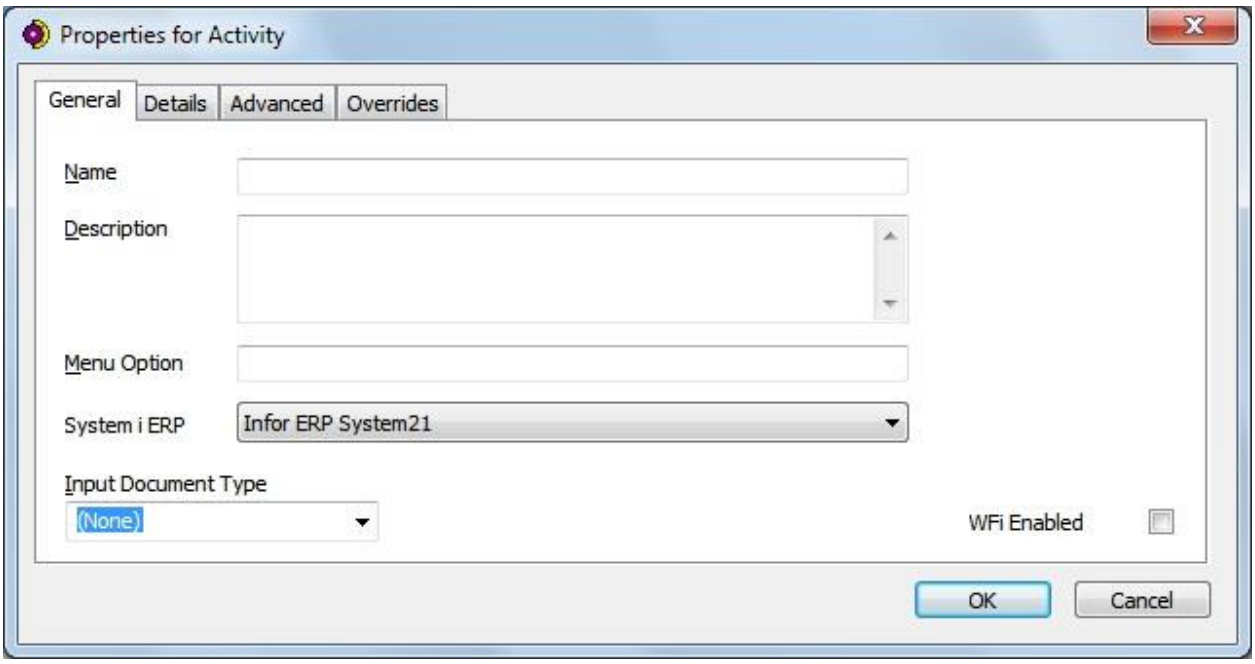
| TO-BE Model Element | Infor ERP System i Task |
|---|---|
| Order Taken and Entered Directly into the System | Sales Order Entry |
| Inform Customer That Order is Being Processed | Sales Order Acknowledgement |
| Manage Credit Issues | Suspended Sales Order Release |

# Elemental Activities

You can create your own Elemental Activity definition. To create a new Elemental Activity, right click the mouse on the Canvas and select New, Elemental Activity from the Context Menu. The Properties for Activity dialog will be displayed.

There are several tabs of properties for an Elemental Activity.

# The Properties for Activity dialog (General Tab)




## Fields

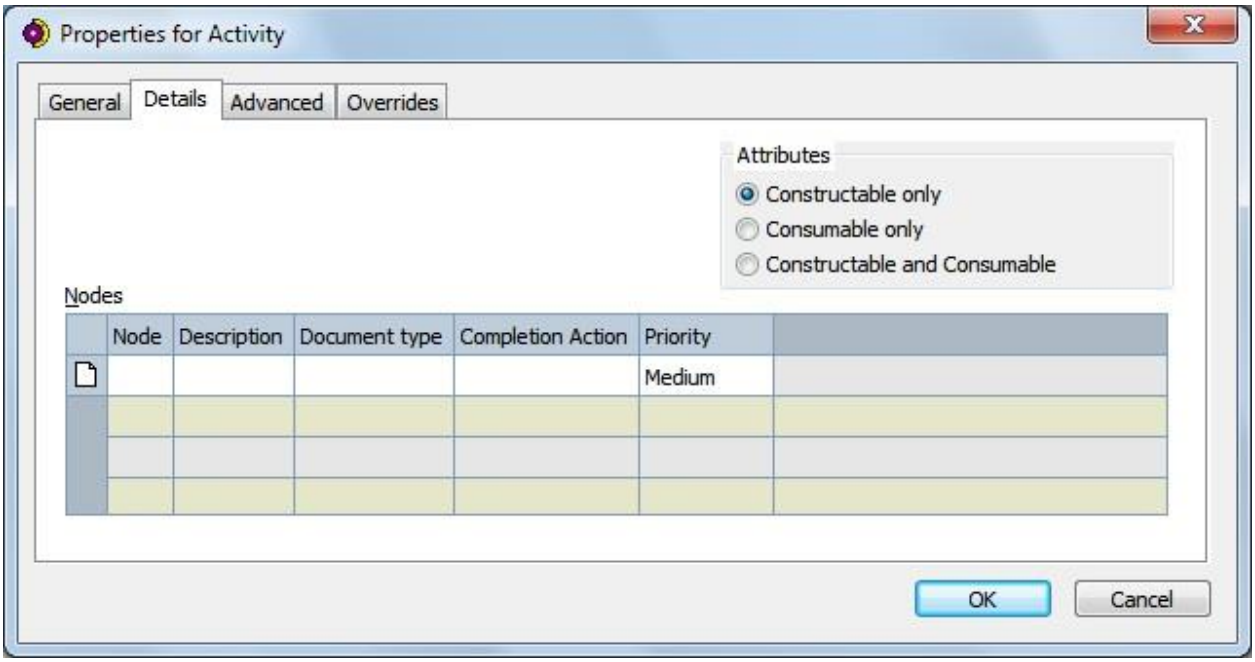
| Field | Description |
|---|---|
| Name | The name of this activity, as shown in the Palette. |
| Description | Text describing the function that this activity performs. |
| Menu Option | This denotes the shortcut used to launch the task using System Manager. |
| System i ERP | WFi Modeler supports multiple Infor System i ERP platforms. Use this feature to denote which ERP this task is associated with. The options are Infor ERP IDF, Infor ERP LX and Infor ERP System21. |
| Input Document Type | This field indicates what type of information the activity requires in order to execute. Activities that start a process such as Advanced Order Entry have an input document type of none, as they are the point when information is initially entered into the system. |
| WFi Enabled | Only when an activity is set as *WFi Enabled* will the *WFi Properties* tab be enabled. This will be covered in the section regarding Execution modelling. |

## Functions

| Action | Description |
|---|---|
| OK | Accept the changes. |
| Cancel | Discard the changes. |

# The Properties for Activity dialog (Details Tab)

The *Details* tab is used to define the exit routes for the activity. Right-click within the grid to access its context menu. Grid lines can be Added and Deleted.




## Fields

| Field | Description |
|---|---|
| Attributes | This group determines whether the element is to be a Constructable or a Consumable or both. System i ERP Activities should always be set Constructable only. |

In the Nodes grid enter the node details for the exit paths for this activity. Each exit path can be linked to other elements within the Business Process.

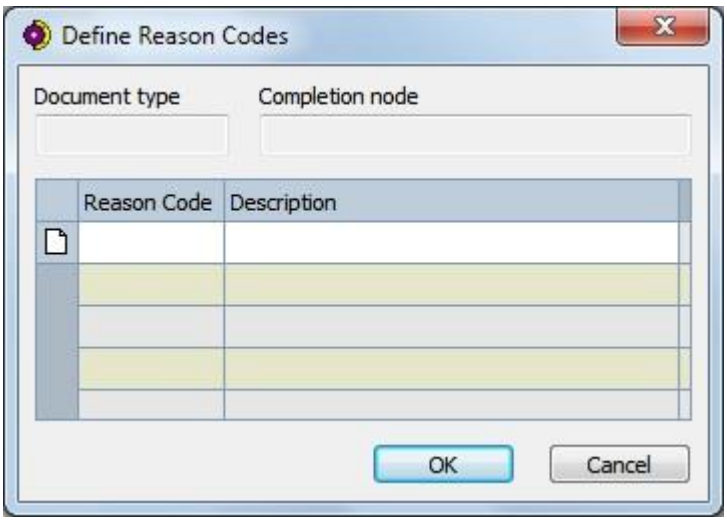
| Field | Description |
|---|---|
| Node | This is the two-character alphanumeric completion code. The default is blank. |
| Description | Description of the node to be displayed as a tool tip. |
| Document Type | Valid Document Type name to be used by the node, for example Invoice. |
| Completion Action | This field can be safely ignored in most cases. Use this only to define special processing for the completion node.<br>(none) - no specific action to be taken and transaction completed.<br>1 - Cancel Transactions. This sets the Document Type to completed status and then cancels anything that is pending.<br>2 - Assign New Thread. This assigns a unique identifier to all the Document Types associated with this activity. |
| Priority | The priority value that the proceeding element will receive if sent to an Action List. |

**Caution:** At least one exit path needs to be specified for the Elemental Activity to be used within a Business Process

Right clicking on an entry within the Nodes grid displays a context menu that allows nodes to be added, deleted, copied, exported and, for existing nodes, the definition of Reason Codes.

Reason Codes are used to explain why a particular Elemental Activity has failed and should only be applied to exit routes that denote a failure (e.g. failed to create pick note). Selecting the *Reason Codes* option from the context menu, by right clicking within the desired exit node, displays a dialog that allows Reason Codes to be defined.

# The Define Reason Codes dialog



## Fields

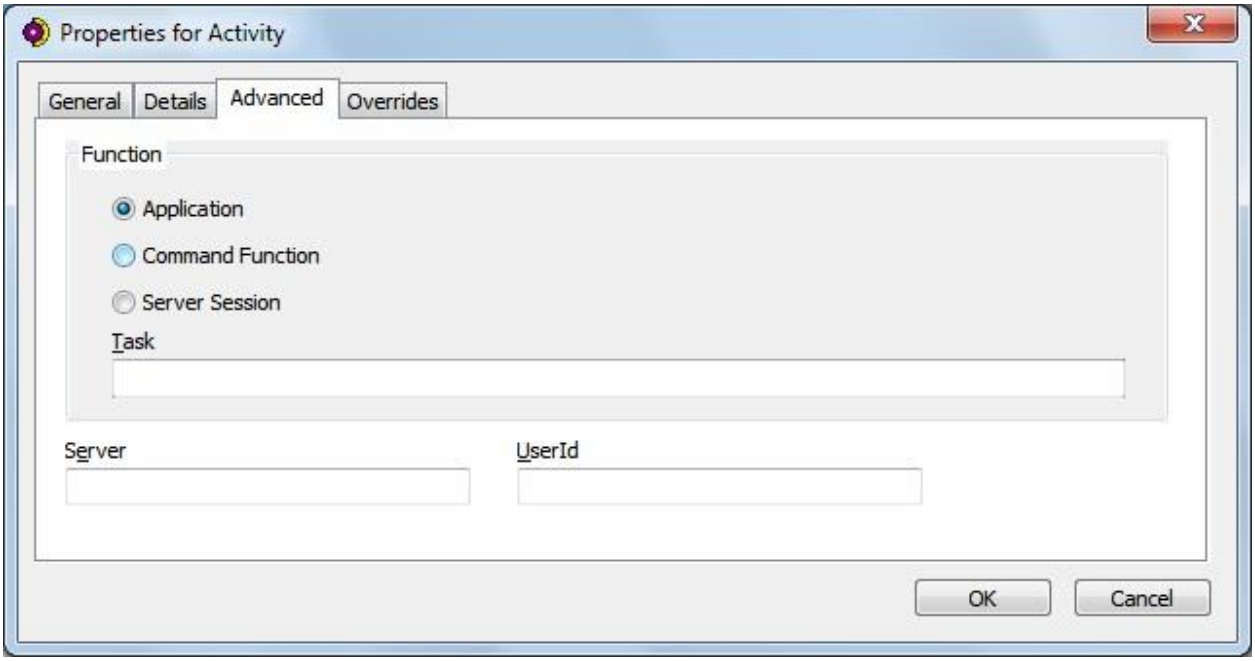
| Field | Description |
|---|---|
| Reason Code | Each code must be a unique two-character value.<br><br>**Caution:** The Reason Codes relate only to the Completion Code, within the Document Type, within the Activities exit node.<br><br>**Caution:** The creation of Reason Codes should only be performed when the underlying Infor ERP System i activity has been altered to generate the Reason Codes at runtime, otherwise the data will never be used. |
| Description | This should be an appropriate reason why the error occurred. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

# The Properties for Activity dialog (Advanced Tab)

The *Advanced* tab allows a System21 Aurora application AS/400 task code to be entered (in the *Task* field) and an optional *Server* and *UserId* may be set for Multi Server environments only.




## Fields

| Field | Description |
|---|---|
| Function | For an existing Activity, one of the following options will show the function type and cannot be changed. For a new Activity you can select one of the following function types that describe the activity.<br>• Application<br>The function is a System i ERP application.<br>• Command Function<br>When you select Command Function here, the Task entry line changes to Command for you to enter the command.<br>• Server Session<br>Name of the OLE server or System i ERP activity to execute the process.<br>**Caution:** This field is disabled if the element is Work Management enabled. |
| Task | The System Manager task code for this application. You must enter this if you wish to use the Preview facility within a Business Process Walkthrough. |

| Field | Description |
|---|---|
| Server | The name of the server on which the activity is to be executed. |
| User Id | Valid user logon. |

**Caution:** The Overrides tab is covered in the following chapter (Elemental Activity Overrides).

On creation of a new Elemental Activity, a new Element Activity icon is placed onto the Canvas.

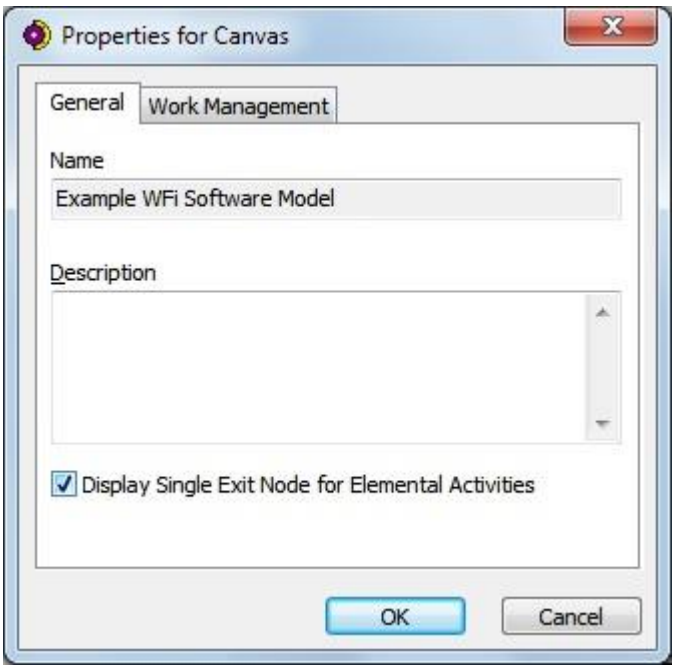

Additionally, a new entry within the Activities section of the Palette is created. You can drag an Elemental Activity from the Palette onto any other Business Process as required. The properties of each Elemental Activity are common to all Business Processes that use it.

**Caution:** The values of Overrides tab are set on a per-use basis; i.e. the General, Details, Advanced and WFi Properties values are set once per Elemental Activity but the Overrides tab data is specific to each instance of the activity within the Business Process.

## Single Exit Nodes

When creating a Software Model, especially when using pre-defined Elemental Activities that have multiple Exit Nodes, you can simplify the outputs of your activities to a single exit point so that you do not have to have two instances of the activity (one for Software one for Execution). To set this, click the right mouse button on the Canvas and select Properties. The Properties for Canvas dialog will appear.

## The Properties for Canvas dialog

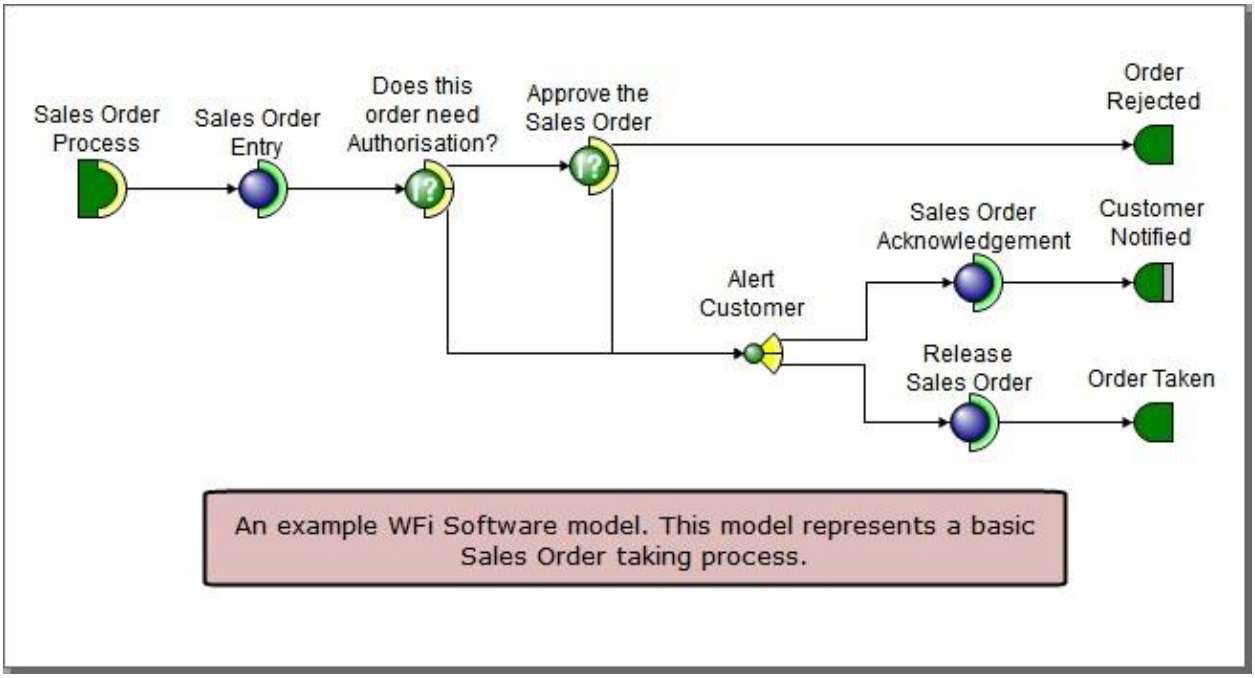



Check the *Display Single Exit Node for Elemental Activities* and click OK to apply to the current Business Process.

When this mode is enabled, Elemental Activities are shown with a green halo.


# Example Software Model

Here is an example TO-BE model using some of the Activities discussed above.




**Caution:** This Business Process, Example WFi Software Model Business Process, is provided with the WFi Modeler Sample Business Processes that are supplied with your installation (in the Samples/Processes sub-folder of you WFi Modeler Installation folder). You can import this process using the File -> Import option covered in the previous chapter.

# Execution Modelling

The Execution Model is the final Work Management solution that is applied to the WFi Engine, designed to proactively drive the Enterprise.

There are many different Data and Entity concepts that apply to Execution Modelling.

Below, we introduce the WFi Modeler features required to produce an Execution Model that can be activated to the WFi Engine to manage your Enterprise. More advanced features are covered in the following chapter.

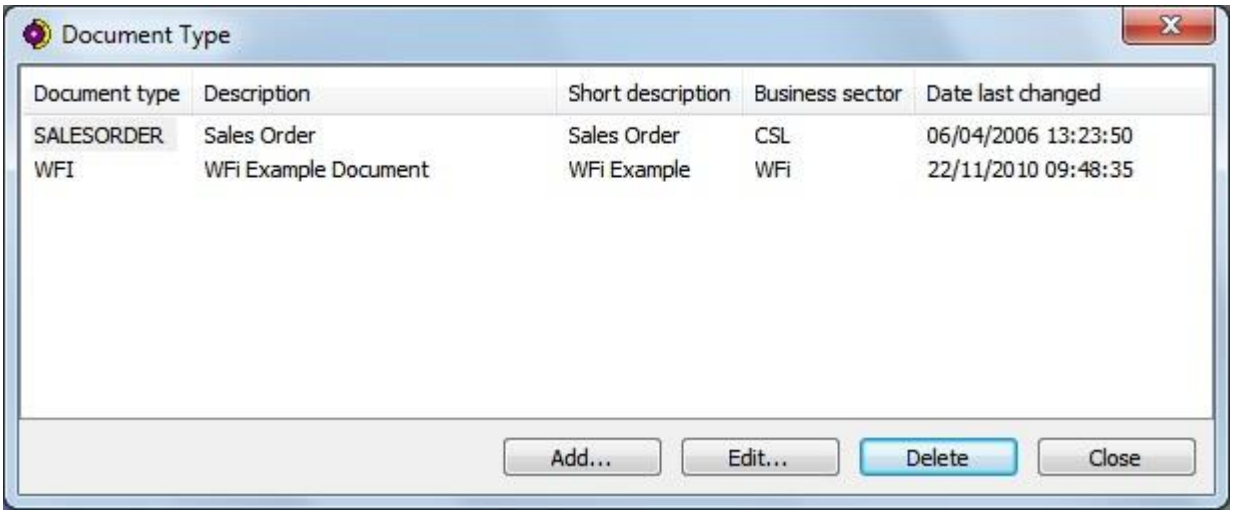
# Document Types

A Document Type (or Business Object) is the definition of the Data Entity that is relevant to the Business Process. For example, for a Purchase Order Approval process, the Document that is created and used throughout the process would be a Purchase Order.

In WFi Modeler, Document Types are amalgamations of Data Fields that represent the flow of information in a process. A typical example might be a Sales Order; the information that is required for a Sales Order includes fields like Customer Name and Address. Activities are generally identified with Document Types.

Document types may be maintained within WFi Modeler by selecting the *Configure, Work Management, Document Types…* menu item. The *Document Type* dialog will be displayed.

## The Document Type dialog




### Fields

| Field | Description |
|---|---|
| Document Types | List of all the Document Types defined in the current Application Version. |

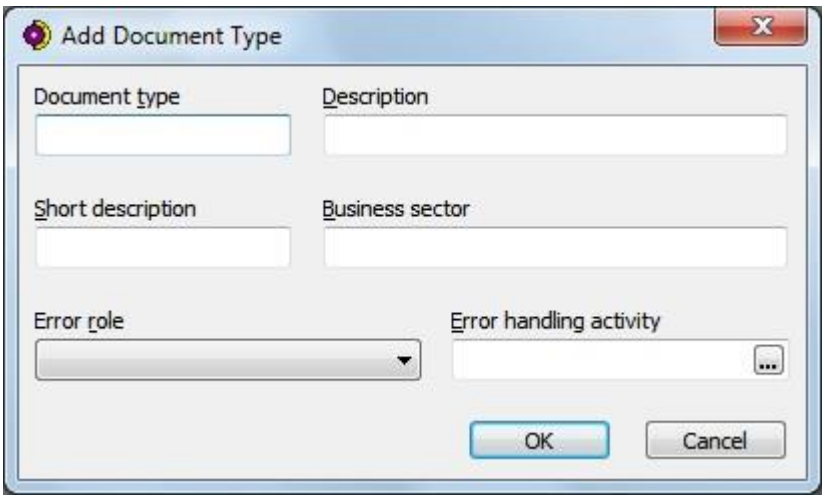
### Functions

| Action | Description |
|---|---|
| Add | Add a new Document Type. |
| Edit | Edit the selected Document Type. |
| Delete | Delete the selected Document Type. |

| Action | Description |
|---|---|
| Close | Close the Document Type dialog. You will be prompted to apply or discard any changes. |

Select **Add** to show the *Add Document Type* dialog.

## The Add Document Type dialog




## Fields

| Field | Description |
|---|---|
| Document Type | The 10-character code name for this Document Type. |
| Description | The long Description for this Document Type. |
| Short Description | The short Description for this Document Type. This is the value that is usually displayed within dialogs and prompts within WFi Modeler. |
| Business Sector | The type of Business Process this Document Type is associated with. This can be omitted. |
| Error Role | The Role that is associated with this Document Type when an error occurs. This can be omitted but may cause Validation errors. |

| Field | Description |
|---|---|
| Error handling activity | The program to call when an error occurs using this Document Type. Use the Prompt Button to select an Activity from your existing Activities. This can be omitted. |

### Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

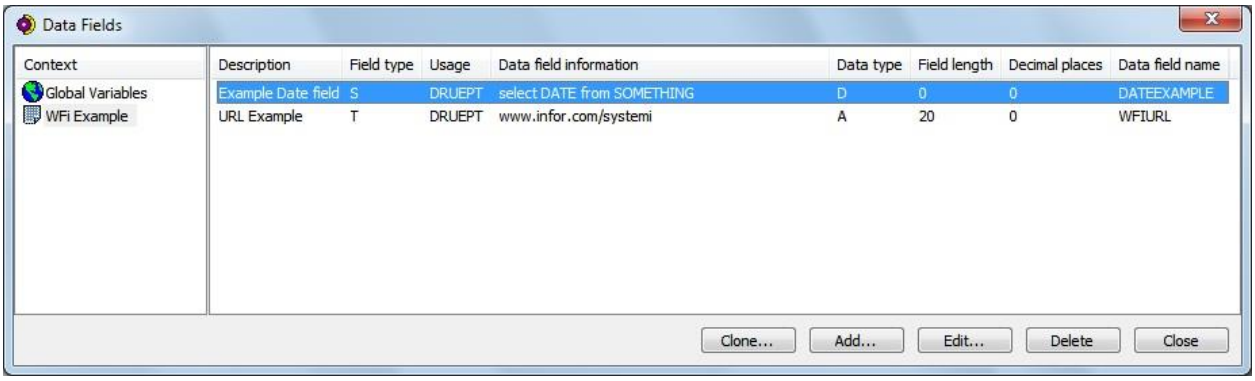
# Data Fields

Data Fields are variables used by WFi Modeler to extract relevant data for use within a Business Process. They can be used as part of decision making within a Business Process or to display relevant data to WFi users.

Data fields can be defined in multiple formats including SQL Data Fields, Programmatic Data Fields and Text Data Fields.

To view the Data Fields in the current Application Version, select the *Configure, Work Management, Data Fields.* The *Data Fields* dialog is displayed.

## The *Data Fields* dialog



## Fields

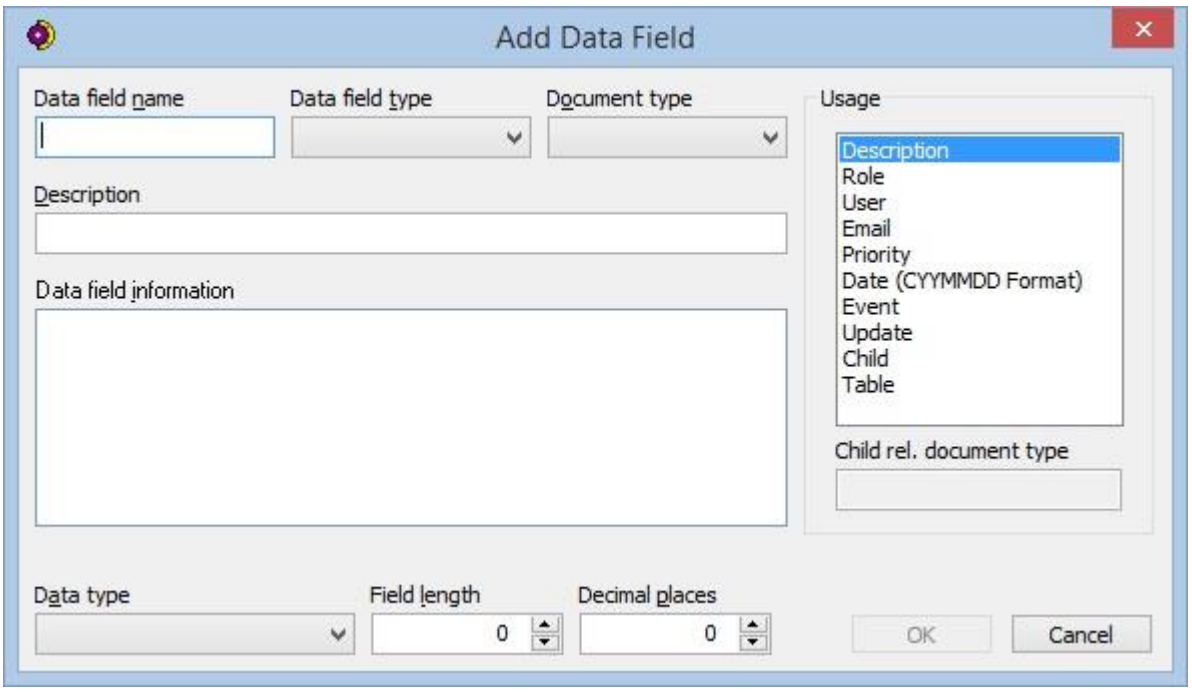
| Field | Description |
|---|---|
| Context | List of all the Document Types that have Data Fields associate with them. |
| Data Fields | List of all the Date Fields associated with the selected Document Type. |

## Functions

| Action | Description |
|---|---|
| Clone | Clone the select Data Field. |
| Add | Add a new Data Field. |
| Edit | Edit the selected Data Field. |
| Delete | Delete the selected Data Field. |
| Close | Close the Data Fields dialog. You will be prompted to apply or discard any changes. |

Select **Add** to create a new Data Field. The *Add Data Field* dialog is displayed.

# The Add Data Field dialog




## Fields

| Field | Description |
|---|---|
| Data Field Name | This field value is arbitrary. The maximum character length is 19 characters for a Document Type of Global and 20 characters for any other Document Type.<br><br>**Caution:** This field is disabled if you create a new child relationship.<br><br>**Caution:** If the Document Type is Global, the Data Field Name must not start with ERR. |

| Field | Description |
|---|---|
| Data Field Type | The type can be one of the following:<br>• Text - Data Fields are any literal text<br>• SQL - Data Fields are evaluated using an SQL statement<br>• Programmatic - Data Fields need an associated RPG program<br>• Stored Value – Stored Data Fields are used in Action Agents and Manual Activity Edit Fields and store the result of the valid condition/user entry.<br>• Group Update – For creating a combination of two or more Update Data Fields and Paired Updates that occur at the same time<br>• Paired Update – For creating a combination of two Update Data Fields that occur at the same time<br>• IDF System-Link Call – Data Field is evaluated by calling the Infor ERP System i IDF System-Link application.<br><br>**Caution:** Programmatic, Paired and Group Data Fields should be added by experienced users only. |
| Document Type | A designer should also choose a Document Type to which the Data Field is associated. The Data Field can only be used in Controls that are of the same Document Type. |
| Description | The descriptive name for the Data Field. This field can be used to assign the Data Fields into directory structures by inserting backslashes into the data field names, for example Customer\Contact\Customer Name. The result of this is apparent when the designer of a Business Process needs to use specific Data Fields. |

| Field | Description |
|---|---|
| Usage | This limits the scope of the Data Field as to where the Data Field may be used within a Business Process. A minimum of one item in the list must be selected, but more may be selected as appropriate.<br>• Description – For use in Activity titles and messages.<br>• Role – For use in the Recipient dialog to specify a Role Code.<br>• User – For use in the Recipient dialog to specify a User Code.<br>• Email – For use in the Recipient dialog to specify a Email Address.<br>• Priority – For use in calculations of an Activities priority (e.g. Escalation).<br>• Date (CYYMMDD Format) – For use in calculations for Date-related properties (e.g. scheduling when an Activity will appear on an Action List).<br>• Event – For Data Fields that are used within Event Agents. When Event usage is selected, no other usage may be selected.<br><br>**Caution:** For more information, see the Event Agents section in the next chapter<br><br>• Update – For Data Fields that are used to update Infor ERP System i data. When Update usage is selected, no other usage may be selected.<br>• Child – For Data Fields that are used within Child Splitter Activities. When Child usage is selected, no other usage may be selected.<br>• Table – For Data Fields that are used to bring back multiple rows and columns of data. This type of Data Field can only be used within the Manual Activity message body.<br><br>**Caution:** For more information, see the Displaying Tabular Data within a Manual Activity section in the next chapter. |
| Child rel. Document Type | Set the Child Document Type. Only enabled when Usage is set to Child.<br><br>**Caution:** For more information, see the Splitter section in the next chapter. |
| Data Field Information | Depending on the Data Field Type and Usage the Data Field Information section will change (see below). |
| Data Type | The variable type for the value returned by this Data Field. |
| Field Length | The length of the value returned by this Data Field. |

| Field | Description |
|---|---|
| Decimal Places | The number of decimal places for the value returned by this Data Field (only relevant to decimal types). |

## Functions

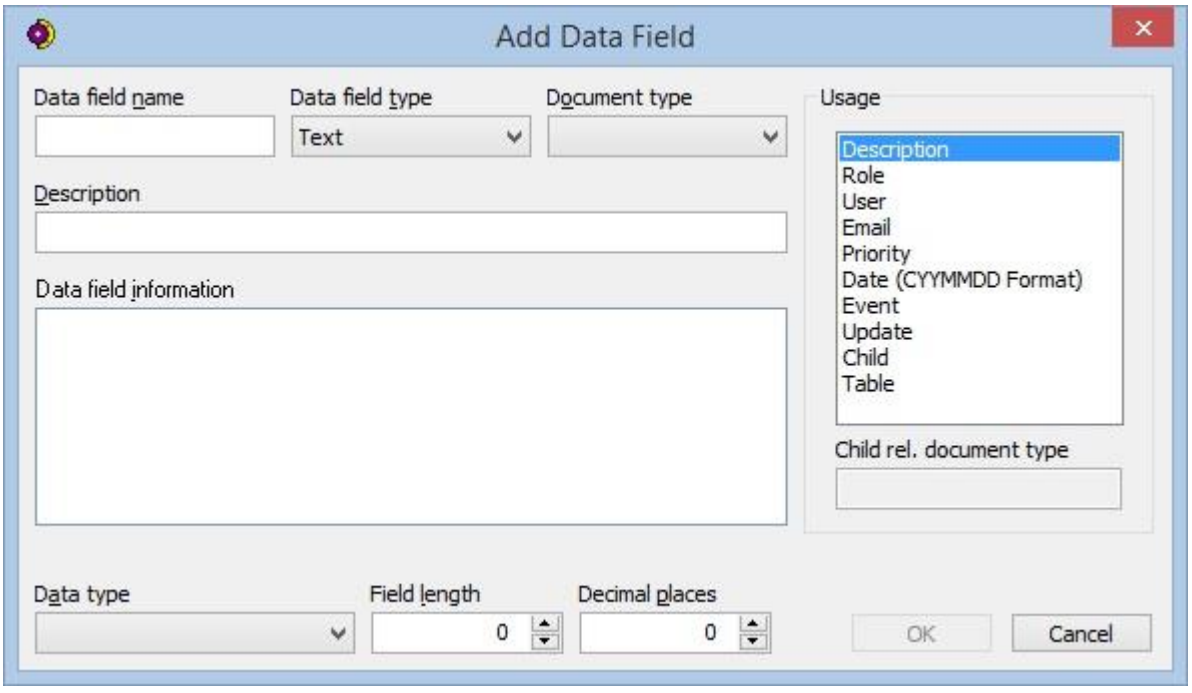
| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

There is no limit to the number or variation of Data Fields you can create per Document Type.

Once created, you cannot change the Data Field Name or Document Type. The Clone option can be used to create a copy of a Data Field with a new name and description.

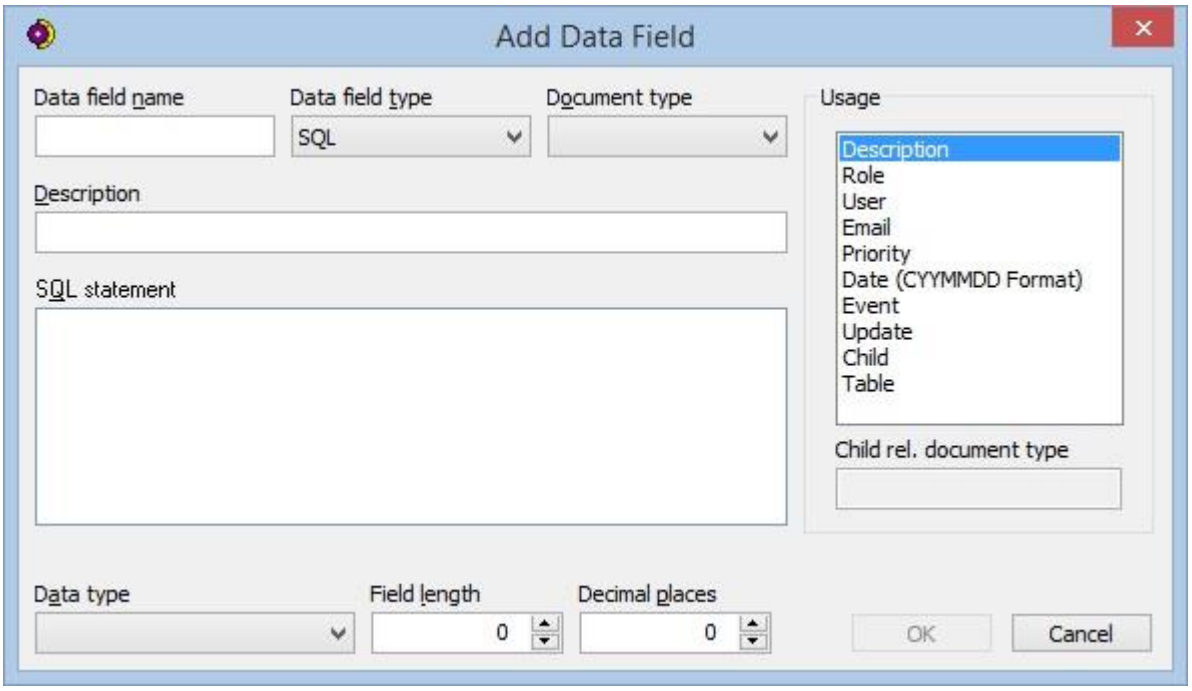
There are many Data Field Type and Usage combinations.

When the Data Field type is set to Text, the Data Field Information will display a text entry field.



You can enter plain text into the field, or you can use the fields Context Menu *Insert Data Field* option to add another Data Field from the same Document Type (or Global Data Fields). You can add any combination of text and other Data Fields to this field. In this way, a Text Data Field could be used to combine the results from other Data Field types into a composite result.

When the Data Field type is set to SQL, the Data Field Information will display a text entry field.



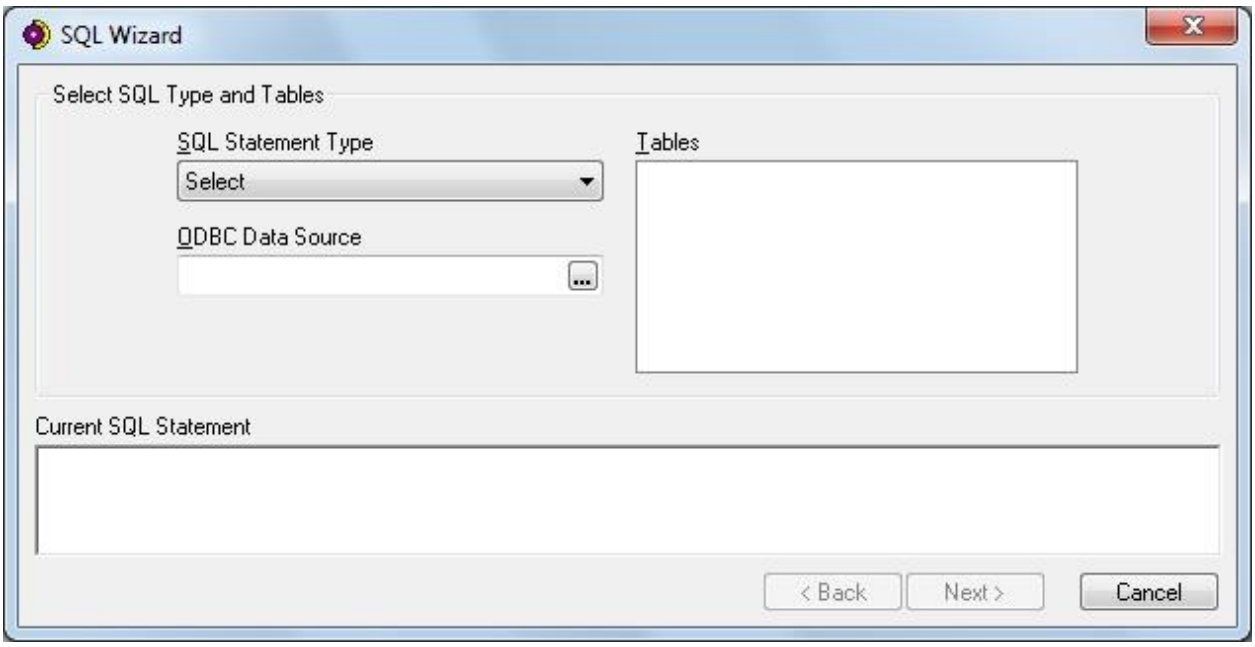

The content of this field should be an SQL Statement that can be dynamically executed by the WFi Engine.

**Caution:** If the statement is not a valid SQL syntax, your process will generate WFi Error Notifications when used

You can enter plain text into the SQL Statement field, or you can use the fields Context Menu *Insert Data Field* option to add another Data Field from the same Document Type (or Global Data Fields). You can add any combination of text and other Data Fields to this field.

Additionally, you can select the *SQL Wizard* option from the fields Context Menu to open the SQL Wizard dialog.

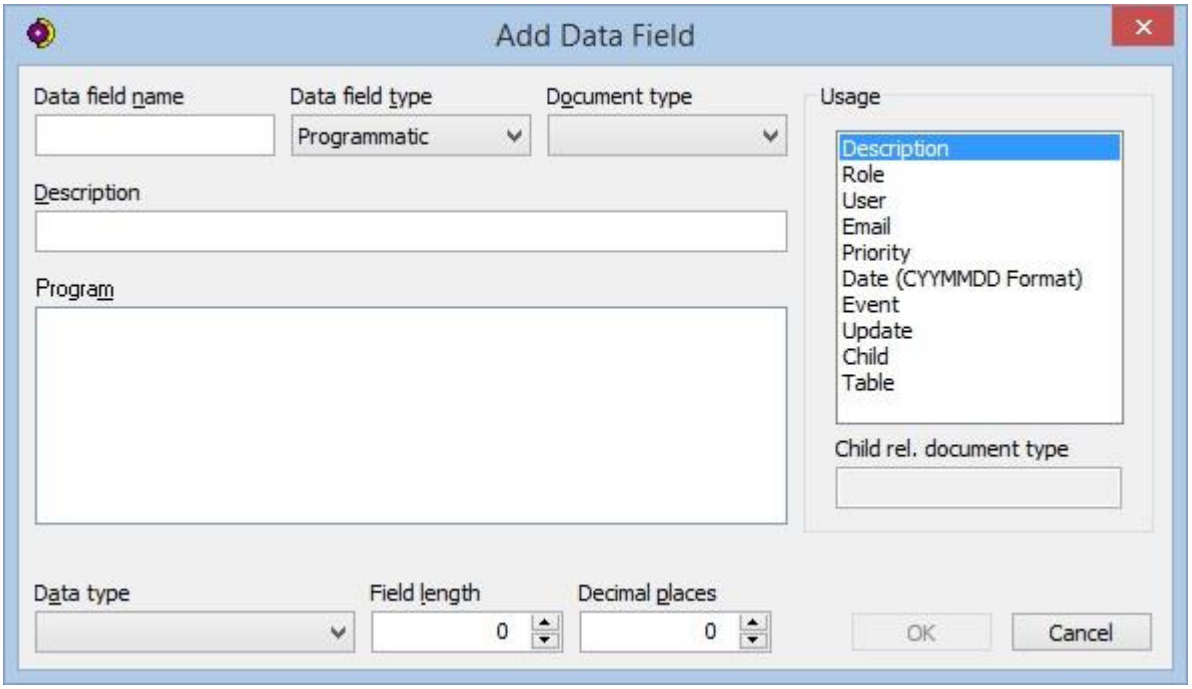
# The SQL Wizard dialog




This dialog allows you to create your SQL Statement using a series of fields and prompts.

**Caution:** This dialog is covered in more detail in the next chapter.

When the Data Field type is set to Programmatic, the Data Field Information will display a text entry field.

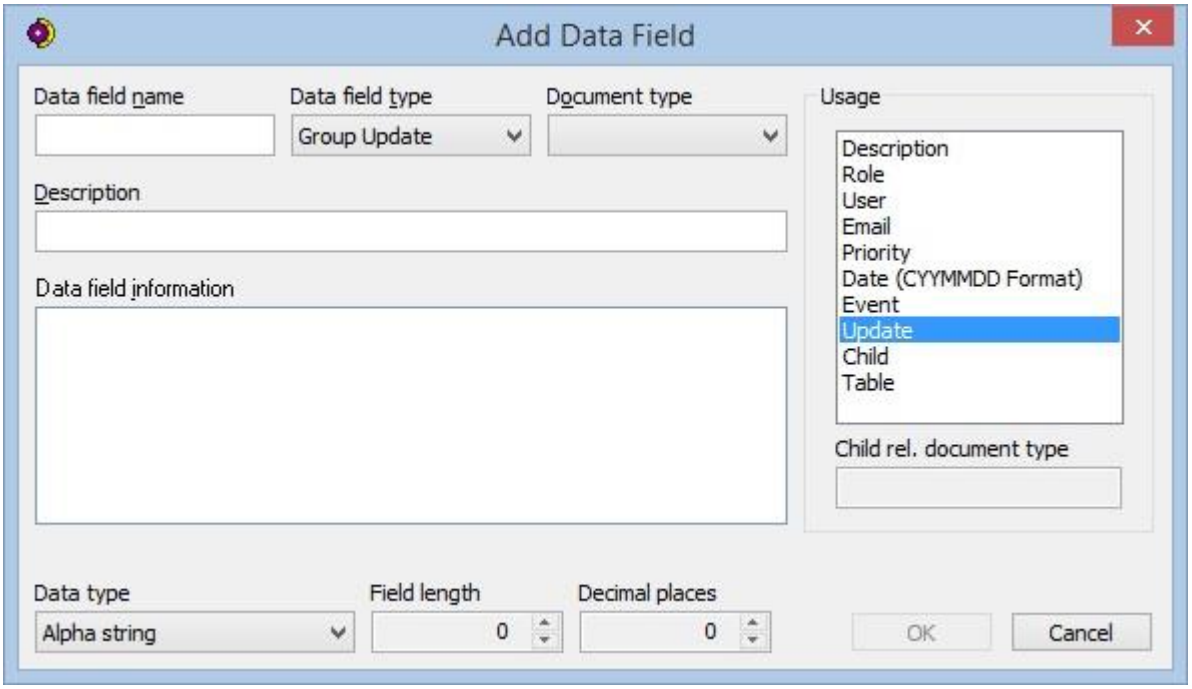



The content of this field should be an RPG Data Field Program that can be dynamically executed by the WFi Engine.

**Caution:** If the program is not available to the WFi Engine, your process will generate WFi Error Notifications when used.

You can enter plain text into the field, or you can use the fields Context Menu *Insert Data Field* option to add another Data Field from the same Document Type (or Global Data Fields). You can add any combination of text and other Data Fields to this field.

When the Data Field type is set to Group Update, the Data Field Information will display a text entry field.

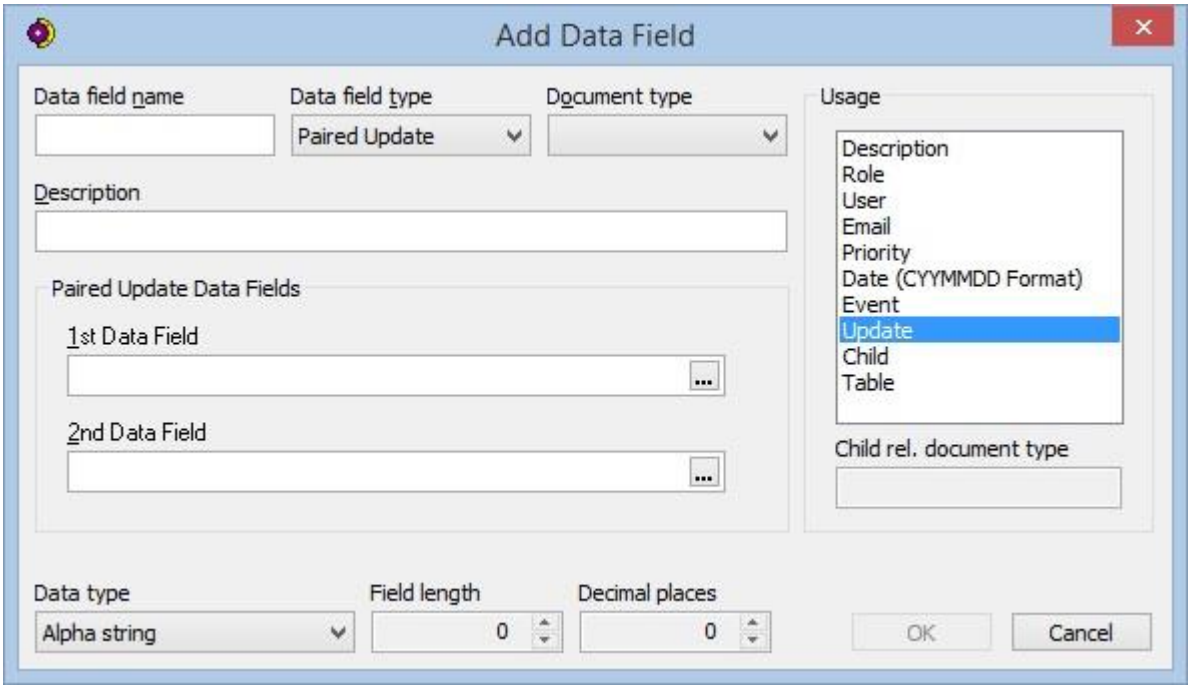



You can only use the fields Context Menu *Insert Update Data Field* option to add another Update Data Field from the same Document Type (or Global Data Fields) to this field. You can add any number of Update Data Fields.

**Caution:** See Define Update section in the next chapter to see how to use a Group Update Data Field.

A Group Update data field should be used when you wish to call multiple updates on exit from an Activity.

When the Data Field type is set to Paired Update, the Data Field Information will display two prompt fields.

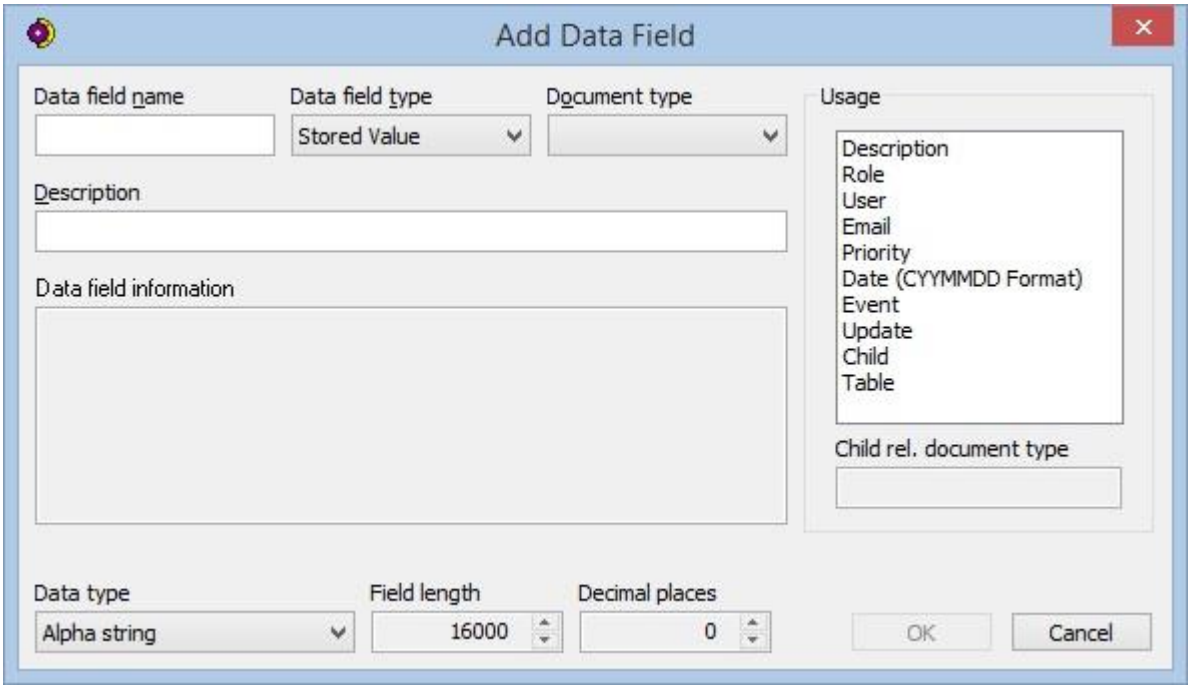



Use the prompt fields to select two Update Data Fields from the same Document Type.

**Caution:** See the *Define Update* section in the next chapter to see how to use a Paired Update Data Field.

A Paired Update data field should be used when you wish to call multiple updates on exit from an Activity.

When the Data Field type is set to Stored Value, the Data Field Information will be disabled.

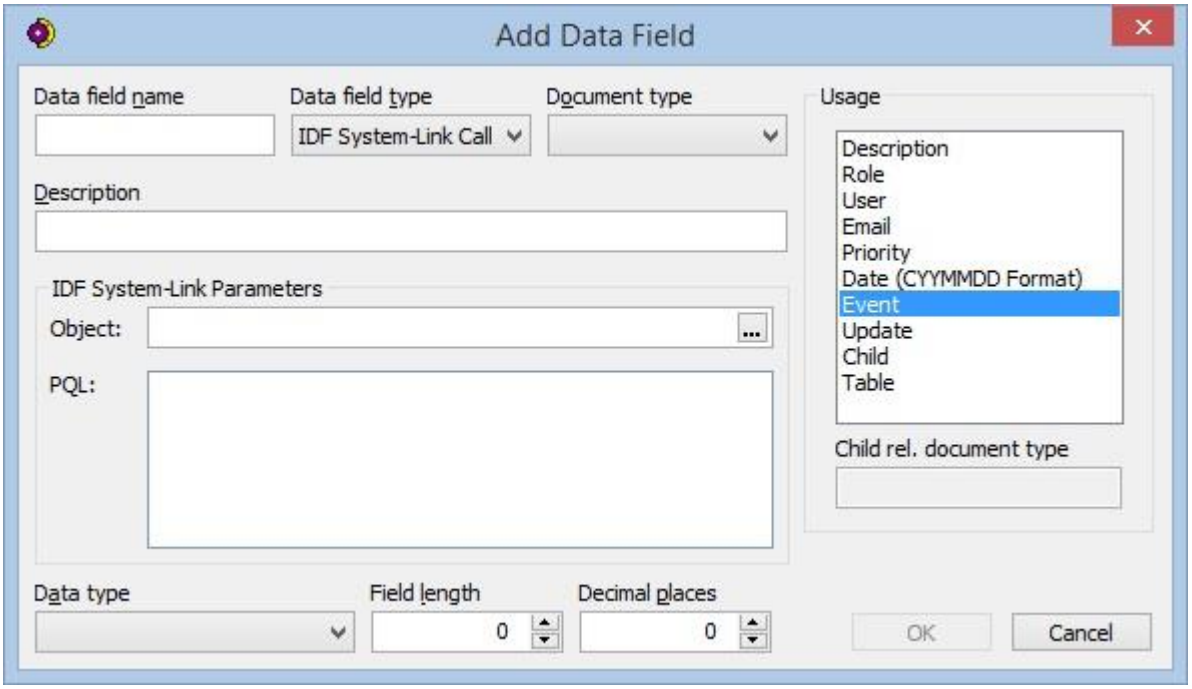



A Stored Value should be used to hold the result of a test or edit value.

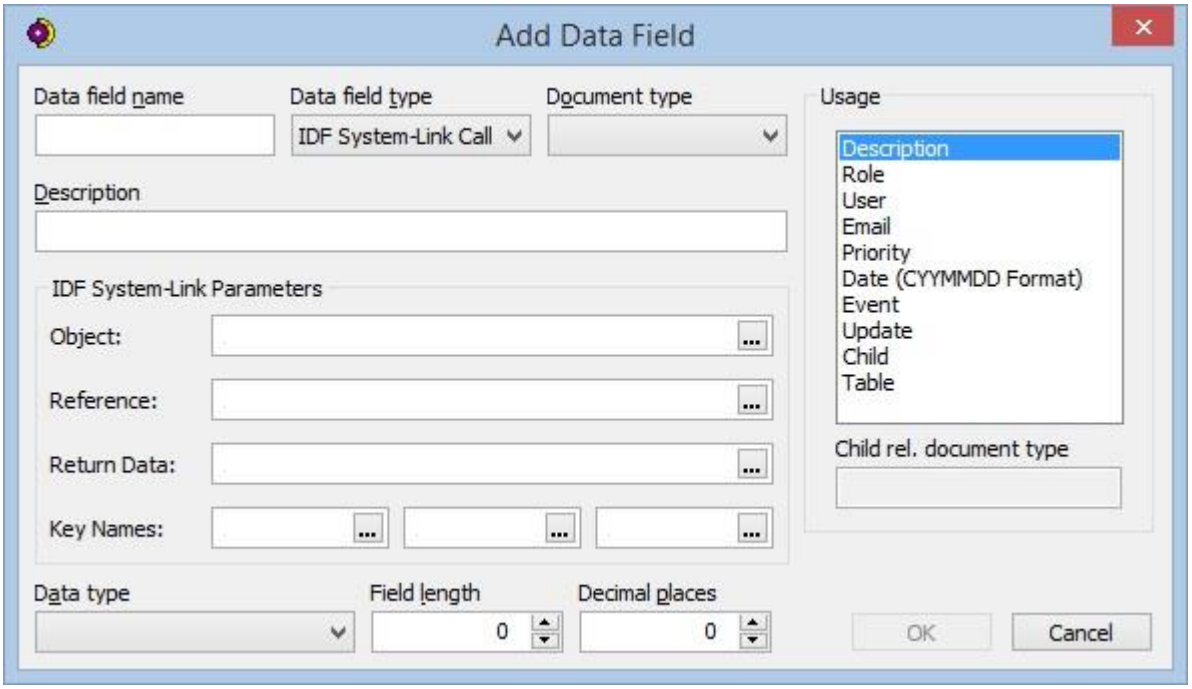
**Caution:** See Editable Manual Activities and Stored Values sections in the next chapter to see how to use a Stored Value Data Field.

When the Data Field type is set to IDF System-Link Call, the Data Field Information will contain different information, depending on the usage.

If the Usage is set to Child or Event, the following Data Field information will be displayed.



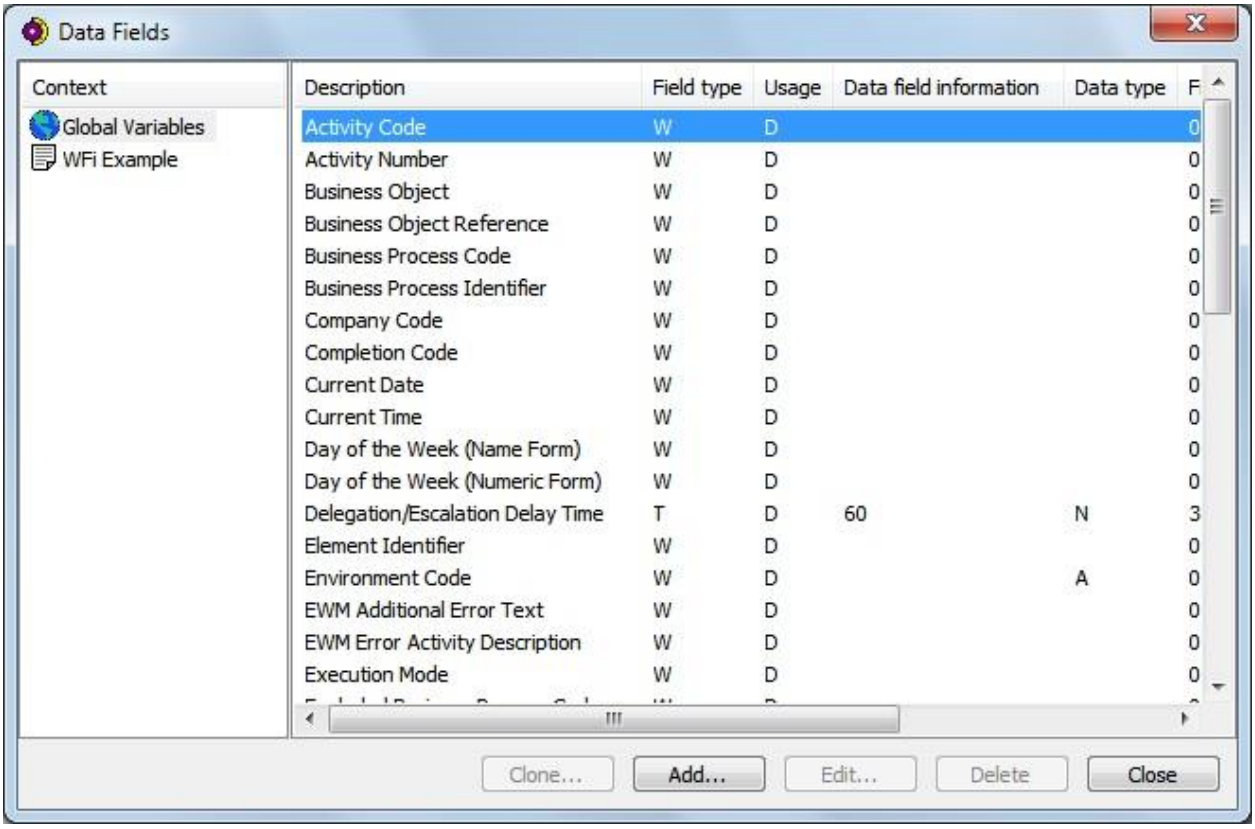

If the Usage is set to Description, Role, User, Email, Priority or Date, the following Data Field information will be displayed.



**Caution:** Details on how to use IDF System-Link Call Data Fields can be found in the Infor ERP System i XA guide for WFi.

# Global Data Fields

Global Data Fields are variables available to all processes, regardless of Document Type. They contain data that is specific to WFi. They are computed dynamically at runtime by the WFi Engine.




Here are descriptions of some of the commonly used Global Data Fields.

| Data Field | Description |
|---|---|
| Activity Number | The unique Activity Number for an Activity within the current Thread Id. |
| Business Object | The current Document Type |
| Business Object Reference | The reference value for this instance of the process (e.g. Sales Order Number). The Activity that starts the process creates this reference. |

| | |
|---|---|
| Company Code | The System Manager Company Code for this instance of the process |
| Environment code | The System Manager Environment for this instance of the process |
| Last User | The User ID of the user who completed the previous Activity |
| Level Reference n (Alpha) | The Business Object Reference can be made up of multiple parts, separated by a backslash character. The Level Reference Data Fields allow you to access individual parts of the Business Object reference. Up to 8 parts are supported |
| Level Reference n (Numeric) | As above. For use when the Level reference represents data that should be treated as numeric. |
| Thread Identifier | Each instance of a process has a unique Thread Identifier. |

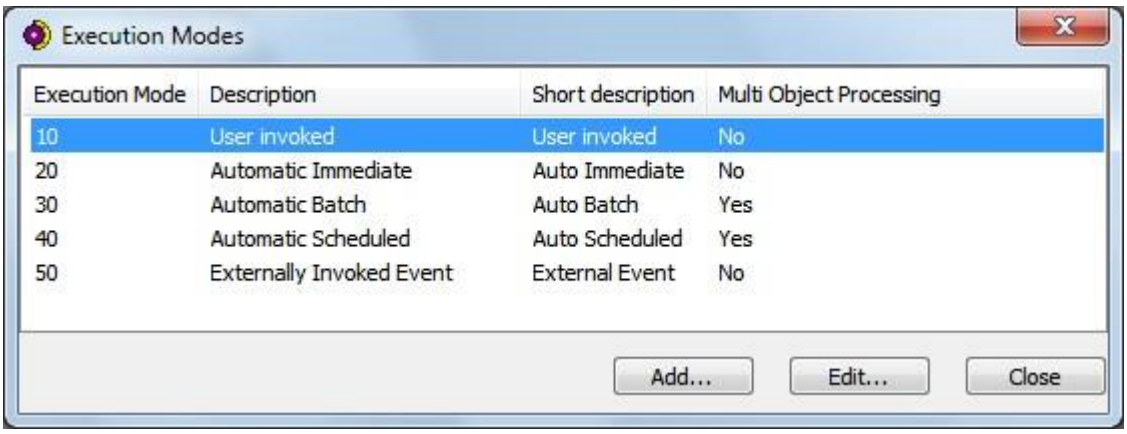
**Caution:** You may add your own Global Data fields for variable data that would span multiple Document Types (e.g. the name of your company, the URL address of your web-server).

## Execution Modes

Execution Modes are used to determine whether a server may be used to conduct an activity or whether that activity should involve human interaction. They also specify how the server should conduct that activity or who should be involved.

WFi Modeler comes packaged with five standard Execution Modes. These may be viewed through *Configure, Work Management, Execution Modes*.

# The Execution Modes dialog




## Fields

| Field | Description |
|---|---|
| Execution Modes | List of all the Execution Modes defined in the current Application Version. |

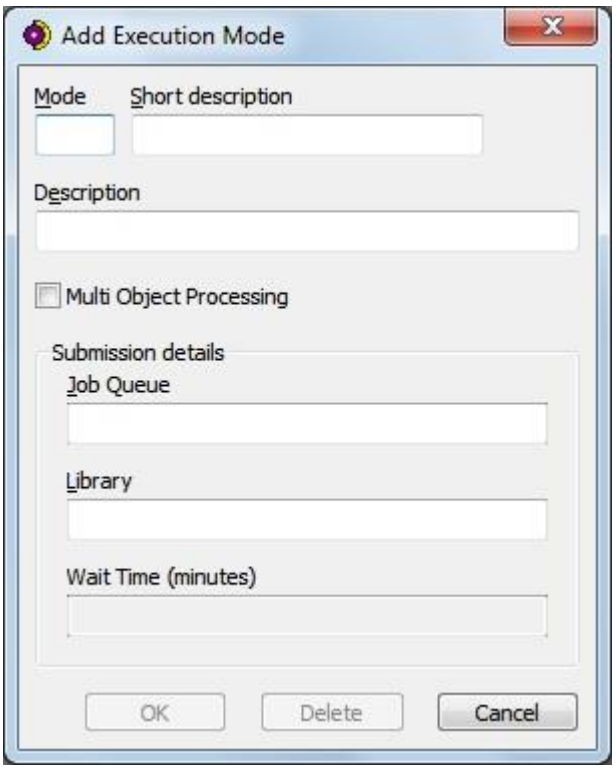
## Functions

| Action | Description |
|---|---|
| Add | Add a new Execution Mode. |
| Edit | Edit the selected Execution Mode. |
| Close | Close the Execution Mode dialog. You will be prompted to apply or discard any changes. |

Select Add to show the *Add Execution Mode* dialog.

**Caution:** New execution modes require bespoke modification to the WFi Engine and should only be attempted under guidance from Infor.

# The Add Execution Mode dialog




## Fields

| Field | Description |
|---|---|
| Mode | Two-digit mode number. |
| Short Description | The short description for this Execution Mode. This is the value that is usually displayed within dialogs and prompts within WFi Modeler. |
| Description | The long description for this Execution Mode. |

| Field | Description |
|---|---|
| Multi Object Processing | Define how the WFi Engine process multiple Documents.<br><br>**Caution:** Single object processing is designed around a job that processes one business object and is then complete.<br><br>Multi-object processing allows many business objects to be processed in one run of an activity. An Activity that is about to be executed and has an Execution Mode with the Multi-Object Processing option set, will not be submitted for processing if there already is a job awaiting processing on the job queue for the exact same activity. |
| Job Queue | The System i Job Queue that the WFi Engine will submit jobs to when this Execution Mode is used. |
| Library | The library that contains the above Job Queue definition. |
| Wait Time (minutes) | For Automatic Scheduled only. The default delay time before execution. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

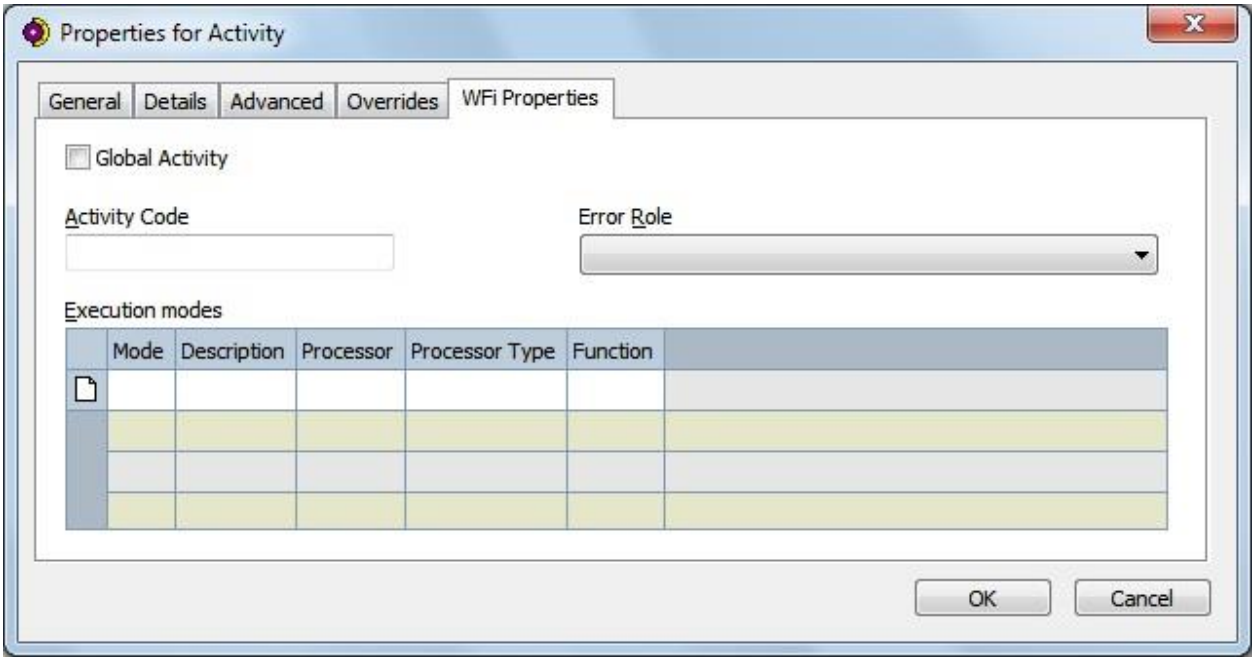
The shipped Execution Modes are:

| Code | Description | Short Description | Multi-Object Process |
|---|---|---|---|
| 10 | User Invoked | User Invoked | No |
| 20 | Automatic Immediate | Auto Immediate | No |
| 30 | Automatic Batch | Auto Batch | Yes |
| 40 | Automatic Scheduled | Auto Scheduled | Yes |
| 50 | Externally Invoked Event | External Event | No |

# Elemental Activity WFi Properties

Within the General tab of the Properties for Elemental Activity dialog there is a field called WFi Enabled, when checked the WFi Properties becomes available.

## Properties for Activity dialog (WFi Properties tab)




## Fields

| Field | Description |
|---|---|
| Global Activity | Set where the Activity should be available across all applications. |

| Field | Description |
|---|---|
| Activity Code | Mandatory and should be unique within the Application Version. Hardcoded within the System i ERP application program so the WFi Engine can associate this Activity with processes that use this Activity definition. |
| Error Role | The optional allows a role to be selected that receives notice of an error in the execution of the activity. |

The Execution Modes grid allows the definition of all Execution Modes supported by the activity. Execution Modes are added by selecting from the Pop-Up menu.

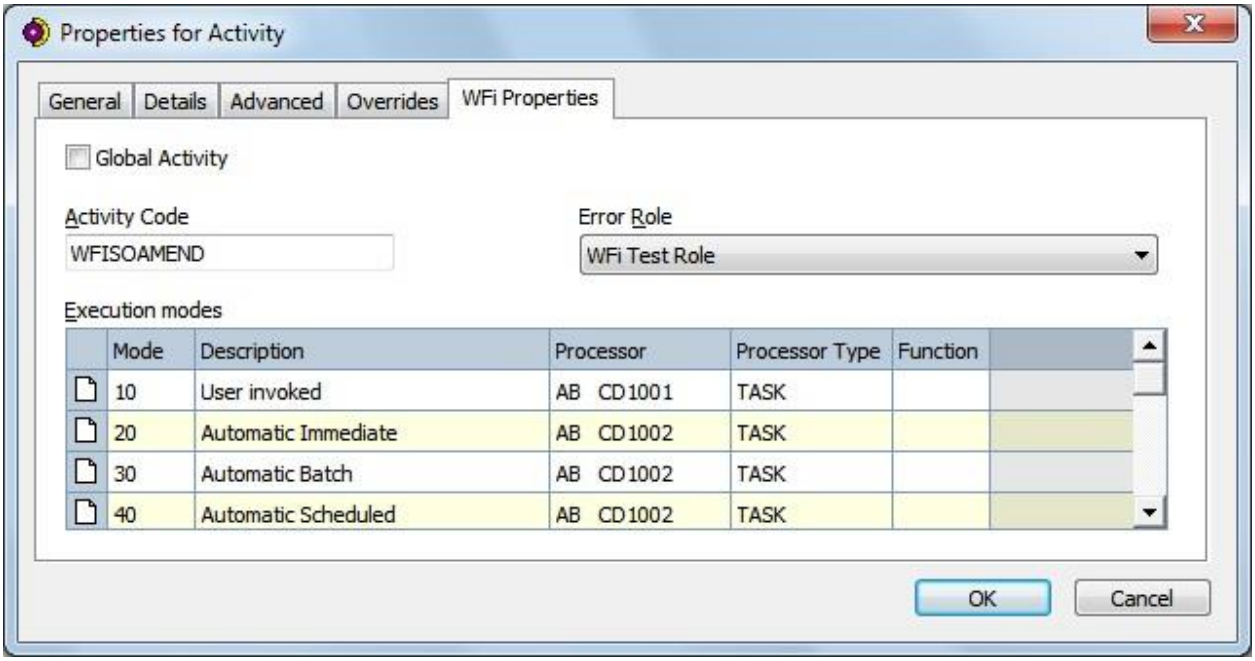
| Field | Description |
|---|---|
| Mode | This is the two-character numeric Execution Mode. A valid mode must be selected from the menu. |
| Description | The Description cannot be changed. |
| Processor | The System Manager task code used to execute the task. This is an 11-character code with characters 1-2 denoting the *Application Identifier*, characters 3-5 denoting the *Environment Code*, characters 6-7 denoting the System i ERP *Release Level* and characters 8-11 denoting the *Task Code* as defined in System Manager. |
| Processor Type | This should always be set to TASK. |
| Function | No longer used. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

You can assign multiple Execution Modes to a single Elemental Activity. Each Execution Mode can be associated with a different Infor ERP System i application.

E.g. for a Sales Order Release Activity, you would associate the interactive program with Execution Mode 10 and the batch program with Execution Mode 20, 30 or 40.

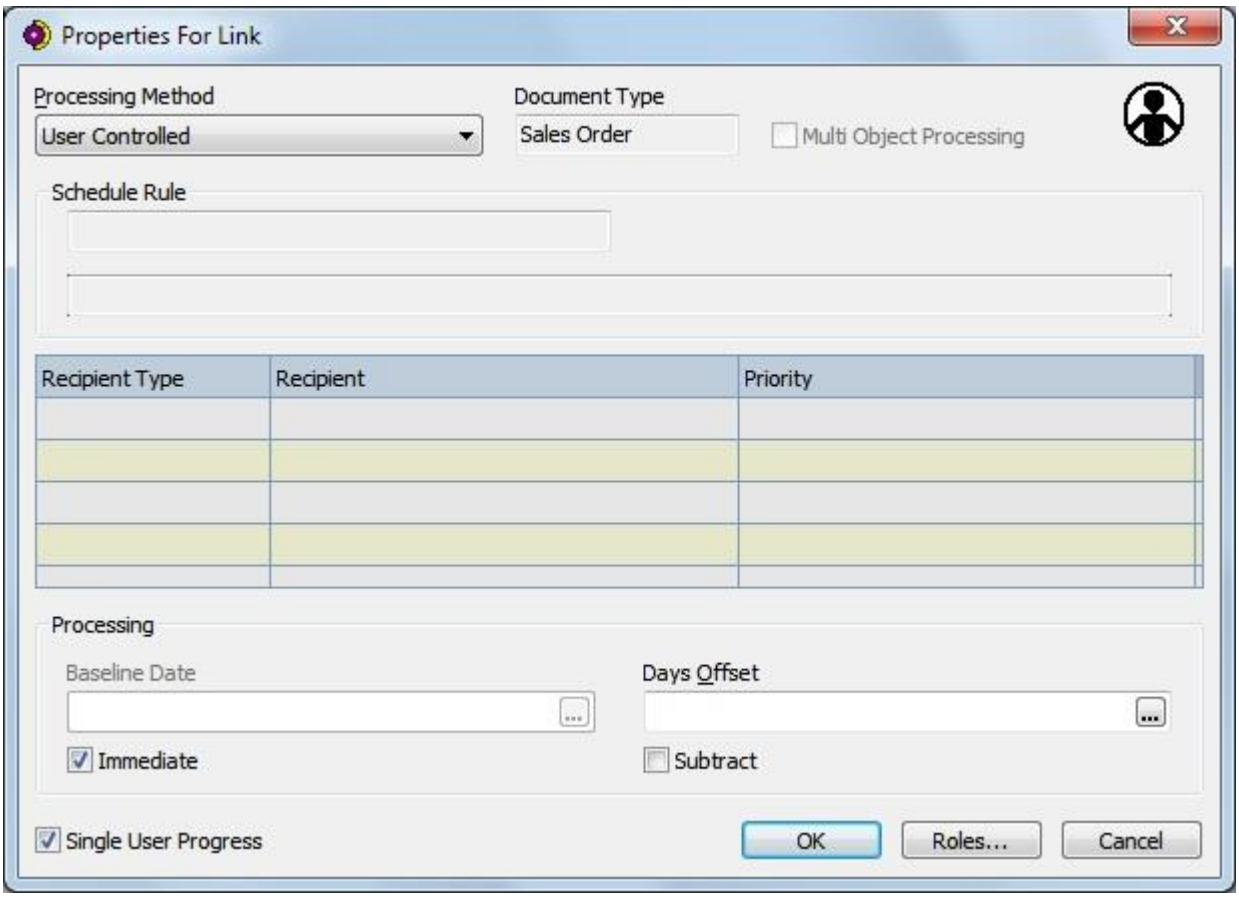



Once an Elemental Activity has been WFi Enabled, it can be used to either start or be used within the process flow of an Execution Model Business Process (sometimes known as an In-Process Activity).


## Elemental Activity Link Properties

An Execution Mode may be assigned to a link by right clicking the link (line) that goes into the WFi Enabled Elemental Activity and choosing *Properties* from the Context Menu. The *Properties for Link* dialog is displayed.

# The Properties for Link dialog



## Fields

| Field | Description |
|---|---|
| Processing Method | The list here is restricted by the Execution Modes of the Elemental Activity.<br>Select one of the following:<br>User Invoked - User Invoked Execution Modes indicate that there must be some input by a User in the execution of the process. For example, an activity such as Advanced Order Entry requires a user to enter the order details so the server cannot execute it automatically.<br>Automatic Immediate - An Automatic Immediate Execution Mode indicates that the process will be executed automatically. The WFi Engine places this process into a job queue reserved for immediate processing. By default, this job queue is generally QINTER in QGPL.<br>Automatic Batch - An Automatic Batch Execution Mode submits the job to a single thread job queue. The process will be executed in batch and is sent to the common batch queue for this purpose. The default shipped queue is QBATCH in QGPL.<br>Scheduled Batch - Using a Scheduled Batch Execution Mode the process will be processed automatically in batch format but is scheduled to start at a specified time. Scheduled Batch is often used to print end of day/week reports. The WFi Engine passes all scheduled processes to the Work Management Scheduler for handling.<br>**Caution:** The user may define custom Execution Modes but to use these within a live Business Process significant RPG bespoke work is required.<br>Contact your Infor representative to get an estimate of the development cost involved. |
| Document Type | Current Document Type of the Elemental Activity. Cannot be altered here. |
| Multi Object Processing | If this Execution Mode supports Multi Object Processing, this field will be enabled. Select if the Infor ERP System i application can process multiple objects in a single call (e.g. Release Pending Sales Orders). |
| Schedule Rule | Enabled only when the Execution Mode is Scheduled Batch. Allows the user to select a Schedule Rule for running this application (see next section). |
| Recipients | This section of the dialog changes dependent on the Execution Mode, see below. |

| Field | Description |
|---|---|
| Baseline Date | Only enabled if the Immediate check box is un-checked. Use a Data Field to calculate the absolute date when this Activity will appear in a user's Action List. |
| Immediate | If checked, the Baseline Date is set as the time the Activity was created. |
| Days Offset | A numeric Data Field that defines how many days on from the Baseline Date that the Activity will appear in a user's Action List. |
| Subtract | Tick to subtract the Days Offset from the Baseline Date. |
| Single User Progress | For Elemental Activities sent to multiple recipients. If unchecked, all recipients must complete the Elemental Activity to proceed to the next step of the process. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Roles | Displays a dialog that allows you to define which Roles this Elemental Activity can be authorized to. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

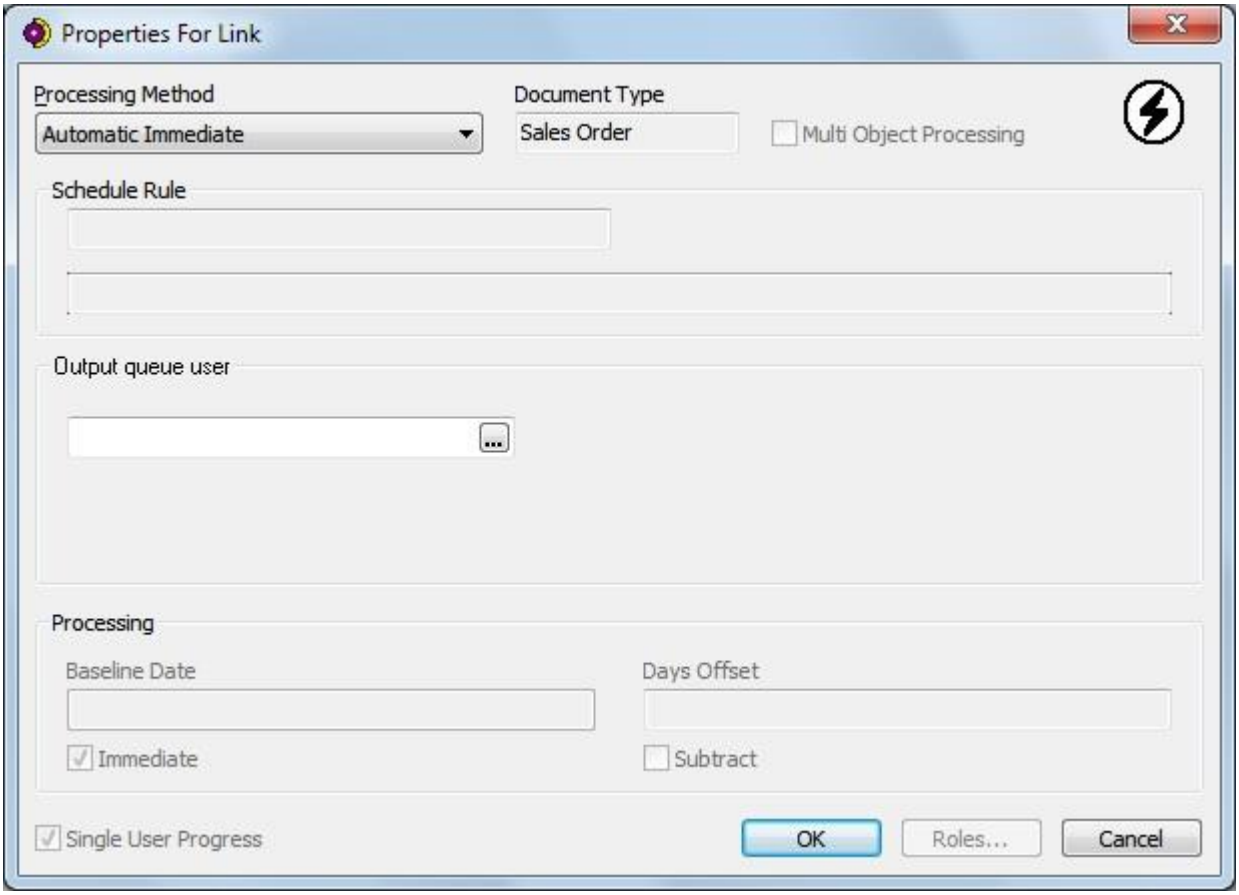
For the User Controlled Execution Mode, the dialog is shown as above, containing a grid where you can define the recipients of the Elemental Activity. Use the field's Context Menu to Add a new recipient. You can add as many Recipients as required.

## Fields

| Field | Description |
|---|---|
| Recipient Type | For an Elemental Activity, this can be either a User or a Role. This will result in the Elemental Activity being sent to the Recipients Action List within System i Workspace. |
| Recipient | The name of the recipient. For Role and User Recipient types, you can only select from a list of existing recipients. You can import Role and Users from System Manager into WFi Modeler. See the previous chapter for details. |

| Field | Description |
|---|---|
| Priority | The default values are High, Medium, and Low but you can also select from any Data Fields that are defined with a Usage type of Priority. |

For the Automatic Immediate, Automatic Batch and Scheduled Batch Execution Modes, the dialog will change to allow you to enter the Output Queue User.

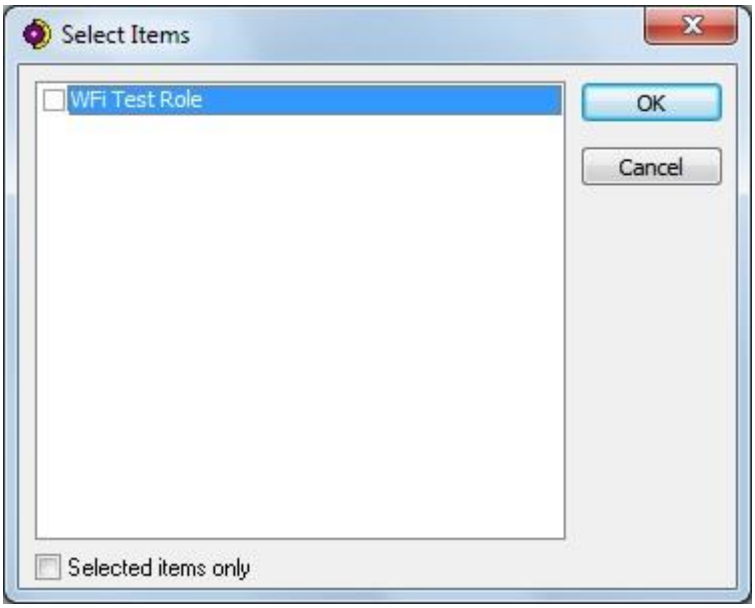



Any output or spool files that are produced by the Elemental Activity may be directed to a named user via the *Output Queue User* field.

Use the prompt facility to allow the recipient to be selected. The user can be set to a System Manager User profile code or to the value retrieved via a Data Field (that has been defined as usable as a user field). Only Data Fields associated with the Business Object of the Elemental Activity will be displayed. A Data Field will be highlighted in red within the entry field.

**Caution:** If left blank any output produced by the Elemental Activity will go to the output queue for the user that started the WFi Engine.

If you select the Roles button, the *Select Items* dialog is displayed.



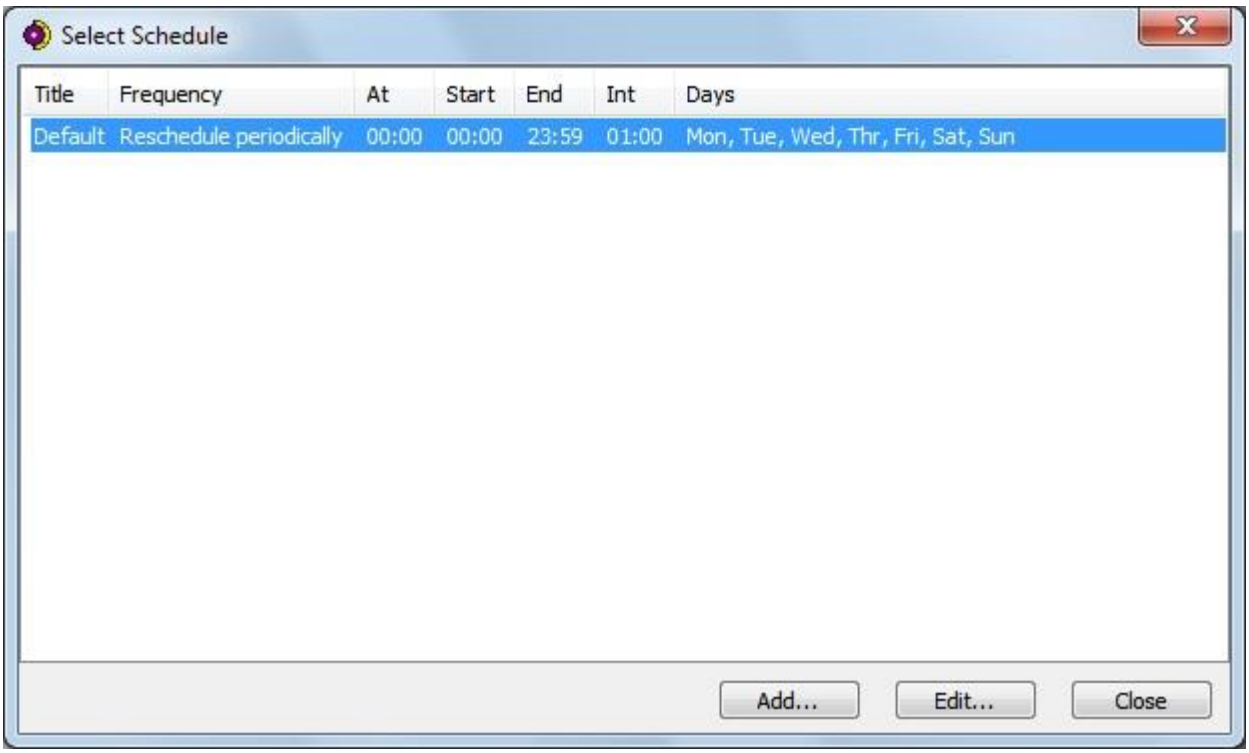

Select the Roles authorized to this Elemental Activity by placing a check next to them in the list.

## Schedule Rules

Schedule Rules, working with the WFi Scheduler on the IBM i server, identify when activities with a Scheduled Batch Execution Mode should be processed.

The Schedule rules in the current Application Version can be viewed and edited using the *Select Schedule* dialog launched from *Configure, Work Management, Schedule Rules* menu option.

# The Select Schedule dialog




## Fields

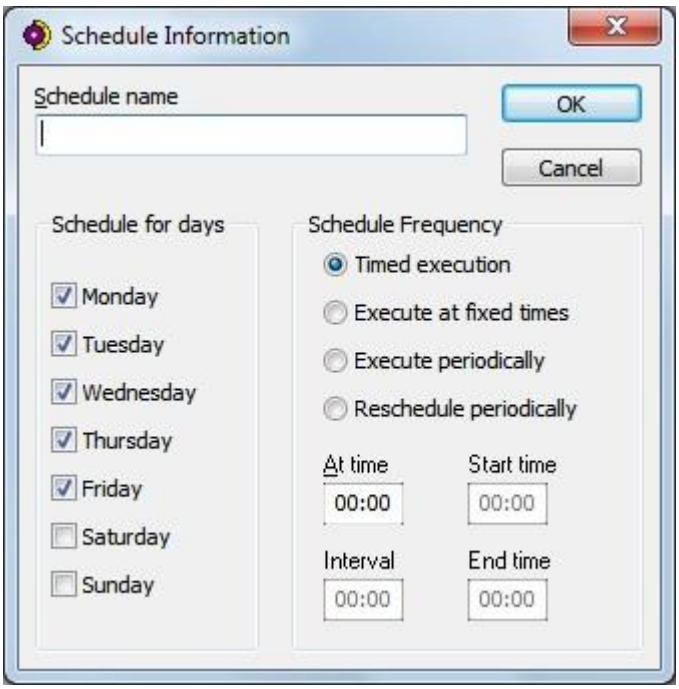
| Field | Description |
|---|---|
| Schedules | List of all the Schedules defined in the current Application Version. |

## Functions

| Action | Description |
|---|---|
| Add | Add a new Schedule. |
| Edit | Edit the selected Schedule. |
| Close | Close the Select Schedule dialog. You will be prompted to apply or discard any changes. |

Select Add to show the *Add Execution Mode* dialog.

# The Add Execution Mode dialog



### Fields

| Field | Description |
|---|---|
| Schedule Name | A name value for this Schedule. |
| Schedule For Days | Select the weekdays when this Schedule will be executed. |
| Schedule Frequency | Select one of the following:<br>*Timed Execution* needs a precise *At Time* only and is used when a job should start at a fixed time on fixed days.<br>*Execute at Fixed Times* needs an *At Time*, *Start Time* and *End Time* and are used where a job should start at, for example, 15 minutes past the hour during the working day. Hence the Start Time would be 9:00, Stop Time would be 17:30 and the At Time would be 00:15.<br>*Execute Periodically* needs a *Start Time*, *End Time* and I and starts the job at fixed intervals during the day, possibly every 35 minutes between 9:00 and 17:30.<br>*Reschedule Periodically* needs an *Interval* only to tell WFi Modeler to delay the start of a job after it has been submitted to the system. |

### Functions

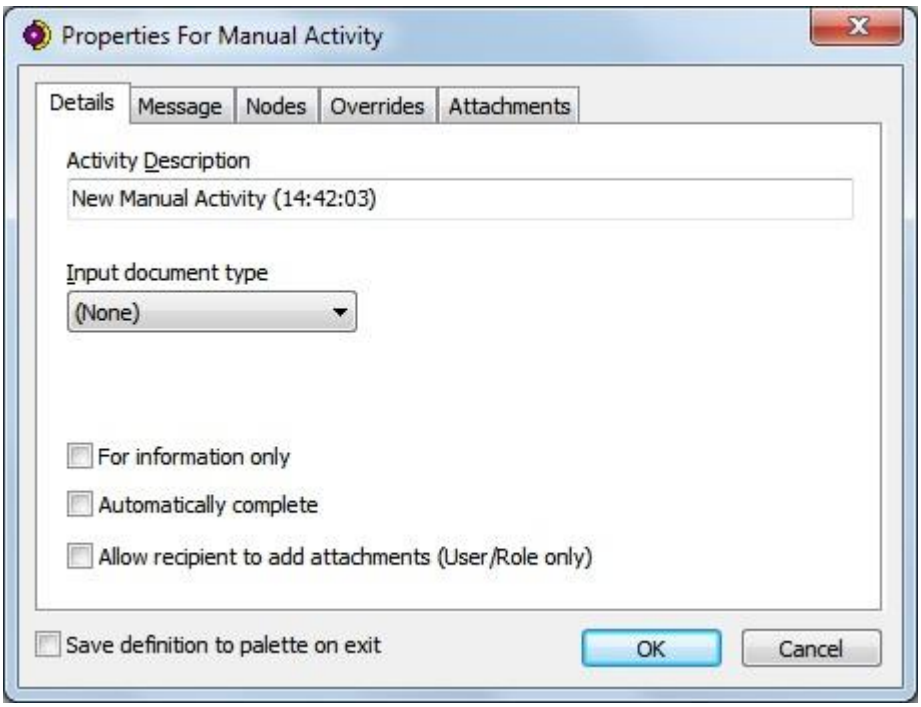
| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

## Manual Activities

A Manual Activity can be used to instruct relevant personnel of a task they must manually carry out. They are represented on the Palette and the Canvas by a “document” symbol, e.g.

To create a new Manual Activity, drag the icon from the Controls section of the Palette onto the Canvas. The *Properties for Manual Activity* dialog is displayed. The dialog contains five tabs.

# The Properties for Manual Activity dialog (Details tab)




## Fields

| Field | Description |
|---|---|
| Activity Description | The label associated with the Manual Activity. |
| Input Document Type | Select from the available list of Document Types. |
| For information only | Check this box if this activity is to be an Informational Manual Activity only. When the Manual Activity appears in the user's Action List the user will see only the Title. The user will be able to progress the activity without opening it up. However, for this to happen there must be only one exit node defined on the Properties for Manual Activity Nodes Tab. |
| Automatically Complete | This option is for messages that are part of the process flow but do not need a user-interaction before proceeding. |
| Allow recipient to add attachments | Check this box if you want to allow Action List recipients of this message to be able to add ad-hoc attachments to this message. |

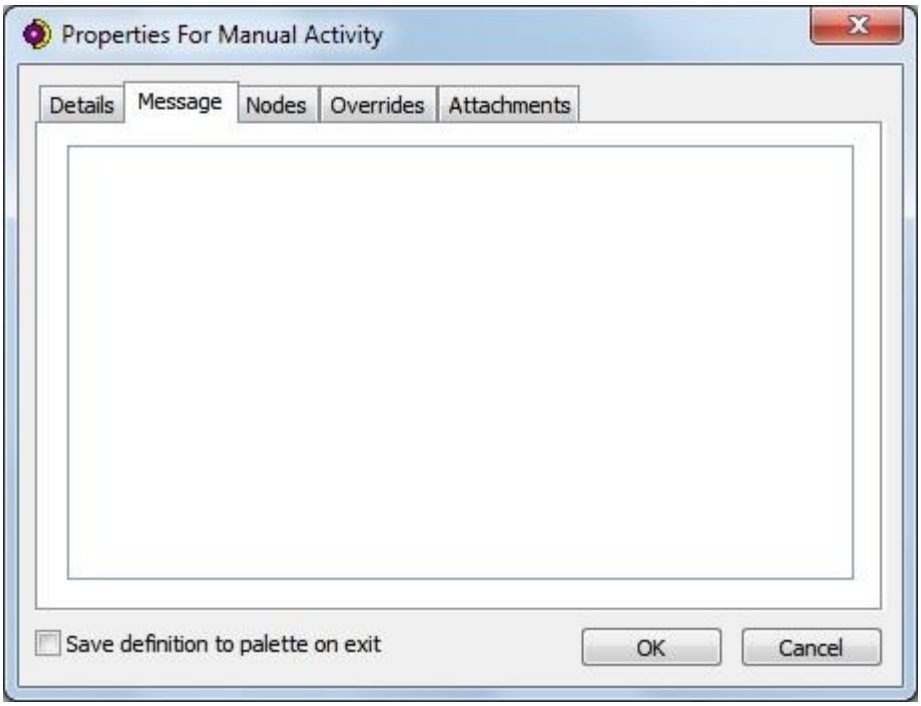
| Field | Description |
|---|---|
| Save Definition to Palette on Exit | Check this to save a copy of this message to the Activities section of the Palette when OK is selected. It can then be re-used in other processes.<br><br>**Caution:** This field is available across all tabs within this dialog. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

# The Properties for Manual Activity dialog (Message tab)

The *Message* tab is where the information sent to the user is defined.



These messages can contain a combination of static and variable information as well as links to appropriate software applications and tasks that may need to be carried out.

Standard text may be typed into the Message field on the Message tab and appears in black text.

*Variable Data* may also be included in the message to supply the recipient with more information concerning the pending activity. Information such as the Customer's Name or Account Status is common information used. Variable data is entered in the form of *Data Fields*. Inserted Data Fields appear as *red* text in the message.

To enter Data Fields right click in the Message field and choose *Insert Data Field*. The Select Data Field dialog is displayed.

To enter Hidden Data Fields right click in the Message field and choose *Insert Hidden Data Field*. The Select Data Field dialog is displayed. Hidden data fields are useful when you wish to use Data Fields in your Buttons but don't want them visible within the main body of the Manual Activity message.

**Caution:** Manual Activity Buttons, Displaying Tabular Data within a Manual Activity and Edit Fields are covered in the next chapter.

## The Select Data Field dialog

## Fields

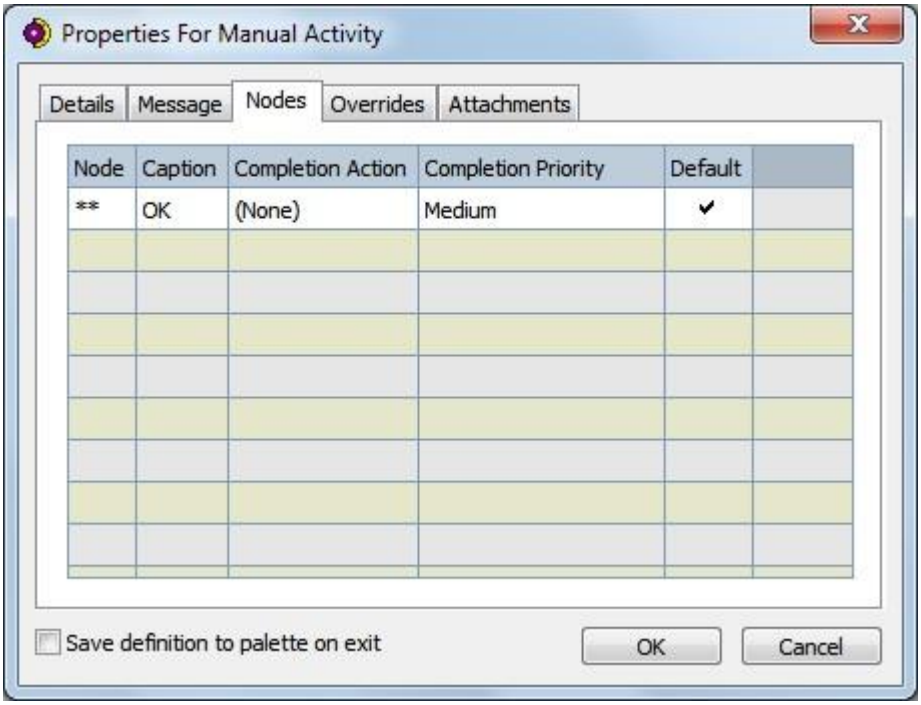
| Field | Description |
|---|---|
| Data Fields | A list of Data Fields for the current Document Type. Select one. |
| Show Global Data Fields | Check to also show Global Data fields for selection. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK uses the selected Data Field. |
| Cancel | Selecting Cancel closes the dialog selecting a Data Field. |

# The Properties for Manual Activity dialog (Nodes tab)

The *Nodes* tab allows the completion nodes (routes) for the Manual Activity to be defined. By default, there is one Node: OK. This may be changed as appropriate.

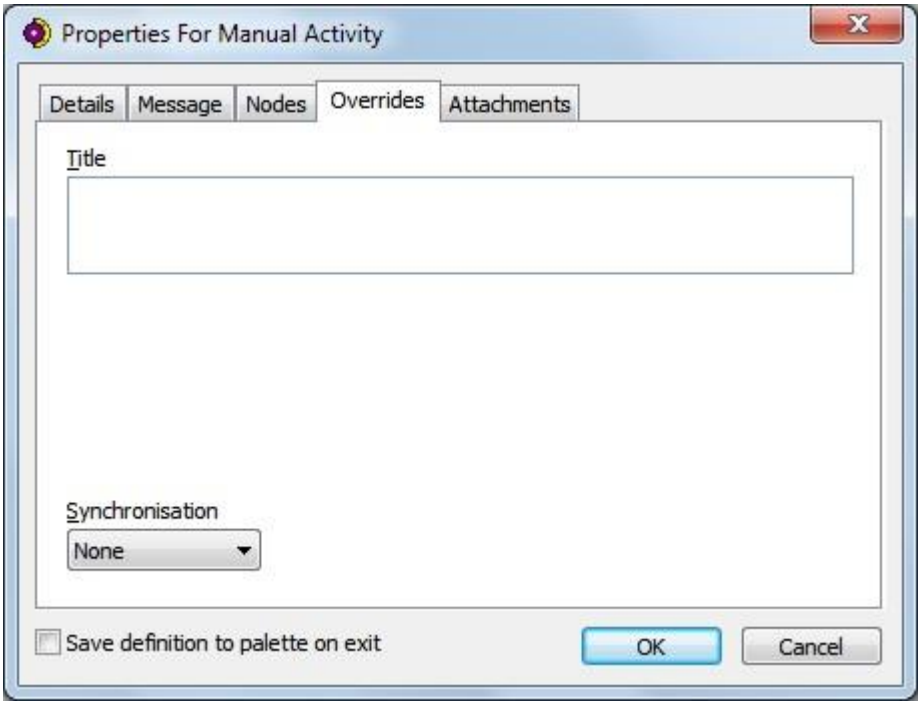


### Fields

| Field | Description |
|---|---|
| Node | A two-character completion code. Must be unique within this Manual Activity. |
| Caption | The text shown to the Manual Activity recipient. |
| Completion Action | This can be left as (None) in most cases. However, it can be set to the following actions:<br>Cancel Transactions - sets the Document Type's status to complete and cancels all pending transactions<br>Assign New Thread - generates a new multi-thread identifier value for subsequent activities within this process. |
| Completion Priority | The priority value that the proceeding element will receive if sent to an Action List. |
| Default | One of the completion nodes can be checked to be the default exit route. This is used when an Activity is auto completed using Action List/Tracker. |

## The Properties for Manual Activity dialog (Overrides tab)

The *Overrides* tab on the Manual Activity Properties Window contains additional settings.

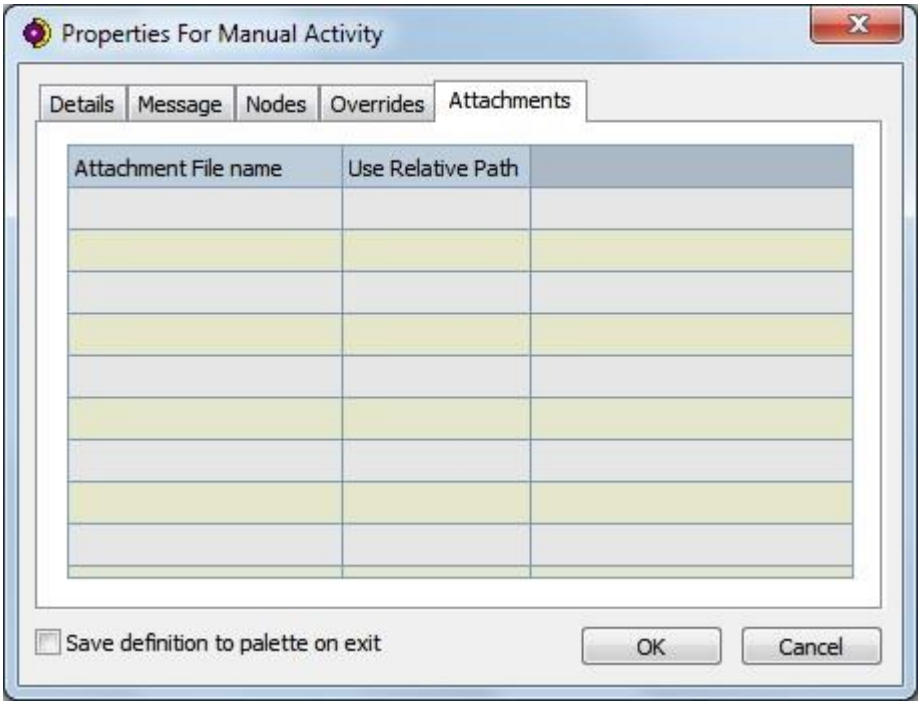



## Fields

| Field | Description |
|---|---|
| Title | This field can be used to create a title for the message that is shown within the user's Action List. Like the actual Manual Activity, message both static and variable data can be used but buttons cannot be used. |
| Synchronization | Set to Simple if all links into this Activity must be complete to begin processing. |

# The Properties for Manual Activity dialog (Attachments tab)

The *Attachments* tab on the Manual Activity Properties Window allows the user to design attachments that will be associated with this message.


Properties For Manual Activity
Details
Message
Nodes
Overrides
Attachments
Attachment File name
Use Relative Path
Save definition to palette on exit
OK
Cancel

### Fields

| Field | Description |
|---|---|
| Attachment File Name | This can be either a fixed text value or a Data Field.<br>Use the prompt facility to select an appropriate Data Field for the current Manual Activity Document. When using a Data Field, the field content is highlighted in red. |
| Use Relative Path | This defines whether the Attachment File Name is an absolute path or whether it is a partial path that, when appended to a root path, will locate the file. The base root path is configurable within the application that renders the message (E.g. System i Workspace, Email Writer). |

### Context Menu Options

| Action | Description |
|---|---|
| Add | Select Add to add attachment definitions within the table. |
| Delete | Select Delete to delete attachment definitions within the table. |

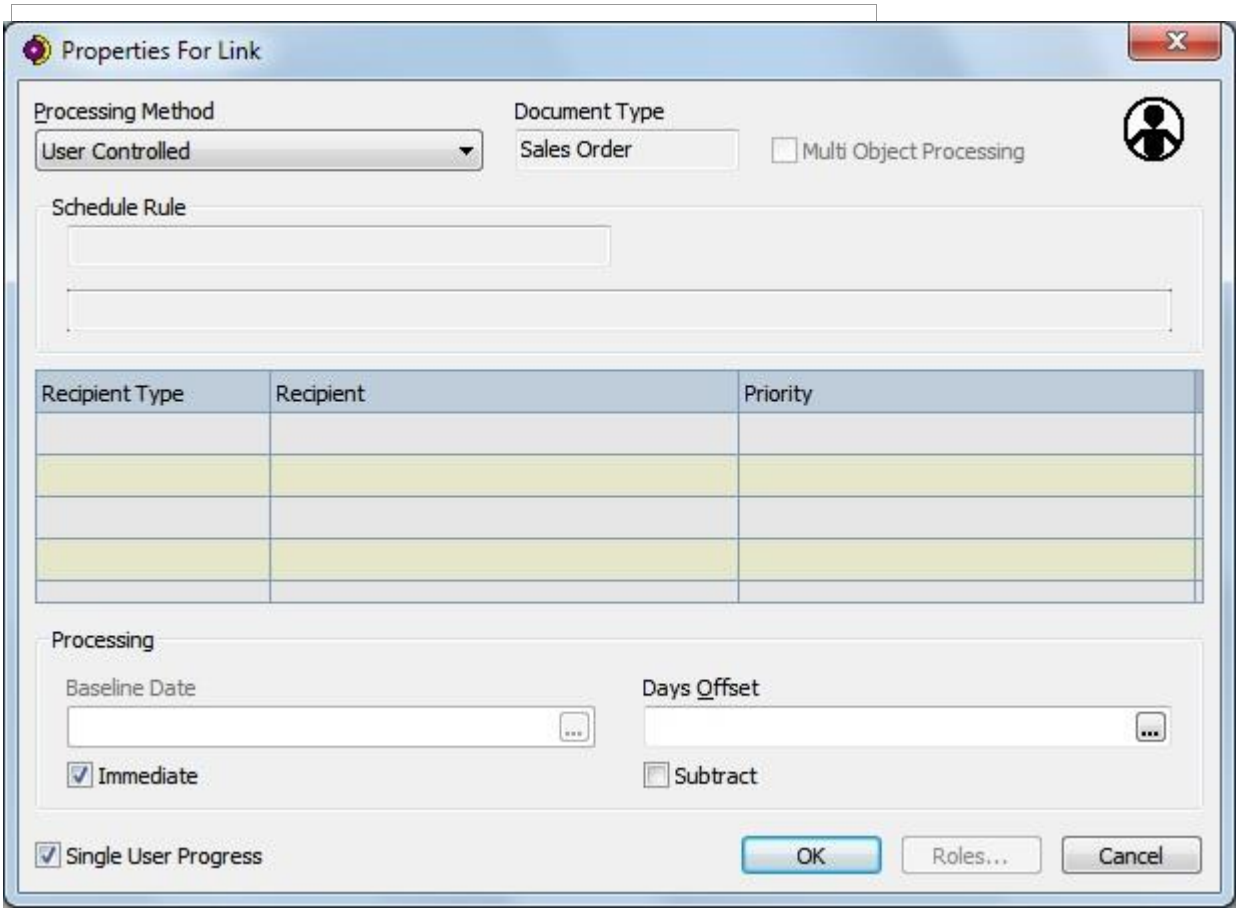
Attachments appended in this way are defined as being part of the message (their content is part of the Manual Activity XML message definition). When displayed, via System i Workspace, they are shown as links for the recipient to open/view. When dispatched, via Email, they are attached to the outgoing message.

Attachments can be added to both text and HTML email messages. The attachment file path can be either a valid UNC (e.g. `c:\mypc\myfiles\myfile.txt`, `\\myserver\mydir \myfile.doc`) or a URL (e.g. `http://www.infor.com/banner.gif`).

## Manual Activity Link Properties

Recipients for a Manual Activity may be assigned to a link by right clicking the link (line) that goes into the WFi Enabled Manual Activity and choosing *Properties* from the Context Menu. The *Properties for Link* dialog is displayed.

Manual Activities can only be executed by the User Invoked Execution mode.




There are three ways that the appropriate person may be notified; by Email, by Username or by Role type.

**Caution:** The message data may also be sent to an IBM WebSphere MQ Series queue, but this is more applicable to XML Activities. Usage of this recipient type with Manual Activities is not recommended.

| Icon | Recipient Type | Description |
|---|---|---|
|  | User | The User type allows an activity to be directed to a specific User's Action List. |
|  | Role | The Role type allows an activity to be placed in the System i Workspace Action List of all members of a certain role. This may involve multiple Users or, where there is only a single member within a role, a single User. |
|  | Email | The Email Recipient Type allows an Email to be sent to a specified User's PC. The format of the email should include information about the problem and may contain links to the appropriate actions.<br>WFi supports both Text and HTML based email formats which can be selected at this point. The WFi Component called the Email Writer dispatches the email. |
|  | Multi-Type | If there is more than one row of details entered in the grid, the symbol changes to the one resembling that shown. The symbol indicates how many entries appear in the grid, irrespective of the Recipient Types specified.<br>Should an activity be sent to multiple recipients the execution mode is set by default to be a Single User Progress, i.e. one recipient completing an activity is enough to let the Business Process continue. |

**Caution:** The Processing fields and Single User Process option work the same as for an Elemental Activity.

## Informational Manual Activities

A setting against the Manual Activity in WFi Modeler allows simpler messages to be deleted directly from the Action List, without a requirement to be opened and completed (as with Manual Activities). Typically, the content of these messages is held in the Title Override and hence appear in Action List.

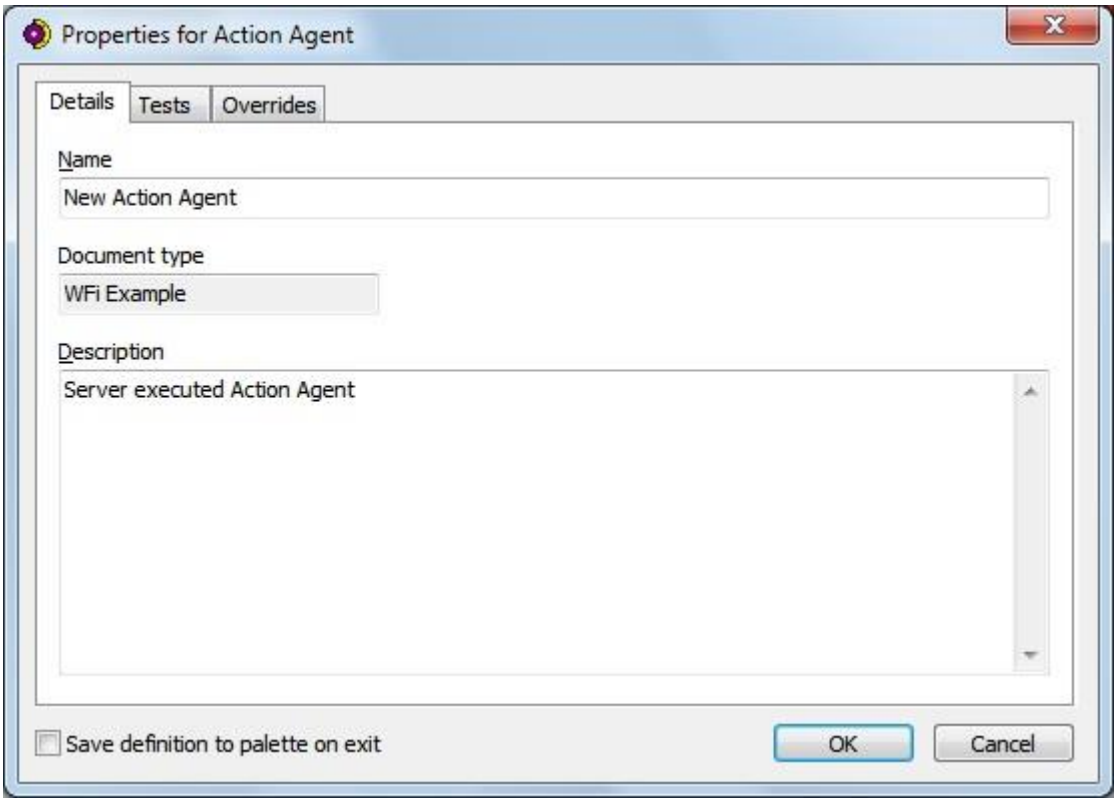
A message such as 'Your Employee xxxx has authorized this purchase order - xxxx' is an information message for say, the manager of that employee. The manager could open the Manual Activity as normal for further information, but most of the time, would accept that the employee has simply completed a task he was assigned and can simply complete the message via the Action List using the default exit node.

# Action Agents

In addition to Manual Activities, *Action Agents* provide much of the benefit of Work Management. They are used to perform exception testing within a process and automatically carry out different process paths based on tests on live data. They are represented on the Palette and the Canvas by a “question mark” symbol, e.g.

To create a new Action Agent, drag the icon from the Controls section of the Palette onto the Canvas. The *Properties for Action Agent* dialog is displayed. The dialog contains three tabs.

## The Properties for Action Agent dialog (Details tab)




## Fields

| Field | Description |
|---|---|
| Name | The label associated with the Action Agent. |

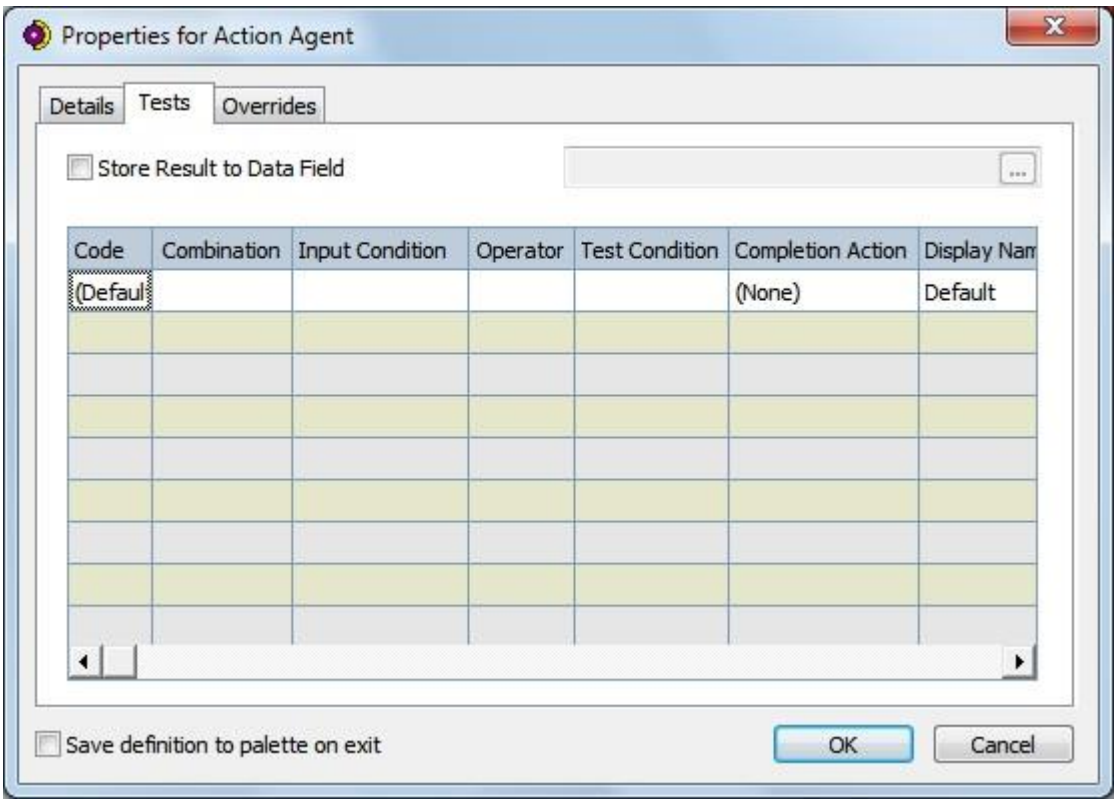
| Field | Description |
|---|---|
| Document Type | Set based on the Document Type of the Activity the Action Agent is linked from. |
| Description | Detailed description of what test this Action Agent performs. |
| Save Definition to Palette on Exit | Check this to save a copy of this message to the Action Agents section of the Palette when OK is selected. It can then be re-used in other processes.<br><br>**Caution:** This field is available across all tabs within this dialog. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

Action Agents inherit Data Fields for evaluation via the Document Types of the previous activity. If there is a Document Type associated with the Action Agent, the Tests tab will allow rules to be set that shall determine the flow of the process.

# The Properties for Action Agent dialog (Tests tab)



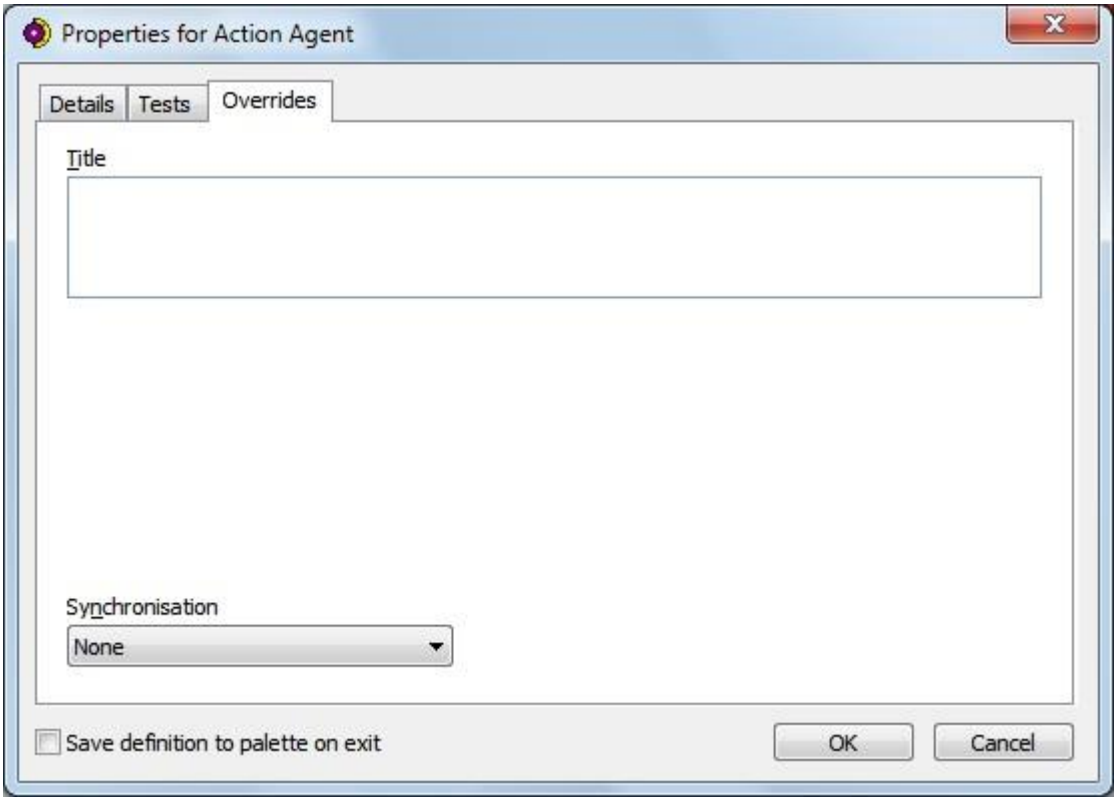

## Fields

| Field | Description |
|---|---|
| Store Result to Data Field | If the *Store Result to Data Field* check box is checked, the edit field to its right will become enabled. This option allows you to select a Stored Data Field to save the result to (see the Stored Data Fields section in the Advanced Features chapter below for further information). |
| Code | This represents the value of the exit node. |
| Combination | Specifies whether an evaluation is the first line of a rule for an exit node (1st Rule) or is a continuation of the rule (using And or Or). |
| Input Condition | Values can be static (alphanumeric strings) or variable (Data Fields) data. |
| Operator | This is a logical operator used to compare the input and test conditions. |
| Test Condition | Values can be static (alphanumeric strings) or variable (Data Fields) data |

| Field | Description |
|---|---|
| Completion Action | This allows the user to force the exit node to use a new thread (think of it as treating subsequent activities as a new process), to terminate the process, or to carry on as normal (recommended default). |
| Display Name | This forms the ToolTip of the node when viewed from the Canvas (and will be shown as the completion description at runtime). |

## The Properties for Action Agent dialog (Overrides tab)

The *Overrides* tab is like that for the Manual Activity.



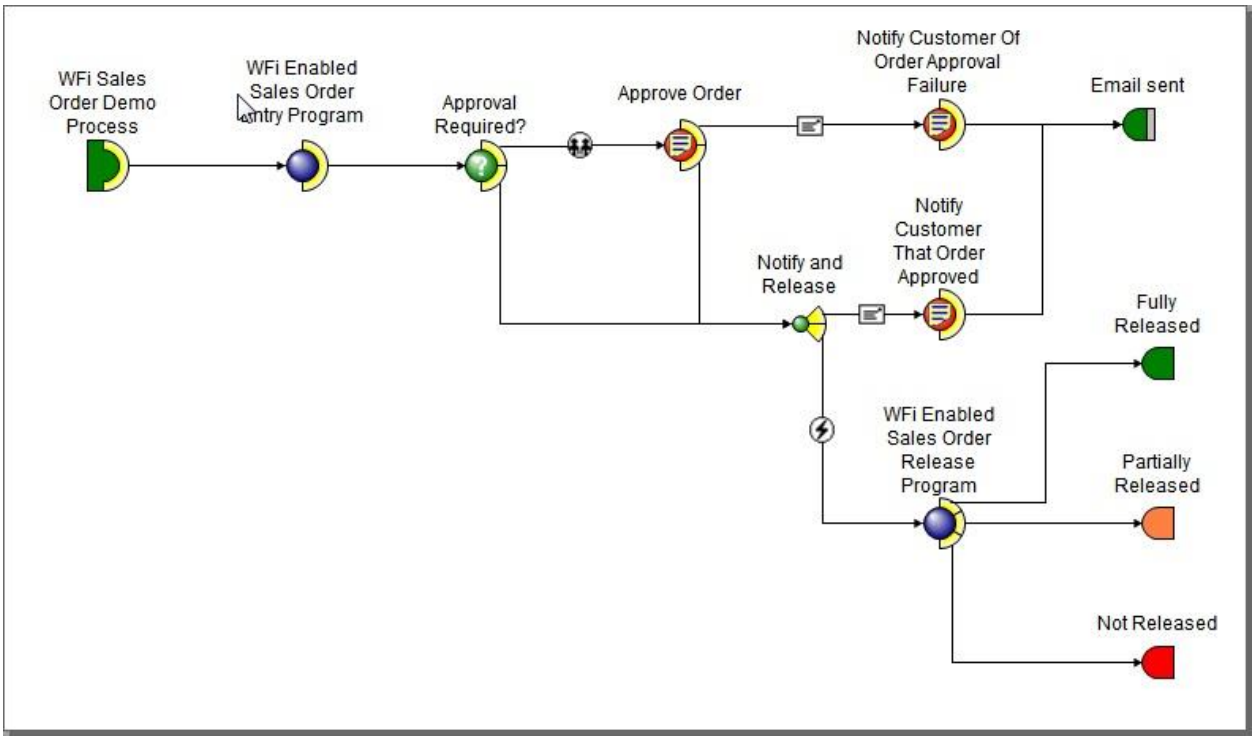

## Fields

| Field | Description |
|---|---|
| Title | This field can be used to create a title for the message that is shown within the user's Action List. Both static and variable data can be used. |

| Field | Description |
| --- | --- |
| Synchronization | Set to Simple if all links into this Activity must be complete to begin processing. |

# Example Execution Model

Here is an example of an Execution Model using the previously created Software Model of a Sales Order process as a basis. The Business Process uses WFi Enabled Elemental Activities, Manual Activities and Action Agents.




**Caution:** This Business Process, Example WFi Execution Model Business Process, is provided with the WFi Modeler Sample Business Processes that are supplied with your installation (in the Samples/Processes sub-folder of you WFi Modeler Installation folder). You can import this process using the File -> Import option covered in the previous chapter.

# Additional WFi Software for Execution Modelling

Apart from WFi Modeler, there are some other WFi components related to Execution Models.

# The WFi Engine

The WM Engine has the responsibility of moving things along a predetermined path. It does not start the whole proceeding. The enabled activity starts the proceeding by calling an API that writes a record to a data queue (using IBM WebSphere MQ Series). The WFi Engine constantly checks for records that have been written to the data queue and if there is something present it reacts to it appropriately. Information concerning the status of the transaction is written to a file and this status is updated as the transaction (job) goes through different stages.

The WFi Engine handles any subsequent transactions that may be required. A completion status on one transaction can act as a trigger to process a new pending transaction if one exists. The WFi Engine schedules new activities by putting them in a queue for Automatic Execution or adding them to an Action List for user execution. The WFi Engine supports parallel and serial execution of activities.

The term trigger is associated with the WFi Engine. These are the data queue entries which twin with the transaction completion details file. Each one represents a completion code for a document type, which the WFi Engine detects and processes.

# The WFi Scheduler

Transactions that need processing at specific times are posted to the WFi Scheduler. These are established and configured in WFi Modeler. The WFi Scheduler checks the time stamp on an Activity and if it corresponds with the current time it will queue those tasks in its own sub-system.

The WFi Scheduler may be started and stopped from the Work Management menu in System Manager or scheduled in Machine Manager.

# The WFi Escalation/Delegation Processor

Activities that have not been completed by a User within a particular time range as set up through WFi Modeler will be escalated or delegated to another WFi User. An existing activity is given a higher priority on an existing Action List or is moved automatically onto another User’s Action List. This is handled by this utility.

The WFi Escalation/Delegation Processor may be started and stopped from the WFi menu in System Manager or scheduled in Machine Manager.

# System i Workspace

The System i Workspace is Infor’s interface to WFi. From this, users can carry out their daily tasks via a browser-based web interface.

System i Workspace presents the user with all the WFi tasks that they are authorized to along with informing them when the roles they are assigned to receive new Action List records.

**Caution:** The WFi application must be installed on the IBM i that System i Workspace logs into for the Action List/Tracker functionality to be available.

## Action Lists

An Action List is a set of activities assigned to a specific user or role. Day-to-day the System i Workspace user uses the content of the Action List to drive their activities.

Depending on the design of the Business Process, the Action List receives either Manual Activity messages (e.g. Phone customer to query order) or Infor ERP System i Aurora tasks (e.g. Confirm Dispatch).

Once the user has completed the action, they can complete it via the Action List so that the Business Process proceeds as designed.

## Action Tracker

The Action Tracker allows managers and administrators to check the flow of Business Processes within the system and respond to any delays or errors that may occur.

The information shown via the Action Tracker interface and the scope of the data search can be tailored.

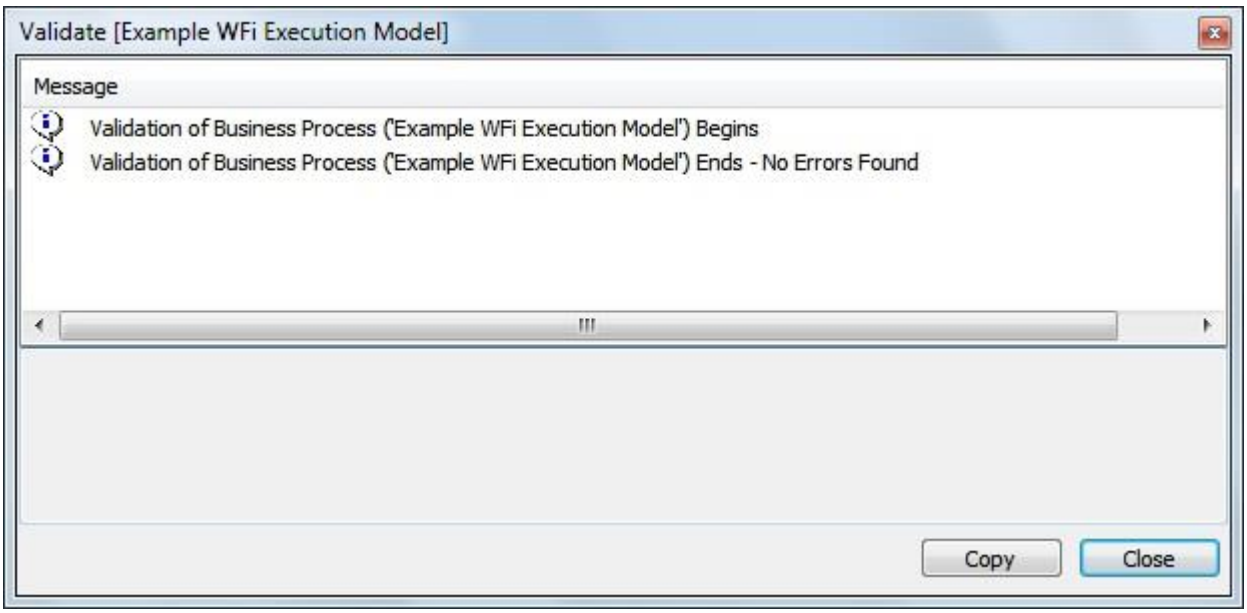
# Activation

All processes created in WFi Modeler are theoretical creations until the activation step is completed. This uploads the process to the server so that it can be initiated by the WFi Engine.

## Validate the Process

WFi Modeler can perform an error checking routine on the logical flow of a Business Process. Therefore, by using the Validate routine, errors may be checked. Appropriate error messages inform the user of what went wrong and where. Each of these errors needs to be rectified before the procedure can resume. A successful validation should result in a similar message to that shown.

# The Validate dialog




## Fields

| Field | Description |
|---|---|
| Message | List of information, error and warning messages. Click on a message to see the full text in the box below. |

## Functions

| Action | Description |
|---|---|
| Copy | Copy the selected message text to the Windows Clipboard. |
| Close | Close the dialog. |

An unsuccessful validation will give warnings that may be ignored and errors that must be corrected. All errors must be resolved until warning and information messages are all that remain.

Typical examples of errors that may occur are where there are exit nodes that do not have a forward path, or links do not have appropriate execution modes.

Here are some common errors that can occur…

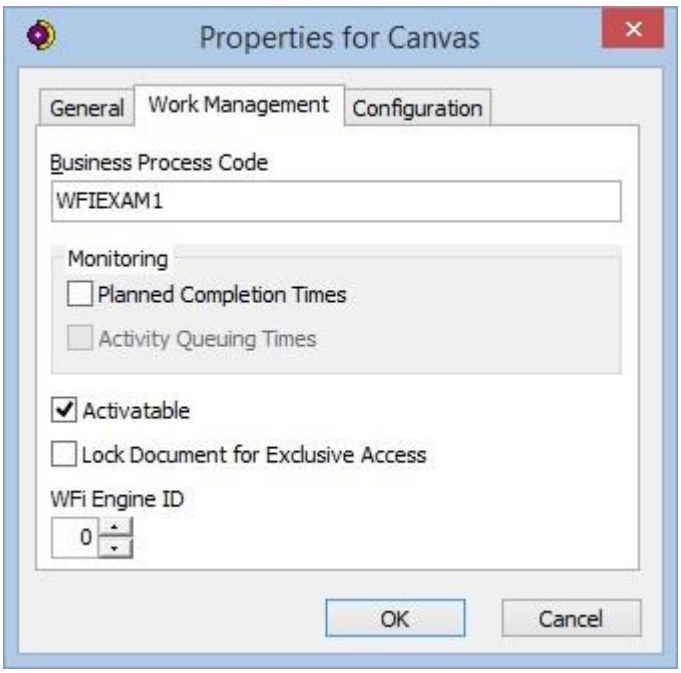
| Modelling Element | Common Errors |
|---|---|
| Links | All Elemental activities, except for initial activities, must have an appropriate Execution Mode preceding them.<br>All Manual/XML Activities must have at least one recipient. |
| Document Types | Document types used in the process must follow a logical pattern. It is essential that all document types exiting one activity and entering the succeeding activity correspond therefore all inputted and outputted Document Types are checked. |
| Initial Activity | Only Elemental Activities and Events are valid initial activities unless the Start Condition's Start Mode is set to User Requested.<br>If the Start Condition's Start Mode is Automatic Monitor, then the initial activity must be an Event Agent. |

To check the flow of the process a Walkthrough may be performed. This follows the flow of the process and displays the steps involved at each stage. A Walkthrough may be performed on the whole process or from a selected point. Walkthroughs are initiated using the Walkthrough button on the toolbar or from the *Tools* menu. Walkthroughs can be used from a higher-level process through each tier of embedded processes or they may be used at a single tier only.

## Enabling a Process to be Activated

Before a process may be activated it must be flagged as Activatable. Open the process and displaying the process properties window by right clicking on the Canvas and selecting the Properties menu item do this. The *Work Management* tab may be selected, and a process code must be entered, and the *Activatable* check box selected.

# The Properties for Canvas dialog (Work Management tab)




## Fields

| Field | Description |
|---|---|
| Business Process Code | The *Business Process Code* uniquely identifies the Business Process to the WFi Engine, unlike the Business Process name that identifies the entity to WFi Modeler only.<br><br>**Caution:** Care should be taken when choosing a Business Process Code that a different, current, Business Process does not already use it. |
| Planned Completion Times | Tell the WFi Engine to check Planned Completion Times against Work Times stored in the Planned Schedule and raise exceptions. |
| Activity Queuing Times | Tell the WFi Engine to also check Activity Queuing Times against Wait Times stored in the Planned Schedule and raise warnings. |
| Activatable | Select this if this Business Process is eligible to be activated to WFi Engine. |
| Lock Document for Exclusive Access | When checked, any Document that is under the control of the WFi Engine cannot be accessed by any other program. When unchecked, the Document is not locked at all and can be accessed by another program. |

| Field | Description |
|---|---|
| WFi Engine ID | For Multi-WFi Engine support. Select the WFi Engine ID that should be used to process all activities for this Business Process. Set this field to a value of 0 for the default WFi Engine, or a value 1 – 99 for a different instance of the WFi Engine. If Multi-WFi Engine support is not enabled on the IBM i server, this field is ignored. See the WFi Installation Guide – Appendix D for more information on configuring Multi-WFi Engine support. |

The Monitoring options relate to Metrics. Having defined Metrics data for each Activity and set a Wait Time and a Work Time you can choose whether to let the WFi Engine check these details at run time.

The WFi Engine can do the following:

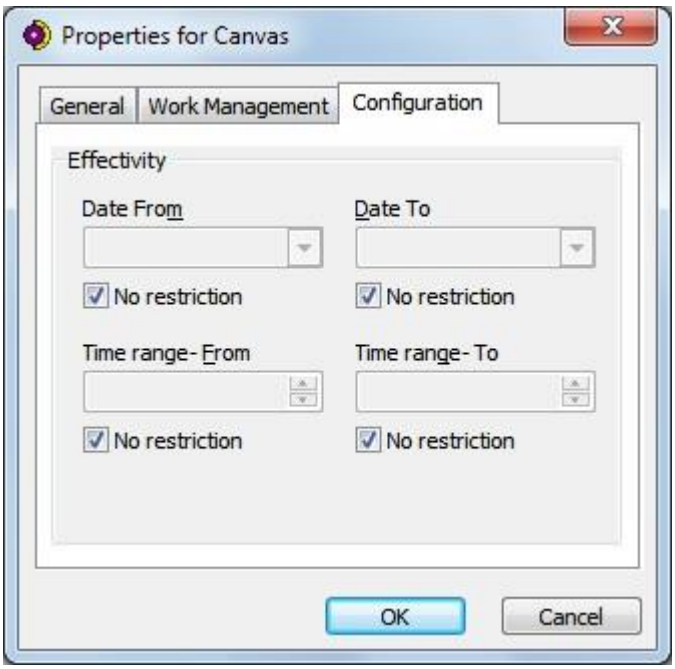
1. Check Planned Completion Times against Work Times stored in the Planned Schedule and raise exceptions.
2. Also check Activity Queuing Times against Wait Times stored in the Planned Schedule and raise warnings.

For example, and Activity could have a Wait Time of 1 hour and a Work Time of 2 hours. This means that the Activity could be sitting in the User's Action List for 1 hour before being executed and could take 2 hours to be completed. If both the Planned Completion Times field and the Activity Queuing Times field are checked then the WFi Engine would display a warning to a nominated user if the Activity stayed in the Action List for more than an hour. This would give the user chance to make contingency plans to avoid the job overrunning the scheduled time.

When the Activatable field is checked, the Configuration tab becomes enabled and may be used to set effectivity periods for the process (i.e. how long the process will be valid for).

The activated Business Processes are version controlled on the server. For a Business Process Code that is new to the server the Process is saved as Version 001, subsequently if the code is reused the version number increments after activation. All versions are retained on the server, though, within WFi Modeler, only the latest edition is available unless previous versions are saved under new names.

# The Properties for Canvas dialog (Configuration tab)



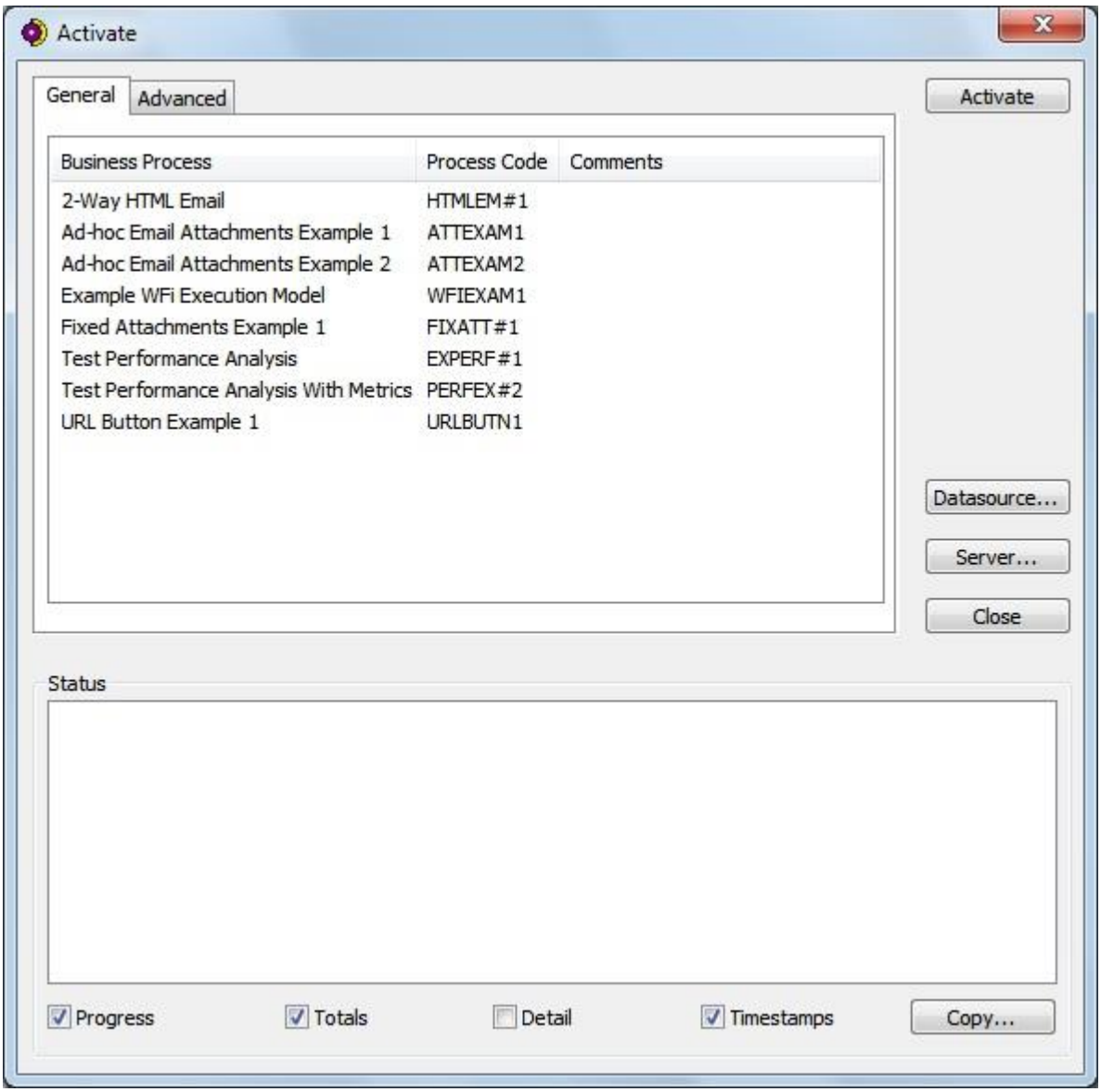
### Fields

| Field | Description |
|---|---|
| Date From | The start date that this Business Process becomes Active for use. If the No Restriction field beneath the date is checked, the Business Process becomes Active immediately on Activation. |
| Date To | The date that this process will cease to be applied. If the No Restriction field beneath the date is checked, the Business Process will not expire. |
| Time range – From | The start time that this Business Process becomes Active for use. If the No Restriction field beneath the time is checked, the Business Process becomes Active immediately on Activation. |
| Time range – To | The time of day that this process will cease to be applied. If the No Restriction field beneath the time is checked, the Business Process will not expire during the day. |

## Activating the Process

Selecting *Configure, Work Management, Activate* displays the Activation dialog that may then be used to select the appropriate process for activation.

# The Activate dialog (General tab)




## Fields

| Field | Description |
|---|---|
| Business Processes | List of all the Activatable Business Processes in the current Application Version. |
| Status | List of status messages dependent on the checked fields. |

| Field | Description |
|---|---|
| Progress | Check to show Progress of Activation Messages |
| Totals | Check to show Totals for records updated. |
| Detail | Show maximum amount of detail about the Activation. |
| Timestamps | Show time values next to each message. |

## Functions

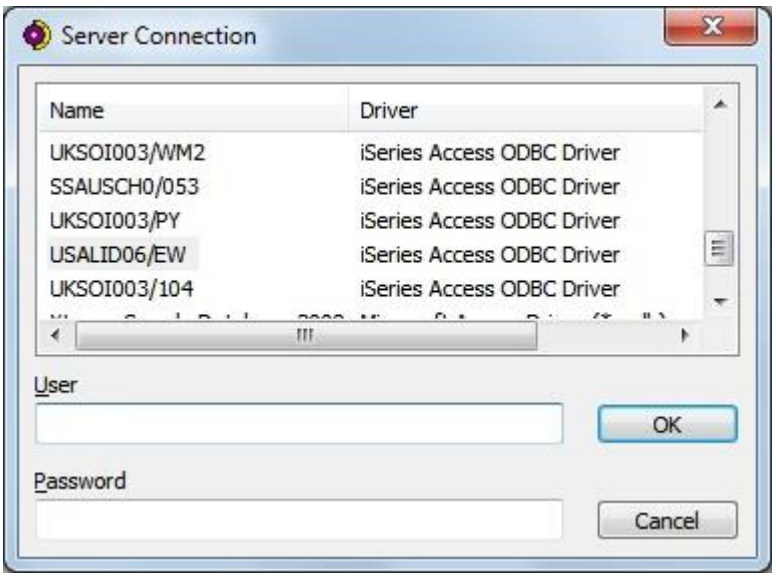
| Action | Description |
|---|---|
| Activate | Activate the selected Business Processes. |
| Datasource | Select the ODBC Data Source for activating Database Events. |
| Server | Select the ODBC Data Source for activating Business Processes. |
| Close | Close the dialog. |
| Copy | Copy the status message area to the Windows Clipboard. |

By selecting the appropriate Business Process and selecting **Activate** the operation will begin.

You can select multiple Business Processes to Activate by using the mouse and the Shift key (select a process, hold the Shift-key down and then select one below, all Business Processes between the two selections will be highlighted and selected) or by using the mouse and the Control key (select a process, hold the Control-key down and select other processes to highlight them for selection).

Before the activation can start however, a server must be selected and a valid username and password entered, the server selection window appears automatically after the **Activate…** is selected or by clicking on **Server…** prior to selecting **Activate…**

## The Server Connection dialog




## Fields

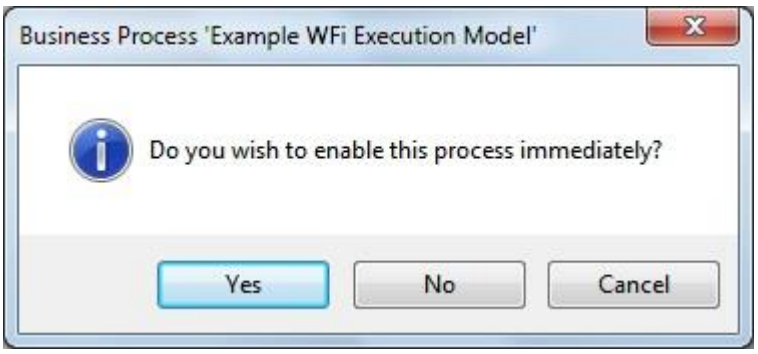
| Field | Description |
|---|---|
| Name | The connection name. |
| Driver | The ODBC Driver. Should be iSeries Access ODBC Driver or similar. |
| User | IBM System i username to connect to the WFi Engine via the selected ODBC connection. |
| Pass | Password for the above user profile. |

## Functions

| Action | Description |
|---|---|
| OK | Connect to the IBM System i server. |
| Cancel | Abort the connection. |

During Activation, you may be prompted to confirm you wish each new Business Process to be enabled.

## The New Business Process Activation confirmation dialog

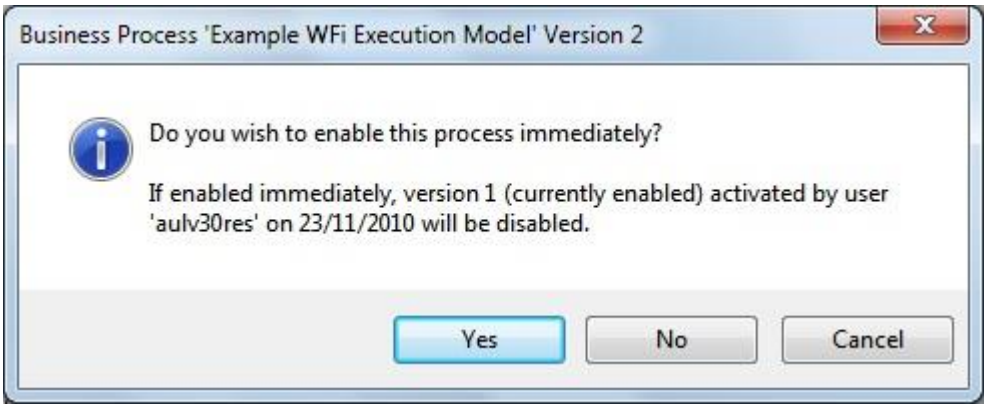



## Functions

| Action | Description |
|---|---|
| Yes | Activate and enable the Business Process for use. |
| No | Activate but do not enable the Business Process for use. |
| Cancel | Abort the Activation. |

If the Business Process has already been activated, you will see a different dialog.

## The Existing Business Process Activation confirmation dialog

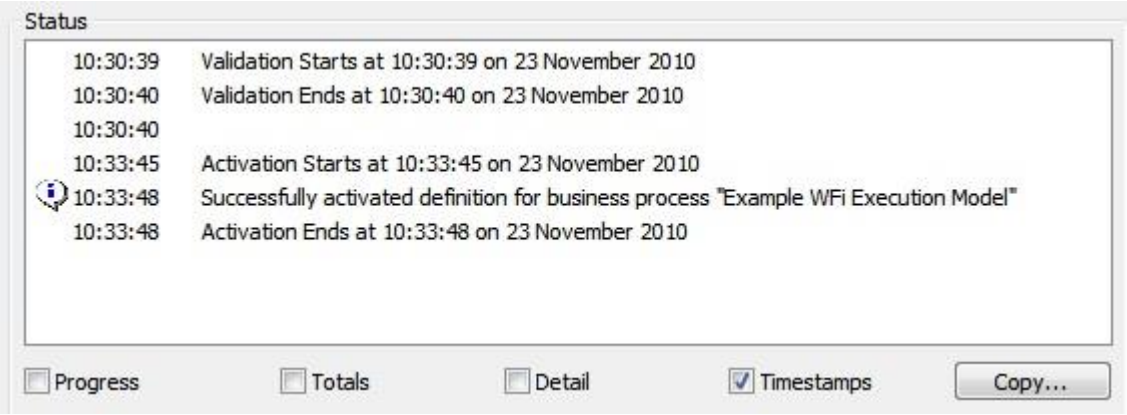


### Functions

| Action | Description |
|---|---|
| Yes | Activate and enable the Business Process for use, disabling the existing version of the Business Process. |
| No | Activate but do not enable the Business Process for use. The existing version of the Business Process stays Active. |
| Cancel | Abort the Activation. |

## The Activation Status Area

The Status field displays messages concerning, and the current progress of the process activation. Should you receive any “red cross” icons then this usually means there has been a problem during the activation process. A successful Activation should look similar to the status area below.

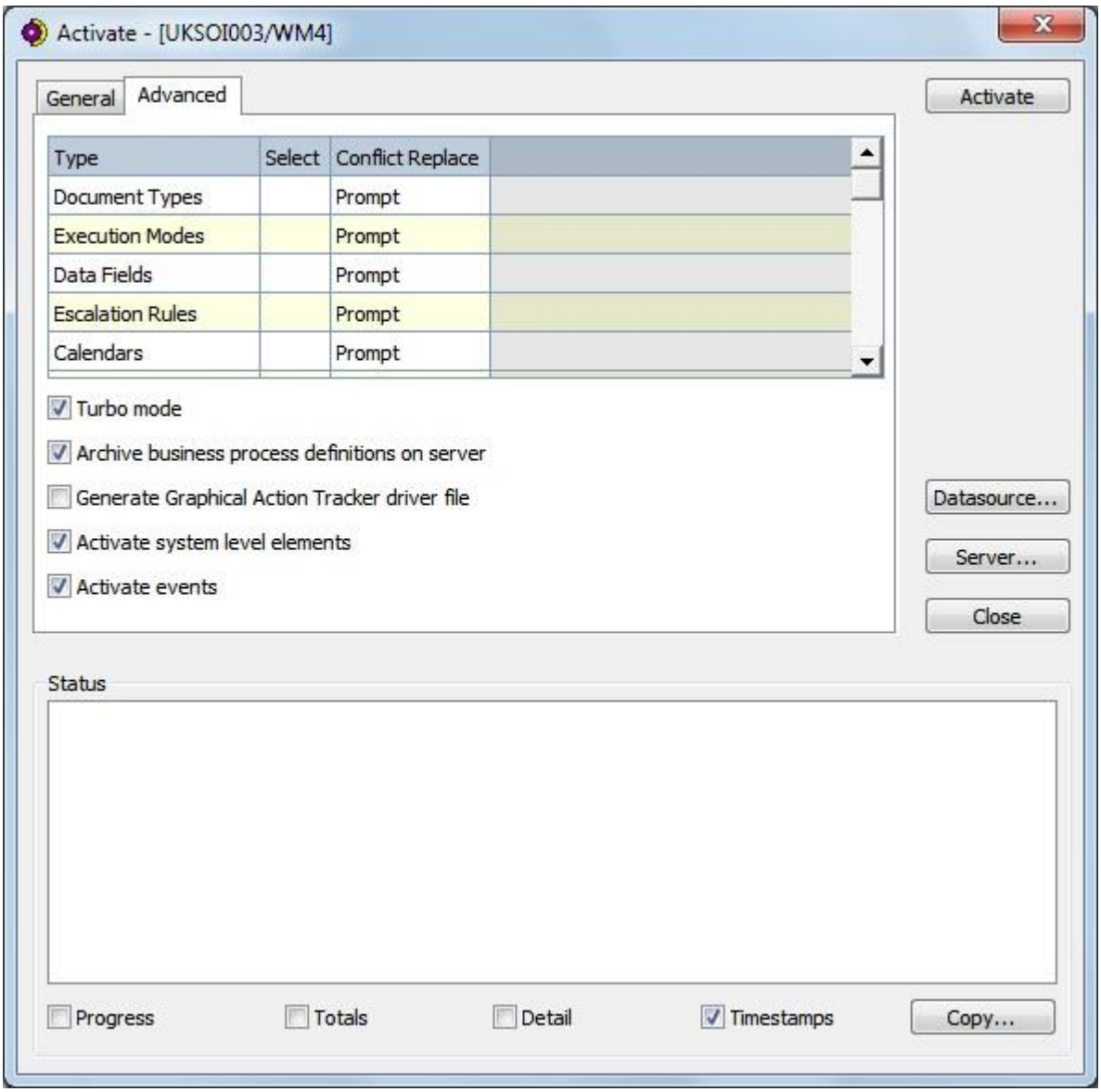



On successful completion of the activation process, System i Workspace may be used to launch the relevant activities.

# Advanced Activation

The Activate Window also has several advanced features that may be ignored if only a simple Business Process is being activated. The advanced panel, however, allows a designer to individually activate Document Types, Execution Modes, Data Fields, Escalation Rules, Calendars, and Schedule Rules.

# The Activate dialog (Advanced tab)



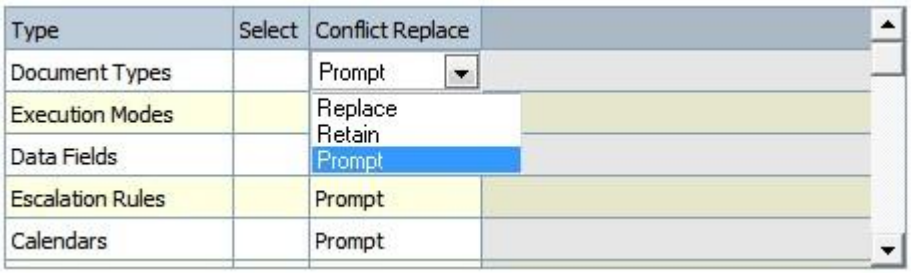

## Fields

| Field | Description |
|---|---|
| Types List | Use the Select column to select which type of process data you wish to activate. |
| Turbo Mode | For older ODBC drivers. You should leave this option enabled unless advised otherwise by an Infor representative. |

| Field | Description |
|---|---|
| Archive Business Process Definitions on The Server | A Business Process may also be archived on the server for retrieval by other WFi Modeler users. This allows a Business Process to be shared across several WFi Modeler installations without the physical importing and exporting of the appropriate files. The retrieval of these processes is discussed in the previous chapter (Server Management). |
| Generate Graphics Action Tracker Driver File | Graphical Action Tracker Driver files may also be generated during activation. This allows processes to be viewed graphically outside WFi Modeler (via the Process Viewer). |
| Activate System Level Elements | System Level Elements must be activated at least once, as these are the elements that the WM Engine requires including Workflow type Data Fields and Role Menu Descriptions. By default, this option is switched on but if it has completed successfully it may be switched off for subsequent Activations to the same server to speed up the process. |
| Activate Events | Check this to activate WFi Database Trigger Events to IBM System i files. |

By choosing to update Data Fields etc. the changed values are not just seen by the current user, but by all users of the WFi server, hence care should be taken to prevent unauthorized updates of server components.

By selecting a type and specifying whether that type should be retained, replaced or should the user be prompted for each member of the type, the designer can be specific as to what changes should occur on the server, e.g.




**Caution:** Schedule Rules are always replaced; the other options are not available for this type.

# Chapter 4 Advanced Features

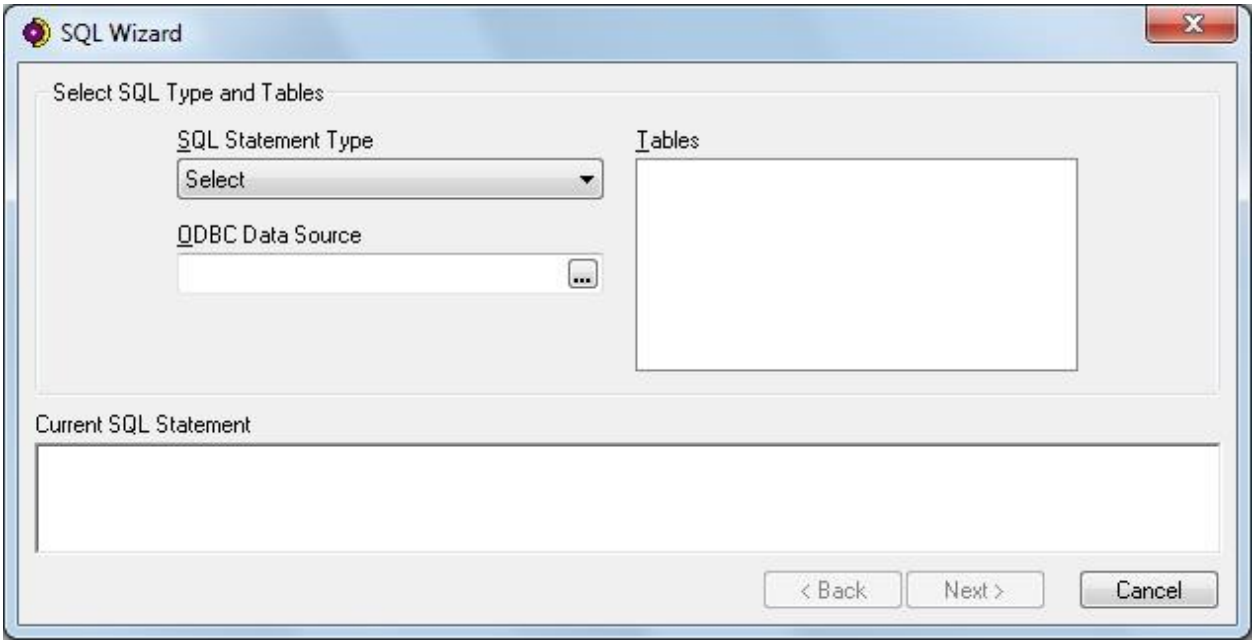
## SQL Wizard

When you create a Data Field that has a type of SQL, you can use a “Wizard” to simplify the creation of the SQL Statement.

To open the SQL Wizard, within the *Add Data Field* dialog, right-click within the SQL Statement field and select *SQL Wizard* from the Context Menu. The SQL Wizard dialog is displayed.

**Caution:** Make sure you set the Usage field before opening the SQL Wizard as the Usage will affect the SQL Statement Type that can be generated.

## The SQL Wizard dialog (Select SQL Type and Tables)



## Fields

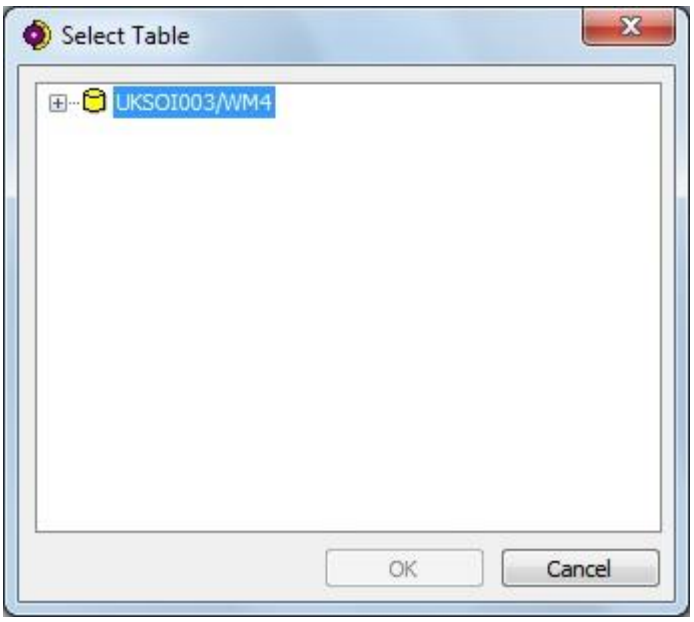
| Field | Description |
|---|---|
| SQL Statement Type | This drop-down list defines the type of SQL statement the SQL Wizard will produce. If the Data Field Usage type is set to Update, the list will contain Update, Insert and Delete. If the Data Field Usage is set to Event, the list will contain Select. If the Data Field Usage type is set to Table, the list will contain Select or Select All. For all other Data Field Usage types, the list will contain Select, Select Count and Select Max. Choose one option. |
| ODBC Data Source | Use the prompt button to select an ODBC data source to your IBM System i server. |
| Tables | List of tables to use with this SQL Statement. Right-click on the field to show the Context Menu. Use Add table to select a table to add to the list. Select an entry in the list, right-click on it and select Remove Table from the Context Menu to delete the table from the list.<br><br>**Caution:** For SQL Statement Type of Update, Insert or Delete, this field changes to a single-entry field where you can select only one table using the field's prompt button. |
| Current SQL Statement | Display the SQL Statement that will be placed into the Data Field. |

## Functions

| Action | Description |
|---|---|
| Back | Move to the previous screen of the SQL Wizard. |
| Next | Move to the next screen of the SQL Wizard. |
| Cancel | Abort the SQL Wizard. |

Selecting Add Table will display the Add Table dialog.

# The Add Table dialog



## Fields

| Field | Description |
|---|---|
| Tables List | Click the plus symbol next to the Data Source name to expand the list of tables. Select a table in the list. |
| | **Caution:** You may be prompted for sign-on information. |

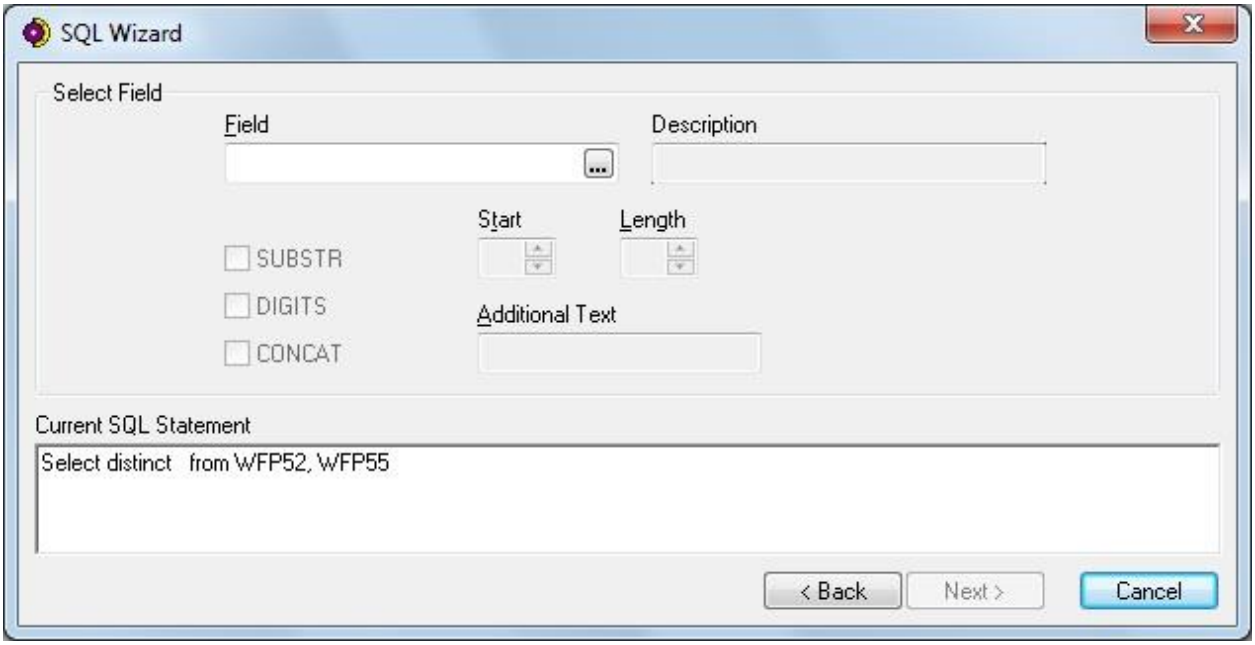
## Functions

| Action | Description |
|---|---|
| OK | Add the selected table. |
| Cancel | Discard selection. |

# The SQL Wizard dialog (Select Field)

Once you have defined all the fields in the first screen of the SQL Wizard, select Next to move to the next screen.

If the SQL Statement Type is Select or Select Max, and the Data Type Usage is not Table, the Select Field Wizard will be displayed.




## Fields

| Field | Description |
|---|---|
| Field | Use the Field prompt button to select a field. If you have selected multiple tables in the previous screen, you will be prompted to select which table to select a field from. |
| Description | Read-only. The field description read from the IBM System i table. |
| SUBSTR | Check this to select a sub-string of the content of the field. Will not be enabled if the selected field is not a SQL string type. |
| Start | Only enabled when SUBSTR is checked. Set the start character for the SUBSTR function. Limited from 1 to field length. |
| Length | Only enabled when SUBSTR is checked. Set the length for the SUBSTR function. Limited by field length minus start position. |
| DIGITS | Check this to apply the SQL DIGITS function to the field. Will not be enabled if the selected field is not a SQL numeric type. |
| CONCAT | Append additional text to the result field using the SQL CONCAT function. Will not be enabled if the selected field is not a SQL string type. |

| Field | Description |
| --- | --- |
| Additional Text | Only enabled when CONCAT is checked. Enter the text to add to the selected SQL field. |

Selecting Field prompt button displays the Select Field dialog.

Once you have defined all the fields in the second screen of the SQL Wizard, select Next to move to the next screen.

## The Select Field dialog

## Fields

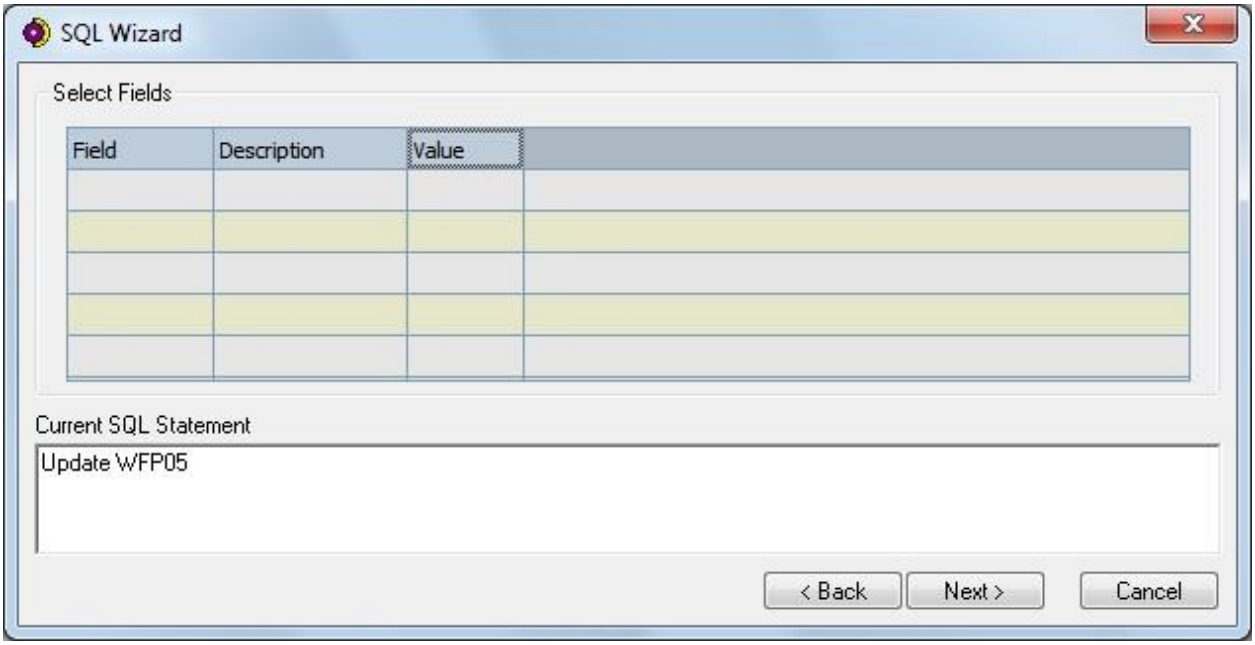
| Field | Description |
|---|---|
| Fields List | Click the plus symbol next to the Table name to expand the list of tables. Select a field in the list. |

## Functions

| Action | Description |
|---|---|
| OK | Add the selected field. |
| Cancel | Discard selection. |

# The SQL Wizard dialog (Select Fields for Update usage)

If the SQL Statement Type is Update, the Select Fields Wizard will be displayed.

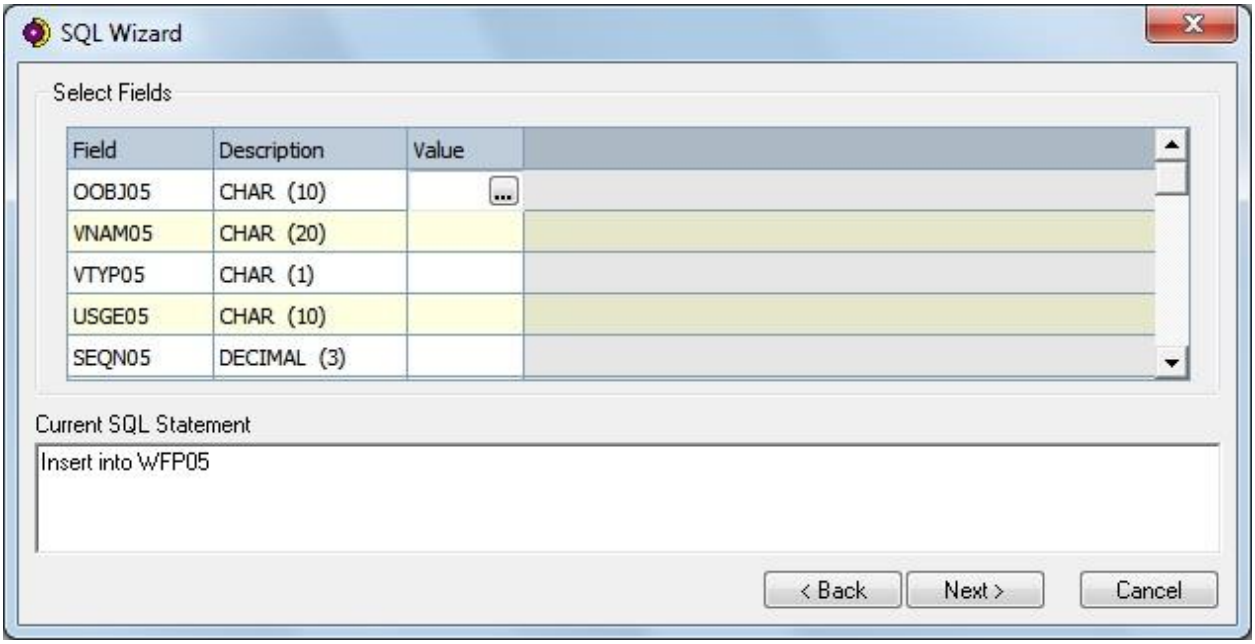


## Fields

| Field | Description |
|---|---|
| Field | For each row in the grid, use the prompt button to select a field. |
| Description | Read-only. The field description read from the IBM System i table. |
| Value | Enter a text value or use the prompt button to assign another Data Field to this field. |

Use the grid's Context Menu to Add or Remove rows

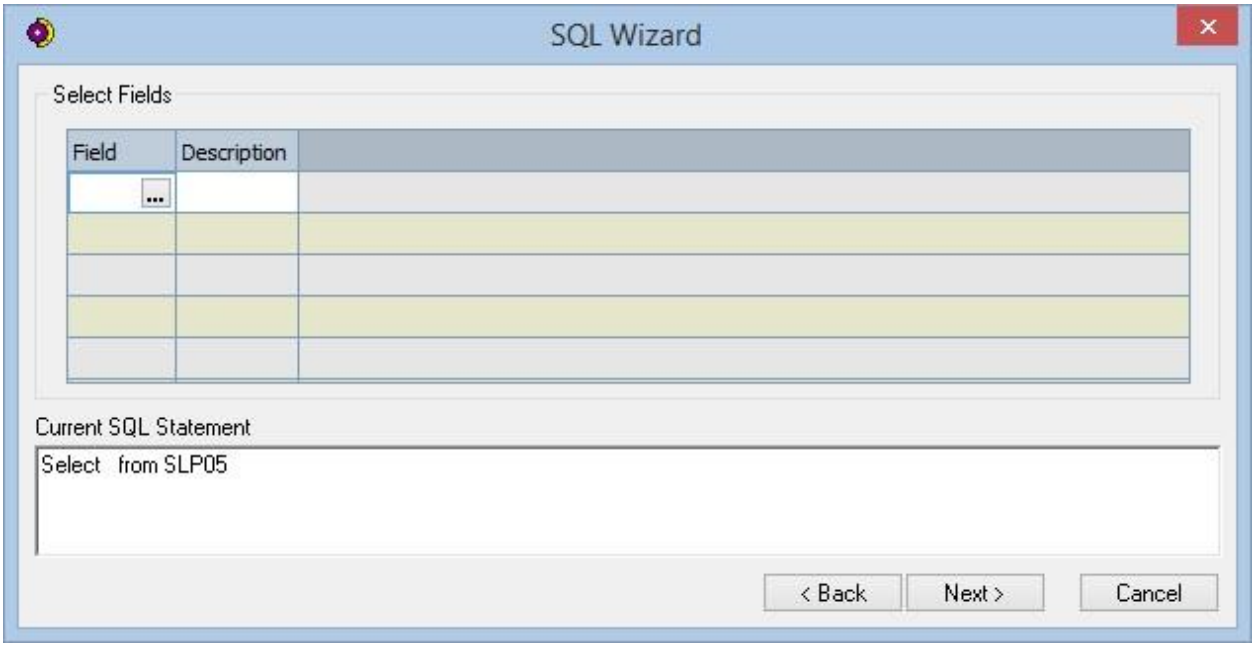
If the SQL Statement Type is Insert, the Select Fields Wizard will be displayed but the grid will be pre-populated with all the fields for the selected table.




Once you have defined all the fields in the second screen of the SQL Wizard, select Next to move to the next screen.

## The SQL Wizard dialog (Select Fields for Table usage)

If the Data Field Usage type is set to Table, and the SQL Statement Type is Select the Select Fields Wizard will be displayed.




## Fields

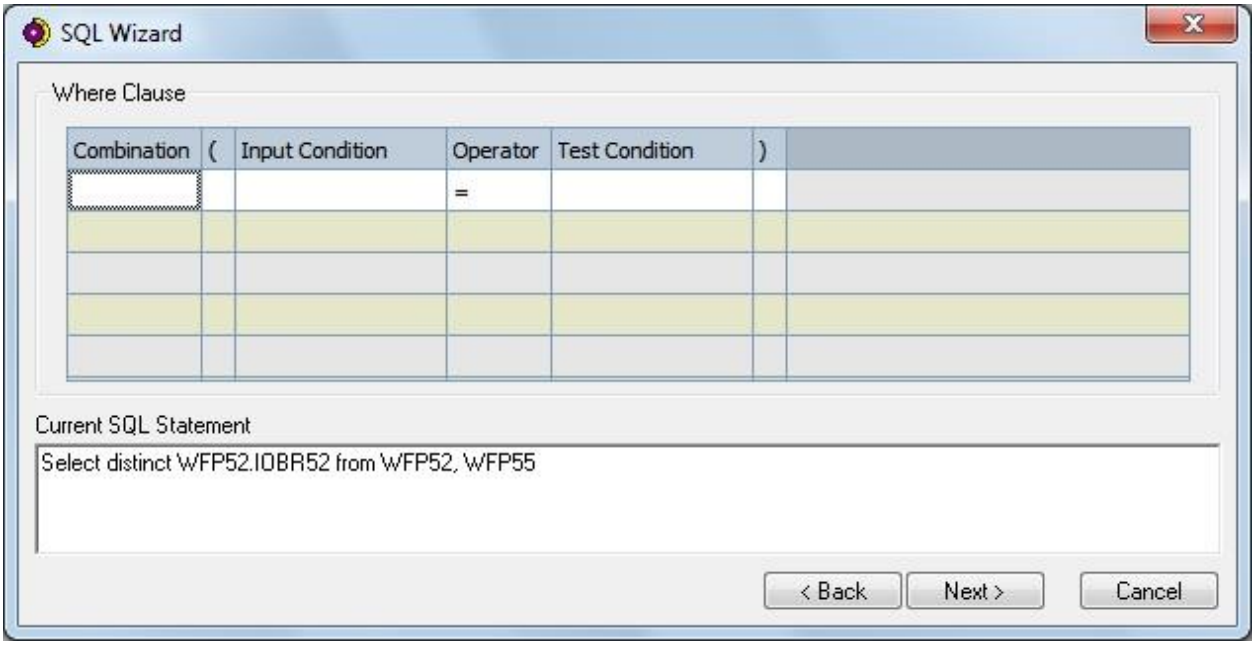
| Field | Description |
|---|---|
| Field | For each row in the grid, use the prompt button to select a field. |
| Description | Read-only. The field type description read from the IBM System i table. |

Use the grid's Context Menu to Add or Remove rows

Once you have defined all the fields in the second screen of the SQL Wizard, select Next to move to the next screen.

# The SQL Wizard dialog (Where Clause)

If the SQL Statement Type is Update, Delete, Select, Select Count or Select Max, the Where Clause Wizard will be displayed.




## Fields

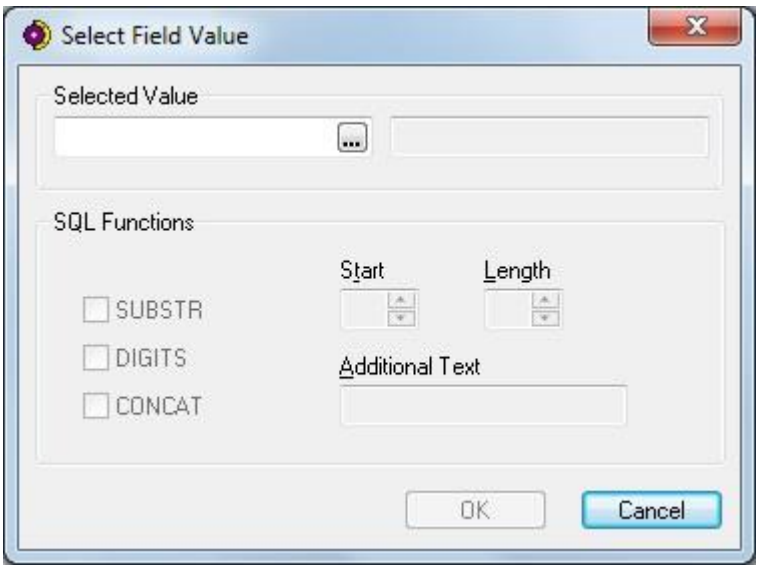
| Field | Description |
|---|---|
| Combination | Select “And” or “Or”. Can only be set when there is more than one grid row. |
| ( | Enter an open bracket to sub-set the following SQL Where test(s). |
| Input Condition | Use the prompt button to set the Input Condition field. |
| Operator | Select the SQL comparison operator. |
| Test Condition | Enter a value or use the prompt button to select the Test Condition field. |
| ) | Enter a close bracket to close a sub-set of SQL Where test(s). |

The Input Condition prompt button opens the Select Field Value (Input Condition) dialog.

The Test Condition prompt button opens the Select Field Value (Test Condition) dialog

Once you have defined all the fields in the Where Clause screen of the SQL Wizard, select Next to move to the next screen.

# The Select Field Value (Input Condition) dialog



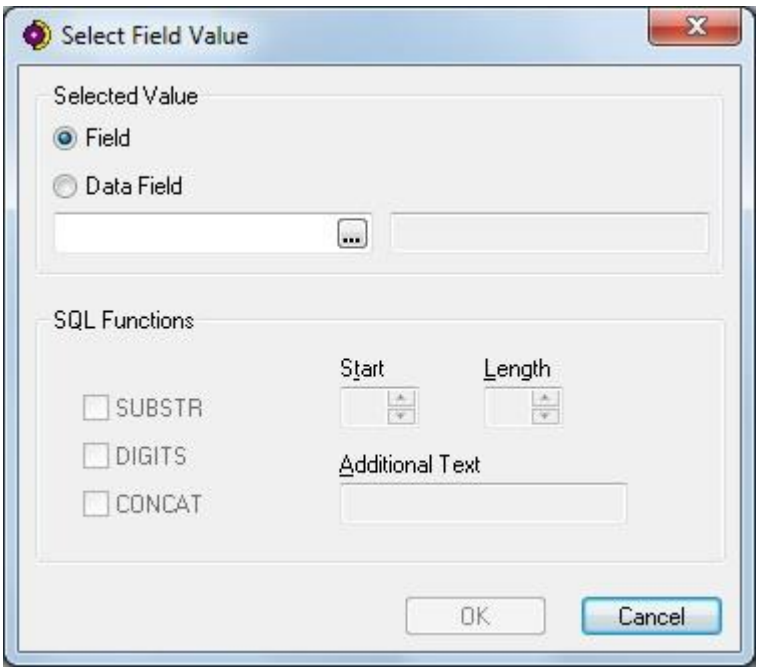

## Fields

| Field | Description |
|---|---|
| Selected Value | Use the Field prompt button to select a field. If you have selected multiple tables in the previous screen, you will be prompted to select which table to select a field from. |
| SUBSTR | Check this to select a sub-string of the content of the field. Will not be enabled if the selected field is not a SQL string type. |
| Start | Only enabled when SUBSTR is checked. Set the start character for the SUBSTR function. Limited from 1 to field length. |
| Length | Only enabled when SUBSTR is checked. Set the length for the SUBSTR function. Limited by field length minus start position. |
| DIGITS | Check this to apply the SQL DIGITS function to the field. Will not be enabled if the selected field is not a SQL numeric type. |
| CONCAT | Append additional text to the result field using the SQL CONCAT function. Will not be enabled if the selected field is not a SQL string type. |
| Additional Text | Only enabled when CONCAT is checked. Enter the text to add to the selected SQL field. |

## Functions

| Action | Description |
|---|---|
| OK | Add the selected field. |
| Cancel | Discard selection. |

# The Select Field Value (Test Condition) dialog




## Fields

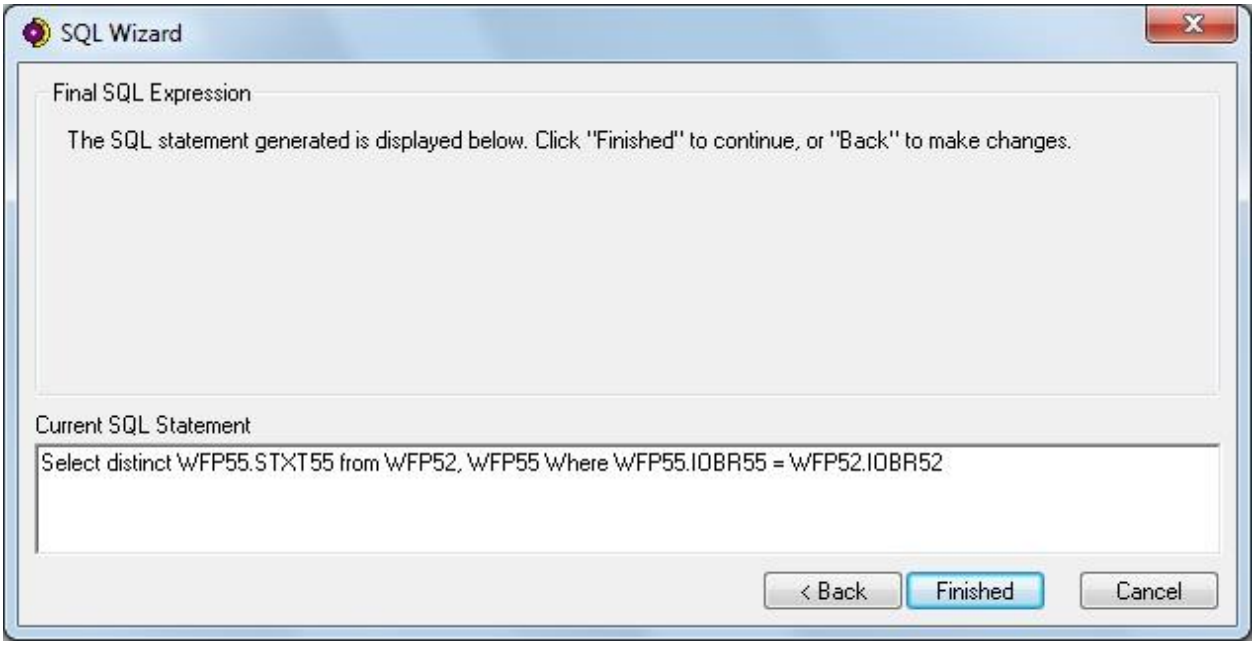
| Field | Description |
|---|---|
| Field | Select this and use the edit field prompt to choose a field from the table. If you have selected multiple tables in the previous screen, you will be prompted to select which table to select a field from. |
| Data Field | Select this option and use the edit field prompt to choose an existing Data Field. |

| Field | Description |
|---|---|
| SUBSTR | Check this to select a sub-string of the content of the field. Will not be enabled if the selected field is not a SQL string type. |
| Start | Only enabled when SUBSTR is checked. Set the start character for the SUBSTR function. Limited from 1 to field length. |
| Length | Only enabled when SUBSTR is checked. Set the length for the SUBSTR function. Limited by field length minus start position. |
| DIGITS | Check this to apply the SQL DIGITS function to the field. Will not be enabled if the selected field is not a SQL numeric type. |
| CONCAT | Append additional text to the result field using the SQL CONCAT function. Will not be enabled if the selected field is not a SQL string type. |
| Additional Text | Only enabled when CONCAT is checked. Enter the text to add to the selected SQL field. |

### Functions

| Action | Description |
|---|---|
| OK | Add the selected field. |
| Cancel | Discard selection. |

## The SQL Wizard dialog (Final SQL Expression)

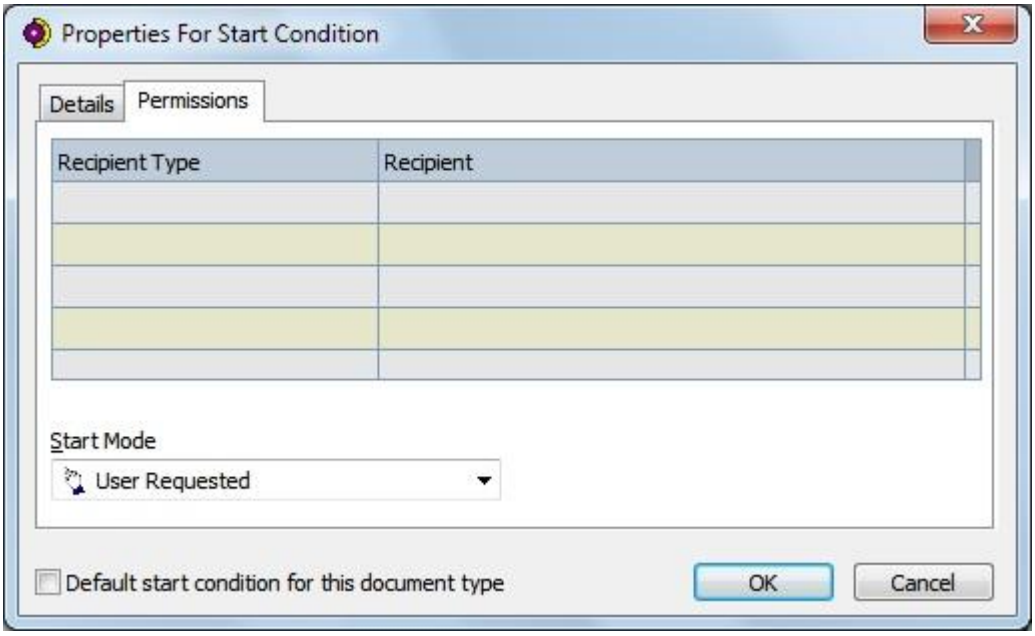



## Functions

| Action | Description |
|---|---|
| Finished | Select this to apply the Current SQL Statement to your Data Field. |

# Manually Started Processes

Normally, Business Processes will be initiated by the execution of an Infor ERP System i application. However, you can define a process that is started manually by a user using the RUNWMBPL WFi Engine command. To define the initiation of a Business Process as being “User Requested”, double-click on any Start Node to open the Properties dialog. Select a Document Type from the drop-down list and display the Permissions tab.




Select User Requested from the Start Mode field and press OK. The Start Mode icon will be drawn with the “hand” icon.

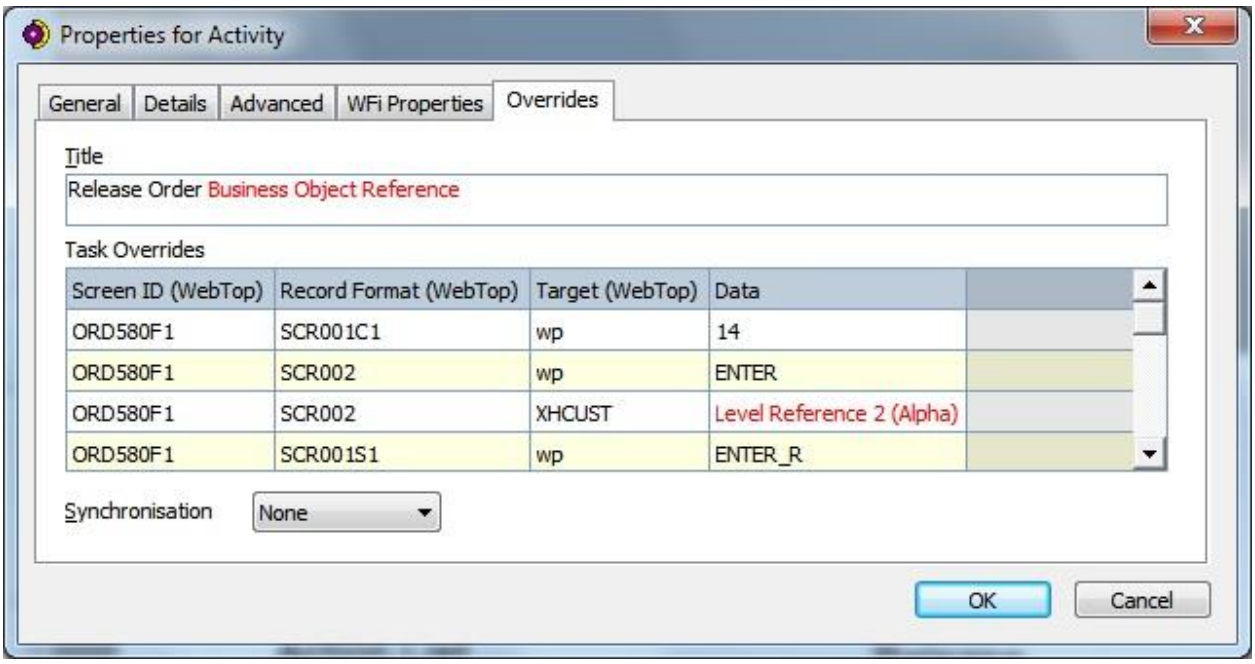
To start a User Requested Business Process, login to your WFi Server using System i Workspace and, within the Quick Launch field within the System i Workspace tab, enter RUNWMBPL and press enter. The RUNWMBPL command will execute within a new tab.

**Caution:** See the WFi Administrator Guide for more information on using RUNWMBPL.

## Elemental Activity Overrides

When you open the Properties for an Elemental Activity that has been placed within the process flow, you will see an additional tab called Overrides.

# Properties for Activity dialog (Overrides tab)




## Fields

| Field | Description |
|---|---|
| Title | If you ignore this field, the System i Workspace user will see the contents of the Name field displayed in the Action List/Action Tracker. You can enter text here to give the user a more meaningful message. You can also insert data fields. Right-click inside the message area to select from a list of data fields that are suitable for the current Business Object. |

Task Overrides

You can use task overrides to drive the System i ERP Application using fixed or dynamic data. The grid that you see will depend on the System i ERP Type selected in the General tab.

For Infor ERP System21, the columns will be...

| Column Name | Description |
|---|---|
| Screed Id (Emulator) | Enter a System i Workspace Emulator Magic Number value. |
| Screen Id (Jacada) | Enter the Jacada Panel name. |
| Target (Emulator) | Enter the index of the System i Workspace Emulator field. |
| Target (Jacada) | Enter the Jacada Field name. |
| Data | Either manually enter a hard-coded value to put into the field or use the prompt button to select from a list of WFi Data Fields valid for the current Business Object. |

**Caution:** There are several types of Target value that can be used to populate fields and automate the display. See the Infor ERP System21 for WFi documentation for more details.

For Infor ERP LX, the columns will be...

| Column Name | Description |
|---|---|
| Screen Id (WebTop) | Enter the WebTop source ID. |
| Target (WebTop) | Enter the WebTop field target attribute. |
| Format (WebTop) | Enter the WebTop format name. |
| Data | Either manually enter a hard-coded value to put into the field or use the prompt button to select from a list of WFi Data Fields valid for the current Business Object. |

**Caution:** There are several types of Target value that can be used to populate fields and automate the display. See the Infor ERP LX for WFi documentation for more details.

| Field | Description |
|---|---|
| | For Infor ERP IDF, the columns will be...<br><br>**Caution:** Overrides for Infor ERP IDF support both the Power-Link and Net-Link user-interface types.<br><br>**Column Name** / **Description**<br>Name — Enter the Infor ERP IDF field name.<br>Data — Either manually enter a hard-coded value to put into the field or use the prompt button to select from a list of WFi Data Fields valid for the current Business Object.<br>Key — Check box to say if this is a key field or not |
| Synchronization | You currently have two choices: None and Simple. If you chose Simple Synchronization you determine that the Activity is not to start execution until all the activities preceding it in the process have completed.<br><br>A blue bar is placed on the side of the element on the Canvas. |

### Functions

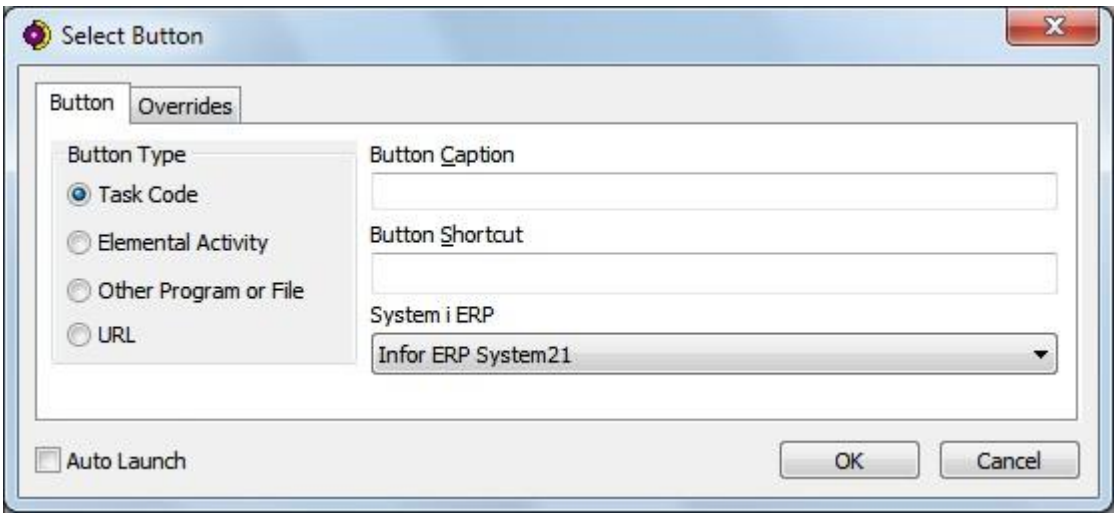
| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

## Manual Activity Message Buttons

To assist the recipient in determining the next course of action, or just as a way of providing more information, Buttons may be added to the Manual Activity message as shortcuts to Infor System i ERP activities (applications), URL's or PC applications/files. Buttons appear on the Message field in blue text.

To add a Button (or Link) within the Message content of a Manual Activity, right mouse click at the position in the message that you wish to insert your Button and select Insert Button from the Context Menu.

# The Select Button dialog (Button tab)




## Fields

| Field | Description |
|---|---|
| Button Type | A System i ERP activity can be defined using the Task Code or Elemental Activity options on the Select Button window. A PC application can be defined when the Other Program or File option is selected. Internet URL's can be defined when the URL option is selected. |
| Button Caption | This must be specified. This value appears in the message as a link for the user to select. |
| Button Shortcut | This contains a link to the relevant activity/application/URL.<br>Use the prompt facility to select a pre-defined Elemental Activity in the current Application Version when a Button Type of Elemental Activity is selected.<br>Use the prompt facility to locate an executable program or file on your system when a Button Type of Other Program or File is selected.<br>Use the prompt facility to set a Data Field when a Button Type of URL is selected (the value of the data field will be resolved at runtime to form the URL). |

| Field | Description |
|---|---|
| System i ERP | The Infor System i ERP associated with this button. Supported values are Infor ERP LX, Infor ERP XA, and Infor ERP System21. If the Button Type is set to Task Code, where you can manually enter the Button Shortcut, you will be able to select the System i ERP from the drop-down list appropriate for the application code. If the Button Type is set to Elemental Activity, then the System i ERP type is read from the pre-defined Elemental Activity within the current Application Version and the list box is set to read-only.<br><br>**Caution:** This option is only available when the Button Type is set to either Task Code or Elemental Activity. |
| Auto Launch | When launching Manual Activities, there are cases where an activity will almost always be launched from it. With the Auto Launch option, the selected task is run automatically when the message is viewed. Not currently supported in Infor ERP System i Workspace. |

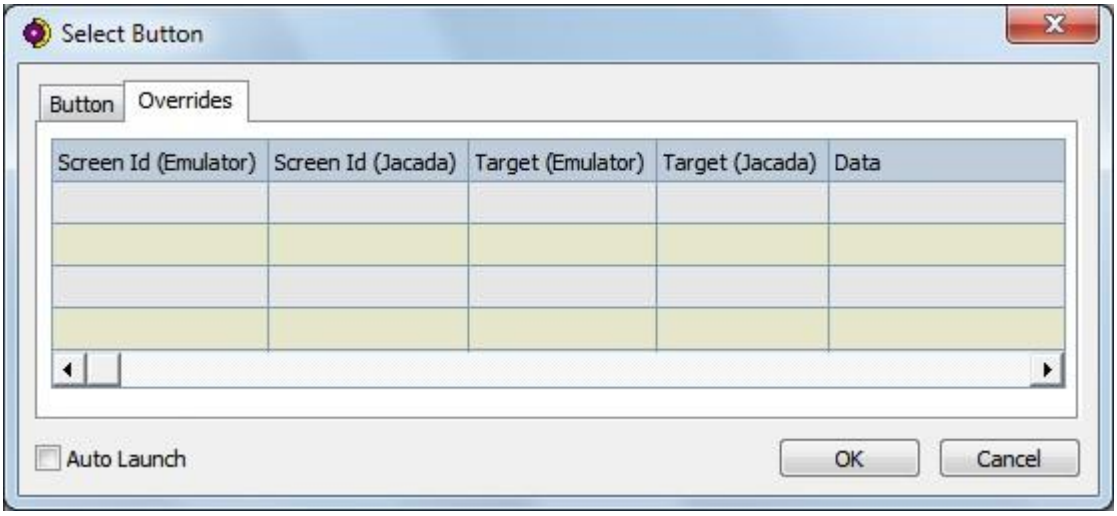
### Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

## The Select Button dialog (Overrides tab)

The Overrides tab allows the user to pre-fill fields within Infor ERP System i tasks launched from buttons with process specific data.

**Caution:** This option is only available when the Button Type is set to either Task Code or Elemental Activity.




The Grid within the Overrides tab changes dependent on the selected System i ERP in the Button tab.

For Infor ERP System21, the columns will be...

| Column Name | Description |
|---|---|
| Screed Id (Emulator) | Enter a System i Workspace Emulator Magic Number value. |
| Screen Id (Jacada) | Enter the Jacada Panel name. |
| Target (Emulator) | Enter the index of the System i Workspace Emulator field. |
| Target (Jacada) | Enter the Jacada Field name. |
| Data | Either manually enter a hard-coded value to put into the field or use the prompt button to select from a list of WFi Data Fields valid for the current Business Object. |

**Caution:** There are several types of Target value that can be used to populate fields and automate the display. See the Infor ERP System21 for WFi documentation for more details.

For Infor ERP LX, the columns will be...

| Column Name | Description |
|---|---|
| Screen Id (WebTop) | Enter the WebTop source ID. |
| Target (WebTop) | Enter the WebTop field target attribute. |
| Format (WebTop) | Enter the WebTop format name. |

| | |
|---|---|
| Data | Either manually enter a hard-coded value to put into the field or use the prompt button to select from a list of WFi Data Fields valid for the current Business Object. |

**Caution:** There are several types of Target value that can be used to populate fields and automate the display. See the Infor ERP LX for WFi documentation for more details.

For Infor ERP IDF, the columns will be...

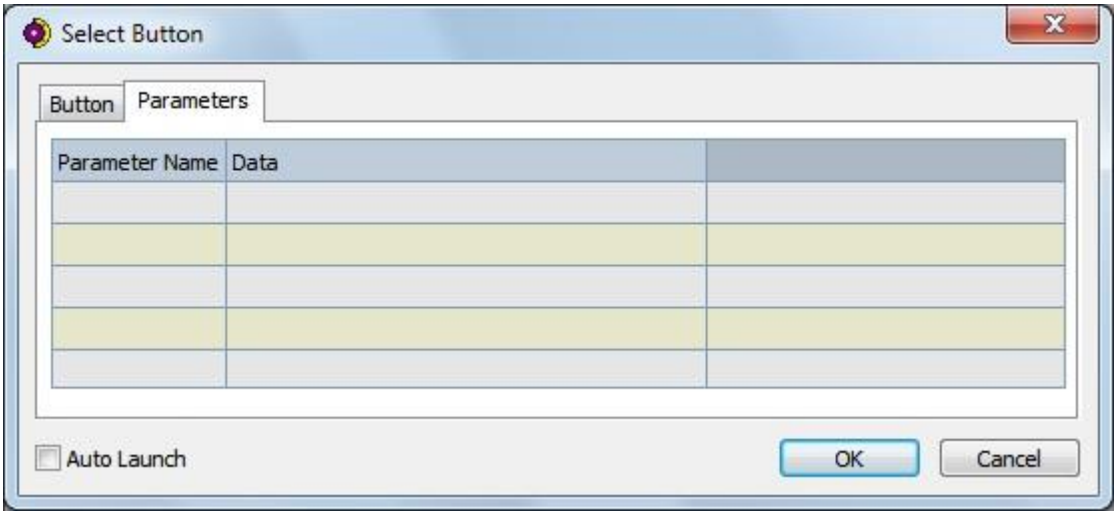
| Column Name | Description |
|---|---|
| Name | Enter the Infor ERP IDF field name. |
| Data | Either manually enter a hard-coded value to put into the field or use the prompt button to select from a list of WFi Data Fields valid for the current Business Object. |
| Key | Check box to say if this is a key field or not |

**Caution:** Overrides for Infor ERP IDF support both the Power-Link and Net-Link user-interface types.

## The Select Button dialog (Parameters tab)

The *Parameters* tab allows the user to set parameters that will be passed as part of a URL.

**Caution:** This option is only available when the Button Type is set to URL.




The grid lists all the user defined parameters. Use the right click context menu to add new entries.

### Fields

| Field | Description |
|---|---|
| Parameter Name | The parameter name. Text only.<br><br>**Caution:** Parameter names may be case sensitive. |
| Data | The value of the parameter. Can be text or a data field selected from the drop-down list. |

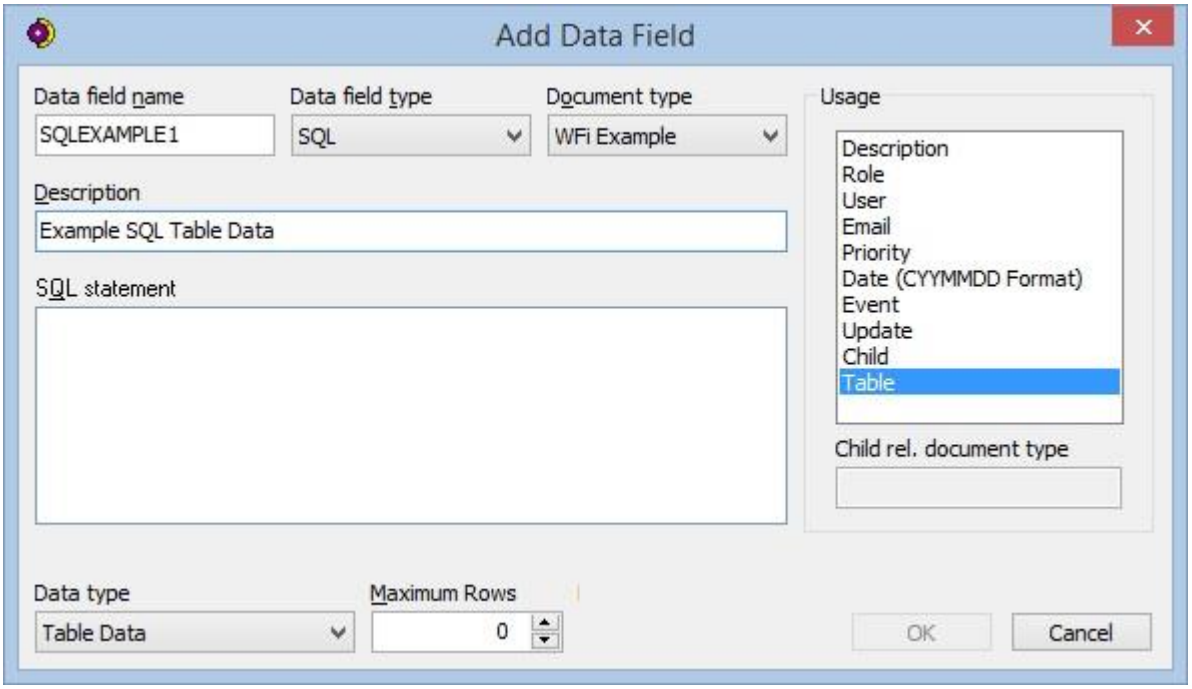
# Displaying Tabular Data within a Manual Activity

WFi Modeler allows the process designer to embed a read-only table of data within a Manual Activity message. The data within the table is constructed using the Table type Data Field.

## Creating a Table Data Field

To create a Data Field that will retrieve tabular data, select the *Configure, Work Management, Data Fields* option from the main menu. Click *Add* to create the new Data Field.

Select **Table** within the *Usage* field. The *Data field type* field will change to **SQL** and cannot be changed. The *Data Type* field will change to **Table Data** and cannot be changed. Enter a suitable, unique name in the *Data field name* field, a suitable *Description* and select the *Document type* you wish to associate the data field with, E.g.




In the *SQL statement* field, enter your SQL query to retrieve one or more columns of data.

**Caution:** If you do not have experience with creating SQL queries, you can use the *SQL Wizard* option from the Context menu to construct your SQL statement and avoid syntax errors that may occur at run-time. See the *SQL Wizard* section earlier within this chapter for more information.

The SQL statement can be constructed to run over a single or multiple IBM i data files. However, there are some restrictions to the SQL data types that can be processed...

- Large Object Block (LOB) SQL field types, such as CLOB, DBCLOB or BLOB are not supported. If used, the WFi Engine will return a blank result field and write an error record to WFP95. For CLOB/DBCLOB wrapping the field using the CHAR() command (e.g. CHAR(FIELD_NAME) ) will return data in character format.
- DECFLOAT SQL field types are not supported. If used, the WFi Engine will return the value in floating format and write an error record to WFP95. Wrapping the field using the CHAR() command (e.g. CHAR(FIELD_NAME) ) will return data in character format. Usage of this type of field is now uncommon, for example it is not used within Infor ERP System21 database and it is not supported in RPGLE.

- REAL and DOUBLE field types are not supported. If used, the WFi Engine will return the value in floating format, no error will be written. Wrapping the field using the DECIMAL() command (e.g. DECIMAL(FIELD_NAME) ) will cast the data into numeric format, but may lose precision. Usage of this type of field is now uncommon, for example it is not used within Infor ERP System21 database and it is not supported in RPGLE.
- Any complex SQL statements, such as using the SUBSTR or CONCAT functions to construct formatted output, must be braced within a CHAR() function call and the column name must be set using the AS SQL command; E.g. **CHAR(**SUBSTR(DTCO40,6,2) CONCAT '/' CONCAT SUBSTR(DTCO40,4,2) CONCAT '/' CONCAT SUBSTR(DTCO40,2,2)**) AS DTCO40**

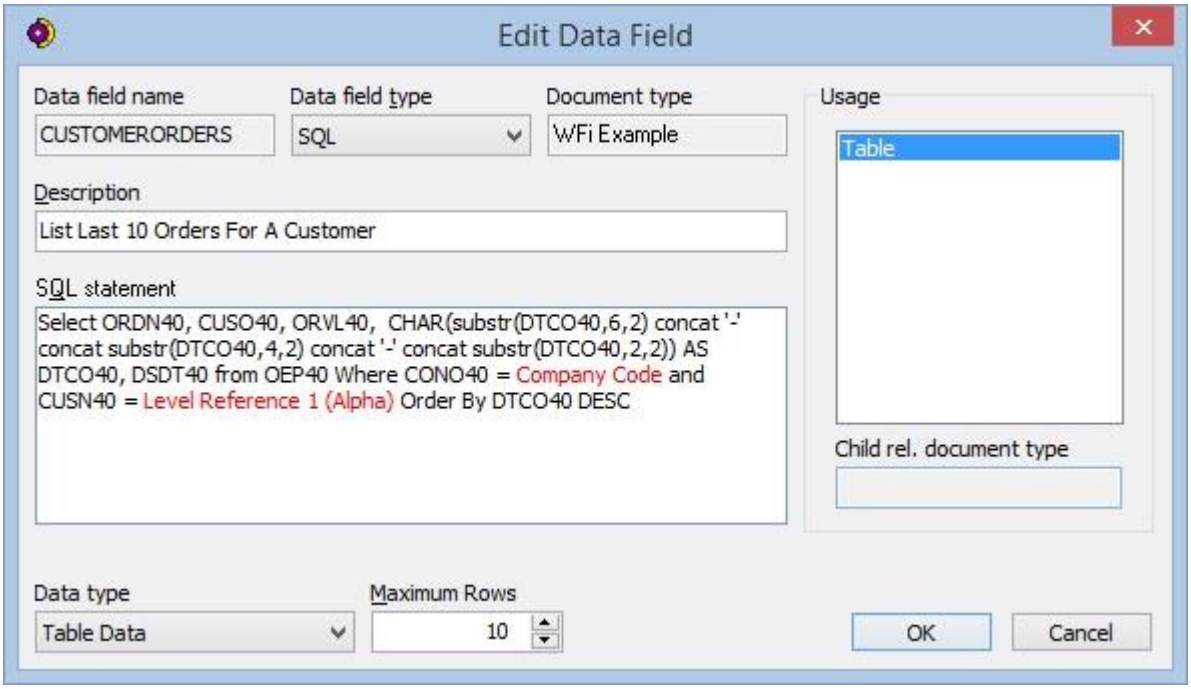
The WFi Engine supports both single- and double-byte data.

The *Maximum Rows* field controls how much data to return. If set to 0, all matching records will be returned. Any other positive value will return up to that number of records.

Click **OK** to save the Data Field for use within a Manual Activity.

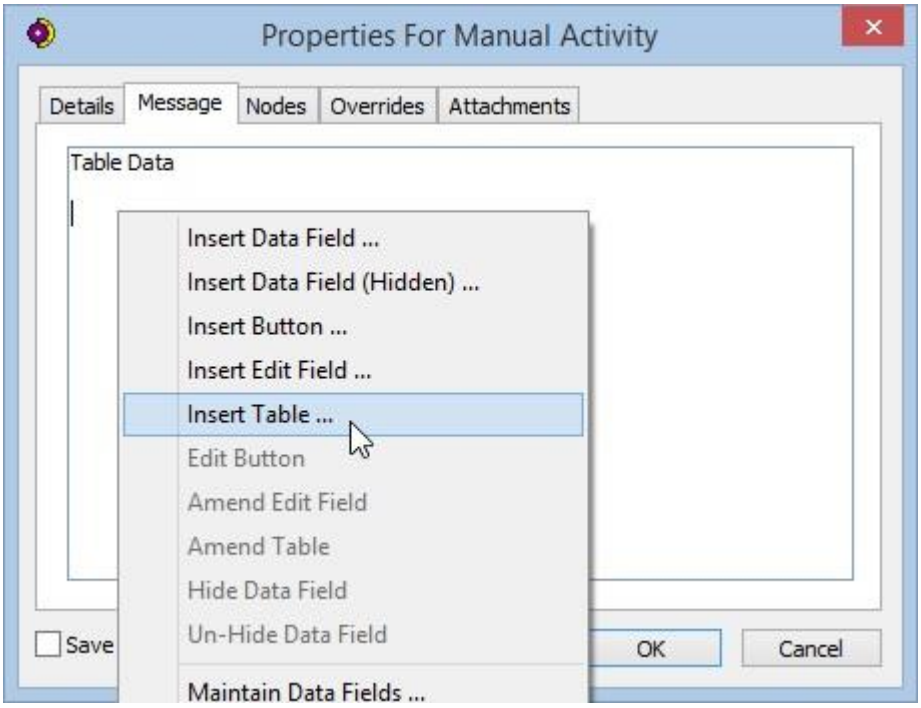
Once you have created a Data Field of type Table, you cannot alter its *Usage,* but you can alter the SQL statement.

Here is an example Table Data Field…



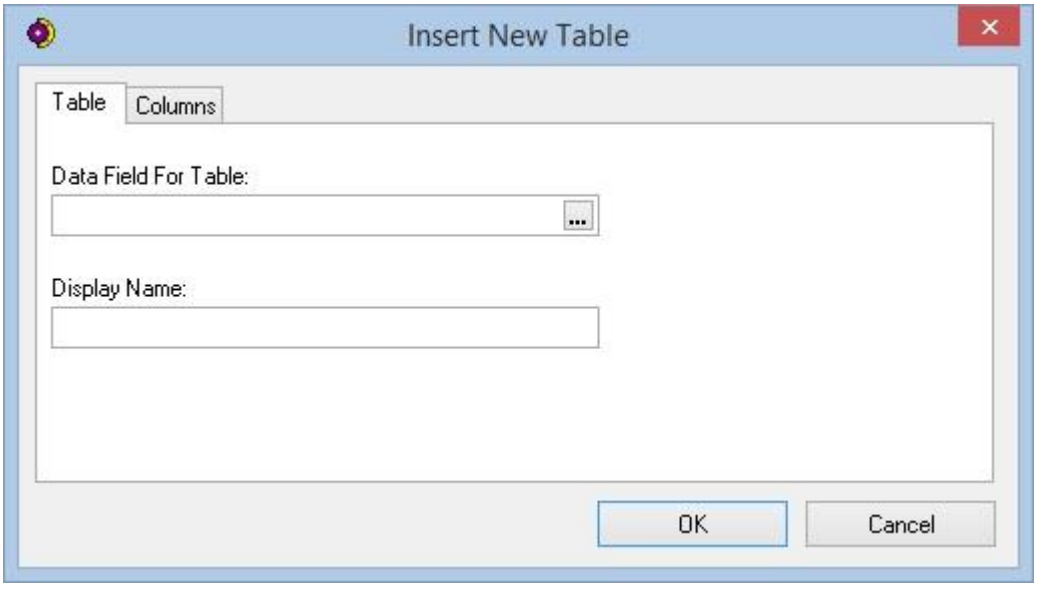

## Adding a Table to a Manual Activity

To add a Table field to your Manual Activity, bring up the context menu within the Message tab of the Properties dialog and select the *Insert Table…* option.




The Insert New Table properties dialog is displayed.

## The Insert New Table dialog (Table tab)

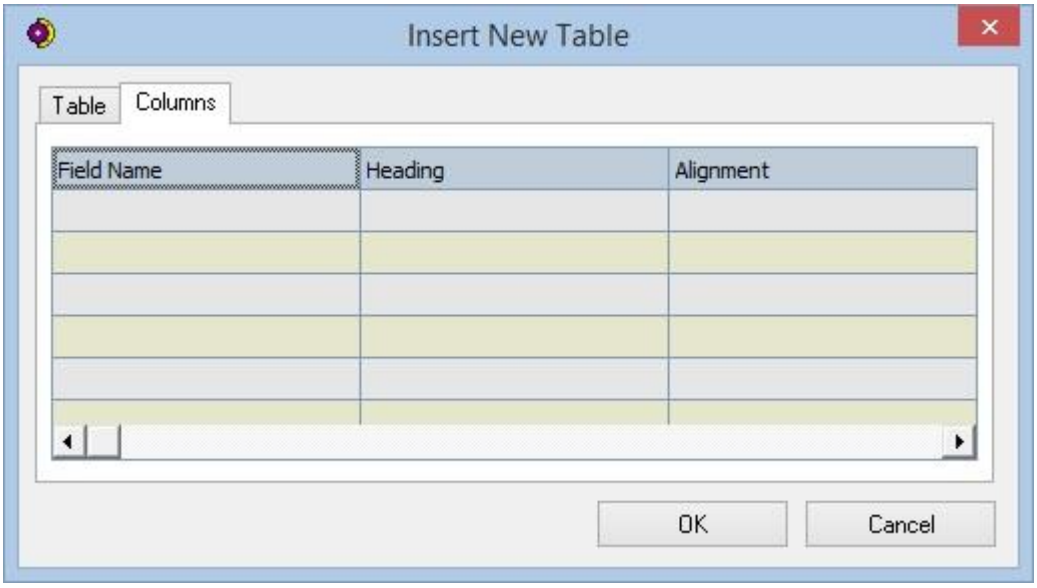


## Fields

| Field | Description |
|---|---|
| Data Field For Table | Use the prompt button to select the Data Field that will be used. The *Select Data Field* dialog will be displayed, listing only Data Fields with a Usage type of Table. |
| Display Name | Enter the name that is displayed within the message editor. |

Once you have selected a *Data Field For Table* field, click on the *Columns* tab to define the table layout and heading.

# The Insert New Table dialog (Columns tab)




## Fields

| Field | Description |
|---|---|
| Field Name | The field names within the Table Data Field will be listed here. The *Field Name* must match what is returned by the WFi Engine. |
| Heading | Enter the name that is displayed for this column in the Table heading. |

| Field | Description |
|---|---|
| Alignment | Select the alignment of the data within the table cell; Left, Centre or Right alignment. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

Here is the *Columns* grid populated with the SQL statement using the example Data Field from the previous section…


At runtime, the columns of data will be displayed left to right in the table based on the descending order within this grid, E.g.

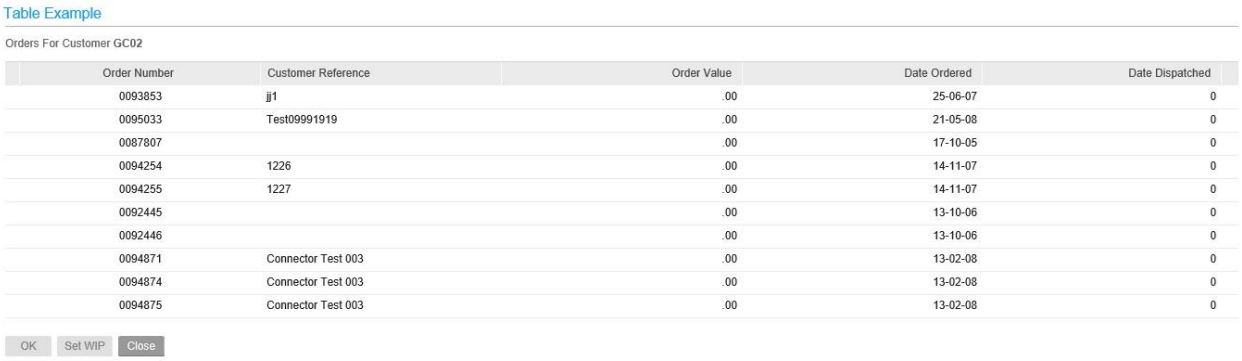


Table Example

Orders For Customer GC02

| Order Number | Customer Reference | Order Value | Date Ordered | Date Dispatched |
|---|---|---|---|---|
| 0093853 | jj1 | .00 | 25-06-07 | 0 |
| 0095033 | Test09991919 | .00 | 21-05-08 | 0 |
| 0087807 | | .00 | 17-10-05 | 0 |
| 0094254 | 1226 | .00 | 14-11-07 | 0 |
| 0094255 | 1227 | .00 | 14-11-07 | 0 |
| 0092445 | | .00 | 13-10-06 | 0 |
| 0092446 | | .00 | 13-10-06 | 0 |
| 0094871 | Connector Test 003 | .00 | 13-02-08 | 0 |
| 0094874 | Connector Test 003 | .00 | 13-02-08 | 0 |
| 0094875 | Connector Test 003 | .00 | 13-02-08 | 0 |

OK Set WIP Close

You can alter the order of fields within the output table to differ from the order within the SQL statement, or omit certain fields from the table.

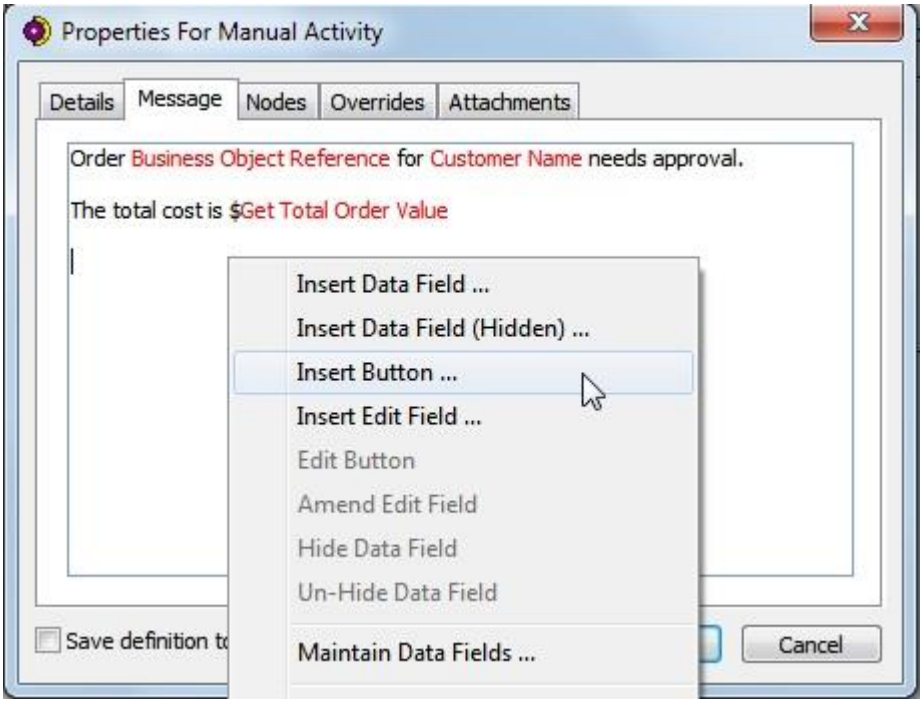
Manual Activities containing tables can be displayed within System i Workspace (where the Recipient Type is a Role or User) or within Email (where the Recipient Type is Email (HTML)).

**Caution:** You may use Tables within Email where the Recipient Type is Email (Plain Text) but the data columns will be displayed using the tab character to separate them and will not have any borders.

# Editable Manual Activities

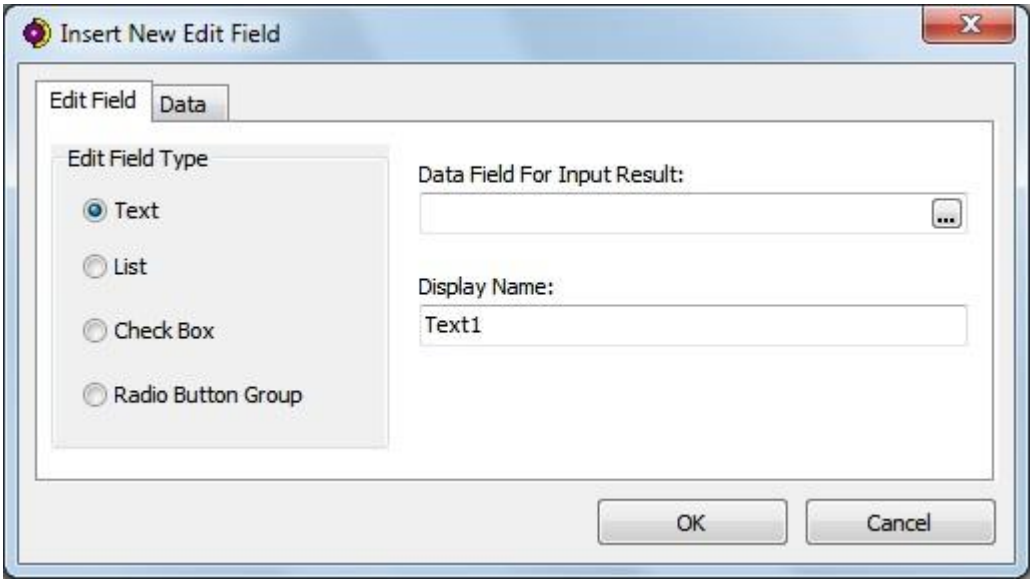
WFi Modeler allows the process designer to embed edit fields within a Manual Activity message so that the user can respond with new or pre-defined data that can be used later within the process to make key decisions.

To add an edit field to your Manual Activity, bring up the context menu within the Message tab of the Properties dialog and select the Insert Edit Field… option.




The Insert Edit Field properties dialog is displayed.

## The Insert Edit Field properties dialog



## Fields

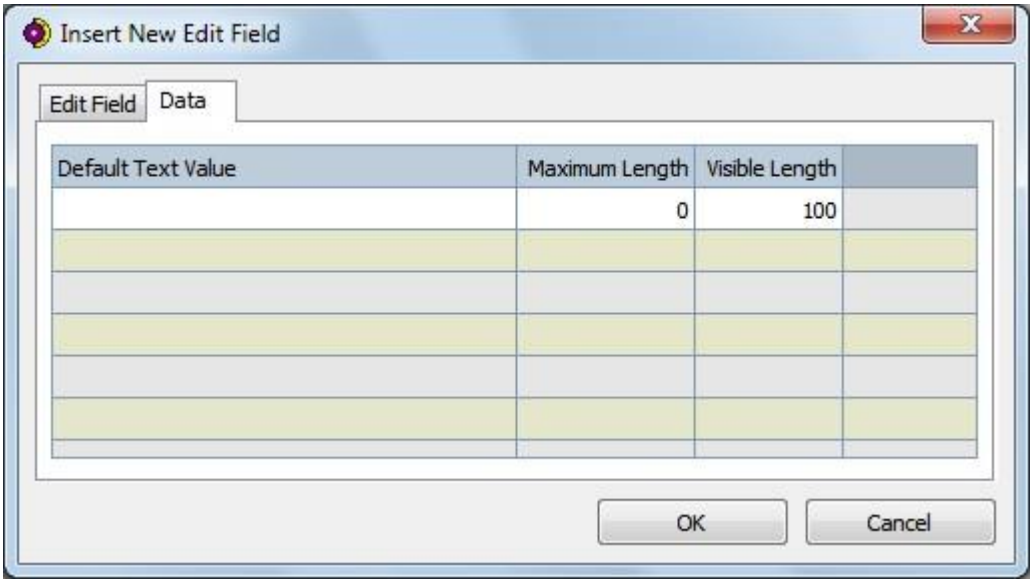
| Field | Description |
|---|---|
| Edit Field Type | This section allows the selection of the field required. The types of edit fields supported are:<br>• Text - text fields<br>• Check Box - Check box fields<br>• Radio Button group - Option (radio) button group fields<br>• List - drop-down list fields<br>The content of the Data tab changes depending on the field type. |
| Data Field For Input Result | This allows the user to select a pre-defined Data Field where the content of this edit field will be written. The Data Field must be of type Stored Value. Only Data Fields that are in the current Document Type are available for selection.<br>Alternately, use the prompt facility to display a dialog containing all the available fields. Global Data Fields cannot be selected. |
| Display Name | This is the text that is shown within the Message tab to represent this field. This is purely for design purposes and is not used at runtime. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

# Text Fields

Text Fields allow the input of raw, unformatted character data. Data from text fields can be used to pass information to other users or the system. The Data tab allows the designer to set the default values for the field…

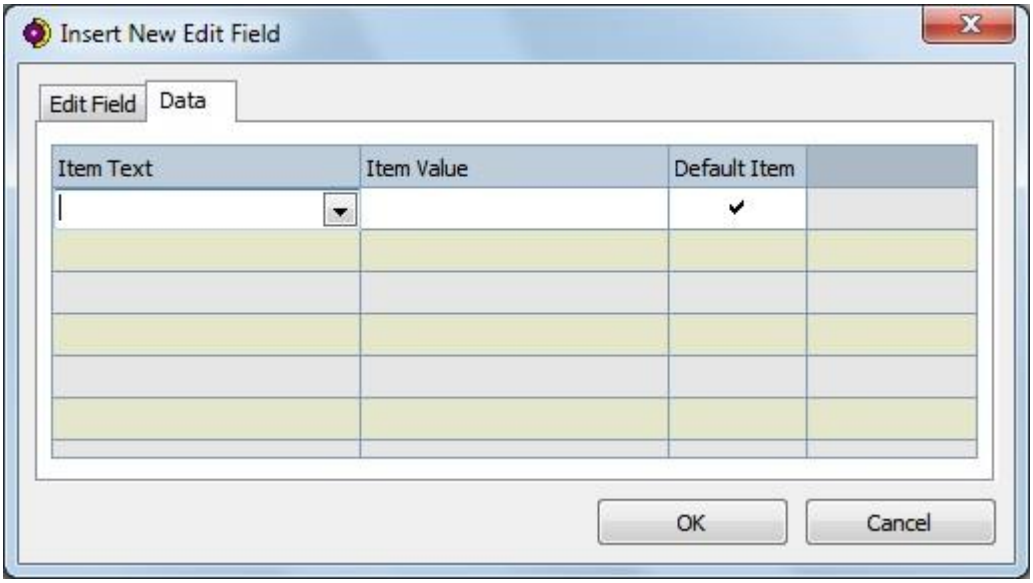



## Fields

| Field | Description |
|---|---|
| Default Text Value | This allows the definition of the content of the text field when first displayed to the user. This can contain user-defined text or, by using the drop-down button, the content of a Data Field. Only Data Field's that are embedded within the current message is displayed. |
| Maximum Length | This column allows the user to fix the size of the message data that the user can enter. The default value of 0 means that no maximum length restriction is in place, though the system does not allow the entry of data greater than 16000 characters long. |
| Visible Length | This allows the user to define the width, in characters of the text entry field. |

## List Fields

List Fields allow the input of a selected item from a drop-down list of options. The Data tab allows the designer to set the default values for the items in the list and their returned value…



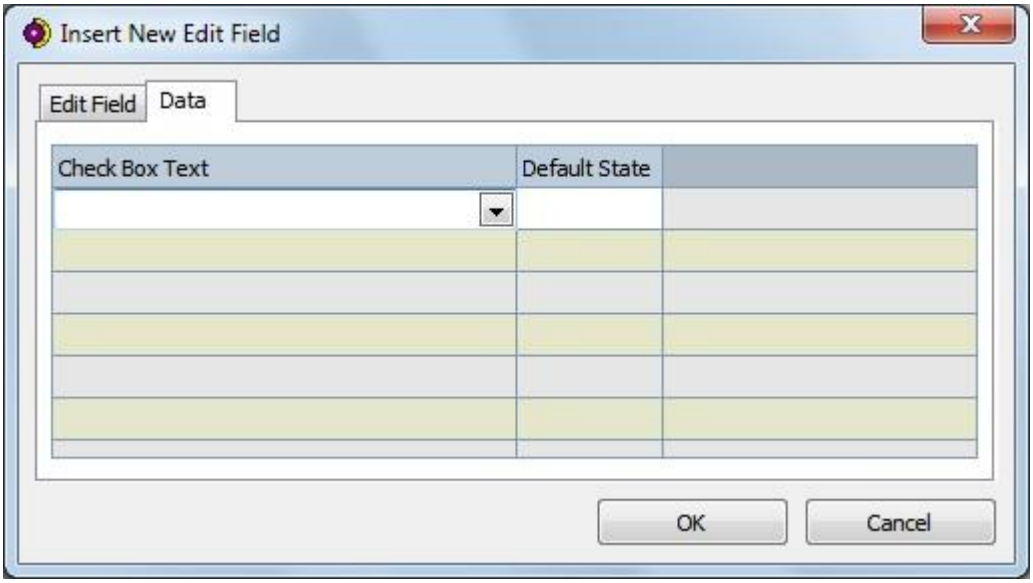

A list field must contain at least two items. To add an item, use the right-click context menu within the grid and select the Add option. To delete an item, right-click over the item to be deleted and select the Delete option from the context menu popup.

## Fields

| Field | Description |
|---|---|
| Item Text | This controls the content of the text within the list that is shown to message recipient. This can contain user-defined text or, by using the drop-down button, the content of a Data Field. Only Data Field's that are embedded within the current message is displayed. |
| Item Value | This controls the content of the data that is stored within the data field as the result for selecting this option. This can contain user-defined text or, by using the drop-down button, the content of a Data Field. Only Data Field's that are embedded within the current message is displayed. |
| Default Item | This defines which item is shown at the top of the list on entry to the Manual Activity. Only one item within the list can be the default. |

# Check Box Fields

Check box fields allow the user to select a true/false value to a single option. The Data tab allows the designer to set the default value for the field…



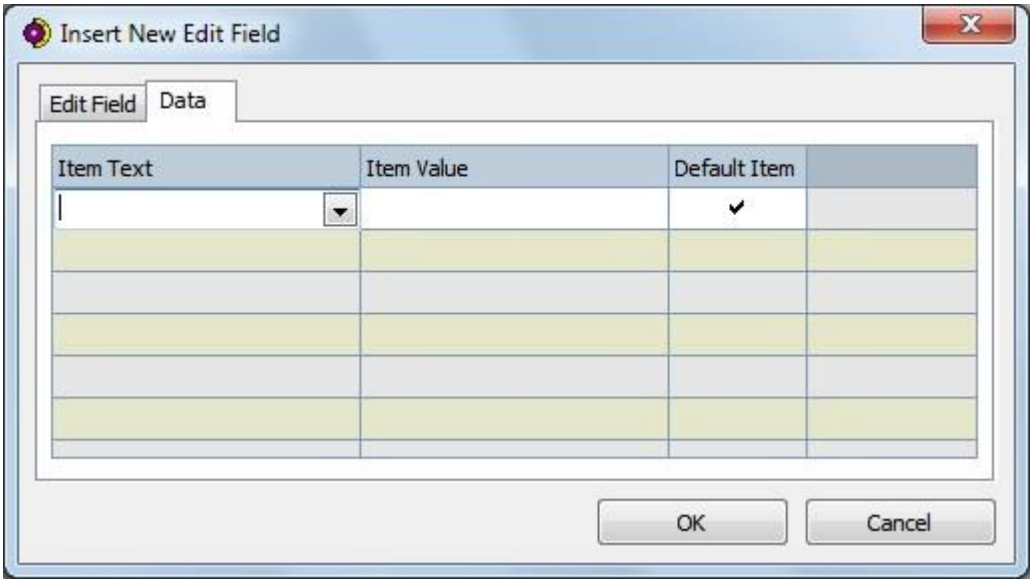

If the Check Box is set when the message is completed then a value of 1 is returned to the process, within the stored Data Field, otherwise a value of 0 is returned.

### Fields

| Field | Description |
|---|---|
| Check Box Text | This allows the definition of the data that is written to the side of the check box. This can contain user-defined text or, by using the drop-down button, the content of a Data Field. Only Data Field's that are embedded within the current message is displayed. |
| Default State | This allows the definition of whether the check box is set or not on first entry to the message. |

## Radio Button Group Fields

Radio Button Group fields allow the selection of an item from a set of options. The Data tab allows the designer to set the default values for the items in the list and their returned value…

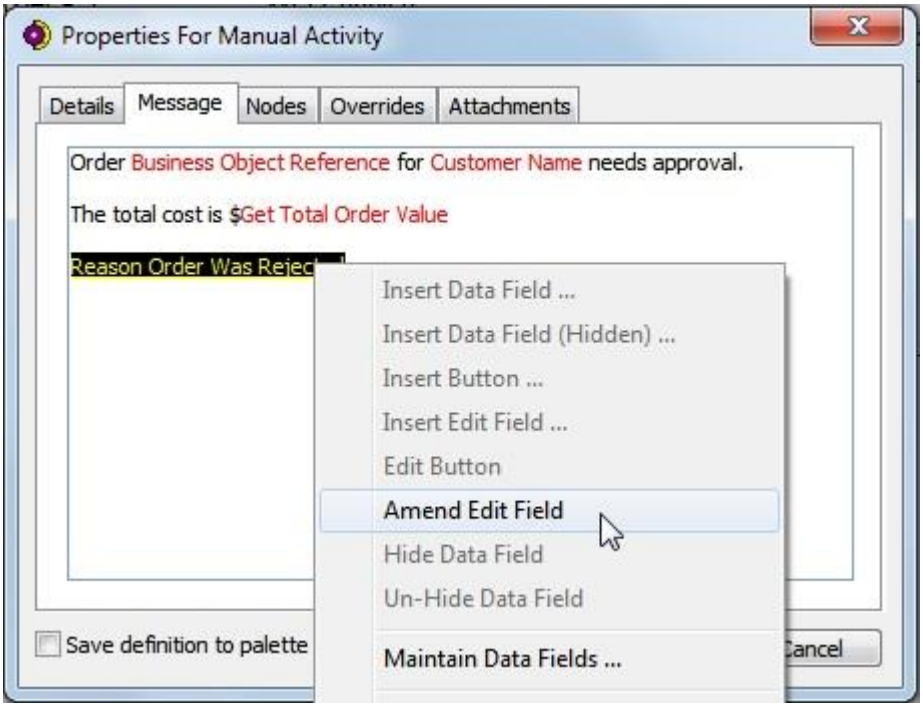



A Radio Group field must contain at least two items. To add an item, use the right-click context menu within the grid and select the *Add* option. To delete an item, use the right-click context menu over the item to be deleted and select the *Delete* option.

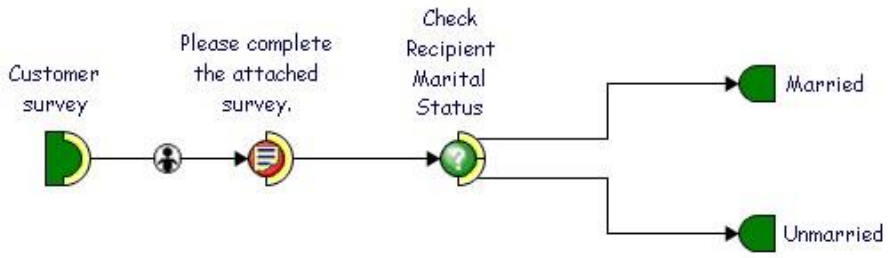
## Fields

| Field | Description |
|---|---|
| Item Text | This controls the content of the text written by the side of the option. This can contain user-defined text or, by using the drop-down button, the content of a Data Field. Only Data Field's that are embedded within the current message is displayed. |
| Item Value | This controls the content of the data that is stored within the data field as the result for selecting this option. This can contain user-defined text or, by using the drop-down button, the content of a Data Field. Only Data Field's that are embedded within the current message is displayed. |
| Default Item | This defines which item is selected on entry to the Manual Activity. Only one item within the group can be the default. |

Within the Manual Activity message definition area, edit fields are colored blue. To alter an existing edit field, highlight it and then use the *Amend Edit Field* option from the context menu…




On completion of the Manual Activity the content of the stored Data Field result may be used as part of other business process activities, E.g.




## Editable Manual Activity Recipients

Editable Manual Activities can be sent to users, roles or via HTML email (Text email does not allow edit fields, so any editable content is ignored).

Editable Manual Activities that are sent to roles/users are rendered within Infor ERP System i Workspace when the user selects their entry within the Action List.

Editable Manual Activities that are sent via HTML email are converted using the XML to HTML stylesheet that is set within the Email Writer.

For recipient mail clients that support scripting, the Email Writer can create a form that the user can fill and, on selection of a completion route, the script creates a reply email that holds the users input, within the body of the mail message. The Email Reader can then read the information in the body text and update the system with its content.

For recipient mail clients that do not support scripting (or do not want to due to security issues), the Email Writer can create a mail message that contains a link to launch the activity through System i Workspace. On selection of the link the user is prompted to sign in to the System i Workspace server (if they are not already logged on) and upon authorization the activity is displayed in the same way that it would if it were launched from an Action List.

# Document Flow Using Attachments

Attachments can be defined as part of a Manual Activity message. A recipient of the message can open and review the attachment. Attachments can be added to Manual Activities by recipients of the message. The process developer can define which recipients may add attachments.

The facilities provided allow process designers to create processes that use Manual Activity Attachments to track the life cycle of a document from its creation, through revision, to its final destination. The following tutorial shows the creation of a Terms of Reference document, for a new customer, and its review process until submission to the customer.

## Terms of Reference Tutorial

**Caution:** The Tasks and Data Fields used in this tutorial are entirely fictitious. You will need to map the values to real data and applications within your Infor ERP System i product.

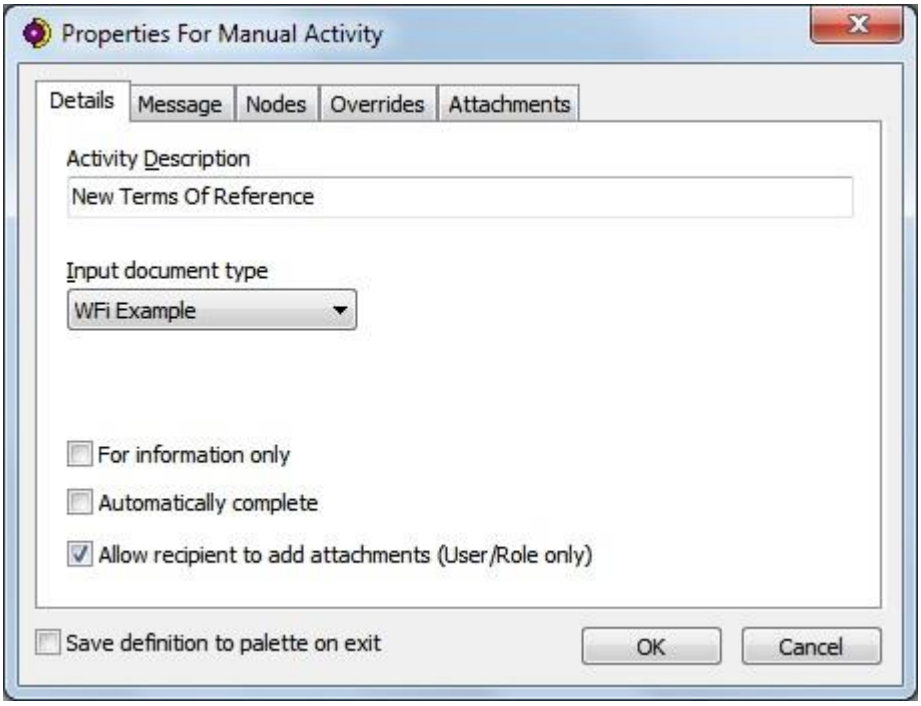
For this tutorial, the process is initiated via the Business Process Launcher (e.g. manually initiated). The Business Object Reference is made up of the customer number and address sequence. You may wish to initiate the process using an Infor ERP System i application customer creation program?

The tutorial uses a Document Type called WFi Example, this is an arbitrary Document Type used for WFi example processes. Normally, you would use a Document Type of Customer (or similar) here.

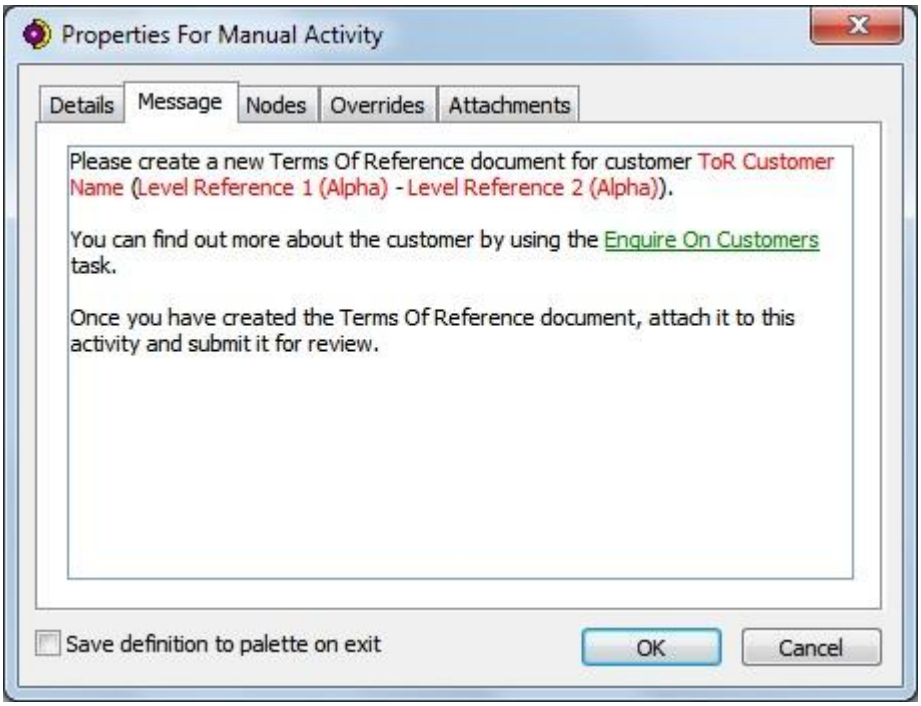
Any Data Fields used by the process are defined in the tutorial.

1 Create a new process and add a new Manual Activity control to it.

2 Open the Manual Activity properties and set the Details as below…

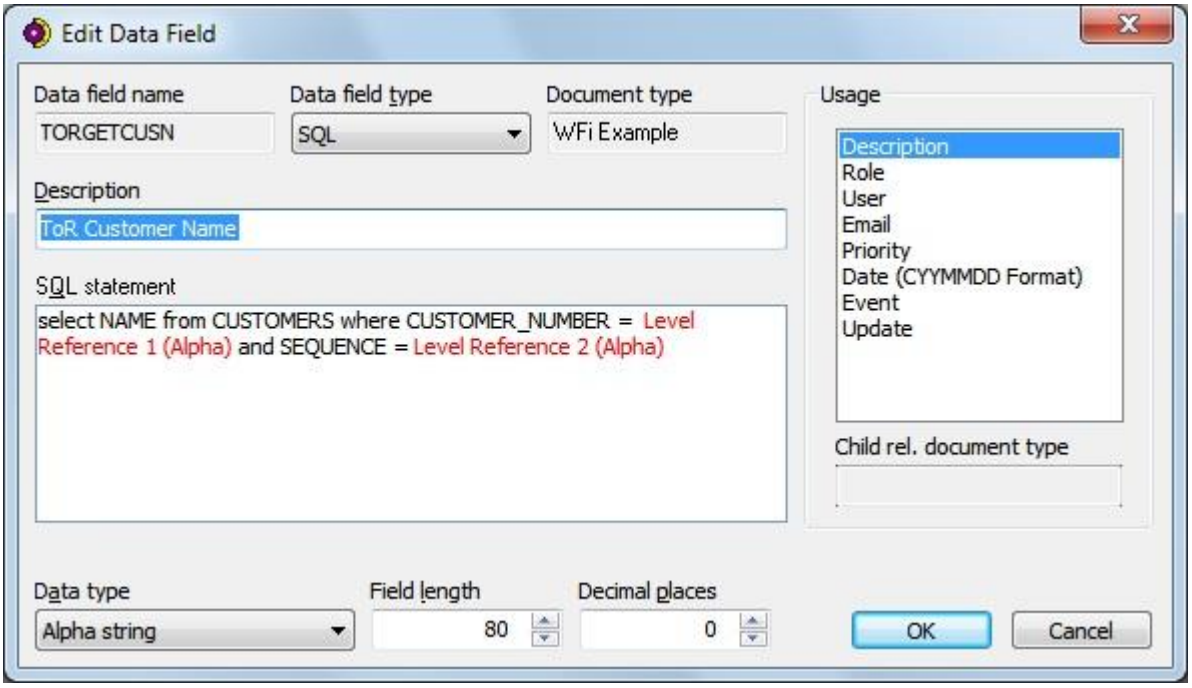



3 Select the Message tab and set the values as below…

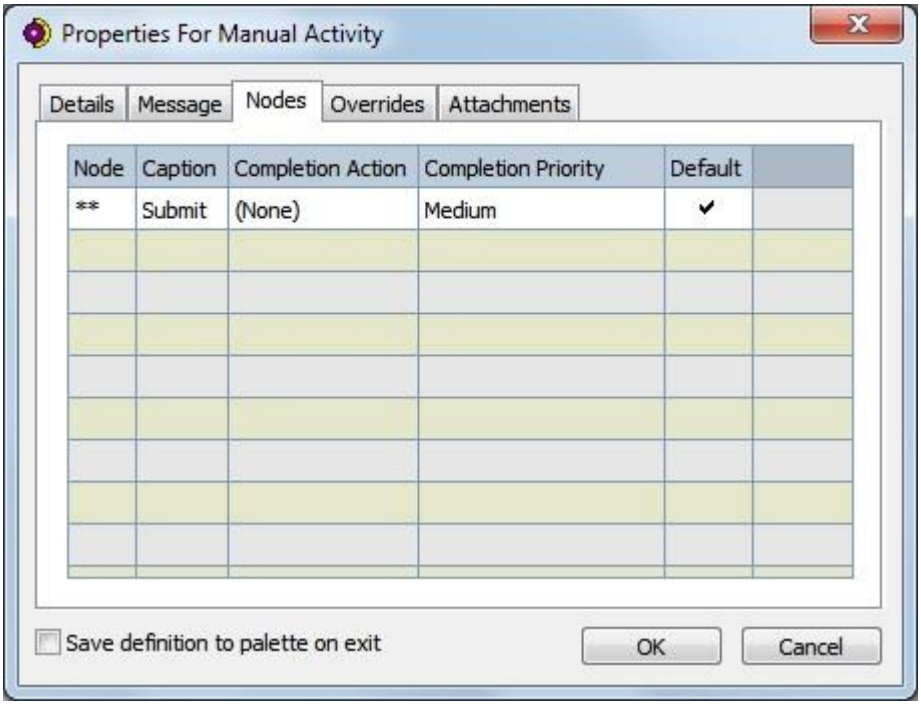


**Caution:** The Level Reference (Alpha) data fields are Global fields that are available to every process. They represent the first and second parts of the Business Object Reference. In a Business Object Reference, the “backslash” (\) can be used to separate pieces of information. For our process, the Business Object Reference will be made up of the customer code and sequence (e.g. ABCD\123).

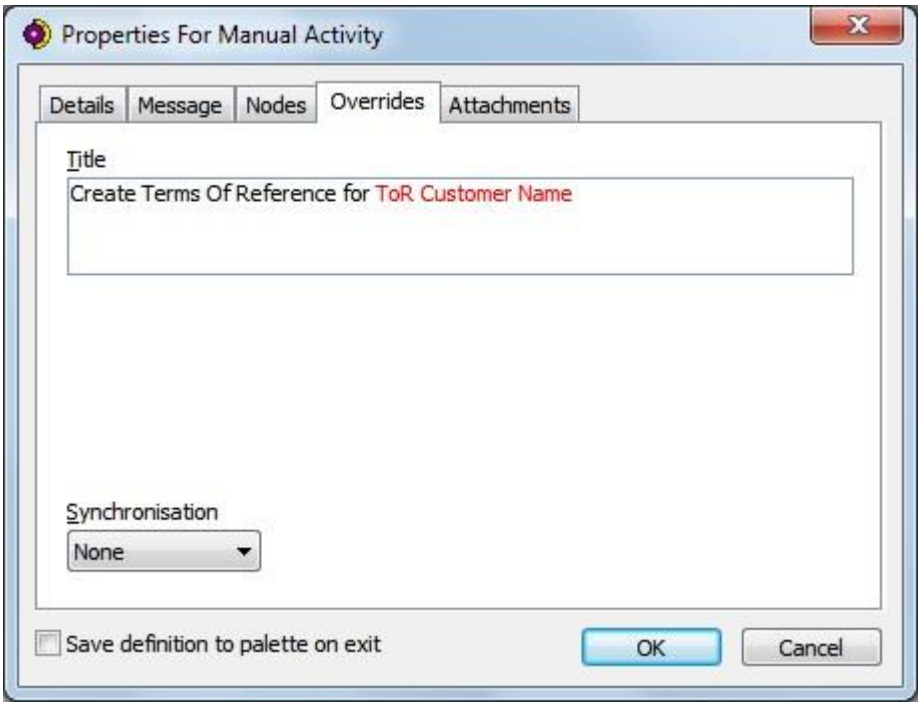
The Customer Name data field needs to be created. Right-click within the message area and select the Maintain Data Fields option and create a new Data Field as below…




In the Nodes tab, set a single node to submit the document for review…



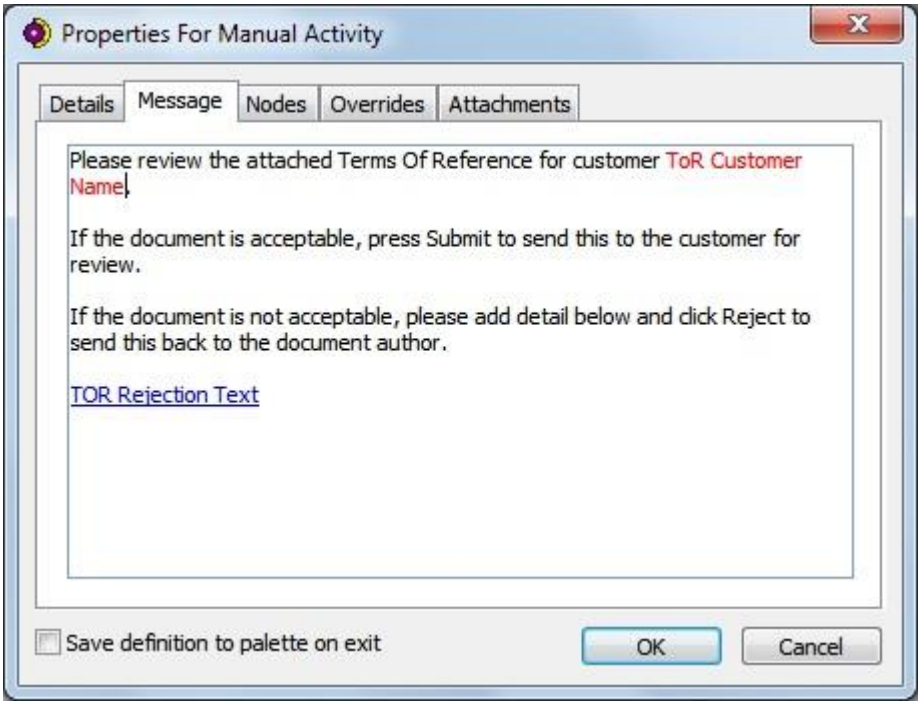

In the *Overrides* tab, add a title describing the task.



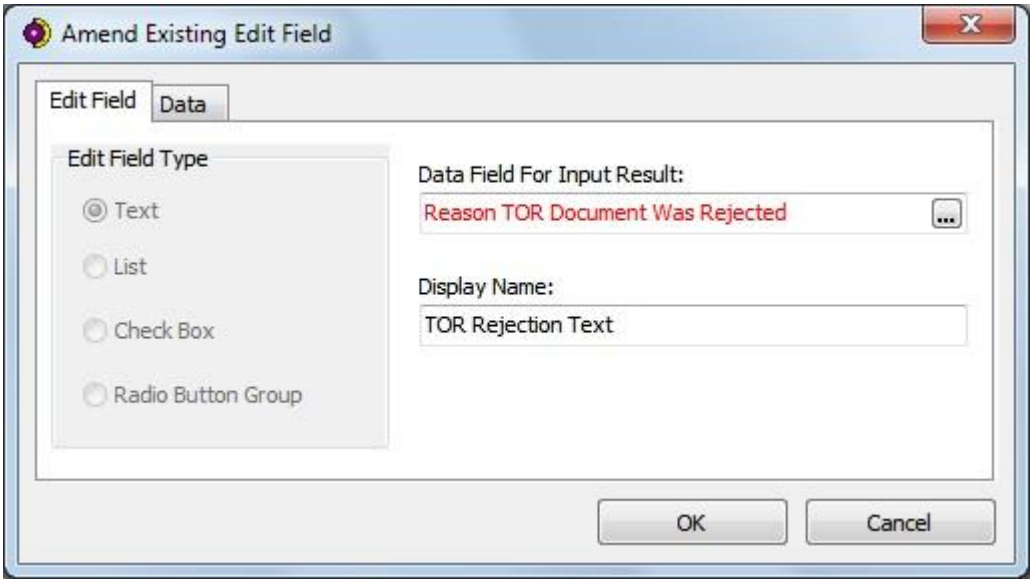
Tip: Why not use the *Attachments* tab to add a fixed attachment containing a “default” Terms Of Reference document for the recipient to use as a template?

Select **OK** to save the changes.

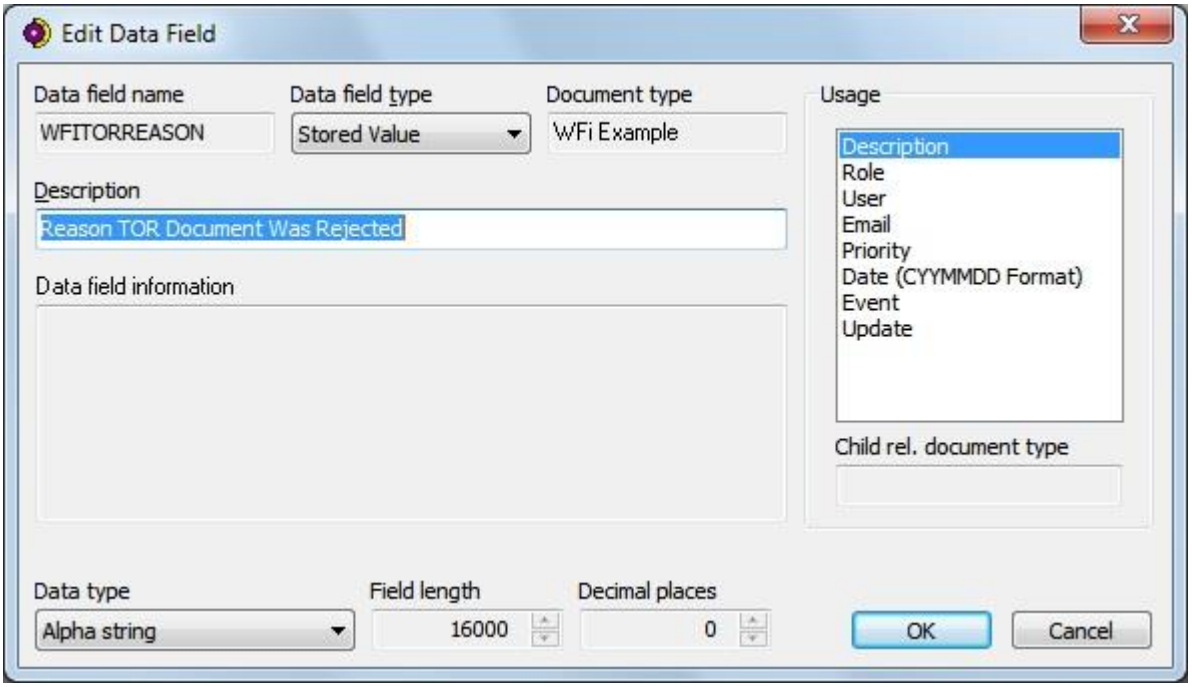
**4** Create a new Manual Activity that can be sent to a manager for review. In the properties, set the Input Document Type to WFi Example and define the Message content as below…



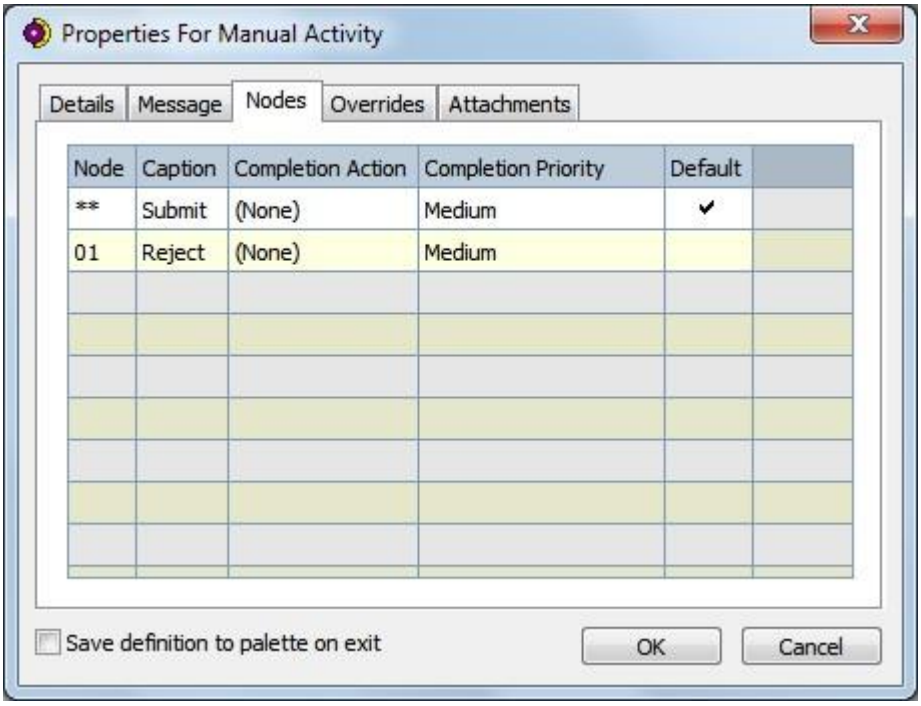

The *ToR Rejection Text* is a text-type editable field that needs to be created as below…



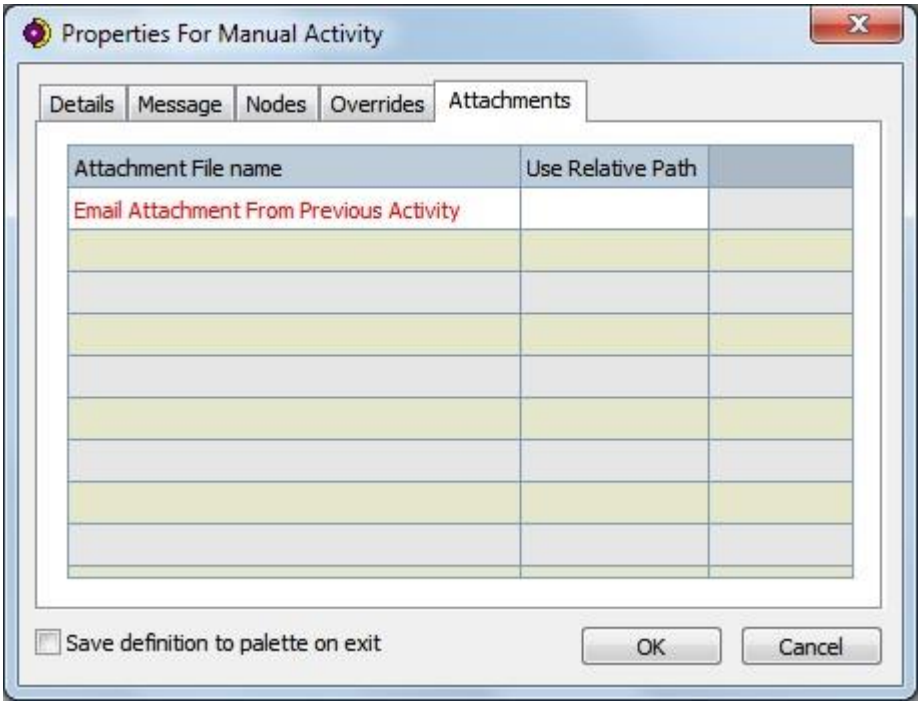

The default entry in the Data tab is left blank. The Stored Data Field Reason TOR Document Was Rejected is defined below…



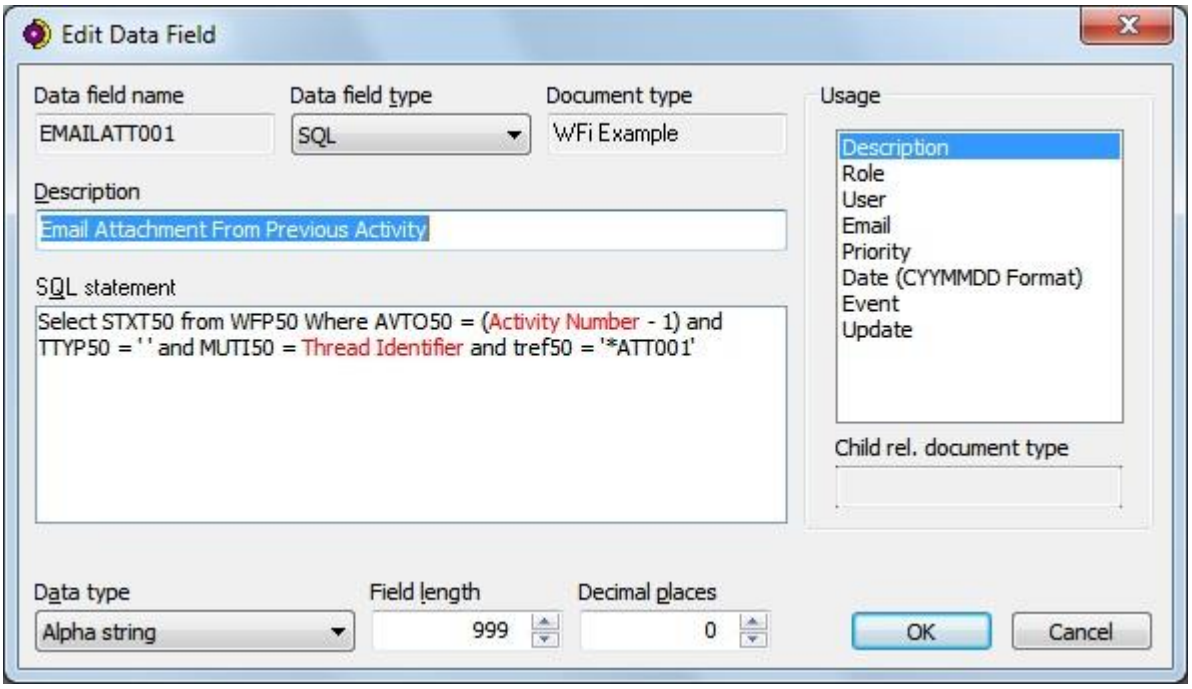

In the Manual Activities Nodes tab, create two exit routes, as below…




In the Overrides tab, set a suitable title (using the ToR Customer Name data field we created previously). In the Attachments tab, we need to reference the previously created Terms of Reference document.

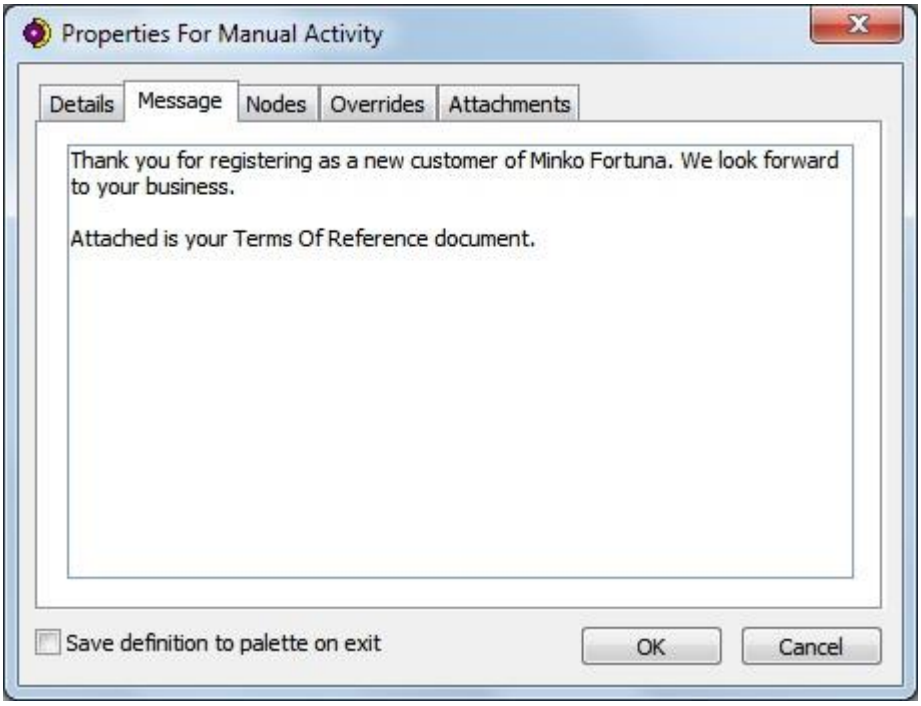


The *Email Attachment from Previous Activity* Data Field should be defined as below…

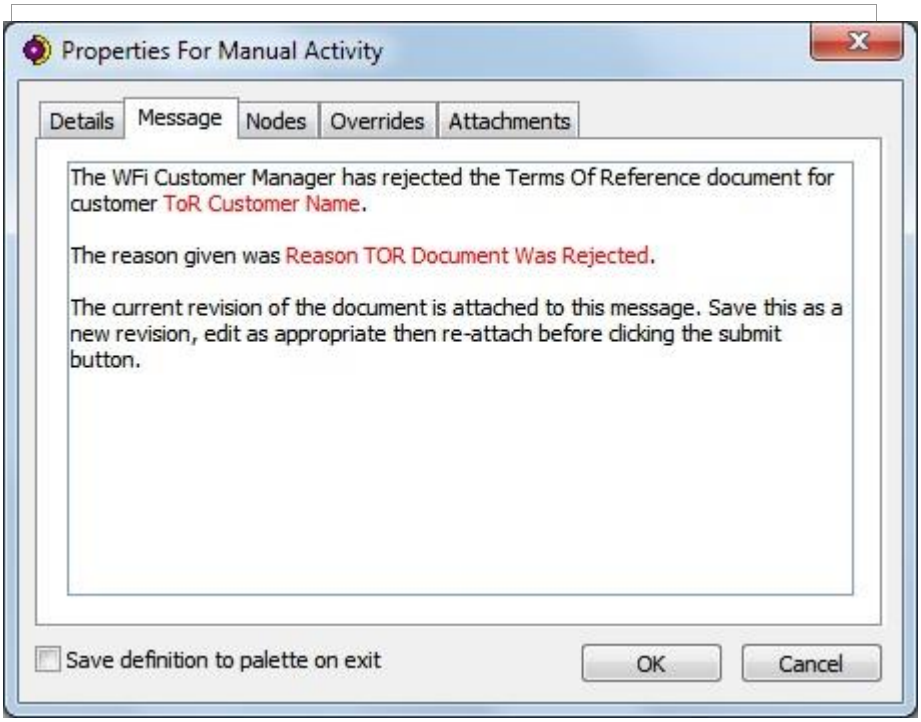



Select **OK** on the Manual Activity properties to save the new message.

**5** We now need another two activities. The first, to be sent, by email, to the customer, should contain a welcome message along with the Terms of Reference document as an attachment. This activity should be set to auto complete. The activity should be linked to the Submit exit node of the previous activity. Here is an example of how the message may look…

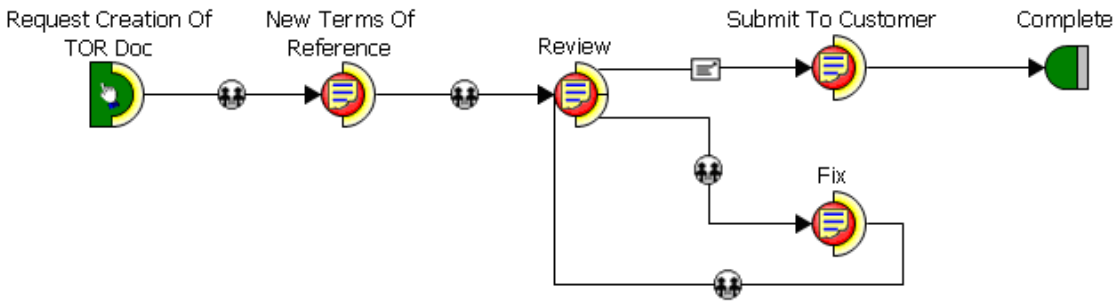



The second, to be sent to the original author of the document, should contain a message saying that the Terms of Reference document has been rejected and include the comments entered in the previous activity along with the original document. Here is an example of how the message might look.



You will need to access the original document using a data field. This should be like the *Attachment from Previous Activity* Data Field but use the Activity number minus two.

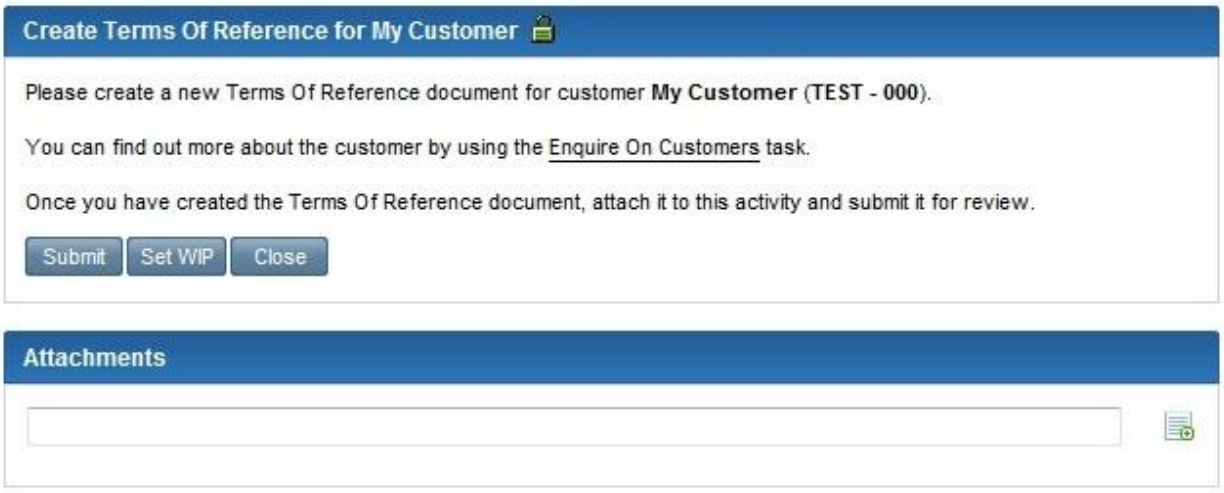
6 Once your process is linked up together, with suitable recipients assigned, it should look like the one below…




7 Add a process code, validate, save and activate the process to your WFi Engine.

To start the process, run the Business Process Launcher (RUNWMBPL) and enter a Document Type of WFI (or select from the prompt list). Enter a reference (customer code and sequence) that corresponds to a valid customer within your Infor ERP System i (e.g. GC03\000). Press F8 and select the Request Creation of TOR Doc option from the list.

The New Terms of Reference is added to the appropriate role. On viewing the activity, the recipient sees…




They can then add the new Terms of Reference document to the activity and select Submit to send it to their manager for review.

To add an Attachment, enter the URL or UNC path within the field under the Attachments section and press the Add icon at the end of the field. The attachment is displayed as link within the Attachments section.

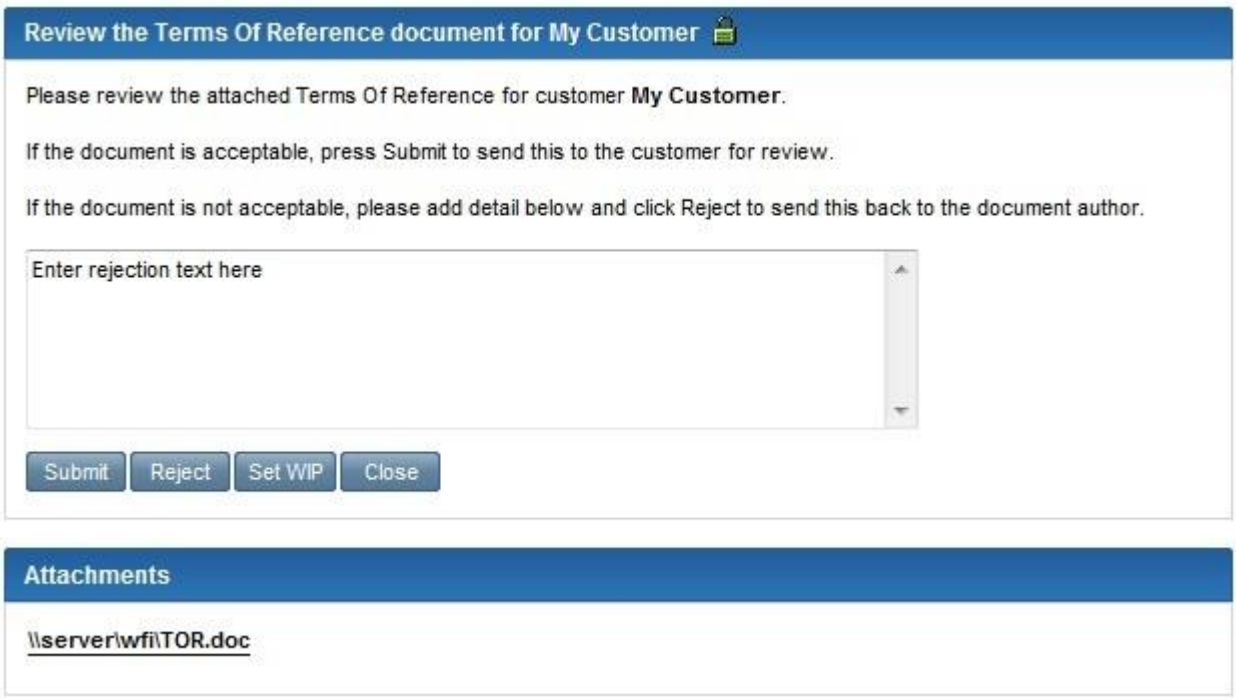
You can enter multiple Attachments.

You can remove attachments before submitting them to WFi by completing the Manual Activity. Use the remove icon next to each link to delete the Attachment link (the file the Attachment points to is NOT altered or deleted).

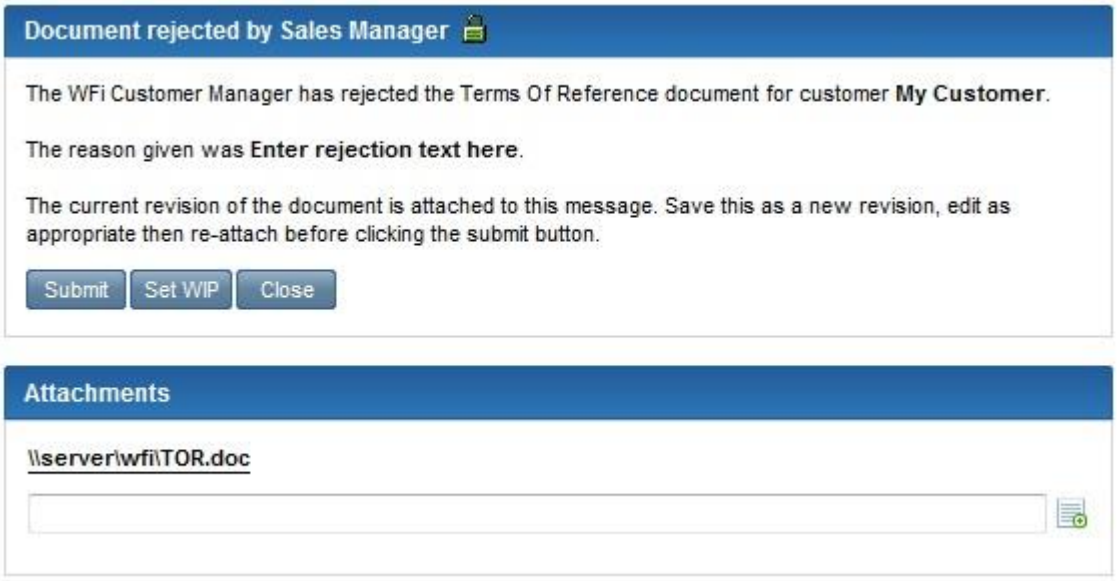
**Caution:** The Attachment Path is NOT validated. On adding the Attachment, you should select the link that is created to validate it.

**Caution:** Attachments defined within the Business Process may not be removed.

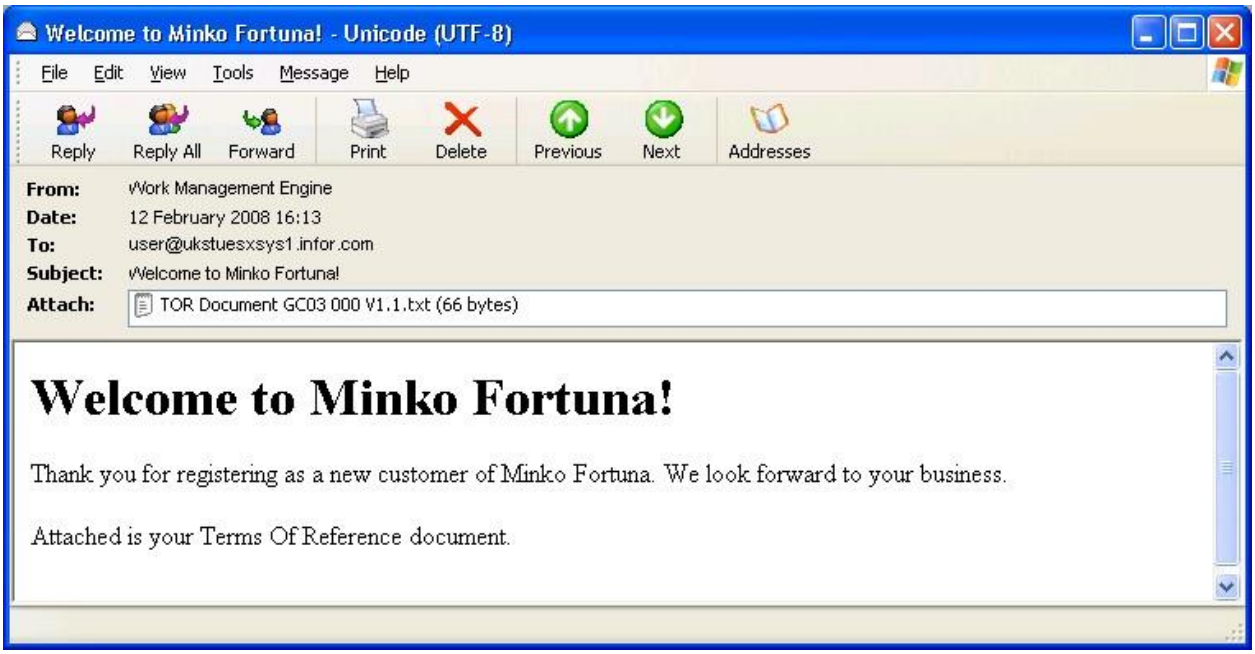
The manager will get a message like the one below…




The manager can review the document, by opening the attachment and either enter a comment, and select Reject, or just select Submit, to send the document to the customer. In the above example, the manager has entered a comment and selects Reject to generate the review message back to the document creator. Here is what the recipient sees…




After correcting the document, and saving it as a new revision for auditing, the recipient can add it to the attachments and re-submit it for approval. In our, example, the new revision is accepted, and the document is passed on to the user, who receives it as part of an email…




Tip: To enhance the process further you could save the user that created the document (using an update data field) and send all further re-work directly to them rather than back to a role.

Tip: The process could be altered to allow the customer to send back a reply as to whether they accept or reject the Terms of Reference. If they reject it then it can be re-submitted for review (allow the customer to add comments) and re-submission. Once the user has accepted the document it could be stored for reference. The name of the manager who rejected the document could also be saved.

# XML Activities

An XML Activity allows XML formatted data to be used within a Business Process. In its raw form it has little use (e.g. a user could define a XHTML message of their own rather than using the standard Manual Activity format or dispatch a fixed XML document to an IBM WebSphere MQ Series queue to trigger a third party event). Its real benefit comes when its content is an XSL stylesheet (which is XML compliant), which is processed by the Document Handler.

The Document Handler is an XML and XSL processing engine that is written in Java. The Document Handler takes an XML message sent to it by the WFi Engine and transforms it to produce a result.

Once the transformation has occurred the WFi Engine treats an XML Activity in the same way as it does a Manual Activity in that the result can be sent to a recipient's Action List or email account and one or more paths can exit the XML Activity.

Within the palette and on the Canvas the XML Activity is represented by an "XML" symbol, E.g.

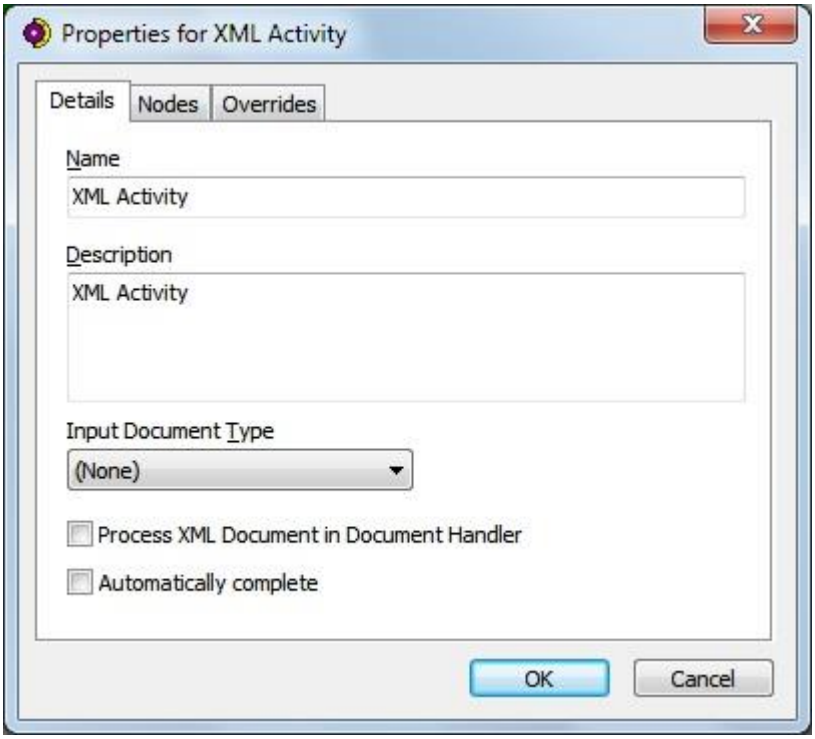

The XML Activities properties allow the user to define how it processes its content.

Right click on the activity on the Canvas to select one of the following additional options:

- Reset - Removes the current content of an XML Activity from its context menu.
- Export - Exports the current content of an XML Activity from its context menu. A prompt is issued to define where to write the exported file.

**Caution:** The WFi Components CD ships with examples of XML Activities and Function Briefs describing more advanced features and facilities.

# The Properties for XML Activity dialog (Details tab)



### Fields

| Field | Description |
|---|---|
| Name | Enter the name of the XML activity |
| Description | Enter a description of the activity |
| Input Document Type | Select from the available list of Document Types. |
| Process XML Document in Document Handler | This specifies whether the content of the activity is to be transformed or not (i.e. it defines whether the content is sent to the Document Handler). |
| Automatically Complete | This option is for messages that are part of the process flow but do not need a user-interaction before proceeding. |

### Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

## The Properties for XML Activity dialog (Nodes tab)

### Fields

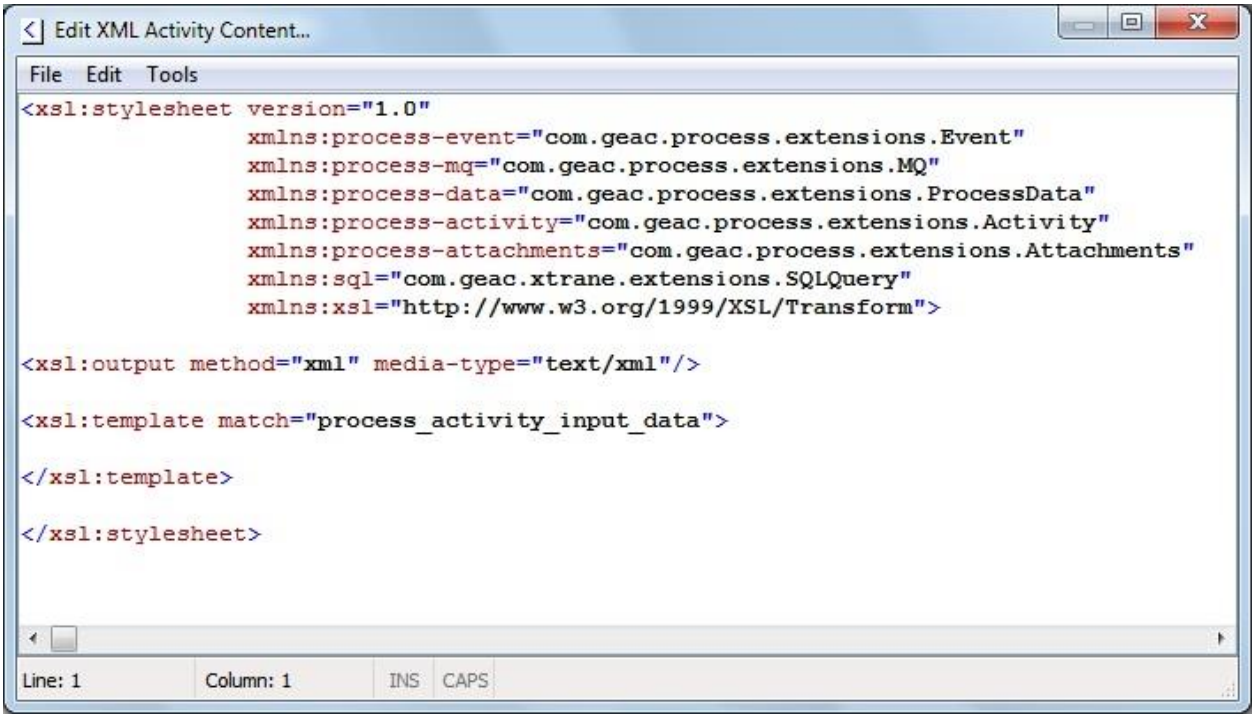
| Field | Description |
|---|---|
| Completion Action | This can be left blank in most cases. However, it can be set to the following actions:<br>Cancel Transactions - sets the Document Type's status to complete and cancels all pending transactions<br>Assign New Thread - generates a new multi-thread identifier value for subsequent activities within this process. |

## The Properties for XML Activity dialog (Overrides tab)

This can be used to create a title for the message. Like the actual message both static and variable data can be used but buttons cannot be used.

## The Edit XML Activity Content dialog

The content of an XML Activity can be edited directly in WFi Modeler. To edit or create new data, right click on the Activity, and select *XML Edit* from its context menu. This displays the editor dialog…




The editor allows the content of the XML Activity to be altered using a basic context-sensitive text editor.

## Functions

The *File* menu contains the following options…

| Menu Item | Description |
|---|---|
| Print | Send the content of the editor to a Windows printer. |
| Save Changes & Exit | Validates the current editor content to see if it is valid XML. If it is then the editor data will replace the current XML Activity data and the |

| | |
|---|---|
| | dialog will close otherwise an error message will be displayed and the cursor will be positioned on the offending line. |
| Close Without Save | Exit the editor without updating the XML Activities content. A prompt will be issued if changes have been made. |

The Edit menu contains the following options…

| Menu Item | Description |
|---|---|
| Cut | Copy the currently selected text into the clipboard and remove it from the text. |
| Copy | Copy the currently selected text into the clipboard. |
| Paste | Paste the content of the clipboard at the current cursor position. |
| Find | Display a dialog to allow the user to search for a phrase within the editor text. The text is highlighted if found. |
| Find Next | Find the next instance of the search phrase. |
| Replace | Replace a single or all instances of a phrase with another. |
| Goto Line | Move the cursor to the entered line. |

The Tools menu contains the following options…

| Menu Item | Description |
|---|---|
| Create Default Stylesheet | Replace the current content of the editor with a basic stylesheet skeleton. Useful when creating a new stylesheet from scratch. |

Clicking the right mouse button within the editor displays its context menu. This contains the options off the Edit and Tools menu as well as two extra options…

| Menu Item | Description |
|---|---|
| Insert XSL Element | Insert the selected XSL element at the current cursor position. |
| Insert WFi Extension Function | Insert the selected WFi extension function at the current cursor position. |

As well as supporting the regular Windows text editing facilities and shortcuts to the functions on the File, Edit and Tools menu the editor also allows the inline insertion/completion of XSL elements by pressing the CTRL key and the SPACE key simultaneously. This displays a pop-up list of the XSL elements, selecting any elements matching the currently typed value (for example, if the text <xsl:d

was entered then CTRL+SPACE pressed then the element <xsl:decimal-format> would be selected in the list. Pressing ENTER will select the item from the list. Any other key will close the dialog.

To import data into an XML Activity right click on the activity and select XML, Import from its context menu. On import the data is validated to check that it is valid XML.

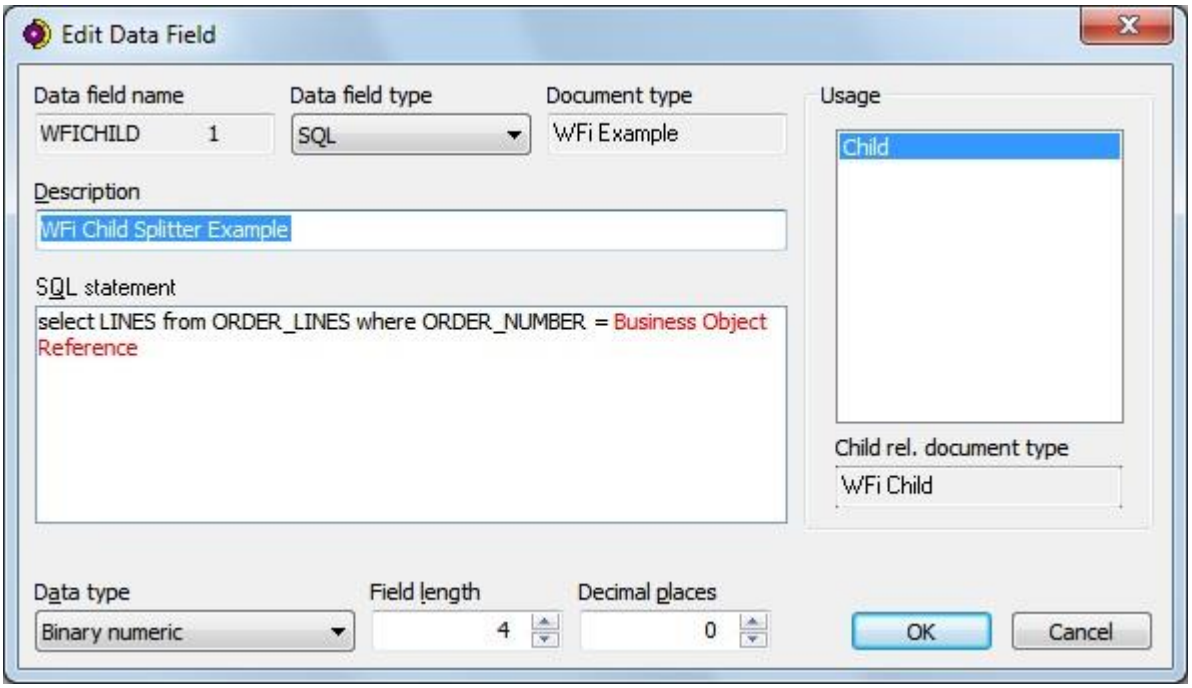
**Caution:** WFi Modeler does not check to see that imported XSL is valid, will transform or is syntactically correct. It only confirms that it is a valid XML file.

# Splitter

A Splitter is a control that takes in a Document Type and splits the information so that it can analyze each element separately if required. It allows separate processing to be conducted on parent and child records within the Document Type. Each child record is analyzed in turn while the parent record is only analyzed once.

Before a Splitter can be used, a relationship between the Document Type and Child Document Type needs to be defined. These relationships may be set during addition/maintenance of Data Fields and Document Types.

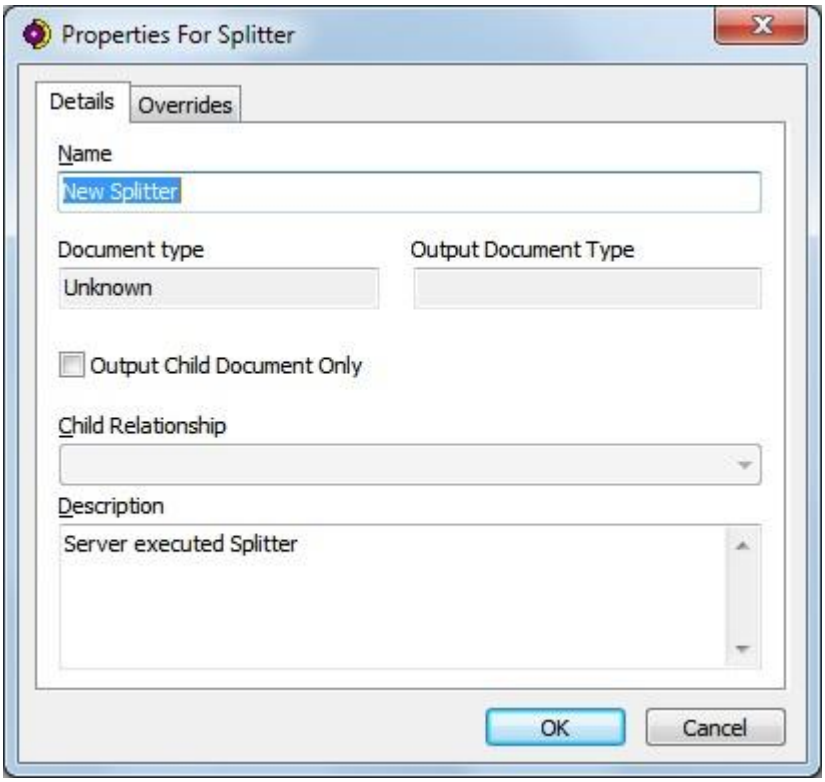
Here is an example of a Data Field that can be used within a Splitter…




This example Data Field examines all the stock lines for a sales order and sees if any have problems.

To create a Splitter, drag the Document Type Splitter icon, from the Controls section of the Palette, onto the Canvas. The *Properties for Splitter* dialog is displayed.

## The Properties for Splitter dialog




## Fields

| Field | Description |
|---|---|
| Name | This field is the text that is shown within the model to describe this Splitter. |
| Document Type | This shows the incoming document format. This is determined by the previous activity within the model. |
| Output Document Type | This shows the out-going document format. This is determined by the Child Relationship. |
| Output Child Document Only | This field allows the process designer to only have one exit from the Splitter that is the new document format, if this is checked. Otherwise, the Splitter has two exit nodes, one for the original document and one for the new document. |

| Field | Description |
|---|---|
| Child Relationship | This drop-down list shows any Child type Data Fields for the input Document Type. You can only set this value when there is an incoming link to the Splitter. |
| Description | This field is used to add extra information about the Splitter actions. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

The icon for a Splitter is placed onto the canvas.

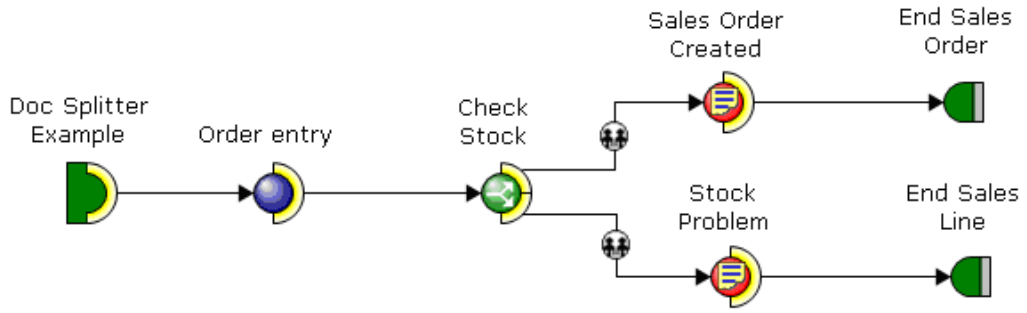
Each record generated by the Child Relationship data field criteria creates a new sub-process for the child Document type. The result of the Child Relationship Data Field is appended to the current Business Object Reference to become the new Business Object Reference for the sub-process (in the example above it is the order line number). The values are separated by a back-slash (‘\’).

The Level Reference Global Data Fields can be used to access parts of a Business Object Reference that are separated by back-slashes.

For Example, for a Business Object Reference of “0001\002\ABC”. Level Reference 1 would be “0001”, Level Reference 2 would be “002” and Level Reference 3 would be “ABC”. Alpha and Numeric versions of each Level Reference are provided.

**Caution:** If the Output Child Document Only option is set, the Business Object Reference will just be the result of the Child Relationship Data Field.

Here is an example of a process containing a Splitter.




Here is an example of the sequence of data you may see within Action Tracker, with an instance of the “Stock Problem” Manual Activity for each sales order line in error…

Maximum Rows 10 | Refresh | Select all | Select none | Show All Columns
Table Width Full | Complete All Selected | SetWIP All Selected | Release All Selected
Unlock All Selected | Trace All Selected

| Select | Icon | View | Description | Business Object Reference | Business Object Description | Recipient | Date and |
|---|---|---|---|---|---|---|---|
| ☐ | | | Order entry | 0001727 | Sales Order | All Menus | 13 Februar |
| ☐ | | | Check Stock | 0001727 | Sales Order | Server | 13 Februar |
| ☐ | | | Check Stock | 0001727 | Sales Order | Server | 13 Februar |
| ☐ | | | Check Stock | 0001727 | Sales Order | Server | 13 Februar |
| ☐ | | | Sales Order Created | 0001727 | Sales Order | Order Entry Clerk | 13 Februar |
| ☐ | | | Stock Problem | 0001727\2 | Sales Order Line | Order Entry Clerk | 13 Februar |
| ☐ | | | Stock Problem | 0001727\22 | Sales Order Line | Order Entry Clerk | 13 Februar |

# WM Transaction Control

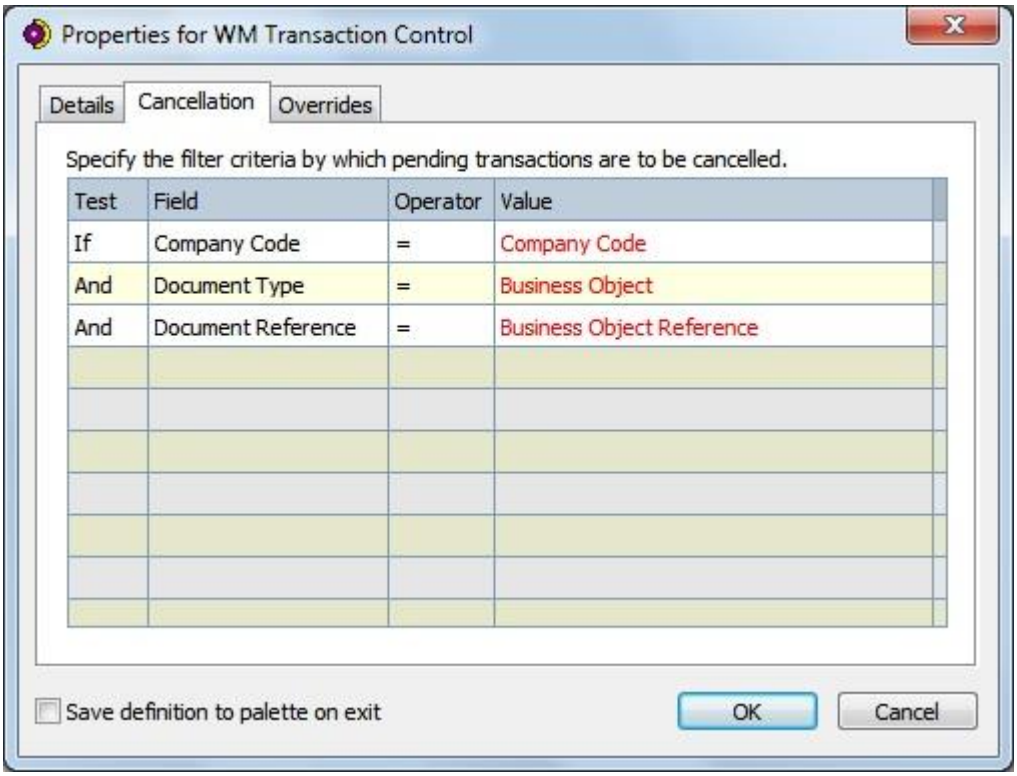
The WM Transaction control allows a process to cancel any pending activities. This would be used when the activation of a certain route through a process needs to negate all existing actions within the process (e.g. when an order is cancelled no further action would be required). Within the Palette and on the Canvas the WM Transaction Control is represented by an “X” symbol, E.g.

To create a WM Transaction Control, drag the WM Transaction Control icon, from the Controls section of the Palette, onto the Canvas. The *Properties for WM Transaction Control* dialog is displayed.

The properties dialog for the WM Transaction control has three tabs. The *Details* tab allows the *Name* and *Description* to be set, identical to Action Agents.

The *Cancellation* tab defines the rules about how the process cancels pending activities. It is pre-populated with a set of common test values.

## The Properties for WM Transaction Control dialog




## Fields

| Field | Description |
|---|---|
| Test | Defines how this row interacts with other rows in the list. Can be one of three values:<br>If – Denotes the start of a new test.<br>And – Result of this line will be combined with previous line using logical ‘AND’.<br>Or – Result of this line will be combined with previous line using logical ‘OR’. |
| Field | A selection of key Business Process information that can be used to uniquely define a process within the system. |

| Field | Description |
|---|---|
| Operator | A fixed set of test operators:<br>= - Field is equal to Value<br>< - Field is less than Value<br>> - Field is greater than Value<br><= - Field is less than or equal to Value<br>>= - Field is greater than or equal to Value<br>Not – Field is not the same as Value<br>Like – Compare Field and Value using SQL LIKE function |
| Value | This can be set to contain the result of a data field or a hard-coded value. You can only select Data Fields for other Document Types than Global if there is an incoming link to the WM Transaction Control. |

The first three lines in the example above are set by default, as these are the most common criteria used in WM Transaction controls within WFi. The rules can be altered and expanded in the same manner as Action Agents.

### Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

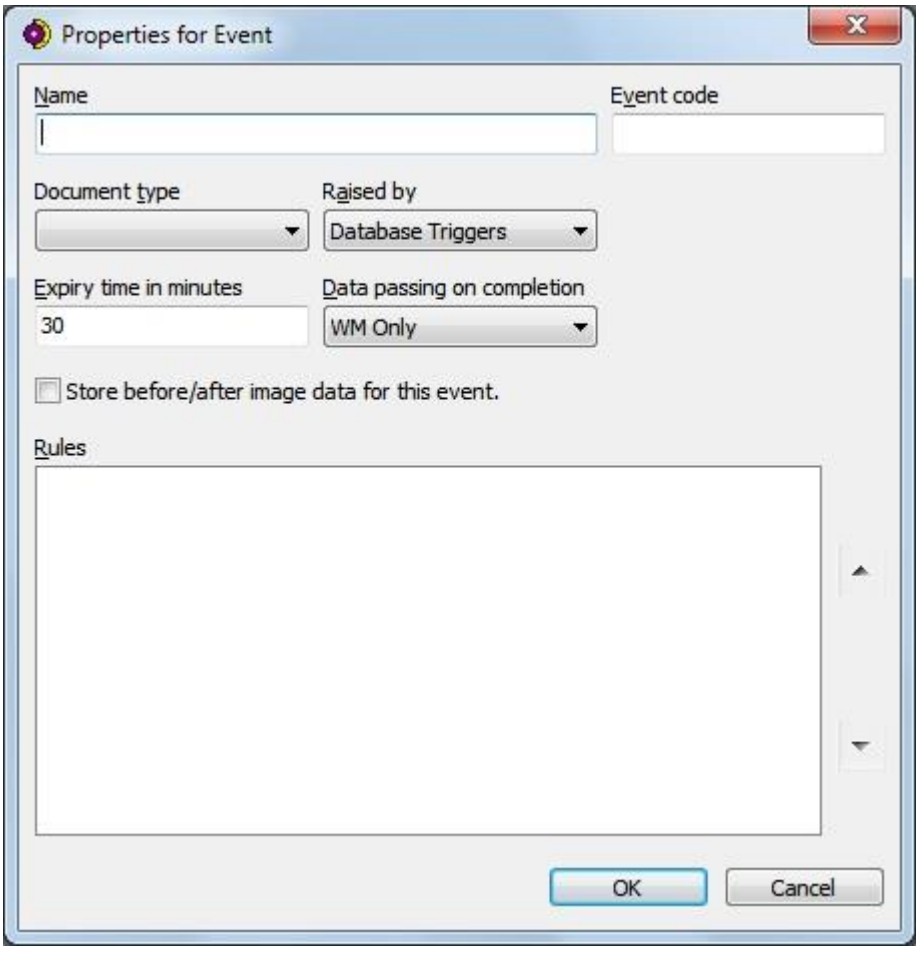
The *Overrides* tab allows the user to set a title that includes data fields (as with Action Agents etc.).

## Events

Events represent automatic entries to a process that are not directly driven by WFi enabled applications. There are two types of events: Database Triggers and External Events. Within the Palette and on the Canvas the Event is represented by a “Lightening” symbol.

To create a WM Transaction Control, drag the Event icon, from the Controls section of the Palette, onto the Canvas. The *Properties for Event* dialog is displayed.

## The Properties for Event dialog




## Fields

| Field | Description |
|---|---|
| Name | This defines the text shown in the elements label. |
| Event Code | This is a unique code within the Application Version to identify this event. |

| Field | Description |
|---|---|
| Document Type | This is the value of the Document Type produced by this event (e.g. Sales Order for an event over an order entry file). |
| Raised By | This defines the event type:<br><br>Database Triggers - Database Triggers are placed over IBM System i files. There are three types of Database Trigger: Insert, Update and Delete. When the trigger occurs, a message is written to the Trigger Handler input queue (defined within the WFi Engine) and is read and processed by the Trigger Handler, using the rules defined within WFi Modeler (described below). When a rule passes the defined tests, it instructs the WFi Engine to start the relevant process.<br><br>External Call - External Call events are generated programmatically. A Java API is available to instruct the WFi Engine to start a process that begins with an External Call Event thus processes can be initiated from other Infor, and third-party, applications<br><br>**Caution:** When the Raised By field is set to External Call, the fields below become disabled. |
| Expiry Time In Minutes | This is a numeric value that defines the amount of time that is allowed for multi-part events to be chained together (e.g. the second part of the event must occur within 30 minutes of the first part triggering). |
| Data Passing on Completion | This defines where the Trigger Handler writes its completion message.<br><br>**Caution:** This should be set to **WM Only** as the other methods to write to AIF have been superseded. |
| Store Before/After Image Data For This Event | Checking this box writes an XML document containing the before/after record data into the WFi Engine.<br><br>**Caution:** There is a section within the Using XSL In WFi document in your WFi Components installation describing this feature in greater detail. |

| Field | Description |
|---|---|
| Rules | This list allows the definition of the criteria that need to be met for the Event to be complete and the process to initiate. Any existing rule information is displayed. |

Right-click on the rules list to see the following options…

## Options

| Option | Description |
|---|---|
| Add | Add a new rule. |
| Edit | Edit a rule. Editing displays the Properties for Rule pop-up. |
| Remove | Remove a rule. |
| Move Up | Move the selected rule up one place. |
| Move Down | Move the selected rule down one place. |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

You can add any number of rules to an Event. The rules will be processed in order by the Trigger Handler. Each rule must pass for the Event to be considered complete. You can change the order the rules are processed by using the Move options or the up/down arrow buttons.

Multiple rules can be placed over a single table (e.g. Event is triggered when a record is inserted into table X and when table X is updated) or over multiple tables (e.g. Event is triggered when a record is inserted into table X followed by an insert into table Y).

Select the Add option from the Rules list Context Menu to open the Select Rule dialog.

# The Select Rule dialog

Use this dialog to add or edit Event rule details.


## Icons

Icons are used to represent different elements within the dialog's tree view.

| Icon | Description |
|---|---|
| | Server |
| | Library |
| | Table |
| | Rule |
| | Test |

## Options

Right-click on the tree view to see the following options:

| Option | Description |
|---|---|
| Add Table | Add a new table. |

| Option | Description |
|---|---|
| Edit Server | Only available when you select a server name in the tree view. Displays a dialog that allows you to alter the server name. |
| Edit Library | Only available when you select a library in the tree view. Displays a dialog that allows you to alter the library name. |
| Remove Table | Only available when you select a table in the tree view. Remove selected table from the list |
| Add Rule | Only available when you select a table in the tree view. This allows you to add a new rule to an existing table entry. |
| Edit Rule | Only available when you select a rule or test in the tree view. Edit the selected rule. |
| Remove Rule | Only available when you select a rule or test in the tree view. Remove selected rule from the list |

### Functions

| Action | Description |
|---|---|
| OK | Selects the highlighted rule for use in this Event. |
| Cancel | Selecting Cancel closes the dialog without selecting an Event. |

By default, on first use, the dialog content will be empty. Use the Context Menu and select the Add Table option to display the Select Table dialog.

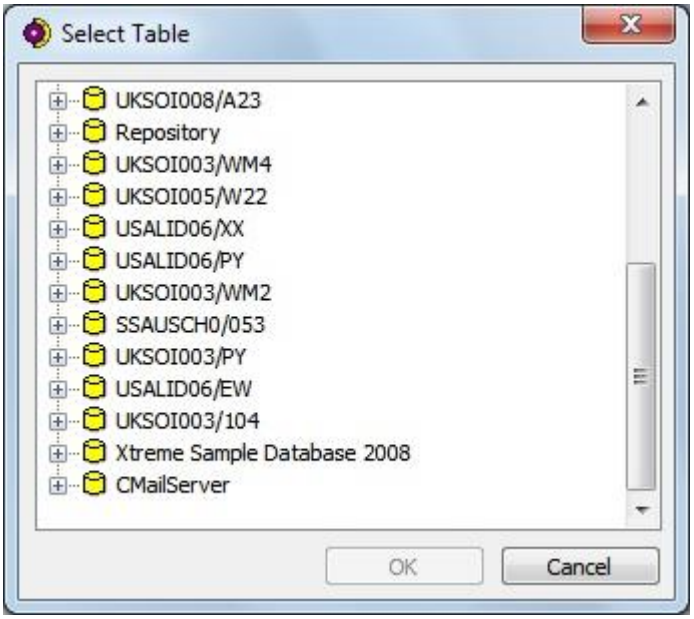
An existing rule can be selected by highlighting a rule and then selecting **OK** (which allows the sharing of rules between events)

A new rule can be added by selecting **Add Rule** from the context menu

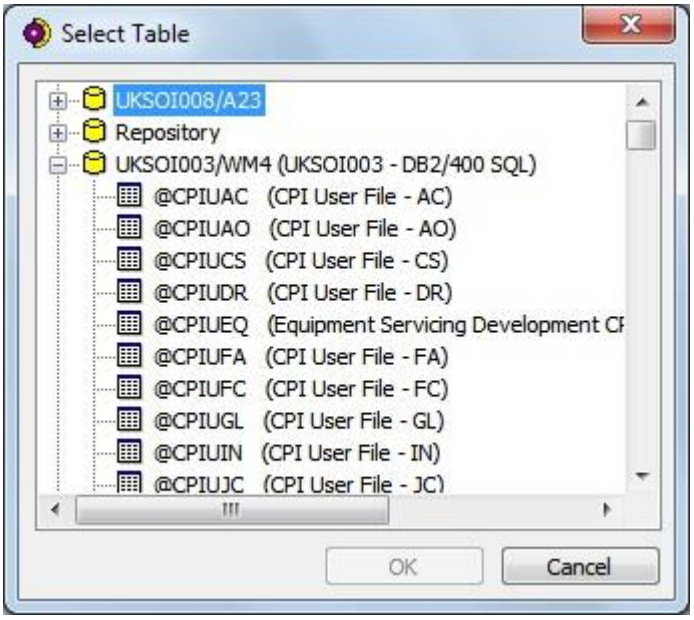
If the table required is not in the list right click on the Server name and select Add Table from the context menu. A dialog is displayed allowing the ODBC connection to be selected and, once signed in, all tables defined for that connection are listed.

## The Select Table dialog

Use this dialog to select a table.



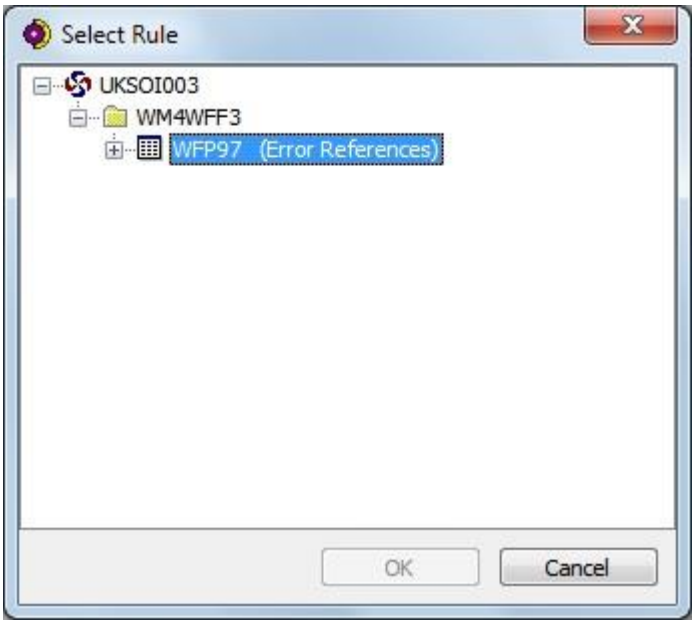

The tree view contains a list of all your ODBC connections. Select the plus symbol next to a connection to see its tables. You will be prompted by the ODBC driver for a username and password. The tree view will expand to show all the tables available.



## Functions

| Action | Description |
|---|---|
| OK | Select a table and press OK to add it to the Select Rule dialog. |
| Cancel | Do not select a table. |

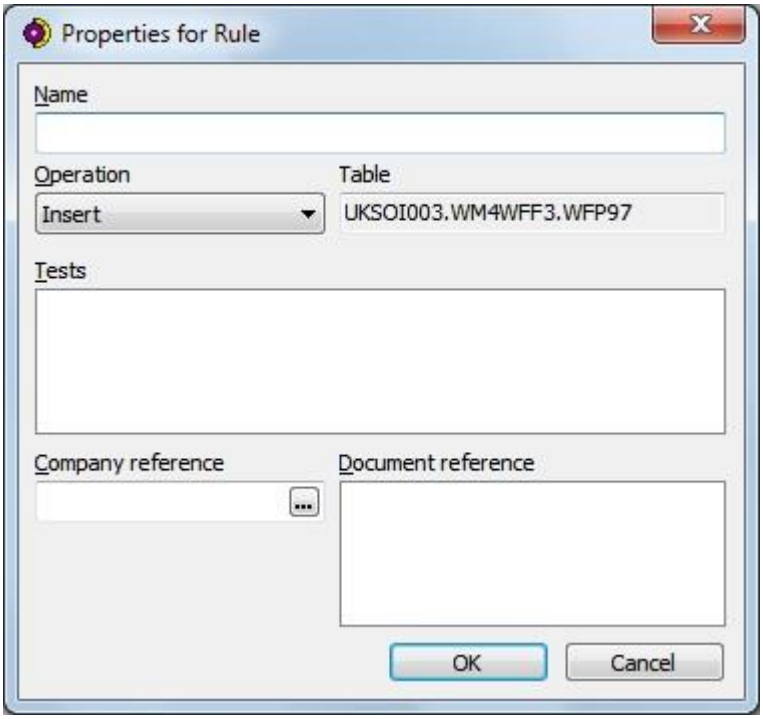
On selecting a table, it will be added to the Select Rule dialog.




To add a new rule, right-click on the table and select Add Rule.

## The Properties for Rule dialog

Use this window to add or amend a rule.




## Fields

| Field | Description |
|---|---|
| Name | This defines the unique name for this rule. |
| Operation | This defines the type of Database Trigger:<br>• Insert<br>• Update<br>• Delete. |
| Table | This shows the IBM System i Database table that the trigger is operating over. |
| Company Reference | This defines the record within the table that maps to the System Manager Company. Select the prompt field to select a field from the table to use for the Company. |

| Field | Description |
| --- | --- |
| Document Reference | This defines the record(s) within the table that the Trigger Handler uses to create a unique Business Object Reference for the triggered process. Right click in the list and select **Add Field** to choose from the list of table fields a field (or fields) to use as the Business Object Reference. To remove a field, right click on the field in the list and select **Remove Field**.<br><br>**Caution:** Do not use any fields that may contain double-byte characters for the Company or Document Reference (i.e. description fields) as this could cause unexpected problems when your process is activated and executed through the WFi Engine. |
| Tests | This list defines all the tests that must be passed to complete the rule. Each test is combined with the next (e.g. AND logic) test for the rule to pass. If no tests are defined, then the rule passes if the Database Trigger event occurs (e.g. any insert on the table passes the rule). |

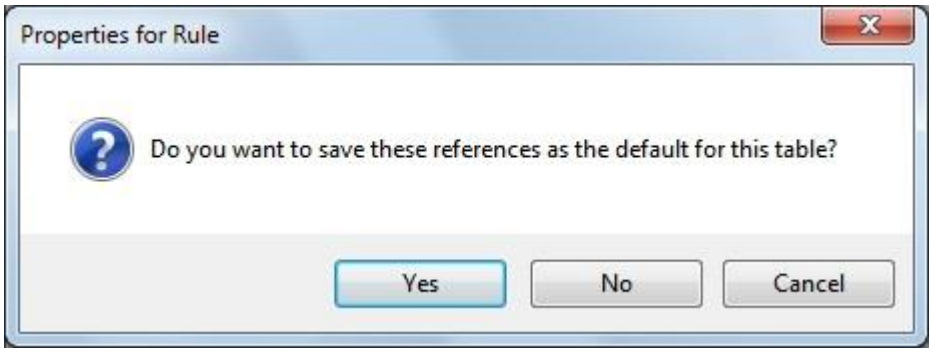
## Options

Right-click on the Tests tree view to see the following options:

| Option | Description |
|---|---|
| Add | Add a new test. The properties for test pop-up are displayed. |
| Edit | Change the properties for a test. The properties for test pop-up are displayed. |
| Remove | Remove a test. |

## Functions

| Action | Description |
|---|---|
| OK | Save changes to the rule.<br>On selecting OK you may be prompted. |

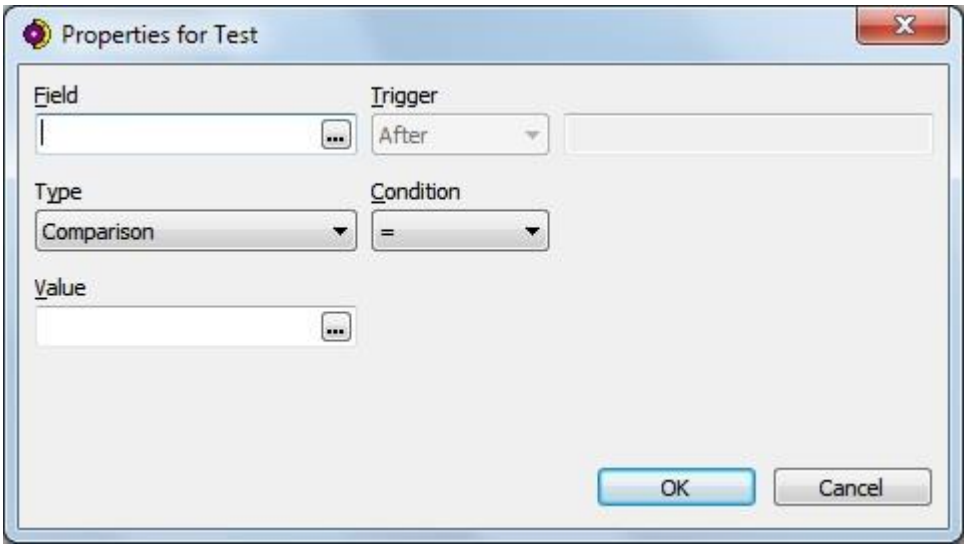



| Action | Description |
|---|---|
| Yes | Save the Company and Document Reference fields as the default for this table. They will be re-used the next time a rule is added for this table. |
| No | Do not save the Company and Document Reference fields as the default for this table. |
| Cancel | Return to the Properties for Rule dialog. |

| | |
|---|---|
| Cancel | Discard changes. |

# The Properties for Test dialog

Use this dialog to add or edit test details.



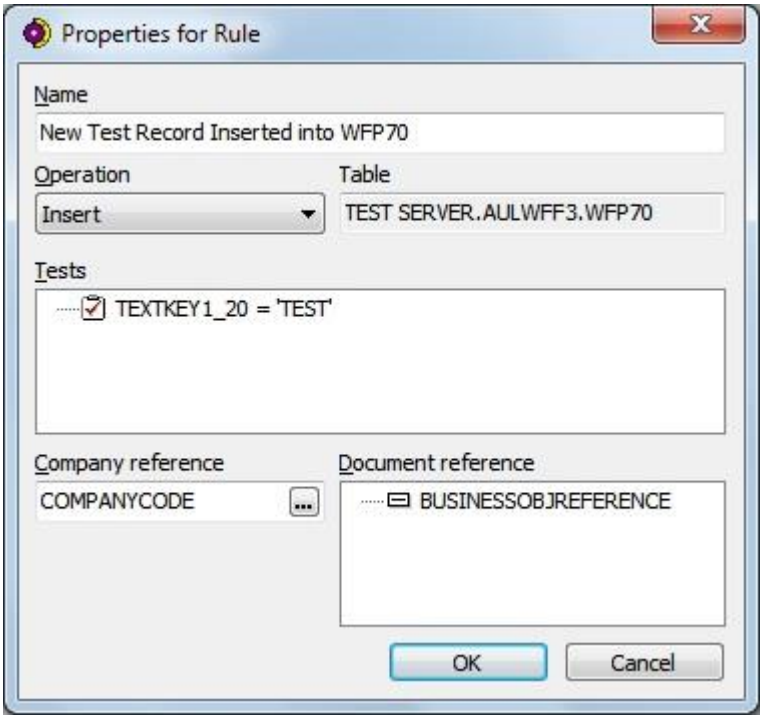
## Fields

| Field | Description |
|---|---|
| Field | This allows the selection of a field within the table or raw text to apply the left side of the test against. |
| Trigger | This is only enabled for Update events as Insert events only have ‘After’ data and Delete events only have ‘Before’ data. |
| Type | This denotes the type of test:<br>• Comparison<br>• Difference.<br>If Difference is selected extra fields become available. |
| Condition | This defines relationship between the left and right sides of the equation. |
| Value | This field allows the selection of a field within the table or raw text to apply the right side of the test against. |
| Difference | This can be used to carry out a subtraction then comparison (e.g. value of Field minus value of Difference Field = Value) |

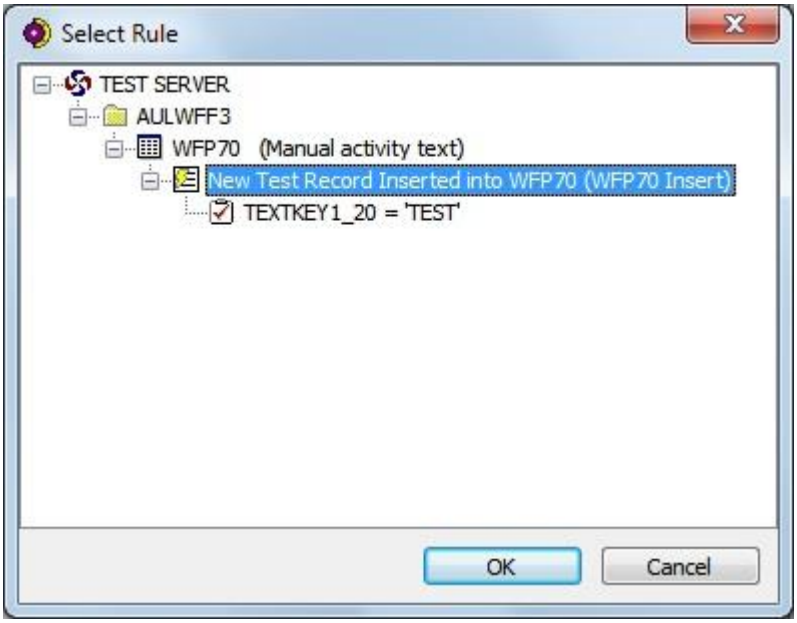
## Functions

| Action | Description |
|---|---|
| OK | Save the changes to the test. |
| Cancel | Discard the changes to the test. |

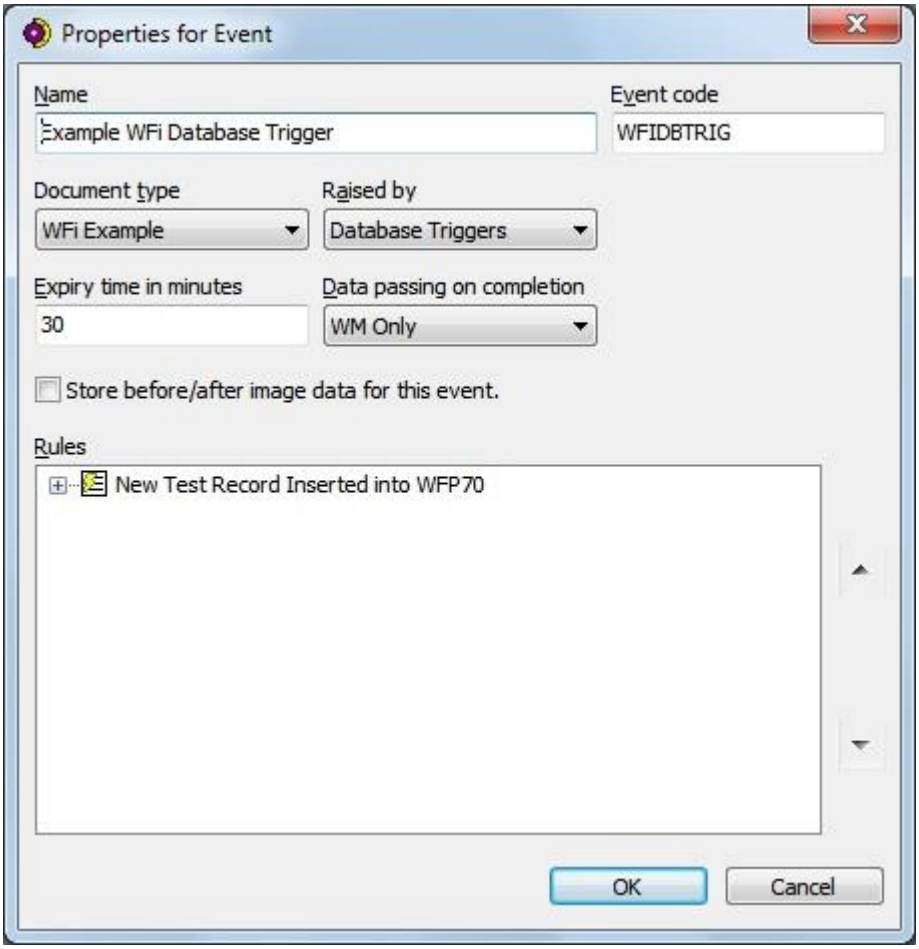
On creating a new test, it will be added to the Tests section of the Properties for Rule dialog.




On successful creation of a rule, the rule and the test are added to the Select Rule tree view under the appropriate table.




When you select a rule, the OK button becomes enabled. Select OK to add this rule to the Event.



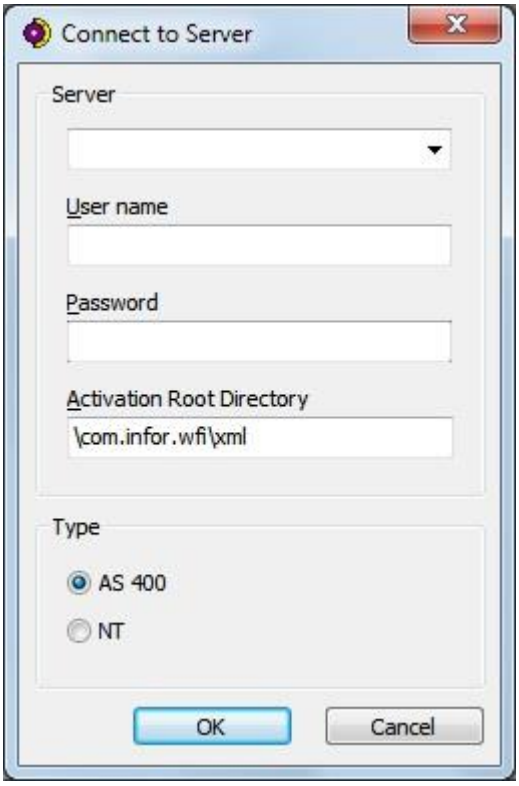

Select OK to create the Event. The Event will be updated on the Canvas and will also be added to the Events section of the Palette.

## Activating Trigger Handler Rules

When an Event is part of a process the XML Event data files used by the Trigger Handler need to be created during activation.

**Caution:** If Events need to be activated then ensure that the Activate Events option is **checked** in the Advanced tab of the Activation dialog.

During the first activation, a dialog is displayed to allow the selection of the ODBC connection to use to activate events. A dialog is then displayed to allow the user to specify where the event XML files are written.




## Fields

| Field | Description |
|---|---|
| Path | If the Type is AS400, this will be a list of ODBC Server Connections. If the Type is NT, this will be a list of drives on the current Windows machine. |
| Username | Required when Type is AS400. Only required when Type is NT if drive is on a network and authorization is required to write to the destination drive. Enter a valid username. |
| Password | Valid password for above username. |
| Activation Root Directory | This should match the repository setting within the Trigger Handler properties file. |
| Type | Select AS400 to activate Event rules files to an IBM System i server. Select NT to activate Event rules to a Windows PC or Server. |

**Caution:** The Trigger Handler **must** be restarted after activation for it to be able to pick up the new events.

### Functions

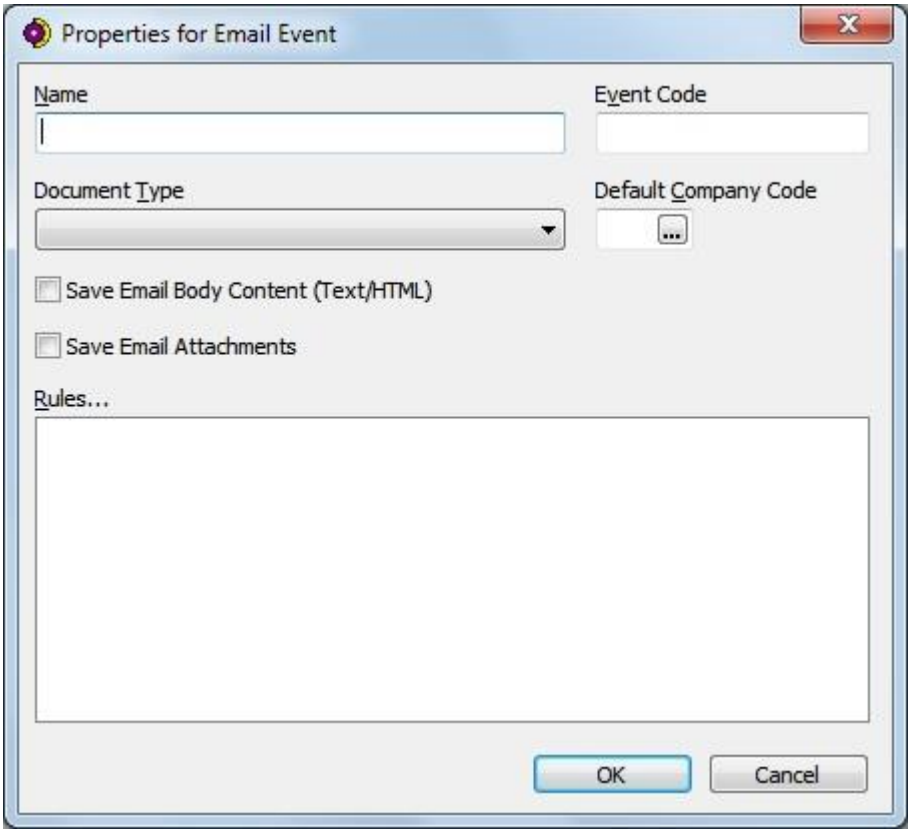
| Action | Description |
|---|---|
| OK | Activate Event rules. |
| Cancel | Abort activation. |

## Email Events

Email Events allow the initiation of a process via the receipt of an email. In the same way as Database Events, the user can configure rules to define which email messages starts a process. Within the Palette and on the Canvas the Email Event is represented by an “Envelope” symbol.

### The Properties for Email Event dialog

Drag the Email Event from the Controls Palette onto the Canvas to display the properties…




## Fields

| Field | Description |
|---|---|
| Name | This defines the text shown in the elements label. |
| Event Code | This is a unique code within the Application Version to identify this event. |
| Document Type | This is the value of the Document Type produced by this event. |
| Default Company Code | This defines the System Manager Company to associate this event (and subsequent activities) with. Use the prompt facility to display a dialog containing previously entered Company Codes to select or a new code can be entered. |
| Save Email Body Content | This option allows the user to specify whether they want the text content of the incoming email to be saved into the WFi Engine files so that it can be retrieved and used later within the process. |

| Field | Description |
|---|---|
| Save Email Attachments | This option allows the user to specify whether they want any MIME attachments that are part of the incoming email to be saved so they can be retrieved and used later within the process. If this field is checked, the Email Reader saves the files, under a user defined root directory, and sets references to the files within WFi. These references can be retrieved and examined using XSL Extension Functions. When viewing the activity, using Infor ERP System i Workspace Action Tracker, any incoming attachment links are displayed in the message for the user to open and examine. |
| Rules | This list allows the definition of the criteria that need to be met for the Email Event to be complete and the process to initiate. Any existing rule information is displayed. |

## Options

Right-click on the rules list to see the following options:

| Option | Description |
|---|---|
| Add | Add a new rule. The Properties for Email Event Rule pop-up is displayed |
| Edit | Edit a rule. The Properties for Email Event Rule pop-up is displayed. |
| Remove | Remove a rule |

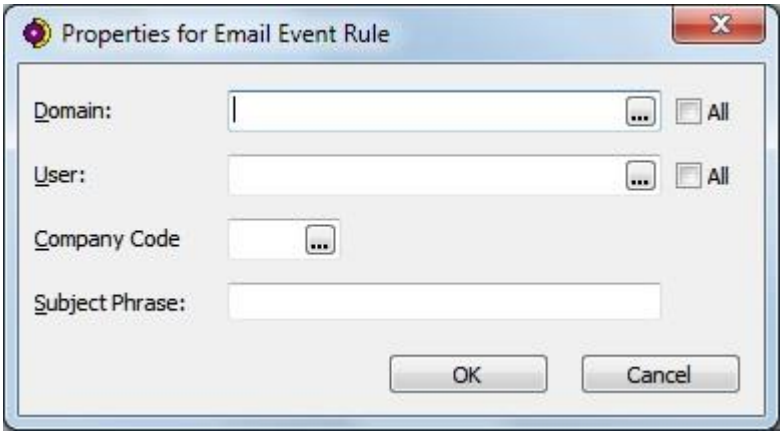
## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

Previously created Email Events are contained within the Email Events section of the Palette so they can be re-used with other processes.

# The Properties for Email Event Rule dialog

This dialog is displayed if the **Add** or **Edit** options are taken from the Properties for Email Event window. Use this dialog to add or amend email event rule details.




## Fields

| Field | Description |
|---|---|
| Domain | This allows the definition of an email address domain to be specified. Use the prompt facility to display a dialog to allow the selection of previously entered email domains. Checking All implies that this rule will match against any email domain and cause the input box to be disabled.<br><br>**Caution:** Within Email Events, the Domain is defined as being the text after the "@" character and the User is the text before the "@" character. |
| User | This allows the definition of an email address user to be specified. Use the prompt facility to display a dialog to allow the selection of previously entered email users. Checking **All** implies that this rule will match against any email user and causes the input box to be disabled. |
| Company Code | This defines the System Manager Company to associate this event (and subsequent activities) with. This overrides the default Company Code defined for this Email Event when this rule matches an incoming mail message. Use the prompt facility to display a dialog containing previously entered Company Codes to select or a new code can be entered. |

| Field | Description |
|---|---|
| Subject Phrase | This defines a phrase that can be matched against the Subject field of the incoming email. If the phrase is included anywhere within the Subject field, then the test will be true. The search is case sensitive. |

**Caution:** For a rule to be true then the incoming email must match the values set for the domain, user, and subject tests. If the subject test is left as blank, then only the user/domain tests are used.

**Caution:** If an incoming email matches any rule within the Rules list then the Email Event is triggered and the process started within the WFi Engine, unless the **matchAll** setting within the Email Reader is set to false so only the first event matched will be triggered.

### Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

Within a process, an Email Event may only be an initial activity, and the Start Condition Start Mode must not be either a Monitor or User Requested.

At runtime, the Email Reader processes any incoming emails that are not completion messages (i.e. receipts from emails sent from WFi) using its activated rules repository. If any rule within an Email Event matches the incoming email, then it triggers the process.

**Caution:** Whilst the same mailbox can be used for both Manual/XML Activity receipts and incoming emails we recommend that separate mailboxes are used with an Email Reader process running over each. This enables support processes to be separated from interactive processes.

## Activating Email Event Rules

When an Email Event is part of a process the XML Email Event data files used by the Email Reader need to be created during activation.

**Caution:** If Email Events need to be activated then ensure that the Activate Events option is checked in the Advanced tab of the Activation dialog.

During the first activation, a dialog is displayed to allow the selection of the ODBC connection to use to activate events. A dialog is then displayed to allow the user to specify where the event XML files are written (this is the same as the Event activation dialog).

The Activation Root Directory should match the repository setting within the Email Reader properties file.

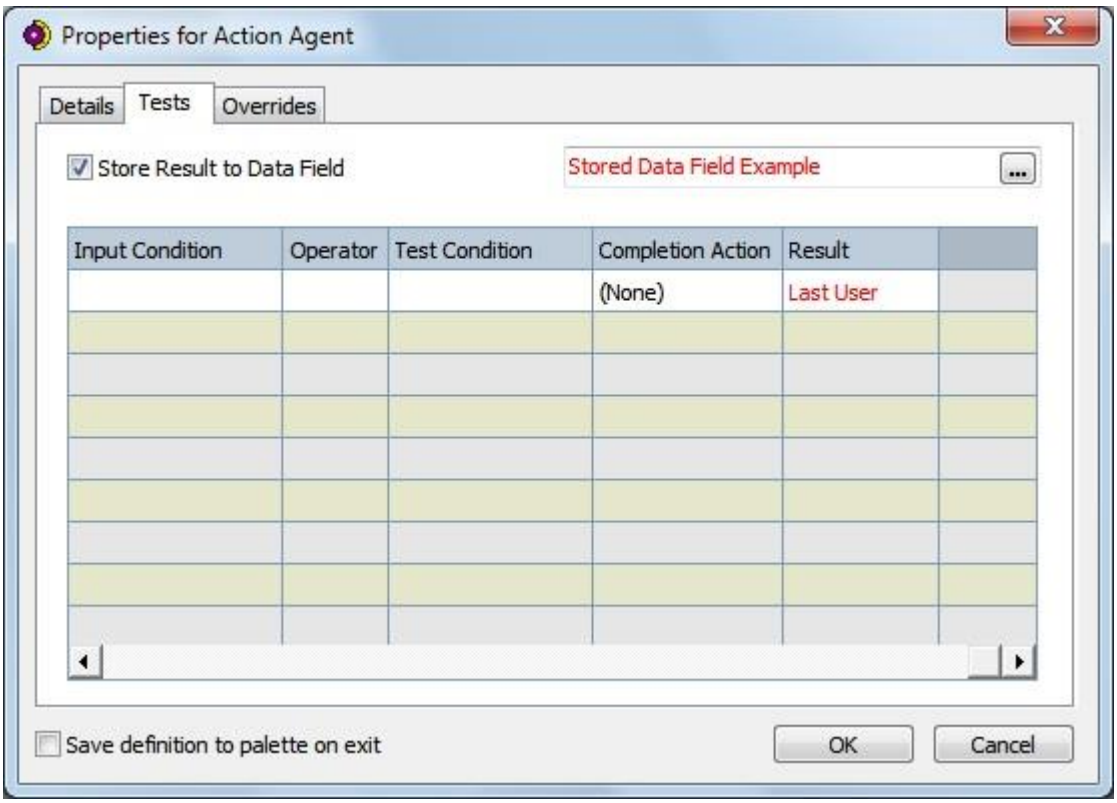
**Caution:** The Email Reader **must** be restarted after activation for it to be able to pick up the new email event information.

## Stored Data Fields

WFi Modeler provides the ability to define an e-mail address, user, role code or any other variable type based on an element in the Infor ERP System i database. This enables the output of for example an action agent to be stored in data field for later use.

This provides a performance benefit of not having to repeatedly resolve a data field. For example, in an Action Agent the result of the test can be stored…

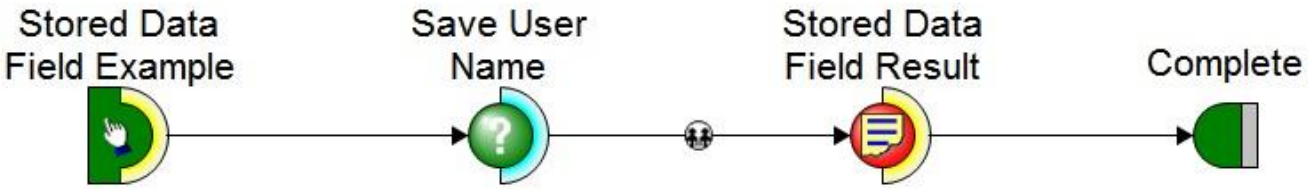
# The Properties for Action Agent dialog (Stored Data Field)




## Fields

| Field | Description |
|---|---|
| Store Result to Data Field | If this is checked, the entry field that allows the selection of the Data Field to store the result becomes enabled (only fields of type Stored Data field for the current Document Type) and is displayed. |
| Result | A new column is displayed. This is the actual data that is put into the Stored Data Field. In the above result the text *Enquiry*, *Credit Exceeded* or *Customer Stop* is put in the field if the relevant condition is matched otherwise the default *Order Suspend Code* (which itself is the content of another Data Field) is used. |

The halo in front of the Action Agent turns blue when it is re-directed into a Data Field and it can only have one exit route.




# Event Agents

An Event Agent is rather like an Action Agent, but it differs by allowing multiple exit points and the support of *Event Data Fields*.

The Event Agent is added only at the beginning of a business process and can be started by the Business Process Launcher or the WFi Scheduler. The Event Agent can be run at scheduled intervals throughout the day by assigning a schedule rule to the link from Event Agent's default path and looping it back on itself.

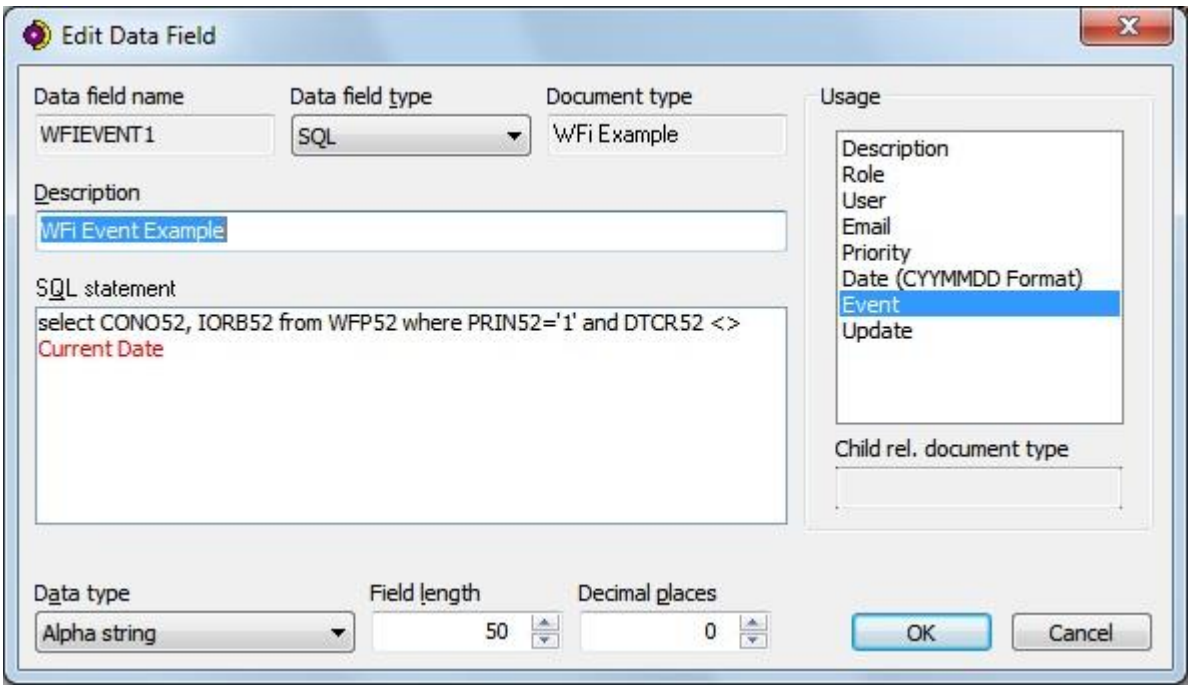
Within the Palette and on the Canvas the Email Event is represented by an “Envelope” symbol.

An Event Agent is set up in much the same way as an Action Agent, the only difference being in the *test* window.  Event Agents can make use of a special type of data field known as *Event Data Fields*.

An Event Data Field is created in the same way as other Data Fields. This Data Field type can only be used within an Event Agent and differs from other Data Fields as it can return more than one matching row.

Event Data fields define the exception in the form of an SQL statement against a file retrieving only the records for the defined exception condition. All conditioning and testing can be performed in the SQL statement.

# The Edit Data Field dialog (Event usage)



### Fields

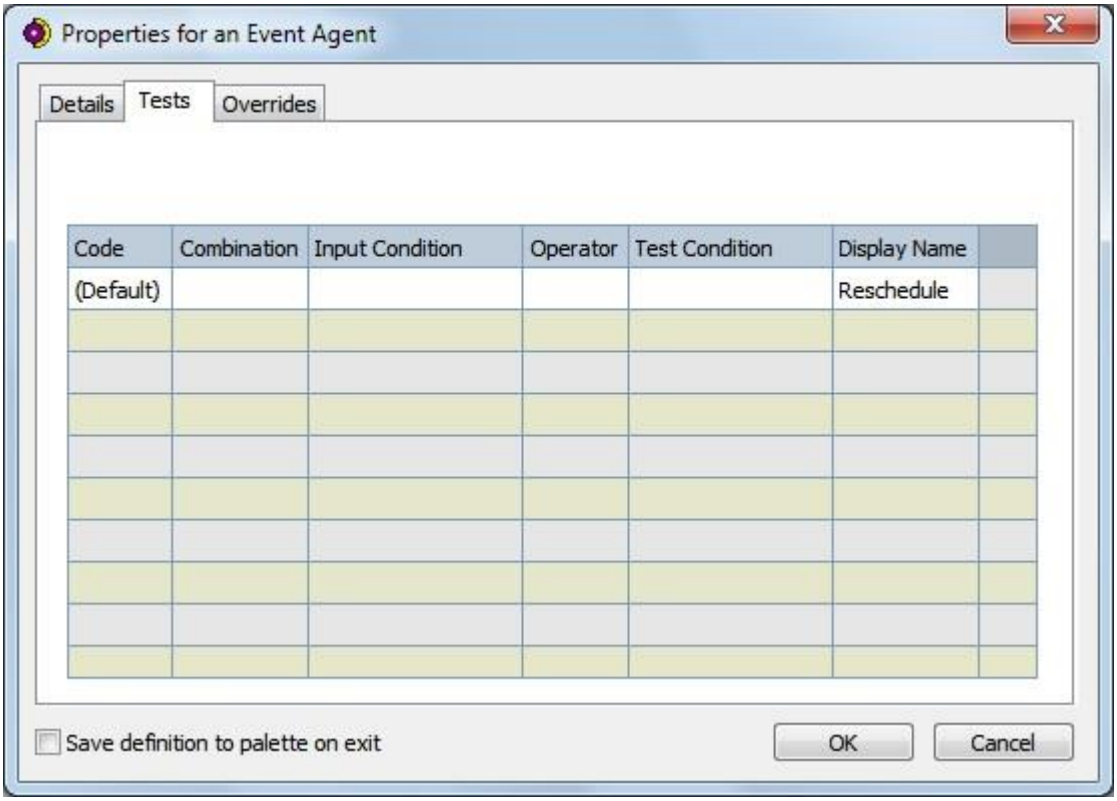
| Field | Description |
|---|---|
| Data Field Name | This is arbitrary |
| Data Field Type | This value should be SQL |
| Document Type | Choose a type to which the Data Field is associated. |
| Usage | The Data Field usage should be set to Event. |
| SQL statement | If you want your Event Agent to create a sub-process for each record matched by an SQL statement then the SQL select should return two values per row; a field containing the System Manager Company Code and the required result value for use as the Business Object Reference for the new sub-process.<br>You can also use SQL statements that retrieve a single value for use within Event Agent tests (as with an Action Agent). |

## The Properties for an Event Agent dialog

Drag the Event Agent from the Controls Palette onto the Canvas to display the properties.

Adding conditions into an Event Agent is like Action Agents. You must link the Event Agent to a Start Node with a Document Type before you can define tests.

The Properties for an Event Agent dialog has three tabs. The *Details* and *Overrides* tabs are the same as those for an Action Agent. The *Tests* tab is different.


Properties for an Event Agent
Details
Tests
Overrides
Code
Combination
Input Condition
Operator
Test Condition
Display Name
(Default)
Reschedule
Save definition to palette on exit
OK
Cancel

## Fields

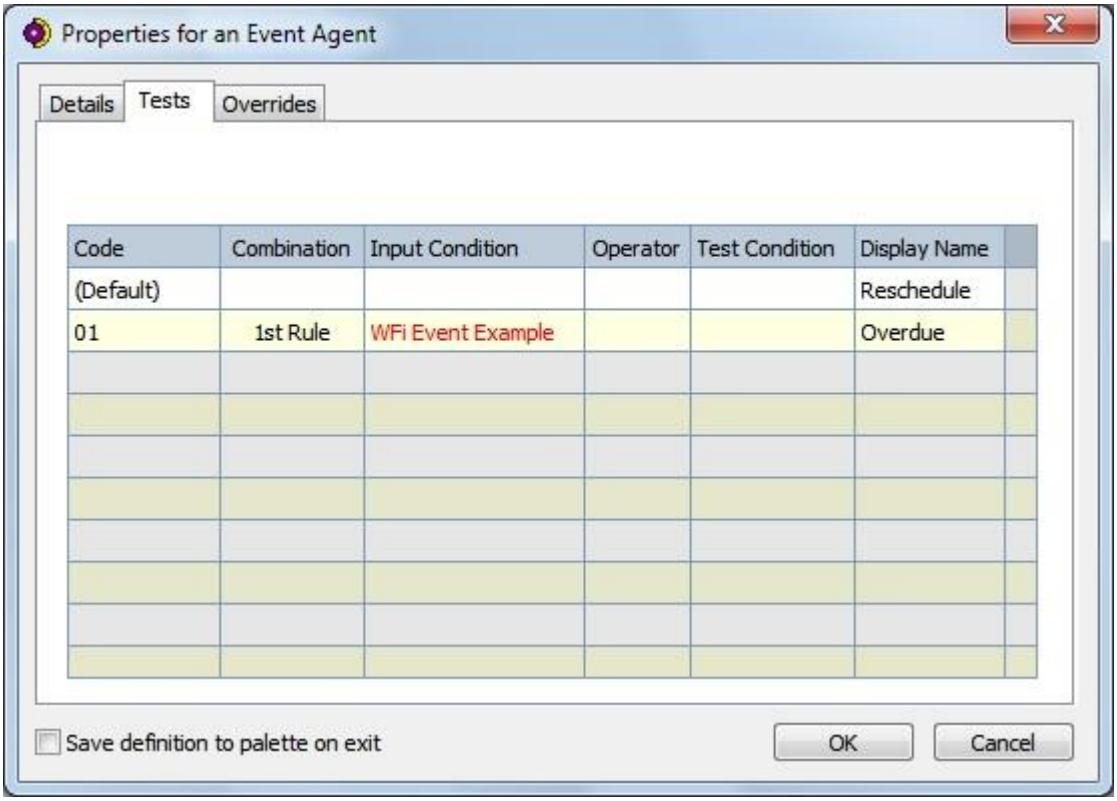
| Field | Description |
|---|---|
| Code | This represents the value of the exit node. |
| Combination | Specifies whether an evaluation is the first line of a rule for an exit node (1st Rule) or is a continuation of the rule (using And or Or). |
| Input Condition | Values can be static (alphanumeric strings) or variable (Data Fields) data. |
| Operator | This is a logical operator used to compare the input and test conditions. |
| Test Condition | Values can be static (alphanumeric strings) or variable (Data Fields) data |
| Display Name | This forms the ToolTip of the node when viewed from the Canvas (and will be shown as the completion description at runtime). |

## Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

There must always be a default condition. This default condition can be terminated or looped back into the Event Agent to re-run the Event Agent on a Schedule.

If the Event Data field used in the Input Condition will return multiple records, then you do not need to specify an Operator or Test Condition.



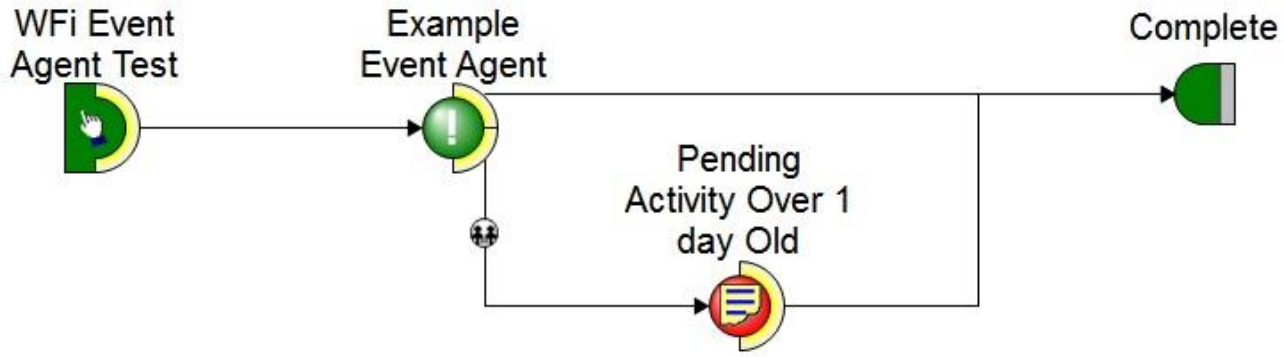

Event Agent processes are validated and activated in the same way as other Business Processes and are subject to the same rules.

Event Agents can be executed in two ways: Automatically and Manually.

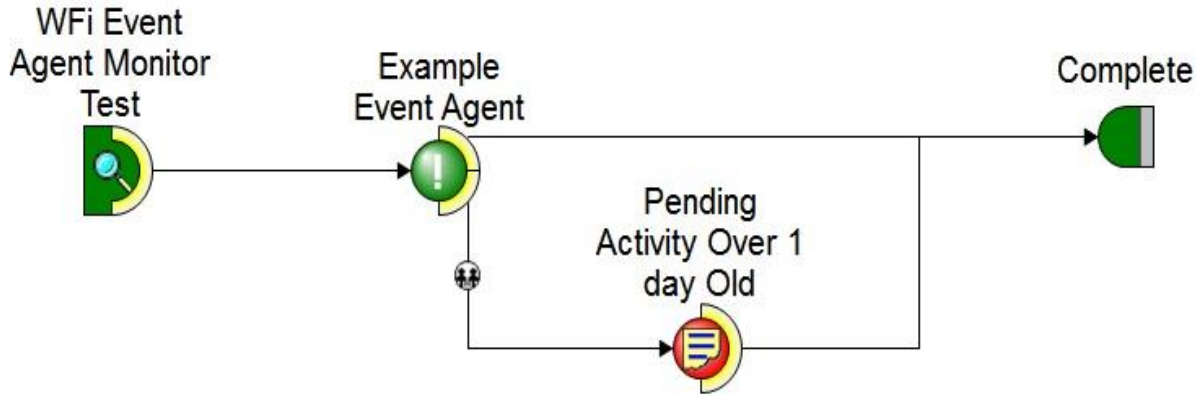
You can have multi-part tests and multiple Exit Nodes within an Event Agent.

The way Events Agents are to be executed is defined by the connected Start Condition. The Start Condition contains a *Permission* tab; it is on this tab that the execution method is defined.

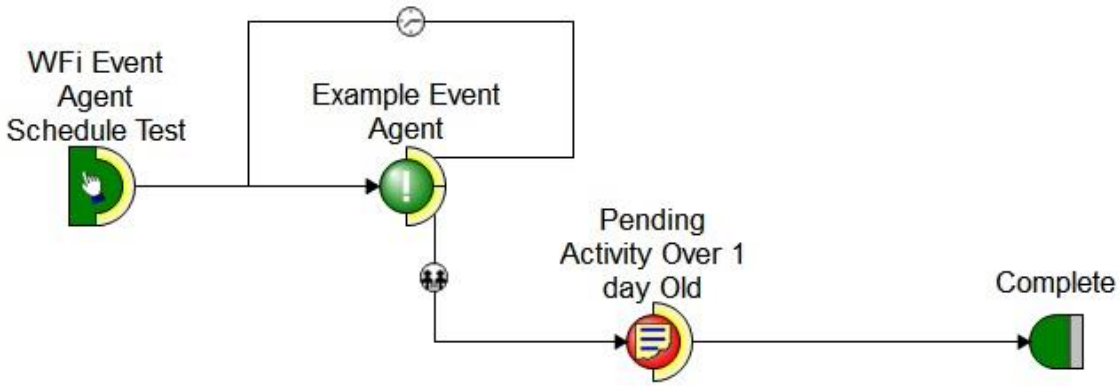
- Manual Event Agents - A pointing hand signifies the Manual Start Condition. The Business Process Launcher launches these processes.




- Automatic Event Agents - An Automatic Start Condition is signified with a magnifying glass. Automatic Event Agents are triggered when the scheduler is started.



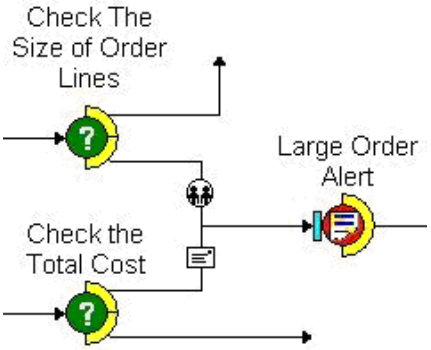

Event Agents can be configured to run at scheduled interrupts by re-routing the default route back into the Event Agent and assigning the exit path to run as a Scheduled Batch job.



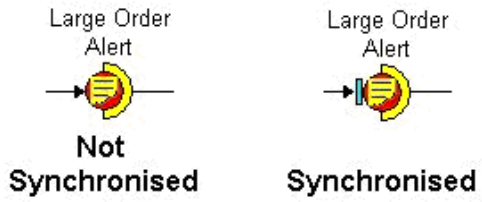

The Event Agent's tests are re-applied at each scheduled call and any routes that meet the test will proceed.

# Synchronization

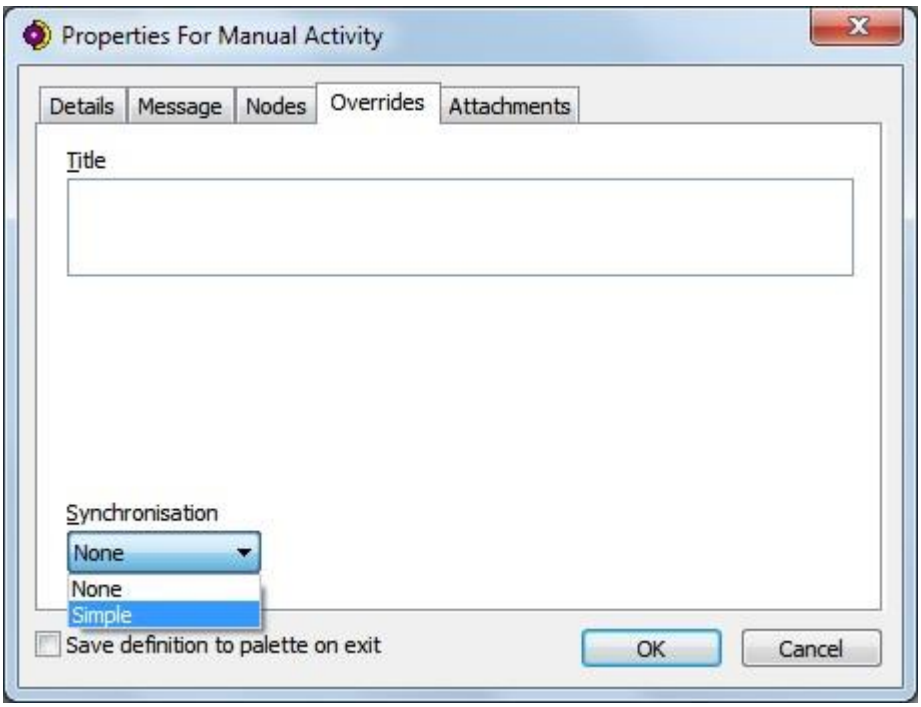
Manual Activities like certain other activities may be *Synchronized*, i.e. Manual Activities that have two or more input paths may or may not start until the preceding activities have executed fully depending on the synchronization status. In the example shown the Large Order Alert activity may not be performed until both the Order Lines and Total Cost have been checked.




Synchronization is represented on the canvas by a blue line in front of the activity.



## Setting Manual Activity Synchronization (Overrides tab)




### Fields

| Field | Description |
|---|---|
| Synchronization | One of the following options should be selected:<br>None - the Manual Activity may be executed if one of the preceding activities executes successfully<br>Simple - all preceding activities must have completed.<br>Synchronization can only be used when all input activities have the same output Business Object. |

# Escalation/Delegation

Escalation and Delegation Rules are a facility within WFi Modeler that allow a Pending activity to be moved from one User's/Role's action list to another to prevent them from being overlooked and to ensure that the business flow is not interrupted by staff absence or overburdened staff. Escalation Rules may be applied to a specific activity in a Business Process, to all activities within a Business Process or to all Activities in all Business Processes.

Escalation is used to increase the priority of an item on an Action List and moving an item from one user's Action List to another user's Action List after a period of time. This could be used, for example, if a manager wanted to pick up all activities outstanding after a given period of time. As an alternative to redistributing the activity, its priority alone may be changed so that it moves to a higher position in the same Action List.

Delegation is used to move an item automatically from one user's Action List to another user's Action List without any elapsed time. This is typically used where a recipient of an activity is on holiday or absent for a period of time, so that the items would appear only in the Action List of the user who was taking over that activity.

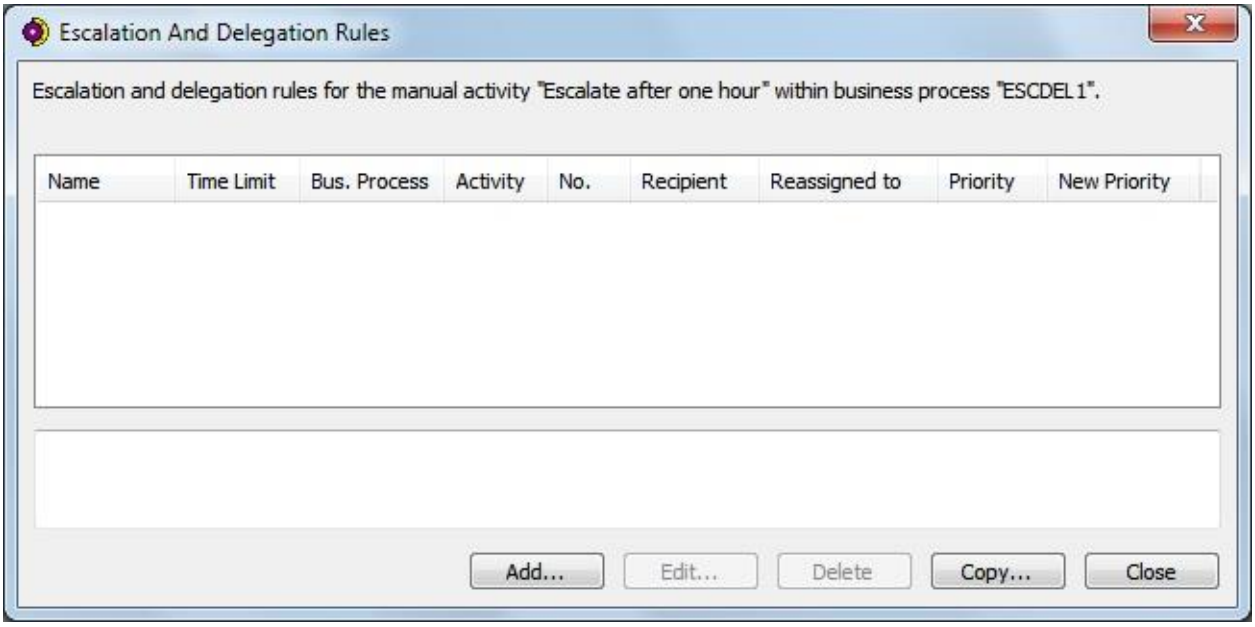
## Applying Rules

An escalation/delegation rule may be applied to all business processes by selecting Configure, Work Management, Escalation Rules from the WFi Modeler menu.

An escalation rule may be applied to an activity in a business process by right-clicking on the Activity and selecting **Configure**, **Escalation and Delegation** from the Context Menu. The Escalation/Delegation window is displayed.

To add a rule for the activity, select **Add** to view the Escalation and Delegation Rule Window.

## The Escalation and Delegation Rules dialog



## Fields

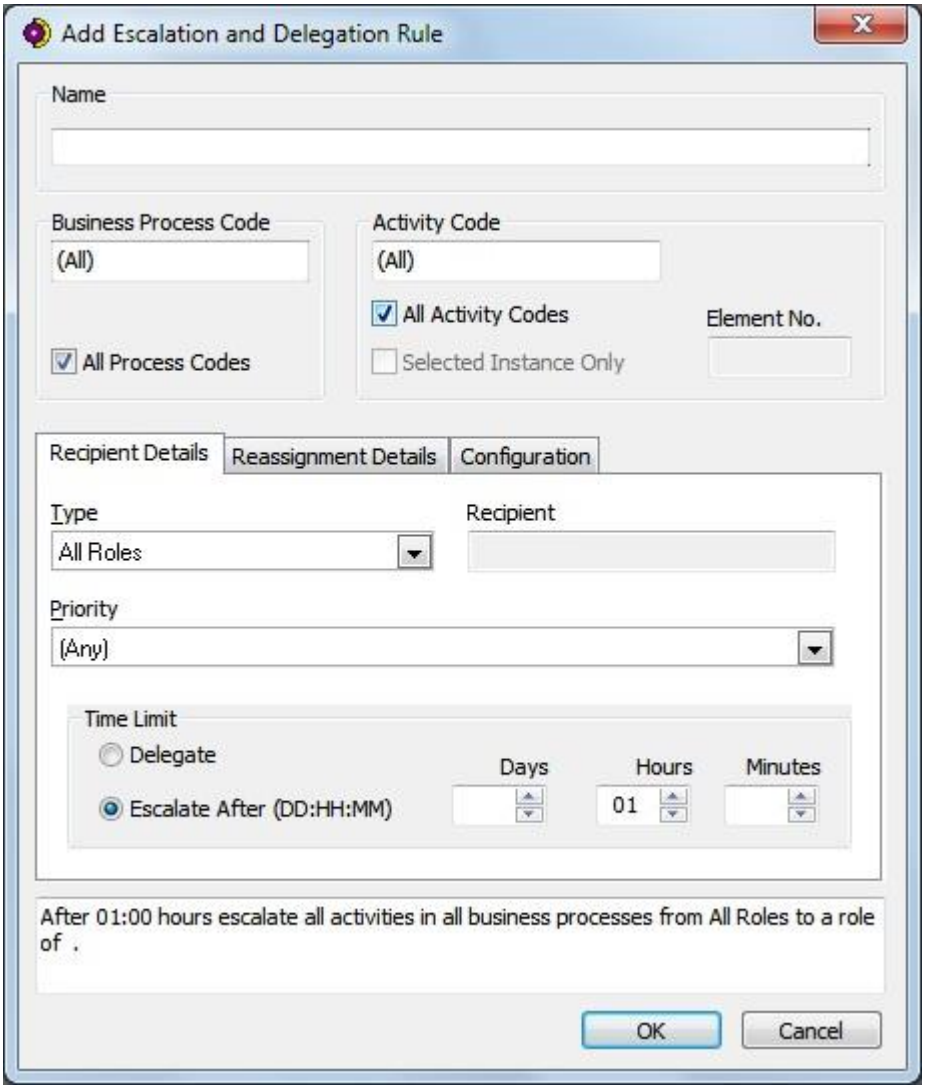
| Field | Description |
|---|---|
| Escalation Rules | A list of escalation rules defined in the current Application Version. |
| Details | When an escalation rule is selected, this message area is filled with the details of the rule. |

## Functions

| Action | Description |
|---|---|
| Add | Add a new escalation rule. |
| Edit | Edit the selected escalation rule. |
| Delete | Delete the selected escalation rule. |
| Copy | Create a clone of the selected escalation rule. |
| Close | Close the escalation rules dialog. You will be prompted to save or discard the changes. |

# The Add Escalation and Delegation Rule dialog

The Add Escalation and Delegation Rule dialog allows the process designer to specify when and how activities should be escalated or delegated.




## Fields

| Field | Description |
|---|---|
| Name | Each rule should be given a relevant name. |
| Business Process Code | The Business Process Code this rule is associated with (will be pre-filled if escalation was initiated from the Canvas). |
| All Process Codes | Check this to apply escalation rule to all processes. |

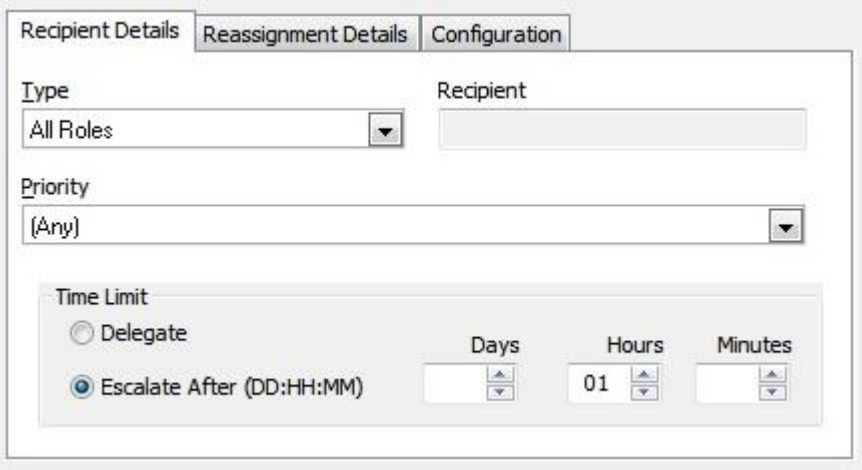
| Field | Description |
|---|---|
| Activity Code | Associate the escalation rule with a specific Activity code (for Manual Activities, use MANACT, for XML Activities, use XMLACT and for Elemental Activities, use the Activity Code from the Elemental Activities Properties). |
| All Activity Codes | Check this to apply the escalation rule regardless of the Activity Code. |
| Selected Instance Only | Check this to apply the escalation rule to a single activity. If the Selected Instance Only option is turned off the User can choose to apply the rule to all activities in the Business Process, to all Activities within all Business Processes or to specific Activities within all Business Processes by entering the appropriate details in the Business Process Code and Activity Code sections. |
| Element No. | The Element Number is used to identify that instance and is inherited from the design. This Element Number can be used more specifically to determine which Manual Activity the rule is applied to since all Manual Activities have an Activity Code of MANACT |

### Functions

| Action | Description |
|---|---|
| OK | Selecting OK saves the changes and closes the dialog. |
| Cancel | Selecting Cancel closes the dialog without saving the changes. |

## The Recipient Details tab

This contains information about the user/role who is supposed to receive the activity initially and the initial priority of the activity. The Time Limit details specify that the activity should either be delegated to another User/Role or escalated after a specified period of inactivity to another user/role.

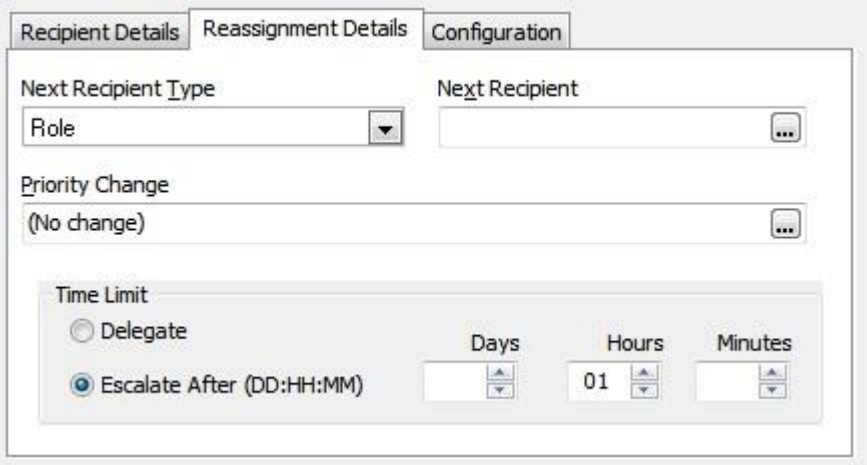



## Fields

| Field | Description |
|---|---|
| Type | The type of recipient. |
| Recipient | For defining a specific recipient. |
| Priority | The priority of the message to escalate. |
| Delegate | Check this to Delegate. |
| Escalate After | Check this to Escalate and enter a time value. |
| Days | Set the number of days to wait until this escalation is applied. |
| Hours | Set the number of hours to wait until this escalation is applied. |
| Minutes | Set the number of minutes to wait until this escalation is applied. |

# The Reassignment Details tab

This specifies who should receive the activity and whether the priority should change. The Time Limit details are the same as on the Recipient Details tab for convenience sake.

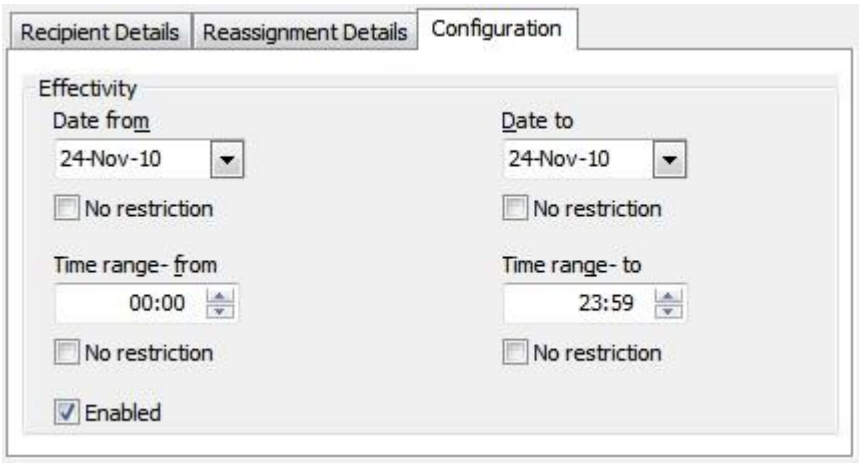



## Fields

| Field | Description |
|---|---|
| Next Recipient Type | The type of recipient who will receive the escalated message. |
| Next Recipient | For defining a specific recipient. |
| Priority Change | How the priority of the escalated message will change. |
| Email Delegation | Select whether the original recipient will receive a copy of the delegated email (or use the global setting for the current WFi Environment).This field will only be enabled when the Type field in the Recipient Details tab is set to All Email or Email, the Next Recipient Type field is set to Email and the Time Limit is set to Delegate. |

# The Configuration tab

This contains information concerning the effectivity dates and time periods of the activity. These can be set as appropriate.


Recipient Details
Reassignment Details
Configuration
Effectivity
Date from
24-Nov-10
No restriction
Date to
24-Nov-10
No restriction
Time range- from
00:00
No restriction
Time range- to
23:59
No restriction
Enabled

## Fields

| Field | Description |
|---|---|
| Date From | The start date that this escalation rule becomes Active for use. If the No Restriction field beneath the date is checked, the escalation rule becomes Active immediately on Activation. |
| Date To | The date that this escalation rule will cease to be applied. If the No Restriction field beneath the date is checked, the escalation rule will not expire. |
| Time range – From | The start time that this escalation rule becomes Active for use. If the No Restriction field beneath the time is checked, the escalation rule becomes Active immediately on Activation. |
| Time range – To | The time of day that this escalation rule will cease to be applied. If the No Restriction field beneath the time is checked, the escalation rule will not expire during the day. |
| Enabled | This option may be used to determine whether a specific rule is currently enabled or not. The Effectivity periods only apply if this option is turned on. If the Enabled option is turned off the Escalation Rule remains on the system, but its effects will not be noticed as it is placed in stasis mode. |

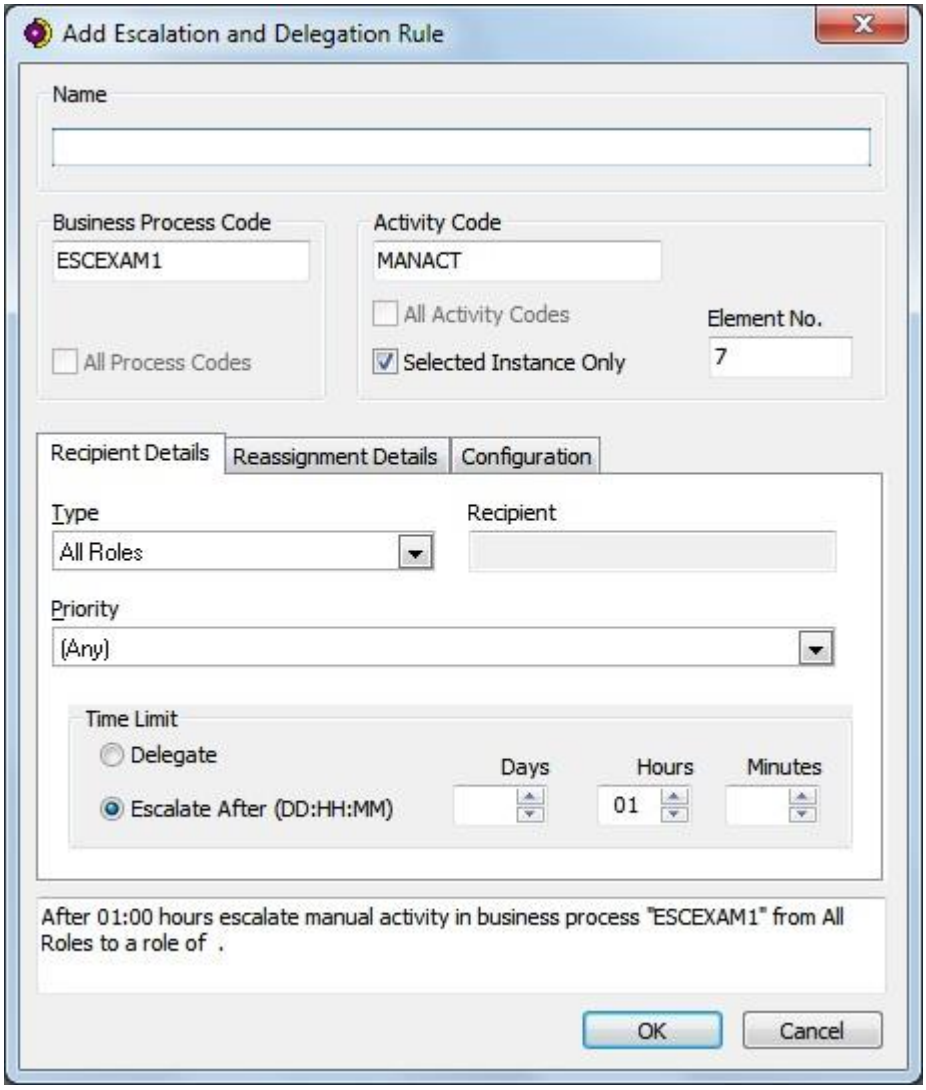
# Creating an Escalation Rule - Tutorial

For this tutorial you need to create a simple Business Process that can be started using the *Business Process Launcher* and contains a single Manual Activity. The Manual Activity should be sent to a role (in the example we use a role called “process” but you can substitute a different role from your system). Set the Business Process Code to `ESCEXAM1`. Once complete, it should look like the process below.


To create an Escalation Rule for this activity…

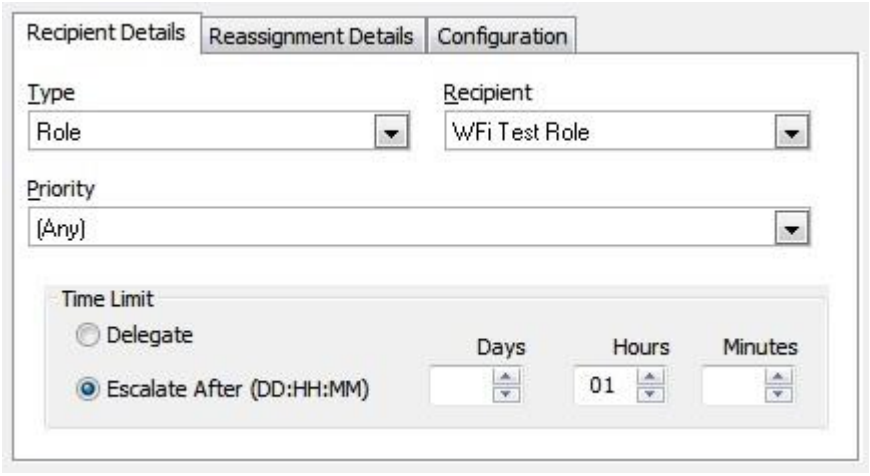
1 Right-click on the Manual Activity and select the *Configure, Escalation and Delegation* option from the context menu.

2 From the Escalation and Delegation Rules dialog select the Add option to see the following dialog…

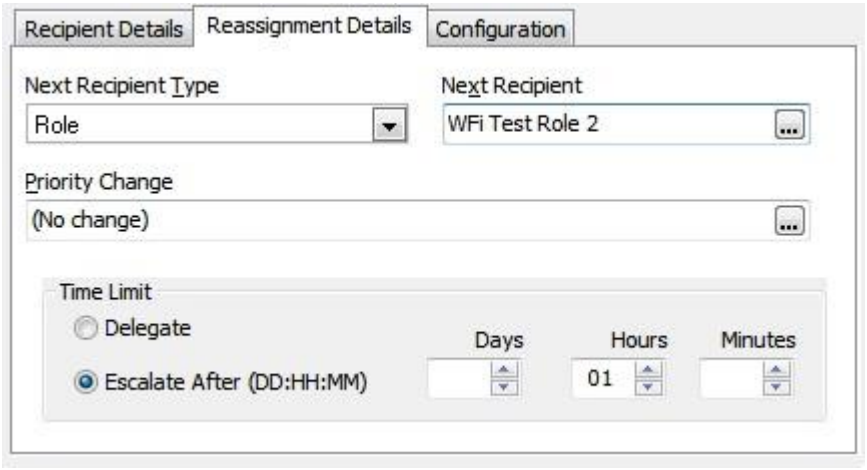



The Business Process Code, Activity Code and Element No. are automatically filled.

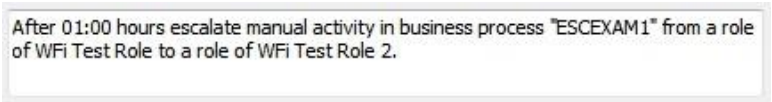
3 Enter a suitable description and then alter the Recipient Details tab to look like this…



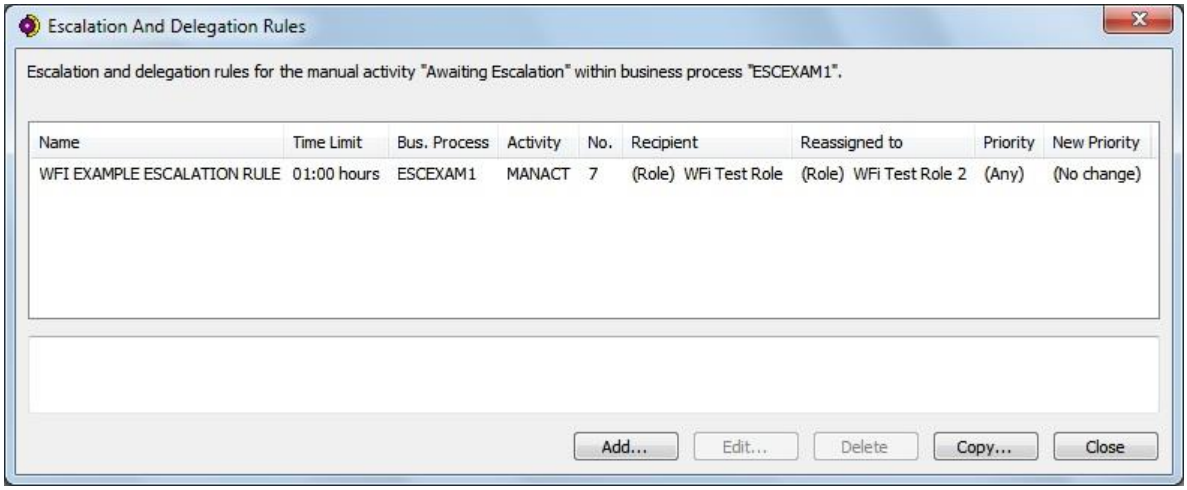

4 Alter the Reassignment Details tab to look like this…




5 The new Escalation Rule is now configured. The description at the bottom of the dialog explains, in English, exactly what the rule will do…



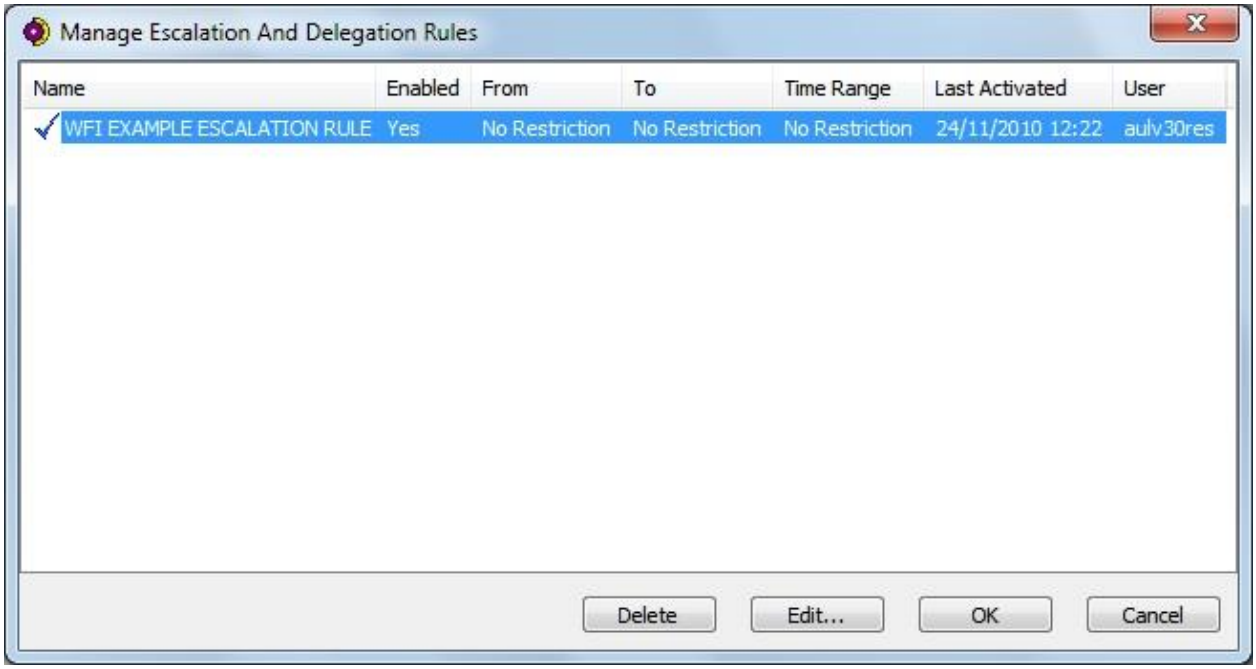

6 Select ***OK*** to add the Escalation Rule to the list.




7 Select **Close** then Yes to save any changes. You can now activate the Business Process to your WFi installation.

**Caution:** Make sure to check the Escalation Rules option in the Advanced tab to activate the rule to the server. If this value is NOT selected the rule is not activated and no escalation will occur.

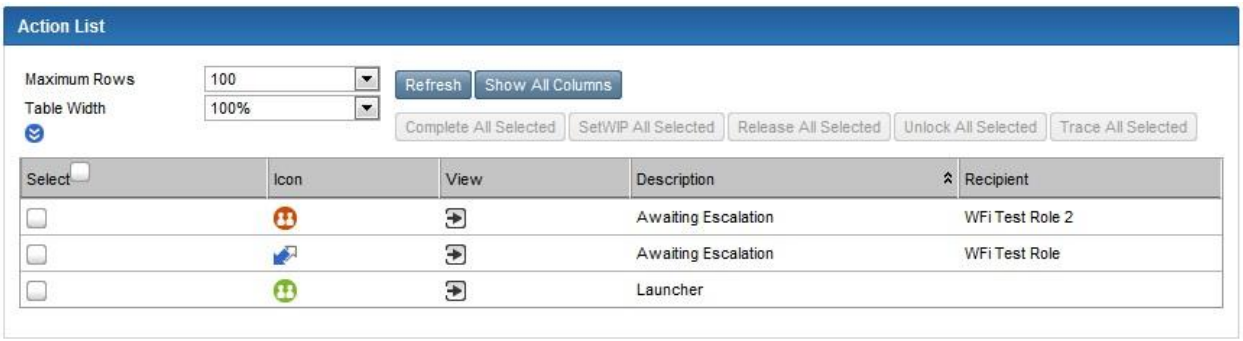
8 To check that the Escalation Rule is activated, go into the *Configure, Work Management, Server Management, Escalation Rules* option to see all the activated rules on your WFi server.



9 Now, launch an instance of the process (using the Business Process Launcher) and leave the activity pending in your Action List for at least ten minutes.

**Caution:** Make sure the Escalation/Delegation Rules processor is running on your IBM i server. This is the program that checks your live process data for any activities that meet the criteria of the activated Escalation/Delegation rules and reassigns them to their new recipient/properties

10 After one hour it should be escalated to the “Workspace Administration” role. Use Action Tracker to view what has happened, E.g.




11 The old activity has been moved to a status of Reassigned and a new duplicate activity has been created and sent to the required Escalation role.

Experiment with other Escalation and Delegation rules to understand the differences. Try creating and applying a global escalation rule that affects many activities.

**Caution:** This tutorial process is shipped as part of the WFi Modeler samples.

# Event Tracker / Process Scheduling

A business Process can be defined within WFi Modeler with elapsed times against each activity thus giving the process a total running time. Each activity in turn processed by a role can have a calendar assigned to it. This calendar holds the user's actual working hours allowing the process to give a true picture of how long the process will really take to run in elapsed time.

Whilst the process is running the WFi Engine calculates the planned dates/times for each activity that is run, considering the assigned calendar for the task.

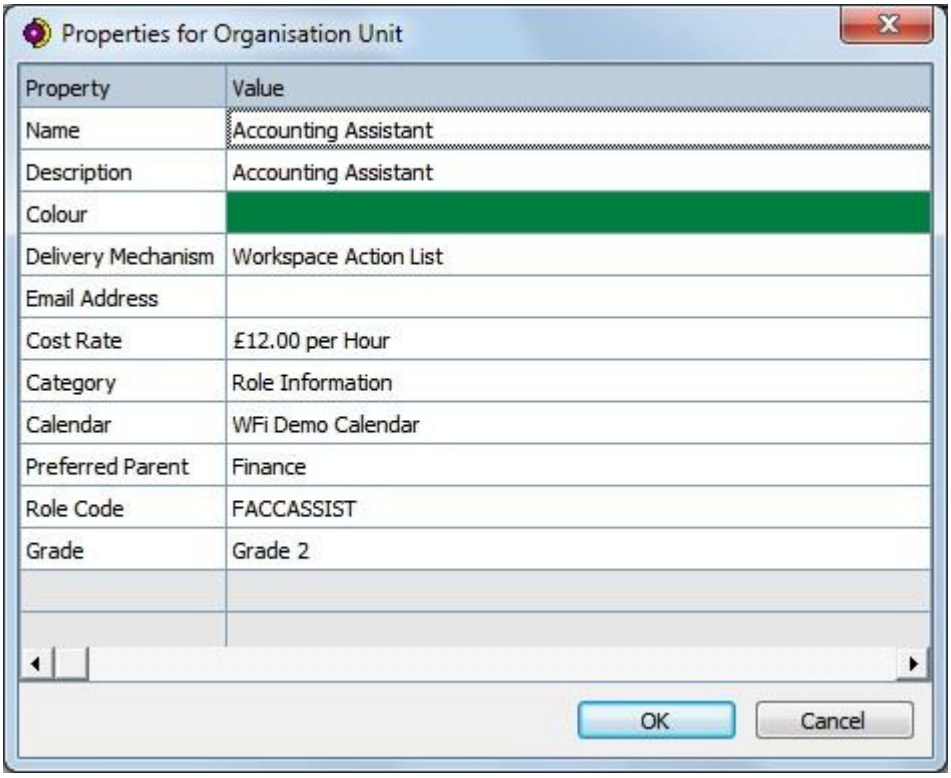
Any activities that do not run to their scheduled time can be highlighted by way of a Manual Activity on a chosen user's Action List. The monitoring and raising of these exceptions is via an *Event Agent.*

## Organizational Structure

To deliver this control within WFi it is essential that the organizational structure has defined down to user level within WFi Modeler.  This was discussed and demonstrated in an earlier section.

A Cost Rate can be configured against each individual Organization Unit. This rate can be time unit based or can be a flat rate. Where a cost rate has been configured, this is used within the cost calculations within the Planned Schedule.

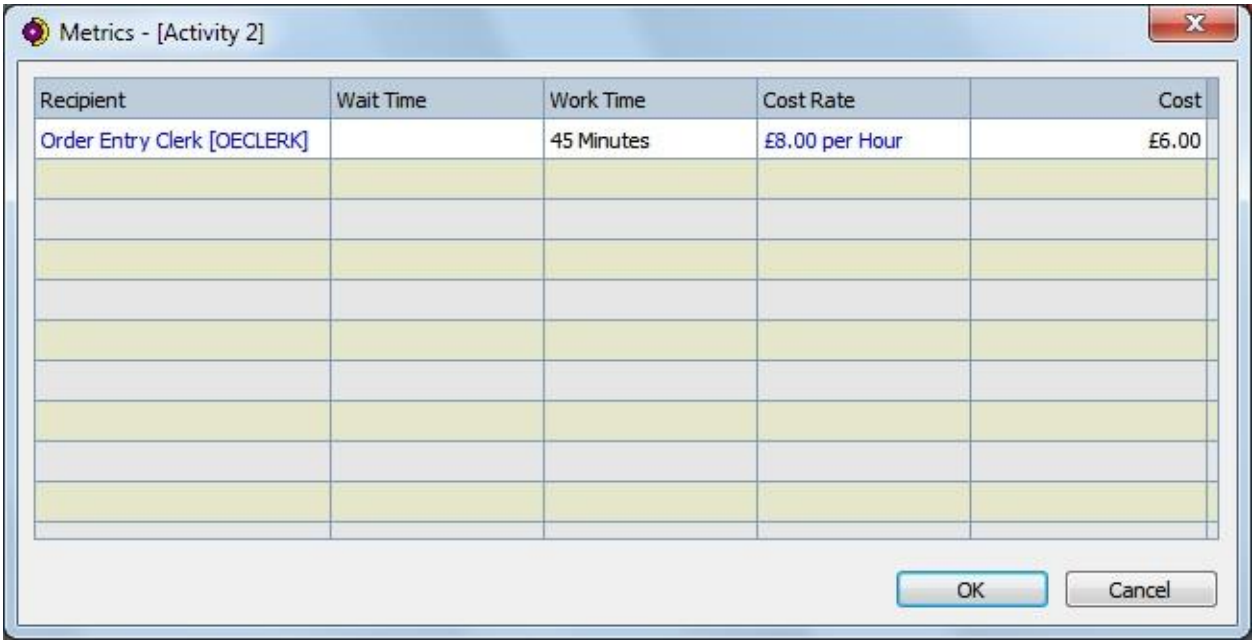
A Calendar can be configured against each individual Organization Unit such that working days, default start and end times and partial working days can be defined. In order to simplify maintenance activities, the calendar for an Organization Unit can be set to inherit from its parent such that an employee unit can by default assume the calendar of his or her department unit, which in turn may inherit from the owning company or section unit. The calendar is configured using a graphical interface such that a highly visual rendition is made available.



# Business Process Metrics and Analysis

As part of the support for Process Rescheduling several metrics can be associated with each activity within a business process definition. By using the Planned Schedule feature, it is possible to size a complete business process definition in terms of total execution time, where the process is deemed to execute down the configured preferred path. The actual time taken to execute a process from start to finish can therefore be estimated using the same metrics meta-data as that which is activated and utilized by the WFi Engine to implement checking of activity starting and termination time-stamps.

Metrics can only be attached to the links of a model. Right-click on the link and select *Metrics* from the context menu.




Enter details for each Recipient, in order to define how long it will take each of them to perform the following activity in the Business Process. The user can define not only time taken for the job itself but also how long the recipient might wait before starting the job, for whatever reason that might be.

The *Recipient* is filled automatically. It is determined by the Recipient(s) defined on the *Properties for Link* Window.

The *Wait Time* displays the Wait Time Window. Defines how long the Recipient might have to wait before starting the job.

The *Work Time* displays the Work Time Window. Defines how long it is expected the job to take to complete.

The *Cost Rate* displays the Cost Rate Window. Define the rate for the job.

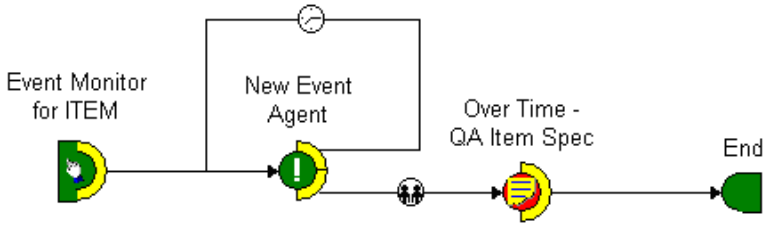
The *Cost* is calculated by multiplying the Work Time by the Cost Rate. By default, it is assumed that there are 24 hours in a day and seven days in a week. However, if there is a Calendar associated with the Recipient then these Calendar values are used instead. For example, the Calendar may define a five-day working week, in which case this figure will be used in the calculations.

**Caution:** This calculation is not stored anywhere; it is recalculated each time that the Metrics Window is displayed.

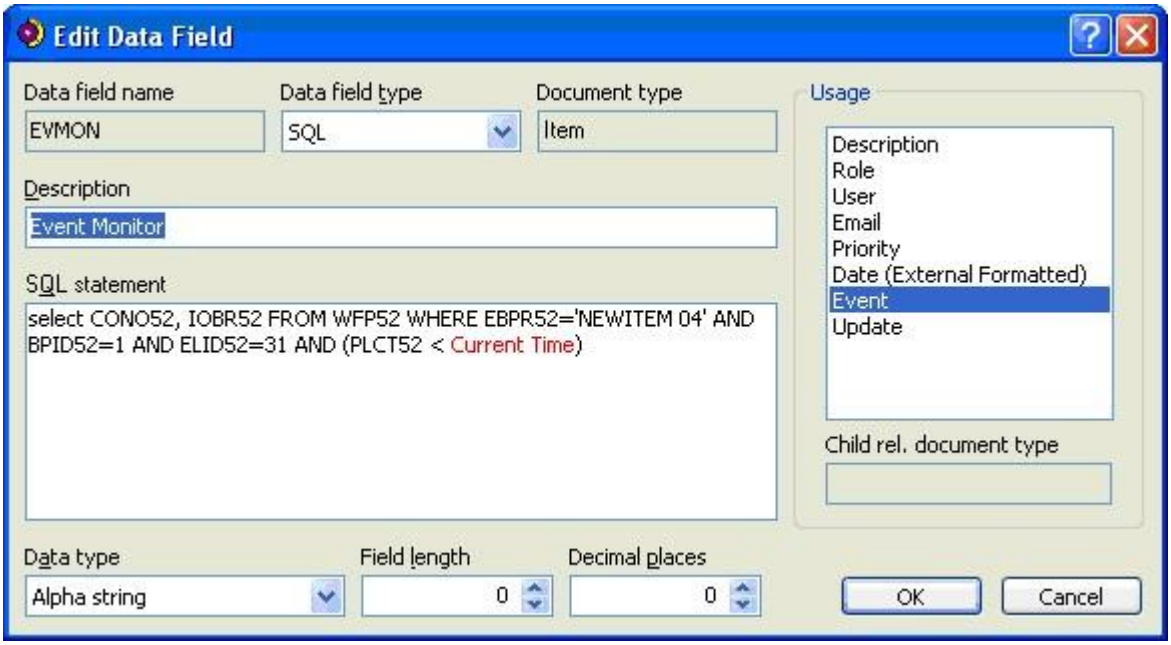
Once the metrics have been assigned the overall cost can be viewed using the Planned Schedule option described earlier.

## Event Agents

Once the process has been built to include expected duration times for activities the facility exists to monitor a process and ensure all activities happen on time. Event Agents can be used to identify activities that have not occurred or completed when they should have done.




The Event Agent uses a Data Field that, instead of being defined against a IBM System i application databases, is defined against the WFi files (WFP52 is the WFi Action Tracker file that stores all Business Process transaction data).



**Caution:** From the Data Field definition EBPR52 is the Process code and version number of the activated Business Process. ELID52 is the number of the activity being monitored i.e. 31 in this case. BPID52 is process level i.e. one in this case as it is a top-level process. PLCT52 is the planned latest completion time for the activity in question. This is compared with the Current Time global data field. If the completion time is before the current time, then the activity is still outstanding and has not been completed on time.

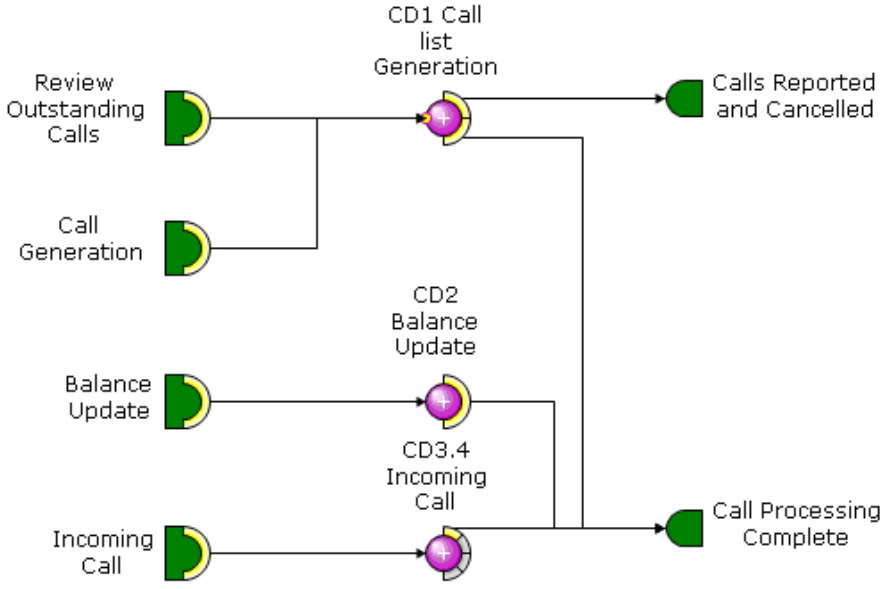
When the activity denoted by the Data Field goes over its planned completion time a message is dispatched so that action can be taken immediately.

## Nested Business Processes

It is often difficult to visualize large models on a single canvas or components of the model need to be re-used by other models. To cater for this, Business Processes can be nested as elements in other Business Process models to create layered execution hierarchies.

A nested Business Process is shown on the Canvas as a purple circle with a plus symbol.

There is no limit on how many layers a Business Process may include. Here is an example…




Double-clicking on a Business Process element or selecting the Properties option from the context menu opens the nested Business Process within a new window within the WFi Modeler Workspace.

To nest one Business Process within another simply drag it from the Business Processes section of the Palette onto the Canvas.

If an embedded Business Process has multiple Start Conditions, it must have the same number of inputs from the top-level process.

**Caution:** If the nested process has more than one Start Condition then the element also has a yellow dot to the left-hand side of the circle.

The Document Type of the Start Condition within the embedded Business Process must match that of the assigned incoming link. To set the correct link into a Business Process element that has multiple Start Conditions, right click on the link, and select the Configure, Select Start Condition option. In the dialog all links that within the embedded Business Process are displayed for selection.

Not every Start Condition requires a matching link from the parent process.

The Business Process will have as many exit-segments as there are End Conditions within the process.

**Caution:** If an End Condition is set as not linkable then the segment will appear grey and no proceeding lines may be attached to it.

When the model is validated any nested processes will be traversed and entry and exit links checked for correctness.

**Caution:** If the nested process will only ever be used as a component of other processes the initial activity may be something other than an Elemental Activity or an Event. As long as somewhere through the route of nested processes there is a correct initial the process will be valid.

**Caution:** Nested processes may not validate individually. Always start validation from the top-level parent process.

When the model is activated any nested processes are also activated to the server and become part of the WFi process.

**Caution:** Changes to nested processes may require changes to the parent process. This can be done using the Child Map Auto Update function. If Start / End Conditions in the nested process have been added / deleted, then matching conditions may need to be applied to the parent.

# Server Management

WFi Modeler provides a user interface to manage elements on the server. The Configure, Work Management, Server Management menu enables a user to maintain Business Processes, Escalation Rules and Schedules.

**Caution:** This menu only becomes available when there is a current connection to the server. Server connections may be opened during an Activation procedure or by selecting the Configure, Work Management, Select Server... menu item.

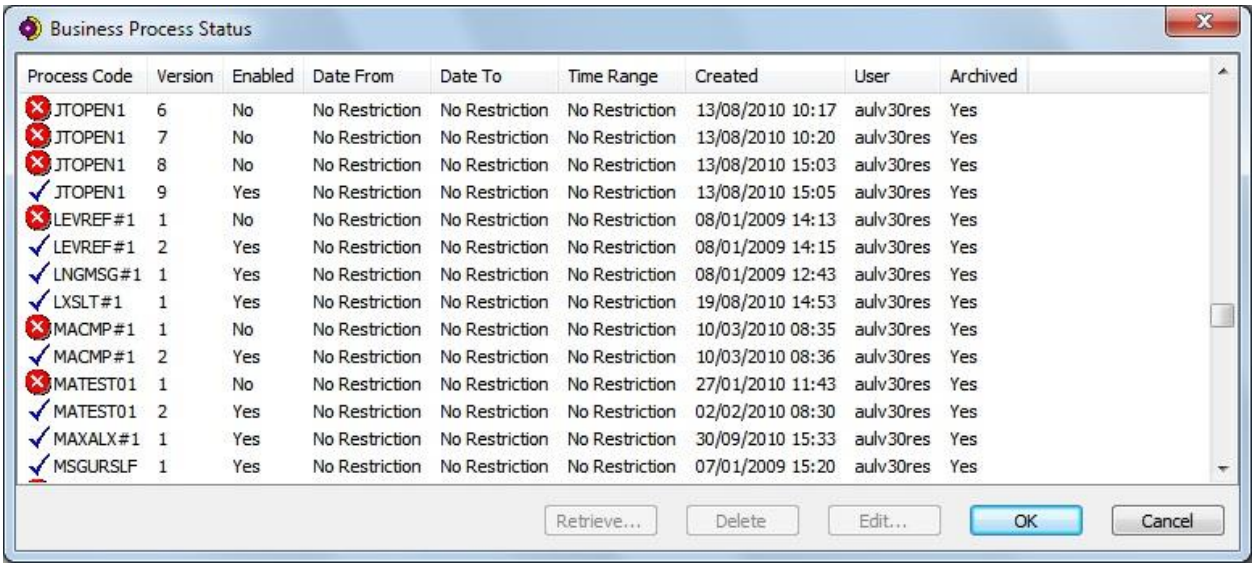
**Caution:** Only authorized users should modify server elements as any changes may affect all users of the server.

## Managing Processes

Activated Processes may be managed through the *Configure, Work Management, Server Management, Manage Processes* menu item.

Business Processes that have been activated on the server may be deleted, enabled, or disabled. Since all Business Processes are versioned previous versions may also be enabled.

## The Business Process Status dialog



## Fields

| Field | Description |
|---|---|
| Process Code | The Business Process Code. |
| Version | The version number of the activated process. |
| Enabled | Yes, if the process is active, No, if the process is disabled. |
| Date From | Effective start date the process is active from. |
| Date To | Effective end date the process is active to. |
| Time Range | Time within the day the process is active. |
| User | IBM i username of the person who activated the process to the WFi Engine. |
| Archived | Yes, it the process model data is also archived on the server, No, if it is not. |

## Functions

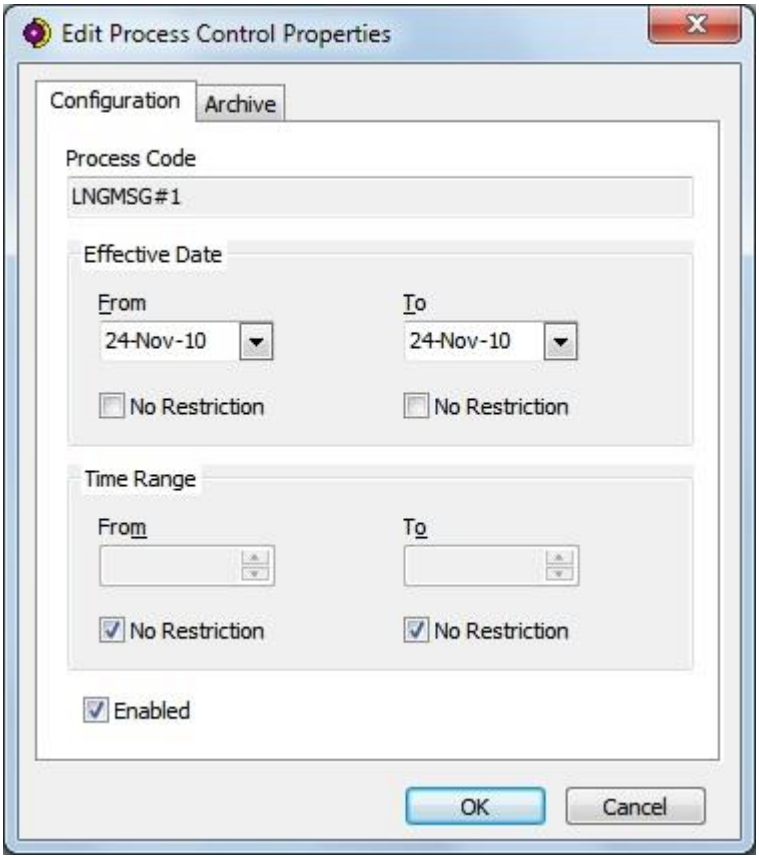
| Action | Description |
|---|---|
| Retrieve | Only enabled if the selected process has been set archived on the WFi server. Allows you to bring back the archive into your Application Version database. |
| Delete | An activated Business Process, whether it is currently enabled or not, may be deleted |
| Edit | Select Edit to enable/disable a selected Business Process or to change its effectivity periods. The Edit Process Control Properties window is displayed |
| OK | Apply any changes made to the WFi Server. |
| Cancel | Discard any changes made to the WFi Server. |

# The Edit Process Control Properties dialog

Select **Edit** from the Business Process Status dialog to enable/disable a selected Business Process or to change its effectivity periods.

Use this dialog to change Process Control properties.

This dialog allows the designer to modify the Effectivity period of the Process or the daily time span within which it may be carried out.




## Fields

| Field | Description |
|---|---|
| Effective Date From | The start date that this Business Process becomes Active for use. If the No Restriction field beneath the date is checked, the Business Process becomes Active immediately. |
| Effective Date To | The date that this process will cease to be applied. If the No Restriction field beneath the date is checked, the Business Process will not expire. |
| Time range – From | The start time that this Business Process becomes Active for use. If the No Restriction field beneath the time is checked, the Business Process becomes Active immediately. |

| Field | Description |
|---|---|
| Time range – To | The time of day that this process will cease to be applied. If the No Restriction field beneath the time is checked, the Business Process will not expire during the day. |
| Enabled | Check to enable the process. |

### Functions

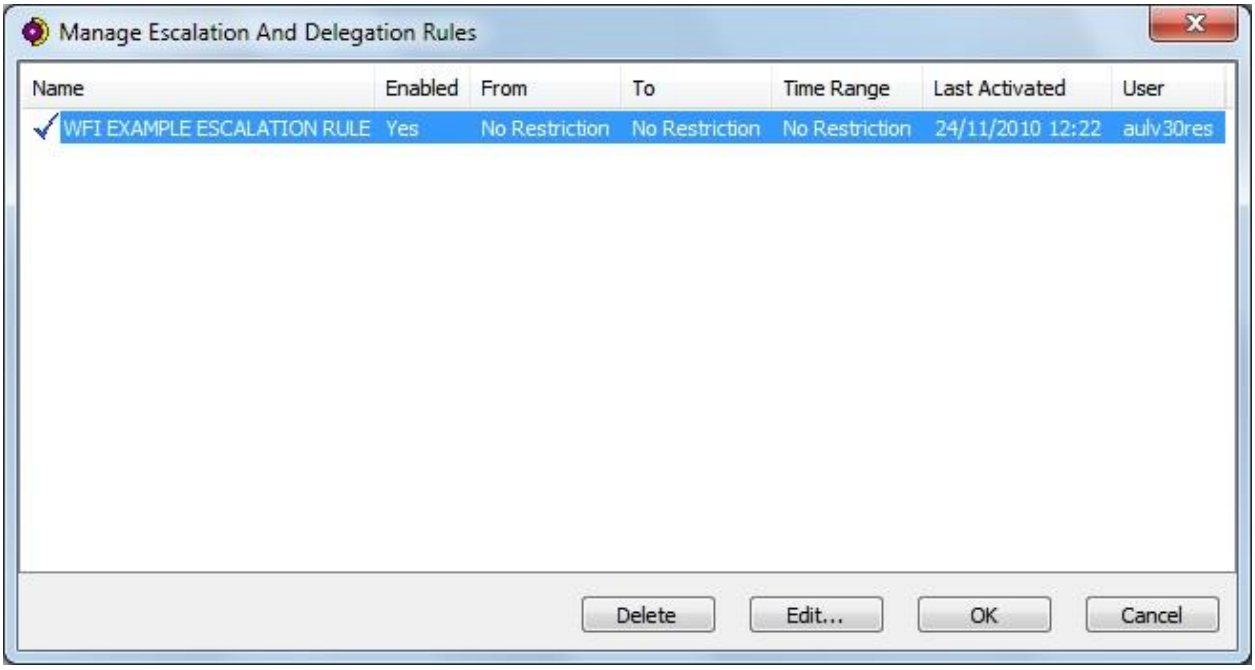
| Action | Description |
|---|---|
| OK | Apply any changes made to the WFi Server. |
| Cancel | Discard any changes made to the WFi Server. |

If the Business Process was archived, the Archive tab will contain any Archive Description text.

## Managing Escalation Rules

Escalation Rules may also exist on the server and to allow for maintenance of these rules choose *Configure, Work Management, Server Management, Manage Escalation Rules…*

WFi Modeler allows the Escalation and Delegation Rules to be managed, by enabling, disabling, deleting, or changing effectivity periods as before.




## Fields

| Field | Description |
|---|---|
| Name | The name of the Escalation/Delegation Rule. |
| Enabled | Yes, if the Rule is active, No, if it is not. |
| From | The Effective Start Date of the Rule. |
| To | The Effective End Date of the Rule. |
| Time Range | The time range that the Rule is active. |
| Last Activated | The Date and Time that the Rule was activated. |
| User | The IBM i username of who activated the Rule. |

## Functions

| Action | Description |
|---|---|
| Delete | Delete selected escalation rule. |

| Action | Description |
|---|---|
| Edit | Select Edit to enable/disable a selected escalation rule or to change its effectivity periods. |
| OK | Apply any changes made to the WFi Server. |
| Cancel | Discard any changes made to the WFi Server. |

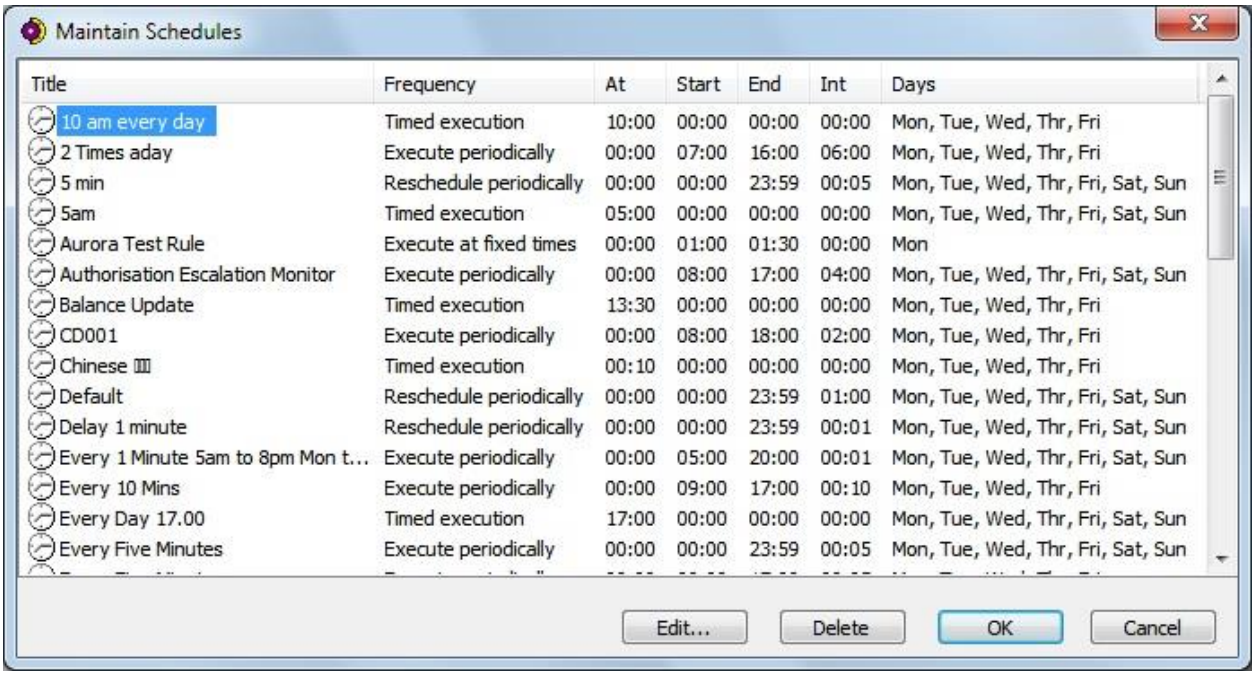
**Caution:** This function is available within System i Workspace as a web-based interface accessible via the Work Management Administrator Role Menu.

## Managing Schedules

Scheduling Rules on the server may also be edited and deleted using the Configure, Work Management, Manage Server, Manage Schedules menu item.

## The Maintain Schedules dialog

The Maintain Schedules dialog lists all activated schedules with a summary of their details.



## Fields

| Field | Description |
|---|---|
| Title | The Schedule name |
| Frequency | The Frequency the Schedule Runs, one of…<br>• Timed Execution – run at a fixed time on named days<br>• Execute at Fixed Times – run at a fixed minute time between start/end times on named days<br>• Execute Periodically – run after a period of time between start/end times on named days<br>• Reschedule Periodically – always run after a period of time on all days |
| At | Fixed time (Timed Execution) or minutes to re-execute (Execute at Fixed Times) |
| Start | Schedule Start time (Execute at Fixed Times and Execute Periodically) |
| End | Schedule End time (Execute at Fixed Times and Execute Periodically) |
| Int | Interval time (Execute Periodically and Reschedule Periodically) |
| Days | Days that schedule will run (Timed Execution, Execute at Fixed Times and Execute Periodically) |

## Functions

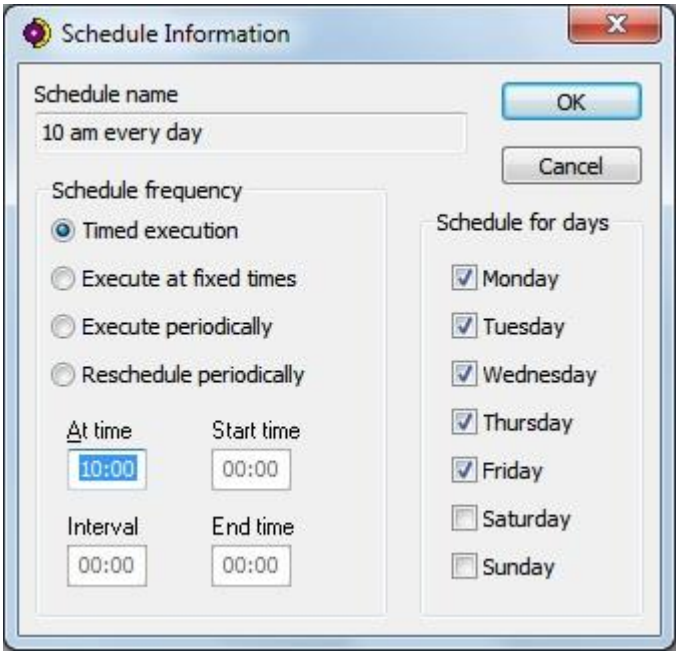
| Action | Description |
|---|---|
| Edit | Select Edit to modify schedule information. The Schedule Information dialog is displayed. |
| Delete | Select Delete to delete schedules from the server. |
| OK | Apply any changes made to the WFi Server. |
| Cancel | Discard any changes made to the WFi Server. |

**Caution:** The Default Schedule should only be altered with extreme caution, as it is standard to most Business Processes.

## The Schedule Information dialog

Select **Edit** from the Maintain Schedules window to display schedule information.

Use this window to change schedule information.



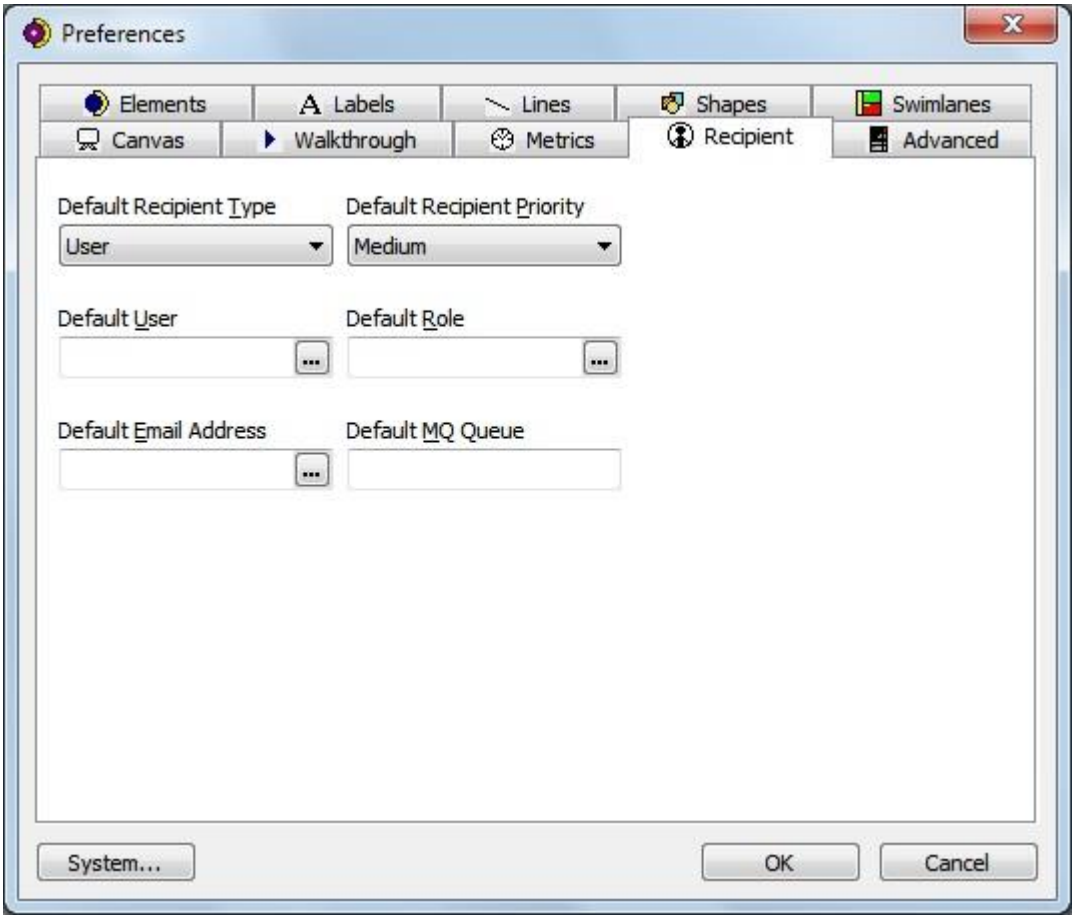

**Caution:** See the Maintain Schedule dialog section above for description of the fields.

### Functions

| Action | Description |
|---|---|
| OK | Apply any changes made to the Schedule. |
| Cancel | Discard any changes made to the Schedule. |

## Recipient Data Autofill

When adding a new recipient, WFi Modeler can now be configured to allow a default value to be inserted into the properties grid. The default values can be configured using the Recipient tab of the Preferences dialog…




## Fields

| Field | Description |
|---|---|
| Default Recipient Type | This drop-down list defines the recipient type that is automatically created when a new recipient is added. The default setting is User. |
| Default Recipient Priority | This drop-down list defines the priority that is automatically assigned when a new recipient is added. The default setting is Medium. |
| Default User | This prompt allows the definition of a default value to select when the recipient type of User is either created or selected. This value can be selected from the users defined within the current Application Version. This value can be blank. |
| Default Role | This prompt allows the definition of a default value to select when the recipient type of Role is either created or selected. This value can be selected from the roles defined within the current Application Version. This value can be blank. |

| Field | Description |
| --- | --- |
| Default Email Address | This prompt allows the definition of a default value to select when the recipient type of Email (Text) or Email (HTML) is either created or selected. This value can be selected from previously entered addresses or entered manually. This value can be blank. |
| Default MQ Queue | This prompt allows the definition of a default value to select when the recipient type of MQ is either created or selected. This value can be entered manually. This value can be blank. |

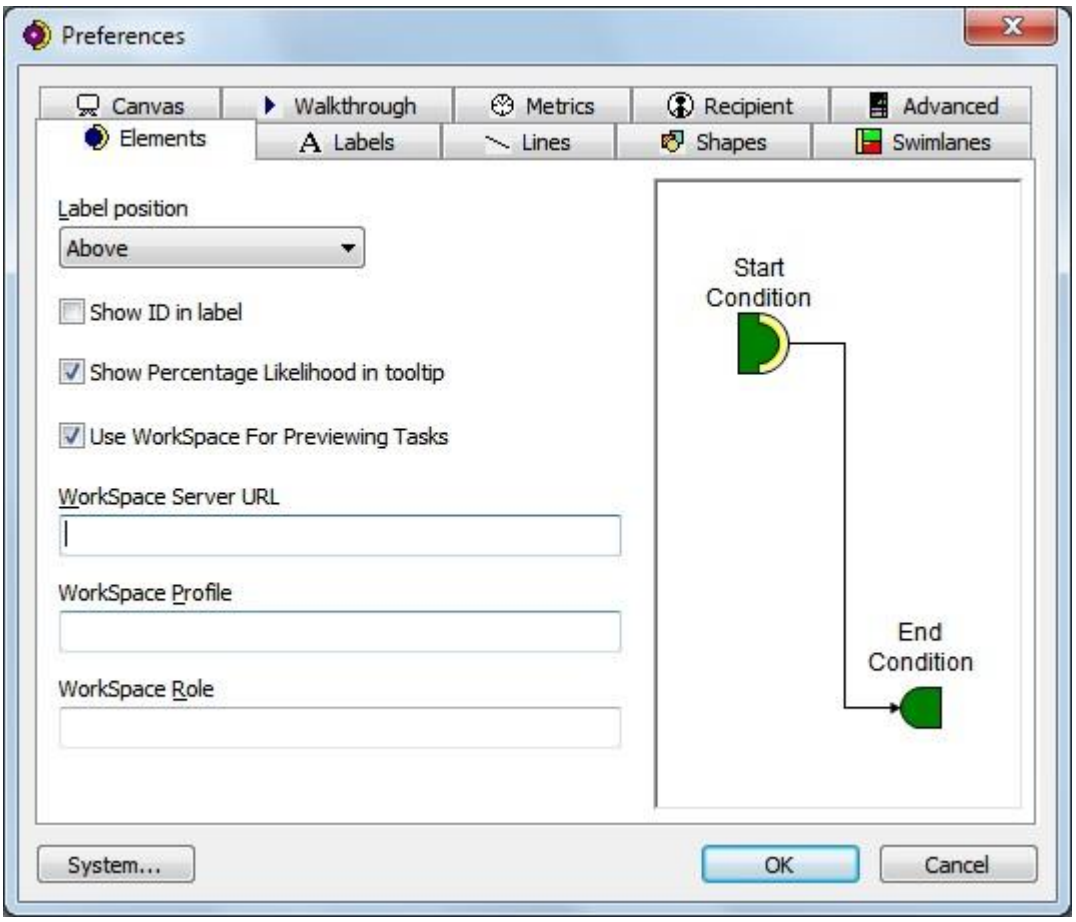
## Elemental Activity Preview Using System i Workspace

The Preview option from the context menu for an Elemental Activity, within WFi Modeler, can now be configured to launch a task using System i Workspace. The Walkthrough launch option can also use System i Workspace for task previewing.

When the preview option is selected a new System i Workspace session is opened, unless the user is already logged in to System i Workspace, and the task is opened within a new tab (the user must be authorized to run the task within System Manager or an error will occur).

To turn this option on, and configure the System i Workspace server details, open the Preferences dialog, and select the Elements tab.

# The Preferences dialog (Elements tab)




## Fields

| Field | Description |
|---|---|
| Use Workspace for Previewing Tasks | This option configures which emulator is used for previewing Elemental Activity tasks. Check to use System i Workspace. |
| Workspace Server URL | This should be set to the home page address of your System i Workspace server (i.e. what you would normally type into your Internet browser to launch System i Workspace). |
| Workspace Profile | This should be set to the code of the System i Workspace profile that should be selected when launching a task (can be altered during the login if required). |

| Field | Description |
|---|---|
| Workspace Role | This should be set to a suitable role code that is authorized to the launched task. |

# Business Performance Analysis

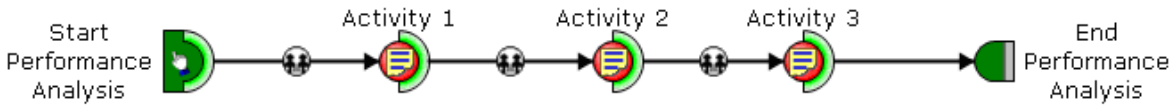
The live performance of a process model can be recorded. To do this the modeler must define which activities within the process they wish to record performance data, and then use the Performance Extract tool within WFi to extract live data into a performance file that can be analyzed using a suitable Business Performance Analysis tool.

The following examples should introduce the concepts of Business Performance Analysis.

**Caution:** The following examples are shipped with WFi Modeler for you to import and examine.

## Business Performance Analysis - Example 1

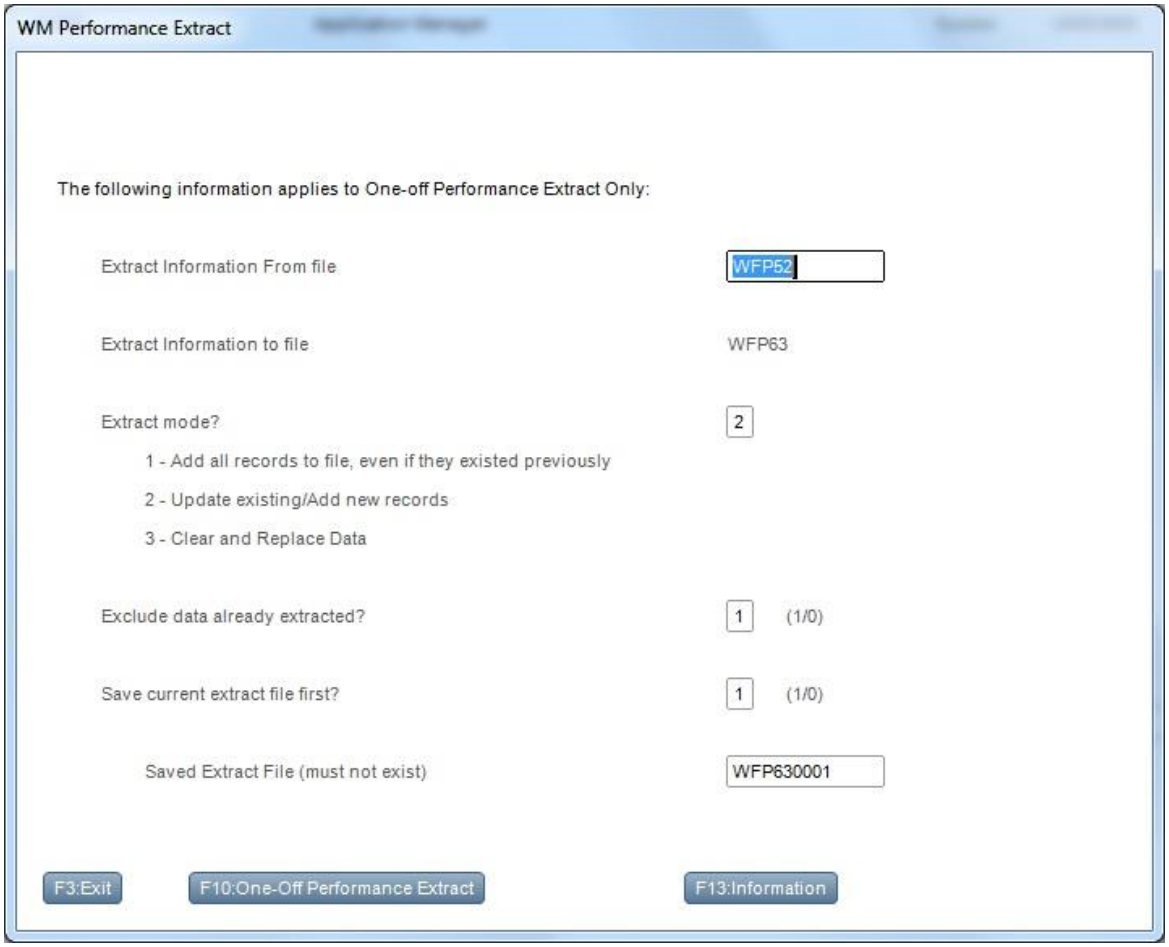
1 First create a process model. For our example we will create a chain of Manual Activities sent to different recipients.




2 For each recipient link we turn on Log Performance Statistics option. To locate this, right-click on a recipient link and select the Configure, Work Management option.

3 Activate the process and execute it at least once (using the Business Process Launcher to start it). Leave different time gaps before completing each activity.

4 Once complete, go onto your IBM i WFi server and run the Performance Extract option (run STRIPGAM, select option 10, then option 5, then option 2). Enter the WFi environment and you should see the following screen…




5 This option will extract any activity data that is marked to store performance statistics from the live process data file (WFP52) into the performance extract file (WFP63). Enter the suitable data and press F10 to start the extract (the time taken to perform the extract will vary depending on the number of activities marked and the size of WFP52).

You can apply the performance extract over archived data to avoid impacting the performance of the live system.

You can save any previous performance data into a backup file.

6 Once complete, the data in WFP63 can be analyzed. The DTCR63 and TMCR63 fields denote the creation data and time for the activity. The DTS263 and TMS263 denote the time the activity was completed. Subtracting the two gives the completion time in seconds.

7 In the example below we have taken the data for a single execution of the process from WFP63 into Microsoft Excel, applied date/time formatting and calculated the time taken for each activity along with the average time.

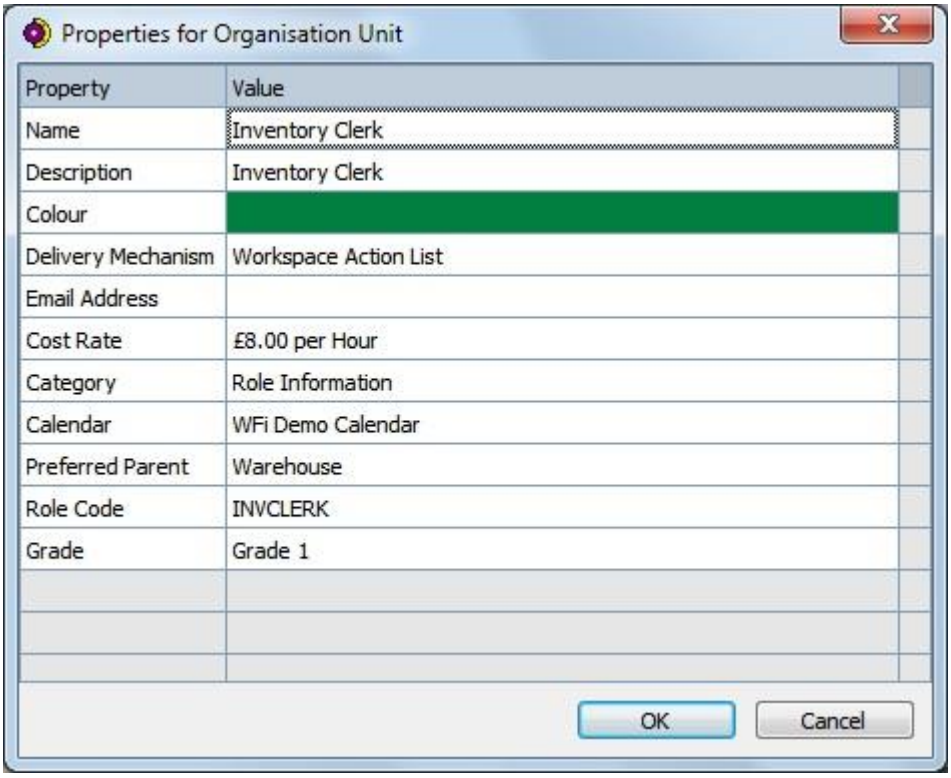
| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | **STXT63** | **MAIL63** | **DTCR63** | **TMCR63** | **DTS263** | **TMS263** | **Time Taken** |
| 2 | Launcher | Order Entry Clerk | 15/04/2005 | 12:22:46 | 15/04/2005 | 12:22:46 | 00:00:00 |
| 3 | Activity 1 | process.connect Test Role | 15/04/2005 | 12:22:46 | 15/04/2005 | 12:23:59 | 00:01:13 |
| 4 | Activity 2 | Sales Admin | 15/04/2005 | 12:24:01 | 15/04/2005 | 12:24:15 | 00:00:14 |
| 5 | Activity 3 | Inventory Clerk | 15/04/2005 | 12:24:16 | 15/04/2005 | 12:24:27 | 00:00:11 |
| 6 | | | | | | | |
| 7 | | | | | | | **Average Completion Time:** |
| 8 | | | | | | | 00:00:33 |

**Caution:** The date fields are in WFi Engine date format. This is seven characters long. The first character is known as the “century byte” followed by the year, month and day (e.g. CYYMMDD). If the century byte is 0 then the date is pre-millennium and if it is one, then it is post millennium. E.g. 1050415 is 15th March 2005.

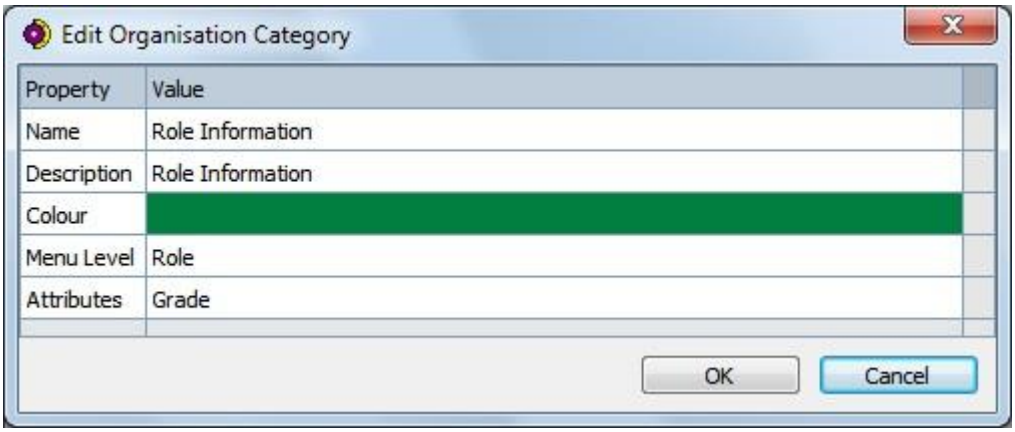
## Business Performance Analysis - Example 2

The process above produces live data, but we don’t have anything to compare it against. By adding Organization information and metrics to the process we can use the Planned Schedule facility within WFi Modeler to compare the live data with the desired data, highlighting any areas where activities took longer than expected to complete.

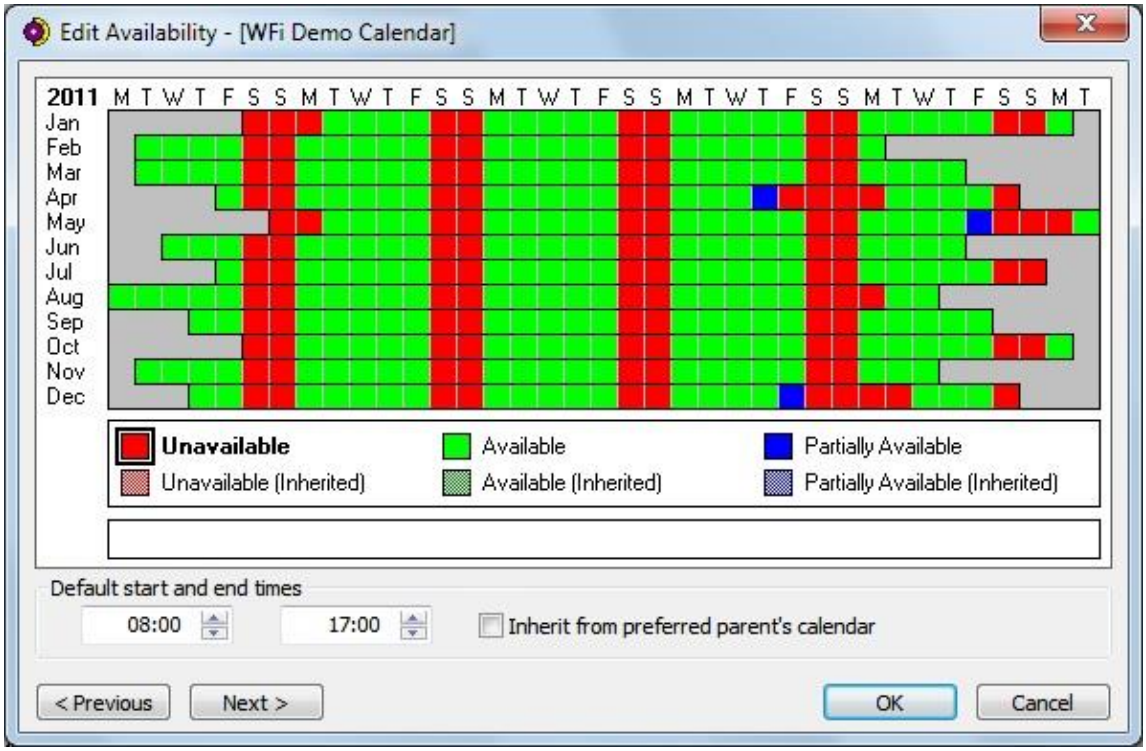
1 Create Organization Units for each of the roles used within the model. For each one set the properties like the ones shown below…



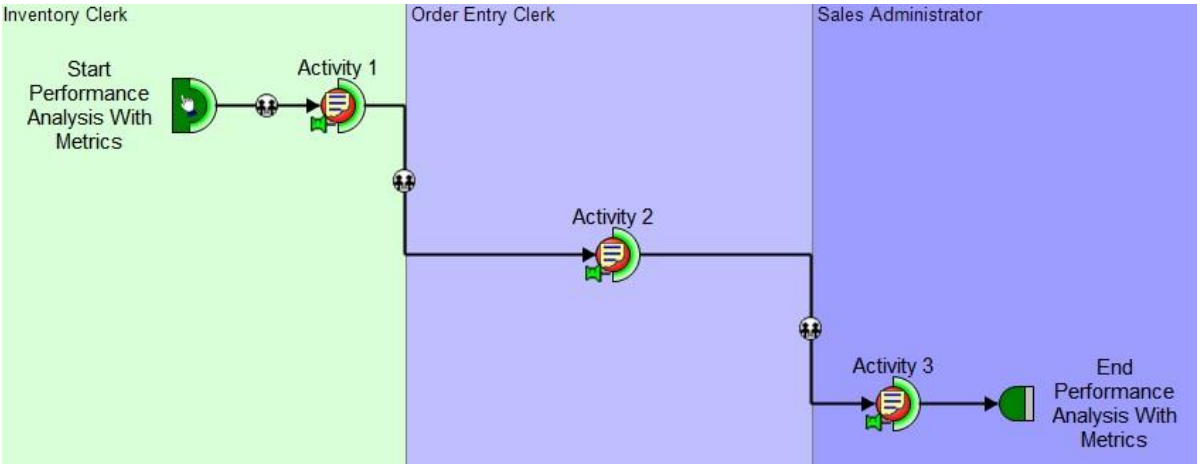

The Organization Category *Role Information* has the following properties…



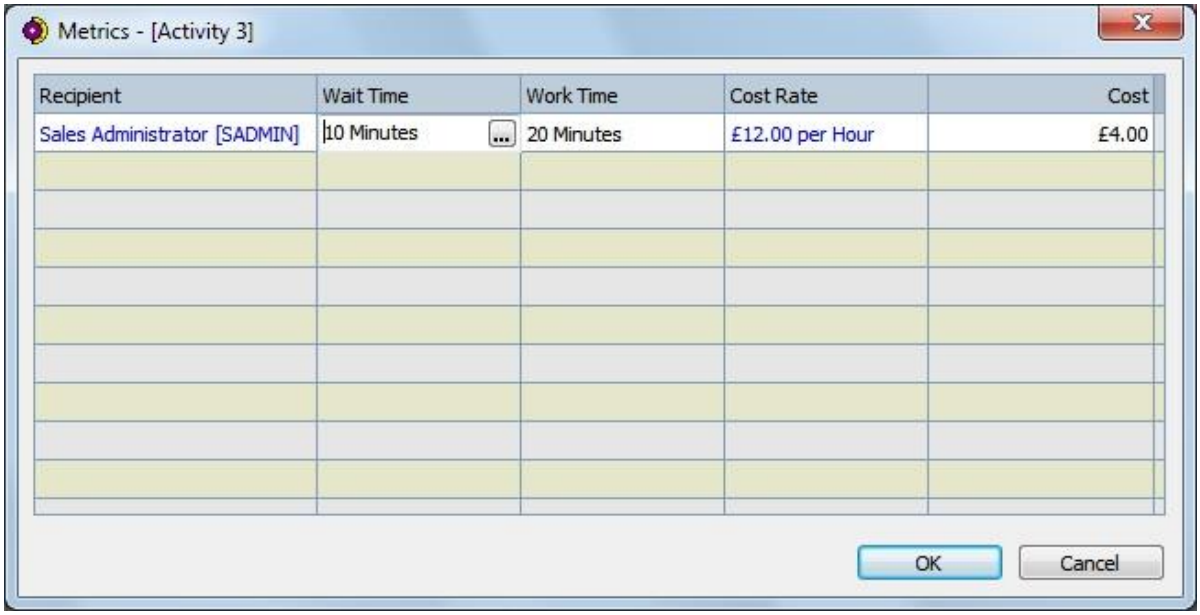

The Calendar *WFi Demo Calendar* has the following properties…

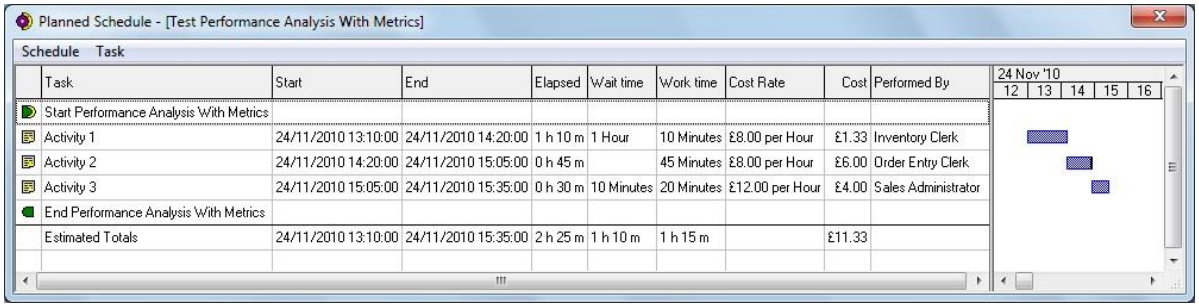

2 Drag the Organization Units onto the canvas and assign the activities to the appropriate Swimlanes. The process model should look like this…




3 For each recipient link, enter appropriate Metric information. E.g.




4 Once complete you should be able to go into the Planned Schedule option to view the business model metrics. E.g.




| Task | Start | End | Elapsed | Wait time | Work time | Cost Rate | Cost | Performed By |
|---|---|---|---|---|---|---|---|---|
| Start Performance Analysis With Metrics | | | | | | | | |
| Activity 1 | 24/11/2010 13:10:00 | 24/11/2010 14:20:00 | 1 h 10 m | 1 Hour | 10 Minutes | £8.00 per Hour | £1.33 | Inventory Clerk |
| Activity 2 | 24/11/2010 14:20:00 | 24/11/2010 15:05:00 | 0 h 45 m | | 45 Minutes | £8.00 per Hour | £6.00 | Order Entry Clerk |
| Activity 3 | 24/11/2010 15:05:00 | 24/11/2010 15:35:00 | 0 h 30 m | 10 Minutes | 20 Minutes | £12.00 per Hour | £4.00 | Sales Administrator |
| End Performance Analysis With Metrics | | | | | | | | |
| Estimated Totals | 24/11/2010 13:10:00 | 24/11/2010 15:35:00 | 2 h 25 m | 1 h 10 m | 1 h 15 m | | £11.33 | |

**5** The data from the Planned Schedule can be exported (directly into Microsoft Excel) and compared with the live data. E.g.

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | **STXT63** | **MAIL63** | **DTCR63** | **TMCR63** | **DTS263** | **TMS263** | **Time Taken** |
| 2 | Launcher | Order Entry Clerk | 15/04/2005 | 12:22:46 | 15/04/2005 | 12:22:46 | 00:00:00 |
| 3 | Activity 1 | process.connect Test Role | 15/04/2005 | 12:22:46 | 15/04/2005 | 12:23:59 | 00:01:13 |
| 4 | Activity 2 | Sales Admin | 15/04/2005 | 12:24:01 | 15/04/2005 | 12:24:15 | 00:00:14 |
| 5 | Activity 3 | Inventory Clerk | 15/04/2005 | 12:24:16 | 15/04/2005 | 12:24:27 | 00:00:11 |
| 6 | | | | | | | |
| 7 | | | | | | | **Total Completion Time:** |
| 8 | | | | | | | 00:01:38 |
| 9 | | | | | | | |
| 10 | **Task** | **Performed By** | **Start** | **End** | **Elapsed** | | **Work time** |
| 11 | Activity 1 | process.connect Test Role | 15/04/2005 12:22:00 | 15/04/2005 12:27:00 | 5 Minutes | | 5 Minutes |
| 12 | Activity 2 | Sales Admin | 15/04/2005 12:27:00 | 15/04/2005 12:42:00 | 15 Minutes | | 15 Minutes |
| 13 | Activity 3 | Inventory Clerk | 15/04/2005 12:42:00 | 15/04/2005 12:52:00 | 10 Minutes | | 10 Minutes |
| 14 | | | | | | | |
| 15 | **Estimated Totals:** | | | | **30 Minutes** | | **30 Minutes** |
| 16 | | | | | | | |

As you can see the live process was completed much faster than the model suggested. Time to re-calculate those estimated times!

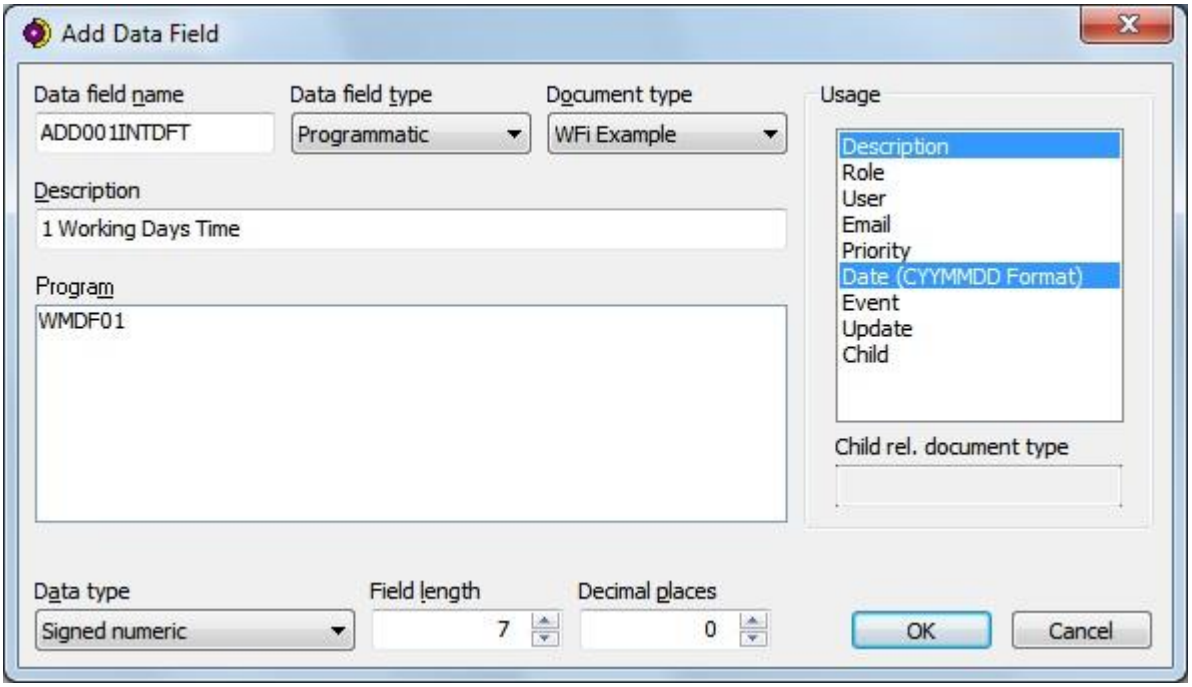
# Date Manipulation Programs

Programs WMDF01 and WMDF02 (shipped within the WFi libraries) are intended to allow easy manipulation of dates by WFi. WMDF01 can be used to manipulate the current date and WMDF02 can be used to manipulate a date retrieved from an IBM i database.

## WMDF01 - Date manipulation (Current Date)

Program WFDF01 is used to add/subtract several days to/from the current date and pass it back in an appropriate format (e.g. internal, external, day of the week…).

The information governing how this program works is passed into the program via the name of the data field defined in WFi Modeler (shown below as ADD001INTDFT); E.g.



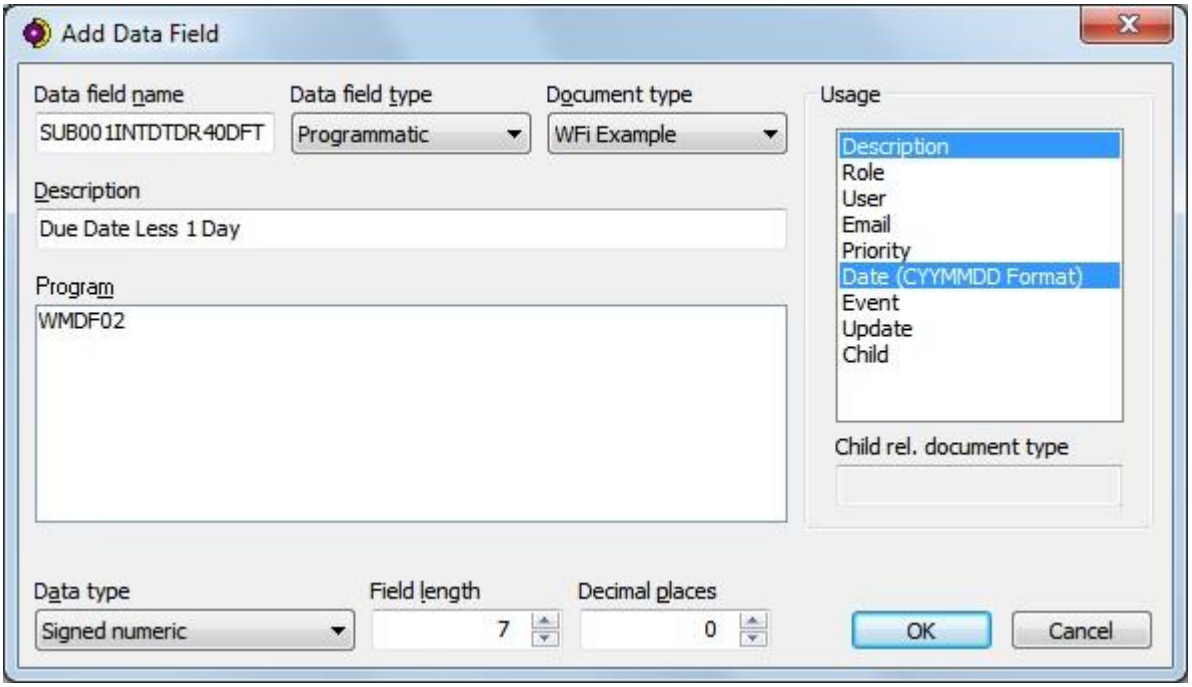

The Data Field name is structured as follows:

- Characters 1 – 3 identify whether days are to be added or subtracted to the current date. The possible values for this are ‘ADD’ or ‘SUB’.
- Characters 4 – 6 identify the number of days to be added or subtracted.
- Characters 7 – 9 identify the format in which the date is to be passed back. The following formats are supported:
- DOWDay of the week (Monday, Tuesday…)
- FMDDate in format DD/MM/YY
- FMMDate in format MM/DD/YY
- FMYDate in format YY/MM/DD
- TXTDate in format Month DD, YYYY
- TXIDate in international format
- INTDate in internal format CYYMMDD
- Characters 10 – 20 can contain an optional working days calendar to be used in the calculation (see Calendars in the Event Tracking/Process Scheduling section). The calendar must be activated to the IBM i server (it is not automatically activated with the process).

# WMDF02 - Date manipulation (Data field Date)

Program WFDF02 is used to add/subtract several days to/from a date determined by evaluating another Data Field and pass it back in an appropriate format (e.g. internal, external, day of the week…).

The information governing how this program works is passed into the program via the name of the data field defined in WFi Modeler (shown below as SUB001INTDTDR40DFT).




The Data Field name is structured as follows:

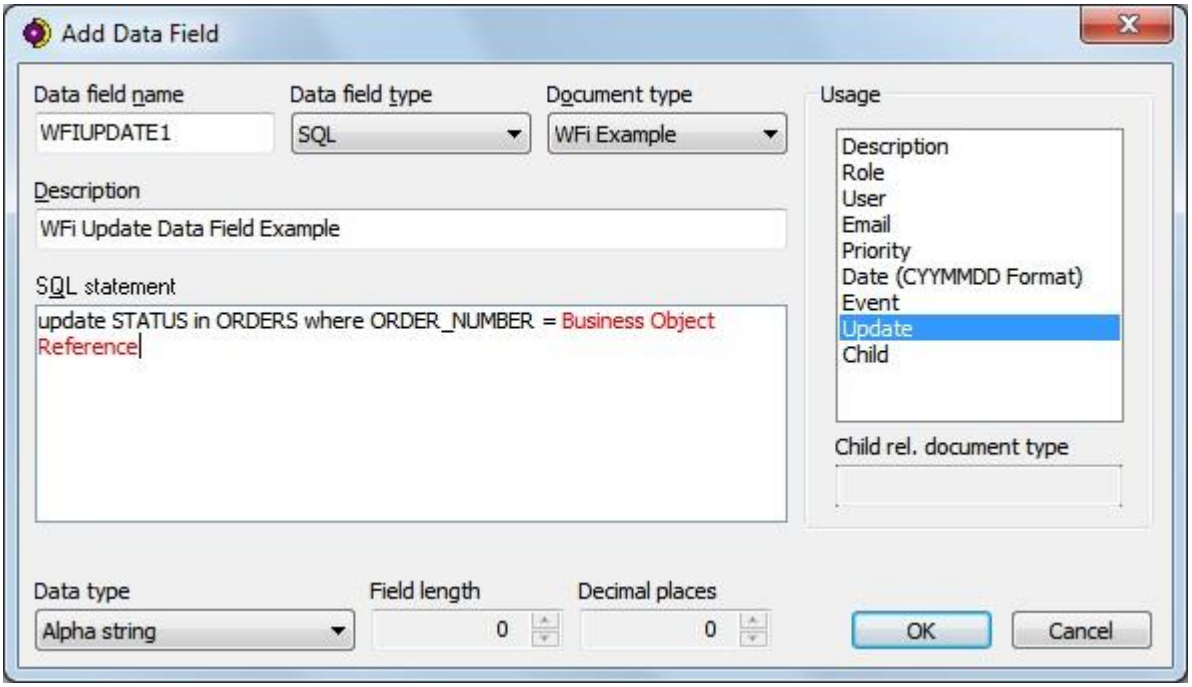
- Characters 1 – 3 identify whether days are to be added or subtracted to the current date. The possible values for this are ‘ADD’ or ‘SUB’.
- Characters 4 – 6 identify the number of days to be added or subtracted.
- Characters 7 – 9 identify the format in which the date is to be passed back. The following formats are supported:
- DOWDay of the week (Monday, Tuesday…)
- FMDDate in format DD/MM/YY
- FMMDate in format MM/DD/YY
- FMYDate in format YY/MM/DD
- TXTDate in format Month DD, YYYY
- TXIDate in international format
- INTDate in internal format CYYMMDD

- Characters 10 – 15 will contain the name of another data field. This should be evaluated to retrieve the date on which the action is to take place.
- Characters 16 – 20 can contain an optional working days calendar to be used in the calculation (see Calendars in the Event Tracking/Process Scheduling section). The calendar must be activated to the IBM i server (it is not automatically activated with the process).

# Update Data Fields

On exit nodes from an Activity, you can define updates to be carried out to IBM System i application files. For example, a Manual Activity may have two Exit Nodes, Approve and Reject. On selection of the Reject path you may wish to update a field within the appropriate file.

To define an Update in a process, you must first create one or more Update Data Fields. This is done by setting the Data Field Usage type to Update.




To assign an Update to an Activity, right-click on the Link that exits the Activity to another and select Define Update from the Context Menu. The Update Data Field dialog is displayed.

# The Update Data Field dialog

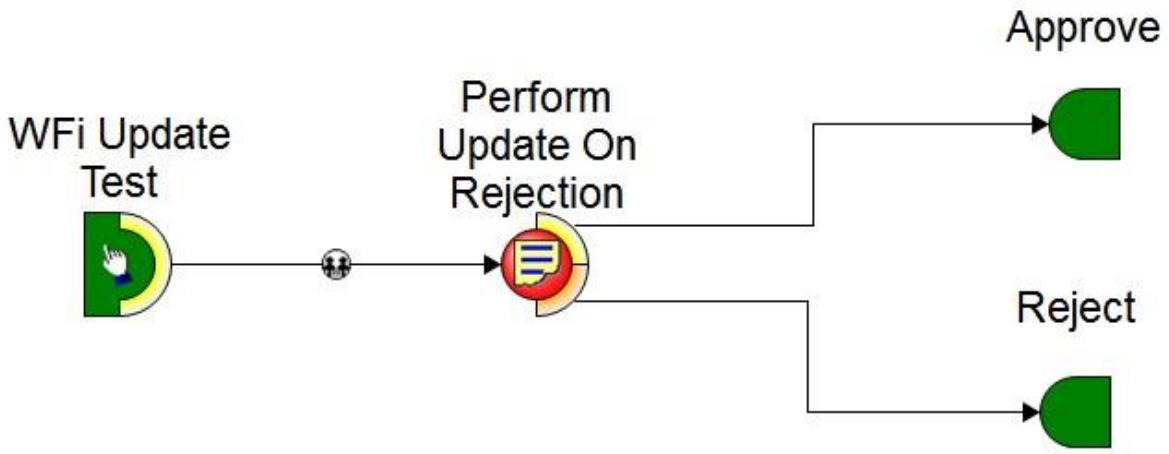

## Fields

| Field | Description |
|---|---|
| Update Data Field | Use the prompt button to select an Update, Group Update or Paired Update Data Field. |

## Functions

| Action | Description |
|---|---|
| Clear | Delete the current Update Data Field. |
| OK | Close the dialog and apply the changes. |
| Cancel | Discard the changes. |

When an Update is applied to an Activities link, the segment of the halo with the link is colored orange.

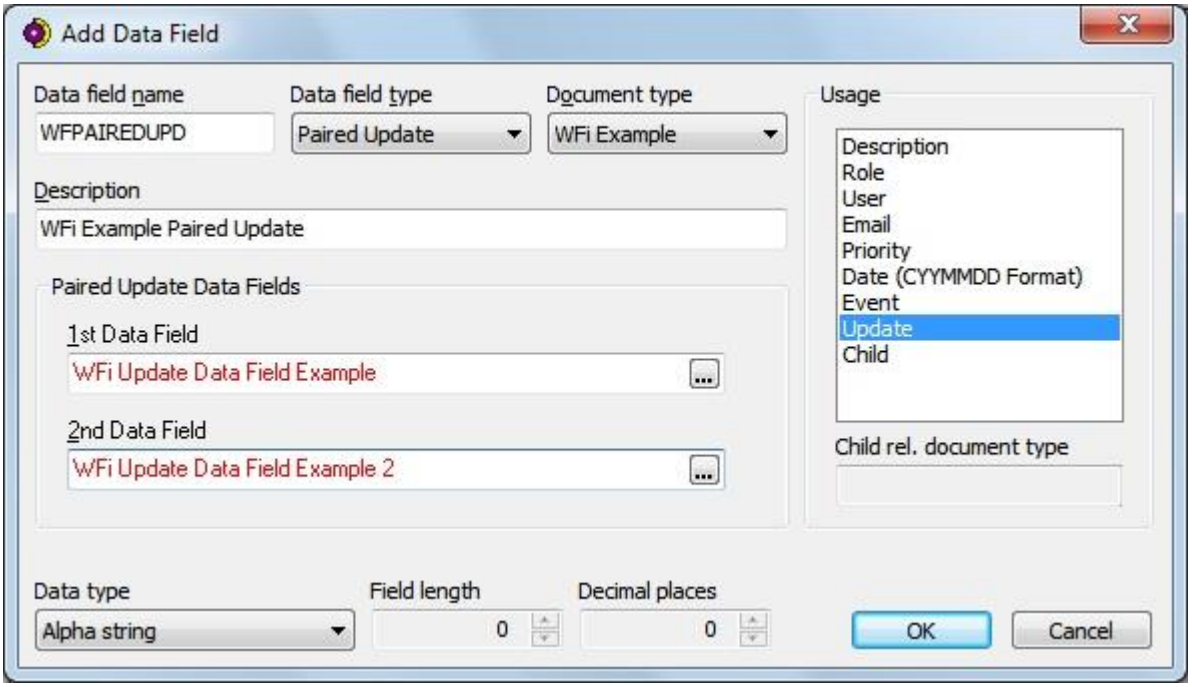



At execution time, the Update Data Field is performed before the next Activity is generated/processed.

## Paired/Group Updates

If you wish to perform multiple updates, you can use the Paired Update or Group Update data field types.

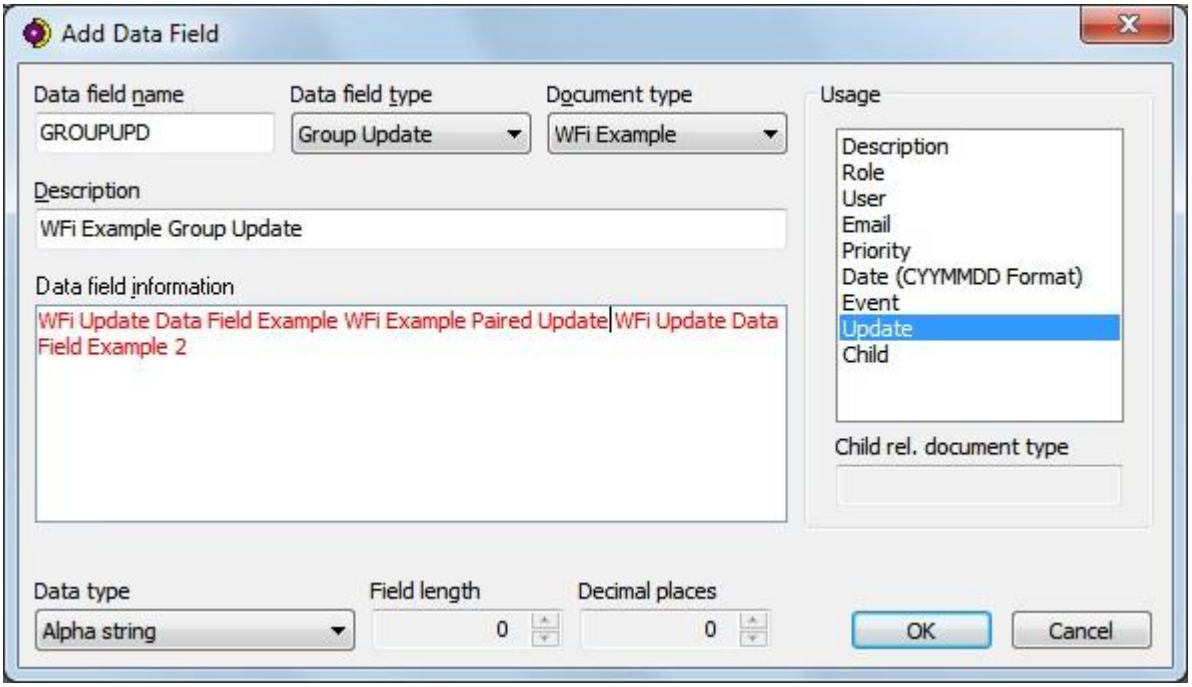
For a Paired Update, create two individual updates as above, then create a new data field and set the Data field type to Paired Update.




Use the prompt buttons in the 1st Data Field and 2nd Data Field fields to select the individual Update Data Fields. The Usage must be set to Update.

Apply the Paired Update to an Activity link by using the Define Update option. On execution, both Update Data Fields will be executed when the link is processed.

For a Group Update, create two individual updates as above, then create a new data field and set the Data field type to Paired Update.




To add an existing Update Data field or Paired Update data field, right-click in the Data Field Information dialog and select the Insert Update Data Field option. You can add as many Update Data Fields as required. To delete an Update data Field from the group, select it with the left mouse button and press the Delete key.

Apply the Group Update to an Activity link by using the Define Update option. On execution, all Update Data Fields will be executed when the link is processed.

# Chapter 5 The WFi Components

## The Document Handler

The Document Handler can be run on a Windows server or as an AS/400 batch job. There are three associated MS-DOS batch files supplied for use on the Windows server. These are….

| Program | Description |
|---|---|
| `DocumentHandler.bat` | Launch the Document Handler process. Processes messages until a stop request is detected (invalid messages will remain on the queue). |
| `DocumentHandler STOP.bat` | Post a stop message to the Document Handler IBM WebSphere MQ Series queue |
| `DocumentHandler PURGE.bat` | Posts a stop message to the Document Handler input queue then process any pending messages (all messages deleted after processing). |

The Document Handler properties file supports the following entries….

| Property | Description |
|---|---|
| `traceLevel` | Set to any non-zero value to write trace to the output console/stream (spool file on IBM i). The trace values supported are… |

| traceLevel | Value |
|---|---|
| 0 | No trace |
| 1 | Errors |
| 24 | Basic |
| 50 | Detail |
| 75 | Technical |
| 100 | Internal |

| Property | Description |
|---|---|
| traceLog4J | Set to any non-zero value to use the Apache log4j logging system for trace output.<br><br>**Caution:** See the WFi Administration Guide for more information on this property. |
| mqHostName | The DNS name of the host machine, which is running the IBM WebSphere MQ Series software. An IP address can also be specified. Can be blank if using local MQ installation. |
| mqQueueManagerName | The name of the IBM WebSphere MQ Series queue manager. |
| mqChannelName | The name of the IBM WebSphere MQ Series channel to read from. Can be blank if using local MQ installation. |
| mqQueueName | The name of the IBM WebSphere MQ Series queue to read from |
| mqDeadLetterQueue | The name of the IBM WebSphere MQ Series queue where messages that failed to be processed correctly are written. |
| characterSet | The code page value to use to translate the characters/ |
| pollTimeMillis | The delay time, in milliseconds, between each check for new IBM WebSphere MQ Series messages. |
| alwaysDelete | Set to non-zero value to always remove messages from the IBM WebSphere MQ Series queue. |
| AS400Name | The name of the AS/400 that is running the WFi Engine software. |
| User | A valid username on the above AS/400. Used for validating AS/400 field types. |
| Password | A valid password for the above user (encrypted). See section below for more information about encrypting passwords. |
| Environment | The name of the System Manager environment to use. |
| styleSheetFolder | The start path to use when using relative path references within XSL. |

| Property | Description |
|---|---|
| defaultStyleSheet | The stylesheet to use to process XML input data. At runtime the content of this stylesheet is always cached for performance re-use. |
| readUTF | Allow data to be read from IBM WebSphere MQ Series using UTF-8 encoding functions. Set to 'no' for to use readString MQ API function or set to 'yes' to use readUTF MQ API function (see below for more details on encoding). |
| poolName | The name of the DBConnectionManager pool used to connect to the AS/400 (defaults to SQL). The pool connection is defined in the DBConnectionManager.properties file shipped with the WFi Components. |
| portNumber | The port number used by the IBM WebSphere MQ Series Queue Manager. |
| oldDocumentFormat | Set to 1 to use the old XML document format that is passed into each XSL stylesheet processed by the document handler (defaults to 0). |
| cacheStylesheets | Specify whether Work Management formatted XSL messages received by the Document Handler are cached (see below). Set equal to yes to turn caching on (default is off). |
| MQErrorRetry | The number of times that the Document Handler will try to re-connect after a IBM WebSphere MQ Series connection failure before shutting down. Default is 60. |
| MQErrorWait | The amount of time to wait, in seconds, before retrying to connect to the IBM WebSphere MQ Series server. Default is 60 (so combined with the above it tries for 1 hour to reconnect before terminating). |
| MQErrorContact | The email address of the person to send an alert message to when the Document Handler can no longer connect to the IBM WebSphere MQ Series server or queue (after **MQErrorRetry** times **MQErrorWait** seconds). |
| MQErrorContactServer | The name of a SMTP email server to use to send the alert/stop messages. |
| MQErrorContactServerPort | The port number of the SMTP email server used to send the alert/stop messages (default is 25). |

| Property | Description |
|---|---|
| `MQErrorContactServerUser` | A valid user account to connect to the email server used to send the alert/stop messages when SMTP authentication is required. The user account may be an email address. |
| `MQErrorContactServerPass` | An encrypted password for the above account (see Email Reader Mailbox Password section for more details about encryption of password properties). |
| `MQErrorContactServerSSL` | The SSL/TLS status of the SMTP mail server used to send the alert/stop notification messages.<br>Set to 1 to enable an SSL/TLS communication with the SMTP mail server that allows SSL/TLS for both the initial connection and via the `STARTTLS` command.<br>Set to 2 to enable an SSL/TLS communication with the SMTP mail server that only allows SSL/TLS via the `STARTTLS` command.<br>Default is 0 (disabled). |
| `MQErrorSendersEmailAddress` | The mail account on the SMTP email server to use to send the alert message. |
| `classpath` | A semi-colon separated list of files and directories to add to the default Java JVM classpath. |
| `MQRemoveStops` | Set this value to **yes** to instruct the Document Handler to read through the IBM WebSphere MQ Series Queue and remove and stop messages within the queue before it begins transaction processing. |
| `MQStopMsgEmail` | Set this value to **yes** to instruct the Document Handler to send an Email to the **MQErrorContact** when a stop message is received. The **MQErrorContactServer** and **MQErrorSendersEmailAddress** properties must also be set for this feature to work. |
| `secure` | Set this value to **true** to use a more secure password encryption algorithm than the one described in the Email Reader Mailbox Password section. See the Secure Password Encryption appendix in the WFi Installation Guide for more details. |

The Document Handler reads the message from the IBM WebSphere MQ Series Queue, decides which format it is (WFi message or raw XML/XSL) and passes it into the XSL Transformation Engine for processing. If the transformation succeeds the output will be written back to the business process (only for messages that were sent by WFi). If it fails then the message will be written to the queue pointed to by the `mqDeadLetterQueue` setting, for review by the system administrator and later reprocessing, unless the purge or `alwaysDelete=1` options have been set. The XML output can be viewed within Workspace via the Action Tracker.

Multiple instances of the Document Handler may be run over a single IBM WebSphere MQ Series input queue. When the Document Handler reads a message, it locks that message to itself so that no other reader can access it for the duration of its processing. Once processing is completed the message is unlocked and deleted (if the message failed to process it will be removed to the “dead letter” queue described above). If a server running the Document Handler should crash or become disconnected, then any locked message will instantly become unlocked and can be picked up by another instance of the Document Handler. Multiple instances of the Document Handler will also improve performance in high usage installations as well as providing a fail-safe mechanism. Any variable stored to the Document Handler session cannot be shared between multiple instances of the Document Handler.

The Document Handler supports both priority (*PTY) and “first in first out” (*FIFO) IBM WebSphere MQ Series queue types. When priority queues are used then the Document Handler will read the highest priority message on the queue first. With FIFO queues the messages are read in the order that they were posted to the IBM WebSphere MQ Series queue.

The XML document contained within the IBM WebSphere MQ Series message can contain any W3C valid XML / XSL syntax. Any W3C compliant XSL extension functions (including the ones supplied with WFi) can be called from within the XML document. This gives the business process infinite scope to include cutting edge technologies such as SMS, Web Services and SOAP. It can also help integrate businesses with third party products and other businesses.

**Caution:** The pool connection URL string, in DBConnectionManager.properties, which is used by the Document Handler, MUST have its naming property set to “system”. E.g.

```
SERVER.url=jdbc:as400://SERVER;naming=system;errors=full;date
format=iso;translate binary=true
```

## Values available from inside the Document Handler

The Document Handler makes a range of useful values available to the XSL transformation engine whilst it is processing each XML document. These values relate specifically to the manual/XML activity being processed at the time. The values available are…

| XML Element | Description |
|---|---|
| database_pool | The database connection pool name being used by the Document Handler. |
| company_code | The System Manager Company code. |
| business_document_source | Where the document came from. |
| business_process | The name of the business process this activity is part of. |
| business_object | The document type used by the activity. |
| business_object_reference | The process reference value, i.e. order number, pick note etc. |
| multi_thread_identifier | The unique thread ID for the process. |
| exploded_business_proc | The top-level business process for this activity. |
| business_process_id | The ID number of the business process. |
| activity_number | Activity number of the activity within the process. |
| activity_code | The activity code, i.e. MANACT, XMLACT. |
| role_code | Role code or user of the manual activity. |
| execution_mode | The execution mode of the activity (as a code). |
| execution_mode_name | The execution mode of the activity (as English text). |
| element_id | The element ID number of the activity. |
| Priority | The priority of the activity (as a code). |
| priority_name | The priority of the activity (as English text). |
| date_activity_created | Date stamp for activity. |
| time_activity_created | Time stamp for activity. |
| message_type | Message type; is this a one-way or two-way message. |
| recipient_type_name | The recipient type (as English text). |
| recipient_type | The recipient type (as a code). |
| recipient_name | The email address or queue name if required. |
| number_of_recipients | The number of recipients this message was sent to. |

Here is an example XML document that will be passed into your stylesheet by the Document Handler…

```
<process_activity_input_data>
<database_pool>sql</database_pool>
<environment_code>APT</environment_code>
<company_code>Z1</company_code>
<business_document_source>WMENGINE</business_document_source>
<business_process>XML6 0E</business_process>
<business_object>SALESORDER</business_object>
<business_object_reference>XML_01</business_object_reference>
<multi_thread_identifier>49</multi_thread_identifier>
<exploded_business_proc>XML6 0E</exploded_business_proc>
<business_process_id>1</business_process_id>
<activity_number>2</activity_number>
<activity_code>XML</activity_code>
<role_code>OECLERK</role_code>
<execution_mode_name execution_mode=”10”>User</execution_mode_name>
<element_id>11</element_id>
<priority_name priority=”50”>Medium</priority_name>
<date_activity_created>1010726</date_activity_created>
<time_activity_created>094152</time_activity_created>
<message_type>M</message_type>
<recipient_type_name recipient_type=”R”>Role</recipient_type_name>
<recipient_name>Order Clerk"</recipient_name>
<number_of_recipients>0</number_of_recipients>
</process_activity_input_data>
```

# Extending the Document Handler Classpath

By default, any classes required during an XSL transformation are located by using the class path that is passed to the Java JVM during start-up. When custom classes are required, especially those shipped insider JAR format archives, the classpath can get very difficult to define and maintain (especially on IBM i where a program re-compilation is required). To simplify this situation, the Document Handler allows you to specify an additional class path within its properties file. This class path can contain files and directories (separated by a semi-colon). If the class path contains a file (such as a .JAR or .class file) it will be added directly to the search path of the Java JVM. If the class

path contains a directory, then ANY classes or JAR files found in the directory will be added to the search path of the Java JVM.

This facility is available on both Microsoft Windows and IBM i installations.

**Caution:** We recommend you create a single JAR file/class repository directory and add this to the `classpath` variable within your Document Handler properties file to centralize the location of any 3rd party JAR files required within your XSL transformations.

# The Email Writer

The Email Writer can be run on a Windows server or as an AS/400 batch job. There are three-associated MS-DOS batch files supplied for use on the Windows server. These are….

| Program | Description |
|---|---|
| `EmailWriter.bat` | Launch the Email Writer process. Processes messages until a stop request is detected (invalid messages will remain on the queue). |
| `EmailWriter STOP.bat` | Post a stop message to the Email Writer IBM WebSphere MQ Series queue |
| `EmailWriter PURGE.bat` | Posts a stop message to the Email Writer input queue then process any pending messages (all messages deleted after processing). |

There are two associated stylesheets…

| Stylesheet | Description |
|---|---|
| `2Way Email Stylesheet HTML.xsl` | Used by the Email Writer to convert the XML E-mail input into HTML |
| `2Way Email Stylesheet TEXT.xsl` | Used by the Email Writer to convert the XML E-mail input into plain text |
| `2Way Email Stylesheet HTML Workspace.xsl` | Used by the Email Writer to convert the XML E-mail input into HTML page that contains a link to the Manual Activity via Workspace. |

The Email Writer properties file supports the following entries….

<table>
<tr><th>Property</th><th>Description</th></tr>
<tr><td>traceLevel</td><td>Set to any non-zero value to write trace to the output console/stream (spool file on IBM i). The trace values supported are…<br><br><table><tr><th>traceLevel</th><th>Value</th></tr><tr><td>0</td><td>No trace</td></tr><tr><td>1</td><td>Errors</td></tr><tr><td>24</td><td>Basic</td></tr><tr><td>50</td><td>Detail</td></tr><tr><td>75</td><td>Technical</td></tr><tr><td>100</td><td>Internal</td></tr></table></td></tr>
<tr><td>traceLog4J</td><td>Set to any non-zero value to use the Apache log4j logging system for trace output.<br><br>Caution: See the WFi Administration Guide for more information on this property.</td></tr>
<tr><td>mqHostName</td><td>The DNS name of the host machine which is running the IBM WebSphere MQ Series software.</td></tr>
<tr><td>mqQueueManagerName</td><td>The name of the IBM WebSphere MQ Series queue manager.</td></tr>
<tr><td>mqChannelName</td><td>The name of the IBM WebSphere MQ Series channel to read from.</td></tr>
<tr><td>mqQueueName</td><td>The name of the IBM WebSphere MQ Series queue to read from.</td></tr>
<tr><td>mqDeadLetterQueue</td><td>The name of the IBM WebSphere MQ Series queue where messages that failed to be processed correctly are written.</td></tr>
<tr><td>characterSet</td><td>The code page value to use to translate the characters.</td></tr>
<tr><td>pollTimeMillis</td><td>The delay time, in milliseconds, between each check for new IBM WebSphere MQ Series messages.</td></tr>
<tr><td>outgoingMailServer</td><td>The mail server to post mail to.</td></tr>
</table>

| Property | Description |
|---|---|
| outgoingMailServerPort | The port of the server that is used by the Email Writer to dispatch e-mail. |
| emailAddress | The outgoing e-mail address to post mail to. |
| emailName | Name to attach to outgoing emails.<br><br>**Caution:** If you wish to include non-ASCII characters in this name, you must encode them using the Java \uNNNN escape character format. |
| HTMLStylesheet | The name and path of the file that converts the XML mail message into HTML format. |
| PlainTextStylesheet | The name and path of the file that converts the XML mail message into plain text format. |
| portNumber | The port number used by the IBM WebSphere MQ Series Queue Manager. |
| protocol | The Java mail protocol name. Default is smtp. |
| useSSL | Set to 1 to enable an SSL/TLS communication with the SMTP mail server that allows SSL/TLS for both the initial connection and via the STARTTLS command.<br><br>Set to 2 to enable an SSL/TLS communication with the SMTP mail server that only allows SSL/TLS via the STARTTLS command.<br><br>Default is 0 (disabled). |
| userName | A valid user account to connect to the mail server with when SMTP authentication is required. The username may be an email address. |
| password | An encrypted password for the above account (see Email Reader Mailbox Password section for more details about encryption of password properties). |
| MQErrorRetry | The number of times that the Email Writer will try to re-connect after a IBM WebSphere MQ Series connection failure before shutting down. Default is 60. |

| Property | Description |
|---|---|
| MQErrorWait | The amount of time to wait, in seconds, before retrying to connect to the IBM WebSphere MQ Series server. Default is 60 (so combined with the above it tries for 1 hour to reconnect before terminating). |
| MQErrorContact | The email address of the person to send an alert message to when the Email Writer can no longer connect to the IBM WebSphere MQ Series server or queue (after **MQErrorRetry** times **MQErrorWait** seconds). |
| MQErrorContactServer | The name of a SMTP email server to use to send the alert/stop messages. |
| MQErrorContactServerPort | The port number of the SMTP email server used to send the alert/stop messages (default is 25). |
| MQErrorContactServerUser | A valid user account to connect to the email server used to send the alert/stop messages when SMTP authentication is required. The user account may be an email address. |
| MQErrorContactServerPass | An encrypted password for the above account (see Email Reader Mailbox Password section for more details about encryption of password properties). |
| MQErrorContactServerSSL | The SSL/TLS status of the SMTP mail server used to send the alert/stop notification messages.<br>Set to 1 to enable an SSL/TLS communication with the SMTP mail server that allows SSL/TLS for both the initial connection and via the STARTTLS command.<br>Set to 2 to enable an SSL/TLS communication with the SMTP mail server that only allows SSL/TLS via the STARTTLS command.<br>Default is 0 (disabled). |
| MQErrorSendersEmailAddress | The mail account on the SMTP email server to use to send the alert/stop messages. |
| workSpaceServer | The URL of the Workspace server. |
| workSpaceProfile | The ID of the Workspace profile to select (can be overridden on login screen). |

| Property | Description |
|---|---|
| `outgoingMailFiles` | The base file path for any Manual Activity attachments marked as being relative. The relative path will be appended to this value to locate the attachment. |
| `poolName` | The name of the DBConnectionManager pool used to connect to the AS/400 (defaults to SQL). The pool connection is defined in the DBConnectionManager.properties file shipped with the WFi Components. |
| `Environment` | The name of the System Manager environment to use. |
| `classpath` | A semi-colon separated list of files and directories to add to the default Java JVM classpath. |
| `MQRemoveStops` | Set this value to **yes** to instruct the Email Writer to read through the IBM WebSphere MQ Series Queue and remove and stop messages within the queue before it begins transaction processing. |
| `MQStopMsgEmail` | Set this value to **yes** to instruct the Email Writer to send an Email to the **MQErrorContact** when a stop message is received. The **MQErrorContactServer** and **MQErrorSendersEmailAddress** properties must also be set for this feature to work. |
| `secure` | Set this value to **true** to use a more secure password encryption algorithm than the one described in the Email Reader Mailbox Password section. See the Secure Password Encryption appendix in the WFi Installation Guide for more details. |

The Email Writer reads the message from the IBM WebSphere MQ Series Queue, decides which format it is (work management XML message or raw XML/XSL) and passes it into the XSL Transformation Engine for processing. If the transformation succeeds the output will be sent as e-mail to the defined user. If it fails then the message will be written to the queue pointed to by the `mqDeadLetterQueue` setting, for review by the system administrator and later reprocessing.

The Email Writer will check for two types of attachments. If the message contains a Manual Activity, and the activity has process designed attachments, the defined files will be attached to the outgoing email. If the message has had ad-hoc attachments associated with it then these will be read and attached in the same manner.

Multiple instances of the Email Writer may be run over a single IBM WebSphere MQ Series input queue. When the Email Writer reads a message, it locks that message to itself so that no other reader can access it for the duration of its processing. Once processing is completed the message is

unlocked and deleted (if the message failed to process it will be removed to the “dead letter” queue described above).

If a server running the Email Writer should crash or become disconnected, then any locked message will instantly become unlocked and can be picked up by another instance of the Email Writer for processing.

**Caution:** Multiple instances of the Email Writer will also improve performance in high usage installations as well as providing a fail-safe mechanism.

The Email Writer supports both priority (*PTY) and “first in first out” (*FIFO) MQ queue types. When priority queues are used then the Email Writer will read the highest priority message on the queue first. With FIFO queues the messages are read in the order that they were posted to the IBM WebSphere MQ Series queue.

Email messages within a process can be defined as 1-way (auto-complete) or 2-way.

A 1-way email will be sent to the required recipient(s) and then the WFi Engine will automatically proceed to the next element within the process.

For a 2-way email, the message will be sent to the required recipient(s) and the process will not continue until the Email Reader receives a correctly formatted reply.

## Manual Activities Sent As HTML

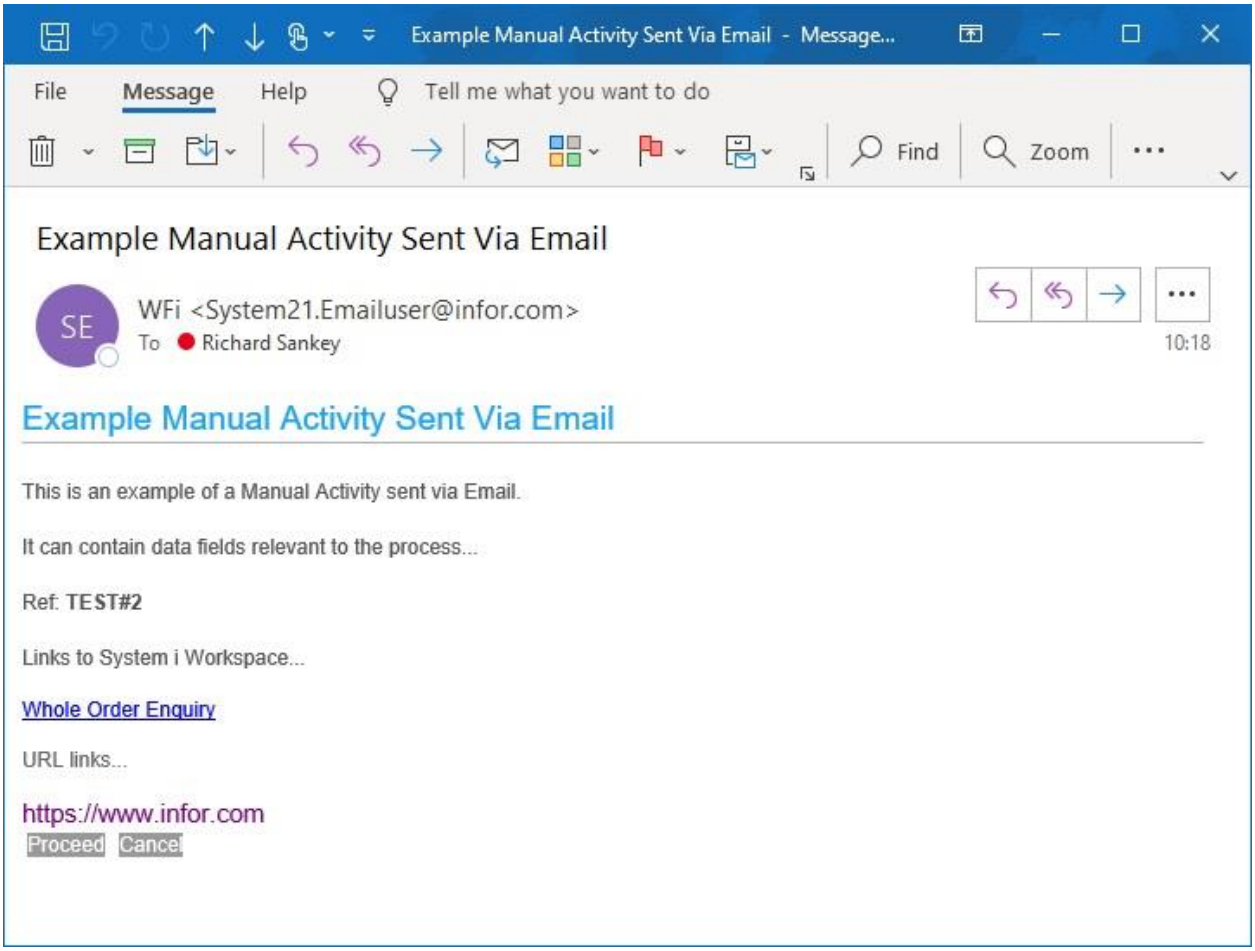
For HTML email messages, the recipient(s) will receive a message with formatted content. The format of the message is controlled by the stylesheet that is pointed to by the `HTMLStylesheet` setting in the Email Reader properties file. By default, this will use the `2Way Email Stylesheet HTML.xsl` that is shipped in the `stylesheets\Email` folder under the WFi Components installation directory.

Each exit route (node) from the Manual Activity will be encoded as a selectable reply to the Email Reader along with some unique process data and completion code.

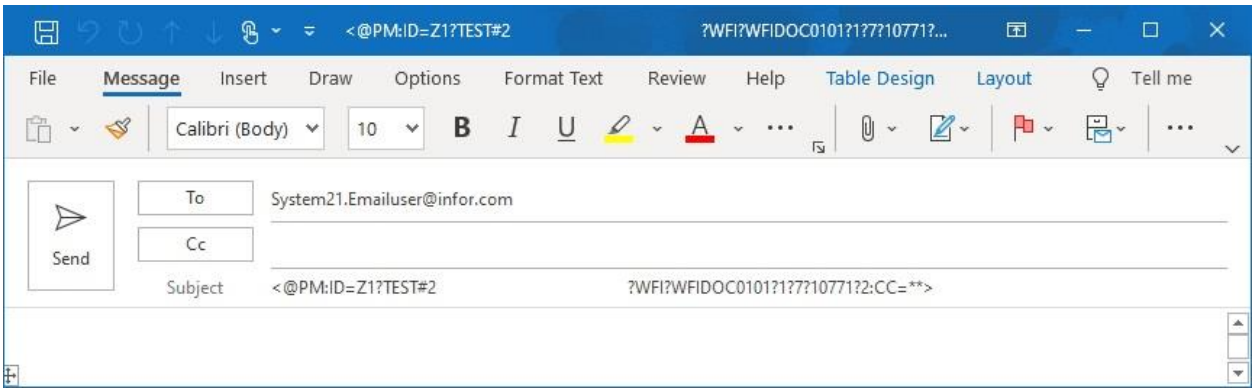
Any Manual Activity Edit Fields will be converted to their appropriate HTML Form control. When the user selects a completion route, the content of the edit fields will be converted to XML and embedded within the reply body.

The “from” mail address will be constructed using the `emailName` and `emailAddress` settings specified in the Email Writer properties file. This should map to the input folder that the Email Reader is configured to monitor.

Here is an example HTML Manual Activity mail message…




When the recipient selects one of the completion actions, a new mail message will be created. The subject line of the new message will contain the unique process information. For Manual Activities with no edit fields the body will be blank. E.g.



Once the recipient selects **Send** the message will be dispatched to the Email Reader input account for processing. If the body of the email contains edit fields, then their result content will be encoded within the body of the return email.

**Caution:** Alteration of the subject line or body data could cause the Email Reader to misinterpret the process data and cause the process to fail.

**Caution:** The message recipient can attach files to the reply that will be stored by the Email Reader.

**Caution:** If the Manual Activity message contains edit fields, then the Mail Client must support and allow script to be executed. In some Mail Clients, and for some Customers, this may be considered a security issue. To get around this a link into Workspace can be generated instead (see below).

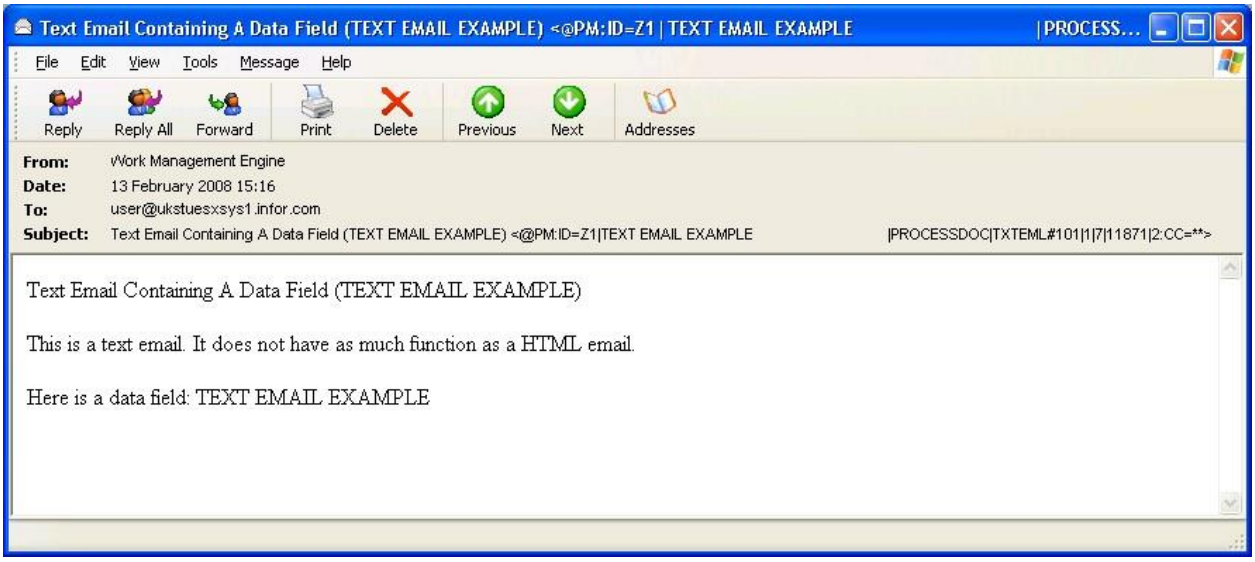
## Manual Activities Sent as Text

For Text email messages, the recipient(s) will receive a message with formatted content. The format of the message is controlled by the stylesheet that is pointed to by the `PlainTextStylesheet` setting in the Email Reader properties file. By default, this will use the `2Way Email Stylesheet TEXT.xsl`.

**Caution:** Manual Activities sent as text can only support a single completion route. Support for multiple routes would require the recipient to manually amend the subject line that could introduce data formatting problems that would stop the Email Reader correctly processing the reply.

It is recommended that users only use plain text emails for 2-way email when the recipient is unable to receive HTML formatted email messages.

On dispatch the subject line will contain the unique process data. Here is an example Text Manual Activity mail message…




The “from” mail address will be constructed using the `emailName` and `emailAddress` settings specified in the Email Writer properties file. This should map to the input folder that the Email Reader is configured to monitor.

To send the response to the Email Reader the recipient must select the Reply option within their email client and then send the reply mail without alteration.

## Workspace Links Sent As HTML

When sending HTML emails, the recipients may not be able to correctly render or reply to the mail, dependent on their Mail Client software. Some Mail Clients (such as Microsoft Outlook and Outlook Express) support the full HTML standard, whilst others, only support a subset of features. Even Mail Clients that support HTML may have security restrictions blocking the use of script (thus disabling the use of editable fields).

To avoid such problems, a stylesheet is provided that simply contains a link back to your Workspace server. On selecting this link, a Web Browser session will open, and the recipient will be presented with the sign-on page of Workspace. On entering a correct user and password their email message will be displayed, within the browser, to be completed as normal.

To produce emails containing Workspace links, change the stylesheet that is pointed to by the `HTMLStylesheet` setting in the Email Reader properties file to `2Way Email Stylesheet HTML Workspace.xsl` (which is also shipped in the `stylesheets\Email` folder under the WFi Components installation directory).

The Email Writer uses the `workSpaceServer` setting within the EmailWriter.properties file to determine the URL link to your Workspace server. It uses the `workSpaceProfile` value to determine the Workspace profile to logon with.

**Caution:** You may need to setup a restricted user profile for Workspace that only allows access to view Manual Activities (i.e. not configured to run any tasks/menu options). See your Workspace user guide for more information on configuring users.

**Caution:** The Workspace user needs to be authorized to the “Workflow Email Completion Authority” role (+EMAIL) to be able to complete email Manual Activity messages through the Workspace interface.

See your Workspace User Guide for more information on configuring roles.

## XML Activities Sent as Email

XML Activities can be sent as email. The XML activity data can either be sent directly or it can be first transformed, using the Document Handler, to produce the message content.

**Caution:** The result of the transformation MUST be a valid XML document otherwise the Email Writer will be unable to create a valid message.

If the XML Activity transformation is producing HTML output, it must conform to XHTML standards (e.g. all tags must have matching end tags).

**Caution:** If the XML Activity is sent as a text email, then the message content must either be in the standard Manual Activity data format (see Appendix A) or the stylesheet used to transform the data must be altered to understand the user-defined XML format.

**Caution:** If the XML Activity is sent as a html email, then the message content can either be in the standard Manual Activity data format (see Appendix A) or in a user-defined custom format. By default, if the data is not recognized by the HTML stylesheet will just pass its input content through as the email message body without alteration.

## Altering the Default HTML Stylesheet

By default, the stylesheet used to transform Manual Activity message data into HTML will produce a very basic fixed format message style. This format can be easily altered to suit different requirements and styles. Some changes that may be applied are…

- Altering the background color
- Changing the font style/color
- Imbedding a company logo or other picture

- Altering text positioning
- Including company specific information or disclaimer text

The stylesheet should be altered using a text editor that understands the XML, XSL, and XHTML syntax. This will highlight any syntax errors that would cause the message transformation to fail.

The stylesheet can be altered to support the standard Manual Activity XML message format and any custom format that is generated by XML Activities by using different element names and/or different namespaces.

**Caution:** Infor's Professional Services Organization can provide tailored solutions to customers who do not possess XML/XSL/HTML development skills. Contact your Infor representative for more information.

**Caution:** The Email Writer will need to be restarted to pick up the changes made to the stylesheet.

## Extending the Email Writer Classpath

By default, any classes required during an XSL transformation are located by using the class path that is passed to the Java JVM during start-up. When custom classes are required, especially those shipped insider JAR format archives, the classpath can get very difficult to define and maintain (especially on IBM i where a program re-compilation is required). To simplify this situation, the Email Writer allows you to specify an additional class path within its properties file. This class path can contain files and directories (separated by a semi-colon). If the class path contains a file (such as a .JAR or .class file) it will be added directly to the search path of the Java JVM. If the class path contains a directory, then ANY classes or JAR files found in the directory will be added to the search path of the Java JVM.

This facility is available on both Microsoft Windows and IBM i installations.

**Caution:** We recommend you create a single JAR file/class repository directory and add this to the `classpath` variable within your Email Writer properties file to centralize the location of any 3rd party JAR files required within your XSL transformations.

## SMTP authentication/SSL Mail Server

If you wish to use the Email Writer with a Cloud-based mail server, such as Outlook365, Outlook or GMail, or you are using an internal mail server that is not based in the same location as your WFi Components installation, then you will need to use SMTP authentication (sometimes called ESMTP) and/or SSL (also sometimes referred to as TLS or TLS/SSL).

Setting **useSSL=1** or **useSSL=2** in the `EmailWriter.properties` file will enable an SSL connection to be used, via the `STARTTLS` negotiation command with the mail server. The certificate will usually be provided by the mail server and will ensure communication between the Email Writer and the mail server is encrypted.

**Caution:** If you are using a self-signed certificate that does not come from a Trusted Root Authority, then you may need to install the certificate into the local Java Runtime key store.

Setting the **userName** and **password** properties in the `EmailWriter.properties` file will enable an authenticated SMTP connection to be used. Before the email can be sent, the Email Writer must be able to log in to the provided account.

**Caution:** Some mail servers require that the username of the account matches the senders email address (i.e. the `userName` and `emailAddress` properties must be the same).

**Caution:** Some Cloud-based servers, such as GMail, do not allow external access via SMTP authentication without first enabling this within the Account Settings of the account being used to send messages.

**Caution:** Server name and port settings for some popular cloud-based mail servers can be found here https://support.office.com/en-us/article/pop-and-imap-email-settings-for-outlook-8361e398-8af4-4e97-b147-6c6c4ac95353 .

# The Email Reader

The Email Reader can be run on a Windows server or as an AS/400 batch job. There are three-associated MS-DOS batch files supplied for use on the Windows server. These are….

| Program | Description |
|---|---|
| `EmailReader.bat` | Launch the Email Reader process. Processes messages until a stop request is detected (invalid messages will remain on the queue). |
| `EmailReader STOP.bat` | Post a stop message to the Email Reader MQ queue |

The Email Reader properties file supports the following entries…

<table>
<tr><th>Property</th><th>Description</th></tr>
<tr><td>traceLevel</td><td>Set to any non-zero value to write trace to the output console/stream (spool file on IBM i). The trace values supported are…<br><br><table><tr><th>traceLevel</th><th>Value</th></tr><tr><td>0</td><td>No trace</td></tr><tr><td>1</td><td>Errors</td></tr><tr><td>24</td><td>Basic</td></tr><tr><td>50</td><td>Detail</td></tr><tr><td>75</td><td>Technical</td></tr><tr><td>100</td><td>Internal</td></tr></table></td></tr>
<tr><td>traceLog4J</td><td>Set to any non-zero value to use the Apache log4j logging system for trace output.<br><br>Caution: See the WFi Administration Guide for more information on this property.</td></tr>
<tr><td>mqHostName</td><td>The DNS name of the host machine which is running the IBM WebSphere MQ Series software</td></tr>
<tr><td>mqQueueManagerName</td><td>The name of the IBM WebSphere MQ Series queue manager</td></tr>
<tr><td>incomingMailServer</td><td>A DNS name for the incoming mail server</td></tr>
<tr><td>incomingMailServerPort</td><td>The port number of the mail server for incoming messages (default value depends on the Java Mail protocol used; pop3 = 110, imap = 143, pop3s = 995, imaps = 993)</td></tr>
<tr><td>userName</td><td>A valid user account to connect to the mail server with (may also be an Email account)</td></tr>
<tr><td>password</td><td>An encrypted password for the above account (see below about encryption)</td></tr>
<tr><td>folderName</td><td>The mail folder on the incoming mail server</td></tr>
<tr><td>pollTimeMillis</td><td>The delay time, in milliseconds, between each check for new mail messages</td></tr>
<tr><td>outgoingMailServer</td><td>The mail server that is used by the Email Reader to dispatch Stop messages</td></tr>
</table>

| Property | Description |
|---|---|
| emailAddress | The outgoing e-mail address to dispatch Stop messages to (should match the account defined in the username property) |
| outgoingMailServerPort | The port of the server that is used by the Email Reader to dispatch Stop messages |
| useSSL | The SSL/TLS status of the server that is used by the Email Reader to dispatch Stop messages<br>Set to 1 to enable an SSL/TLS communication with the SMTP mail server that allows SSL/TLS for both the initial connection and via the STARTTLS command<br>Set to 2 to enable an SSL/TLS communication with the SMTP mail server that only allows SSL/TLS via the STARTTLS command<br>Default is 0 (disabled) |
| outgoingUserName | A valid user account to connect to the mail server with when SMTP authentication is required to dispatch Stop messages. The username may be an email address. |
| outgoingPassword | An encrypted password for the above account (see Email Reader Mailbox Password section for more details about encryption of password properties). |
| protocol | The Java mail protocol name. Default is pop3. Supported values are pop3, imap, pop3s and imaps |
| poolName | The name of the DBConnectionManager pool used to connect to the AS/400 (defaults to SQL). The pool connection is defined in the DBConnectionManager. properties file shipped with the WFi Components. |
| Environment | The name of the System Manager environment to use |
| Repository | Location of Email Event description files |
| matchAll | Option to match incoming events against single or multiple rules. Default is true. |
| incomingMailFiles | The directory structure under which to store attachments associated with unsolicited incoming email messages. |
| replyMailFiles | The directory structure under which to store attachments associated with incoming 2-way email replies. |
| contact | The email address of the person to send an alert message to when the Email Reader gets a stop message (which will cause the process to terminate) |

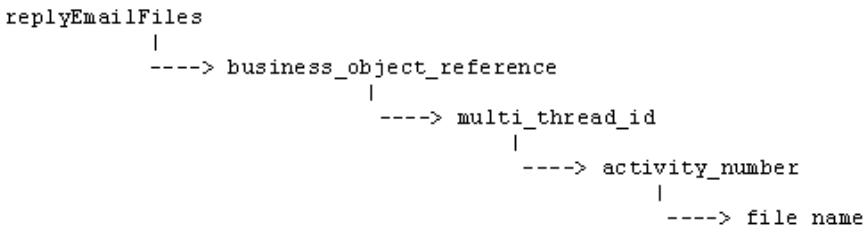
| Property | Description |
|---|---|
| contactServer | The name of a SMTP email server to use to send the alert message. |
| contactServerPort | The port number of the SMTP email server used to send the alert message (default is 25). |
| contactServerUser | A valid user account to connect to the email server used to send the alert/stop messages when SMTP authentication is required. The user account may be an email address |
| contactServerPass | An encrypted password for the above account (see Email Reader Mailbox Password section for more details about encryption of password properties). |
| contactServerSSL | The SSL/TLS status of the SMTP mail server used to send the alert/stop notification messages.<br>Set to 1 to enable an SSL/TLS communication with the SMTP mail server that allows SSL/TLS for both the initial connection and via the STARTTLS command.<br>Set to 2 to enable an SSL/TLS communication with the SMTP mail server that only allows SSL/TLS via the STARTTLS command.<br>Default is 0 (disabled). |
| sendersEmailAddress | The mail account on the SMTP email server to use to send the alert message. |
| secure | Set this value to true to use a more secure password encryption algorithm than the one described in the Email Reader Mailbox Password section. See the Secure Password Encryption appendix in the WFi Installation Guide for more details. |
| removeStops | Set this value to yes to instruct the Email Reader to read through the mail queue and remove and stop messages within the queue before it begins transaction processing. |
| stopMsgEmail | Set this value to yes to instruct the Email Reader to send an Email to the contact when a stop message is received. The contactServer and sendersEmailAddress properties must also be set for this feature to work. |
| oauthTenant | Set this value to the Tenant ID of your Microsoft Outlook 365 mail Tenant. See the Microsoft Outlook 365 Integration appendix in the WFi Installation Guide for more details. |
| oauthClientID | Set this value to the Client ID (also known as the Application ID) used for WFi mail processing within your Microsoft Outlook 365 mail Tenant. See the Microsoft Outlook 365 Integration appendix in the WFi Installation Guide for more details. |

| Property | Description |
|---|---|
| oauthClientSecret | Set this value to the Client Secret value created within the Client ID within your Microsoft Outlook 365 mail Tenant. See the Microsoft Outlook 365 Integration appendix in the WFi Installation Guide for more details. |
| oauthRetries | This integer value controls how many attempts the Email Reader will make to connect, or reconnect, to your Microsoft Outlook 365 mail Tenant to get an Access Token. The default value is 10. See the Microsoft Outlook 365 Integration appendix in the WFi Installation Guide for more details. |

The Email Reader will constantly poll the named folder on the mail server for new mail messages.

When a new message arrives the Email Reader will examine its subject line and if it conforms to the fixed format definition that the Email Reader understands it will interpret it and send a message, via IBM WebSphere MQ Series, to the WFi Engine to notify that the workflow process can continue.

If the message has attachments, it will store the content, using its original file name, under the directory set via the `replyMailFiles` property. The Email Reader will create a sub-directory structure using the business object reference, multi thread id and activity number. E.g.




The Email Reader will also create the appropriate reference data fields for the attachments within WFP50. These can be retrieved using the XSL Attachment Extension Functions.

If the body of the email contains a valid result XML document, created by the 2 Way Email HTML stylesheet for Editable Manual Activities, then this will be parsed and any data fields that require updating will be written to WFP50 within the WFi files library on the IBM i (defined by using the poolName and Environment values in the properties file). The data fields will be updated before the completion code is set.

If the Email Reader decides the incoming email is not a receipt from a mail sent by the Email Writer, it will use the rules in its repository to see if the email address/subject matches a valid Email Event. If it finds a match then the Email Reader will send a message, via IBM WebSphere MQ Series, to the WFi Engine to notify that the workflow process can be initiated (using a universally unique generated business process reference).

If the `matchAll` parameter is set to `true` (in the EmailReader.Properties file) then the Email Reader will fire off messages for any Email Event whose rules match the incoming email. If the `matchAll` parameter is set to `false`, then after matching the first Email Event (and sending the message) the Email Reader will remove the message from the mailbox and return to polling for more incoming messages.

If the message matching the rule has attachments and the rule has been set to allow attachments to be saved then the Email Reader will store the content, using its original file name, under the directory set via the `incomingMailFiles` property. The Email Reader will create a sub-directory structure using the business object reference. E.g.

```
incomingEmailFiles
      |
      ----> business_object_reference
                        |
                        ----> file name
```

The Email Reader will also create the appropriate reference data fields for the attachments within WFP50. These can be retrieved using the XSL Attachment Extension Functions.

**Caution:** The Email Reader will use the information in the OpenEventTrigger properties file to access IBM WebSphere MQ Series. Make sure that the information within this file is correct before processing any email messages or important data could be lost.

**Caution:** The Email Reader will always remove the processed message from the mail server folder.

**Caution:** Attachments and Data Fields from Editable Manual Activities will only be updated if the activity is still pending (i.e. if the email is sent to multiple recipients, only the data from the recipient that completes it first will be saved).

## Email Reader Mailbox Password

The default Username and Password is WMENGINE and it is this that is referenced by the Email Server. This will need to be changed on the target system.

To protect the password as held in the Email Reader property file, the password is held in an encrypted format. When the Java components are installed, a default password is set.

If the Java has been installed onto a Windows server, to generate the encrypted password, the following procedure should be followed: -

- Start an MS-DOS command session
- Change directory to the directory containing the MS-DOS batch files (e.g. process\bin under the installation directory)

- Run the following command…

  ```
  GeneratePassword %1
  ```

  Where %1 equates to the password to be encrypted. The result will be displayed in the command shell display.

The EmailReader.Properties file must now be edited, and the encrypted result should be used as the value for “Password” in the property file (either AS/400 or Windows server, dependent on where the file is installed).

**Caution:** For Windows Users.

The password that is generated will use the ASCII character values used by the DOS command shell. Care must be taken when copying and pasting data into a Windows text editor (such as Notepad) as the character values may be altered rendering the password invalid.

Either use the DOS EDIT (or similar) program to change the properties file or pipe the output from GeneratePassword to a file and edit it using a Windows text editor.

```
GeneratePassword myPass > output.txt
```

# The Open Event Trigger API

When the Email Reader receives a receipt from a WFi email or finds an email that matches one of its rules, it will write an IBM WebSphere MQ Series message to the WFi Engine. The message is written using a Java class called the Open Event Trigger.

The Open Event Trigger API needs some information to be specified so that it can locate and write to the WFi Engine’s input message queue. This information is specified within the `OpenEventTrigger.Properties` file which is in the `properties` sub-directory of your WFi Components installation.

The Open Event Trigger API properties file supports the following entries….

| Property | Description |
|---|---|
| serverName | The DNS name of the host machine which is running the IBM WebSphere MQ Series software |
| queueManagerName | The name of IBM WebSphere MQ Series queue manager |
| channelName | The name of the IBM WebSphere MQ Series channel to write to |
| queueName | The name of the IBM WebSphere MQ Series queue to write to |
| characterSet | The code page value to use to translate the characters |
| portNumber | The port number used by the IBM WebSphere MQ Series Queue Manager. |
| mqUser | The message User ID assigned to message sent by Open Event Trigger API. Defaults to "OET Java API". |

**Caution:** The Trigger Handler also uses the Open Event Trigger API to write completion messages to the WFi Engine.

# The Trigger Handler

The Trigger Handler can be run on a Windows server or as an AS/400 batch job. There are three-associated MS-DOS batch files supplied for use on the Windows server. These are…

| Program | Description |
|---|---|
| TriggerHandler.bat | Launch the Trigger Handler process. Processes messages until a stop request is detected (invalid messages will remain on the queue). |
| TriggerHandler STOP.bat | Post a stop message to the Trigger Handler IBM WebSphere MQ Series queue |
| TriggerHandler PURGE.bat | Post a stop message to the Trigger Handler input queue then process any pending messages (all messages deleted after processing). |

**Caution:** There are also individual batch files for running the Trigger Reader and Trigger Writer separately.

The Trigger Handler properties file supports the following entries….

<table>
<tr><th>Property</th><th>Description</th></tr>
<tr><td>traceLevel</td><td>Set to any non-zero value to write trace to the output console/stream (spool file on IBM i). The trace values supported are…<br><br><table><tr><th>traceLevel</th><th>Value</th></tr><tr><td>0</td><td>No trace</td></tr><tr><td>1</td><td>Errors</td></tr><tr><td>24</td><td>Basic</td></tr><tr><td>50</td><td>Detail</td></tr><tr><td>75</td><td>Technical</td></tr><tr><td>100</td><td>Internal</td></tr></table></td></tr>
<tr><td>traceLog4J</td><td>Set to any non-zero value to use the Apache log4j logging system for trace output.<br><br>Caution: See the WFi Administration Guide for more information on this property.</td></tr>
<tr><td>runPoolWriter</td><td>If true, then the trigger handler will perform trigger write processing</td></tr>
<tr><td>runPoolReader</td><td>If true, then the trigger handler will perform trigger read processing</td></tr>
<tr><td>mqHostName</td><td>The DNS name of the host machine which is running the IBM WebSphere MQ Series software</td></tr>
<tr><td>mqQueueManagerName</td><td>The name of the IBM WebSphere MQ Series queue manager</td></tr>
<tr><td>mqChannelName</td><td>The name of the IBM WebSphere MQ Series channel to read from</td></tr>
<tr><td>mqQueueName</td><td>The name of the IBM WebSphere MQ Series queue to read from</td></tr>
<tr><td>characterSet</td><td>The code page value to use to translate the characters</td></tr>
<tr><td>pollTimeMillis</td><td>The delay time, in milliseconds, between each check for new IBM WebSphere MQ Series messages</td></tr>
</table>

| Property | Description |
|---|---|
| retryPollTimeMillis | The delay time, in milliseconds, to wait before retrying a previously failed IBM WebSphere MQ Series action. |
| Repository | Location of trigger event description files |
| mqAIFTriggerHostName | The DNS name of the host machine which is running the IBM WebSphere MQ Series software (for AIF) |
| mqAIFTriggerQueueManagerName | The name of the IBM WebSphere MQ Series queue manager (for AIF) |
| mqAIFTriggerChannelName | The name of the IBM WebSphere MQ Series channel to write to (for AIF) |
| mqAIFTriggerQueueName | The name of the IBM WebSphere MQ Series queue to write to (for AIF) |
| mqAIFTriggerCharacterSet | The code page value to use to translate the characters |
| mqAIFTriggerWriteUTF | Allow data to be written to IBM WebSphere MQ Series using UTF-8 encoding functions. Set to ‘no’ for to use writeString function or set to ‘yes’ to use writeUTF MQ API function (see below for more details on encoding) |
| poolName | The name of the DBConnectionManager pool used to connect to the AS/400 (defaults to SQL). The pool connection is defined in the DBConnectionManager.properties file shipped with the WFi Components |
| Environment | The name of the System Manager environment to use |
| replaceDelimiterCharacterDataWith | Replace character in document reference. Defaults to ‘\’ (i.e. no replacement) |
| portNumber | The port number used by the IBM WebSphere MQ Series Queue Manager. |
| MQErrorRetry | The number of times that the Trigger Handler will try to re-connect after a IBM WebSphere MQ Series connection failure before shutting down. Default is 60. |
| MQErrorWait | The amount of time to wait, in seconds, before retrying to connect to the IBM WebSphere MQ Series server. Default is 60 (so combined with the above it tries for 1 hour to reconnect before terminating). |

| Property | Description |
|---|---|
| MQErrorContact | The email address of the person to send an alert message to when the Trigger Handler can no longer connect to the IBM WebSphere MQ Series server or queue (after MQErrorRetry times MQErrorWait seconds). |
| MQErrorContactServer | The name of a SMTP email server to use to send the alert/stop messages. |
| MQErrorContactServerPort | The port number of the SMTP email server used to send the alert/stop messages (default is 25). |
| MQErrorContactServerUser | A valid user account to connect to the email server used to send the alert/stop messages when SMTP authentication is required. The user account may be an email address |
| MQErrorContactServerPass | An encrypted password for the above account (see Email Reader Mailbox Password section for more details about encryption of password properties). |
| MQErrorContactServerSSL | The SSL/TLS status of the SMTP mail server used to send the alert/stop notification messages.<br>Set to 1 to enable an SSL/TLS communication with the SMTP mail server that allows SSL/TLS for both the initial connection and via the STARTTLS command.<br>Set to 2 to enable an SSL/TLS communication with the SMTP mail server that only allows SSL/TLS via the STARTTLS command.<br>Default is 0 (disabled). |
| MQErrorSendersEmailAddress | The mail account on the SMTP email server to use to send the alert message. |
| useSinglePoolQueue | Set this value to 1 if you only ever want the Trigger Handler to create and use a single MQ Series intermediate (pool) queue to store messages on. |
| MQRemoveStops | Set this value to yes to instruct the Trigger Handler to read through the IBM WebSphere MQ Series Queue and remove and stop messages within the queue before it begins transaction processing. |

| Property | Description |
|---|---|
| MQStopMsgEmail | Set this value to yes to instruct the Trigger Handler to send an Email to the MQErrorContact when a stop message is received. The MQErrorContactServer and MQErrorSendersEmailAddress properties must also be set for this feature to work. |
| secure | Set this value to true to use a more secure password encryption algorithm than the one described in the Email Reader Mailbox Password section. See the Secure Password Encryption appendix in the WFi Installation Guide for more details. |

**Caution:** The Trigger Handler can only process IBM WebSphere MQ Series queues of the type "first-in-first-out" (*FIFO).

The Trigger Handler will copy messages from its source queue to intermediate queues under the same queue manager. The intermediate queues will have the same name as the source queue but with a numeric value appended (e.g. if the source queue is called TRIGGER.OUT then the first supplementary queue will be called TRIGGER.OUT.1, the second queue will be called TRIGGER.OUT.2 and so on). The Trigger Handler will create the intermediate queues automatically. The new queue will inherit the properties of the source queue.

**Caution:** The Trigger Handler will only be able to create new intermediate queues if Command Server service is running on IBM WebSphere MQ Series.

See the Installation Guide for more information on how to start this service.

Messages are copied to intermediate queues because WFi Events can be made up of multiple database trigger messages (which themselves may be made up of multiple IBM WebSphere MQ Series message parts with each message part being a single entry within the IBM WebSphere MQ Series queue consuming one element of the queue depth). These messages will not be removed from the queue until all the parts of the Event arrive or the Event expiry time is reached. Leaving these messages upon the source queue could cause the queue to fill up and result in lost data as no further messages could be written to the queue. By transferring to an unlimited number of intermediate queues ensures data loss is minimized.

**Caution:** In previous MQ Series releases, the maximum queue size was limited. Since MQ Series 5, the maximum size of queues has greatly increased so the risk of the Trigger Handler input queue being filled to maximum capacity is less likely.

Once an Event has been processed (or has expired) its associated messages will be removed from the intermediate queue(s) unless it is associated with multiple Events.

When the Trigger Handler receives all the correct information to pass an event it will send a message to the WFi Engine input queue to initiate the required workflow process.

Triggers can be set-up, within WFi Modeler, to be used with WFi and/or the Application Integration Framework (AIF).

**Caution:** The Trigger Handler will use the information in the OpenEventTrigger properties file to access IBM WebSphere MQ Series.

Make sure that the information within this file is correct before processing any database trigger messages or important data could be lost.

**Caution:** In version 1.0 of process.connect (pre WFi), if a triggered event was created over a file where the business object reference is made up of multiple fields, then the trigger handler concatenated the result together with '/' as the separator.

In WFi there are data fields called 'level reference 1', 'level reference 2', and 'level reference 3', which will extract the relevant part of concatenated fields if separated by '\'.

From version 1.1 onwards the separator was changed to make access to the individual values a lot easier. There are alpha and numeric versions of these data fields depending on the type of data concatenated together.

If any stylesheets or programs were written to rely on the '/' separator they will need to be changed to use the new '\' separator.

**Caution:** If the data fields that are used to make up the document reference might contain the delimiter character ('\') then use the `replaceDelimiterCharacterDataWith` setting to replace any occurrences of the character within the data with a different character. This will mean that the document reference is still split up correctly within the WFi Engine.

**Caution:** The pool connection URL string, in `DBConnectionManager.properties,` which is used by the Trigger Handler MUST have its naming property set to system. E.g.

```
SERVER.url=jdbc:as400://SERVER;naming=system;errors=full;date
format=iso;translate binary=true
```

# Appendix A Glossary

**Action Agents**

Note that the Activity Code of this WFi control is always ACTAGENT.

You create an Action Agent when designing a Business Process on the WFi Modeler Canvas. This is a piece of processing, which becomes transparent to the Infor ERP System i user, and tests for various data conditions for the document being processed. Different actions are performed against the document, depending on these data conditions.

Each Action Agent can work in one of two ways:

- It can route a document down different paths within a process by using a separate Exit Node for each test result. In this way the routing of the document out of the Action Agent is visible in the design on the Canvas.
- It can store the test results in a Stored Value Data Field. This Data Field becomes in effect the recipient of the document and is then passed on to another activity for the handling of those results. There is only one Exit Node out of the Action Agent, regardless of the number of tests.

**Activate**

This refers to the loading of files or data from the PC to the Server.

In WFi Modeler, there is an Activate option on the Configure -> Work Management Menu which enables you to select Process Data and pass them to the WFi Engine on the System i Server. When activating Process Data, you have the option to archive it at the same time.

Please refer to the Activate Window in WFi Modeler. Refer also to Archive, Export, Import and Retrieve.

**WFi Modeler**

WFi Modeler is a graphical process mapping product that is powerful yet simple to use. It is designed and developed to enable business users to model the organizational elements, key processes, and systems within their enterprises. WFi Modeler can define and describe the following:

What a business does in terms of its key processes.

Who is responsible for each activity within each process.

How performance improvements are to be identified and measured.

Which application software can support those improvements.

How that software should execute to optimize the operation of each critical step.

WFi Modeler supports four models, each representing distinct yet critical stages in the successful application of a software solution to achieve business performance improvement: Stage 1 - Reference Model, Stage 2 - Business Model, Stage 3 - Software Model, Stage 4 - Execution Model.

**Activities**

There are two types of Activities listed in the Activities folder in WFi Modeler:

Assembled Activities (no longer used)

Elemental Activities. These refer to RPG programs resident on a server system supporting Infor ERP System i. The definitions of these programs are stored in the design time database.

However, Infor ERP System i Workspace also recognizes the following two items as Activities, although they appear on the Controls folder in WFi Modeler. Both these items appear in Action Lists and in Action Tracker:

Manual Activities. You create these on the WFi Modeler Canvas to enable the user to interact with a Business Process via displayed messages and the launching of local PC or server-based tasks.

Action Agents. You create these on the WFi Modeler Canvas as a piece of processing that is transparent to the user.

Please refer also to Activity Code and Context Sensitive Activity.

**Activity Code**

This is a 10-character code used by the WFi Engine. Each WFi Enabled Activity has its own unique code. You enter this code in the WFi Properties panel of the Properties Window for an Elemental Activity on the WFi Modeler Canvas or Palette. Note that the WFi Engine also needs the task details to identify the RPG program: for example, AOABCA21010, where AO is application code, ABC is the environment code, A2 is the release code and 1010 is the Task Code. The WFi Engine creates a link between the Activity Code and the Task Code.

All Manual Activities have an Activity Code of MANACT.

All Action Agents have an Activity Code of ACTAGENT.

**Caution:** Please do not confuse this code with the Business Process Code associated with Business Processes.

**Archive**

In a WFi Modeler context this refers to the process of storing Process Data definitions on a Work Management server.

When you Activate Process Data you can choose to create an archive at the same time. You can subsequently retrieve the archive using the Retrieve button on the Business Process Status Window.

Refer also to Activate, Export, Import and Retrieve.

**Automatic Batch**

One of several Execution Modes. WFi will, on completion of one activity, execute a subsequent activity identified as Automatic Batch by adding the task to a job queue.

**Automatic Immediate**

One of several Execution Modes. WFi will, on completion of one activity, execute a subsequent activity identified as Automatic Immediate by adding the task to a job queue that allows multiple active jobs, so usually ensuring an immediate execution of that task.

**Business Model**

A Business Model describes the processes that are carried out for a company to operate effectively. The processes may extend beyond the boundaries of a single site, company, or country.

The Business Model also describes which Organizational Units are responsible for each process, process step or activity.

Against any process or Organizational Unit, best practice procedural, benchmarking and supporting documentation may be attached.

**Business Object**

The technical/alternative term for a Document Type.

### Business Process/Processes

These are at the top level of the business function.

Within a Business Process it is possible to have Elemental Activities, Assembled Activities, and other Business Processes. Business Processes can be nested to many levels.

However, there are restrictions on the way in which you construct Business Processes depending on whether you use WFi Modeler as a design tool for Business Modelling, Software Modelling or Execution Modelling.

When the Business Process is activated the Validation process will highlight any constraints that exist.

### Business Process Code

This code uniquely identifies the Business Process to the WFi Engine, whereas it is the name of the Business Process which uniquely identifies the Business Process to WFi Modeler and to the design time database on the PC. This code is limited to 8 characters in length.

When you work with a Business Process on the WFi Modeler Canvas you can change the Code using the Properties option on the Canvas pop up menu. You can then save the Business Process, with the new Code, to the design time database on the PC.

However, if you Activate the Business Process, the WFi Engine checks the Business Process Code, not the Business Process name, and saves the Business Process to the WFi tables on the server, where the Business Process Code is now the key to the Business Process.

If the Business Process Code is new to the WFi tables then a new record is created with version number 01. However, if that Business Process Code already exists the WFi Engine creates a new record for the Business Process but increments the version number. In this way all Business Processes are version controlled on the server, as identified by the Code, whereas only the latest copy of the Business Process is held on the PC and is identified by its name.

The Version Number is visible within WFi Modeler only when you manage the business processes activated on a selected server, using the Business Process Status Window. The version number is displayed as a decimal number. The number is held internally as a two-character field in base 36 but this structure is visible only to someone working with the WFi files on the server.

### Cancellation

This is the cancellation of a pending activity. When a pending activity is executed the function may decide, because of certain circumstances or data conditions, that it is no longer possible to continue with the process for a Document Type, for example the cancellation of an order. Because there may be multiple paths through a process, and therefore more than one state for a Document Type, all pending transactions for the Document Type are cancelled. This is achieved by the Completion Action setting of 1 against a completion code.

### Canvas

This is the area on the WFi Modeler Workspace where you model your Process Data. It is a window that you can open, close or re-size using standard Microsoft Windows techniques. You can have one or many canvasses open at any one time on the Workspace. A Canvas always has a Page within it.

See also MDI and Palette.

### Client

Usually a PC, an intelligent terminal which sends data to, and receives data from, the Server.

### Completion

The point at which an activity finishes its processing on a Document Type, writes transaction completion details and informs the WFi Engine it has completed.

### Completion Action

The action to be taken against each completion code. The default setting of 0 means the next activity on this path will be processed as normal and with the same thread identifier. A setting of 2 is again the normal execution of the next activity on the path but with a new thread identifier. Used for activities that combine Document Types - see Threads. A setting of 1 will cancel all pending transactions for the Document Type.

### Completion Codes

Synonymous in WFi Modeler with Exit Nodes, they are the possible exit conditions for an activity. In WFi Modeler each completion node is linked via a path to the next activity. The relationship between activity completion and next activity is established in the Work Management tables and used by the processing Engine to identify the next task to be performed.

### Components

This is the lowest level software element and cannot be broken down any further. You find them contained within Assembled Activities.

Components can be Constructable, Consumable or both.

### Consumables

Consumables are executable Components which are used to contain programming function which can easily be changed.

A Component is normally defined as being a Consumable when it contains functionality which can be used in multiple places within Activities. No matter what happens to the process flow within the Consumable it will not have any effect on the flow of the Assembled Activity. Consumables, therefore, do not appear within the flow of an Assembled Activity.

For example, a selection of tax codes and calculations would be stored as consumables so that different processing could be applied when a user changes a tax code.

### Constructable

A Constructable is an Element which must be called and executed. It can be an Elemental Activity or a Component. It appears as a Component within the flow of an Assembled Activity and can contain Consumables.

### Context Sensitive

Within WFi Modeler this refers to functionality which varies depending on the context from which it was launched. Popup menus are context sensitive and their options vary depending on which part of WFi Modeler you choose to click with the right mouse button. These are often referred to as right click menus. For example, in WFi Modeler you can click on the Canvas with the right mouse button to display the Canvas Menu.

### Control

Used to mark the start and end of the Business Processes and Activities and to influence the pathways between elements. They include Start and End Conditions, User Activities, Parallel Paths, Manual Activities, Splitters and Action Agents.

**Data Fields**

Variables that are resolved for each document at run time. They are shown in red text in WFi Modeler.

Within WFi Modeler you can define Data Fields for several reasons: most commonly you can define an SQL Data Field to represents a database field or a Programmatic Data Field to hold the result of a calculation.

For example, as part of a Business Process you might want to send a message where the expected delivery date for an element is more than a certain number of days in the future. For this you would define a programmatic variable. You write a program on the server that carries out the required calculation and you declare to WFi Modeler that a Data Field is retrieved not from an SQL statement but from running your program. Refer also to Global Data Fields.

Note: You can group your Data Fields into directory structures. To do this you insert backslashes between the Data Field names. For example, Sales Order\Order Line.

**Data Source Name**

This is an ODBC definition which shows the location of the data brought back by the ODBC. You configure the DSN using the ODBC Data Source Administrator application. Refer to the online help text issued with your ODBC software.

**Default Business Process**

The Default Business Process field will be used for initial activities where the activity has no input Document Type. If a default business process is entered, then this will be picked up by the activity on completion.

**Default System**

The default system is used to launch an Elemental Activity, for which a system has not been assigned using the Properties Window. The default system is initially the first server to which your machine connects, but then you can redefine the default by using a field in the Preferences Window.

**Delegation**

This is a WFi Modeler facility and is an option on the Work Management Menu: please refer to the Escalation and Delegation Window.

Delegation means moving an item automatically from one user's Action List to another user's Action List. You could use this where someone was on holiday or absent for a period of time so that the items would appear only in the Action List of the user who was taking over that activity.

Delegation can be considered to be Escalation where the time limit is defined as being zero time.

### Design

In WFi Modeler you design an Entity on the Canvas, within the Workspace. See also Palette.

### Document Types

Also referred to as a Business Object, usually in a technical context.

A document, order, or any other kind of similar entity, on which a job of work is performed, for example a sales order or a financial journal. Activities are identified with Document Types.

An activity has a single input Document Type on which it operates, for example a Sales Order, although potentially it has multiple output Document Types, for example Dispatch Notes, and Invoices.

Each activity can only be joined to an exit condition relating to the same Document Type as its input Document Type. For example, the Pick Note exit condition from the Pick Note Generation activity can only be joined to an activity, such as Pick Note Print, which has Pick Note as its input Document Type.

Where no Document Type is associated with a condition, this can be joined to other conditions with no Document Type specified.

### Document Type Reference

A specific instance of a Document Type identified by a reference or transaction number. For example, a journal identified by company, type, and number. It can be up to 50 Alphanumeric characters long. You cannot define this reference in WFi Modeler because it is defined by the Document Type to which it applies and changes accordingly. For example, for a Document Type of Sales Order the Reference could be the Sales Order Reference number.

### Document Viewer

This enables authorized users to maintain a database of documents which can be linked to Business Processes, individual Activities, third-party programs, or specific Infor ERP System i application windows.

### Elements

An Element is any part of the design of an Entity. It can be an Assembled Activity, an Elemental Activity, a Component, a Constructable or Consumable, or any of the Controls that are allowed in the context of the Entity.

### Elemental Activities

Activities defined to Application Manager, on the server, which cannot be broken down any further. For example, every Infor ERP System i task is considered to be an Elemental Activity.

### End Conditions

This is a WFi Modeler Control used to complete a logical pathway. Business Processes, Assembled Activities and Subassemblies can have any number of End Conditions, but Activity Lists must have only one.

### Enterprise Resource Planning

This is software which provides a set of tools to help managers to run their businesses more effectively. However, as with most tools, whether computer-based or of the more traditional kind, it is vital to know how best to apply them to the task in hand to get optimum results. Failure to do so will almost always result in wasting an opportunity at best, or in needless effort and costs being incurred at worst.

This term was first coined by the Gartner Group to describe the set of application software systems that purported to go beyond simple Manufacturing Resource Planning and provide functionality which would be of use throughout a business; not only in the hard operations areas of production and distribution, but also in areas such as payroll, personnel, asset management, plant maintenance.

### Entities

There are three types of Entities:

- **Design Entity**

  This can be a Business Process, an Assembled Activity, an Activity List, or an Organization Unit. You design an Entity on the WFi Modeler Canvas, and each part of the design is called an Element. You use Work Management Entities and Organization Modelling Entities in your designs.
- **Work Management Entity**

  This can be a Data Field, a Document Type, an Execution Mode, a Schedule Rule, or an Escalation Rule. You create them using the Configure option from the WFi Modeler menu and once created they can be used by the Design Entities.

- **Organization Modelling Entity**

  This can be a Category, an Attribute, or a Calendar. Each entity is stored as a standalone record on the design time database. You create them using the Configure option from the WFi Modeler menu and once created they can be used by the Design Entities.

### ERP

Enterprise Resource Planning.

### Error Handling

User executed activities that operate with screens or Windows will have any Work Management error or validation messages directed to the user's screen. Batch and background activities have their error messages directed to the role associated to those activities, the users operating under that role being informed of such an error condition by an entry in their Action List.

### Error Role

The role identified with automatic or scheduled tasks to which any error messages will be directed.

### Escalation

This is a WFi Modeler facility and is an option on the Work Management Menu: please refer to the Escalation and Delegation Window.

Escalation means moving an item from one user's Action List to another user's Action List after a period of time. You could use this for example if a manager wanted to pick up all activities outstanding after time. Instead of moving the item to another list you could give it a higher priority after a period of time so that it moved higher up the same Action List.

### Escalation and Delegation

This is a WFi Modeler facility and is an option on the Work Management Menu: please refer to the Escalation and Delegation Window.

Escalation and Delegation is the process whereby Activities which are prompted for a user, by being sent to their Action List, and are not actioned within a configured period, are escalated in priority or escalated to a different user, or both.

Escalation means moving an item from one user's Action List to another user's Action List after a period of time. You could use this, for example, if a manager wanted to pick up all activities outstanding after time. Instead of moving the item to another list, you could give it a higher priority after a period of time, so that it moved higher up the same Action List.

Delegation means moving an item automatically from one user's Action List to another user's Action List. You could use this where someone was on holiday or absent for a period of time, so that the items would appear only in the Action List of the user who was taking over that activity.

### Event Agents

Note that the Activity Code of an Event Agent is always EXPMON.

An Event Agent is a hidden piece of programming used to perform tests. Use them when you design a Business Process to create the raising of an Exception Condition. This is done by the inclusion of an Event Data Field within the Test Conditions. An Event Data Field contains all the tests within an SQL statement.

### Exception Condition

A condition raised because of Planned Schedule checking, where an action runs over its planned execution time. You can design a Business Process, incorporating an Event Agent, to test for these conditions and take resultant action.

### Execution Model

An Execution Model precisely describes the way in which the software, that is supporting a process, will execute and interact with the user and other elements of the system.

This will include: the definition of Recipients of System Activities and Manual Activities; the times and frequency of scheduled jobs and the rules for Escalation and Delegation.

### Execution Modes

There are four basic execution modes: User Controlled, Automatic Immediate, Automatic Batch and Scheduled Batch. An activity is normally identified with one form of execution, although if the function's programming permits, it may be allowed any mix of these, then when defining the execution path, a specific mode is chosen for that instance.

Please note that only the four execution modes listed above are recognized by the WFi Engine. The functionality is available within WFi Modeler to create others, but this is intended for Infor ERP System i developers only.

### Exit Condition

See Completion Codes.

### Export

In WFi Modeler there is an Export option on the File Menu which enables you to export an Entity from one PC to another. You select the Entity you wish to export, from the list displayed, and click on the Export button. You will be prompted to specify the file name to be used to hold this generated file. Once the file is created you can use E-mail or other method to transfer the file to another PC. Once on the target PC you use the Import option of the File Menu to incorporate it as an Entity into the WFi Modeler Palette.

Refer also to Archive, Activate, Import and Retrieve.

### Global Activities

Activities that are not associated to specific Document Types. Currently only utilized for a specific function Thread Consolidation.

### Global Data Fields

These are Data Fields that have been defined as being applicable to any Document Type. When you select Data Fields from the Work Management menu in WFi Modeler you can select Global Variables from the Context list.

Please note the following:

- A Global Data Field can have a Data Field Type of Programmatic, Text, SQL or Workflow.
- A Workflow Data Field Type can only be global.
- A child Data Field cannot be global.

For example, you could create a textual global variable to hold the name of a company, or a Christmas Greeting. You would use a Global Data Field, with Text Data Field Type and a Usage of Description. You could then use this variable in your report programs.

### Green-On-Black

AS/400 character-based screens (GOB). They are so described because of the green lettering on a black background.

### Grid Box

This is an Infor ERP System i feature and not a Microsoft feature. It is a custom control that is based upon the Microsoft Flexible Grid control and is the standard grid control used within WFi Modeler.

It is a table of information where each cell of the table can be used in the same way as a standard Windows field. If you click with the left mouse button the cell becomes either a text box or a list box for you to select or enter information.

Tip: Click with the right mouse button under the toolbar to display the first row.

The functionality may vary between software applications, but these are some of the features which you may have:

- Add, delete, and copy rows.
- Export the entire contents into Microsoft Excel.
- Select a single cell or a row of cells or the entire table. If you highlight the row and then click with the right mouse button you display a context-sensitive pop up menu.

There may be a Customize option on the pop-up menu, with these sub-options:

- View - Displays the Column Window - change column headings and positions.
- Font - Change the Font for the headings.
- Color - change the color of the foreground and background.
- Reset - Undo any custom changes.

There may be a context-sensitive pop up menu behind the Heading row to enable you to resize the Column width, to match the title or the space available, or to hide the column altogether.

**GUI**

Graphical User Interface

**Host**

Another term to describe the Server - the main platform on which the Database resides - which sends data to, and receives data from, the Client.

**IE**

Internet Explorer. This is a Microsoft product.

**Import**

In WFi Modeler there is an Import option on the File Menu which enables you to import an Entity from one PC to another. When you Import an Entity all the associated elements are copied with it, for example any associated Document Types or Data Fields. You can import the following file types: .BPR, .ACT, .TSK, .CON. When you import a .con file all associated embedded files are opened with it.

Business Processes previously archived to your server can be retrieved using the Retrieve button on the Business Process Status Window. Business Process archives can be created via settings in the Activate Advanced Window.

Refer also to Archive, Activate, Export and Retrieve.

**Initial Activity**

An Initial Activity is the first activity in a Business Process and because of this requires special conditioning associated to it. Unlike second or subsequent activities it cannot be immediately identified as belonging to a particular Business Process and this must be determined by the WFi Engine.

For example, the Order Entry activity might be included in the designs for more than one Business Process. The WFi Engine does not recognize that the activity is enabled for Work Management until the order is created, and at this point the Business Process is not known and may vary according to the order created.

As soon as the WFi Engine recognizes that an activity is enabled for WFi it checks to see if it is an Initial Activity. If it is an Initial Activity, the Engine then checks all the active and effective Business Processes to find the ones for which this activity in question is the Initial Activity.

If the Engine finds only one Business Process, it automatically runs the Activity. If the Engine finds more than one Business Process, it displays a list of all these Business Processes and the Infor ERP System i Workspace user identifies the appropriate process. However, for a user to be notified in this way, the user must be configured as a Recipient. You use the Properties for Link Window to do this. Note that if there are no recipients configured then by default the user is notified.

### Input Field

This is a field into which you type data.

### Internet Explorer

This is a Microsoft product.

### Links

These are lines which link together the various elements of a design on the WFi Modeler Canvas to form a continuous process. Within Business Processes a link contains data relating to the recipients for the target element on the link. You can edit this data by selecting the Properties option from the Link (Lines) Menu.

### Logon

In WFi Modeler you log on to the AS/400 only when you start an activity (e.g. activate a process).

Not all activities may be connected to the same host system so you may have to logon more than once depending on which activities you start. You can optionally assign a system to each elemental activity, by using the Properties Window. Any elemental activity which does not have a system assigned uses the default system.

### Manual Activities

Note that the Activity Code for a Manual Activity is always MANACT.

You create a Manual Activity as part of the design of a Business Process on the WFi Modeler Canvas. This is a way of allowing the Infor ERP System i Workspace user to have an input to the process.

You can display messages for the Infor ERP System i Workspace user either for information (for example, Order received) or to instruct non-System i activity to be carried out, typically in response to an exception triggered in the process; for example, Phone customer as the EDI order was incorrectly priced.

For example, you could enable the user to decide what to do about failed credit checks. You might display a message explaining that the customer has exceeded their credit limit and advise them to contact the customer to resolve the situation.

You could place buttons on the window to enable the user to perform a credit inquiry or view orders. This processing would be conceptually at a tangent to the processing on the Canvas.

You could place buttons on the window to enable the user to determine routes from the Manual Activity. This processing would be part of the design on the Canvas, represented by lines connected to output nodes from the Manual Activity.

**Manual Forwarding**

This is where Action List entries are forwarded to other users.

**MDI**

Multiple Document Interface. This is a facility for opening one or more files within the same software application.

For example, in Microsoft Word, you can have one or many documents open at the same time. In WFi Modeler you can have one or many Entities, each with their own Canvas, open on the Workspace at the same time.

**Microsoft**

Microsoft is a registered trademark and Microsoft Office, Microsoft Excel, Microsoft PowerPoint, Microsoft Windows, and Microsoft Internet Explorer are trademarks of the Microsoft Corporation.

Infor software supports a Graphical User Interface (GUI) which is fully compatible with the Windows software designed by the Microsoft Corporation. For more information about Microsoft Windows refer to the Microsoft Corporation publications. You can visit their website at www.microsoft.com.

**Model**

The pictorial construction of a business process, its activities, and paths in WFi Modeler.

**Multiple Document Interface**

This is a Microsoft Windows term used where more than one document can be open on the Workspace at any one time. The Window drop down menu displays a list of open documents and you select a document from the list to bring it to the front so you can see it.

In WFi Modeler the Multiple Document Interface (MDI) facility is interpreted as several Canvasses opened on the Workspace at any one time.

**Multi Document Processing**

Identifies where an activity can process multiple Document Types in one execution, or whether it will operate for a single Document Type only. This option is established for an activity against the mode of execution but can be overridden on any instance of the execution of the activity, that is on the execution details for a completion node path. Useful override where a process, such as a document print, can run automatically for a single order, but also in a batch mode to print many orders.

### Multi Recipients

This is where you send an activity message to more than one User, E-mail address or Role along a single processing pathway. For example, having completed an activity to price an order you might decide to have the order approved by the Production Controller, the Cost Controller, and the Sales Manager. You could set up a Manual Activity for the approval process and define all three recipients within the properties for the link leading to the Manual Activity.

You enter recipient details on the Properties for Links Window. If you enter more than one recipient row of details this displays a symbol on the link on the WFi Modeler Canvas, with the actual number inside. For example, the symbol below indicates that there are two recipients.

You can also define whether processes should be allowed to continue when one of the recipients has executed the activity or when all of them have executed the activity. You determine this with the Single User Process checkbox, also on the Properties for Links Window. If you uncheck the box, then a blue block is placed against the symbol. In the example below, where there are two recipients, both recipients would have to complete an activity before processing could continue:

Note that all numbers greater than five are represented by 6+.

### Multi Thread

See Threads.

### Nesting Business Processes

You can drag a Business Process onto the Canvas of another Business Process in WFi Modeler. This is how to nest Business Processes. You can nest to many levels.

Note: The nested symbol has a cross in the center and if it has more than one Start Condition then the symbol also has a yellow dot to the left-hand side of the circle.

These Start Condition defaults apply to nested Business Processes:

- Firstly:

  If the calling element in the top-level Business Process has a Document Type defined in its Properties, then by default WFi Modeler will use this to match up with a Start Condition for the second level Business Process. For example, this Document Type might be SALESORDER.
- Secondly:

  You can override the first default condition by using the Select Start Node Window to select which start node you want to use for the second level Business Process, when it gets called by the top level Business Process. Select Start Node is an option on the Business Process Link pop up menu.
- Thirdly:

  However, it is possible for the second level Business Process to have more than one Start Condition with the same Document Type. For example, there may be two Start Conditions defined with SALESORDER, in which case you would need to specify which one to use. To do this you check the Default Start Node for This Document Types box on the Properties for Start Node Window, to define which one is to be the default.

### Nodes

The symbols on the WFi Modeler Canvas may have circular segments to the right side of the center circle. These are referred to as Exit Nodes. These nodes represent the exit points from the element, for example for Save and Cancel buttons. To amend the node details, use the Properties Window.

A Start Condition has only one exit node.

### Object Linking and Embedding

This technology enables Automation and Document Embedding and is a subset of Microsoft's Component Object Model (COM).

This is now termed ActiveX. Refer also to Microsoft.

### Open Database Connectivity (ODBC)

This is Microsoft-defined technology and refers to the provision of standard interfaces to many databases. ODBC is a vehicle for translating SQL statements, sending requests to the database, and bringing back the data. For example, a PC application might want to access an AS/400 database that is managed by the AS/400 operating system. The PC would use ODBC to interface to the database.

Microsoft provide an ODBC Administrator where you can determine the driver settings for each database. See the Settings\Control Panel option on your Start menu. If you have written your SQL statements correctly you can direct a machine to any database by changing the ODBC settings.

### Organization Attributes

Like Organization Categories except that they are added to Organization Units for memorandum purposes only. They can be added to Organization Units or they can be omitted altogether.

Example Organization Attribute: Male/Female.

### Organization Category

A level within an Organization Unit.

Example Organization Category: Department Name.

### Organization Units

An Organization Unit is a type of Entity, defined within WFi Modeler, which is used to define areas of responsibility upon Business Processes. Organization Units can be created and used to represent different levels in an organization chart, for example, to represent a department or an employee.

Within WFi Modeler, an Organization Unit may be based upon an Organization Category and may support one or more Organization Attributes.

**Orthogonal**

Containing right angles.

**Output Field**

This is a field used for displaying text. An example of this might be a field name or a heading.

**Page**

This is an area within a Canvas that is used for designing an Entity. This is, by default, a white space with grid markings. A design can extend beyond the Page into the blank Canvas but if Swimlanes are used then the design must fit onto the Page for WFi Modeler to position the co-ordinates correctly.

**Palette**

In WFi Modeler you select Elements from the Palette when designing an Entity on a Canvas.

**Parallel Path**

This is a WFi Modeler Control used to split a logical pathway through a Business Process into two or more parallel pathways. Processing takes place along the parallel pathways simultaneously. For example, a Business Process containing order entry procedures might split into two parallel pathways so that on one pathway there could be processing to print pick notes and on the other pathway there could be processing to print order acknowledgements.

Parallel processing can only take place on the Server, under Work Management control, and not on the PC. For this reason, you can have a Parallel Path only within a Business Process.

Business Processes can have any number of Parallel Paths, but Assembled Activities, Subassemblies and Activity Lists cannot have any at all.

Also see User Activity.

**Parent Process**

A parent process is initiated from an external event and may link to other child processes. Second or subsequent activities in a parent process, as well as all activities in a child process, can identify a Business Process either as a result of their invocation, via Work Management or via the Action List, or from the Document Types which are selected. However, the Initial Activity in a parent process cannot identify the process in this way.

For example, where pick notes and invoices are created as part of a Sales Order process then Pick Notes and Invoices are child processes creating child documents. Sales Order is the parent process.

### PDF Files

Files with an extension of .pdf are Adobe Acrobat files.

### Pending

Activities that are next to be processed have transactions of a pending status.

### Pinning

This is the process of fixing an Activity to a Swimlane, on the Canvas, when designing a Business Process. The Activity and the Properties on the link can inherit, by default, some of the properties of the Organization Unit. Pinning enables the generation of Role Menus and the Child Map. To pin an Activity, you select Swimlane – Allocate from the Activity's pop up menu.

### Platform

A combination of server hardware and operating system.

### Popup

Popup menus are context sensitive and their options vary depending on which part of WFi Modeler you choose to click with the right mouse button. These are often referred to as right click menus. For example, in WFi Modeler you can click on the Canvas with the right mouse button to display the Canvas Menu. This is a popup, context sensitive, menu.

### Preferred Path

A Preferred Path through a Business Process is one that defines the sequence of events that you are expecting to happen. It denotes the most likely course of action. You set the pathway from the pop-up menu, for the link between activities, and the line itself becomes emboldened and any Exit Nodes on the pathway change from yellow to green.

When you set a link to be on the Preferred Path then WFi Modeler will try to work out the rest of the Preferred Path for you, in a forward direction through the Business Process. If an element has one Exit Node, then the Preferred Path will continue through to the next link. If an element has more than one Exit Node, then the Preferred Path will only continue through to the next link where this can be assumed.

It is possible to have more than one Preferred Path through a Business Process. This is necessary within a nested Business Process, where any of the Preferred Paths could be taken, depending on certain conditions set in the top-level Business Process.

### Print

Currently all jobs run on the server are run by the WFi Engine and are, by default, directed to the engine's default print queue. However, the setting can be overridden to direct the print to the users own print queue. This is defined on the link properties.

### Process Code

See Business Process Code.

### Process Performance

As documents pass through a process each activity is time-stamped, before and after execution, to provide the base data for the analysis of process performance and bottlenecks.

### Process Rescheduling

Process Rescheduling comprises a set of tools and features, within WFi Modeler and Infor ERP System i Workspace that enable you to use Business Processes for planning, scheduling, and costing in real time. These tools and features include:

- Metrics data - stored on the links between the activities.
- A Preferred Path through the Business Process - used by the WFi Engine to create Timestamps.
- Calendars - used to influence the calculations of Timestamps.
- Event Agents and Event Data Fields – used to extract and test the Timestamps.
- An Auto-Start facility and a Manual Start Explorer facility - to kick off the Business Process and start the Process Rescheduling.

### Process Viewer

This is software that is delivered with WFi Modeler You can access Process Viewer from the Start Menu as a standalone option.

You can view files with the extension .GAT(Graphical Action Tracker), .CON (WFi Modeler Export File), .ACT (Assembled Activity), .TSK (Activity Lists), and .BPR (Business Process). The Business Process attached to a selected activity is displayed graphically in the Process Viewer window. You can view a selected Business Process file, Activity List or organizational point - the file does not have to be attached to an activity.

### Reason Codes

The reason a Document Type has been given a particular completion code coming out of an activity, effectively a subdivision of the completion code state. Useful where a function has many reasons why a particular state arises, but the business process only needs one output path through to the next activity. The reason codes are shown on the audit and trace enquiries.

**Reference Model**

A Reference Model may be used as a basis from which to build a specific Business Model for a company. It may give a company insight into different ways of working, best practices or potential performance improvements from outside the company's own experience.

**Retrieve**

In a WFi Modeler context this refers to the loading of files or data from the Server to the PC.

Note that the retrieval process for Entities is different to that for other Elements such as Data Fields or Document Types. This is because the format of Entities on the server does not mirror that on the PC from which it was activated, whereas that for other Elements the format is the same in both places.

For an Entity you can retrieve the archive using the Retrieve button on the Business Process Status Window. Refer also to Archive.

For other Elements take the Retrieve option on the Work Management Menu which enables you to select items such as Data Fields and Document Types and retrieve them from the design time database on the Server.

Refer also to Activate, Archive, Export, and Import.

**Right Click**

This means click once with the right mouse button. Usually this displays a context sensitive pop up menu from which you can select further options.

**Roles**

Also see Role Codes and Role Menu.

A role in Infor ERP System i Workspace is a job title to which certain activities are assigned. For example, a typical role might be that of Sales Order Clerk, to which the activities of order entry and order acknowledgement might have been assigned. The users who have been given Sales Order Clerk permissions will then be able to perform these activities from the Sales Order Clerk's role menu.

**Role Codes**

This is a System Manager feature. See also Roles and Role Menu.

If you want to make full use of WFi then you must assign role codes to role menus. Each role menu has a unique role code (max 10 characters).

**Role Menu**

See also Roles and Role Codes.

A Role Menu is a collection of activities available to a person assigned to a particular role within the organization.

For example: You might have an Order Entry Clerk role menu designed specifically for the order entry clerk. On this menu would be all the activities which the order entry clerk would be expected to undertake, such as Order Entry; Order Cancellation; Enter Credit Notes; Stock Allocation. The PC used by this clerk would be enabled only for that role menu and each of the activities could be put onto the desktop for easy access.

**Role Menu Generation**

A role menu can be automatically generated from Swimlanes used in Business Processes. Swimlanes are applied to Business Processes to separate activities into Organization Units.

**SCC**

Supply Chain Council.

This is an independent non-profit-making corporation that attempts to encourage best practice by companies operating within the supply-chain.

Further information regarding the Council and SCOR can be found at the Council's Web site: www.supply-chain.org.

See also SCC History and SCOR Model.

**SCC History**

The Supply Chain Council was organized in 1996 by Pittiglio, Rabin, Todd, & McGrath (PRTM) and Advanced Manufacturing Research (AMR), and initially included 69 voluntary member companies. Council membership is now open to all companies and organizations interested in applying and advancing state-of-the-art supply-chain management systems and practices. Member companies pay a modest annual fee to support Council business.

Further information regarding the Council and SCOR can be found at the Council's Web site: www.supply-chain.org.

See SCOR Model.

**Scheduled Batch**

One of several Execution Modes. Work Management will, on completion of one activity, execute a subsequent activity identified as Scheduled Batch when the identified schedule date and time becomes current.

**Scheduler**

The Work Management Activity Scheduler is a background processor that, working with the schedule rules, identifies when pending transactions marked Scheduled should be processed, and then, when appropriate, queues those tasks.

**SCOR**

Supply-Chain Operations Reference.

Developed and endorsed by the Supply Chain Council, SCOR is the cross-industry standard for supply-chain management and is freely available to all who wish to use their standard reference model.

All who use the SCOR model are asked to acknowledge the SCC in all documents describing or depicting the SCOR Model and its use. All who use SCOR are encouraged to join the SCC, both to further model development and to obtain the full benefits of membership. See also SCC History.

Further information regarding the Council and SCOR can be found at the Council's Web site: www.supply-chain.org.

**SCOR Model**

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Further information regarding the Council and SCOR can be found at the Council's Web site: www.supply-chain.org.

**Selection Handle**

Selected items or groups of items on the canvas are displayed with selection handles. These are small black grab handles for each item which then change to white when the canvas has been locked.

**Server**

The Server is the main platform on which the System i Applications and Database reside - which transfers data to the Client.

### Single User Process

There is a Single User Process checkbox on the Properties for Link Window, and this works in conjunction with the Recipients Grid Box, also on the same window.

The Single User Process only applies when you are sending an activity message to more than one User, E-mail address or Role, that is, where you have Multi Recipients. Multi Recipients is represented on the WFi Modeler Canvas by a symbol on the link displaying the number of recipients, as in the example below which indicates that there are two recipients.

If you leave the Single User Process box checked this means that processing can continue after one user has executed the activity and the message will disappear from the other users' Action List or Email inbox.

If you uncheck the Single User Process box this means that processing cannot continue until all the users have executed the activity. This delay in processing is represented on the Canvas by a blue block against the symbol, as shown in the following example.

### Software Model/Modelling

The Software Model defines precisely which programs from the application suite will be used to support the activities defined in a process within the Business Model.

In addition, where there is no appropriate application, the software will identify the manual or external activity that must be carried out to complete the stage of the process.

### Splitter

Also referred to as Business Object Splitter.

A Splitter is a Control that enables you to apply separate processing to parent and child records within the same Document Type. The parent processing occurs only once but the child processing occurs once for each child record.

For example, you could use this to analyze Order Headers and Order Lines within a Sales Order Business Process, where the Order Header is the parent record and the Order Lines are the child records.

You can apply synchronization to the Splitter symbol which means that processing cannot continue until all processes leading into the Splitter have completed. In the example below it would mean that both Order Entry activities must be completed before the Splitter, called Sales Order, can be executed.

### Start Conditions

This is a WFi Modeler Control used at the start of a logical pathway. Business Processes can have any number of Start Conditions, but Assembled Activities, Subassemblies and Activity Lists must have only one.

There are three types of Start Condition:

- Default – where the Start Condition is just a marker for the start of the design.
- User Requested – where the Business Process has been started by the user, from Infor ERP System i Workspace, using the Business Process Launcher. Where there is a nested Business Process the User Requested Start Condition is set in the Business Process at the lower level, not at the top level.
- Auto Monitor - where the Business Process has been started automatically by the WFi Engine. Every time the WFi Engine is restarted then any Business Processes with this type of Start Condition will also be started.

### Supply Chain Council

Also referred to as SCC.

This is an independent non-profit-making corporation that attempts to encourage best practice by companies operating within the supply-chain.

Further information regarding the Council and SCOR can be found at the Council's Web site: www.supply-chain.org.

See SCC History and SCOR Model.

### Synchronization

This is where you determine that an activity is not to start execution until all the activities preceding it in the process have completed. This is a way of consolidating a Parallel Path and can be used with Elemental Activities, Manual Activities, Splitters and Action Agents. You apply synchronization using the Overrides Panel for each of the Properties windows for these elements.

Synchronization is represented on the WFi Modeler Canvas by a blue block to the left of a symbol. This indicates that blocking takes place along the processing path leading into the Element. For example, the following symbol indicates that synchronization has been applied to a Manual Activity.

Synchronization is represented on the Action Tracker, in Infor ERP System i Workspace, by a status symbol, against the activity in the list, which means Awaiting Synchronization. By using the Release option on the pop-up menu, you can change the status to “Released from Synchronization”.

### System Administrator

This is a person who has responsibility for organizing the files within the computer system, installing software, solving problems, issuing passwords, and controlling user access.

### System Configuration

This is installed alongside WFi Modeler. System Configuration enables the System Administrator to configure the options available to the person using WFi Modeler by enabling or disabling various facilities for them.

You can open System Configuration either from your Windows Start menu or from the Preferences Window in WFi Modeler.

### Task

This is a term used by WFi Modeler, for scheduling and costing purposes. The Planned Schedule Window displays a list of Tasks, each of which correlate identically with the Elements on the Canvas, following the order being executed down the Preferred Path of the Business Process.

Note that there is no relationship between the WFi Modeler Task and the Application Manager Task Code.

### Task Code

A four-character numeric code used by Application Manager to identify an application program. See also Activity Code.

### Threads

All activities executed in a business process for a specific Document Type are tied together automatically with a thread identifier, that is, each transaction initiated from the original transaction in the initial activity are all associated with the same thread identification code. An exception occurs when an activity is encountered that can merge multiple input Document Type references to one or more output Document Types, when a new thread identifier is allocated. This Multi Thread identification is automatically cross referenced to each input thread.

### Thread Activities

Each activity transaction in a thread is given an incremental number to identify the sequence in which the activities were processed.

### Timestamp

This is a precise record of date and time. The WFi Engine can record the Date and Time against each Action List entry. These Timestamps can then be used by the Process Rescheduling facilities for planning, scheduling, and costing purposes. When an action is late the WFi Engine can raise an exception provided that the Business Process designer has created a Business Process to handle the raising of the exception.

### Tooltip

Pop up information to assist users. Hover the cursor over the feature to display the Tooltip.

### Trace

The recording of a transaction for the execution of every activity gives visibility of all work performed by Work Management enabled processes in Infor ERP System i. The tying together of all activities, their transactions and particular completion statuses with the thread identifiers, allows trace ability, of a Document Type showing the sequence of steps undertaken, and audit ability with details available of the users and date and time of execution.

### Transaction

A transaction is written for every activity that is processed by Work Management that is one transaction record for each activity performed on one Document Type. Where an activity produces multiple output conditions a further file holds details of those individual completion details, each one of these potentially initiating a new activity.

### Transaction Status

Transactions under the control of the WFi Engine always have a status assigned to them. They have an initial status of Pending. This status indicates that the activity and Document Type associated to the transaction is waiting to be processed, either now or later. When the activity task is in progress the status temporarily goes to Active, then when the activity is finished the status is Complete.

These statuses are set in different places. When a task is started, and the program has passed the Work Management validation checks the status is set to Active. The program, on finishing with a particular Document Type, will write a trigger record to inform the WFi Engine that it has completed. The Engine then detects the completion trigger and marks the original transaction as Complete, and generates, as required, further new transactions with a Pending status. The exception is the initial activity in a business process where there was no preceding activity that could initiate the first transaction as Pending, so this first transaction will be created in an Active state.

### Triggers

These are data queue entries which twin with the transaction completion details file. Each trigger represents a single completion code for a Document Type. At the end of the processing for a Document Type the WFi Engine detects and processes these triggers and then removes them.

### URL

Uniform Resource Locator. This is a World Wide Web location.

### User Activities

This is an WFi Modeler Control used to split a logical pathway through a Business Process into multiple-option pathways. The user can intervene to select which pathway to follow.

For example, a Business Process containing order entry procedures might have a choice of three types of processes:

One choice might be to schedule a job to print pick notes

A second choice might be to inform a user, with a particular role, that suspended order release is required, via an Action List entry

A third choice might be to inform a user, with a particular role, that manual allocation is required, via an Action List entry.

Business Processes, Assembled Activities and Sub-assemblies can have any number of User Activities, but Activity Lists cannot have any at all.

See also Parallel Path.

### User Controlled

This is one of several Execution Modes. Work Management will, on completion of one activity, recognize subsequent activities identified as User Invoked and add that activity to an Acton List. The appropriate role for the Action list entry is the role associated with that new activity execution, the Acton List entry carrying details of the specific Document Type to be processed by the user.

### Validation

The term used to describe the checks made by WFi Modeler to establish if a Business Process is viable. There is a Validate button on the WFi Modeler Toolbar which you are advised to use to validate a Business Process yourself before you activate. WFi Modeler automatically validates the Business Process again at the start of the activation procedure.

WFi Modeler displays the Validation Progress Report Window, which displays a list for you to examine, and then correct, any errors.

The list tells you whether all the output nodes are connected, whether all the input conditions are satisfied, whether all the necessary links have been made, and whether all the consumables are present and correct.

### Variable Substitution

Manual Activities and Action Agents rely on their ability to access data, on or related to the document being processed, to form their message and decide the next routing point. This data is calculated for each document, as it is processed, either as SQL retrieval or, for more complex variables, a server program.

### Walkthrough

There is a Walkthrough button on the WFi Modeler Toolbar. You use this when you are designing a Business Process and want to review or demonstrate it.

WFi Modeler takes you logically through the whole process stopping at each Control within the definition. Each time it encounters an Assembled Activity or another Business Process it drills down to the next level. If there are Business Processes within Business Processes, then all these break down too. Each time the Walkthrough stops at a Control, you see a window of details and several option buttons.

### Windows Explorer

Windows Explorer refers to the Microsoft Windows Explorer product which is available from the Windows Start Menu.

### WIP

WIP (Work In Progress) is the name of a Work Management Transaction with a Status of 4. It is represented by a yellow symbol, the same as the Active Status 2.

When an Infor ERP System i Workspace user receives an Activity in the Action List the status of that activity is Active. The WFi Engine will monitor the activity, using the Escalation and Delegation rules defined in WFi Modeler. If the Activity remains on the Action List for a length of time, without being actioned, the WFi Engine will move the Activity on to another user's Action List.

However, it may be that the user might want the Activity to remain on the Action List, and it may be inappropriate to move it to another user. To avoid the Escalation and Delegation rules being applied the user can change the status of the transaction from Active to WIP. The colour of the symbol in the Action List remains yellow.

### Workflow

The conventional term applied to toolsets that manage, control and automate the flow of work in a business process, but supplanted in Infor ERP System i 's products by the term Work Management.

### Work Space

**Caution:** Do not confuse this with Infor ERP System i Workspace.

In WFi Modeler you use the Work Space to design Entities, where each Entity is displayed on its own Canvas within the Work Space.

### Work Management

Work Management is a set of software products and services that apply workflow structure not only to the movement of information, but also to the interaction of Business Processes and human-worker processes that generate the information. Work Management streamlines and transforms crucial Business Processes and thus can improve results and performance.

### WFi Engine

This is software which awaits incoming triggers which confirm the transactions that have been completed and may require the execution of a subsequent activity. There is a trigger for each completion state on a transaction, each one possibly generating a new pending transaction. The WFi Engine schedules new activities by putting them in a queue for automatic execution or adding them to an Action List in Infor ERP System i Workspace for user execution. The WFi Engine supports parallel and serial execution of activities.

### Work Management Menu

To find this submenu please select the Configure Menu option on WFi Modeler's main menu bar.

# Appendix B IBM WebSphere MQ Message Encoding Issues

The Java API used within the Document Handler to read message data from the IBM WebSphere MQ queue provides two methods for reading message data namely, `readUTF` and `readString`. Normally, the Document Handler would use `readString` but if data has been written to the queue using the matching `writeUTF` extension then it can only be read back in correctly using `readUTF`.

As XML could be written by other third party products to the Document Handler IBM WebSphere MQ input queue (and therefore be out of our control) we have added the `readUTF` property that can be set when unsure of the input message encoding. This will use the `readUTF` IBM WebSphere MQ API Java function.

**Caution:** The `readUTF` method will only be used when the CCSID of the message is denoted as being a Unicode format, otherwise the `readString` method will be used.

The `mqAIFTriggerWriteUTF` property can be used to write IBM WebSphere MQ messages out using the `writeUTF` IBM WebSphere MQ API Java function. If this is not set, then the `writeString` IBM WebSphere MQ API Java function will be used.

**Caution:** There may be some combinations of the `mqAIFTriggerCharacterSet` that cannot be used when `mqAIFTriggerWriteUTF=yes`. We recommend that when using the UTF write that the character set encoding used is 1208 (CCSID code for UTF-8 format).

**Caution:** The read and write UTF functions are supplied for users of older versions of IBM WebSphere MQ and some DBCS based countries. We recommend that if unsure as to what format to use that either the default CCSID for the IBM i system or a CCSID of 1208 (Unicode) and do not use the read/write UTF methods.

# Appendix C DTD for Manual Activity Messages

Manual Activity XML message data must conform to the following Document Type Definition (DTD).

```
<!--
     ****************************************
     *                  *
     * Manual Activity Element definitions *
     *                                      *
     ****************************************

     The Manual Activity XML Document is made up of 4 element sections
-->
<!ELEMENT MANUAL_ACTIVITY (META_DATA, TITLE, BODY, COMPLETION_DETAILS,
ATTACHMENTS*)>

<!--
     The META_DATA section contains all the data field definitions and data
-->
<!ELEMENT META_DATA (DATA_FIELD_DATA)*>

<!--
     The TITLE section can be spread over multi lines and contain data fields
and text
-->
<!ELEMENT TITLE (#PCDATA | DATA_REF | NEW_LINE)*>
```

```
<!--
     The BODY section can contain text, links to data fields, links to
     other programs, tables and edit fields
-->
<!ELEMENT BODY (#PCDATA | DATA_REF | LINK_DATA | NEW_LINE | CHECK_BOX |
RADIO_BUTTON_GROUP | LIST | INPUT_TEXT | TABLE)*>

<!-- The COMPLETION_DETAILS section can only contain NODE elements -->
<!ELEMENT COMPLETION_DETAILS (NODE)+>

<!-- The ATTACHMENTS section can only contain ATTACHMENT elements -->
<!ELEMENT ATTACHMENTS (ATTACHMENT)*>

<!-- The ATTACHMENT section can contain DATA_REF or TEXT -->
<!ELEMENT ATTACHMENT (#PCDATA | DATA_REF)*>

<!-- Allow data fields to have other nested data fields. -->
<!ELEMENT DATA_FIELD_DATA (#PCDATA | DATA_FIELD_DATA | DATA_FIELD)*>

<!-- DATA_FIELD elements have no children -->
<!ELEMENT DATA_FIELD EMPTY>

<!-- DATA_REF elements have no children -->
<!ELEMENT DATA_REF EMPTY>

<!-- NEW_LINE elements have no children -->
<!ELEMENT NEW_LINE EMPTY>

<!--
     The caption of a link will be stored in the #PCDATA. User can place a
     data field in the caption if they export the XML
-->
```

```
<!ELEMENT LINK_DATA (#PCDATA | FIELD_OVERRIDE | DATA_REF | NEW_LINE |
FIELD_PARAMETER)*>

<!-- The FIELD_OVERRIDE value can be either text or a data field -->
<!ELEMENT FIELD_OVERRIDE (#PCDATA | DATA_REF)*>

<!-- The FIELD_PARAMETER value can be either text or a data field -->
<!ELEMENT FIELD_PARAMETER (#PCDATA | DATA_REF)*>

<!-- The CHECK_BOX value can be either text or a data field -->
<!ELEMENT CHECK_BOX (#PCDATA | DATA_REF)*>

<!-- The RADIO_BUTTON_GROUP can only have RADIO_BUTTON child elements -->
<!ELEMENT RADIO_BUTTON_GROUP (RADIO_BUTTON)*>

<!-- The RADIO_BUTTON value can be either text or a data field -->
<!ELEMENT RADIO_BUTTON (#PCDATA | DATA_REF)*>

<!-- The LIST can only have LIST_ITEM child elements -->
<!ELEMENT LIST (LIST_ITEM)*>

<!-- The LIST_ITEM value can be either text or a data field -->
<!ELEMENT LIST_ITEM (#PCDATA | DATA_REF)*>

<!-- The INPUT_TEXT value can be either text or a data field -->
<!ELEMENT INPUT_TEXT (#PCDATA | DATA_REF)*>

<!-- The NODE caption will be stored in the #PCDATA -->
<!ELEMENT NODE (#PCDATA) >

<!-- The TABLE element only contains TABLE_HEADER and TABLE_BODY . -->
<!ELEMENT TABLE (TABLE_HEADER | TABLE_BODY)+>
```

```
<!-- The TABLE_HEADER element only contains COLUMN. -->
<!ELEMENT TABLE_HEADER (COLUMN)+>

<!-- The TABLE_BODY element contains ROW. -->
<!ELEMENT TABLE_BODY (ROW)+>

<!-- The ROW element contains COLUMN. -->
<!ELEMENT ROW (COLUMN)+>

<!-- The COLUMN contains data. -->
<!ELEMENT COLUMN (#PCDATA)*>
```