MSRB RTRS Subscriber Connectivity Specifications

Version 1.1, August 2015

MSRB
Municipal Securities
Rulemaking Board

Revision History

Version	Date	Description of Changes
1.0	September 2004	Initial Version
1.1	August 2015	Updated to reflect the new file retrieval process for bulk trade data files via MSRB Gateway and the hours for Email Support under the Resources and Support page.

Resources and Support

MSRB Website: www.msrb.org
EMMA Website: emma.msrb.org

For assistance, contact MSRB Support at 202-838-1330 or MSRBsupport@msrb.org.
Live Support: 7:30 a.m. - 6:30 p.m. ET
Email Support: 7:00 a.m. – 7:00 p.m. ET

Municipal Securities Rulemaking Board
1300 I Street NW, Suite 1000
Washington, DC 20005
Tel: 202-838-1500
Fax: 202-898-1500

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Introduction

The Municipal Securities Rulemaking Board (MSRB) protects investors, issuers of municipal securities, entities whose credit stands behind municipal securities and public pension plans by promoting a fair and efficient municipal market. The MSRB fulfills this mission by regulating securities firms, banks and municipal advisors that engage in municipal securities and advisory activities. To further protect market participants, the MSRB promotes disclosure and market transparency through its Electronic Municipal Market Access (EMMA®) website, provides education and conducts extensive outreach. The MSRB has operated under Congressional mandate with oversight by the Securities and Exchange Commission since 1975.

The EMMA website is a centralized online database operated by the MSRB that provides free public access to official disclosure documents and trade data associated with municipal bonds issued in the United States. In addition to current credit rating information, the EMMA website also makes available real-time trade prices and primary market and continuing disclosure documents for over one million outstanding municipal bonds, as well as current interest rate information, liquidity documents and other information for most variable rate municipal securities.

The MSRB's Real-time Transaction Reporting System (RTRS) is to increase price transparency through the collection and dissemination of information about transactions occurring in the municipal securities market.

The purpose of this document is to provide subscribers connectivity information to receive trade price dissemination service for RTRS.

Background

The MSRB began operating RTRS on January 31, 2005. The MSRB requires securities dealers in most instances to report their municipal securities transactions to the MSRB within 15 minutes of the time of trade.[1]

Municipal securities transactions are published in real-time messages and in bulk files. The Real-time Trade Data feed is sent to subscribers over the Internet or by leased lines using MQ Series or a TCP Socket.[2]

Subscribers can select one of the following four combinations to connect to the Real-time Trade Data dissemination service:

- TCP Sockets over Internet
- TCP Sockets over leased line
- MQ over Internet
- MQ over leased line

In order to receive the real-time feed, subscribers are responsible for developing software and configuring their systems for one of the two communication channels. Subscribers are also responsible for setting up leased lines, security and configuring firewalls, wherever applicable.

RTRS provides a Day Replay file containing all the messages sent during the day. The Real-time Trade Data feed consists of messages about transactions received by RTRS that day, regardless of their trade date, on a "first in first out" basis.

Bulk files are also available to subscribers before 6:00 a.m. each day showing all reporting transactions. The T+1, T+5, and T+20 Reports are posted before 6:00 a.m. ET each day showing all the reportable transactions with a trade date of one business day, five business days and 20 business days after the trade date respectively.

Bulk files are disseminated securely over the Internet via MSRB Gateway for up to 20 days after the trade date. For trade data beyond 20 days, the MSRB also provides for the purchase of historical trade data.

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[1] Dealers have more time to report transactions in certain cases. These transactions still will be reported to subscribers immediately upon receipt at RTRS.
[2] Subscribers are responsible for all telecommunications charges for leased lines.

1. Real-Time Trade Data

RTRS real-time data is available by a streaming "real-time push." RTRS provides both primary and backup service if requested. Each trade message has a unique Sequential Number and a Broadcast Time indicating when the message was published. The Sequential Number and Broadcast Time for a message is the same for all subscribers. Modification and cancellation messages submitted by dealers are disseminated in real time and will contain a complete set of fields.

Trade messages are sent in comma-delimited format using numerically tagged fields. Tags that have a null value in a particular trade message are omitted. This approach provides version independence and allows the possibility for new fields to be added as needed in the future. Messages have the same format on both the TCP Socket and MQ Series feeds. If a subscriber connects after the day's broadcasting has begun, it is the subscriber's responsibility to request any missed messages. One comprehensive file of all real-time trade messages and system open and closed messages sent during the day are made available the next day in the same delimited, tagged format.

To receive real-time trade messages via a TCP Socket, subscribers are responsible for proper firewall configuration. Subscribers must maintain an open Socket connection and must read data from the Socket as trade messages and heartbeats are streamed from the MSRB. Heartbeats are sent once every 60 seconds in the absence of real-time messages, even during announced system interrupts (*i.e.*, a system interrupt message is broadcast). Heartbeat messages contain a timestamp but do not have a Sequential Number. Heartbeat messages indicate that the connection is working properly but there are no messages to send. A two-character CRLF marks the end of each message. If subscribers fail to receive trade messages or heartbeats for more than 120 seconds, the subscriber should assume that there has been a connection failure, then proceed to close its current connection, and attempt to reconnect to the RTRS dissemination service.

To receive real-time trade messages via MQ Series, subscribers must license and configure their own MQ software. There are no heartbeats on MQ Series connections. A two-character CRLF is also present on the MQ Series messages.

2. TCP Socket

Subscribers can develop an application to receive the Real-Time Trade Data feed on any platform as long as the platform supports TCP Socket connections. Subscribers must supply MSRB with the IP Address of the machine they are going to connect from so that MSRB can open its firewall to accept the connection.

MSRB will provide the following information for setting up the connection with the MSRB dissemination server:

- Login ID/password
- Hostname
- Port number

Subscribers behind a firewall must open this TCP port number on their firewall to establish a connection with the MSRB dissemination server.

3. IBM Websphere Message Queue

The subscribers must license and configure the IBM Websphere MQ message-oriented middleware software themselves. Subscribers will have to set up a Queue Manager, server connection channel, receiver channel and local queue on their IBM Websphere MQ server. IBM Websphere MQ can be used over the Internet and leased lines.

While configuring IBM Websphere MQ, subscribers must supply MSRB with the following information to connect:

- IP Address of the MQ Series server machine
- Queue Manager and Queue Name
- Port number for Queue Manager

MSRB will provide the following information for setting up MQ:
- Receiver channel name

Subscriber must use the receiver channel name provided by MSRB to receive the data. No firewall configuration is required for leased lines. Subscribers should configure their firewall to open this port number, to allow incoming MSRB connection over Internet.

After the IBM MQ Series server has been configured, subscribers will have to connect to their local queue in order to access the real time trade messages from the MSRB dissemination service.

4. Setup of the IBM Websphere Message Queue

This section details the step-by-step process to configure the IBM WebSphere MQ server on Window platform. It assumes that IBM MQ is already installed and configured with the default configuration.

These instructions are provided for illustration. Specific steps of the process may differ from the instructions provided if you use a different operating system or version of Websphere MQ.

More information regarding IBM Websphere MQ licensing, setup, installation can be obtained at http://www-306.ibm.com/software/integration/wmq/.
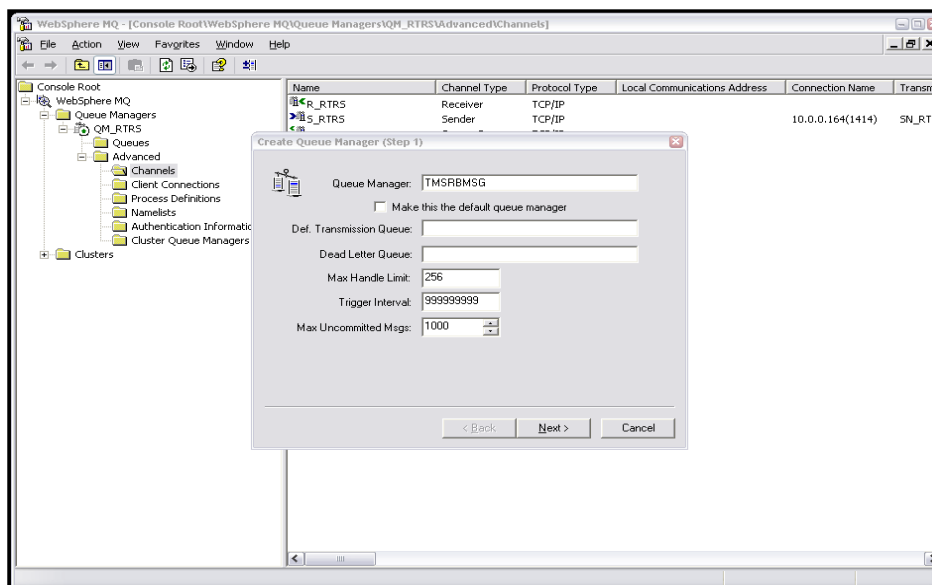
Setting up Queue Manager

Start the Websphere Manager.

Right click on the **Queue Manager** option.

Select **New Queue Manager**.

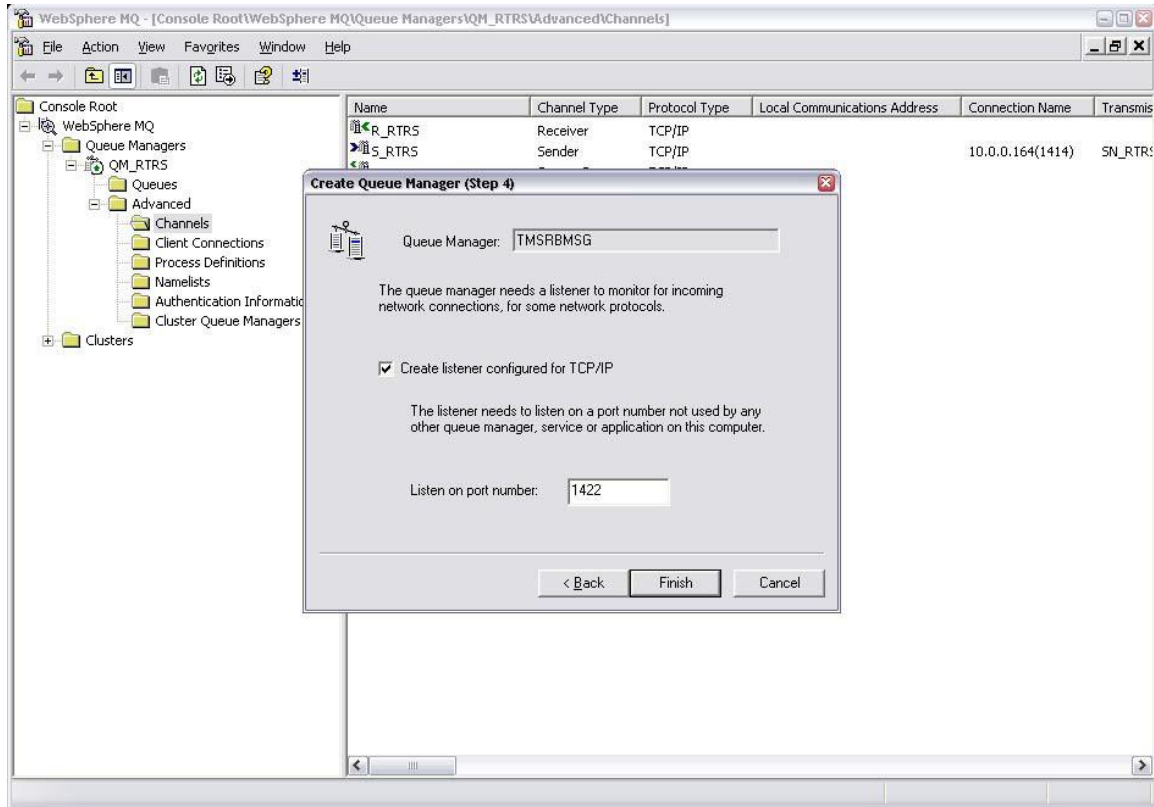Type name of the queue manger in the Queue Manager field.

Click the **Next** button.

In the **Listen on port number field** enter the port number.

Click the **Finish** button.

The creation of the Queue Manager is complete.

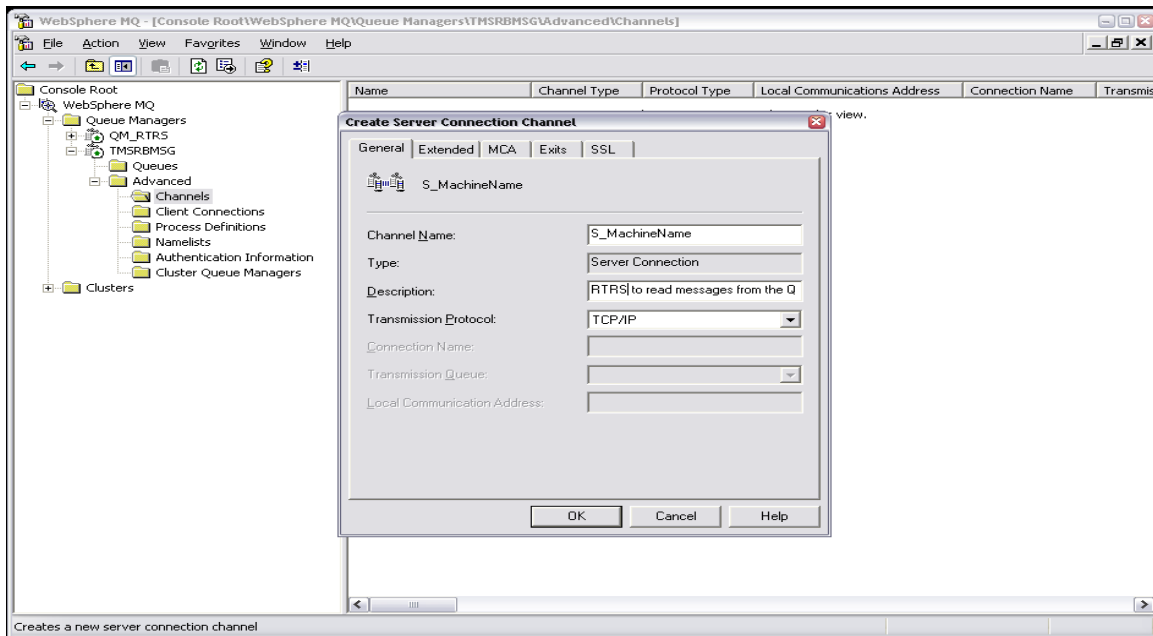# 5. Setting up of Channels

Server Connection Channel

Expand the Advanced folder under the Queue Managers folder.

Right click on the **Channels** folder.

Select **New Server Connection** channel.

Enter the server connection channel name typically it will be S_<Local Machine DNS Name on which MQ server is running> and enter the description for the channel: **Channel for Subscribers to Connect and Retrieve Messages from Queue to Process**.

Press the **OK** button.

Receiver Channel

Expand the Advanced folder under the Queue Managers folder.

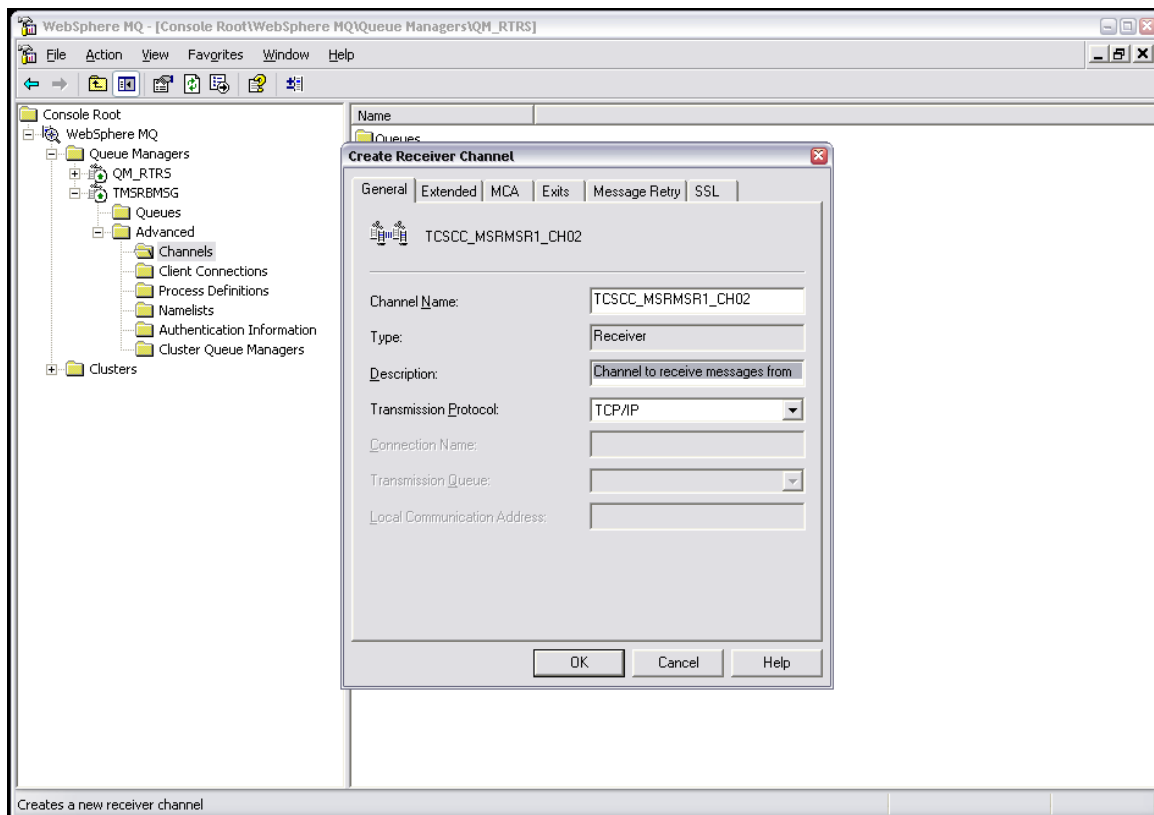Right click on the **Channels** folder.

Select **New Channel**.

In the Type field enter the word **Receiver**.

Enter the channel description provided as **Channel to receive messages from MSRB dissemination server**.

Press the **OK** button.

The name of this channel should be the same as the channel provided by MSRB in order for data to be transmitted to the subscriber.
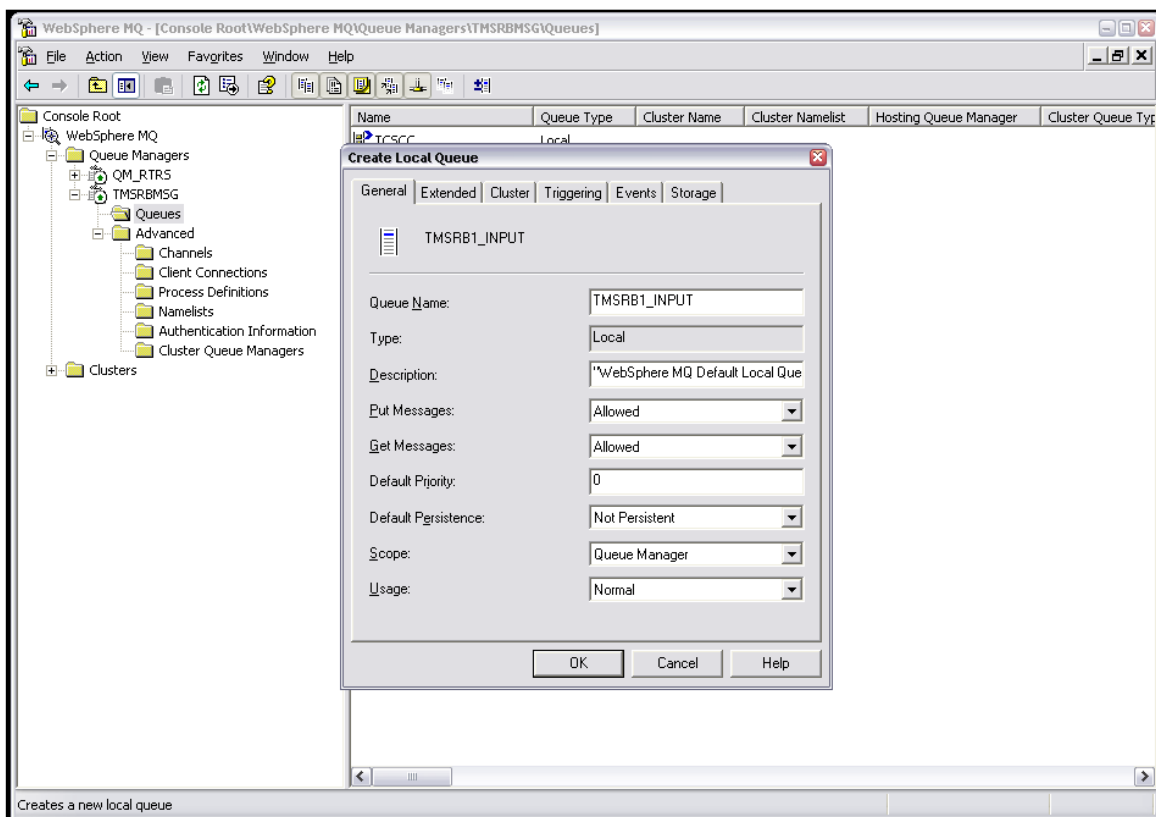
6. Setting up Queues

Receiver Queue

Click the **Queues Menu** under the Queue Manager folder.

Click the **New Local Queue** button.

Enter the queue name.

Click the **OK** button.

7. Leased Lines

Installations of leased lines must be coordinated with the MSRB. Information such as the IP address for each end of the connection must be known when ordering the leased line from the vendor. The subscriber is responsible for any coordination of scheduling necessary during the installation of the line or lines, including with the MSRB and any third party hosting MSRB systems; coordination should be made through the IT Operations department of the MSRB. Once the leased line is installed and operational, configuration of the connection for the Price Dissemination service is identical to that of connections that utilize the Internet.

8. Business Continuity

The MSRB maintains a hot-site from which it provides real-time feed subscribers with a second source for the feed in the event that it can no longer be broadcast from the RTRS primary site. Subscribers will be provided with the IP addresses of the servers at both the production and disaster recovery sites. Only the production site is guaranteed to be available during normal business operations. These sites will be running in parallel as much as possible, however the sequence numbers of the messages distributed from each site and the total number of messages distributed from each site may not match due to differences in processing speeds for each site. The final state of each trade at the end of the day will be identical between the sites.

Should a subscriber elect to connect to only one of the sites at a time, in the event of a communications failure for any reason, it will be the subscriber's responsibility to change their active connection and submit a Replay Request or a snapshot to obtain a missed message. The Day Replay File and Bulk Report Files will be available on MSRB Gateway. MSRB Gateway is maintained in multiple data centers and connection is made using fully qualified DNS names.