MQSeries Integrator - ExecuteTime Plug-In
Version 1.0

9th March 2001

Neil Kolban
MQSeries Technical Support
IBM Advanced Technical Support
Dallas, TX
USA

kolban@us.ibm.com

Take Note!

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

First Edition, March 2001

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

Table of Contents

Notices

The following paragraph does not apply in any country where such provisions are inconsistent with local law.

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore this statement may not apply to you.

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates.

Any reference to an IBM licensed program or other IBM product in this publication is not intended to state or imply that only IBM's program or other product may be used. Any functionally equivalent program that does not infringe any of the intellectual property rights may be used instead of the IBM product.

Evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, is the user's responsibility.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Licensing, IBM Corporation, 500 Columbus Avenue, Thornwood, New York 10594, USA.

The information contained in this document has not be submitted to any formal IBM test and is distributed AS-IS. The use of the information or the implementation of any of these techniques is a customer responsibility and depends on the customer's ability to evaluate and integrate them into the customer's operational environment. While each item has been reviewed by IBM for accuracy in a specific situation, there is no guarantee that the same or similar results will be obtained elsewhere. Customers attempting to adapt these techniques to their own environments do so at their own risk.

Trademarks and service marks

The following terms, used in this publication, are trademarks of the IBM Corporation in the United States or other countries or both:

- IBM
- MQSeries
- MQSeries Integrator
- MQSI

The following terms are trademarks of other companies:

- Windows NT, Visual Studio Microsoft Corporation

Summary of Amendments

Date   **Changes**

9th March 2001   Initial release

Preface

The MQSeries Integrator Version 2 (MQSI V2) product provides the capability for it to be extended with the creation of custom nodes and parsers. This SupportPac provides an extension node called **ExecuteTime**. This node can be used within an MQSI message flow to provide timing information for performance and capacity calculations.

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

Introduction

This document describes the **ExecuteTime** add-on node for the MQSI V2 product. The purpose of this node is to provide the ability to capture low-level execution times as a message passes through the message flow.

Installing the plug-in node

SupportPac contents

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

/source

       ExecuteTime.c

       NodeUtils.c

       NodeUtils.h

       StdAfx.cpp

       StdAfx.h

/NT

       ExecuteTime

       ExecuteTime.gif

       ExecuteTime.lil

       ExecuteTime.properties

       ExecuteTime.wdp

       MessageProcessingNodeType_ExecuteTime.htm

       ExecuteTime30.gif

       ExecuteTime42.gif

       ExecuteTime58.gif

       ExecuteTime84.gif

/AIX

       ExecuteTime.lil

       MQSIV2_EXECUTETIME.cat

license2.txt

Ia0a.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 an AIX and Microsoft Windows NT 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)

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

In addition, on AIX, the MQSIV2_EXECUTETIME.cat file must be copied to the /usr/opt/mqsi/messages directory

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
ExecuteTime	\Tool\repository\private\<hostname>\<CM QMName>\MessageProcessingNodeType
ExecuteTime.wdp	\Tool\repository\private\<hostname>\<CM QMName>\MessageProcessingNodeType
ExecuteTime.gif	\Tool\images
ExecuteTime30.gif	\Tool\images
ExecuteTime42.gif	\Tool\images
ExecuteTime58.gif	\Tool\images
ExecuteTime84.gif	\Tool\images
ExecuteTime.properties	\Tool\com\ibm\ivm\mqitool\extensions
MessageProcessingNode Type_ExecuteTime.htm	\Tool\help\com\isv

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*.

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).

Using the plug-in node

Once installed, the ExecuteTime node can be added to any message flow. The node has the following primitives icon:


When displayed in a message flow, it appears as the following icon:

The node has one input terminal and one output terminal. The input terminal called *in* accepts the message being processed so far. The message is propagated without change and without pause through to the *out* terminal.

There are two methods of timing within the ExecuteTime node. The type is selected with the **Timing Type** attribute of the properties of the node.

The first and simplest type is the **ToEnd** type. This type requires only a single instance of the ExecuteTime node as illustrated in the following message flow and properties dialog:
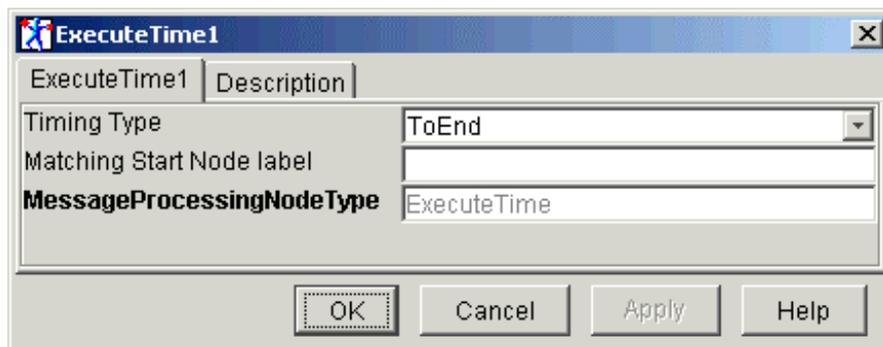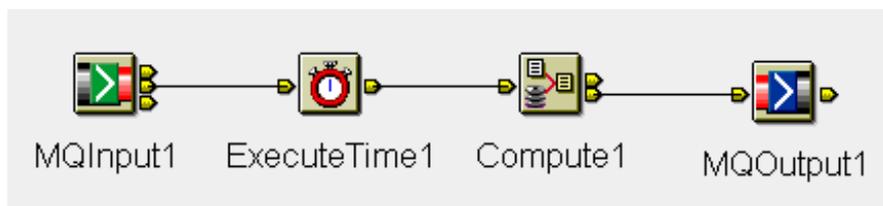
When a message passes through the node and the message flow finally completes, each node is asked to clean itself up. When the ExecuteTime is asked to end, a new informational log message is written to the MQSI log (on NT – shown by the Event Viewer). The format of a log entry is:

(*Broker.ExecutionGroup*) [*Flow:Label*] Time through message flow: *123.45* milliseconds

Where:

- **Broker** – name of the Broker processing the message

- **ExecutionGroup** – name of the execution group within the broker

- **Flow** – name of the message flow being processed

- **Label** – name of the ExecuteTime node writing the event

This type of execution timing is useful to determine the total time taken from the extraction of a message to process until the next time a message will be available to be processed.

The second type of execution timing involves the insertion of two ExecuteTime nodes into the message flow. The first is given a type of **TimeStart** and the second is given a type of **TimeEnd**. The **TimeEnd** node should also be told the name of the node as entered in the message flow. When the **TimeStart** node is met, the exact time encountered is cached internally. When the **TimeEnd** node is reached, the matching **TimeEnd** is located and the delta time between the two nodes is logged.

A sample message flow and attributes are shown below:
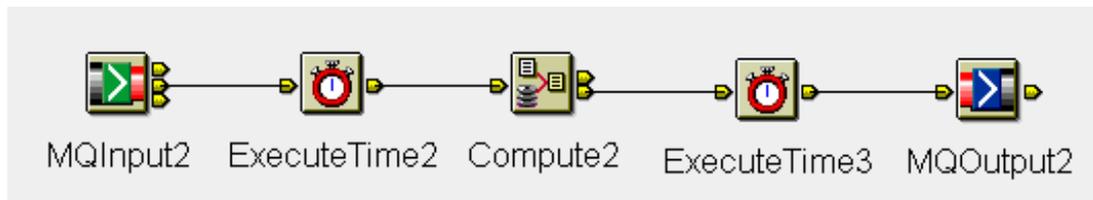
> (*Broker.ExecutionGroup*) [*Flow:Label1*] Time through message flow from node '*Label2*': 6.209 milliseconds

Where:

- **Broker** – name of the Broker processing the message

- **ExecutionGroup** – name of the execution group within the broker

- **Flow** – name of the message flow being processed

- **Label1** – name of the ExecuteTime node writing the event

- **Label2** – name of the ExecuteTime node at which the start time was cached

-- End of Document --