

WebSphere MQ Integrator Broker Trace Viewer Utility Version 1.2

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This edition applies to Version 1.2 of *WebSphere MQ Integrator Broker – Trace Viewer Utility* and to all subsequent releases and modifications unless indicated in new editions.

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Summary of Amendments

Date	Changes
September 9 th , 2002	Initial release
September 25 th , 2002	<p>Added or modified the following functions:</p> <ul style="list-style-type: none">• Changed the application to use MQ messages rather than invoking command line utilities to extract message flow trace data.• Integrated the XML4J parser for reading trace data.• Changed to read the XML output from the trace logs (similar to the output from the “mqsireadlog” command) rather than parse the formatted trace report.• Modified the formatting of the message table to include the thread and to use the message summary lines from the raw trace data in the table cells rather than the entire message.• Dropped the requirement to create a TRACEVIEWER queue in each broker that is queried.• Dropped support for querying the Configuration Manager for Broker and Execution Group information. This was necessary to enable direct query of the trace data from the Broker(s).• Modified the “TraceViewer.bat” file to pass environment variables that will enable the program to invoke the parser and also locate necessary Jar files.

Preface

One of the most common tools to use when developing and troubleshooting WMQI applications is the message flow trace. Unfortunately, the formatted trace that is provided out of box with WMQI does not lend itself to easy capture, review and analysis.

The WQMI Trace Viewer utility was designed to assist with the display and review of the formatted message flow trace. This document describes the installation and use of this utility.

Chapter 1. Installation

The WMQI Trace Viewer utility consists of a set of Java classes that provide a graphical user interface to review the output of WMQI's message flow trace data. This utility was developed using IBM's VisualAge for Java 4.0. It has been tested on Java version 1.3.1_02 running on Windows 2000. It has not been tested on any other platform.

Prerequisites

1. Ensure that an appropriate Java JDK or runtime environment is installed on your system. Note that this utility utilizes the "Swing" GUI components of Java 2.
2. This utility will send messages to the queue manager of the WMQI Broker in order to retrieve a list of execution groups and to extract trace data. You will need to ensure that the SYSTEM.DEF.SVRCONN channel is defined on the queue manager and that the USERID used to run this utility has all necessary group membership and/or access rights.
3. You will need to provide the following information when launching the utility for the first time:
 - a. The name of the queue manager for Broker.
 - b. The port number that the queue manager is listening to.
 - c. The host name of the server that the queue manager is running on. Avoid specifying "localhost" in lieu of the IP address or hostname of the server due to slower performance that is seen in some environments.
4. An appropriate directory for the storage of the application files must be available, and with appropriate read/write/execute permissions for the USERID that will be running the utility. It is recommended that you use a directory name of "TraceViewer".

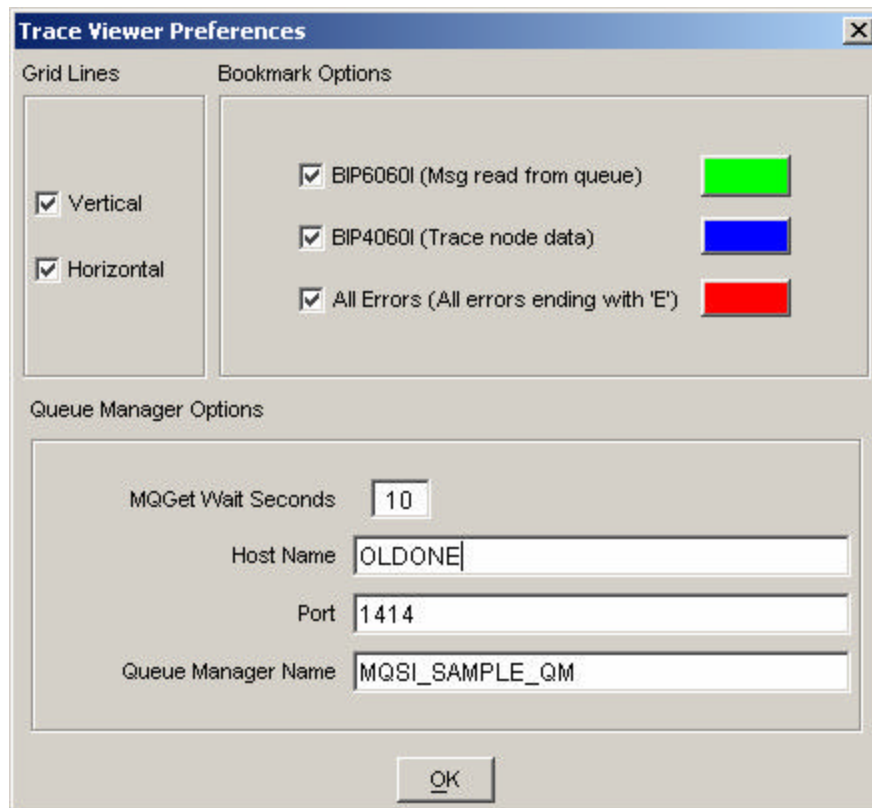
Installation Steps

1. Create a directory for the utility's files.
2. Copy the TraceViewer.jar file to the new directory.
3. Create a batch file or shell script (depending on platform) in the new directory to launch the utility.
 - a. For Windows servers you may modify the sample TraceViewer.bat file that is provided with the utility.
 - b. For other servers use the supplied batch file as a basis for creating the shell script.

Chapter 2. Using the Trace Viewer Utility

Startup

1. Launch the TraceViewer utility using the batch file or shell script, as appropriate.
2. The first time the utility is launched the following properties dialog is shown:



The image shows a 'Trace Viewer Preferences' dialog box with three main sections: Grid Lines, Bookmark Options, and Queue Manager Options. The Grid Lines section has checkboxes for 'Vertical' and 'Horizontal', both of which are checked. The Bookmark Options section has three checkboxes: 'BIP6060I (Msg read from queue)' with a green color swatch, 'BIP4060I (Trace node data)' with a blue color swatch, and 'All Errors (All errors ending with 'E')' with a red color swatch. All three are checked. The Queue Manager Options section contains four text input fields: 'MQGet Wait Seconds' with the value '10', 'Host Name' with 'OLDONE', 'Port' with '1414', and 'Queue Manager Name' with 'MQSI_SAMPLE_QM'. An 'OK' button is at the bottom right.

Section	Option	Value / Status
Grid Lines	Vertical	Checked
	Horizontal	Checked
Bookmark Options	BIP6060I (Msg read from queue)	Checked, Green
	BIP4060I (Trace node data)	Checked, Blue
	All Errors (All errors ending with 'E')	Checked, Red
Queue Manager Options	MQGet Wait Seconds	10
	Host Name	OLDONE
	Port	1414
	Queue Manager Name	MQSI_SAMPLE_QM

This utility will query the Broker for the names of all Execution Groups defined to it. The information returned from the query will be used to automatically populate the Broker and Execution Group combo boxes on the main dialog. Enter appropriate values for the Broker's queue manager.

3. Set the appropriate options to show or hide grid lines in the message table, then set the option(s) to automatically bookmark the specified messages shown in the dialog.
4. Click OK when all choices have been made. The TraceViewer application window will appear.

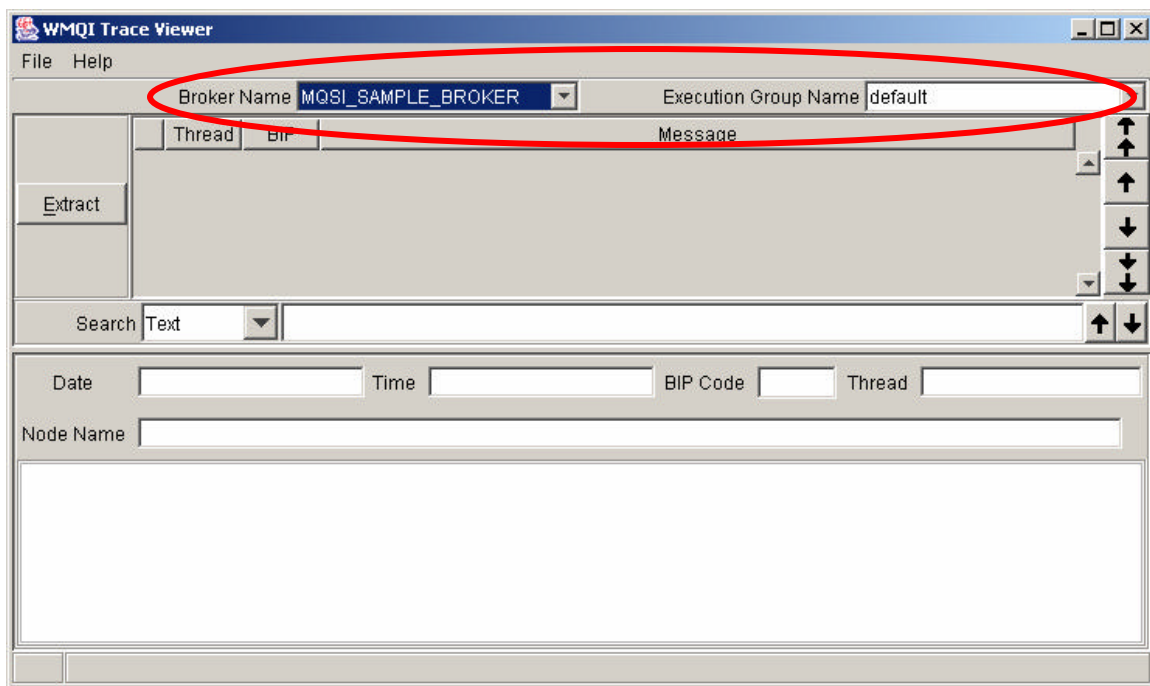
Operation

This utility is used to read trace records from WMQI message flow traces. Thus, all normal steps required to *initiate* a trace on a message flow are still required. Once a trace has been initiated and appropriate testing of the message flow has been completed, the extraction of the message flow trace data may be done manually using the **mqsireadlog** command and directing the output to a file, or you may use the **Extract** button at the left of the message table to programmatically extract the trace records. Refer to the following sections for detailed instructions.

Overview of Main Components

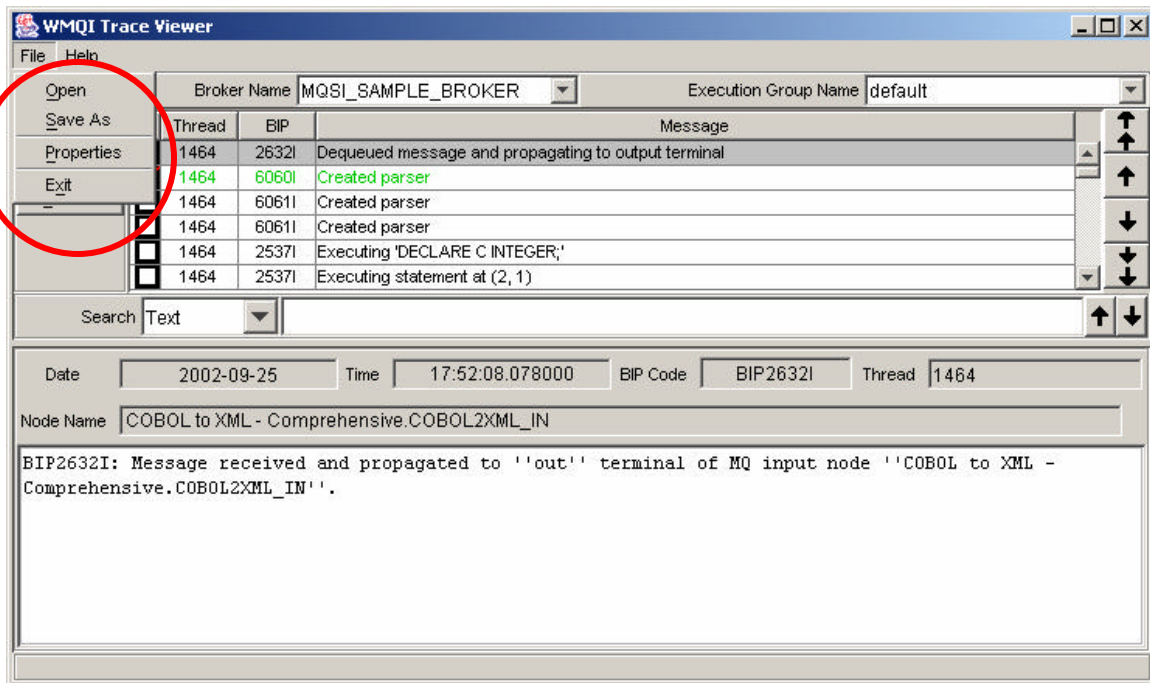
The following sections describe each of the main components of the utility.

Broker and Execution Group Selection



The utility will send a configuration report request message to the Broker's queue manager upon launch of the utility or whenever the **File | Properties** menu option is selected. The results from this report will be used to populate the Broker name box and build the list of available execution groups.

Reading Message Traces

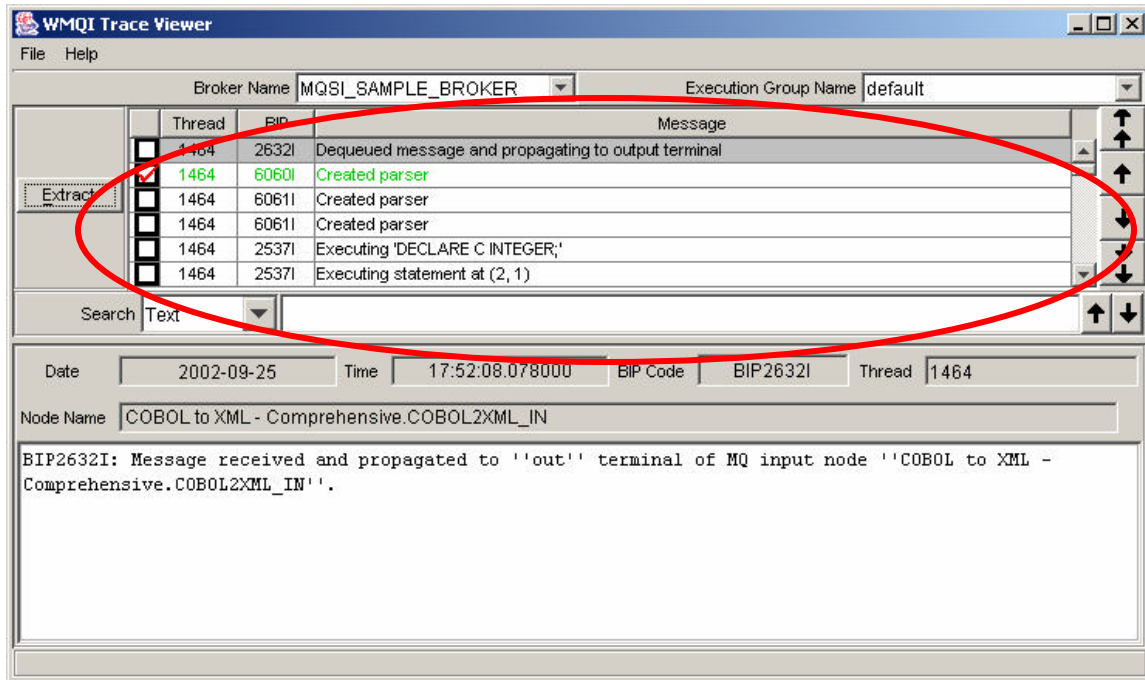


There are two methods available to read a message trace:

1. The first is to read a previously generated trace. You may use the **File | Open** menu options to read a previously generated output file from the **mqsireadlog** command.
2. The second is to use **Extract** button to have the utility programmatically extract trace records from the Broker. Note that the **Extract** button will also truncate the logs. This will ensure that the next invocation of the utility will not include old data.

If the **Extract** button was used to extract trace data you may use the **File | Save As** menu options to save the trace data collected by the utility to a new file.

Viewing Trace Messages

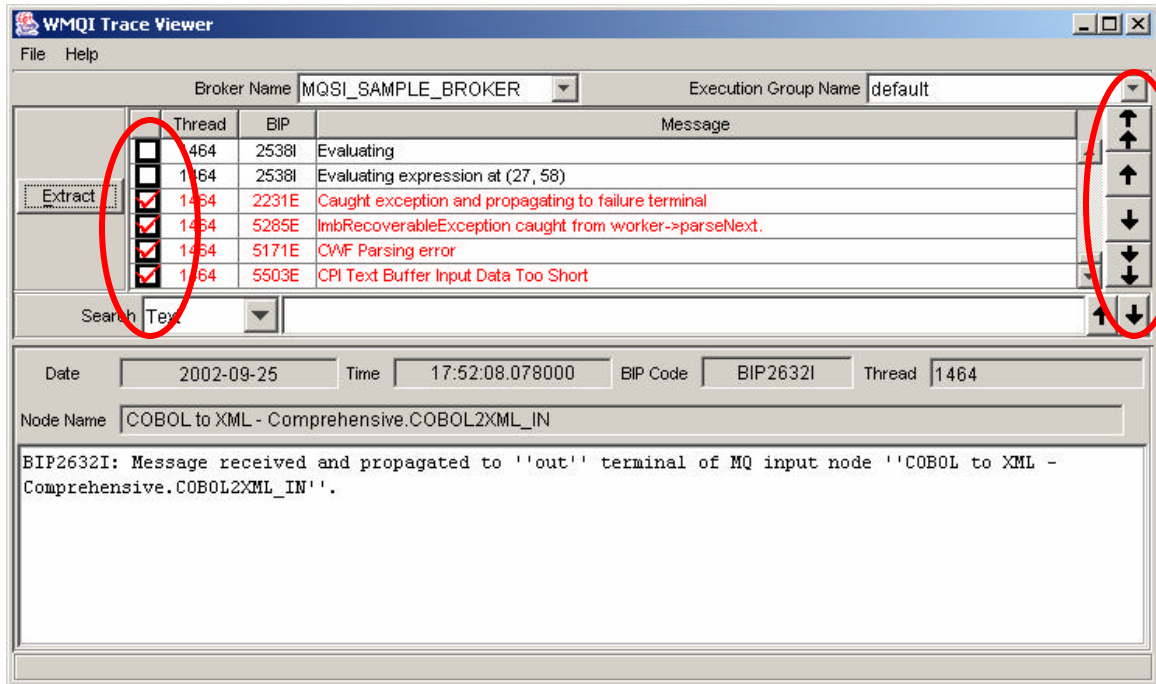


Once trace data has been read the top portion of the GUI will be filled with each of the message lines from the trace. The lines will be color coded and “bookmarked” (if the appropriate properties were set) if they fit any of the following criteria:

- A BIP6060I message will be color coded green. This message is normally the first message that is written to the trace when a message is received in an MQInput node. This will indicate the start of processing for each message received during the trace interval.
- A BIP4060I message will be color coded blue. This message contains any data that was produced from a *Trace* node within a message flow.
- Any “BIP” error that ends with an “E” will be color coded red. These indicate errors during processing.

The lower half of the screen contains detailed information regarding the trace entry. It utilizes a scrollable pane to enable you to view the entire message in a text box rather than on a single line.

Navigation Using Bookmarks

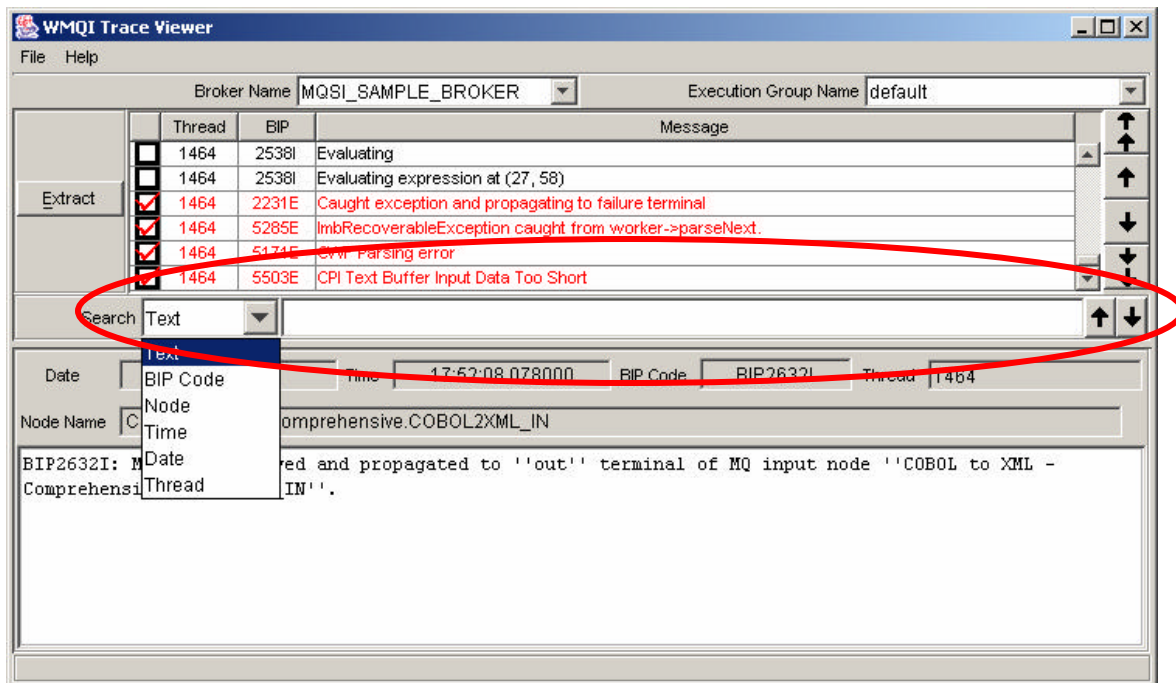


Bookmarks enable rapid navigation to trace lines of interest. In addition to the bookmarks that are programmatically set during the loading of the trace you may add or remove bookmarks by simply double clicking on the bookmark checkboxes on the left side of the message list.

The bookmark navigator may be used to rapidly scroll through the bookmarks. The functions of the buttons on the bookmark navigator are:

- The top double arrow button moves the table selection from its current position to the first bookmarked row. You may use ALT/B to access this button from the keyboard. A warning message will be displayed if the currently selected row is above the first bookmark.
- The bottom double arrow button moves the table selection from its current position to the last bookmarked row. You may use ALT/L to access this button from the keyboard. A warning message will be displayed if the currently selected row is below the last bookmark.
- The upper single arrow button is used to navigate from the currently selected row to the previous bookmarked row in the table. You may use ALT/P to access this button from the keyboard. A warning message will be displayed on the status line if the currently selected row is above the first bookmark.
- The lower single arrow button is used to navigate from the currently selected row to the next bookmarked row in the table. You may use ALT/N to access this button from the keyboard. A warning message will be displayed on the status line if the currently selected row is below the last bookmark.

Navigation Using Searches



You may search the trace for any text string of interest. Perform the following steps to initiate a search:

1. Select the appropriate item that you would like to search within in the list.
2. Enter the search string in the input area. Note that searches are case sensitive.
3. Click on the up or down arrows at the right hand side in order to search forward or backward within the trace. You may also use ALT/U to search up the table or ALT/D to search down the table.

Appendix A. Design Notes

- This utility will generate several temporary files in the application's directory while processing, and will also build a file named **TraceViewer.properties** to hold user preferences. You should not modify or delete these files.
- Comments, questions, suggestions and bug reports may be sent to:
trbryant@us.ibm.com. Support will be provided on an as-available basis only.

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