



# WFi

## Administrator's Guide

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## About this guide

### Intended audience

System administrators, with a good understanding of Microsoft Windows and IBM i, who install and configure these systems.

### Related documents

You can find the documents in the product documentation section of the Infor Support Portal, as described in "**Error! Not a valid bookmark self-reference.**" on page 6.

*WiFi Installation Guide*

*WiFi User Guide*

### Contacting Infor

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

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If you have comments about Infor documentation, contact [documentation@infor.com](mailto:documentation@infor.com).

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# Welcome

This guide is intended to help WFi Administrators in tracking down and rectifying problems.

This guide is an additional accompaniment to the WFi Installation and User guides which should be read prior to reading this guide.

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## System i Workspace

### Work Management Administration Role

The Work Management Administration Role (WFIWMADM) has been created to group together the common tasks that an administrator needs to perform. You can access this role using Infor System i Workspace.

The STRWM, ENDWM, STRWFICMP and ENDWFICMP tasks are covered in the WFi Installation Guide. The various WFi Components can be started/stopped as batch jobs using options 10 – 17. The other options are covered below.

### Using DSPWFERR

See EWM Error Handling in the WFi Engine section below.

### Using EWMCONSOLE

You should use the **EWMCONSOLE ENV(\*CR)** command to check the state of you WFi Environment.

In the initial view, you can see whether the WFi programs are running, and when (and by whom) they were started.

---

## WM Console

Actions | [Icons] | ?

The Current Environment is: **WM4**

WM in this Environment is currently: **ACTIVE**

WM Files Version: **WFI MAY 2014**

The WM files library for this Environment is: **WM4WFF3**

**WM Job Status**

|                                    | Status | Started on | at    | by        |
|------------------------------------|--------|------------|-------|-----------|
| WM Engine                          | Active | 4/15/15    | 14:21 | AULV30RES |
| WM Scheduler                       | Active | 4/15/15    | 14:21 | AULV30RES |
| WM Escalation/Delegation processor | Active | 4/15/15    | 14:21 | AULV30RES |
| WM Trigger Recovery Monitor        | Active | 4/15/15    | 14:21 | AULV30RES |

**WM Transaction Status**

Pending transactions awaiting processing by the Engine: **4**

Action list entries awaiting user processing: **135**

Records locked by the WM Engine prior to TODAY: **16**

Reported errors on the WM Error Log: **120**

Trigger Handler MQ Status: **MQ**

More:

Exit Refresh Extract History MQ Status Trigger Status

Press **Page Down** to see the rest of the summary.

## WM Console

Actions | [Icons] | ?

The Current Environment is: **WM4**

WM in this Environment is currently: **ACTIVE**

WM Files Version: **WFI MAY 2014**

The WM files library for this Environment is: **WM4WFF3**

WM Trace is currently: **OFF**

The Current WM Variable Substitution Library List is:

|         |         |         |
|---------|---------|---------|
| QGPL    | DBSGLP2 | DBST2P2 |
| QTEMP   | DBSCSP2 | DBSOEP2 |
| DBST1F2 | DBSPLP2 | DBSINP2 |
| DBST1P2 | DBSL1P2 |         |
| DBSSLP2 | DBST2F2 |         |

**Batch Job setup:**

| Batch Job setup:      | Job Library/Queue |
|-----------------------|-------------------|
| Immediate Batch Jobs: | QGPL/QINTER       |
| Automatic Batch Jobs: | QGPL/QBATCH       |
| Scheduled Batch Jobs: | QGPL/QBATCH       |

Bottom

Exit Refresh Extract History MQ Status Trigger Status

Should IBM WebSphere MQ Series be unavailable for any reason, the Trigger Program (WF500A) will store any events to a database file. You can see the current Trigger Status by pressing **F15**.

Actions |

**Trigger Handler Status**

Environment: WM4

Status: MQ

**MQ Error Details**

Error occurred at: on 0/00/00

Last checked at: on 0/00/00

MQ message id:

MQ queue manager:

MQ queue name:

MQ function:

Exit Previous MQ Status

When IBM WebSphere MQ Series is available, the status will be shown as **MQ** (as above). When it is unavailable it will be shown as **Database** and the IBM WebSphere MQ Series error shown.

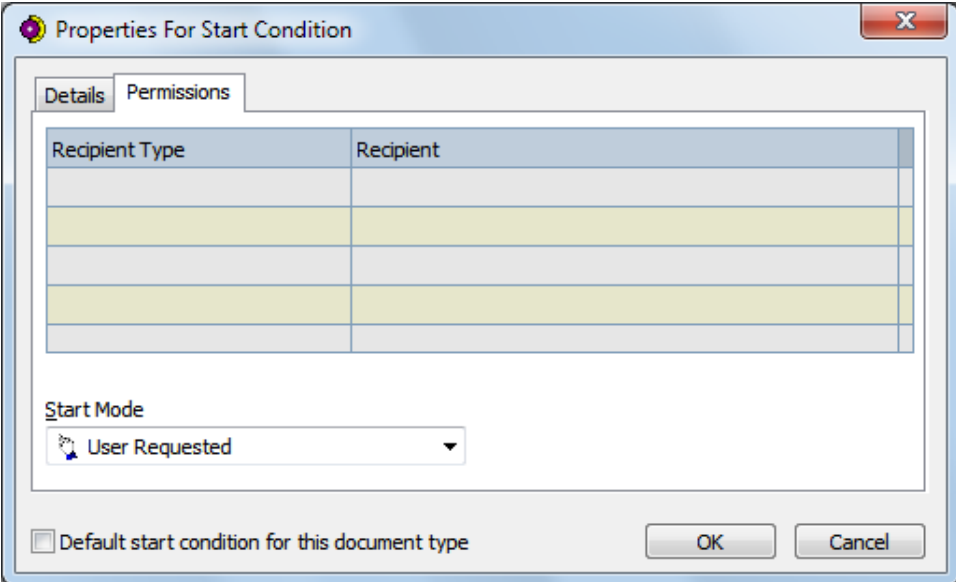
Once the IBM WebSphere MQ Series problem is resolved, the WM Trigger Recovery Monitor will copy the events written to the database, in sequence, back to the correct Trigger Handler IBM WebSphere MQ Series queue for processing. If trigger events occur whilst this copy is in process, they will also be written to the database, so the sequence of events is always maintained. Once the database has been cleared of pending events, the Trigger Program will once again write events direct to IBM WebSphere MQ Series.

**Note:** If you use Database triggers, Infor recommends that you always have the WM Trigger Recovery Monitor program running to protect loss of vital business data.

## Using RUNWMBPL

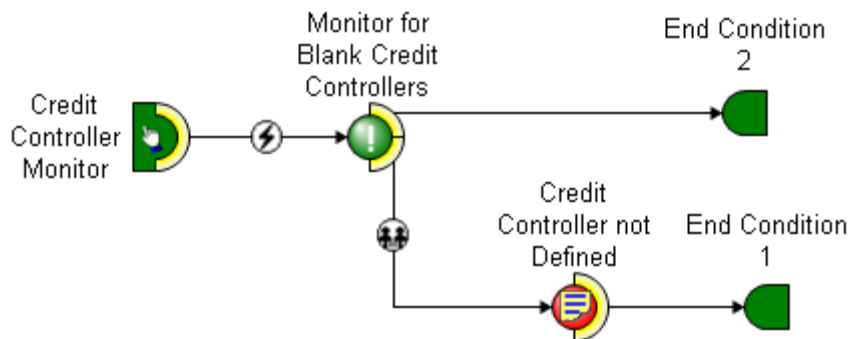
This command can be used to launch Business Processes that have been defined to have a “User Requested” start mode. This is configured within WFi Modeler in the properties of the Start element, under the Permissions tab; E.g.

---



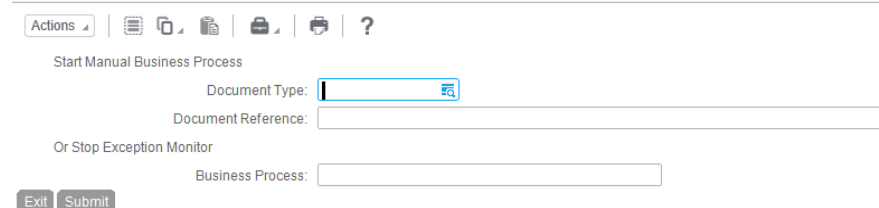
The dialog box titled "Properties For Start Condition" has two tabs: "Details" and "Permissions". The "Details" tab is active, showing a table with two columns: "Recipient Type" and "Recipient". The table has five rows, with the first and third rows highlighted in yellow. Below the table is a "Start Mode" section with a dropdown menu currently set to "User Requested". At the bottom, there is a checkbox labeled "Default start condition for this document type" and two buttons: "OK" and "Cancel".

When the Start Mode is set to User Requested, the Start element will be shown with a hand icon in the Business Process; E.g.



To start a process defined this way, you use the RUNWMBPL task.

#### Start a Business Process



The "Start a Business Process" form includes a toolbar with icons for Actions, Start Manual Business Process, Document Type, Document Reference, Business Process, and Help. Below the toolbar, there are three main sections: "Start Manual Business Process" with fields for "Document Type" and "Document Reference"; "Or Stop Exception Monitor" with a "Business Process" field; and "Exit" and "Submit" buttons at the bottom.

In the Document Type field, enter a question mark and press **F4** to view the Business Objects available in WFi.

| Opt                      | Bus Object | Short Description |
|--------------------------|------------|-------------------|
| 1                        | COMPANY    | Company           |
| <input type="checkbox"/> | CREDITNOTE | Credit Note       |
| <input type="checkbox"/> | CUSTOMER   | Customer          |
| <input type="checkbox"/> | DELIVERYPT | Delivery Point    |
| <input type="checkbox"/> | EMAIL      | Email             |
| <input type="checkbox"/> | ERROR      | ERROR             |
| <input type="checkbox"/> | GRN        | GRN               |
| <input type="checkbox"/> | GRNITEM    | GRN Item          |
| <input type="checkbox"/> | GRNNSITEM  | GRN Non Stock     |
| <input type="checkbox"/> | INVOICE    | Invoice           |

More...

Previous

Put a 1 in the edit field next to the Business Object your wish to select. Page Down for more options if the More label is displayed at the bottom of the list.

In the main screen, enter a Business Object (Document) reference and press Submit (**F8**) to continue.



## Select Business Process

Select Business Process

| Sel                                 | Business Process            | Version |
|-------------------------------------|-----------------------------|---------|
| <input checked="" type="checkbox"/> | Action Agent Test 1         | 0006    |
| <input type="checkbox"/>            | ActiveMQ DH Process         | 0002    |
| <input type="checkbox"/>            | AdHoc Attachments Example 1 | 0003    |
| <input type="checkbox"/>            | Covidien Forms Example      | 0003    |
| <input type="checkbox"/>            | Duplicate Carriage Return   | 0002    |
| <input type="checkbox"/>            | Test Delegation XSL         | 0004    |
| <input type="checkbox"/>            | DHL 5250 Overrides          | 0006    |
| <input type="checkbox"/>            | Test Delegation             | 0001    |
| <input type="checkbox"/>            | Editable MA To Email        | 0001    |

1=Select

Process without WM control

This screen contains a list of all the Business Processes for the selected Business Object that can be started manually. Put a 1 in the edit field next to the Business Process you wish to start or press “Process without WM control” (**F20**) to exit without starting a process.

You can also use the RUNWMBPL program to stop any active Exception Monitors. In the Business Process field, use the prompt or press **F4**. A list of active Exception Monitors is shown.



## Select Event Agent to End

Type in Option, and press ENTER

1=Select

Position to:

Opt Event Agent Reference    Event Agent Name    Status

☐ EVNT#1 03/12    Check Pending Actions    3

Bottom

Previous

Put a 1 in the edit field next to the Exception Monitor you wish to stop. The window will automatically close and return to the previous screen. Press Submit (**F8**) to submit the stop request.

## Creating a New Action Tracker Query

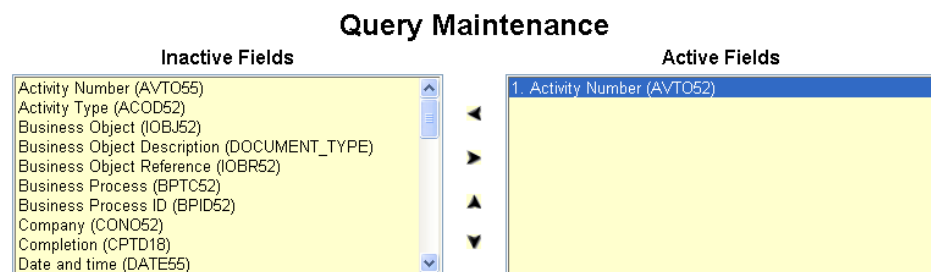
The Action Tracker Query folder, under the *Work Management Administration* role, contains a set of pre-defined general Action Tracker queries that can be used to view the state of processes within your system but, if you wish to create a specific query, tailored to your Business Processes, use the *Create a New Action Tracker Query* task.

The screenshot shows the 'Query Maintenance' window in the 'System i Workspace' application. The window has a header bar with the 'infor' logo and 'System i Workspace' text. Below the header, there is a navigation bar with 'System i Home' and 'Create new query \*'. The main content area is titled 'Query Maintenance' and contains three panels: 'Inactive Fields', 'Active Fields', and 'Allowed Searches (Permissions)'. The 'Inactive Fields' panel lists several database fields with their source file in parentheses: Activity Number (AVT052), Activity Number (AVT055), Activity Type (ACOD52), Business Object (IOBJ52), Business Object Description (DOCUMENT\_TYPE), Business Object Reference (IOBR52), Business Process (BPTC52), Business Process ID (BPID52), Company (CONO52), and Completion (CPTD18). The 'Active Fields' panel is currently empty. The 'Allowed Searches (Permissions)' panel is also empty. Below the panels, there is a 'New Search' button and a note: 'To get a URLs for the above search, right-click on one of the links below and select "Copy Shortcut"'. Below the note are two links: 'Locked' and 'Unlocked'.

The Inactive Fields list contains all the WFi database fields that can be displayed through the Action Tracker interface. The queries themselves can be executed over live data within three WFi transaction files; WFP50 (Message Data), WFP52 (Complete WM activity transaction data) and WFP55 (Pending Activities). Some of the fields are duplicated, one for each file (e.g. Activity Number can be found in WFP52 and WFP55). The database field name (in brackets) shows which file the field comes from. There are a few extra fields in this list...

| Field Name                         | Description                                                                                                                                  |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Business Object Description</b> | The “human-readable” text associated with the ten-character Business Object code. Defined in WFi Modeler.                                    |
| <b>Icon</b>                        | Adds an icon that shows the activity recipient and the status. See below for a table of the various icons that can be shown.                 |
| <b>Recipient</b>                   | A more verbose description of the Recipient Type field.                                                                                      |
| <b>Select</b>                      | Adds a check box to the Action Tracker row which can be used to perform actions against multiple activities. See below for more information. |
| <b>View</b>                        | Adds an icon that allows the Action tracker user to view (open) the activity.                                                                |

To make an Inactive field active (visible) within the Action tracker display, select it (so it is highlighted), and press the ➤ icon to move it into the Active Fields list; E.g.



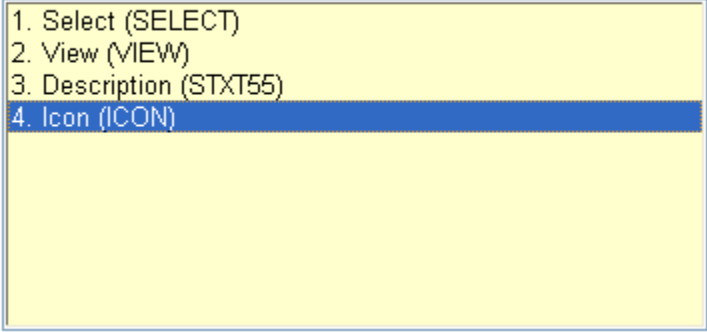
**Tip:** You can use the Shift and CTRL keys with the mouse to select multiple fields to move to/from the Active Fields list.

**Note:** A field can only be in either the Active or Inactive Fields list but any combination of Active Fields can be used.

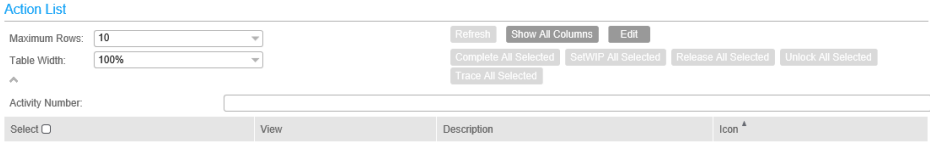
To remove an item from the Active Fields list, select it and press the  icon.

The Active Fields appear in descending order as they will appear in horizontal, left to right, order within the Action Tracker display; E.g.

### Active Fields



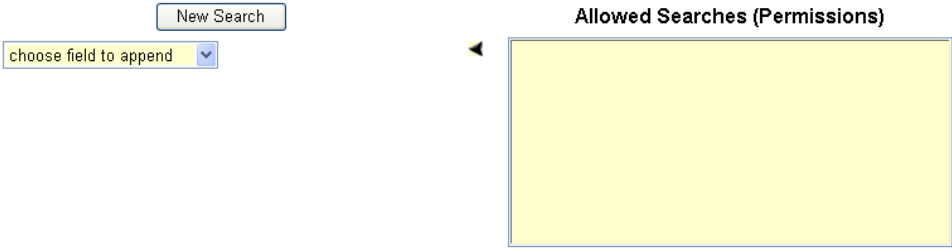
A list box titled "Active Fields" containing four items: "1. Select (SELECT)", "2. View (VIEW)", "3. Description (STXT55)", and "4. Icon (ICON)". The fourth item is highlighted with a blue background.



The "Action List" interface includes a "Maximum Rows" dropdown set to "10" and a "Table Width" dropdown set to "100%". On the right, there are buttons for "Refresh", "Show All Columns", "Edit", "Complete All Selected", "SetWMP All Selected", "Release All Selected", "Unlock All Selected", and "Trace All Selected". Below these is an "Activity Number" input field. At the bottom, a table header shows "Select" (with a checkbox), "View", "Description", and "Icon" (with a dropdown arrow).

The order of the fields, in the Active Fields list, can be changed by selecting a field and using the  and  to move the item up or down within the list.

Once you have decided which fields to show in your Action Tracker query, and their order, you need to define the search fields that are used to perform the query against the Work Management files. These are displayed in the Allowed Searches list. For a new query, this list will be empty so click the New Search button to define the new search value.



The "New Search" section contains a "New Search" button and a dropdown menu labeled "choose field to append" with a downward arrow. To the right, the "Allowed Searches (Permissions)" section features a large empty rectangular box.

From the drop-down list, select a field to use.

The screenshot shows a 'New Search' dialog box on the left. It contains a text field with 'Business Object Reference (IOBR52)' and a dropdown menu labeled 'choose field to append'. To the right of the text field is a yellow box with a right-pointing arrow. To the right of the dropdown is a left-pointing arrow. Further right is a large yellow box titled 'Allowed Searches (Permissions)'. A mouse cursor is pointing at the right-pointing arrow between the text field and the 'Allowed Searches' box.

The display will change to show the new field and its default search value. This can be left blank (for the Action Tracker user to select) or you can enter a default value (only applies to fields where pre-defined values are provided). To apply this search to this query, you must add it to the Allowed Searches list by pressing the ➤ button.

The screenshot shows the 'Allowed Searches (Permissions)' list. The list now contains one entry: 'Business Object Reference (IOBR52)'. A mouse cursor is pointing at the left-pointing arrow between the 'New Search' dialog and the list.

The above example, will allow the Action Tracker user to search Work Management by entering a Business Object Reference; E.g.

The screenshot shows the 'Action List' interface. At the top, there is a 'Business Object Reference' search field. Below it, there is a table with columns: 'View', 'Select', 'Description', and 'Icon'. The table is currently empty. Above the table, there are several buttons: 'Refresh', 'Show All Columns', 'Edit', 'Complete All Selected', 'SetWIP All Selected', 'Release All Selected', 'Unlock All Selected', and 'Trace All Selected'. The 'Maximum Rows' is set to 10, and the 'Table Width' is set to 100%.

This allows you enter your own Business Object Reference and then click **Refresh** to apply the search, returning all records that match the supplied Business Object Reference.

Some search fields allow will present the user with a list of values to choose from; E.g.

**Action List**

Maximum Rows:            

Table Width:                    

^

Status:

- ☐ Awaiting synchronisation (0)
- ☐ Pending (1)
- ☐ Active (2)
- ☐ Completed (3)
- ☐ Work in progress (4)
- ☐ Re-assigned (5)
- ☐ Released from synchronisation (6)
- ☐ EWM error message (7)
- ☐ Backed out from EWM control (8)
- ☐ Cancelled (9)
- ☐ Pre-pending (P)

View ^    Selected ☐    Description    Icon

**Tip:** You can use the Shift and CTRL keys with the mouse to select multiple fields from the list to search.

Date fields will present the user with a list of pre-defined date-related searches (last 7 days, today, yesterday, etc.) along with a calendar prompt; E.g.

**Action List**

Maximum Rows:            

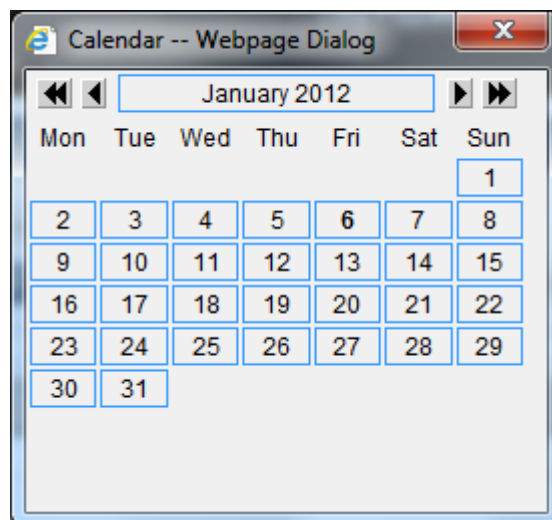
Table Width:                    

^

Date and time created:

View ^    Selected ☐    Description    Icon

Clicking the calendar prompt button  shows the calendar window; E.g.



This allows the Action Tracker user to search activities on a specific day.

Each New Search can comprise of multiple fields. Select all the fields that the user will be presented with (along with any default values), and then click the ➤ button to add it to the Allowed Searches list; E.g.

Searches defined this way require the user to enter both pieces of information to get the search data (E.g. search is done using field X AND field Y).

**Note:** In the Action Tracker interface, the user will not be able to press the Refresh button until all fields have been populated with data.

To allow users to enter either pieces of data, you would add multiple Allowed Searches; E.g.

**Note:** In the Action Tracker interface, the user will only be able to enter one of the selected search fields. Once they have entered a value into one of the fields, entry into the other will be blocked.

Once you have defined all the Allowed Searches you require, you can use the Locked or Unlocked links to view the Action Tracker query. The difference between the two is what you would expect, a locked query cannot be edited further, and an unlocked query can.

**WARNING!** Never click the Locked or Unlocked links until you have defined at least one Allowed Search.

**WARNING!** Once you view the Action Tracker using either the Locked or Unlocked links then you will no longer be able to add any further Allowed Searches. If you click the Unlocked link, you will be able to edit the existing Allowed Searches but you will not be allowed to add any additional searches.

Once you have created a search, you can right-click on the Unlocked or Locked links and select the Copy Shortcut option which gives you the URL for this query. This can be pasted into the Quick Launch field in the System i Workspace tab or you can left-click the link and use Add to Favourites off the tab's context menu.

**Tip:** You may want to rename the tab before you add it to your favourites.

**Note:** Action Tracker queries that are provided to users should always be locked.

You can publish the URL to other users by creating a new task within System Manager of type 6 (External) and pasting the URL into the tasks URI field. You can then use System Manager to control who can access the query.

## Using Action Tracker

Using the Action List/Tracker interface is covered in the Getting Started guide provided with System i Workspace. However, for administrators, here is a complete guide to the icons that can appear within the ICON field.

| Icon                                                                                | Description                                                                           |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  | Execution mode: User Invoked, Recipient type: Email, Status: Awaiting Synchronisation |
|  | Execution mode: User Invoked, Recipient type: MQ, Status: Awaiting Synchronisation    |
|  | Execution mode: User Invoked, Recipient type: Role, Status: Awaiting Synchronisation  |
|  | Execution mode: User Invoked, Recipient type: User, Status: Awaiting Synchronisation  |
|  | Execution mode: User Invoked, Recipient type: Email, Status: Pending                  |

---

|                                                                                     |                                                                                         |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
|    | Execution mode: User Invoked, Recipient type: MQ,<br>Status: Pending                    |
|    | Execution mode: User Invoked, Recipient type: Role,<br>Status: Pending                  |
|    | Execution mode: User Invoked, Recipient type: User,<br>Status: Pending                  |
|    | Execution mode: User Invoked, Recipient type: Email,<br>Status: Active/Work In Progress |
|    | Execution mode: User Invoked, Recipient type: MQ,<br>Status: Active/Work In Progress    |
|    | Execution mode: User Invoked, Recipient type: Role,<br>Status: Active/Work In Progress  |
|    | Execution mode: User Invoked, Recipient type: User,<br>Status: Active/Work In Progress  |
|    | Execution mode: User Invoked, Recipient type: Email,<br>Status: Complete                |
|  | Execution mode: User Invoked, Recipient type: MQ,<br>Status: Complete                   |
|  | Execution mode: User Invoked, Recipient type: Role,<br>Status: Complete                 |
|  | Execution mode: User Invoked, Recipient type: User,<br>Status: Complete                 |
|  | Execution mode: User Invoked, Recipient type: Email,<br>Status: Cancelled               |
|  | Execution mode: User Invoked, Recipient type: MQ,<br>Status: Cancelled                  |
|  | Execution mode: User Invoked, Recipient type: Role,<br>Status: Cancelled                |
|  | Execution mode: User Invoked, Recipient type: User,<br>Status: Cancelled                |
|  | Execution mode: User Invoked, Recipient type: Email,<br>Status: Pre-pending             |
|  | Execution mode: User Invoked, Recipient type: MQ,<br>Status: Pre-pending                |

|                                                                                     |                                                                         |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
|    | Execution mode: User Invoked, Recipient type: Role, Status: Pre-pending |
|    | Execution mode: User Invoked, Recipient type: User, Status: Pre-pending |
|    | Execution mode: Automatic Immediate, Status: Awaiting Synchronisation   |
|    | Execution mode: Automatic Immediate, Status: Pending                    |
|    | Execution mode: Automatic Immediate, Status: Active/Work In Progress    |
|    | Execution mode: Automatic Immediate, Status: Complete                   |
|    | Execution mode: Automatic Immediate, Status: Cancelled                  |
|    | Execution mode: Automatic Immediate, Status: Pre-pending                |
|  | Execution mode: Automatic Batch, Status: Awaiting Synchronisation       |
|  | Execution mode: Automatic Batch, Status: Pending                        |
|  | Execution mode: Automatic Batch, Status: Active/Work In Progress        |
|  | Execution mode: Automatic Batch, Status: Complete                       |
|  | Execution mode: Automatic Batch, Status: Cancelled                      |
|  | Execution mode: Automatic Batch, Status: Pre-pending                    |
|  | Execution mode: Automatic Scheduled, Status: Awaiting Synchronisation   |
|  | Execution mode: Automatic Scheduled, Status: Pending                    |
|  | Execution mode: Automatic Scheduled, Status: Active/Work In Progress    |
|  | Execution mode: Automatic Scheduled, Status: Complete                   |
|  | Execution mode: Automatic Scheduled, Status: Cancelled                  |
|  | Execution mode: Automatic Scheduled, Status: Pre-pending                |

---

|                                                                                   |                                                                  |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------|
|  | Execution mode: External Event, Status: Awaiting Synchronisation |
|  | Execution mode: External Event, Status: Pending                  |
|  | Execution mode: External Event, Status: Active/Work In Progress  |
|  | Execution mode: External Event, Status: Complete                 |
|  | Execution mode: External Event, Status: Cancelled                |
|  | Execution mode: External Event, Status: Pre-pending              |
|  | Execution mode: Email Initiated Process, Status: Complete        |
|  | Status: Re-assigned                                              |
|  | Status: Released from Synchronisation                            |
|  | Status: Work Management Error Message                            |
|  | Status: Backed out of Work Management Control                    |

---

## WFi Engine

Choosing option 4 from the Work Management menu in System Manager (**STRIPGAM**, option 10) displays the EWM Diagnostic Tools menu. The functions on this menu are useful for tracing the cause of any Work Management issues.

### EWM Transaction Recovery

Any batch jobs that were submitted under the WFi Engine's control, but deleted from the job queue prior to being started, or abnormally ended, are detailed in this option. It is possible to enquire on these jobs as well as resubmit them if required. The recovery procedure is...

- In the first screen, enter the appropriate WFi environment code. Press **Enter** to continue.
- The Work Management Transaction Recovery panel appears confirming the environment and requesting the user to choose **F8** to Process or **F3** to Exit. Choosing **F8** to Process will display the EWM Transaction Recovery window.
- This window lists all the jobs for the chosen environment that were never processed, being deleted from the job queue first or that ended abnormally.
- Choosing **F14** displays further Transaction Recovery details. Use **F14** to toggle between these two screens.
- Enter 1 against a job to resubmit it.

Transaction Recovery will also resubmit a job if it was deleted from the job queue. If a job ended abnormally it cannot be resubmitted automatically. Jobs that failed during a run will still be active and cannot be completed. The WFi Engine cannot handle these as it does not know what to do automatically but if it is re-run manually, the WM transaction records are now at a status where they can complete normally.

---

## EWM Error Handling

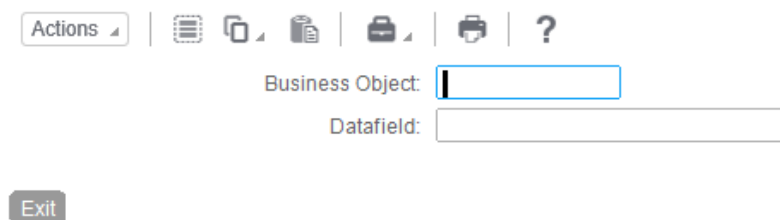
This option allows the user to look at errors for a particular environment. Choosing option 2 against an error in the list displays four pages of trace data for the Activity, Document Type, Company and Reference for the selected job. Option 3 will suspend the process and any subsequent actions on this reference will run without Work Management control. Option 4 will cancel the activity and leave the process in an unfinished state.

**Note:** The **WMRECOVER** command can be run to automatically reset and resubmit any batch jobs ended from job queues. This is most useful in End of Day type procedures, where job queues may have been cleared. By running the command (syntax - **WMRECOVER** [env]) immediately after the **STRWM** (start WFi Engine) in Machine Manager Day Start, it is a clean way of getting all the jobs that missed end of day to be run well before Users start work.

## EWM Data field Evaluation

This option allows you to evaluate a Data Field to check that it returns the data value you require. First, enter the WFi Environment code within which you wish to evaluate data fields. This will take you to the following screen...

### WM Datafield SQL Test Harness



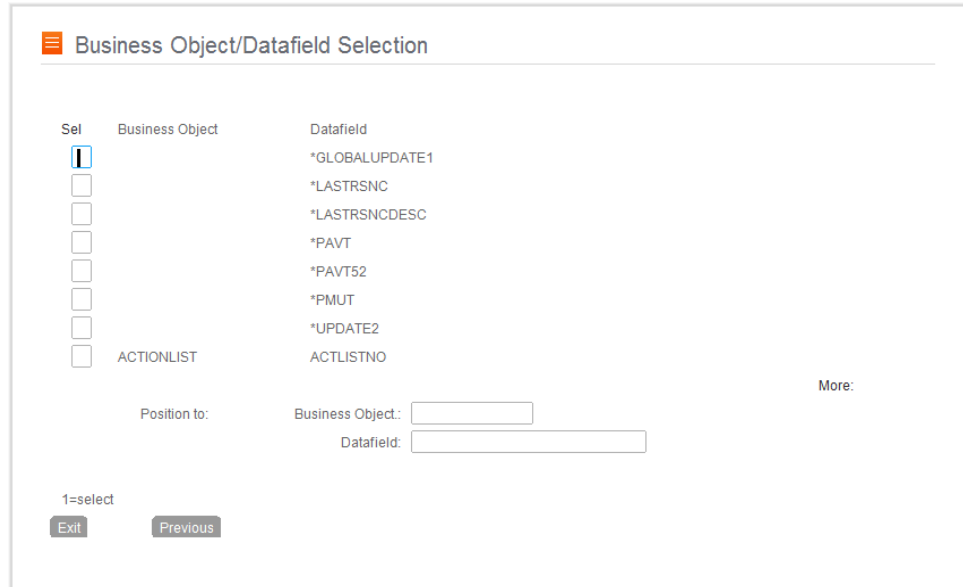
Actions | [List View] | [Copy] | [Paste] | [Save] | [Print] | [Help]

Business Object:

Datafield:

Exit

Press **F4** to see a list of all the available data fields to test.



The dialog box titled "Business Object/Datafield Selection" contains a table with three columns: "Sel", "Business Object", and "Datafield". The "Sel" column has checkboxes, with the first one selected. The "Business Object" column lists "ACTIONLIST". The "Datafield" column lists several fields: \*GLOBALUPDATE1, \*LASTRSNC, \*LASTRSNCDESC, \*PAVT, \*PAVT52, \*PMUT, \*UPDATE2, and ACTLISTNO. Below the table, there are input fields for "Position to:", "Business Object:", and "Datafield:". At the bottom, there is a "1=select" label, an "Exit" button, and a "Previous" button.

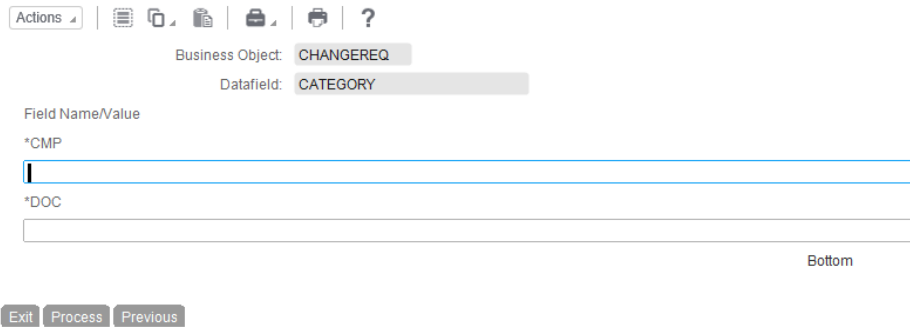
| Sel                                 | Business Object | Datafield      |
|-------------------------------------|-----------------|----------------|
| <input checked="" type="checkbox"/> |                 | *GLOBALUPDATE1 |
| <input type="checkbox"/>            |                 | *LASTRSNC      |
| <input type="checkbox"/>            |                 | *LASTRSNCDESC  |
| <input type="checkbox"/>            |                 | *PAVT          |
| <input type="checkbox"/>            |                 | *PAVT52        |
| <input type="checkbox"/>            |                 | *PMUT          |
| <input type="checkbox"/>            |                 | *UPDATE2       |
| <input type="checkbox"/>            | ACTIONLIST      | ACTLISTNO      |

Position to: Business Object:   
Datafield:

1=select

Select a Data Field and you will be prompted to enter any input values that the Data Field requires.

#### WM Datafield SQL Test Harness



The "WM Datafield SQL Test Harness" interface includes a toolbar with icons for Actions, a list, a folder, a document, a printer, and a help icon. Below the toolbar, there are input fields for "Business Object:" (containing "CHANGEREQ") and "Datafield:" (containing "CATEGORY"). A section labeled "Field Name/Value" contains two input fields: the first is labeled "\*CMP" and the second is labeled "\*DOC". At the bottom right, there is a "Bottom" label. At the bottom left, there are three buttons: "Exit", "Process", and "Previous".

Actions |

Business Object: CHANGEREQ  
Datafield: CATEGORY

Field Name/Value  
\*CMP  
\*DOC

Bottom

Field Names that start with a "\*" are system variables usually provided within the WFi Engine such as **\*CMP** for Company Code and **\*DOC** for Business Object Reference. These are defined as Global variables within WFi Modeler; E.g.

| Context          | Description                          | Field type | Usage | Data field information | Data type | Field length | Decimal places | Data field name |
|------------------|--------------------------------------|------------|-------|------------------------|-----------|--------------|----------------|-----------------|
| Global Variables | Activity Code                        | W          | D     |                        |           | 0            | 0              | ACT             |
|                  | Activity Number                      | W          | D     |                        |           | 0            | 0              | ACN             |
|                  | Business Object                      | W          | D     |                        |           | 0            | 0              | BOB             |
|                  | Business Object Reference            | W          | D     |                        |           | 0            | 0              | DOC             |
|                  | Business Process Code                | W          | D     |                        |           | 0            | 0              | BPR             |
|                  | Business Process Identifier          | W          | D     |                        |           | 0            | 0              | BPD             |
|                  | Company Code                         | W          | D     |                        |           | 0            | 0              | CMP             |
|                  | Completion Code                      | W          | D     |                        |           | 0            | 0              | CPT             |
|                  | Current Date                         | W          | D     |                        |           | 0            | 0              | DAT             |
|                  | Current Time                         | W          | D     |                        |           | 0            | 0              | TIM             |
|                  | Day of the Week (Name Form)          | W          | D     |                        |           | 0            | 0              | DOW             |
|                  | Day of the Week (Numeric Form)       | W          | D     |                        |           | 0            | 0              | DYN             |
|                  | Delegation/Escalation Delay Time     | T          | D     | 60                     | N         | 3            | 0              | DelEscDelay     |
|                  | EDI (Text)                           | T          | D     | EDI                    | A         | 10           | 0              | EDI             |
|                  | Element Identifier                   | W          | D     |                        |           | 0            | 0              | ELD             |
|                  | EWM Additional Error Text            | W          | D     |                        |           | 0            | 0              | ERRXAM          |
|                  | EWM Error Activity Description       | W          | D     |                        |           | 0            | 0              | ERRACD          |
|                  | Execution Mode                       | W          | D     |                        |           | 0            | 0              | EXC             |
|                  | Exploded Business Process Code       | W          | D     |                        |           | 0            | 0              | EBP             |
|                  | Fax (Text)                           | T          | D     | FAX                    | A         | 10           | 0              | FAX             |
|                  | Global Email                         | T          | E     | richard.sankey@g...    | A         | 40           | 0              | GLOBEMAIL       |
|                  | Last Activity Completion Date & Time | W          | D     |                        |           | 0            | 0              | CDT             |
|                  | Last Activity Number                 | S          | D     | Select PAVTS2 fro...   | P         | 3            | 0              | PAVT            |

You will have to enter these values yourself to simulate the data the WF Engine would supply. Once you have done this, press **F8** to process the Data Field. If it works you should see a result; E.g.

Returned Value

Reeves Chemist's

Exit Previous

If it fails, you will see the error; E.g.

Returned Value

SQL Error returned:

-514 See Job log & QSQLMSG message file for error details.

Exit Previous

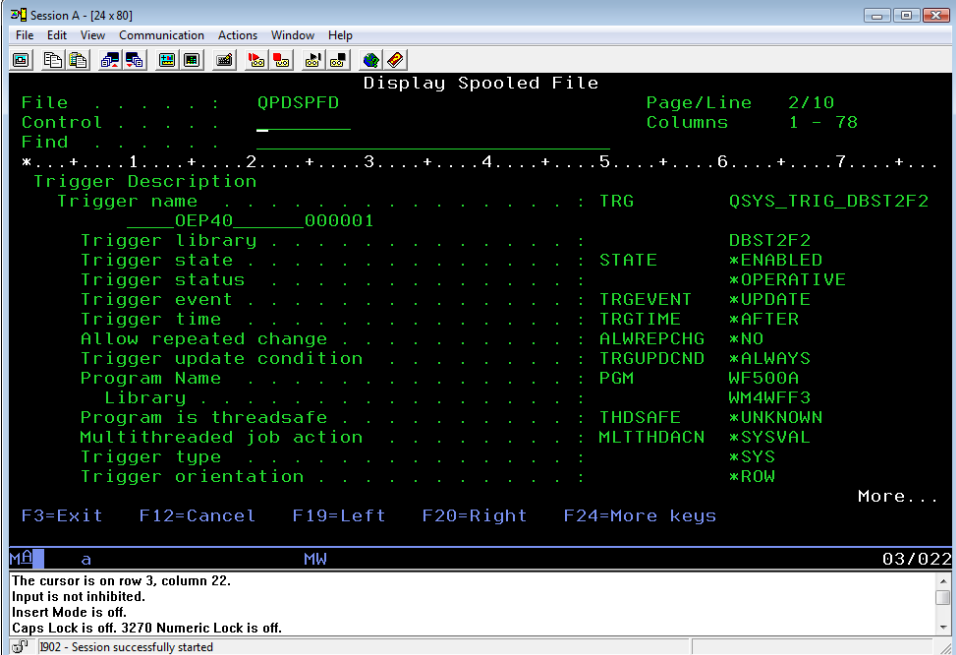
As Data Fields are used as tests within Business Processes, this feature allows you to test them without the need to re-run an entire process. The main reasons that Data Fields fail are...

- The file(s) used by the Data Field are not in the library list
- The record does not actually exist

- The Data Field definition is wrong or incomplete

## The Trigger Program

When you activate an Event, from WFi Modeler, a Trigger Program (WF500A) is attached to the destination IBM System i database table. Regardless of the tests associated with an Event, the program will be associated with one of three basic database events; Insert, Update and Delete. You can view the Trigger Programs used on a file with the **DSPFD** command. Enter the name and library of the file that the trigger is assigned to and page down to locate the trigger details.



```

Session A - [24 x 80]
File Edit View Communication Actions Window Help
Display Spooled File
File . . . . . : QPDSPFD                      Page/Line   2/10
Control . . . . :                               Columns    1 - 78
Find . . . . . :
*...+...1...+...2...+...3...+...4...+...5...+...6...+...7...+...
Trigger Description
Trigger name . . . . . : TRG                QSYS_TRIG_DBST2F2
      OEP40      000001
Trigger library . . . . . : DBST2F2
Trigger state . . . . . : STATE             *ENABLED
Trigger status . . . . . :                  *OPERATIVE
Trigger event . . . . . : TRGEVENT          *UPDATE
Trigger time . . . . . : TRGTIME           *AFTER
Allow repeated change . . . . . : ALWREPCBG *NO
Trigger update condition . . . . . : TRGUPDCND *ALWAYS
Program Name . . . . . : PGM                WF500A
      Library . . . . . : WM4WFF3
Program is threadsafe . . . . . : THDSAFE    *UNKNOWN
Multithreaded job action . . . . . : MLTTHDACN *SYSVAL
Trigger type . . . . . :                  *SYS
Trigger orientation . . . . . :              *ROW
More...

F3=Exit  F12=Cancel  F19=Left  F20=Right  F24=More keys

MP a MW 03/022
The cursor is on row 3, column 22.
Input is not inhibited.
Insert Mode is off.
Caps Lock is off. 3270 Numeric Lock is off.
03/02 - Session successfully started

```

The **Trigger event** shows which of the basic database events the trigger is associated with (\*INSERT, \*UPDATE, \*DELETE). The **Trigger time** for WFi Modeler activated events will always be \*AFTER (i.e. the program is called after the insert/update/delete has been performed as the program does NOTHING to alter the event itself). The **Program Name** and **Library** show the WFi Trigger Program (WF500A) is attached to this event.

**WARNING:** Care should be taken when activating processes containing events from WFi Modeler multiple times, as OS/400 databases allow multiple trigger programs to be attached to the same event. This could result in WF500A being called multiple times for the same event (e.g. one database update results in two messages sent to the Trigger Handler)

Normally, for a single user activating an event over and over, this does not happen, but Infor customers have experienced instances when this has occurred.

As far as the business data is concerned, this situation will cause little problem as, if the first message through the Trigger Handler initiates a process, then the subsequent messages will attempt to start a process with the same business object and reference. The WFi Engine will recognize there is already an active process with these values and ignore the subsequent requests. The main impact is purely performance as the Trigger Handler is processing events unnecessarily.

If you suspect this is happening, use **DSPFD** to investigate the database file and remove any extra trigger events (see Chapter 6 of the installation guide).

When IBM WebSphere MQ Series is running normally, the activation of the Trigger Program will cause a message to be written to the Trigger Handler IBM WebSphere MQ Series queue.

**Note:** If IBM WebSphere MQ Series is down, the trigger event will be written to a database. See the *Using EWMCONSOLE* section above for more detail on how this works.

This message will contain a header and the data associated with the trigger event. For an Insert event, it will contain the “after” record data (i.e. an entire row of data values for the new record). For an Update event, it will contain the “before” and “after” record data (i.e. the data values before the update and the data values after the update). For a Delete event, it will contain the “before” record data (i.e. the data values of the record that was removed).

You can view the message through **WRKMQMQ** and displaying the Trigger Handler IBM WebSphere MQ Series queue (option 12 against the queue to see the messages); E.g.

Session A - [24 x 80]

File Edit View Communication Actions Window Help

Work with MQ Messages UKS01004  
07/07/09 09:52:41

Queue Manager Name . . . : STULPR1B  
Queue name . . . . . : WM.TRIGGER.OUT.DDV

Type options, press Enter.  
4=Delete 5=Display Description 8=Display Data

| Opt | GMT Date | GMT Time | Type     | UserId  | Format   | Size  |
|-----|----------|----------|----------|---------|----------|-------|
| —   | 20081212 | 10035377 | DATAGRAM | WBILS20 | EXTERNAL | 1024+ |
| —   | 20081212 | 11103756 | DATAGRAM | WBILS20 | EXTERNAL | 1024+ |
| —   | 20081212 | 11585683 | DATAGRAM | WBILS20 | EXTERNAL | 1024+ |
| —   | 20081212 | 14331512 | DATAGRAM | WBILS20 | EXTERNAL | 1024+ |
| —   | 20081212 | 14331686 | DATAGRAM | WBILS20 | EXTERNAL | 1024+ |
| —   | 20081212 | 14331701 | DATAGRAM | WBILS20 | EXTERNAL | 1024+ |
| —   | 20081212 | 15241944 | DATAGRAM | WBILS20 | EXTERNAL | 1024+ |

More...

Command  
===>

F3=Exit F4=Prompt F5=Refresh F9=Retrieve F11=Change view F12=Cancel  
F16=Repeat find F17=Find F21=Print

MA a 12/003

The cursor is on row 12, column 3.  
Input is not inhibited.  
Insert Mode is off.  
Caps Lock is off. 3270 Numeric Lock is off.

1902 - Session successfully started

Use option 8 to view the message data.

Session A - [24 x 80]

File Edit View Communication Actions Window Help

Display MQ Message Data

Queue Manager Name . . . : STULPR1B  
Queue name . . . . . : WM.TRIGGER.OUT.DDV  
Date (GMT) . . . : 20081216 Type . . . . . : DATAGRAM  
Time (GMT) . . . : 13480201 Format . . . . . : EXTERNAL  
Userid . . . . . : WBILS20

| Offset | Hexadecimal                         | Text               |
|--------|-------------------------------------|--------------------|
| 0000   | D6C5D7F4 F0404040 4040C4C2 E2E3F2C6 | <0EP40 DBST2F>     |
| 0010   | F2D64040 D6C5D7F4 F0404040 4040F3F1 | <20 0EP40 31>      |
| 0020   | F0000000 0000056C 000003EA 00000000 | <0.....%...2...>   |
| 0030   | 00000060 00000196 000001F6 00000069 | <...-...o...6...N> |
| 0040   | 00000270 00000196 00000406 00000069 | <...o...o...N>     |
| 0050   | E2F1F0C2 F1C2C2F0 40400000 00000000 | <S10B1BB0 ...>     |
| 0060   | E9F1F0F0 F0F0F9F6 F100FF1 F1C3C8C9  | <Z10000961..11CHI> |
| 0070   | D5C5E2C5 F1F0F0F0 001DF183 998586F1 | <NESE1000..1cref1> |
| 0080   | 40404040 40404040 40404040 40404040 | < >                |
| 0090   | 40404040 40401081 216F1081 216F1081 | < .a.?a.?a>        |
| 00A0   | 216F0000 000F0000 000F4040 40404040 | <.?.....>          |
| 00B0   | 4040000F C7C2D7D7 C5D9C400 00010000 | < ..GBPPERD....>   |
| 00C0   | 0F40050F C6C70000 00000021 000F4040 | <...FG.....>       |

More...

F3=Exit F12=Cancel F21=Print

MA a 01/001

The cursor is on row 1, column 1.  
Input is not inhibited.  
Insert Mode is off.  
Caps Lock is off. 3270 Numeric Lock is off.

1902 - Session successfully started

The first few rows of data contain information that the Trigger Handler will use to identify where the message came from and its type. This includes the file name, source library and server name.

When the Trigger Handler is running, it will read these messages, in delivery sequence, from the main input queue (e.g. WM.TRIGGER.OUT) to supplementary queues (e.g. WM.TRIGGER.OUT.1, WM.TRIGGER.OUT.2 etc.). This is because it is possible, within WFi Modeler, to define events that span multiple database triggers which can occur over a period of time. The message is not removed from the IBM WebSphere MQ Series queue until the event is complete so, for such events, it would be possible to get a build up of messages that would prevent any further messages being written to the main input queue. By shuffling these messages to supplementary queues, this will never occur as, if a supplementary queue fills up, a new one will be created and used.





# WFi Engine

## Error Notification

The WiFi Engine will notify any processing errors that occur at runtime via the Action List/Tracker interface. A message will be dispatched (to the default error role for the current business object) detailing the error and providing a potential work around or highlighting the area/program where the error may have occurred; E.g.

infor System i Workspace

System i Home Search by Status (with View) [WM Error: WFU0074-Dynamic SQL failed](#)

[WF100 ACTTTL VS](#)

An attempt to evaluate a substitution variable in the activity that FOLLOWED - Launcher - has failed.

Further Information:  
Document - TEST TOR - encountered a problem in the above activity. It was processing Business Process - TORTUT#102 - at the time.  
The EWM Engine failed to retrieve the Activity Title Override. The title of the transaction may appear wrong, but does not affect the transaction in any other way.  
Failure to open cursor for soft coded SQL. Variable name = \*AR1. Document type =, SQL STR = Select WMUFLVLRFC('TEST TOR',1) from QSQPTABL

User Action:  
Please refer to your System Operator.

Notes for System Operator:  
The further information should indicate the severity of the impact of this failure, and whether or not EWM has allowed the transaction to continue under EWM control or not.  
If it has allowed this to continue, then this is only an informational message. You may wish to check the result of the failed variable to ensure the transaction is progressing satisfactorily.  
If it has stopped the transaction, the only way to progress this transaction is to back it out of EWM control.  
To resolve this error, the Business Process needs reviewing using @ctive Modeler, and reactivating to the Server to apply the changes. In particular, review the data variables that failed. These may be detailed in the Error Handler additional information or trace. The data variables may be tested in the Data Variable Test Harness.  
If changes were activated to the Server, they will only affect new transactions.  
Software Error Detection Point: WF100/ACTTTLVS

Close

**Tip:** The cut-down summary of this information can also be found in the WFP97 file in the WiFi files library.

**Note:** If you are unable to rectify this problem based on the description and solution given in the message then at the very least this information should be sent to product support to aid fault resolution.

Errors within the WiFi Engine tend to either occur because of an incorrectly defined process, an incorrect configuration or a missing service/program.

Incorrectly defined process/configuration problems are usually noticeable the first time you activate and try to use a new process, which should always be done on non-essential/test data in a separate environment from any live business critical data.

Missing services/programs (such as IBM WebSphere MQSeries) may happen at any time. Make sure that any services that your process relies on are correctly configured and running before starting the WFi Engine. If any of these services are suspended it may be prudent to stop the WFi Engine until they are restarted. Any messages sent to the WFi Engine will be queued and picked up on subsequent restart,

Some common error messages and solutions are included in the troubleshooting section.

**Tip:** Make sure to test each and every path of your process before deploying to a live environment. Error reporting can be incorporated into your process so, for example, an email is sent to a named system administrator if a resource is not available.

## Log files

All program/file access activity within the WFi Engine can be traced. To do this...

- Stop the WFi Engine.
- From the System Manager menu (**STRIPGAM**) take option 10.
- Take option 3.
- Enter environment code.
- Set the "Traceability Active Flag" to 1 (Yes).
- Press **F3** to exit and save.
- Re-start the WFi Engine.

All the file access that the Work Management performs will be logged to the **WFP95** file in the Work Management files library (e.g. **AULWFF3**).

This is a basic SQL table so records can be deleted using the SQL **DELETE** command. The structure/columns of this table should not be altered.

**WARNING:** This trace data is not particularly readable to no-Infor employees and using it can cause performance issues due to the volume of data it may produce. Trace should be turned on, the problem reproduced then trace should be turned off again to minimize its impact.

---

Once the trace has been reviewed, and the problem resolved, the trace records from WFP95 MUST be purged.

This trace should generally only be used under advice from Infor product support.

---

# WFi Components

## Log Information

Each of the WiFi handlers (Email Reader, Email Writer, Trigger Handler, Document Handler) sends its log information to the current console/standard out stream (by default – see below). Under Microsoft Windows this will be an MS-DOS console, and on the IBM i it will be a spool file. The information sent to the log file will be the same regardless of the operating system.

**Tip:** On the IBM i you can use `WRKSPLF` against the required handler job to view the trace. Note that the IBM i server does not let you view a spool file whilst a program is running until it reaches a minimum size, which may take some time when using a low logging level.

**Tip:** On Microsoft Windows the trace is lost once the handler job is ended and the MS-DOS console closed. Make sure to either copy the data from the console before closing or edit the initiating batch file so that the information is re-directed to a file.

To set the amount of information sent to the log file the properties files for each handler has a `traceLevel` setting. The numeric value that this is assigned determines the type and amount of logging that is reported. The available values are...

| traceLevel Value | Meaning                                                |
|------------------|--------------------------------------------------------|
| 0                | No logging sent to the console                         |
| 1                | Only errors and minimal reporting sent to the console  |
| 25               | Basic program flow information sent to the console     |
| 50               | Detail program flow information sent to the console    |
| 75               | Technical program flow information sent to the console |
| 100              | Internal program flow information sent to the console  |

The values are cumulative so setting the `traceLevel` to a value of 50 will include any trace for levels 1 and 25 also.

When the `traceLevel` is set to 50 or higher the handler programs will output all the properties file values that they have read when the process starts. This is useful when checking incorrect configuration parameters.

The type and content of the logging will vary depending on the handler. The following sections give an overview of what the logging output means for each handler...

## The Document Handler

When starting the Document Handler with `traceLevel` set as 1 it will attempt to read from the properties file passed into it by the batch program and connect to IBM WebSphere MQ Series ...

```
1 Using the properties file "C:/Program Files/Infor/WFiComponent10/
properties/DocumentHandler.properties"
2 Environment being used is 'AUL'
3 31-May-2014 09:20:58:
    31-May-2014 09:20:58: *****
    31-May-2014 09:20:58: *          ENVIRONMENT SETTINGS          *
    31-May-2014 09:20:58: *****
    31-May-2014 09:20:58:
    31-May-2014 09:20:58: Server Name                      = SERVER
    31-May-2014 09:20:58: Process ID                      = 0000
    31-May-2014 09:20:58: Process Owner User Account = user
4 31-May-2014 09:20:58: Initialising queue manager [SERVER, CHANNEL,
    QUEUE_MANAGER]...
5 31-May-2014 09:20:58: Using port number 1515
6 31-May-2014 09:20:58: Initialising queue [QUEUE_NAME]...
7 31-May-2014 09:20:58: Dead letter queue [DEAD_LETTER_QUEUE_NAME]...
```

Line 1: This names the file where all the property values are being read. If the file could not be read then an error would be written here.

---

- Line 2: Shows the System Manager environment being used, as read from the properties file. This environment should be Work Management enabled.
- Line 3: The next batch of lines show the name of the Server where the Document Handler is being executed, the process ID and the user-profile that started the Document Handler. If the Document Handler is run as a Microsoft Windows Service, this will usually be SYSTEM.
- Line 4: The IBM WebSphere MQ Series server, queue manager and channel being used.
- Line 5: This is the port number that the IBM WebSphere MQ Series Client software needs to be listening on. An error may occur here if the server cannot be located, the queue manager is invalid or not available or if the channel listener is not active.
- Line 6: This is the name of the IBM WebSphere MQ Series queue that messages will be read from. An error will occur here is the queue does not exist or cannot be accessed.
- Line 7: This is the name of the IBM WebSphere MQ Series queue that messages that fail to transform will be written to for later review.

When the `traceLevel` is set to 25 or above then some additional information is written at the start...

```
Environment being used is 'AUL'

1 31-May-2008 09:16:22: ->connect to AS400 SERVER

2 31-May-2008 09:16:22: <-connect to AS400 SERVER

31-May-2008 09:16:22: Initialising queue manager [SERVER, CHANNEL,
QUEUE_MANAGER]...
```

- Line 1: Establishing a connection to the IBM i server using the user and password supplied in the properties file.
-

Line 2: A connection with the IBM i server has been established successfully.

When the `traceLevel` is set to 50 or above the values from the properties file that the Document Handler has read are displayed at the start of the trace. This allows the administrator to confirm the correct values are being read and used. Also, when this level, or above, of trace is set, the dynamically loaded JAR and class files are displayed; E.g.

```
31-May-2008 09:16:22: *****
31-May-2008 09:16:22: *    Custom Java Class Loader Processing    *
31-May-2008 09:16:22: *****
31-May-2008 09:16:22: Reading file [C:\Program Files\Infor\
WFiComponents102\lib\process.extensions.jar]
31-May-2008 09:16:22: Reading file [C:\Program Files\Infor\
WFiComponents102\lib\bsf.jar]
31-May-2008 09:16:22: Reading file [C:\Program Files\Infor\
WFiComponents102\lib\js.jar]
31-May-2008 09:16:22: Reading file [C:\Program Files\Infor\
WFiComponents102\lib\xttraneextensions.jar]
31-May-2008 09:16:22: Reading file [C:\Program Files\Infor\
WFiComponents102\lib\commons-logging.jar]
31-May-2008 09:16:22: *****
31-May-2008 09:16:22: * End Custom Java Class Loader Processing *
31-May-2008 09:16:22: *****
```

**Note:** The dynamically loaded JAR files shown above are the default additions to the classpath provided with WFi “out-of-the-box”.

When the `traceLevel` is set to 50 or above then each attempt to read a message will output the following information...

```
31-May-2008 09:21:19: Processing messages...
1 31-May-2008 09:21:19:  ->processNextMessage
2 31-May-2008 09:21:19:  No more messages
31-May-2008 09:21:19:  <-processNextMessage
3 31-May-2008 09:21:19:  Waiting (500 milliseconds)...
```

Line 1: The Document Handler is attempting to read the next available message off the input queue.

---

Line 2: This message signifies that the queue has no free messages on it for the Document Handler to read.

Line 3: This notifies the amount of time the Document Handler will wait before attempting to read a further message off the queue.

Should a message be found that was sent by the WFi Engine, processing trace will be written in the following form when the `traceLevel` is set to 25 (more information will be written when a greater value is set).

```
31-May-2008 09:41:09: ->processMessage

1 31-May-2008 09:41:09:  ->create XtraneEngine
    31-May-2008 09:41:10:  <-create XtraneEngine
2 31-May-2008 09:41:10:  ->create Data Storage object
    31-May-2008 09:41:10:  <-create Data Storage object
3 31-May-2008 09:41:10:  DocumentSource=WMENGINE
    :                      :                      :
4 31-May-2008 09:41:14:  Xtrane output:
    :                      :                      :

5 31-May-2008 09:42:50: >-Clear old version of XML
    31-May-2008 09:42:51: <-Clear old version of XML
6 31-May-2008 09:42:51: ->Write new version of XML
    31-May-2008 09:42:51: <-Write new version of XML
7 31-May-2008 09:42:51: ->Run stored procedure
    31-May-2008 09:42:51:  Stored procedure program ran successfully
    31-May-2008 09:42:51: <-Run stored procedure
    31-May-2008 09:42:51: <-processMessage
```

Line 1: The Document Handler is creating an instance of the Xtrane transformation engine, the programmatic device used to process XSL.

---

- Line 2: The Document Handler is creating an instance of the data storage hash-table, which can be used to pass information between stylesheets.
- Line 3: This section of data contains all the parameters passed in the message header by the WFi Engine. They are translated into an XML document that is passed into the Xtrane transformation engine along with the accompanying XSL stylesheet.
- Line 4: This line will be followed by the transformation output. If the transformation failed, no information may be written. Any transformation errors will be written before this line.
- Line 5: The Document Handler will attempt to remove the previous data from WFP50 for this activity. If the IBM i connection failed, the library list is incorrect, or the user does not have the correct authority an error could occur here. The data access is done using the JDBC pool defined in the properties file.
- Line 6: The Document Handler will write the results of the transformation back to the WFP50 file. The data access is done using the JDBC pool defined in the properties file.
- Line 7: The Document Handler will complete the activity by running a stored procedure (WF560) on the IBM i server. This is also run using the JDBC connection.

Should a XML message be found that was sent by an external source the processing trace will be written in the following form, when the `traceLevel` is set to 25 (more information will be written when a greater value is set).

```
31-May-2008 10:48:51: ->processMessage
31-May-2008 10:48:51:  ->create XtraneEngine
31-May-2008 10:48:52:  <-create XtraneEngine
31-May-2008 10:48:52:  ->create Data Storage object
31-May-2008 10:48:52:  <-create Data Storage object
1 31-May-2008 10:48:52: Processing message from external source
31-May-2008 10:48:53: Xtrane output:
31-May-2008 10:48:53: <-processMessage
```

---

Line 1: For external messages the content is passed into the default stylesheet defined in the properties file. The output is not stored anywhere in the Work Management System, so it is up to the default stylesheet to save any information it requires.

When the Document Handler receives a stop message the following information is written when the `traceLevel` is 25 or more. The program will then terminate.

```
31-May-2008 10:55:45: Request to stop received
31-May-2008 10:55:47: ->Run stored procedure
31-May-2008 10:55:47: <-Run stored procedure
```

## The Email Reader

When starting the Email Reader with `traceLevel` set as 1 it will attempt to read from the properties file passed into it by the batch program and connect to the mail server...

```
1 Using the properties file "C:/Program Files/Infor/WFiComponents102
  /properties/EmailReader.properties"
2 31-May-2014 09:20:58:
  31-May-2014 09:20:58: *****
  31-May-2014 09:20:58: *          ENVIRONMENT SETTINGS          *
  31-May-2014 09:20:58: *****
  31-May-2014 09:20:58:
  31-May-2014 09:20:58: Server Name                = SERVER
  31-May-2014 09:20:58: Process ID                  = 0000
  31-May-2014 09:20:58: Process Owner User Account = user
3 31-May-2014 09:20:58: Initialising queue [MAIL.SERVER, USER, FOLDER]...
```

Line 1: This names the file where all the property values are being read. If the file could not be read then an error would be written here.

Line 2: The next batch of lines show the name of the Server where the Email Reader is being executed, the process ID and the user-

profile that started the Email Reader. If the Email Reader is run as a Microsoft Windows Service, this will usually be SYSTEM.

Line 3: This details which mail server, user account and input folder the Email Reader is going to use. An error log may occur here if the mailbox is inaccessible, the user account is invalid, the password is incorrect or the folder does not exist.

When the `traceLevel` is set to 50 or above the values from the properties file that the Email Reader has read are displayed at the start of the trace. This allows the administrator to confirm the correct values are being read and used.

When running the Email Reader with `traceLevel` set as 50 or above the following lines will be written each time the reader attempts to access the mailbox to read more messages.

```
31-May-2008 12:24:36: Processing messages...
1 31-May-2008 12:24:36: Waiting (10000 milliseconds)...
```

Line 1: This notifies the amount of time the Email Reader will wait before attempting to read a further message off the mail server.

When a reply arrives in from the recipient of a 2-way email, the following trace will be produced when the `traceLevel` is 50 or greater...

```
1 31-May-2008 15:26:01: Message From:admin@ce2990.com, Subject:
    <@PM:ID=Z1?0000001?PROCESSDOC?2WAYMAIL01?1?7?443?2:CC=**>
2 31-May-2008 15:26:01: Activity status code = 1
3 31-May-2008 15:26:01: ->OpenEventTrigger.buildEventMessage
    31-May-2008 15:26:01:     companyCode=Z1
    31-May-2008 15:26:01:     eventCode=MANACT
    31-May-2008 15:26:01:     businessObject=PROCESSDOC
    31-May-2008 15:26:01:     businessObjectReference=0000001
    31-May-2008 15:26:01:     completionCode=**
    31-May-2008 15:26:01:     threadID=443
```

---

```

31-May-2008 15:26:01:      activityNumber=2
31-May-2008 15:26:01:      user=
31-May-2008 15:26:01:      extraData=
31-May-2008 15:26:01:      <-OpenEventTrigger.buildEventMessage
4 31-May-2008 15:26:01:      Posting message to: [SERVER, CHANNEL, QUEUE]
31-May-2008 15:26:01:      ->Message Data=[ [B@b4b2f]

```

**Line 1:** This notifies that the Email Reader has found a new email message on the input queue. The subject field is used to determine the details of the message.

**Line 2:** The current status code for the matched activity (read from the WFi files library).

**Line 3:** The data from the subject line is extracted here and passed to the OpenEventTrigger classes to be formed into a suitable message to be passed to the WFi Engine.

**Line 4:** A message has been dispatched to the WFi Engine. If there is a problem writing to the IBM WebSphere MQ Series queue an error may be logged here.

If the reply arrives from a recipient of a 2-way email has attachments, the following trace will be produced when the `traceLevel` is 50 or greater...

```

31-May-2008 10:05:51:      Message From: DEMO <test@infor.com>, Subject:
<@PM:ID=Z1|EMRDOC#5      |PROCESSDOC|2WAYMAIL03|1|7|514|2:CC=**>
31-May-2008 10:05:56:      Activity status code = 1
1 31-May-2008 10:05:56:      Saved attachment
[c:\temp\Email\EMRDOC#5\514\2\file.doc]
31-May-2008 10:06:00:      ->OpenEventTrigger.buildEventMessage
31-May-2008 10:06:00:      companyCode=Z1
31-May-2008 10:06:00:      eventCode=MANACT
31-May-2008 10:06:00:      businessObject=PROCESSDOC
31-May-2008 10:06:00:      businessObjectReference=EMRDOC#5

```

```
31-May-2008 10:06:00:      completionCode=**
31-May-2008 10:06:00:      threadID=514
31-May-2008 10:06:00:      activityNumber=2
31-May-2008 10:06:00:      user=
31-May-2008 10:06:00:      extraData=
31-May-2008 10:06:00:      <-OpenEventTrigger.buildEventMessage
31-May-2008 10:06:00:      Posting message to: [SERVER, CHANNEL, QUEUE]
31-May-2008 10:06:00:      ->Message Data=[ [B@1f6ba0f]
```

**Line 1:** This notifies that the Email Reader has found a valid MIME attachment within the incoming email and has saved it. The directory is made up of the root folder appended with the business object reference, multi-thread-id and activity number plus the attachments original filename.

The 2-way email sent to a recipient may contain editable fields. When the user enters data into these fields the information will be sent as part of the reply. When this happens, the following trace will be produced when the `traceLevel` is 50 or greater...

```
31-May-2008 10:16:22:      Message From: DEMO <test@infor.com>, Subject:
<@PM:ID=Z1|EMRDOC#6      |PROCESSDOC|2WAYMAIL03|1|41|515|2:CC=**>
31-May-2008 10:16:22:      Activity status code = 1
1 31-May-2008 10:16:22:      Updated AS400 with data field: EMASDF1 : Demo
31-May-2008 10:16:22:      Updated AS400 with data field: EMASDF2 : 1
31-May-2008 10:16:23:      ->OpenEventTrigger.buildEventMessage
31-May-2008 10:16:23:      companyCode=Z1
31-May-2008 10:16:23:      eventCode=MANACT
31-May-2008 10:16:23:      businessObject=PROCESSDOC
31-May-2008 10:16:23:      businessObjectReference=EMRDOC#6
31-May-2008 10:16:23:      completionCode=**
31-May-2008 10:16:23:      threadID=515
31-May-2008 10:16:23:      activityNumber=2
31-May-2008 10:16:23:      user=
```

---

```

31-May-2008 10:16:23:      extraData=

31-May-2008 10:16:23:      <-OpenEventTrigger.buildEventMessage

31-May-2008 10:16:23:      Posting message to: [SERVER, CHANNEL, QUEUE]

31-May-2008 10:16:23:      ->Message Data=[[B@ec6b00]

```

**Line 1:** The Email Reader has found a variable within the 2-way email body and has correctly translated it. The trace shows the Data Field variable name that the data has been written to along with its value.

The Email Reader will also process unsolicited emails that arrive at the inbox it is monitoring. When an unsolicited email arrives, the following trace will be written to the console when the `traceLevel` is 50 or greater...

```

31-May-2008 10:24:20:      Message From:DEMO <test@infor.com>, Subject:

Test Incoming Email

1 31-May-2008 10:24:20:      Matched rule in rules file [NEWMAIL.xml]

31-May-2008 10:24:21:      ->OpenEventTrigger.buildEventMessage

31-May-2008 10:24:21:      companyCode=Z1

31-May-2008 10:24:21:      eventCode=NEWMAIL

31-May-2008 10:24:21:      businessObject=EMAIL

2 31-May-2008 10:24:21:

businessObjectReference=E22FC234B56C63DBA86C4150A67D11D9

31-May-2008 10:24:21:      completionCode=**

31-May-2008 10:24:21:      threadID=0

31-May-2008 10:24:21:      activityNumber=0

3 31-May-2008 10:24:21:      user=test@infor.com

4 31-May-2008 10:24:21:      extraData=01A19 Test Incoming EmailA

31-May-2008 10:24:21:      <-OpenEventTrigger.buildEventMessage

31-May-2008 10:24:21:      Posting message to: [SERVER, CHANNEL, QUEUE]

31-May-2008 10:24:21:      ->Message Data=[[B@13f7281]

```

**Line 1:** The Email Reader uses a rules repository to match against incoming email user, domain and subject. When an unsolicited incoming email matches the rule criteria, a process is initiated.

- Line 2: The Email Reader generates a globally unique business object reference for the new process.
- Line 3: The email address of the sender who initiated the process is stored within Work Management.
- Line 4: The subject and, optionally, the body of the incoming email is saved into Work Management.

When the unsolicited incoming email has attachments, they will be saved only if the matching rule has been defined to allow it. The following trace will be written to the console when the `traceLevel` is 50 or greater...

```
31-May-2008 10:43:56: Message From: DEMO <test@infor.com>, Subject:
Test Subject

31-May-2008 10:43:56: Matched rule in rules file [NEWMAIL.xml]
1 31-May-2008 10:43:56: Saved attachment [c:\temp\Email\
E22FC234B56C63DB6521A9F0A68011D9\file.doc]

31-May-2008 10:43:56: ->OpenEventTrigger.buildEventMessage
31-May-2008 10:43:56:     companyCode=Z1
31-May-2008 10:43:56:     eventCode=NEWMAIL
31-May-2008 10:43:56:     businessObject=EMAIL
31-May-2008 10:43:56:
businessObjectReference=E22FC234B56C63DB6521A9F0A68011D9

31-May-2008 10:43:56:     completionCode=**
31-May-2008 10:43:56:     threadID=0
31-May-2008 10:43:56:     activityNumber=0
31-May-2008 10:43:56:     user=test@infor.com
2 31-May-2008 10:43:56:     extraData=01A12 Test SubjectAB76
c:\temp\Email\E22FC234B56C63DB6521A9F0A68011D9\file.docB

31-May-2008 10:43:56: <-OpenEventTrigger.buildEventMessage
31-May-2008 10:43:56: Posting message to: [SERVER, CHANNEL, QUEUE]
31-May-2008 10:43:56: ->Message Data=[ [B@1a42792]
```

---

Line 1: The Email Reader saves any valid MIME attachments. The file path is made up of the incoming files directory, the unique business object reference and the MIME attachment file name.

Line 2: The name of the file is passed into Work Management.

When the Email Reader receives a stop message the following log information is produced...

```
31-May-2008 09:36:58: Message From:wmengine@ce2990.com, Subject:
<@PM:STOP>

31-May-2008 09:36:58: Request to stop received
```

## The Email Writer

When starting the Email Writer with `traceLevel` set as 1 it will attempt to read from the properties file passed into it by the batch program and connect to the mail server...

```
1 Using the properties file " C:/Program Files/Infor/WFiComponents102/
  properties/EmailWriter.properties"
2 31-May-2014 09:20:58: Environment being used is 'AUL'
3 31-May-2014 09:20:58:
  31-May-2014 09:20:58: *****
  31-May-2014 09:20:58: *          ENVIRONMENT SETTINGS          *
  31-May-2014 09:20:58: *****
  31-May-2014 09:20:58:
  31-May-2014 09:20:58: Server Name                      = SERVER
  31-May-2014 09:20:58: Process ID                        = 0000
  31-May-2014 09:20:58: Process Owner User Account = user
4 31-May-2014 09:20:58: Initialising queue manager [SERVER, CHANNEL,
  QUEUE_MANAGER]...
5 31-May-2014 09:20:58: Using port number 1515
6 31-May-2014 09:20:58: Initialising queue [QUEUE_NAME]...
```

---

```
7 31-May-2014 09:20:58: Dead letter queue [DEAD_LETTER_QUEUE_NAME]...
```

Line 1: This names the file where all the property values are being read. If the file could not be read then an error would be written here.

Line 2: The System Manager environment being used, as read from the properties file. This environment should be WFi enabled.

Line 3: The next batch of lines show the name of the Server where the Email Writer is being executed, the process ID and the user-profile that started the Email Writer. If the Email Writer is run as a Microsoft Windows Service, this will usually be SYSTEM.

Line 4: The IBM WebSphere MQ Series Client server, queue manager and channel being used.

Line 5: This is the port number that the IBM WebSphere MQ Series Client software needs to be listening on. An error may occur here if the server cannot be located, the queue manager is invalid or not available or if the channel listener is not active.

Line 6: This is the name of the IBM WebSphere MQ Series queue that messages will be read from. An error will occur here is the queue does not exist or cannot be accessed.

Line 7: This is the name of the IBM WebSphere MQ Series queue that messages that fail to transform will be written to for later review.

When the `traceLevel` is set to 50 or above the values from the properties file that the Email Writer has read are displayed at the start of the trace. This allows the administrator to confirm the correct values are being read and used. Also, when this level, or above, of trace is set, the dynamically loaded JAR and class files are displayed; E.g.

```
31-May-2008 09:16:22: *****
31-May-2008 09:16:22: *    Custom Java Class Loader Processing    *
31-May-2008 09:16:22: *****
31-May-2008 09:16:22: Reading file [C:\Program Files\Infor\
WFiComponents102\lib\process.extensions.jar]
```

---

```
31-May-2008 09:16:22: Reading file [C:\Program Files\Infor\
WFiComponents102\lib\bsf.jar]
31-May-2008 09:16:22: Reading file [C:\Program Files\Infor\
WFiComponents102\lib\js.jar]
31-May-2008 09:16:22: Reading file [C:\Program Files\Infor\
WFiComponents102\lib\xtaneextensions.jar]
31-May-2008 09:16:22: Reading file [C:\Program Files\Infor\
WFiComponents102\lib\commons-logging.jar]
31-May-2008 09:16:22: *****
31-May-2008 09:16:22: * End Custom Java Class Loader Processing *
31-May-2008 09:16:22: *****
```

**Note:** The dynamically loaded JAR files shown above are the default additions to the classpath provided with WFi “out-of-the-box”.

When the `traceLevel` is set to 50 or above then each attempt to read a message will output the following information...

```
31-May-2008 09:37:32: Processing messages...
1 31-May-2008 09:37:32:  ->processNextMessage
2 31-May-2008 09:37:33: No more messages
31-May-2008 09:37:33:  <-processNextMessage
3 31-May-2008 09:37:33: Waiting (10000 milliseconds)...
```

Line 1: The Email Writer is attempting to read the next available message off the input queue.

Line 2: This message signifies that the queue has no free messages on it for the Email Writer to read.

Line 3: This notifies the amount of time the Email Writer will wait before attempting to read a further message off the queue.

Should a message be found that was sent by the WFi Engine, processing trace will be written in the following form when the `traceLevel` is set to 50 (more information will be written when a greater value is set).

```
31-May-2008 09:42:52:  ->processMessage
1 31-May-2008 09:42:52:      Source = WMENGINE
```

---

```
      :           :           :
2 31-May-2008 09:42:52:      RecipientType = H
3 31-May-2008 09:42:52:      EmailAddress = test@infor.com
      :           :           :
31-May-2008 09:42:52:      Auto complete: false
4 31-May-2008 09:42:52:      Message Title: 2 Way Email To Send
5 31-May-2008 09:42:52:      Message Text :
6 31-May-2008 09:42:52:      Message HTML :
7 31-May-2008 09:42:52:      Message XML :
31-May-2008 09:42:52:      XML Format : true
8 31-May-2008 09:42:52:      XML Transform
31-May-2008 09:42:52:      ->create XtraneEngine
31-May-2008 09:42:53:      <-create XtraneEngine
31-May-2008 09:42:53:      XML to HTML.
9 31-May-2008 09:42:55:      -> Email.send
31-May-2008 09:43:00:      <- Email.send
31-May-2008 09:43:00:      <-processMessage
```

Line 1: A list of parameters passed with the email message detailing its source and unique identification within the system.

Line 2: The recipient type. Type “H” is for HTML format email and type “E” is for plain text email.

Line 3: The recipient of the message. One message will be sent for each recipient if an WFi Modeler link is dispatched to multiple recipients.

Line 4: The title put in the subject field of the dispatched email.

Line 5: If this is a plain text email, the untransformed email message content is written here.

Line 6: If this is an old-style HTML email then the email content will be written here (for pre-August 2000 versions of @ctive processes)

---

Line 7: If this is a new XML-based HTML email, the untransformed email message content is written here.

Line 8: Denotes that the message is going to be transformed using a stylesheet.

Line 9: The email is sent to the recipient. If any problems with the dispatching mail server occur a message will be logged here.

If the outgoing email has attachments, then they will be inserted into the outgoing message. For each attachment trace will be written in the following form when the `traceLevel` is set to 50 or greater...

```

31-May-2008 11:59:01:      ->processMessage

31-May-2008 11:59:01:      Source = WMENGINE
      :                  :
31-May-2008 11:59:02:      EmailAddress = test@infor.com
      :                  :
31-May-2008 11:59:02:      XML to HTML.
1 31-May-2008 11:59:02:      Added attachment [c:\temp\test.PDF]
31-May-2008 11:59:02:      -> Email.send
31-May-2008 11:59:03:      <- Email.send
31-May-2008 11:59:03:      <-processMessage

```

Line 1: The file name of the added attachment is displayed.

When the Email Writer receives a stop message the following information is written when the `traceLevel` is 25 or more. The program will then terminate.

```
31-May-2008 10:14:04: Request to stop received
```

## The Trigger Handler

**Note:** The Trigger Handler is actually made up of two programs, the Trigger Reader and Trigger Writer (on Microsoft Windows these can be

run as separate services). The trace for both is written to the same console.

When starting the Trigger Handler with `traceLevel` set as 1 it will attempt to read from the properties file passed into it by the batch program and connect to the mail server...

```
1 Using the properties file "C:/Program Files/Infor/WFiComponents102
   /properties/TriggerHandler.properties"
2 Using the properties file "C:/Program Files/Infor/WFiComponents102
   /properties/TriggerHandler.properties"
3 31-May-2014 09:20:58:
   31-May-2014 09:20:58: *****
   31-May-2014 09:20:58: *          ENVIRONMENT SETTINGS          *
   31-May-2014 09:20:58: *****
   31-May-2014 09:20:58:
   31-May-2014 09:20:58: Server Name                = SERVER
   31-May-2014 09:20:58: Process ID                  = 0000
   31-May-2014 09:20:58: Process Owner User Account = user
4 31-May-2014 09:20:58: Initialising queue manager [SERVER, CHANNEL,
   QUEUE_MANAGER]...
5 31-May-2014 09:20:58: Using port number 1515
6 Using the properties file "C:/Program Files/Infor/WFiComponents102
   /properties/TriggerHandler.properties"
7 31-May-2014 09:20:58:
   31-May-2014 09:20:58: *****
   31-May-2014 09:20:58: *          ENVIRONMENT SETTINGS          *
   31-May-2014 09:20:58: *****
   31-May-2014 09:20:58:
   31-May-2014 09:20:58: Server Name                = SERVER
   31-May-2014 09:20:58: Process ID                  = 0000
   31-May-2014 09:20:58: Process Owner User Account = user
8 31-May-2014 09:20:58: Initialising queue manager [SERVER, CHANNEL,
```

---

```
QUEUE_MANAGER]...  
  
9 31-May-2014 09:20:58: Using port number 1515  
  
10 31-May-2014 09:20:58: Initialising queue [QUEUE_NAME]...  
  
11 31-May-2014 09:20:58: Processing messages...  
  
12 31-May-2014 09:20:58: Opening pool queue [QUEUE_NAME.1]...  
  
13 31-May-2014 09:20:58: Initialise data cache...  
  
14 31-May-2014 09:20:58: Processing messages...
```

Line 1: This names the file where the Trigger Handler is reading all the property values. If the file could not be read then an error would be written here. The Trigger Handler program uses this to determine which components to start.

Line 2: This names the file where the Trigger Writer is reading all the property values.

Line 3: The next batch of lines show the name of the Server where the Trigger Writer is being executed, the process ID and the user-profile that started the Trigger Writer. If the Trigger Writer is run as a Microsoft Windows Service, this will usually be SYSTEM.

Line 4: The name of the server, queue manager and channel being used by the Trigger Writer. If the Trigger Writer cannot connect to IBM WebSphere MQ Series an error will be written out here.

Line 5: The port number of the IBM WebSphere MQ Series Client being used by the Trigger Writer.

Line 6: This names the file where the Trigger Reader is reading all the property values.

Line 7: The next batch of lines show the name of the Server where the Trigger Reader is being executed, the process ID and the user-profile that started the Trigger Reader. If the Trigger Reader is run as a Microsoft Windows Service, this will usually be SYSTEM.

---

Line 8: The name of the server, queue manager and channel being used by the Trigger Reader. If the Trigger Reader cannot connect to IBM WebSphere MQ Series an error will be written out here.

Line 9: The port number of the IBM WebSphere MQ Series Client being used by the Trigger Reader.

Line 10: The name of the IBM WebSphere MQ Series queue being used by the Trigger Writer as its input source.

Line 11: The Trigger Writer has begun reading messages from the input queue and copying them to the supplemental queues. An error may occur here if the Trigger Writer needs to create a queue but the MQ command server is not running.

Line 12: The name of the IBM WebSphere MQ Series queue being used by the Trigger Reader as its input source.

Line 13: The XML rules/maps used by the Trigger Reader are being read.

Line 14: The Trigger Reader has begun reading messages off its IBM WebSphere MQ Series input queue.

When the `traceLevel` is set to 50 or above the values from the properties file that the Trigger Handler has read are displayed at the start of the trace. This allows the administrator to confirm the correct values are being read and used.

Should a message be found that was sent by the database trigger program, processing trace will be written in the following form when the `traceLevel` is set to 25 (more information will be written when a greater value is set).

```
31-May-2008 11:03:37: Processing messages...
1 31-May-2008 11:03:40:   Significant message found
2 31-May-2008 11:03:40: Event complete...
3 31-May-2008 11:03:40:   Order Trigger (Company=Z1, Document=0000315)
4 31-May-2008 11:03:40:   Posting message to: [SERVER, CHANNEL,
```

---

QUEUE\_NAME]

Line 1: The Trigger Reader has received a message that contains data that one or more rules/events is interested in it

Line 2: The message contained data to fulfil all the conditions of an event.

Line 3: The name of the event being fired with its company and document reference.

Line 4: A message is posted to the WFi Engine input queue using the `OpenEventTrigger` class. The IBM WebSphere MQ Series details are read from the `OpenEventTrigger.properties` file.

Every so often the Trigger Reader will output a set of statistics detailing the messages it has processed in the following form...

```
-----  
Relevant messages:  1  
Irrelevant messages: 2  
Completed events:   1  
Pending events:     0  
Purged events:      0
```

When the Trigger Handler receives stop message information the following log will be output regardless of the current `traceLevel` value...

```
31-May-2008 10:59:10: Processing messages...  
31-May-2008 10:59:10: Request to stop received  
31-May-2008 10:59:11: Processing messages...  
31-May-2008 10:59:11: Request to stop received
```

---

## Using the Apache Log4J Logging System

By default, the trace from the WFi Components is sent to the console using basic Java output formatting. To allow more control over the destination and formatting of the logging the Apache Log4J logging system can be used. To do this, add the following to the properties file of the handler...

```
traceLog4J=1
```

The format and destination of the Log4J logging system can be configured using an XML properties file. By default, the WFi Components will use the basic example that is shipped in the `properties` sub-directory of your WFi installation (e.g. `C:/Program Files/Infor/WFiComponents102/properties`). The file is called `log4j2.xml`.

As this file is on the class path, it will automatically be used by all the current handlers that are running. The default configuration file will log all debugging output to the console AND to a log file called `ConsoleLog.log` in the `logs` sub-directory of your WFi installation.

The Log4J configuration file allows logging requests to print to multiple destinations. In Log4J “speak” an output destination is called an *appender*. Here is an example of an *appender* sending output to the console...

```
<Console name="console" target="SYSTEM_OUT">
    <PatternLayout pattern="%d{HH:mm} %c{1} %p\t%m%n"/>
</Console>
```

You can find out more about different types of Appenders in Log4J here: <https://logging.apache.org/log4j/2.x/manual/appenders.html>

The layout controls what information can be used. For a detailed description of the various pattern parameters see <https://logging.apache.org/log4j/2.x/manual/layouts.html#PatternLayout>.

The organisation of data that is logged is grouped based on the Java class package and/or name. Here is an example of a logger definition for the Document Handler...

```
<Logger name="com.geac.erp.system21.aef.documenthandler" level="debug"/>
```

---

The level value allows additional configuration of the type of information that is logged. Log4J supports standard logging levels in this order...

```
DEBUG < INFO < WARN < ERROR < FATAL
```

However, WFi only uses Log4J logging levels in this order...

```
DEBUG < INFO < ERROR
```

The root section lists the appender to be used for logging and the default priority, E.g.

```
<Root level="debug">
  <AppenderRef ref="console"/>
  <AppenderRef ref="file"/>
</Root>
```

In the example above all trace will be sent and formatted using the appender called “console” and the default trace will be debug (e.g., all trace).

**Note:** For more information about Log4J and its configuration see the Apache web site <https://logging.apache.org/log4j/2.x/index.html>

**WARNING:** Even when Log4J tracing is turned on some 3<sup>rd</sup> party Java components used by WFi will still send their output directly to the current System out/error device.

**Note:** When sending trace to Infor, make sure that any log files contain ONLY the trace from the Java component you are having problems with and that you clear down the file before producing the trace.

## Debugging JDBC Connections

If errors are occurring within the JDBC calls to the IBM i server (e.g. when the Document Handler completes it calls a stored procedure via JDBC), you can debug the problem by enabling JDBC trace against the connection.

---

To do this, edit the `DBConnectionManager.properties` file (usually in the `properties\com\geac\extrane\util` folder of your WFi installation). Locate the JDBC pool that you wish to debug (usually named after your IBM i server) and, at the end of the URL parameter add `“;trace=true”` E.g.

```
myserver.url=jdbc:as400://myserver;naming=system;errors=full;date format=iso;translate binary=true;trace=true
```

Save the file then restart the handlers to pick up the changes. When a JDBC call is made you should see detailed information about the actions being performed written to the console which can be used to debug the problem.

When you are finished debugging, either remove the `“trace=true”` setting or set `“trace=false”`.

---

## WFi Modeler

WFi Modeler should perform correctly and report informative messages if it finds problems either with your process models or problems activating them to your IBM i server.

In the event of a serious software problem you may be asked by an Infor representative to produce trace to help us to track down and rectify the problem. To do this...

- Shutdown WFi Modeler
  - Edit the `JBASMG.INI` file in your WFi Modeler installation folder using a basic text editor (such as Notepad).
  - Add the line `@MTrace=1` in the `[JBAS21DEFAULTS]` section of the file
  - Save the file and close the editor
  - Delete any existing trace file(s) in your TEMP directory (to locate this directory go to an MS-DOS command prompt and type `ECHO %TEMP%`). Trace files are denoted by the `.DBG` extension.
  - Run WFi Modeler and repeat the error.
  - Locate the trace files in the TEMP directory and send these to Infor along with instructions on how to reproduce the error (include any example processes/data that easily show the error).
-





## Common Problems

| Symptom                                            | Possible Causes                | Resolution                                                                                                                                                                                                                                |
|----------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cannot activate business process from WFi Modeler. | Incorrect ODBC settings.       | Check all ODBC settings are correct as defined in section 4 of the Installation Guide (including Advanced settings).                                                                                                                      |
|                                                    | Correct IBM i Access version.  | The version of IBM i Access should be correct and compatible for your OS400 release.                                                                                                                                                      |
|                                                    | Invalid server name/address.   | Check the server can be accessed from your PC using the IBM i Access software.                                                                                                                                                            |
|                                                    | Invalid user profile.          | Ensure that the IBM i user profile is valid and can sign on with the password being used.                                                                                                                                                 |
|                                                    | No Work Management.            | Make sure the WM library has been installed on the IBM i server.                                                                                                                                                                          |
|                                                    | User profile has no authority. | The user profile used by the ODBC pool connection must have sufficient authority to write to the libraries within the connection's library list.                                                                                          |
|                                                    | Latest PTF required            | Make sure you have applied the latest IBM i Access PTF. Latest levels can be found here <a href="http://www-03.ibm.com/systems/i/software/access/windows/casp.html">http://www-03.ibm.com/systems/i/software/access/windows/casp.html</a> |

| Symptom                                           | Possible Causes                                                                            | Resolution                                                                                                                            |
|---------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Cannot activate business events from WFi Modeler. | The library containing the file used by the event is not in the library list.              | Change the ODBC settings so that the library is added to the libraries list.                                                          |
|                                                   | The library/file object on the IBM i does not allow database triggers to be applied to it. | See chapter 4 of the Installation Guide for more details on how to allow authority for applying database triggers to a physical file. |

| Symptom                                                | Possible Causes                                        | Resolution                                                                                                                                                 |
|--------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No entries appearing in Action List/Tracker interface. | IBM WebSphere MQ Series is not running.                | An error message should have been sent to the default error role for this business object. Shutdown the WFi Engine, start MQ then re-start the WFi Engine. |
|                                                        | The WFi Engine is not running.                         | Start the WFi Engine.                                                                                                                                      |
|                                                        | The licensed process license has expired.              | Once the licensed process license has expired the process will be disabled. Obtain a new license code and apply using System Manager.                      |
|                                                        | A handler program the process requires is not running. | Start the appropriate handler program; ensuring it is able to connect to MQ/Email as required.                                                             |
|                                                        | The process is not active.                             | Use WFi Modeler to ensure that the process is activated and enabled.                                                                                       |

| Symptom                                                                                 | Possible Causes                                       | Resolution                                                                                                                                   |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Document/ Trigger/<br>Email Handler failed to<br>open queue (MQ Error<br>2058 or 2059). | MQ Queue manager not<br>started.                      | Start the MQSeries Queue<br>manager that is referenced in the<br>properties file.                                                            |
|                                                                                         | MQM Listener not<br>started.                          | Start the MQM Listener service to<br>allow MQ Client connections.                                                                            |
|                                                                                         | Invalid<br>queue/channel/queue<br>manager name.       | Check all the<br>queue/channel/names in the<br>properties file exist and spelt<br>correctly.                                                 |
|                                                                                         | MQM Listener not<br>listening on the default<br>port. | Check the port that the listener is<br>using and if this is not the default<br>port (1414) then set the value<br>within the properties file. |
|                                                                                         | DNS server name<br>cannot be resolved.                | Try using the IP Address of the<br>server in the properties file for the<br>host name.                                                       |

| Symptom                                                                     | Possible Causes                               | Resolution                                                                                                                                                                          |
|-----------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Document Handler/<br>Extension Function<br>stored procedure call<br>failed. | Incorrect pool name.                          | Check that the pool name in the Document Handler properties file matches a pool defined in the DB Connection Manager properties file.                                               |
|                                                                             | Incorrect pool definition.                    | Make sure the JDBC pool definition in the DB Connection Manager is correct and that it uses a valid user profile, connects to a valid server and that the naming is of type system. |
|                                                                             | User profile has no SQL or MQ authority.      | The user profile used by the JDBC pool connection must have the authority to execute SQL statements and write to MQ.                                                                |
|                                                                             | Stored procedure does not exist.              | Use WFi Modeler to activate the stored procedure to your WFi server, making sure that the "System level elements" setting is checked in the Advanced tab of the Activate dialog.    |
|                                                                             | User profile has no System Manager authority. | The user profile used by the JDBC pool connection must have AULUSER and AULOWNER group profile authority.                                                                           |

Using wrong System Manager version.

If the IBM i has multiple System Manager installations then, depending on your JDBC user profile definition, you could be accessing the wrong one.

To specify the correct System Manager library, edit the `DBConnectionManager.properties` file and add the `aullib=AULSYS3` property to your pool; E.g.

```
MYSERVER.aullib=AULSYS3
```

If you need to change the pre-WFi library name because you have two System Manager's installed, then use the `v3lib` property; E.g.

```
MYSERVER.v3lib=MYOSLSYS
```

---

| Symptom                                    | Possible Causes                          | Resolution                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Batch jobs within process fail to execute. | User profile does not have default role. | The user profile used to launch the WFi Engine must be assigned to a default role if role processing is turned on.                                                                                                                                                                                |
|                                            | Role profile not authorised to task.     | The default role for the profile that is used to launch the WFi Engine must be authorised to all the tasks that can be launched within the process. It is recommended that the user profile be assigned an "ALLMENU" role that is assigned to all Infor ERP System i tasks to avoid this problem. |

| Symptom                                       | Possible Causes                       | Resolution                                                                                                                                                                                                        |
|-----------------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Email Reader fails to connect to mail server. | Mail server details incorrect.        | Check that the server name is correct, that the profile exists on the server (in the correct case) and that the mail folder also exists.                                                                          |
|                                               | Password is not encoded.              | The Email Reader password should be encoded using the GeneratePassword program supplied. See the User Guide for more details on how to do this.                                                                   |
|                                               | Incorrect service.                    | Make sure that the mail server you are using supports the service type (POP3, IMAP or SMTP) that you are trying to use.                                                                                           |
|                                               | Incorrect port.                       | Check which TCP/IP port the mail server is using and specify this in the Email Reader properties file.                                                                                                            |
|                                               | Recipient Email address is incorrect. | Review the process to ensure that any hard-coded address is correct. If using a data field as the address check that the SQL used to retrieve the recipient is correct and the data is correct within the system. |
|                                               | SSL connection is required            | Use the appropriate SSL-enabled protocol to access the mail server (POP3S or IMAPS)                                                                                                                               |

| Symptom                                  | Possible Causes                      | Resolution                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Document Handler fails to transform XSL. | Java classpath is incorrect.         | If the stylesheet contains any additional extension functions that require Java classes not supplied by default with WFi you will need to add these to the list of classes loaded by the Document Handler (use the <code>classpath</code> property in the <code>DocumentHandler.properties</code> file).                                                      |
|                                          | External XSL files fail to import.   | If the stylesheet contains <code>xsl:import</code> statements then these need to be available to the Document Handler. If you are using relative class paths then check that the <code>styleSheetFolder</code> setting in the properties file is set to the correct location. If the external XSL file is syntactically invalid the transformation will fail. |
|                                          | XPath fails on result-tree fragment. | Check that XPath statements are only performed on variables of type XML nodeset. XML data created inside a variable element will be of type result-tree fragment and needs converting to a node set using the <code>xalan:nodeset</code> function. The WFi 1.3 and later extension functions always return data in nodeset form.                              |

---

| Symptom                                                | Possible Causes                 | Resolution                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| setActivityStatus function fails to complete activity. | JDBC connection is incorrect.   | Make sure the JDBC pool definition used by the function (parameter 1) in the DB Connection Manager is correct and that it uses a valid user profile, connects to a valid server and that the naming is of type system.                                                                                                                                              |
|                                                        | Stored procedure not activated. | Use WFi Modeler to activate the WF570 stored procedure to your Work Management server, making sure that the "System level elements" setting is checked in the Advanced tab of the Activate dialog.                                                                                                                                                                  |
|                                                        | Invalid parameters              | Make sure all the parameters being passed are correct (not blank) and actually reference a known activity (the multi thread ID and activity number uniquely reference a activity in a process). The completion code must be valid for the activity.                                                                                                                 |
|                                                        | MQ/SQL Authority.               | When using setActivityStatus to "release" an activity, the account needs SQL access only. When using setActivityStatus to "complete" an activity the account needs to be able to write to the WFi Engine's input queue. This is done using a stored procedure on the IBM i server, which is ran using the account permissions of the user defined with the DB pool. |

| Symptom                                                                                        | Possible Causes         | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| readProcessDocuments extension function generates a "statement already open error (STMT0001)". | Software level problem. | <p>This is caused by a problem with the JT400 package being able to access CLOB/BLOB fields on the IBM i server using SQL. To rectify this, a PTF is required for the IBM i. You need either or both of the cumulative fix pack C2071510, or a recent WebSphere group PTF.</p> <p>Note that the WebSphere group PTF may help even if you do not have WebSphere. This is because the WebSphere group PTFs always include the latest database and Java group PTFs. If you load the WebSphere group PTF then you will get these other fixes even if WebSphere is not loaded.</p> |

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| Symptom                                                                                                                           | Possible Causes                                                                                                                                                           | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dispatching HTML 2-way emails from WFi to a Lotus Notes e-mail client does not correctly allow the client to complete the e-mail. | Lotus Notes mailto RFC compliancy problem. When one of the completion routes is selected a new mail can be sent but the subject line looks incomplete. E.g.<br><@PM:ID=Z1 | Lotus Notes (version 5 and 6 BETA) e-mail client does not support multiple question marks in the subject line, even when the data is correctly URL encoded to adhere to the mailto: URL RFC definition. The bug has been raised with IBM/Lotus.<br><br>A workaround has been implemented in the WFi 1.x release (and all later releases) that allows the question mark to be changed to a user-defined symbol. Set a different delimiter character and re-generate the email(s). |

| Symptom                                                    | Possible Causes | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MQ access/ usage generates a MQRC 2195 (unexpected) error. | Unknown         | <p>Whilst there is no hard or fast rule to fixing this, the reason for the error can be discovered by looking at the FFST records. To find these you need to access the IBM i IFS and locate the <code>/QIBM/UserData/mqm</code> folder. Under this is an <code>errors</code> folder, which contains log and FFST (FDC) files.</p> <p>The log files are numbered <code>AMQERR01.LOG</code>, <code>AMQERR02.LOG</code> and <code>AMQERR03.LOG</code>, with <code>AMQERR01.LOG</code> being the latest log and the latest error being at the bottom of the file. The FDC files contain data for a specific process number. The names are based on process numbers so there are not in any predictable sequence.</p> <p>You may be able to figure out the relevant one from the log entry. Otherwise, use the dates to figure out the relevant one.</p> <p>There are also general logs in <code>/QIBM/UserData/mqm/qmgrs/&amp;SYSTEM/errors</code> and queue manager specific logs in <code>/QIBM/UserData/mqm/qmgrs/manager-name/errors</code> (where <code>manager-name</code> is the name of your queue manager).</p> |

Client connections left active (no free client connections can be created)

When using IBM WebSphere MQ Client it is vital that you stop the Java Components using the provided stop mechanisms. If the batch jobs are ended abnormally you may end up with AMQCRSTA jobs in your QMQM sub-system that are not ended. Depending on how IBM WebSphere MQ is configured these may automatically time-out but until they do, they will continue to consume resources. In some instances, they do not time out and the resources will not be freed until MQ is restarted.

To remove these jobs, you will need to shutdown IBM WebSphere MQ (using the provided shutdown procedures), remove any jobs left running in the QMQM sub-system then restart IBM WebSphere MQ.

---

| Symptom                                                                         | Possible Causes                                                                        | Resolution                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WFi Component fails to restart/ automatic-ally shutdown after IBM i server IPL. | Multiple STOP messages sent to input queue during "machine end" procedure              | Check any IBM i shutdown scripts for calls to ENDWFICMP. If running on Microsoft Windows then make sure that STOP messages are not being generated by the Microsoft Windows Server machine and the IBM i machine. |
|                                                                                 | Handler program is being abnormally terminated before processing day-end stop message. | Give WiFi handlers enough time to finish processing and shutdown before terminating them abnormally. Send STOP message earlier in the "machine end" cycle.                                                        |

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| Symptom                                                  | Possible Causes                                      | Resolution                                                                                                                                                      |
|----------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Work Management enabled Activity locks up on completion. | The default role has not been selected for the user. | Use System Manager to set a default role menu for every user of WFi.                                                                                            |
|                                                          | The user is not authorised to write to MQ            | The queue must be configured so that any user can write messages to it (see the Installation Guide for information on how to configure IBM WebSphere MQSeries). |

| Symptom                                         | Possible Causes                                        | Resolution                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WFi Extension function fails to work correctly. | The correct number of arguments has not been supplied. | Check the extension function documentation to ensure the correct arguments are been passed to the function.                                                                                                                                                                                                                                   |
|                                                 | The argument data or data type is incorrect.           | Make sure you are passing the correct data types to each function parameter. Passing result-tree fragments intro strings (and vice versa) is allowed but may give unexpected results.                                                                                                                                                         |
|                                                 | The function failed.                                   | <p>Most functions will return an XML node set detailing the passed values along with any return data. If an error has occurred, then an “error” node will be created within the node set that will contain the error code and any error text.</p> <p>You should write your stylesheet to check and handle errors from the WiFi functions.</p> |

---

| Symptom                                                                                                                                 | Possible Causes                                                                                                  | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Java Unsatisfied Link Error when using Document/ Trigger/ Email handlers on Microsoft Windows with local IBM WebSphere MQ Queue Manager | Cannot load native DLL (mqjbnd01.dll on IBM WebSphere MQ version 5.2.x, mqjbnd05.dll on version 5.3.x and later) | <p>This native DLL is used by the 3<sup>rd</sup> party IBM WebSphere MQ JAR files to create a connection. This file must be located somewhere on your MS-DOS path. The IBM WebSphere Installer will normally do this for you but it is possible to block the addition of this entry from the installer. Should you get this (or a similar) error message:</p> <pre>java.lang.UnsatisfiedLinkError: no mqjbnd01 in java.library.path</pre> <p>...then make sure that you add the path to the native DLL file into your MS-DOS path setting. Its usual location is C:\Program Files\IBM\WebSphere MQ\Java\lib.</p> |

| Symptom                        | Possible Causes                      | Resolution                                                                                                                                                                                                                                                                                                |
|--------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trigger rule does not complete | Invalid rules / maps / events files. | Make sure that you have created the correct rules files during the activation of your process. They should be saved under the same root directory as pointed to within the <code>TriggerHandler.properties</code> file.<br><br>Do not attempt to copy rules files between different servers/environments. |
|                                | Multi-part event timeout.            | When using a multi-part rule, the time between completing each part can be configured within WFi Modeler. If this time expires before the final part is received then the rule will not complete.                                                                                                         |
|                                | Rules out of date.                   | If you change the definition of a rule, then activate it, you need to restart the Trigger Handler to pick up the new rule definition.                                                                                                                                                                     |

| Symptom                                       | Possible Causes                     | Resolution                                                                                                                                                                                                                                                         |
|-----------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Completed Trigger rule does not start process | Process is not activated / enabled. | Enable/active your process within the correct environment.                                                                                                                                                                                                         |
|                                               | Cannot connect to WFi server.       | <p>The Trigger Handler uses the Open Event Trigger API to send a message to the WFi Engine.</p> <p>Make sure that the values in the <code>OpenEventTrigger.properties</code> file are valid and correct for your Work Management IBM WebSphere MQ input queue.</p> |
|                                               | Work Management is not running.     | Start the WFi Engine on your IBM i server.                                                                                                                                                                                                                         |

| Symptom                                      | Possible Causes                                 | Resolution                                                                                                                                                                                               |
|----------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Escalation/ Delegation rule does not execute | Rule is not activated                           | Make sure the Escalation Rules option is checked within the Advanced tab of the Activation dialog within WFi Modeler. Use the Server Management options to check that the rule is activated AND enabled. |
|                                              | Escalation/Delegation Processor is not running. | Start the Escalation/Delegation processor from the Work Management menu in System Manager                                                                                                                |

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| Symptom                                                                                 | Possible Causes                                                  | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Email messages are dispatched by the Email Writer but do not contain any body text/HTML | The transformation of the message XML into HTML/text has failed. | <p>Check the character encoding used is correct and consistent throughout the process (from files within Work Management to IBM WebSphere MQ to the Email Writer <code>characterSet</code> property).</p> <hr/> <p>Manual Activity messages that contain Data Fields will use XML CDATA sections. CDATA sections use square brackets ([ and ]) which are particularly susceptible to conversion issues as they are outside the basic ASCII character range. If messages without data fields transform correctly then this points to a character conversion problem.</p> <hr/> <p>When using customised stylesheets ensure that the XSL is valid (not only is it valid XML but any extensions use the correct syntax and parameters) and that any extension functions used by the transformation are in the Email Writer's class path.</p> |

| Symptom                               | Possible Causes      | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cannot use data field for link/update | Incorrect usage set. | <p>When defining a new data field, the usage must be set. Data fields can be used within Manual Activities, for recipient links (role, user, email), for priority values (such as message priority) and for date values (such as processing date) or for combinations of the. The Event (for Event Monitor) and Update (For Update data fields) usage types are exclusive and cannot be combined with any other type.</p> <p>To select the usage, click on every usage type that you require within the list. Selected usage types are highlighted.</p> |
|                                       | Wrong document type  | <p>Data fields are associated with a Document Type. When trying to select a data field, make sure that your activities are correctly connected and that the Document Types are consistent and correct (i.e. if altering the properties of a recipient link then makes sure the activities at each end use the same Document Types).</p>                                                                                                                                                                                                                 |

| Symptom                               | Possible Causes                   | Resolution                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WM Engine cannot resolve a Data Field | Missing library.                  | Stop the WFi Engine and go into the properties (STRIPGAM, Option 10, then Option 3), enter the Environment (Customer) code you are using and then press Enter then F20 (Shift + F8) and make sure the library that contains the Database Table or Program that is used by the Data Field is in the library list.                                                                                 |
|                                       | Not authorised to library/object. | Check that the user profile that is used to start the WFi Engine has authorisation to use the Database Table or Program used by the Data Field.                                                                                                                                                                                                                                                  |
|                                       | SQL is invalid.                   | <p>When using SQL Data Fields, make sure you can execute the actual SQL on the IBM i (i.e. it is well formed) using a program such as STRSQL with the same library list and user profile that the WFi Engine will use.</p> <p>When an SQL error occurs, you will usually get a EWM Error message within Action tracker which may contain more detailed explanation as to why the SQL failed.</p> |

| Symptom                                                                    | Possible Causes                  | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Outlook 2003 won't execute scripts in HTML email that contains edit fields | Microsoft 2003 Security settings | <p>By default, Microsoft Outlook 2003 will not execute scripts within messages. This means that HTML messages containing edit fields cannot complete. To enable scripting, you will need to edit the following registry entry on each Outlook 2003 client.</p> <pre>HKEY_CURRENT_USER\<br/>Software\Microsoft\<br/>Office\11.0\Outlook\<br/>Scripting\EnableItemScript</pre> <p>Set its value to 1.</p> <p>You will also need to use the Tools -&gt; Options, Security tab to show HTML messages in the Internet Zone and make sure that within the custom security settings for that zone, you allow Active X objects not marked as safe for scripting to Initialize and Script (Enable or Prompt).</p> |

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| Symptom                                                                                                                           | Possible Causes              | Resolution                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Handler programs can't bind to local queue manager on IBM i installation (MQJE001: Completion Code 2 Reason 2009 on V7R4/7.5/7.6) | Missing environment variable | <p>When using the IBM WebSphere MQ Java programs on IBM i in bindings mode, you must set the environment variable QIBM_MULTI_THREADED=Y. E.g.</p> <pre>ADDENVVAR<br/>ENVVAR('QIBM_MULTI_THREADED')<br/>VALUE(Y) LEVEL(*SYS)</pre> <p>This is because the IBM WebSphere MQ Java classes used by WFi are inherently multi-threaded and they require the java runtime to be initialized to run multi-threaded programs.</p> |

| Symptom                                            | Possible Causes              | Resolution                                                                                                                                                                            |
|----------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Can't install services on Microsoft Windows Server | Not running as Administrator | Either sign-in to the Microsoft Windows Server using the local Administrator account to run the scripts or start the Command (MS-DOS) Prompt using the "Run As Administrator" option. |

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| Symptom                                         | Possible Causes          | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Java Handlers won't start on IBM i installation | Using wrong Java version | <p>Make sure you have installed the pre-requisites Java software required (the IBM 1.8 Development Kit) onto your IBM i server.</p> <p>You can check the installed Java version is correct by running the QSH command and entering the following:</p> <pre>java -version</pre> <p>This will run the Java JRE and display the version being used (ignore any exception). This should be Java version 1.8.</p> <p>If you get no value returned, check the JAVA_HOME variable is correctly set (see the Installation Guide for more details)</p> |

| Symptom                                                                                   | Possible Causes                                                                                    | Resolution                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WiFi Modeler will not start on Microsoft Windows 11. Shows an "Unexpected Error" message. | Needs to be started using the Administrator account because User Account Control (UAC) is enabled. | Locate the WiFi Modeler menu item in the Microsoft Windows Start Menu and right click on it. Select the "Run as administrator". The program should now start properly. Exit WiFi Modeler and re-start normally. |

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| Symptom                                                                                                                                                                                                                                                                   | Possible Causes                    | Resolution                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Calling sqlQueryFunction<br>XSL extension function fails<br>and generates the following<br>error on IBM i V7R4, 7.5 or<br>7.6:<br><br>java.awt.HeadlessException:<br>No X11 DISPLAY variable<br>was set, but this program<br>performed an operation<br>which requires it. | Missing<br>environment<br>variable | Set the system environment<br>variable DISPLAY=:0.0 to clear this<br>error; e.g.<br><br><pre>ADDENVVAR ENVVAR('DISPLAY')<br/>VALUE(':0.0') LEVEL(*SYS)</pre> |

| Symptom                                                                                                                                       | Possible Causes            | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>WFi Components show IBM WebSphere MQ error 2035; E.g.</p> <p>ERROR! Failed to open queue: MQJE001: Completion Code '2', Reason '2035'.</p> | <p>MQ Client Authority</p> | <p>Infor has seen this error occur when running the WiFi Components on Microsoft Windows Server directly against an IBM i OS/400 V7R4, 7.5 or 7.6 installation with IBM WebSphere MQ 9.0 and later versions (i.e. using an MQ Client connection).</p> <p>Even when the IBM WebSphere MQ Queue Manager, Queues and Channels are set to *PUBLIC, and the Queue Manager Channel Authentication is set to *DISABLED, the MQ logs suggest that authority checking is still being carried out.</p> <p>The solution is to create a local account on the Windows Server (e.g. MQUSER) and to run the WiFi Components using that account (whether direct or via the Windows Service) and to create a matching account on the IBM i server with the same name.</p> <p>The IBM WebSphere MQ Queue Manager should be stopped and restarted after making these changes.</p> |

| Symptom                                                                                                                                                                                                                                                                                                                                | Possible Causes        | Resolution                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Email Reader and Writer will not start, showing a Java “Method Not Found” exception within the Spool File output, after upgrading to IBM Java 1.8 SDK</p> <p>E.g.</p> <pre>Exception in thread "main"<br/>java.lang.NoSuchMethodError:<br/>com/ibm/security/x509/Algori<br/>thmId.getEncAlgFromSigAlg(Lj<br/>ava/lang/String;</pre> | <p>Missing WFi PTF</p> | <p>Older versions of the WFi programs used to start the WFi Components use to include the “Java Endorsed” folder on the Java class path. This setting is no longer used with Java 1.8 and, if referenced, causes the “Method Not Found” error.</p> <p>To resolve this problem, make sure that all WFi PTFs up to delivery WFAG 28 are installed.</p> |

| Symptom                                                                                                                                                                                   | Possible Causes                               | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SQL usage generates a “Class Not Found” Java error for <code>sun.jdbc.odbc.JdbcOdbcDriver</code> in the WFi Component output log, using Java 1.8 with a WFi Components IBM i installation | Class no longer part of IBM Java 1.8 delivery | <p>The “Class Not Found” error is not fatal, and does not stop SQL from working, but if you wish to prevent this error then you must edit the <code>DBConnectionManager.properties</code> file, in the <code>\Infor\WFiComponents102\properties\com\geac\xtreme\util</code> folder, and remove <code>sun.jdbc.odbc.JdbcOdbcDriver</code> from the list of drivers; e.g. change...</p> <pre># JDBC Driver<br/><br/>drivers=com.ibm.as400.access.AS400JDBC<br/>Driver,sun.jdbc.odbc.JdbcOdbcDriver<br/><br/>...to...<br/><br/># JDBC Driver<br/><br/>drivers=com.ibm.as400.access.AS400J<br/>BCDriver</pre> |

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| Symptom                                                                                                             | Possible Causes                           | Resolution                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IBM Application Client for WebSphere Application Server version (on Microsoft Windows Server) is using Java 1.6 JDK | Latest IBM Fix Pack has not been applied. | <p>Apply the latest IBM Application Client for WebSphere Application Server Fix Pack using the IBM Installation Manager.</p> <p>See Pre-requisite Software section within Chapter 2 of the WFi Installation Guide.</p> |

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| Symptom                                                                                                       | Possible Causes                                       | Resolution                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The Email Reader no longer connects to our Microsoft Outlook 365 mailbox after October 1 <sup>st</sup> , 2022 | Basic Authentication has been deprecated by Microsoft | OAuth 2.0 authentication must now be used instead of Basic Authentication.<br><br>See the Microsoft Outlook 365 Integration appendix in the WFi Installation Guide on how to setup and configure the Email Reader to use OAuth 2.0 authentication when connecting to Microsoft Outlook 365 |

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## Reporting Problems

The Infor support desk will contact you to provide any information that they need but when opening a problem, you can reduce the turnaround time by providing some of the following information...

- IBM i Hardware (including memory)
  - IBM i Operating System version
  - Microsoft Windows Operating System & Hardware
  - IBM WebSphere MQSeries version (including any PTFs)
  - WFi version (including any PTFs)
  - WFi Components version (including any fix packs)
  - WFi Modeler version (including any fix packs)
  - Exported copy of any associated processes
  - Copies of any WFi properties files
  - Concise explanation of the error
  - Context in which the error occurred, if easily reproducible
  - Any associated imported XSL files for Document Handler solutions
  - Screen shots of any messages or trace relating to the problem
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