MQSeries Integrator - Publish exception Plug-in

Version 1.0

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Take Note!

Before using this report be sure to read the general information under "Notices".

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This edition applies to Version 1.0 of *MQSeries Integrator - Publish exception Plug-In* and to all subsequent releases and modifications unless otherwise indicated in new editions.

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Summary of Amendments

Date	Changes
23 July 2001	Initial release

Preface

The PublishExceptionNode is designed to publish an Event message whenever an exception occurs in a message that has been sent through a message flow that the PublishExceptionNode is attached to.

Bibliography

- *IBM MQSeries Integrator for Windows NT Version 2 Installation Guide,* IBM Corporation. SC34-5600.
- *IBM MQSeries Integrator for Sun Solaris Version 2 Installation Guide,* IBM Corporation. SC34-5842
- *IBM MQSeries Integrator for AIX Version 2 Installation Guide,* IBM Corporation. SC34-5841
- *IBM MQSeries Integrator Version 2 Using the Control Center,* IBM Corporation. SC34-5602
- *IBM MQSeries Integrator Version 2 Programming Guide,* IBM Corporation. SC34-5603

Chapter 1. Overview

The Publish Exception node is an MQSeries Integrator plug in node that can be used in a message flow. When a message flow is functioning correctly, the Publish Exception node simply passes the message onto the next node in the flow (to its 'out' terminal).

The core functionality for this node occurs when an exception is thrown in a node (or any node this node is attached to) that the publish exception node has propagated a message to. The Publish Exception node interrogates the exception and creates a new message, to be published, based upon the details of the exception.

The Publish Exception node is useful node for a systems administrator as this node can be used as an alert for notifying that something has gone wrong in the message flow concerned. The data in the message published contains the Broker, Execution group and message flow where the exception originated. This, contained with the exception data, can be used to identify what has gone wrong and corrective actions can be made to the messages being passed to the Broker or the message flow being executed by the Broker.

The Publish Exception node can be used in both a development and production environment, as in the development environment, exceptions published can be used to tune the message flow. In a production system the Publish Exception node is light weight, as it simply passes messages to its 'out' terminal and can be used as a warning mechanism to indicate things are going wrong.

Chapter 2. Installing the Plug-in Node

Contents

The supplied zip file should be unzipped in a temporary directory. The following files and sub-directories will be created:

/source

/source/PublishExceptionNode.c

/source/PublishExceptionNode.h

/NT

/NT/ComIbmPublishException

/NT/ComIbmPublishException.wdp

/NT/MessageProcessingNodeType_ComIbmPublishException.htm

/NT/publishexception.lil

/AIX

/AIX/publishexception.lil

/Sun

/Sun/publishexception.lil

license2.txt

Iaoi.pdf

Prerequisites

This SupportPac provides a plug-in node to be used with the IBM MQSeries Integrator Version 2.0.1 and above. For normal use, there are no other prerequisite products other than those required by IBM MQSeries Integrator Version 2.0.1 itself. If any changes are to be made to the plug-in node, an appropriate C++ compiler is required.

Supported Platforms

This SupportPac has been developed and tested in a Microsoft Windows NT, Sun Solaris and AIX environment.

Installing the plug-in node on broker system

The plug-in '**lil**' file should be installed by copying or moving the appropriate file to the following directory:

- <mqsi_root>\bin (Windows)
- <mqsi_root>/lil (AIX, Solaris)

You must stop and restart the broker to enable it to detect the existence of the new '**lil**'.

Integrating the plug-in node into the Windows Control Center

The necessary files for integrating the plug-in into the Windows Control Center are provided in the /NT directory.

Use the following table to copy the files to their correct location. These locations should already exist providing you have deployed at least one message flow. Append your ***<MQSI V2 root install path>*** to the **Copy to location** value.

Use the following to replace the placeholders:

<hostname> - TCP/IP hostname

<CM QMName> - Configuration Manager's queue manager name

Filename	Copy to location
ComIbmPublishException	\Tool\repository\private\<hostname>\<CM QMName>\MessageProcessingNodeType
ComIbmPublishException.wdp	\Tool\repository\private\<hostname>\<CM QMName>\MessageProcessingNodeType

Defining the node to the configuration repository

When you have installed the files in the appropriate directories, as described in the previous section, you must make these definitions available to the Control Center.

1. Start the Control Center. The user ID you are using must be a member of the MQSeries Integrator group ***mqbrdevt***. You are recommended to use the superuser ***IBMMQSI2*** to complete this task[1]. This causes your new node to be locked under the same user ID as all the supplied IBM primitive nodes. If you do not use this user ID, the definition files in the configuration repository might be accidentally locked, and therefore open to unauthorized update.
2. Select the Message Flows view.
3. Select an existing Message Flow Category, or create a new one.
4. Right-click the selected category, and select *Add->Message Flow*.

   A list box is displayed showing all existing IBM-supplied primitive nodes and any defined message flows you have installed following the instructions provided.
5. Select the message flow (the node).

   This node now appears within the message flow category you selected in the tree view in the left-hand pane.
6. Select your new node, and right-click. Select *Check In*.
7. Right-click again, and select Lock. Then right-click again and select Check In for a second time. After this check, the interface and ****.wdp*** definition files disappear from the local directory and go into the shared repository, where they are available to all users of the Control Center. However, user can only use this new node if they have installed the additional files (icons, properties files, and so on) on their own system.

[1] You must take care if you change logon IDs to complete this task. Changing logon IDs can effect the operation of the Configuration Manager's queue manager if it is on this system, but not running as a Windows NT service. See the *MQSeries Integrator Administration Guide* for more information about queue manager operation (Chapter 2) and the superuser *IBMMQSI2* (Chapter 4).

Chapter 3. Using the plug-in node

Description

The Publish Exception Node publishes an event message whenever an exception is detected in a message flow from which the ‘out’ terminal is attached.

When the message is generated, it creates an MQMD, RFH2 and XML message data. The structure for the XML message data is :

```
<Broker label="BrokerName">
  <ExecutionGroup label="ExecutioGroupName">
    <MessageFlow label="MessageFlowName">
      <Exception Version="VersionNum"
                 Type="ExceptionType"
                 MessageNumber="MessageNumber"
                 Insert="Insert1"... Insert="Insert2..."
                 FileName="File Name from where Exception occurred"
                 LineNumber"Line number from where the exception occurred"
                 FunctionName="The method name from where the exception occurred"
                 TraceText="The text for the exception"
                 ObjectName="The name of the object"
                 ObjectType="The type of the object" />
    </MessageFlow>
  </ExecutionGroup>
</Broker>
```

Where :

BrokerName	The name of the Broker
ExecutionGroupName	The name of the Execution group
MessageFlowName	The name of the message flow
VersionNum	The version number for the exception details
ExceptionType	The type of exception, e.g. recoverable, fatal, Refer to BipCCI.h
MessageNumber	The message number should correspond to one found in the Messages guide
Insert	The list of inserts that correspond to the exception
FileName	The file name from which the exception occurred
LineNumber	The line number in the file from which the exception occurred
FunctionName	The name of the function from which the exception occurred
TraceText	Any additional trace text (US English only text)
ObjectName	The name of the object - if there is one
ObjectType	The type of the object - if there is one

The topic for the event publication will be of the form :

$SYS/Broker/<broker_name>/Exception/<exec_grp_id>/<msgflow_id>

Where :

Broker_name = The name of the Broker
Exec_grp_id = The name of the Execution group
Msgflow_id = The name of the message flow

To receive these exception event messages, a subscription must first be created registering on the Exception node topic. To receive all the exception publications for a single Broker the following topic should be subscribed to:

$SYS/Broker/<broker_name>/Exception/#

Plug-in node terminals

Terminal	Description
in	The input terminal that accepts a message for processing by the node
out	The output terminal that outputs the original message
publish	The output terminal which the message is routed if failure is detected during processing the message.

The ‘out’ terminal is used for normal processing of messages and this is where you would like all your messages processed.

The ‘publish’ terminal should be wired to a Publication Node. The ‘publish’ terminal will only be used if an exception occurs from a message propagated to the ‘out’ terminal.

Plug-in node properties

There is a single parameter that needs to be set for the Publish Exception node. This parameter is the ‘userid’. The userid needs to conform to the MQMD.UserIdentifier field and needs to be at most 12 characters in length.

The userid is set in the Event message that is generated and will be checked by the UserNameServer if there is one running. This user must have authority to publish on $SYS topics.

Chapter 4. Compiling the plug-in node

Windows NT

The following command will compile the Publish Exception Node (assuming the Microsoft 32-bit C/C++ Compiler)

Cl /VERBOSE /LD /MD Zi /I<PublishException src dir> /I<MQSI root>\include\plugin PublishExceptionNode.c -link /DLL <MQSI-Root>\lib\imbdfplg.lib /OUT:publishexception.lil

This creates the publishexception lil directly

AIX

Compile and link the file using one of the supported C compilers.

```
xlc_r -I <MQSI_root>/include \
        -I <MQSI_root>/include/plugin \
        -I <PublishException_src_dir> \
        -c PublishExceptionNode.c
xlc_r -bM:SRE \
        -bexpall \
         -bnoentry \
        -o publishexception.lil PublishExceptionNode.o \
        -L <mqsi_root>/lib \
        -l imbdfplg

chmod a+r publishexception.lil
```

Sun Solaris

Compile and link using one of the supported C compilers

```
cc -mt \
     -I <MQSI_root>/include\
     -I <MQSI_root>/include/plugin\
     -I <PublishException_src_dir> \
     -c PublishExceptionNode.c
     -o PublishExceptionNode.o

cc -G \
     -o publishexception.lil \
     PublishExceptionNode.o
    -L <MQSI_root>/lib \
    -l imbdfplg
chmod a+r publishexception.lil
```

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