

Specifications Document for the RTRS Subscription Service

Version 6.5, February 2025



Revision History

Version	Date	Description of Changes
2.6	January 2008	Original Documentation
2.7	August 2012	Updated to reflect addition of new field “Unable to Verify Dollar Price Indicator” and change to the value disseminated in the “Par Traded” field for trades over \$1 million from “1MM+” to “MM+”. Updated business continuity information.
2.8	November 2012	Changes announced in August 2012 became effective. Updated the “Par Traded” field to reflect that trades with a par amount of \$5 million or greater will show par value as “MM+” until five days after the trade date.
2.9	August 2015	Updated to reflect new file retrieval process for bulk trade data files via MSRB Gateway and the hours for Email Support under the Resources and Support page.
3.0	September 2015	Updated to reflect addition of a new field for an indicator for customer trades involving non-transaction-based compensation arrangements (NTBC), a new field for an indicator for inter-dealer transactions executed with or using the services of an alternative trading system (ATS), and a change to the value disseminated in the “Yield” field for customer trades as described in MSRB Notices 2015-07 and 2016-09.
4.0	June 2016	Draft 1 - General overall restructuring of the content to reflect the RTRS re-engineered system incorporating a new subscription socket service, subscription web service and subscription file retrieval service.
5.0	November 2016	Draft 2 – General overall restructuring of the content to reflect the RTRS re-engineered system.
5.1	March 2017	Draft 3 – Technical corrections to specifications for Real-Time Trade Dissemination Secure Web API and RTRS Subscriber File Retrieval Secure Web API.

Version	Date	Description of Changes
6.0	July 2017	Addition of specifications for Comprehensive Trade File Retrieval to reflect changes to the service that are effective Q2 2018.
6.1	October 2017	Replacing Figure 1,2 and 3 of Message Dissemination Overview.
6.2	November 2017	Summary of differences between the current and new specifications for Comprehensive and Real Time Retrieval services added to Appendix B. Addition of Comprehensive Trade File Header.
6.3	January 2018	Correction of socket service description.
6.4	May 2018	Error message added for Inactive Data Center Updated Replay File posting to exclude User Interface Removed Whitelisting references Removed dissemination max batch size value
6.5	February 2025	Updates to support the Retirement of the RTRS Secure Socket Subscription Service Removed the Summary of Differences added with version 6.2

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Resources and Support

Online

MSRB Website: msrb.org

EMMA Website: emma.msrb.org

MSRB Support

Tel: 202-838-1330

Email: 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

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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 designed to increase price transparency and to assist in the inspection for compliance with and the enforcement of MSRB rules through the collection and dissemination of information about transactions occurring in the municipal securities market.

MSRB Rule G-14 requires dealers to report their municipal securities transactions to the MSRB within 15 minutes of the time of trade, with certain exceptions.¹ The reported price data is available by subscription, after subscribers sign an agreement, either in a real-time feed or in files published daily. The purpose of this document is to provide the specifications and requirements to access, retrieve and understand the subscription trade data from RTRS.

¹ See <http://www.msrb.org/Rules-and-Interpretations/MSRB-Rules/General/Rule-G-14.aspx>.

Background

The MSRB offers two types of subscriptions to the RTRS trade data.² The Real-Time Data Subscription Service disseminates price data continuously throughout each RTRS business day, nearly contemporaneously with receipt of the data from dealers. Modifications and cancellations submitted by dealers that apply to earlier trade submissions are also disseminated in real time. The Comprehensive Transaction Data Subscription Service provides reports each morning covering the previous day's trades (T+1 Report), as well as restatements of the T+1 Reports which are published one week later (T+5 Report) and one month later (T+20 Report) which reflect the effect of modifications and cancellations received after trade date.

RTRS subscription services are available to subscribers, subject to a subscription agreement entered with the MSRB. Subscribers must comply with the terms and conditions of that agreement. More information about the subscription agreement and license verification is available on the MSRB's website at www.msrb.org.

The MSRB reserves the right to restrict or remove the access of users to RTRS Subscription Services when their behavior endangers the integrity of RTRS and its systems or inhibits access by other users of those services. If a subscriber's system generates a large volume of request traffic that imposes an unreasonable or disproportionately large load on the service or in any way compromises the speed or functionality of the service, the subscriber's account will be suspended and the subscriber may be required to implement corrective changes to their client before access to the system is permitted again.

Real-Time Transaction Data Subscription Service:

The flow of real-time trade messages includes instruct, modify and cancel messages reflecting dealer reporting activities, as well as MSRB modify messages.³ MSRB modify messages will be published for the following reasons:

- To show exact par values for transactions that were initially disseminated with a par value of "MM+,"⁴
- To fill in or update data elements for trades disseminated before complete security data was available, and
- To correct data where better information was obtained after publication.

The MSRB real-time data feed disseminates trade messages via a secure web API.

The real-time data feed service consists of disseminated messages describing transactions processed by RTRS that day, including information about trades effected prior to that date.

² The MSRB also makes historical data available for purchase.

³ See Appendix A, Transaction Type Indicator = R (MSRB Modify)

⁴ Transactions with a par value exceeding \$5 million will show a par value of "MM+" until five days after trade date.

RTRS also provides real-time subscribers access to a Replay File to facilitate recovery from data loss. The Replay File is accessible for secure retrieval through a secure web API for at least 60 calendar days after the RTRS real-time trade dissemination date. The Replay File includes all trade messages disseminated by RTRS for a specific business day and is normally published by midnight Eastern Time of such business day.

Comprehensive Transaction Data Subscription Service:

Files comprising the Comprehensive Transaction Data Subscription Service are available by 6:00 a.m. Eastern Time on the posting date showing a summary of all the published transactions for a single RTRS business day (see below for additional details on the publication timeline.) For each trade date, three files are published: a T+1 Report, T+5 Report and T+20 Report files.

- The T+1 Report file is published on the next business day after trade date and includes only trades which were effected on the date covered by that file.⁵
- The T+5 Report file is published 5 business days after trade date and replaces the T+1 Report file completely. Par amounts that were masked in the T+1 Report will be unmasked in the T+5 Report.
- The T+20 Report file is published 20 business days after trade date and replaces both of the earlier Comprehensive Trade Files.

Trades that are cancelled subsequent to the T+1 Report publication will be omitted from the T+5 and T+20 Reports. Trades that are reported late (after publication of the T+1 Report) will only appear in the T+5 Report or T+20 Report.⁶

Comprehensive Trade Files remain available for secure retrieval through an MSRB user interface for at least 60 calendar days after publication date. For trade data older than 60 calendar days, the MSRB provides the *MSRB Historical Transaction Data Product* for separate purchase.

⁵ Reports for trade dates which immediately follow a weekend or holiday will include trades effected on the non-business days immediately preceding the date covered by the report.

⁶ Information reported or modified more than 20 business days after trade date will not be disseminated to Comprehensive Transaction Data Subscription Service subscribers.

RTRS System Hours

The MSRB maintains 7:00 a.m. to 7:00 p.m. Eastern Time as core operational hours on RTRS business days, which exclude weekends and holidays identified on the MSRB System Holiday Schedule.

Published at approximately 6:00 a.m., the open message is the first message available from the real-time data feed each business day. Unmasked trades and other MSRB updates to trade messages will be published shortly after the open message is published and no earlier than 6:00 a.m. RTRS begins publishing real-time trade reports each business day no later than 7:00 a.m. or as soon after that time as real-time trade messages are reported by dealers. The real-time feed continues to publish until all inbound messages and MSRB modifications have been processed for the day, which will be no earlier than 9 p.m. (All times are Eastern Time.)

Comprehensive Trade Files and Replay Files are normally available 24 hours a day, seven days a week. However, due to maintenance activities, files may be unavailable outside of core operational hours.

Timeline for Comprehensive File Publication

T+1 Report files are posted on the morning of the first RTRS business day following the trade date covered by the report. T+1 Report files do not publish on an MSRB system holiday. For example, the T+1 Report for trades effected on a Monday is published Tuesday unless Tuesday is a holiday, in which case the T+1 Report would be published on Wednesday.

T+5 Report files are posted on the morning of the sixth weekday following the trade date covered by the report, regardless of holidays. No report is generated if the date that would have been covered by the report was a holiday. For example, the T+5 Report file for trades effected on a Monday posts on Tuesday of the following week, even if any day between is a holiday and even if the publication date is a holiday.

T+20 Report files are posted on the morning of the 21st weekday following the trade date covered by the report, regardless of holidays. No report is generated if the date that would have been covered by the report was a holiday. For example, the T+20 Report file for trades effected on a Monday posts on Tuesday of the fourth week following, even if any day between is a holiday and even if the publication date is a holiday.

Subscription Authentication

All subscription connections are authenticated by RTRS against the MSRB Gateway authentication system. Subscribers are provided an MSRB Gateway username and password when the subscription contract is initiated.

Once an MSRB Gateway user account is established, users can manage their passwords through the Gateway user interface. To confirm access, log in at www.msrb.org using the username and password provided to you. MSRB Gateway passwords expire approximately every 12 months for security purposes. Once a password expires, the subscriber's client application will no longer be allowed to access the MSRB subscription services, leading to service disruption.



Subscribers are encouraged to proactively reset passwords before they expire to prevent such disruption.

As a courtesy, the MSRB may send a reminder email to the address provided on the MSRB Gateway account to notify the user when their password is about to expire. Users remain responsible for timely maintenance of their Gateway password and should not rely on receipt of an email to initiate password changes.

Business Continuity for the Real-time Feed

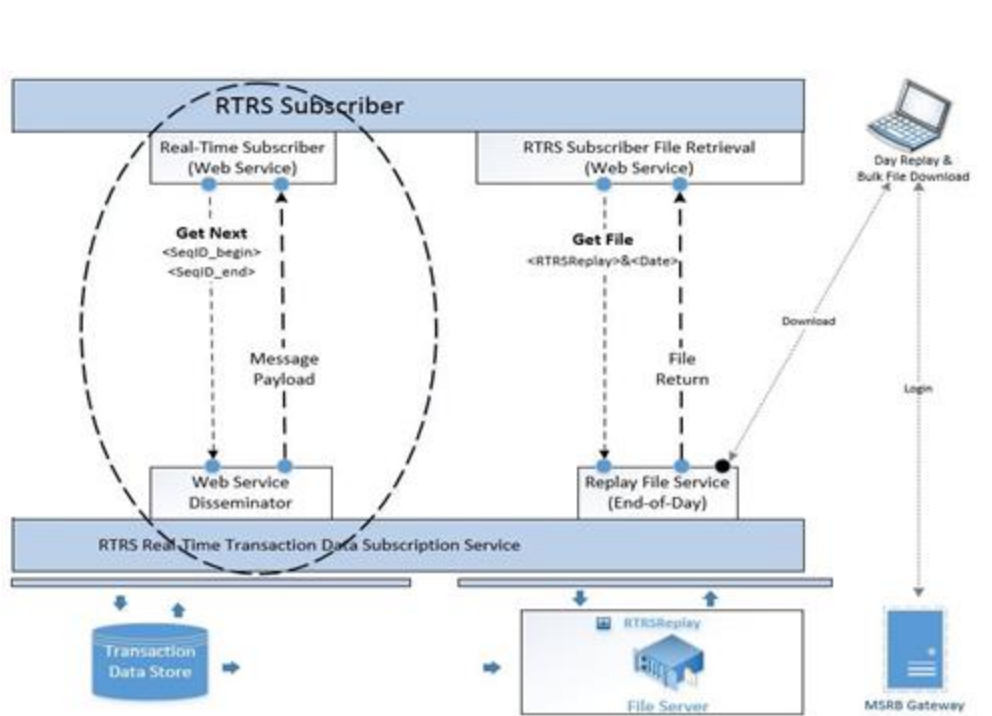
The MSRB maintains redundant data centers to ensure the ability to provide real-time subscribers with timely dissemination of trade messages. Domain Name Servers (DNS) will be used for failover purposes to direct traffic to the current active data center(s). Relevant DNS records will have a very low TTL to facilitate redirection on failover. Subscribers should honor this TTL to ensure they are redirected to the currently active data center as quickly as possible. Each redundant data center processes and disseminates semi-autonomously while maintaining common numeric sequencing for the messages disseminated.

Subscribers that operate multiple data centers for business continuity purposes may establish a connection from each data center. The MSRB reserves the right to limit the total number of connections per subscription contract and requires separate login credentials for each connection source.

Real-Time Transaction Data Subscription Service

The MSRB provides a near real-time data feed. The interface uses a tagged, comma delimited format wrapped in a JSON structure.

Figure 1: Message Dissemination Overview - RTRS Subscription Service (Web Service)



Overview

The MSRB will expose a secure web API interface to allow subscribers to receive JavaScript Object Notation (JSON) messages. This interface uses transport security and may be consumed by applications written by or for subscribers in a wide variety of programming languages and running on a wide variety of platforms. The MSRB will provide location information for production access to the secure web API to each subscriber during initiation of the subscription.

Each trade message has a sequence number and a date/time indicating when that message was published. Sequence numbering resets at the beginning of each trade date. Disseminated trade messages represent the current state of their respective trades as of the date/time of publication.

Each dissemination request must include authentication credentials, the requested beginning trade message sequence number and, optionally, the requested end trade message sequence number.

During operation, the secure web API dissemination service will accept dissemination requests and will respond with up to a configurable number of messages (the maximum dissemination batch size) per request. To help ensure rapid system response for all subscribers, the web API is configured by MSRB to limit request frequency to a value it feels is reasonable for a single-threaded client under normal operating conditions.

Authentication

To receive real-time trade messages, a subscriber must provide their authorized Gateway username and password with each request using a special credentials http header. The format of this header is “credentials=username,password”. If the username and password are correct, the subscriber will receive trade messages consistent with the request. If authentication fails, subscribers will receive an authentication failed error message (see *System Response Codes* section below).

Open/Close System Messages

MSRB will begin each RTRS business day’s dissemination with an open message having sequence number of zero (0) and having a time stamp corresponding to the start of dissemination for that day. The last message of the day will be a close message with a concluding sequence number equal to one (1) greater than that of the last trade message for that day and having a time stamp corresponding to the end of dissemination for the day.

System Open/Close Message Format				
Field	Field ID	Always Present?	Values	Format
Message Type	1	Y	O - Open C - Close	One character
Sequential Number	2	Y		Up to 16 digits
Timestamp	3	Y		hhmmss

Example Open/Close Messages	
Type	Example
Open	1=O,2=0,3=060004
Close	1=C,2=40489,3=210000

Trade Messages

Trade messages are sent in comma-delimited format using numerically tagged fields. Trade message field definitions, format and examples are shown in Appendix A. A two-character Carriage Return (r) Line Feed (n) (CRLF) marks the end of each trade message.

Tagged fields having a null value for a particular trade message are omitted from the disseminated message for that trade. This approach provides version independence and allows the possibility for new fields to be added as needed in the future. The following is an example of a trade message where tags have been omitted due to null values. Specifically, tagged field ID's 12, 13, 20, 21 and 22 are omitted because they each have a null value. Field ID 3 is omitted because it does not apply to trade messages.

```
1=T,2=31,4=8338F97ECB951A9A,5=D,6=M,7=411005TB4,
8=SOMEWHERE CNTY REF-SER A,9=20140901,10=5.000,11=20331001,
14=20160407,15=084739,16=20160412,17=6155000.00,18=120.569,19=2.311,
23=20160414,24=060007,25=1.10
```

Real-Time Trade Dissemination Secure Web API Service Requests

If a subscriber sends a Begin sequence number of 0 with no End sequence number, the service will send messages from the start of day up to the maximum dissemination batch size.

Example:

```
https://<web api URL>/
  rtrsubscriptionwebservice/api/Subscription.GetNext?beginSequence=0
```

If a subscriber sends both a Begin sequence number and an End sequence number, the service will respond with messages in sequential order beginning with the Start sequence number, through to and including the End sequence number in the request, not to exceed the configured maximum dissemination batch size.

Example:

```
https://<web api URL>/
  rtrsubscriptionwebservice/api/Subscription.GetNext?beginSequence=0&
  endSequence=2100
```

If the range of sequence values in the request exceeds the configured maximum dissemination batch size, the subscriber may need to send multiple requests to complete the missed series. Included in the request response is an indicator showing whether more data is available in the system beyond the last sequential number transmitted in the current response.

Subscribers should use the message sequence number and date of publication to ensure that older trade messages do not overwrite newer versions of those trades.

Client access to the interface is DNS based. Subscribers will be provided a domain name and corresponding list of possible IPs to which it may resolve. Subscribers should make any necessary network modifications to allow this traffic.

The secure web API service will respond only with the current day’s disseminated messages.

System Response Codes

System Response Codes	
Response Code	Description
200	OK
400	Request is not parse-able or bad request
401	Authentication Failed
404	Not Found - the requested resource could not be found
429	Request frequency violation
430	Data center not active
500	System Error

Sample Trade Response: 200 OK

```
{
  "ResponseStatusCode":200,
  "ResponseMessage":"OK",
  "Subscription":{"RecordCount":3,
  "MoreRecordsAvailable":false,
  "MaxBatchSize":500,
  "RequestFrequencyIntervalSeconds":5,
  "Records":
  [
    {"SequenceId":0, "Message":"1=O,2=0,3=060004"},
    {"SequenceId":1,"Message":"1=T,2=1,4=D0ACD8508107B190,5=S,6=M,7=658256Z47,8=NORTH CAROLINA ST REF-SER A,9=20160309,10=5.000,11=20250601,14=20160407,15=064839,16=20160412,17=10000000.00,18=129.776,19=1.500,23=20160414,24=060007,25=1.10"},
    {"SequenceId":2,"Message":"1=T,2=2,4=0251B4F9FF7D0FA2,5=S,6=M,7=548351AE5,8=LOWER NECHES VALLEY AUTH TEX VAR-REF-EXXONMOBIL PROJ,9=20120517,10=0.220,11=20460501,14=20160407,15=075443,16=20160407,17=6300000.00,18=100.000,19=0.000,23=20160414,24=060007,25=1.10"}
  ]
}
```

200 OK - Message Return Metadata	
Key Field (Key/Value Pairs)	Description
ResponseStatusCode	System Response Code
Response Message	Description of System Response Code

200 OK - Message Return Metadata	
Key Field (Key/Value Pairs)	Description
Record Count	Number of trade records in the response
More Records Available	True when the number of messages requested exceeds the batch size, else false
MaxBatchSize	The configurable maximum number of trades in a single response
RequestFrequencyIntervalSeconds	The minimum allowed frequency between client requests in seconds

Sample Error Messages

Sample Error Messages	
Example	Message
End Sequence Number is Less Than Begin Sequence Number	{"ResponseStatusCode":400,"ResponseMessage":"Request is not parse-able or bad request.,"Subscription":null}
Authentication Failed	{"ResponseStatusCode":401,"ResponseMessage":"Authentication Failed","Subscription":null}
Service Request is Incorrect	{"Error":"Not Found - StatusCode: 404, ReasonPhrase: 'Not Found', Version: 1.1, Content: System.Net.Http.StreamContent, Headers:\r\n{\r\n Date: Fri, 22 Apr 2016 12:57:23 GMT\r\n Server: Microsoft-IIS/8.5\r\n X-Powered-By: ASP.NET\r\n Content-Length: 1245\r\n Content-Type: text/html\r\n}"}
Request Frequency Violation	{"ResponseStatusCode":429,"ResponseMessage":"Request frequency violation","Subscription":null}

Beta Platform for Real-Time Trade Dissemination Secure Web API Service

MSRB allows access to a beta instance of its RTRS Real-Time Secure Web API Service to facilitate testing by new and existing subscribers. **Testing to ensure proper programming and configuration of subscription client applications should be performed against this instance of the secure web API service.**

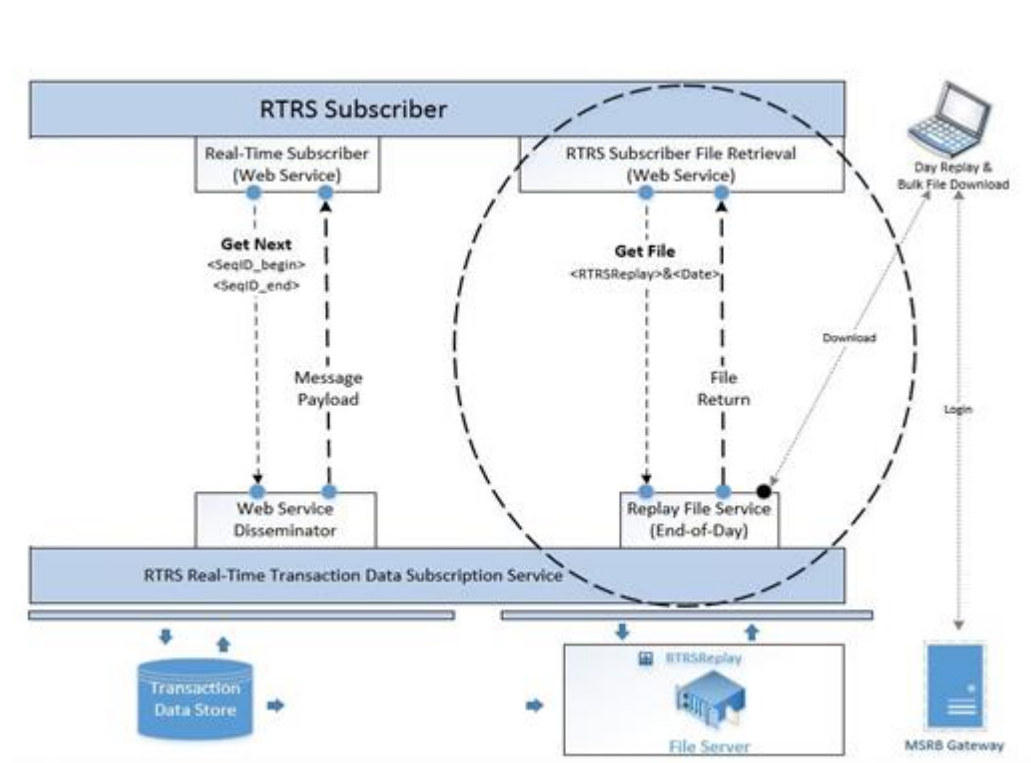
Trade messages disseminated through the beta platform are for test purposes only. This system may publish test messages and may publish messages with delay. These messages should not be re-disseminated by subscribers, or used for any other purpose than testing the programming and configuration of subscription applications.

Access to the beta platform site may require specific authentication credentials and firewall modifications. Client access to the interface is IP-specific. MSRB must know and trust each IP

from which you intend to connect. Subscribers will be provided a list of IPs from which MSRB will host the beta subscription API and they should make necessary firewall modifications to allow this traffic. To inquire about the procedures for accessing the beta platform, contact MSRB Support at 202-838-1330.

RTRS Subscriber File Retrieval Secure Web API Service (Web Service)

Figure 2: Message Dissemination Overview - RTRS Subscriber Secure File Retrieval (Web API Service)



Overview

The MSRB will expose a secure web API interface to allow subscribers to retrieve Replay files. This interface uses transport security and may be consumed by applications written by or for subscribers in a wide variety of programming languages and running on a wide variety of platforms. The MSRB will provide location information for production access to the secure web API to each subscriber during initiation of the subscription.

Files may be retrieved through the secure file retrieval API located at [https:// <web api URL>/rtssubscriptionfilewebservice/api/Subscription.GetFile](https://<web api URL>/rtssubscriptionfilewebservice/api/Subscription.GetFile). Requests must include two parameters which identify the file type and date of the file requested. The date indicates the publication date of the messages contained within that file. An additional credentials http header must be included in the request.

Replay File

The Replay File contains all trade, open and close messages disseminated by the real-time feed during a business day. Each trade message has a sequence number and a date/time indicating when that message was published. Sequence numbering resets at the beginning of each trade date. Disseminated trade messages represent the current state of their respective trades as of the date/time of publication.

MSRB recommends that real-time data feed subscribers request and process all Replay Files to ensure that the data they received and processed through the real-time feed is complete.⁷ The file naming convention is “replay.<yyyy-mm-dd>.log”, where yyyy-mm-dd represents year, month and day of the day the trade reports were disseminated. Contents are comma delimited and tagged. Open and Close messages follow the format defined under the real-time subscription sections above. See Appendix A for trade message field definitions.

Replay File Retrieval Request Example:

`https://<web api URL>/rtrsubscriptionfilewebservice/api/Subscription.GetFile?
filetype=RTRSReplay&dt=yyyy-mm-dd`



The date “dt” parameter in the sample URL is formatted as: yyyy-mm-dd

Example Replay File Content:

```
1=O,2=0,3=060004
1=T,2=1,4=2015111600000100,5=S,6=I,7=346136D12,9=20131121,10=5.000,
  11=20431101,14=20151116,15=074500,16=20151118,17=10000.00,
  18=103.935,19=4.338,23=20161128,24=120937,25=1.1
1=C,2=2,3=210000
```

⁷ Subscriber may request Day Replay Files for prior days subject to a configurable look-back window/period maintained by the MSRB initially set to 20 business days.

File Retrieval API Response Codes

System Response Codes	
Response Code	Description
200	OK - Success
400	Request is not parse-able or bad request
401	Authentication failed
402	The request is outside the look-back window
403	You are not authorized to subscribe to the subscription type requested
404	Not Found - the requested resource could not be found
429	Request frequency violation
500	System Error
550	Not Found – the file requested is not found

File Retrieval API Sample Success (200 OK) Response Message

Sample Success Response Message	
Example	Message
HTTP/1.1 200 OK (Success Message)	<pre> HTTP/1.1 200 OK Cache-Control: no-cache Pragma: no-cache Content-Length: 7474673 Content-Type: application/octet-stream Expires: -1 Server: Microsoft-IIS/8.5 Content-Disposition: attachment; filename=R040116.log X-AspNet-Version: 4.0.30319 X-Powered-By: ASP.NET Date: Fri, 22 Apr 2016 21:00:18 GMT 1=O,2=0,3=060002 1=T,2=1,4=79F5C6EE8FCBCA1A,5=D,6=M,7=93974DUH9, 8=WASHINGTON ST REF-SER R-2016B,9=20160216, 10=5.000,11=20290701,14=20160324,15=074059, 16=20160330,17=21495000.00,18=122.630,19=2.385, 20=P,23=20160422,24=060003,25=1.10 1=T,2=2,4=A66CBFDF0ADB974C,5=D,6=M,7=93974DUH9, 8=WASHINGTON ST REF-SER R-2016B,9=20160216, 10=5.000,11=20290701,14=20160324,15=074840, 16=20160330,17=21495000.00,18=122.680,19=2.380, 20=S,23=20160422,24=060003,25=1.10 ... 1=C,2=41000,3=210000 </pre>

File Retrieval API Sample Error Messages

Sample Error Messages	
Example	Message
Bad Request (i.e., bad date format)	HTTP/1.1 400 Bad Request Cache-Control: no-cache Pragma: no-cache Content-Type: application/json; charset=utf-8 Expires: -1 Server: Microsoft-IIS/8.5 X-AspNet-Version: 4.0.30319 X-Powered-By: ASP.NET Date: Fri, 22 Apr 2016 16:24:22 GMT Content-Length: 37 {"Message": "The request is invalid."}
Authentication Failed	HTTP/1.1 401 Authentication Failed ... Invalid request:
The request is outside the look-back window.	HTTP/1.1 402 The request is outside the look-back window.
You are not authorized to subscribe to the requested subscription type.	HTTP/1.1 403 You are not authorized to subscribe to the subscription type requested.
Current or Future Date, or Invalid File Type	HTTP/1.1 404 The requested resource could not be found. ...
Requested file is not available	HTTP/1.1 550 Not Found - the file requested is not found. ...

Beta Platform for RTRS Subscriber File Retrieval (Web Service)

Interface

The Beta File Retrieval subscription interface is intended to provide a platform for new and existing subscribers to conduct tests to ensure proper programming and configuration of their client applications for accessing subscription files.

Trade messages disseminated through the beta platform are for test purposes only. This system may publish test messages and may publish messages with delay. These messages should not be re-disseminated by subscribers, or used for any other purpose than testing the programming and configuration of subscription applications.

The MSRB will provide location information for beta access to the file retrieval web API to each subscriber during initiation of the subscription. **Access to the beta platform site may require specific authentication credentials and firewall modifications.** To inquire about the procedures for accessing the beta platform, contact MSRB Support at 202-838-1330.

RTRS Comprehensive Trade File Retrieval (User Interface and Scriptable Interface)

Comprehensive Trade Files (T+1, T+5, T+20)

In addition to real-time data, the MSRB provides Comprehensive Trade Files containing the current state of disseminated trades at T+1, T+5 or T+20 business days after trade date. These files are commonly referred to as T-Files or T-Reports.

Trade data is reported in Comprehensive Trade Files in comma-delimited format for easy import into commonly used database and spreadsheet applications. The comma-delimited files do not include the numerical tagging which is present in real-time trade feed messages. Each trade transaction shows the most recent version of that trade in RTRS at the time the file was created (for example, if a trade has been modified, only its modification will appear. Its previous version will not). Cancelled trades are not included in Comprehensive Trade Files.

Accessing Comprehensive Trade Files

To access Comprehensive Trade Files, you must have MSRB Gateway authentication credentials. You may request an MSRB Gateway account from MSRB Support at 202-838-1330. To confirm your access, log in through MSRB Gateway at <https://gw.msrb.org/Gateway/Login> using the username and password provided. Once an MSRB Gateway account is established, users are required to manage their passwords and contact information using the MSRB Gateway website.

MSRB Gateway subscriber passwords must be changed on an annual basis. MSRB strongly recommends that subscribers change their passwords periodically, without waiting for them to expire. As a courtesy, email reminders are sent to the email address provided on the MSRB Gateway account to notify users when their passwords are about to expire.



It is users' responsibility to proactively maintain their Gateway account, keeping their email address and other contact information current.

Manual File Retrieval Through a Web User Interface

Subscribers can manually retrieve Comprehensive Trade Files by logging into MSRB Gateway through <https://gw.msrb.org/Gateway/Login>. From the Gateway Main Menu, expand the **Subscriptions** menu option and then click on **Subscription File Retrieval**.

MSRB Gateway Main Menu

Welcome to MSRB Gateway! Your User Account has the following access rights:

Subscriptions

- Subscription File Retrieval

A list of available files will appear on the screen. Click on the file you would like to download and save it to your local system. The most recent files posted appear under the heading **Current**. Older files may appear under the heading **Archive**.

Automated File Retrieval Through a Scriptable Interface

Subscribers may retrieve files programmatically through an MSRB scriptable file retrieval web interface. Subscribers are responsible for writing and maintaining their own subscription file retrieval scripts.



The file naming convention for Comprehensive Trade Files is shown below. (Note: ddmmmyyy represents day, month and year in all file names)

T+1	T1-ddmmmyyy.TXT
T+5	T5-ddmmmyyy.TXT
T+20	T20-ddmmmyyy.TXT

The MSRB provides resources for developers, including example PowerShell and Java scripts and related ReadMe files, in a file directory available through MSRB Gateway. To access these developer resources, log in to MSRB Gateway through <https://gw.msrb.org/Gateway/Login>. From the Gateway Main Menu, expand the **Subscriptions** menu option, click on **Subscription File Retrieval** and then click on the “**resources for developers, including sample scripts, are located here**” link. The contents of this directory may be updated from time to time.

Using the Transaction Data

Overview

Individual field formats and data definitions are the same for both the Real-Time Service and the Comprehensive Trade Files. The field definitions provided below may be used for understanding the data contained in either service.

However, some differences exist. While the Real-Time Service uses tags to identify fields, and will omit fields when the field is not populated, the comprehensive files are comma delimited

and empty fields are indicated by consecutive commas. The columns in the comma-delimited file are in the order listed in Appendix A.

The Real-Time Service makes use of modify and cancel messages to provide updates to transaction data, while the Comprehensive Trade Files do not. The Comprehensive Files always display the current state of the transaction as of publication. For this reason, certain columns shown in Appendix A, (*Message Type*, *Sequence Number*, and *Transaction Type Indicator*), do not appear in the Comprehensive Trade Files.

Dissemination of the par values for transactions that were initially disseminated with a par value of “MM+” is treated as an update to transaction data. Therefore the Real-Time Service will disseminate the actual par amount as a modification. In the Comprehensive Trade Files, the T+5 and T+20 Reports will contain exact par values for those transactions without any indication that the information has been updated.

Because the T+5 Report file replaces the T+1 Report file completely, and the T+20 Report file entirely replaces both the T+1 and T+5 data, subscribers should exercise care in loading the data contained in these files. The MSRB recommends that when loading either the T+1 or T+20 files all earlier transaction data for the same trade date should first be deleted, physically or logically.

Appendix A

Trade Message Field Definitions

Trade Message Field Definition		
Field Name	Field ID	Definition
Message Type	1	Type of message sent in the real-time broadcast or web service pull; a trade message, a heartbeat message or a system message. <u>Only used in Real-Time Service, not in Comprehensive Trade Files.</u>
Sequence Number	2	Unique Sequence Number of the trade message. If more than one message has been published for a trade due to modification or cancellation, the trade is uniquely identified by the RTRS ID described below. <u>Only used in Real-Time Service, not in Comprehensive Trade Files.</u>
RTRS Control Number	4	The RTRS ID for the transaction. This may be used to apply subsequent modifications and cancellations to an initial transaction. While this field is provided in the Comprehensive Trade Files to allow unique identification of transactions, it is not required for processing.
Trade Type Indicator	5	Type of trade: an inter-dealer trade, a purchase from a customer by a dealer, or a sale to a customer by a dealer.
Transaction Type Indicator	6	An indicator showing that the message is a new transaction, or modifies or cancels a previously disseminated transaction. <u>Only used in Real-Time Service, not in Comprehensive Trade Files.</u>
CUSIP	7	The CUSIP number of the security traded.
Security Description	8	Text description of the security.
Dated Date	9	Dated date of the security traded.
Coupon	10	The coupon of the security traded.
Maturity Date	11	Maturity date of the security traded.
When-Issued Indicator	12	Indicates whether the transaction occurred on or before the initial settlement date of the offering.
Assumed Settlement Date	13	For new issues where the initial settlement date is not known at the time of execution, this field is a date 15 business days after

Trade Message Field Definition		
Field Name	Field ID	Definition
		trade date. If this field is populated there will be no data in settlement date.
Trade Date	14	The date the trade was executed.
Time of Trade	15	The time of trade execution reported by the dealer.
Settlement Date	16	The settlement date of the trade, if known. If this field is populated there will be no data in assumed settlement date.
Par Traded	17	The par value of the trade. Trades with a par amount over \$5 million will show par value as "MM+" until five days after the trade date.
Dollar Price	18	A quoted price of a security, expressed in terms of dollars per \$100 par value. The dollar price is the transaction price which may be derived from the yield (basis price) of the transaction.
Yield	19	The yield of the trade. For customer and inter-dealer trades, yield-to-worst is calculated by RTRS when it can be computed from dollar price. ⁸
Broker's Broker Indicator	20	An indicator on transactions that were executed by a broker's broker, including whether it was a purchase or sale by the broker's broker.
Weighted Price Indicator	21	An indicator that the transaction price was a "weighted average price" based on multiple transactions done at different prices earlier in the day to accumulate the par amount needed to make this transaction.
List Offering Price/ Takedown Indicator	22	An indicator on a primary market sale to a customer executed on the first day of trading of a new issue at the published list offering price for the security ("List Offering Price Transaction"); or in the case of inter-dealer transactions by a sole underwriter or syndicate manager to a syndicate member, selling group member, or distribution participant ("RTRS Takedown Transaction").
RTRS Publish Date	23	For real-time data, the date the message was published to subscribers. For Comprehensive Trade Files, the date the data was produced for the report.

⁸ For a given dollar price on a municipal security, yield-to-worst is the lowest of several possible yields calculated based on a pricing call, a par call, redemption at maturity, or any combination thereof.

Trade Message Field Definition		
Field Name	Field ID	Definition
RTRS Publish Time	24	The time the message was published to subscribers. For Comprehensive Trade Files, the time the data was produced for the report.
Version Number	25	Version number of the message or file format used in the message or file.
Unable to Verify Dollar Price Indicator	26	An indicator that the dollar price calculated by the MSRB does not match the dollar price submitted by the dealer, but falls within a one-dollar tolerance for dissemination.
Alternative Trading System (ATS) Indicator	27	An indicator that an inter-dealer transaction was executed with or using the services of an alternative trading system (ATS) with Form ATS on file with the SEC.
Non-Transaction-Based Compensation Arrangement (NTBC) Indicator	28	An indicator that a customer transaction did not include a mark-up, mark-down or commission.

Sample Comprehensive Trade File Header

The Comprehensive Trade Files are not published with a header row. Subscribers that wish to add a header row to the file prior to import can use the following sample as a guide.

RTRS Control Number, Trade Type, CUSIP, Security Description, Dated Date, Coupon, Maturity Date, When Issued, Assumed Settlement Date, Trade Date, Time of Trade, Settlement Date, Par Traded, Dollar Price, Yield, Brokers Broker, Weighted Price, LOP or Takedown, Publish Date, Publish Time, Version, Unable to Verify Dollar Price, Alternative Trading System, Non-Transaction-Based Compensation

Trade Message Fields and Format

Trade Messages Fields and Format				
Field Name	Field ID	Always Present?	Values	Format/Length
Message Type	1	Y (only used in trade messages)	T - Trade	One character
Sequence Number	2	Y (applies to open message, trade messages and close message)		Up to 16 digits
RTRS Control Number	4	Y		Up to 16 characters
Trade Type Indicator	5	Y	D - Inter-dealer P - Purchase from Customer S - Sale to Customer	One character
Transaction Type Indicator	6	Y (only used in trade messages)	I - Instruct M - Modify C - Cancel R - MSRB Modify ⁹	One character
CUSIP	7	Y		Nine characters including the checksum digit
Security Description	8	N		Up to 120 characters of free format text
Dated Date	9	N		<i>yyyymmdd</i>
Coupon	10	N		Fixed decimal, up to 6 digits <i>nnn.nnn</i>
Maturity Date	11	N		<i>yyyymmdd</i>

⁹ Includes trades showing exact par values for transactions that were initially disseminated with a par value of "MM+", trades initially disseminated awaiting specific security data, reconsideration of trade messages because of information received subsequent to initial processing, and any other MSRB initiated reconsideration and/or re-dissemination of a trade.

Trade Messages Fields and Format				
Field Name	Field ID	Always Present?	Values	Format/Length
When-Issued Indicator	12	N	Y - When Issued	One character
Assumed Settlement Date	13	N		<i>yyyymmdd</i>
Trade Date	14	Y		<i>yyyymmdd</i>
Time of Trade	15	Y		hhmmss (24 hour time)
Settlement Date	16	N		<i>yyyymmdd</i>
Par Traded	17	Y		<i>Fixed decimal, up to 12 digits nnnnnnnnnn.nn or "MM+"</i>
Dollar Price	18	N		<i>Fixed decimal, up to seven digits nnnn.nnn</i>
Yield	19	N		<i>Fixed decimal, up to six digits, may be negative [-]nnn.nnn</i>
Broker's Broker Indicator	20	N	S - Broker's Broker sale P - Broker's Broker purchase	<i>One character</i>
Weighted Price Indicator	21	N	Y - Weighted Price	<i>One character</i>
List Offering Price/Takedown Indicator	22	N	Y – List Offering Price/Takedown	<i>One character</i>
RTRS Publish Date	23	Y		<i>yyyymmdd</i>
RTRS Publish Time	24	Y		<i>hhmmss</i>

Trade Messages Fields and Format				
Field Name	Field ID	Always Present?	Values	Format/Length
Version Number	25	Y		<i>Up to four digits, fixed decimal nn.nn</i>
Unable to Verify Dollar Price Indicator	26	N	Y – Unable to Verify Dollar Price	<i>One character</i>
Alternative Trading System (ATS) Indicator	27	N	Y - Alternative Trading System	<i>One character</i>
Non-Transaction-Based Compensation Arrangement (NTBC) Indicator	28	N	Y - Non-Transaction-Based Compensation Arrangements	<i>One character</i>

RTRS Subscription Products – Overview

RTRS Subscription Products				
	Trades Included	Modifications	Cancellations	Par Shown
Real-time feeds	All processed by RTRS that day regardless of trade date	All sent to RTRS and all previously submitted trades where par now can be disseminated	All sent to RTRS	“MM+” for trades over \$5 million par and less than T+5
Replay File (a restatement of all messages disseminated by the Real-time feeds for a specific dissemination date)	All processed by RTRS that day regardless of trade date	All sent to RTRS and all previously submitted trades where par now can be disseminated	All sent to RTRS	“MM+” for trades over \$5 million par and less than T+5 on day originally disseminated
T+1 Report	T+1 trade dates only	Latest version of trade only	No	“MM+” for trades over \$5 million par
T+5 Report (includes a separate T+20 report)	T+5 trade dates only	Latest version of trade only	No	All