Trade Data Dissemination Service 2.0

(TDDS 2.0)

Data Feed Interface Specification

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1.0 Introduction

1.1 Background Information

The Trade Data Dissemination Service 2.0SM (TDDSSM) data feed is designed to carry over-the-counter (OTC) trade data via the FINRA OTC Reporting Facility (ORF) for publicly traded equities that are not NMS stocks, as defined in Rule 600(b) of SEC Regulation NMS and traded over the counter.

The TDDS data feed provides the following data elements:

- Real-time data for ORF transactions in all OTC Bulletin Board® (OTCBB) securities.
- Real-time data for ORF transactions in Other-OTC securities that are traded over the counter (OOTC) in the United States;
- End-of-Day Trade Summary Report (including high price, low price, closing price, net change, and volume) for all OTCBB securities; and
- End-of-Day Trade Summary Report for OOTC securities that traded during the current business day.
- Trading halt information for OTCBB and other OTC securities

1.2 Entitlement Level

OTCBB data, which is disseminated on the BBDS and TDDS data feeds, is currently part of the UTP Level 1 data entitlement. For more information, please refer to the Level 1 product page on the NASDAQ OMX Trader® website.

1.3 Connectivity Options

FINRA is the owner and operator of the OTCBB system

Direct access to TDDS is available via the same connectivity providers as NASDAQ OMX trading and market data products. Please refer to the NASDAQ OMX Connectivity Provider List on NASDAQ OMX Trader for details.

1.4 Document Scope/Software Releases

Effective **November 17, 2014**, FINRA released a new version of the TDDS data feed formats, version TDDS 2.0. The new TDDS message formats support:

- New Date / Time Stamp logic in the message header
- New Trade Report, Trade Cancel, and Trade Correction messages to support expanded Sale Condition modifier logic greater decimal granularity and As/Of processing for OTCBB and OOTC securities
- New Trading Action messages formats for security and ORF system level halt events

For TDDS version data mapping, please refer to Appendix D.

NOTE: TDDS direct data feed clients must be prepared to support the new TDDS message formats on November 17, 2014 as FINRA is instituting a **hot cut** implementation. To help with the release implementation and fall back planning process, FINRA will use new IP multicast addresses for TDDS version 2.0.
In addition, to ensure timeliness of data transmission for all TDDS events, FINRA is increasing the maximum TDDS bandwidth to 800Kbps beginning November 17, 2014.

1.5

This data feed interface specification document defines the communications interface and message format requirements for the direct connect subscribers to the Trade Data Dissemination Service (TDDS) product. All time references in this data feed interface specification are stated in Eastern Standard/Daylight Time.

This document was last updated on **February 5, 2016**. Please refer to Appendix D of this document for version control information. FINRA reserves the right to add, delete, or modify any of the message formats outlined in this document as needed. As noted above, direct data feed subscribers are required to code their systems to handle data feed format changes. In advance of each TDDS product change, FINRA will post a technical notice via the FINRA.org web site detailing the data feed format change and release schedule.

2.0 General System Description

2.1 Bandwidth Requirements

As of November 17, 2014, the recommended bandwidth allocation for the TDDS data feed is:

Data Feed Channel	Bandwidth Allocation (Per Multicast Group)
TDDS	800 Kbps

FINRA broadcasts two (a primary and a back-up) multicast groups with TDDS data feeds. With the exception of the IP addresses, the data for the two multicast groups is identical.

Please note that FINRA reserve the right to modify the TDDS bandwidth allocation for these IP calls as system capacity dictates. Direct data feed subscribers are required to maintain sufficient network capacity to handle the FINRA data feed products ordered.

2.2 Transmission Protocol

2.2.1 Protocol Overview

Regardless of network option, TDDS transmissions will be transmitted in a non-interactive simplex mode using Internet Protocol (IP) multicast. A broadcast transmission with no answer back will be employed. A version of Cisco's Protocol Independent Multicast (PIM) routing protocol will be used to route multicast packets through the network. All transmissions will be in standard ASCII code with 7 data bits (8^{th} bit is zero).

The OTCBB data feeds are designed to adhere to Request for Comment (RFC) 1112 standard from The NIC Group for IP multicast protocol. This RFC states:

> *IP multicasting is the transmission of an IP datagram to a "host group", a set of zero or more hosts identified by a single IP destination address. A multicast datagram is delivered to all members of its destination host group with the same "best-efforts" reliability as regular unicast IP datagrams, i.e., the datagram is not guaranteed to arrive intact at all members of the destination group or in the same order relative to other datagrams.*

To minimize data loss, FINRA provides primary and back-up groups for its data feed services. They strongly recommend that all direct data feed subscribers program their systems to process both the primary and back-up groups.

The data messages are identical for two groups with the exception of the following UDP message header field values: Source IP Address, Destination IP Address, UDP Source Port Number, and UDP Destination Port Number.

The purpose of two host groups is to provide an extra layer of data redundancy within the extranet and end-user networks. By reading and utilizing both multicast groups into their production environment, IP multicast customers can help to protect themselves against network anomalies which could cause interruptions in data flow. To minimize data loss, FINRA strongly recommends that data feed customers process both the primary and back-up groups within their networks.

2.2.2 IP Multicast Addresses

Each IP multicast stream will be assigned a unique Class D host group address for transmission via the extranets. The Class D addresses have been registered by NASDAQ OMX with The NIC Group. Please refer to the IP Multicast Data Feed Addressing Information page on the FINRA.org website for the current IP multicast addresses and port assignments for TDDS.

2.3 Transmission Block

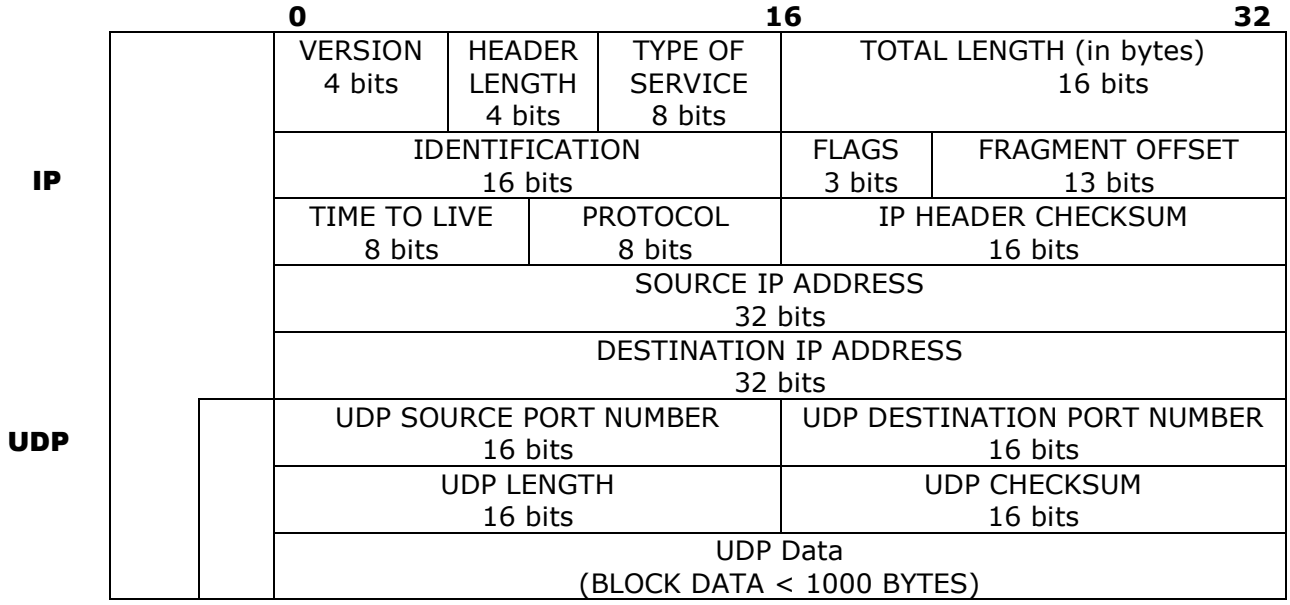
Messages sent to data feed recipients are blocked to provide more efficient line utilization. Each block contains a maximum of 1000 data characters. Messages may not span blocks. Each message in a block ends in a Unit Separator (US) except the last message, which ends in an End of Text (ETX). With the exception of certain messages (e.g. Control messages), each message sent over TDDS contains a fixed format header and a text section that has a format and length that varies for each message type.

DATA BLOCK FORMAT

UDP/IP Headers	SOH	Message 1 header and text	US	Message 2 header and text	US	Message n header and text	ETX
	1000 Byte Block (Max) from SOH to ETX						

2.4 UDP/IP Headers

Each IP datagram includes the IP and UDP headers as well as the block text data. The datagram fields can be read left to right starting at the top and working your way down through the datagram.



2.5 Field Descriptions

2.5.1 IP Header Fields

The following field descriptions pertain to the IP header:

- **VERSION** – 4 bit field used to define the current version of the IP protocol for transmission. The value will be set to 4.
- **HEADER LENGTH** – 4 bit field to define the number of 32 bit words in the IP header portion of the datagram. For multicast packets being generated by FINRA the value will be set to 5.
- **TYPE OF SERVICE** – 8 bit field with the first 3 bits generally ignored by most network equipment. The next 5 bits are set to zero. Based on this description this field will always have the value of zero (0) for all multicast packets.
- **TOTAL LENGTH** – 16 bit field contains the length in bytes of the entire IP datagram (including UDP header). Since the maximum length of the block text is 1000 bytes, the maximum value for this field is 1028.

- **IDENTIFICATION FIELD** – 16 bit field contains a value that is incremented by one for each packet sent by the system. Not supported for UDP/IP packets.
- **FLAGS AND FRAGMENT OFFSET** – Combined 16 bit field is only used when an IP datagram is fragmented. Not supported for UDP/IP packets.
- **TIME TO LIVE (TTL)** – 8 bit field contains a value that determines the number of routers that a datagram can pass through. Each router that forwards the datagram will decrement this value by one; when it reaches zero, the router throws it away. It is initially set to 32 by the multicast source systems.
- **PROTOCOL** – 8 bit field contains a value representing the next level encapsulated protocol. Since multicast uses UDP, the value is set to 0x17, which is 23 decimals.
- **HEADER CHECKSUM** – 16 bit field contains a checksum made up of the IP header fields only. The calculation is based on the one's complement sum of the header broken into 16 bit words.
- **IP SOURCE ADDRESS** – 32 bit field contains the Registered Class C address of the multicast datagram source system. Please see the IP Multicast Data Feed Addressing Information page on the FINRA.org website for the current TDDS addresses.
- **IP DESTINATION ADDRESS** – 32 bit field contains the Registered Class D address for each IP Multicast Group. Please see the IP Multicast Data Feed Addressing Information page on the FINRA.org website for the current TDDS addresses.

2.5.2 UDP Header Fields

The following field descriptions pertain to the UDP header:

- **UDP SOURCE PORT NUMBER** – 16 bit field identifies the $Port_{16}$ address for each IP multicast group. Please see the IP Multicast Data Feed Addressing Information page on the FINRA.org website for the current TDDS addresses.
- **UDP DESTINATION PORT NUMBER** – 16 bit field identifies the $Port_{10}$ address for each IP multicast group. Please see the IP Multicast Data Feed Addressing Information page on the FINRA.org website for the current TDDS addresses.
- **UDP LENGTH –** 16 bit field contains the length in bytes of the UDP headers plus the Data Block. The maximum value is 1008.
- **UDP CHECKSUM –** 16 bit field contains a checksum made up of the UDP header plus the Data Block. In

addition, it includes the UDP pseudo header, which is made up of selected fields from the IP headers such as Source Address, IP Destination Address, Protocol, and UDP Length. The calculation is based on the one's complement sum of the datagram broken into 16 bit words.

2.5.3 UDP Data Fields

The following field descriptions pertain to the Data Block transmission:

- **SOH AND ETX** – The start of a block of data will be indicated by the Start of Header (SOH) control character. The end of the block will be signified by an End of Text (ETX) control character.
- **US** – The Unit Separator (US) character is utilized in message blocks with multiple messages to signify the end of the preceding message but not the end of the block.
- **BLOCK TEXT** – The block text may consist of one or more messages. A message may not span block boundaries. A message shall consist of a Message Header and a Message Text. Each message in a block shall be delimited by a US character except the last message, which will be delimited by an ETX character.
- **DATA FORMAT** – Alphanumeric fields will be left justified and space (hex 20) filled unless otherwise noted. Numeric fields will be right justified and zero (hex 30) filled unless otherwise noted.

2.6 Character Set

All transmissions will be in standard ASCII code: 7 data bits and the 8th bit always zero.

2.7 Retransmission Capability

The TDDS front-end processor will log messages transmitted to recipients. The message formats are defined in subsequent sections of this document. This log will be accessible as a record of messages sent, and will provide a full retransmission capability. Message types not logged and therefore unavailable for retransmission include:

Type	Value
M	Start of Test Cycle
N	End of Test Cycle
T	Line Integrity

In the event of a system problem, FINRA may be unable to fulfill requests for messages sent prior to the Message Sequence Number Reset or Intra-Day Quote Wipe-Out control message.

TDDS retransmission requests may be made by sending an electronic mail message to retranQ@nasdaqomx.com. Retransmission requests will only be honored during the period from the Start of Day (Category C – Type I) message through the End of Retransmission Request (Category C – Type K) message. The recipient can specify by message sequence number which message range the recipient would like retransmitted.

To ensure proper identification of each vendor, a line specific password must be supplied to the operator taking the request. To request a retransmission, the firm must provide the following information to NASDAQ OMX Computer Operations:

- Data Feed Subscriber's Firm Name
- FINRA-Assigned Retransmission Password
- Missing Message Sequence Number(s)
- Contact Name and Telephone Number

Retransmissions will be assigned a low priority in the outgoing message queue in order to prevent any delay or interference with current message delivery. As with original transmissions, retransmissions are broadcast to all direct connect subscribers on both networks. **It is the responsibility of the data feed recipient to ignore retransmitted messages not intended for their firm.** Retransmission messages can be identified by the following attributes:

- **Message Blocking:** Retransmission messages will never be mixed with current messages in the same message block, but current message blocks and retransmission blocks can be interspersed.
- **Message Sequence Number:** The message header will contain the same message sequence number as the original message. Please note that if the Message Sequence Number is reset, no intra-day messages sent prior to the reset control message can be retransmitted.
- **Retransmission Requester:** The message header will contain the unique two-character retransmission requester assigned to the intended recipient. Each firm is given a unique two-character retransmission requester that they should code for in its system.
- **Date/Time:** The message header will contain the same date and time stamp as the original message.

To obtain the retransmission requester and passwords for your firm, please contact FINRA TRACE Data Services at (888) 507-3665 or TRACEDataServices@finra.org.

3.0 Message Header

Each TDDS message will begin with a message header. The Message Header defines the format of the data message that follows.

The Message Header is 32 bytes in length and contains the following data fields:

Message Category	Message Type	Session Identifier	Retransmission Requester	Message Sequence Number
1	1	1	2	8

Market Center Originator ID	Date/Time
2	17

The field definitions for the TDDS message header are outlined in the remainder of this section. Please note that alphabetic and alphanumeric fields are left justified, space filled and numeric fields are right justified, zero filled, unless otherwise specified.

3.1 Message Category

The Message Category is comprised of one alphabetic byte. This field, along with the Message Type, identifies the message format to follow. The allowable values are as follows:

Code	Description
A	Administrative Messages
C	System Control Messages
T	Trade Related Messages

3.2 Message Type

The Message Type is comprised of one alphanumeric byte. This field, along with the Message Category, identifies the message format to follow. The allowable values by category are as follows:

Control Messages *(Defined in section 7 of this document)*:

Category	Type	Usage
C	I	Start of Day
C	J	End of Day
C	O	Market Session Open
C	C	Market Session Close
C	K	End of Retransmission Requests
C	Z	End of Transmissions

Category	Type	Usage
C	T	Line Integrity
C	L	Sequence Number Reset
C	X	End of Trade Reporting

Trade-Related Messages *(Defined in section 4.1)*:
Note: Effective November 17, 2014, current TDDS Trade Message Types 1, 2, 3, and 4 will be replaced with Message Types 5, 6, 7, and 8 respectively. It is inherent on the data feed recipient to ensure their systems are coded correctly to the new Message Type formats.

Message Category Code	Message Type Code	Message Format Description
T	5	Short Form Trade Report
T	6	Long Form Trade Report
T	7	Trade Cancel/Error
T	8	Trade Correction

Administrative Messages *(Defined in section 4.2)*:
Note: Effective November 17, 2014, current TDDS Administrative Message Type 1 will be replaced with Message Type 2. It is inherent on the data feed recipient to ensure their systems are coded correctly to the new Message Type formats.

Message Category Code	Message Type Code	Message Format Description
A	A	General Administrative Message (Free-Form Text)
A	2	Closing Trade Summary
A	H	Trading Action (Security)
A	M	Trading Action (Extraordinary Market)

3.3 Session Identifier

The Session Identifier is comprised of one alphabetic byte. This field indicates the market session of the message to follow. The allowable values are as follows:

Code	Description
A	All Market Sessions or Session Independent
U	U.S. Market Session

3.4 Retransmission Requester

The Retransmission Requester is comprised of two, alphanumeric bytes. This field indicates if the message is an original transmission or retransmission. If the message is a retransmission, this field indicates the two-character retransmission identifier of the intended data recipient.

All TDDS recipients must code their systems to process the following values:

Code	Description
O (space)	An original transmission to all recipients
R (space)	A retransmission to all recipients
T (space)	A test cycle transmission to all recipients.
Specific Vendor ID	To be assigned on vendor-by-vendor basis.

In addition to these three codes, FINRA has also assigned a special two-character retransmission requester to each direct subscriber of the TDDS data feed. Customers should code their system to process the two-character code assigned to their firm as well as the three global values outlined above. To obtain the retransmission requester and passwords for your firm, please contact FINRA TRACE Data Services at (888) 507-3665 or TRACEDataServices@finra.org.

3.5 Message Sequence Number

The Message Sequence Number is comprised of eight, numeric bytes. At the beginning of each operational cycle, this number will be set to 00000000 (for the Start of Day) of each data channel. Throughout the day, the message sequence number for each original transmission will be incremented by one with the exception of the following control messages:

- The Start of Day (Category C – Type I) message is sent three times to ensure receipt. All three messages in this series will contain a message sequence number of zero.
- The Line Integrity (Category C – Type T) message is sent at one-minute intervals. The message sequence number for these control messages will not be incremented. The message sequence number will contain the same value as the prior original transmission message.
- The Sequence Number Reset (Category C – Type L) message will contain the number to which the Message Sequence Number counter is to be reset. This number is either zero or a number greater than the highest number previously transmitted.
- The End of Day (Category C – Type J) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.
- The End of Retransmission Requests (Category C – Type K) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.
- The End of Transmissions (Category C – Type Z) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.
- The End of Trade Reporting (Category C – Type X) message is sent three times to ensure receipt. Only the first message in this sequence will be incremented.

For more information on these control messages, please refer to section 7 of this document.

Market Center Originator ID
The Market Center Originator Identifier (ID) is comprised of two, alphabetic bytes. Please note that this field is case sensitive. This field indicates the market center or system that originated the message that follows. The allowable values are as follows:

Code	Description
E	Market Center Independent (Message Generated by Data Feed Handler)
U (upper case)	OTC Bulletin Board (OTCBB)
u (lower case)	Other OTC Security (OOTC)
F	OTC Bulletin Board (OTCBB) and Other OTC Security

Date/Time

The Date/Time is comprised of 17 numeric bytes. The date/time is the calendar date and time that the record has entered into FINRA's ORF trade reporting system.

Date Year (CCYY)	Date Month (MM)	Date Day (DD)	Time Hour (HH)	Time Minute (MM)	Time Second (SS)	Time Millisc (sss)
4	2	2	2	2	2	3

Within these subsections, the values will be formatted in the following manner:

- **Date Year:** The year the transaction occurred. This four-byte field will be stated in numeric format, e.g. 2014.
- **Date Month:** The month the transaction occurred. This two- byte field is stated in numeric format, e.g. 02.
- **Date Day:** The day of the month the transaction occurred. This two- byte field is stated in numeric format, e.g. 06.
- **Time Hour:** The hour of the day the transaction occurred in military time. This two- byte field is stated in numeric format, e.g. 08.

- **Time Minute:** The minute of the hour the transaction occurred. This two-byte field is stated in numeric format, e.g. 15.
- **Time Second:** The second of the minute the transaction occurred. This two-byte field is stated in numeric format e.g. 30.
- **Time Millisecond:** The millisecond of the second the transaction occurred. This three-byte field is stated in numeric format, e.g. 777.

Note: All times are Eastern Time.

4.0 Data Formats

In this section, the field layouts are illustrated for each TDDS message format. The message formats apply to all market categories (OTCBB, and OOTC).
The data definition for each field is outlined in section 6 of this document.

4.1 Trade-Related Messages

Note: Effective November 17, 2014, current Trade Message Types 1, 2, 3, and 4 will be replaced with Message Types 5, 6, 7, and 8 respectively. It is inherent on the data feed recipient to ensure their systems are coded correctly to the new Message Type formats.

4.1.1 Trade Report – Short Form Version

Category T – Type 5

To economize on bandwidth, FINRA supports two different versions of the Trade Report message format. The short version of the trade report message is 20 bytes in length. FINRA will use this short version only if all of the following criteria are met.

- Security Symbol is 5 characters or less;
- Trade report price is stated in US currency;
- Trade price can be stated in 6 bytes;
- Sale condition modifier does not equal "R" (Seller)
- No more than one Sale condition modifier is present on the trade
- Trade report volume is 999,999 shares or less; and
- Trade is executed and reported on the current day

The short form version of the Trade Report message contains the following fields:

Security Symbol	Sale Condition Level 1	Trade Price Denominator	Trade Price	Report Volume	Price Change Indicator
5	1	1	6	6	1

The long version of the Trade Report message, which is 71 bytes in length, will be used if the criteria for the short form message listed above are not met. For Trade Report message processing guidelines, please refer to section 8 of this specification.

4.1.2 Trade Report – Long Form Version

Category T – Type 6

This version of the Trade Report message will be used for trades that do not meet the criteria listed in section 4.1.1.

Label:

Security Symbol 14	Original Dissemination Date 8

Subtotal: 22 Bytes

Trade Information:

Report Volume 8	Trade Price Denominator 1	Trade Price 12	Currency 3	As/Of Indicator 1	Execution Date/Time 17

Sale Condition Level 1 1	Sale Condition Level 2 (Reserved) 1	Sale Condition Level 3 1	Sale Condition Level 4 1	Seller's Sale Days 2	Price Change Indicator 1

Subtotal: 49 Bytes

Total Message Size: 71 Bytes

4.1.3 Trade Cancel/Error

Category T – Type 7

Occasionally, a market participant firm must cancel a trade transaction that was reported to the ORF earlier in the current trading day or on a previous day. This message is used to notify TDDS customers if a trade report entered during the current business day, or up to the past three business days, has been canceled. FINRA relays this trade cancellation to the public via the following message format.

Please note that the Trade Cancel/Error message is comprised of three parts:

- **Message Label:** This section contains the Security Symbol and other information regarding the Original Dissemination Date, Original Message Sequence Number and type of cancel transaction. These elements are intended to help the TDDS subscriber to locate the trade report to be modified in its database.
- **Original Trade Information:** This section relays the trade characteristics of the original reported transaction.
- **Consolidated Trade Summary Information:** This section provides a summary of the consolidated trading activity at the time that the Trade Cancel/Error message was generated.

Label:

Security Symbol	Original Dissemination Date	Original Message Sequence Number	Function
14	8	8	1

Subtotal: 31 Bytes

Original Trade Information:

Report Volume	Trade Price Denominator	Trade Price	Currency	As/Of Indicator	Execution Date/Time
8	1	12	3	1	17

Sale Condition Level 1	Sale Condition Level 2 (Reserved)	Sale Condition Level 3	Sale Condition Level 4	Seller's Sale Days
1	1	1	1	2

Subtotal: 48 Bytes

Trade Cancel/Error Trade Summary Information:

High Price Denominator	High Price	Low Price Denominator	Low Price	Last Sale Price Denominator	Last Sale Price
1	12	1	12	1	12

Last Sale Price Market Center	Total Security Volume	Price Change Indicator
1	11	1

Subtotal: 52 Bytes

Total Message Size: 131 Bytes

4.1.4 Trade Correction

Category T – Type 8

Occasionally, a market participant firm must modify a trade transaction that was reported to the ORF earlier in the current trading day or on a previous day. This message is used to notify TDDS customers if a trade report entered during the current business day, or up to the past three business days, has been modified. FINRA relays this trade correction to the public via the following message format.

Please note that the Trade Correction message is comprised of four parts:

- **Message Label:** This section contains the Security Symbol and other information regarding the Original Dissemination Date, Original Message Sequence Number and type of transaction. These elements are intended to help the TDDS subscriber to locate the trade report to be modified in its database.
- **Original Trade Information:** This section relays the trade characteristics of the original reported transaction. This is the trade data to be modified.
- **Corrected Trade Information:** This section relays the modified trade characteristics, as they should now be reported to the public.
- **Trade Summary Information:** This section provides a summary of the consolidated trading activity at the time that the Trade Correction message was generated.

Label:

Security Symbol	Original Dissemination Date	Original Message Sequence Number	Function
14	8	8	1

Subtotal: 31 Bytes

Original Trade Information:

Report Volume 8	Trade Price Denominator 1	Trade Price 12	Currency 3	As/Of Indicator 1	Execution Date/Time 17

Sale Condition Level 1 1	Sale Condition Level 2 (Reserved) 1	Sale Condition Level 3 1	Sale Condition Level 4 1	Seller's Sale Days 2

Subtotal: 48 Bytes

Corrected Trade Information:

Report Volume 8	Trade Price Denominator 1	Trade Price 12	Currency 3	As/Of Indicator 1	Execution Date/Time 17

Sale Condition Level 1 1	Sale Condition Level 2 (Reserved) 1	Sale Condition Level 3 1	Sale Condition Level 4 1	Seller's Sale Days 2

Subtotal: 48 Bytes

Trade Correction Summary Information:

High Price Denominator	High Price	Low Price Denominator	Low Price	Last Sale Price Denominator	Last Sale Price
1	12	1	12	1	12

Last Sale Price Market Center	Total Security Volume	Price Change Indicator
1	11	1

Subtotal: 52 Bytes

Total Message Size: 179 Bytes

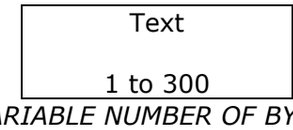
4.2 Administrative Messages

FINRA supports a limited number of administrative messages on the TDDS data feed. **Note: Effective November 17, 2014, Message Type 1 will be replaced with Message Type 2. It is inherent on the data feed recipient to ensure their systems are coded correctly to the new Message Type formats.**

4.2.1 General Administrative (Free-Form Text) Message

Category A - Type A

A variable length, free-form text message format will be used on an as-needed basis. Since the General Administrative Message is a flexible format message, it is up to the individual data feed subscriber to decide how to process these messages. Firms may wish to code their systems to generate a systems alert for data operations as manual processing of the General Administrative message may be required.



VARIABLE NUMBER OF BYTES

4.2.2 Closing Trade Summary Report

Category A – Type 2

FINRA will offer a closing trade summary report for OTCBB and OOTC securities. The closing trade summary will reflect the daily high, low, and closing prices as well as the total volume for the security.

TDDS disseminates two closing trade summary reports:

- The first closing report at 5:20 p.m., ET, reflects the preliminary closing price values for OTCBB and OOTC securities.
- The second closing report at 20:10 p.m., ET, reflects the final high, low, and last sale prices as well as volume for OTCBB and OOTC securities.

FINRA will disseminate a Closing Trade Summary Report for every OTCBB security in the system. If an OTCBB security did not trade during the current business day, the Daily High Price, the Daily Low Price, the Closing Price, Net Change Amount, and Total Security Volume fields shall be zero filled and the Net Change Direction shall be space filled. If an OTCBB security did trade for the current day, but the attributes for the trade(s) in the security for that day (i.e. Odd Lot, Weighted Average, Outside Mkt Hours, etc...) determine that the high, low, and last prices are unaffected by these transactions then the Daily High Price, the Daily Low Price, the Closing Price, and Net Change Amount fields shall be zero filled and the Net Change Direction shall be space filled. However, the volume for these securities will still be included in the closing report.

FINRA will also generate and disseminate closing report messages for any OOTC securities traded during the current business day and reported via the ORF.[1]

Message Format:

Security Symbol	Daily High Price Denominator	Daily High Price	Daily Low Price Denominator	Daily Low Price	Closing Price Market Center
14	1	12	1	12	1

Closing Price Denominator	Closing Price	Reserved	Net Change Denominator	Net Change Amount	Net Change Direction
1	12	1	1	12	1

Currency	Total Security Volume
3	11

Total Message Size: 83 Bytes

4.2.3 Trading Action Message (Security)

Category A – Type H

FINRA will disseminate this message to inform customers of trading actions, such as halts or trading resumptions which affect individual OTCBB or Other OTC securities.

Security Symbol	Action	Action Date/Time	Reason Code
14	1	17	6

Total Message Size: 38 Bytes

[1] Effective November 1, 2010, FINRA began supporting real-time trade dissemination for non-exchange-listed DPP securities.

4.2.4 Trading Action Message (Extraordinary Market Event; Market Wide Circuit Breaker Event)

Category A – Type M

FINRA will disseminate this message to inform customers of an extraordinary market event trading action or a market wide circuit breaker event which will affect all security symbols for either OTCBB, Other OTC or both OTCBB and Other OTC market places.

Action	Action Date/Time	Reason Code
1	17	6

Total Message Size: 24 Bytes

Control Messages
Control messages consist of a message header only. For processing information, please refer to section 7 of this document.

5.0 Field Occurrence Matrix

The following table outlines the Message Category and Message Type by field name:

Field Name	Message Category	Message Type
A		
Action	A	H
	A	M
Action Date/Time	A	H
	A	M
As-Of Indicator	T	6
	T	7
	T	8
C		
Closing Price	A	2
Closing Price Denominator	A	2
Closing Price Market Center	A	2
Currency	T	6
	T	7
	T	8
	A	2
D		
Daily High Price	A	2
Daily High Price Denominator	A	2
Daily Low Price	A	2
Daily Low Price Denominator	A	2
E		
Execution Date/Time	T	6
	T	7
	T	8
F		
Function	T	7
H		
High Price	T	7
	T	8
High Price Denominator	T	7
	T	8
	T	7
	T	8
	A	2
L		
Last Sale Price	T	7
	T	8
Last Sale Price Denominator	T	7
	T	8

Last Sale Price Market Center	T	7
	T	8
Low Price	T	7
	T	8
Low Price Denominator	T	7
	T	8
N		
Net Change Amount	A	2
Net Change Denominator	A	2
Net Change Direction	A	2
O		
Original Message Sequence Number	T	7
	T	8
P		
Price Change Indicator	T	5
	T	6
	T	7
	T	8
R		
Reason Code	A	H
	A	M
Report Volume (Short Version)	T	5
Report Volume (Long Version)	T	6
	T	7
	T	8
Reserved	A	2
	T	6
	T	7
	T	8
S		
Sale Condition Level 1	T	5
	T	6
	T	7
	T	8
Sale Condition Level 2 (Reserved)	T	6
	T	7
	T	8
Sale Condition Level 3	T	6
	T	7
	T	8
Sale Condition Level 4	T	6
	T	7
	T	8
Security Symbol (Short Version)	T	5
Security Symbol (Long Version)	T	6
	T	7
	T	8
Seller's Sale Days	T	6

	T	7
	T	8
T		
Text	A	B
Total Security Volume	T	7
	T	8
	A	2
Trade Price (Short Form)	T	5
Trade Price (Long Form)	T	6
	T	7
	T	8
Trade Price Denominator	T	5
	T	6
	T	7
	T	8

6.0 Field Definitions

***Note*: All alphabetic and alphanumeric fields are left justified and space filled unless otherwise stated. All numeric fields are right justified and zero filled unless otherwise stated.**

A

Action

Category A – Type H; Category A – Type M

1 byte, Alphanumeric. This field appears in the Trading Action messages and is used to relate the status of the individual security or marketplace. Associated values are"

Code	Value
H	Trading Halt
Q	Quotation Resumption
T	Trading Resumption
X	Quotation and Trading Resumption

Action Date/Time

Category A – Type H; Category A- Type M

17 bytes, Numeric. This field appears in the Trading Action Messages. The Action Date/Time field within the Trading Action message will reflect the time of the most recent attribute change (action, reason code). Please note that FINRA will generate a new Trading Action message whenever one of the attributes (Action, Reason Code) in the Trading Action message was to change.
Please refer to the Date/Time field in the message header for the field layout.

As-Of Indicator

Category T – Type 6; Category T- Type 7; Category T – Type

1 byte, Alphabetic. This field will be populated if the transaction being reported is an As/Of trade, Reversal, Cancel or Correction from a prior business day. Associated values for this field are:

Code	Value
A	As-Of
R	Reversal
Space	Current Day transaction

C

Closing Price

Category A – Type 2

12 bytes, Numeric. This Closing Price field reflects the final last sale eligible transaction reported to ORF for the security during the current business day. Please note that the Closing Price Denominator field indicates where to place the decimal point. This field shall be zero filled if there are no last sale eligible trade reports entered during the current business day.

Closing Price Denominator

Category A – Type 2

1 byte, Alphanumeric. The Closing Price Denominator field indicates the whole dollar and decimal digit composition of the Closing Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown of Closing Price	
		Whole Dollar Digits	Decimal Digits
A	10	11	1
B	100	10	2
C	1000	9	3
D	10,000	8	4
E	100,000	7	5
F	1,000,000	6	6
G	10,000,000	5	7
H	100,000,000	4	8
I	N/A	12	0

Closing Price Market Center

Category A – Type 2

1 Byte, Alphanumeric. This field indicates the market center responsible for the closing price. Please note that this field is case sensitive. The allowable values are as follows:

Code	Value
U (upper case)	OTCBB
u (lower case)	OOTC
space	Not applicable (no last sale price exists)

Currency

Category A – Type 2; Category T – Type 6; Category T – Type 7;

Category T – Type 8

3 bytes, Alphanumeric. This field indicates the currency in which the trade transaction was reported. This field will use the currency abbreviation standard as defined by the ISO. The allowable value is as follows:

Code	Value
USD	US Dollars

D

Daily High Price

Category A – Type 2

12 bytes, Numeric. This Daily High Price field indicates the highest price at which the security traded during the session. Please note that Daily High Price Denominator field indicates where to place the decimal point in the price. This field shall be zero filled if there are no eligible trade reports during the session.

Daily High Price Denominator
Category A – Type 2

1 byte, Alphanumeric. The Daily High Price Denominator indicates the whole dollar and decimal digit composition of the Daily High Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown for High Price	
		Whole Dollar Digits	Decimal Digits
A	10	11	1
B	100	10	2
C	1000	9	3
D	10,000	8	4
E	100,000	7	5
F	1,000,000	6	6
G	10,000,000	5	7
H	100,000,000	4	8
I	N/A	12	0

Daily Low Price
Category A – Type 2

12 bytes, Numeric. This Daily Low Price field indicates the lowest trade price at which the security traded during the session. Please note that the Daily Low Price Denominator field indicates where to place the decimal point in the price. This field shall be zero filled if there are no eligible trade reports during the session.

Daily Low Price Denominator

Category A – Type 2

1 byte, Alphanumeric. The Daily Low Price Denominator indicates the whole dollar and decimal digit composition of the Daily Low Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown for Low Price	
		Whole Dollar Digits	Decimal Digits
A	10	11	1
B	100	10	2
C	1000	9	3
D	10,000	8	4
E	100,000	7	5
F	1,000,000	6	6
G	10,000,000	5	7
H	100,000,000	4	8
I	N/A	12	0

E

Execution Date/Time

Category T – Type 6; Category T – Type 7; Category T – Type 8

17 bytes, Numeric. This field represents the date and time that the FINRA member firm executed the trade transaction. If the transaction reported was an As/Of trade or a Reversal, this field will be populated with the date and time that the original trade was executed by the FINRA member firm.
Please refer to the Date/Time field in the message header for the field layout.

F

Function

Category T – Type 7

1 byte, Alphanumeric. This Function field denotes if the original trade report is being cancelled or was reported in error. The associated values are:

Code	Value
C	Cancel
E	Error
N	Correction

H

High Price

Category T - Type 7; Category T - Type 8

12 Bytes, Numeric. The High Price field indicates the highest price at which the security traded up to the current point in the trading session. Note that the High Price Denominator field indicates where to place the decimal point. This field shall be zero filled if there are no eligible trade reports during the session.

High Price Denominator

Category T – Type 7; Category T – Type 8

1 byte, Alphanumeric. The High Price Denominator indicates the whole dollar and decimal digit composition of the High Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown of High Price	
		Whole Dollar Digits	Decimal Digits
A	10	11	1
B	100	10	2
C	1000	9	3
D	10,000	8	4
E	100,000	7	5
F	1,000,000	6	6
G	10,000,000	5	7
H	100,000,000	4	8
I	N/A	12	0

L

Last Sale Price

Category T – Type 7; Category T – Type 8

12 bytes, Numeric. This Last Sale Price field indicates the current last sale price for the given security. Please note that the Last Sale Price Denominator field indicates where to place the decimal point. This field shall be zero filled if there are no eligible trade reports during the session.

Last Sale Price Denominator

Category T – Type 7; Category T – Type 8

1 byte, Alphanumeric. The Last Sale Price Denominator field indicates the whole dollar and decimal digit composition of the Last Sale Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown of Last Sale Price	
		Whole Dollar Digits	Decimal Digits
A	10	11	1
B	100	10	2
C	1000	9	3
D	10,000	8	4
E	100,000	7	5
F	1,000,000	6	6
G	10,000,000	5	7
H	100,000,000	4	8
I	N/A	12	0

Last Sale Price Market Center

Category T – Type 7; Category T – Type 8

1 Byte, Alphanumeric. This alphanumeric field indicates the market center responsible for the last sale price. Please note that this field is case sensitive. The allowable values are as follows:

Code	Value
U (upper case)	OTCBB
u (lower case)	OOTC
space	Not applicable (no last sale price exists)

Low Price

Category T – Type 7; Category T – Type 8

12 Bytes, Numeric. The Low Price field indicates the lowest price at which the security traded up to the current point in the trading session. Please note that the Low Price Denominator field indicates where to place the decimal point. This field shall be zero filled if there are no eligible trade reports during the session.

Low Price Denominator

Category T – Type 7; Category T – Type 8

1 byte, Alphanumeric. The Low Price Denominator field indicates the whole dollar and decimal digit composition of the Low Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown of Low Price	
		Whole Dollar Digits	Decimal Digits
A	10	11	1
B	100	10	2
C	1000	9	3
D	10,000	8	4
E	100,000	7	5
F	1,000,000	6	6
G	10,000,000	5	7
H	100,000,000	4	8
I	N/A	12	0

N

Net Change Amount
Category A – Type 2

10 bytes, Numeric. The Net Change Amount field reflects the absolute value of the difference between the current closing price and the adjusted previous day's closing price. Please note that the Net Change Denominator field indicates where to place the decimal point.

Net Change Denominator
Category A – Type 2

1 byte, Alphanumeric. The Net Change Denominator indicates the whole dollar and decimal digit composition of the Net Change Amount field. The allowable values for this field are as follows:

Code	Denominator Value	Breakdown of Net Change	
		Whole Dollar Digits	Decimal Digits
A	10	11	1
B	100	10	2
C	1000	9	3
D	10,000	8	4
E	100,000	7	5
F	1,000,000	6	6
G	10,000,000	5	7
H	100,000,000	4	8
I	N/A	12	0

Net Change Direction

Category A – Type 2

1 byte, Alphanumeric (including special characters). This field indicates the direction of net change field. The allowable values are as follows:

Code	Value
+	Positive or zero net change (or Net Gain)
-	Negative net change (or Net Loss)
<*space*>	Space filled, if an OTC security did not trade during the current business day and the Daily High, Low, and Closing Prices, and Volume are zero; if an OTC security did trade for the current day, but the attributes for the trade(s) in the security for that day (i.e. Odd Lot, Weighted Average, Outside Mkt Hours, etc...) determine that the high, low, and last prices are unaffected by these transactions then the Net Change Direction shall be space filled.

O

Original Message Sequence Number

Category T – Type 7; Category T – Type 8

8 bytes, Numeric. The Original Message Sequence Number field indicates the message sequence number of the original outbound message for the transaction being reversed. This field will be zero filled if original message sequence number is not available.

Original Dissemination Date

Category T – Type 6; Category T – Type 7; Category T – Type 8

8 bytes, Numeric, in YYYYMMDD format. On Trade Report messages this field will be populated on Reversals (As/Of Indicator = R) only, to indicate the date the original trade was disseminated. On non-Reversals, the field will be blank. On Trade Cancel and Trade Correction messages, the field will be populated with the date the original trade was disseminated, including same day Cancels and Corrections.

P

Price Change Indicator

Category T – Type 5; Category T – Type 6; Category T – Type 7; Category T – Type 8

1 byte, Alphanumeric. The Price Change Indicator field indicates if the high, low, and/or last sale prices were impacted by the current trade transaction. The allowable values are as follows:

Code	Value
0	No price change
1	Last price changed
2	Low price changed
3	Last and low prices changed
4	High price changed
5	Last and high prices changed
6	High and low prices changed
7	All prices changed

R

Reason Code
Category A – Type H; Category A – Type M

6 bytes, Alphanumeric. The Reason Code indicates the reason for the current trading action status.

Values in Category A – Type H message

Reason Code	Description
01	Operational Halt
H10	Halt - SEC Trading Suspension
H11	Halt – Regulatory Concern
H12	Halt – SEC Revocation
U1	Halt – Foreign Market/Regulatory
U2	Halt – Component/Derivative of Exchange-Listed Security
U3	Halt – Extraordinary Events
D1	Security Deleted from OTCE
T3	Halt – News and Resumption Times
Space	Reason Code not available

Values in Category A – Type M message

Reason Code	Description
U4	Extraordinary Market Condition (EMC)Halt
U5	Market Wide Circuit Breaker (MWCB) Halt
C13	Quote Resume for EMC or MWCB
C14	Quote and Trade Resume for EMC or MWCB
Space	Reason Code not available

Report Volume (Short Version)
Category T – Type 5

6 bytes, Numeric. This field denotes the number of shares reported in the current Trade Report. For trades over 999,999 shares, FINRA will use the long version of the Trade Report message format.

Report Volume (Long Version)
Category T – Type 6; Category T – Type 7; Category T – Type 8

8 bytes, Numeric. This field denotes the number of shares reported in the current Trade Report.

Please note that FINRA will use a General Administrative Text message to notify TDDS subscribers of trade reports in excess of 99,999,999 shares.

Reserved

Category A – Type 2; Category T – Type 6; Category T – Type 7; Category T – Type 8

1 byte, Alphanumeric. This field will be space filled.

S

Sale Condition Level 1

Category T – Type 5; Category T – Type 6; Category T – Type 7; Category T – Type 8

1 byte, Alphanumeric (including special characters). This field is used to denote the sale condition associated with a trade transaction. Refer to Appendix A – Glossary of Terms for a definition of each sale condition. Please refer to section 8 for the processing rules for each sale condition. The associated values for Sale Condition 1 are:

Code	Value
@	Regular Trade
C	Cash Trade
N	Next Day
R	Seller (Long-Form Message Formats Only)

Sale Condition Level 2 (Reserved)

Category T – Type 5; Category T – Type 6; Category T – Type 7; Category T – Type 8

1 byte, Alphanumeric (including special characters). This field is reserved and may be used in the future.

Sale Condition Level 3

Category T – Type 5; Category T – Type 6; Category T – Type 7; Category T – Type 8

1 byte, Alphanumeric (including special characters). This field is used to denote the sale condition associated with a trade transaction. Refer to Appendix A – Glossary of Terms for a definition of each sale condition. Please refer to section 8 for the processing rules for each sale condition. The associated values for Sale Condition 3 are:

Code	Value
T	Executed Outside Normal Market Hours
U	Executed Outside Normal Market Hours and Trade Reported Late
Z	Executed During Normal Market Hours and Trade Reported Late
< >	Space

Sale Condition Level 4

Category T – Type 5; Category T – Type 6; Category T – Type 7; Category T – Type 8

1 byte, Alphanumeric (including special characters). This field is used to denote the sale condition associated with a trade transaction. Refer to Appendix A – Glossary of Terms for a definition of each sale condition. Please refer to section 8 for the processing rules for each sale condition. The associated values for Sale Condition 4 are:

Code	Value
I	Odd Lot Trade
P	Prior Reference Price
W	Average Price Trade
< >	Space

Note: Odd lot trades that include attributes in addition to odd lot (e.g. weighted-average price trades, prior reference price trades, etc…) will only be disseminated with the odd lot trade modifier identifier. Trades marked as odd lot override the dissemination of any other trade modifier codes in that category that would otherwise be included.

Security Symbol (Short Version)
Category T – Type 5

5 bytes, Alphanumeric. This Security Symbol field indicates the security identifier assigned by FINRA for a given security.

For the current list of securities, please refer to the OTCBB Symbol Directory section on the FINRA.org website.

Security Symbol (Long Version)
Category T – Type 6; Category T – Type 7; Category T – Type 8;
Category A – Type 2

14 bytes, Alphanumeric. The Security Symbol field indicates the security identifier assigned by FINRA for a given security.
For the current list of securities, please refer to the OTCBB Symbol Directory section on the FINRA.org website.

Seller's Sale Days
Category T – Type 6; Category T – Type 7; Category T – Type 8

2 bytes, Numeric. If the sale condition value code in Sale Condition 1 field is equal to "R" (Seller), this field will reflect the number of days that may elapse before delivery of the stock. If the sale condition is not "R", this field will be zero filled.

T

Text
Category A – Type B

Variable length up to 300 bytes. Alphanumeric. Free-form text is used to notify data feed subscribers of corporate actions or special trading situations.

Total Security Volume
Category A – Type 2; Category T – Type 7; Category T – Type 8

11 bytes, Numeric. This field reflects the total number of shares traded during the session for the given security.

Trade Price (Short Form)
Category T – Type 5

6 bytes, Numeric. This field indicates the trade price for the current transaction. Please note that the Trade Price Denominator field indicates where to place the decimal point. For trade prices that require more than 6 digits, FINRA will use the long version of the Trade Report message format.

Trade Price (Long Form)
Category T – Type 6; Category T – Type 7; Category T – Type 8

12 bytes, Numeric. This field indicates the trade price for the current transaction. Please note that the Trade Price Denominator field indicates where to place the decimal point.

Trade Price Denominator

Category T – Type 5; Category T – Type 6; Category T – Type 7; Category T – Type 8

1 byte, Alphanumeric. This field denotes the whole dollar and decimal digit composition for the Trade Price field. The allowable values are as follows:

Code	Denominator Value	Breakdown for Long (12 byte) Price Field		Breakdown for Short (6 byte) Price Field	
		Whole Dollar Digits	Decimal Digits	Whole Dollar Digits	Decimal Digits
A	10	11	1	5	1
B	100	10	2	4	2
C	1000	9	3	3	3
D	10,000	8	4	2	4
E	100,000	7	5	1	5
F	1,000,000	6	6	0	6
G	10,000,000	5	7	N/A	N/A
H	100,000,000	4	8	N/A	N/A
I	N/A	12	0	N/A	N/A

7.0 Control Messages

7.1 Overview

A Control message is a fixed format message that performs a specific system function. All Control Messages consist of a standard Message Header only. As outlined in section 3, the Message Header is comprised of the following fields:

Message Category	Message Type	Session Identifier	Retransmission Requester	Message Sequence Number
1	1	1	2	8

Market Center Originator ID	Date/Time
2	17

Control messages are used to notify TDDS subscribers of certain system events. FINRA supports the following control messages on the TDDS data feed:

Category	Type	Usage
C	I	Start of Day
C	J	End of Day
C	O	Market Session Open
C	C	Market Session Close
C	K	End of Retransmission Requests
C	Z	End of Transmissions
C	T	Line Integrity
C	L	Sequence Number Reset
C	X	End of Trade Reporting

The following Control messages will be session-specific: Market Session Open and Market Session Close. All other control messages will be session independent. For a schedule of transmissions, please refer to Appendix B.

7.2 Control Message Description

7.2.1 Start Of Day

Category C - Type I

The Start of Day control message signifies the beginning of each operational cycle for TDDS processing. Each day, the Start of Day control message will be sent to inform TDDS subscribers that all subsequent data transmitted will be real-time updates and should be treated accordingly. The message will be sent three times, at one-minute intervals, with the same Message Sequence Number (00000000) on each message.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.2 End Of Day

Category C - Type J

The End of Day control message signals the end of active message dissemination for the TDDS operational cycle. The system shall generate and disseminate the End of Day control message upon receipt of the appropriate inbound control messages from all inbound sources. The End of Day message will be sent three times, at one-minute intervals. The first End of Day control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers of the subsequent two control messages, however, will not be incremented.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.3 Market Session Open

Category C - Type O

The Market Session Open Control Message signifies the opening of FINRA's market systems for the session indicated in the Message Header. Prior to the Market Session Open, all trade reports should be marked with a ".T" sale condition modifier. After receipt of the Market Open Control message, trade reports may contain sale condition modifiers that would update the consolidated last sale price. The Message Sequence Number Field for the Session Open will contain a number one greater than the highest Message Sequence Number previously transmitted.

Please note that the Market Center Originator ID in the message header for this control message will be "F".

7.2.4 Market Session Close

Category C - Type C

The Session Close Control Message signals the closing of FINRA's market systems for the session indicated in the Message Header. Upon receipt of this message, vendors should close the appropriate security records in their files. The Message Sequence Number Field for the Market Session Close will contain a number one greater than the highest Message Sequence Number previously transmitted.

Please note that the Market Center Originator ID in the message header for this control message will be "F".

7.2.5 End Of Retransmission Requests

Category C - Type K

This message signals that no further retransmission requests will be honored. The End of Retransmission Requests message will be sent three times, at one-minute intervals. The first End of Retransmission Requests control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers of the subsequent two control messages, however, will not be incremented. The Message Sequence Number will not be incremented when the message is sent three times in the normal message transmission sequence. Although FINRA and NASDAQ OMX operations may no longer accept retransmission requests after this control message is disseminated, it will disseminate retransmissions in queue.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.6 End Of Transmissions

Category C - Type Z

The End of Transmissions Message signals that there will be no further transmissions of data sent through the TDDS line. This message will be transmitted at the end of the day, and will be the last message of the day. The End of Transmissions message will be sent three times, at one-minute intervals. The End of Transmissions control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers in the subsequent two control messages, however, will not be incremented.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.7 Line Integrity

Category C - Type T

The Line Integrity Control Message will be transmitted at approximately one-minute intervals to verify the operational integrity of the TDDS message transmission, and will be intermixed with other messages. The Message Sequence Number will not be incremented for the Line Integrity Message. The Message Sequence Number will be equal to the message sequence number of the last message sent. Line Integrity Messages will not be retransmitted.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.8 Sequence Number Reset

Category C - Type L

The Sequence Number Reset Message forces the resetting of the Sequence Number. The Sequence Number will either be reset to zero or to a number greater than the last number previously transmitted. Please note that, if the Sequence Number Reset message is sent, the TDDS feed handler will not be able to process retransmission requests for messages sent prior to the Sequence Number Reset control message.

Please note that the Market Center Originator ID in the message header for this control message will be "E".

7.2.9 End of Trade Reporting

Category C – Type X

The End of Trade Reporting Control Message signals that the ORF system is closed for market participant trade transactions. Upon receipt of the End of Trade Reporting control message, FINRA will generate the Closing Trade Summary Report for TDDS. The End of Trade Reporting message will be sent three times, at one-minute intervals. This control message will contain a Message Sequence Number one greater than the highest Message Sequence Number previously transmitted. The Message Sequence Numbers in the subsequent two control messages, however, will not be incremented.

Please note that the Market Center Originator ID in the message header for this control message will be "F".

8.0 Trade Message Processing

8.1 Hours of Operation

The ORF hours of operation are 08:00 to 20:00. In order to handle pre-opening and post-closing processing, the TDDS operational hours will be slightly longer. Please refer to Appendix B for the current TDDS Schedule of Transmissions.

8.2 Scope of Data

FINRA currently disseminates trade data for the following classes of securities via the TDDS data feed:

- Securities quoted via the OTC Bulletin Board (OTCBB) service; and
- Non-NASDAQ OMX over-the-counter (OOTC) securities traded via the US over the counter markets by FINRA member firms.

The scope of data varies by security class. FINRA will provide files containing Security Master and Daily List updates via API. Technical specifications for the API process can be found on the FINRA.org website: http://www.finra.org/Industry/Compliance/MarketTransparency/ORF/Forms/index.htm.

8.2.1 OTCBB Securities

OTCBB is a regulated quotation service that displays real-time quotes, last-sale prices, and volume information in over-the-counter (OTC) equity securities. An OTC equity security generally is any equity that is not an NMS stock, as that term is defined in Rule 600(b) of SEC Regulation NMS. OTCBB securities include domestic and foreign equity securities, warrants, units, American Depositary Receipts (ADRs), and Direct Participation Programs (DPPs).

TDDS carries real-time trade data as well as end-of-day summary data for all classes of OTCBB securities.

8.2.2 OOTC (Other OTC) Securities

The FINRA is the regulator of the U.S. over-the-counter markets. In this role, FINRA has contracted with NASDAQ OMX for its members to use ORF to report trade transactions in non-OTCBB securities that trade via the US over-the-counter market (OOTC). The OOTC security types reported via TDDS include domestic and foreign equity securities, warrants, units, American Depositary Receipts (ADRs), and Direct Participation Programs (DPPs).

On November 1, 2010, TDDS began carrying real-time data for all OOTC equities reported via ORF.

Prior to October 31, 2010, FINRA limited the data dissemination for non-exchange-listed DPPs to daily summary reports only. Prior to October 27, 2008, FINRA also limited TDDS dissemination for foreign and ADR securities traded OOTC.

8.3 Intra-Day Trade Processing

The U.S. market session runs from 09:30 to 16:00. During the US Session, market participants are required by rule to report transactions to ORF within a set number of seconds of execution.

Market participants are also required to report trades executed during the pre-market session (from 08:00 to 09:29:59) and post-market session (16:00 to 20:00) within a set number of seconds of execution. Please note that trades that occurred during the pre- and post-market sessions should be reported with a sale condition modifier of "T" or "U".

8.3.1 Market Center Originator ID

In the TDDS message header, there is a two-character Market Center Originator ID field. This field will be used to identify the market center that initiates the trade message. Please note that this field is case sensitive. The associated values for these two classes of securities are as follows:

Code	Value
U (upper case)	OTCBB
u (lower case)	Other OTC Security (OOTC)

For certain Control messages, this field may contain an "F" when the message is applicable to both market centers.

8.4 Message Contents

All trade-related messages will contain the following data fields:

- Security Symbol
- Sale Condition Modifier
- Price and Price Denominator
- Report Volume
- Price Change Indicator

8.4.1 Sale Conditions

The Sale Condition field used to indicate the type of transaction entered by a market participant. On the Trade Report Long Form version, the Sale Conditions are divided into 4 fields (with the Level 2 field reserved for future use). For a description of each modifier, please refer to Appendix A – Glossary of Terms. Market data subscribers may use this field to determine when to update the high, low, and last sale prices and volume for a security.

Sale Condition 1 is a settlement modifier that reflects the period in which the trade settles between the parties. Note: a value of R will incorporate the Seller's Sale Days to denote the number of days until the trade settles.

Sale Condition 3 is a time modifier that reflects whether the trade was executed outside of market hours, executed during market hours and reported late or executed outside of market hours and reported late. Absence of a value indicates the trade was executed during market hours and reported within the required timeframe from execution.

Sale Condition 4 is a trade modifier that reflects a special characteristic of the trade that has a bearing on the price and/or quantity of the execution.

The Sale Condition Matrix is as follows:

Sale Condition 1 Code	Description	Update High/ Low Price	Update Last Sale Price	Update Volume
@	Regular Sale	Yes	Yes	Yes
C	Cash Sale	No	No	Yes
N	Next Day	No	No	Yes
R	Seller	No	No	Yes
Sale Condition 3 Code	**Description**	**Update High/ Low Price**	**Update Last Sale Price**	**Update Volume**
Z	Executed During Normal Market Hours and Trade Reported Late	Yes	No *	Yes
T	Executed Outside Normal Market Hours	No	No	Yes
U	Executed Outside Normal Market Hours and Trade Reported Late	No	No	Yes
< > (Space)	Trade is not Z, T or U			
Sale Condition 4 Code	**Description**	**Update High/ Low Price**	**Update Last Sale Price**	**Update Volume**
I	Odd Lot Trade	No	No	Yes
W	Average Price Trade	No	No	Yes
P	Prior Reference Price	Yes	No*	Yes
< > (Space)	Trade is not I, W or P			

If there is a single asterisk (*) in the table above, market data vendors should only update the field values if the trade is the first last sale eligible trade of the business day.

If there is a double asterisk (**) in the table above, market data vendors should only update the value if the original message was received prior to 16:00:10.

8.4.2 Price

FINRA has established a minimum price variation (MPV) of $0.0001 for all media-reportable trade transactions. It should be noted that market participants are permitted to enter ORF trade reports in increments as small as $0.000001. If a trade is entered at a price below the stated MPV, FINRA will round trade reports to the nearest MPV for public dissemination. It is, therefore, possible for TDDS to carry a zero price for an OTCBB or OOTC security that is trading for less than $0.00005.

8.4.3 Pricing Formats

The following table identifies the decimal point placement for the price fields. The available values are as follows**:**

Code	Denominator Value	Breakdown for Long (10byte) Price Field		Breakdown for Short (6 byte) Price Field	
		Whole Dollar Digits	Decimal Digits	Whole Dollar Digits	Decimal Digits
A	10	11	1	5	1
B	100	10	2	4	2
C	1000	9	3	3	3
D	10,000	8	4	2	4
E	100,000	7	5	1	5
F	1,000,000	6	6	0	6
G	10,000,000	5	7	N/A	N/A
H	100,000,000	4	8	N/A	N/A
I	N/A	12	0	N/A	N/A

How to Use Tables:

The price denominator field is designed to inform TDDS subscribers how to breakdown and read the price field. The following example is provided to ensure that customers understand the interdependency of these two fields.

Example: The price field in a short-form trade reads "000111".

If the price denominator code is A, the price should be stated in decimal format with the first 5 digits representing number to be shown to the left of the decimal point and the last digit representing the number to be shown to the right of the decimal point. In this example, the translated price would be $11.1. (Note: Programmers may want to code their systems to add a zero for this code so that the price is displayed as $11.10.)

If the price denominator code is B, the price should be stated in decimal format with the first 4 digits representing number to be shown to the left of the decimal point and the last 2 digits representing the number to be shown to the right of the decimal point. In this example, the translated price would be $1.11.

If the price denominator code is C, the price should be stated in decimal format with the first 3 digits representing number to be shown to the left of the decimal point and the last 3 digits representing the number to be shown to the right of the decimal point. In this example, the translated price would be $0.111. (Note: FINRA strongly recommends that firms show the decimal prices to the granularity at which they are disseminated on the data feed.)

If the price denominator code is D, the price should be stated in decimal format with the first 2 digits representing number to be shown to the left of the decimal point and the last 4 digits representing the number to be shown to the right of the decimal point. In this example, the translated price would be $0.0111. (Note: FINRA strongly recommends that firms show the decimal prices to the granularity at which they are disseminated on the data feed.)

8.4.4 Volume

The trade message contains only the share volume as reported by the market participant for an individual transaction. While TDDS provides the Total Security Volume field in the Trade Correction, Trade Cancel/Error, and Closing Trade Summary Report formats, it does not provide this statistic on a tick-by-tick basis.

To show an aggregated volume, market data vendors are responsible for performing the calculation on their end. Firms should factor trade cancel/error and trade correction as well as trade report messages into their algorithm.

8.4.5 Price Change Indicator

TDDS trade messages contain a Price Change Indicator field to denote which daily prices to update as a result of the transaction. The Change Indicator field is included on the Trade Report, Trade Correction, and Trade Cancel/Error message formats. The associated values for this field are as follows:

Code	Value
0	No price changed
1	Last price changed
2	Low price changed
3	Last and Low prices changed
4	High price changed
5	Last and High prices changed
6	High and Low prices changed
7	All prices changed

The Long Form version of the Trade Report message contains additional fields to identify uncommon characteristics to a trade. The long form is used for the following circumstances:

- Prior Day As-Of trade reports and trade reversals
- Trades with multiple Sale Conditions
- Price and/or Volume exceed the format allowed in the Short Form
- Trades of symbols exceeding 5 characters

8.5 Prior Day As-Of Trade and Reversal Processing

When the As/Of indicator contains the value "A", the message represents a trade which executed earlier than the current day but was not reported on that day. Transactions reported As-Of will include the Execution Date/Time.

When the As/Of indicator contains the value "R", the message represents a reversal (cancellation) of a trade which was reported and disseminated prior to the past 3 business days (cancels of trades reported within the past 3 rolling business days and the current day will be disseminated via a Trade Cancel message. See section 8.6 for details). On reversals, the Original Dissemination Date will reflect the date when the original trade was reported and disseminated.

Prior Day As-Of trades and reversals are provided for public disclosure and can materially affect the statistical values (high/low/last/volume) previously disseminated for the given day. These reports are intended to provide transparency and it is the responsibility of each direct data recipient to determine how to adjust historical data within their systems.

8.6 Trade Correction and Trade Cancel/Error Processing

If a transaction was misreported, a market participant may enter a cancel or correct the message. In the outbound message format of the Trade Cancel/Error and Trade Correction messages, TDDS includes the Original Message Sequence Number (MSN) and trade characteristics to enable the data fed subscriber to properly mark or remove the incorrect transaction from their database. If the original message sequence number is unavailable (e.g., due to an intra-day message sequence number reset), TDDS will show the Original MSN field as zero-filled. If the Original MSN is unavailable, the subscriber may attempt to locate the transaction by using the trade characteristics (i.e., market center, price, sale condition, and report volume) in the original trade section of the message format. Current day Cancels and Corrections will contain a value in the Price Change Indicator to reflect if the high, low and/or last sale price is impacted by the transaction.

TDDS will also disseminate prior day Cancels and Corrections of trades reported and disseminated within the past 3 rolling business days. In these cases, the Original Dissemination Date will reflect the date the original trade was disseminated (within the past 3 rolling business days) and the Original Message Sequence Number will reference the Message Sequence Number that was used in the dissemination of that original trade report on that day.

Prior day Cancels and Corrections are provided for public disclosure and can materially affect the statistical values (high/low/last/volume) previously disseminated for the given day. The Price Change Indicator will not be populated on these transactions. These reports are intended to provide transparency and it is the responsibility of each direct data recipient to determine how to adjust historical data within their systems.

8.7 Net Change Calculation

FINRA only disseminates a net change indicator field on the TDDS data feed as part of the closing trade summary report message. Intra-day, TDDS recipients must perform their own calculation for last sale-eligible trades if they wish to show net change. The formula should be as follows:

Net Change for Security Symbol = Current Trade Price - Adjusted Previous Close Price

To obtain the Adjusted Previous Close, market data vendors will need to apply dividends to the Closing Price field from the prior day's Closing Trade Summary Report message. As noted above, market data vendors may obtain dividend information from the OTCBB Daily List page. Dividend adjustments are typically applied to the closing price on the day prior to ex-date and reflected on the ex-date, the next business day. Cash dividends of $0.01 or greater should be subtracted from the closing price. For stock dividends, the closing price should be divided by the dividend amount.

For Initial Public Offerings (IPOs), TDDS subscribers should use the IPO price as established by the issuer as the basis for the net change calculation. IPO price information will be relayed via a General Administrative message from FINRA Market Operations via TDDS. If no IPO price is given, firms should use the price of the first last sale-eligible trade from the primary market center as the basis for the net change calculation. Please refer to section 9.2.2 for information on how IPO prices are provided on TDDS.

9.0 Message Processing Guidelines – Administrative

9.1 Overview

FINRA supports five types of administrative messages on TDDS:

- General Administrative (Free-Form Text Messages)
- TDDS Closing Summary Report Messages
- Security Trading Action Messages
- Extraordinary Market Event Trading Action Messages
- Market Wide Circuit Breaker Trading Action Messages

9.2 General Administrative Messages (Category A – Type A)

The General Administrative Message (Category A – Type A) is a free form text message used to notify TDDS subscribers of market events or special trading situations. The length of the Administrative Message is variable but cannot exceed a maximum of 300 characters. FINRA may generate the General Administrative Message format on an as-needed basis.

Since the General Administrative Message is a flexible format message, it is up to the individual data feed subscriber to decide how to process these messages. Firms may wish to code their systems to generate a systems alert for data operations as manual processing of the General Administrative message may be required.

In general, the General Administrative Message format is intended to relay market information that does not easily lend itself to fixed message formats. FINRA may use the General Administrative Message to relay IPO data and trading extension information to TDDS subscribers. Since there are no other messages that carry this news, TDDS subscribers must read and process these administrative messages. To help subscribers, FINRA Market Operations will use the following language whenever possible:

9.2.1 Message Text for Trade Reporting Extension

The TDDS Trade Reporting System has the capability to extend trade reporting hours beyond the normal close time. If FINRA elects to extend ORF trade reporting hours, an Administrative message will be transmitted on the TDDS line at the time the extension is entered into the TDDS system. The text field of these Administrative messages will be:

//TRADE/REPORTING/HOURS/EXTENDED

All Trade Reports entered during the extended hours, (i.e., from normal close time until the extended hour's closing time) will be transmitted on the line as Out of Sequence Trades.

At the extended closing time, the End of Trade Reporting Control Messages will be sent. The remainder of the transmission scenario will follow in normal sequence, except that the scheduled times will be extended by the same increment that was applied to the time for the End of Trade Reporting Control Messages.

9.2.2 IPO Message Text

FINRA Market Operations will send an administrative message to give the initial trading price for a new listing. At the request of market data vendors, FINRA Market Operations has defined standard language for these administrative messages.

For Initial Public Offerings (IPOs), the standard text is as follows:

IPO PRICE at [time quoted] [symbol] [IPO Price]

For new securities that previously traded on another market center, the standard text is as follows:

SEASONED SECURITY FIRST TRADE PRICE [symbol] [price]

9.3 Closing Trade Summary Report Message (Category A – Type 2)

For end-of-day vendors, FINRA supports a Closing Trade Summary Report on the TDDS 2.0 data feed. This administrative message is intended to provide the high, low, and last sale prices as well as volume for OTCBB and OOTC securities.

- Securities which traded, and whose transactions were disseminated during the current business day and whereby the transactions impacted the high, low, and volume but not last sale price for the security, will be included in the closing report.
- Securities which traded, but whose transactions were not disseminated during the current business day, will be included in the closing report with statistical values of 0 in each field.

The TDDS Closing Trade Summary Report will be disseminated twice during the business day.

- The first closing report at 5:20 p.m., ET, reflects the preliminary closing price values for OTCBB and OOTC securities.
- The second closing report at 20:10 p.m., ET, reflects the final high, low, and last sale prices as well as volume for OTCBB and OOTC securities.

Specific information included in the TDDS Closing Trade Summary Report consists of:

- **Daily High Trade Price** – This field reflects the price of the highest trade price entered for the security during the regular trading session. Please note that firms should process the 20:10 p.m., ET, spin for the final values for the high, low, and last sale prices.
- **Daily Low Trade Price** – This field reflects the price of the lowest trade price entered for a security during the regular trading session.

- **Last Sale Price –** This field reflects the price of the final last sale-eligible trade entered for the security during the regular trading session.
- **Net Change Amount–** This field reflects the price movement for a security during the trading session from the previous day's adjusted close.
- **Net Change Direction-** This field reflects if the net change amount for the day is positive or negative.
- **Total Security Volume** – This field reflects the final share volume for the security for the session in the TDDS Closing Report message. Please note that the US session volume includes ".T" trade report Volume from the pre-and post-market periods.

Please note that, prior to November 1, 2010, due to FINRA rules, no real-time trade data is available on TDDS for the non-exchange-listed Direct Participant Programs (DPPs) class of securities; for this class of security, the outbound data dissemination is limited to the end-of-day trade summary message on TDDS. Effective November 1, 2010, real-time trade data will be available on TDDS for non-exchange-listed DPPs.

9.4 Trading Action (Security)

Under Rule 6440 FINRA has the authority to initiate trading and quotation halts in OTCBB and Other-OTC equity securities.

When FINRA institutes or lifts a trading halt for an individual security it will notify vendors via the Trading Action (Category A – Type H) message. FINRA may also use the Trading Action message for OTCBB securities if a security is held from dissemination due to operational reasons.

The Security Trading Action Message (Category A – Type H) contains the following fields:

Security Symbol 14	Action 1	Action Date/Time 17	Reason Code 6

As defined in Section 6 of this document, there are four types of trading actions:

Code	Value
H	Trading Halt
Q	Quotation Resumption
T	Trading Resumption
X	Quotation and Trading Resumption

When a trading halt for an individual security is instituted, TDDS will send a Trading Action message with an Action field value of "H". Upon receipt of the Trading Action

- Halt message, market data distributors should show a halt indicator on all real-time quotation and trade data displays for the affected security symbol and identify all quotes in the symbol as closed. If the halted security is quoted via the OTCBB system, the Trading Action message will be followed by a series of zero quotations on the BBDS data feed for all Market Participants registered in the security. Within the
quotation messages, FINRA will denote that the Inside Market must also be zeroed out.

NOTE: Since FINRA does not control the quotation media for Other OTC Equity securities, it will fall to the quotation medium or market data redistributor to clear quotation displays as needed for those securities.

Within the Trading Action A-H message, FINRA will denote the reason for the trading action message. The allowable Reason Code values are:

Reason Code	Description
01	Operational Halt
H10	Halt - SEC Trading Suspension
H11	Halt – Regulatory Concern
H12	Halt – SEC Revocation
U1	Halt – Foreign Market/Regulatory
U2	Halt – Component/Derivative of Exchange-Listed Security
U3	Halt – Extraordinary Events
D1	Security Deleted from OTCE
T3	Halt – News and Resumption Times
Space	Reason Code not available

FINRA may send multiple trading halt messages for a security if the Reason Code changes, and TDDS will generate a new Trading Action message whenever one of the attributes (Action, Reason Code) within the system changes. The Action Date/Time field within the Trading Action message would reflect the time of the most recent attribute change. The length of a trading halt can vary from security to security.

If a trading halt spans multiple days, TDDS will disseminate a Trading Action message at the start of each business day. Trading Action messages disseminated at the start of each business day may have space-filled Action Date/Time and Reason Code fields.

Depending on the marketplace, when a security is ready to resume trading, TDDS will send a new Trading Action message. At its discretion, FINRA Operations may offer a positioning (quote only) window for market participants before trading resumes in a security. At the start of the positioning window, TDDS will send a Trading Action message with an Action value of "Q". During this positioning period, members may enter quotations for the security. Upon receipt of the Trading Action – "Quotation Resumption" message, market data distributors should display a quotation resumption indicator on all real-time quotation displays for the affected

security. During the positioning window FINRA members will not be allowed to trade by rule.
As market participants update their quotes, an inside may be disseminated via BBDS; however it will contain an Inside Quote Condition of "C" for Closed.

NOTE: Since FINRA does not control the quotation media for non-OTCBB securities, it will fall to the quotation medium or market data redistributor to identify quotations during this window as closed or otherwise non-actionable.

Once a security can begin trading, TDDS will send another Trading Action message with an Action value of "T" to indicate that trading is now allowed in the security. Upon receipt of this message, market data distributors should remove any "halt" or "held" status indicator from real-time data displays for the security. Once the "T" action value is disseminated, FINRA members may resume normal quoting and trading in the security.

9.5 Trading Action (Extraordinary Market Event -EMC) Messages (Category A – Type M)

When FINRA institutes or lifts an Extraordinary Market Event (EMC) trading action it will notify vendors via the Trading Action (Category A – Type M) message on TDDS.

FINRA produces EMC messages when there are extraordinary market-wide conditions that necessitate a halt in OTCBB and/or Other OTC quoting and trading activity.

FINRA may impose a trading and quotation halt in OTC equity securities pursuant to Rule 6440(a) (3) if it determines that halting trading in a single security, group of securities or all OTC equity securities is the appropriate mechanism to protect investors and ensure a fair and orderly marketplace.

NOTE: With the transition of ORF data to FINRA's MPP Platform OTCBB and Other OTC EMC halt information will be supported on TDDS only and will no longer be available via BBDS.

The EMC Trading Action Message (Category A – Type M) contains the following fields:

Action	Action Date/Time	Reason Code
1	17	6

As defined in Section 6 of this document, there are four types of trading actions:

Code	Value
H	Trading Halt
Q	Quotation Resumption
T	Trading Resumption
X	Quotation and Trading Resumption

When a trading halt for due to an extraordinary market event occurs TDDS will send a Trading Action message with an Action field value of "H". The Market Center Originator field within the message header will state which market(s) are affected by the EMC halt (i.e. OTCBB only, all OTC equity securities or both). Upon receipt of the Trading Action - Halt message, market data distributors should show a halt indicator on all real-time quotation and trade data displays for all securities affected by the halt and identify all quotes as closed. The Inside Market should also be identified as closed.

NOTE: Since FINRA does not control the quotation media for non-OTCBB securities, it will fall to the quotation medium or market data redistributor to clear quotation displays as needed.

If an EMC trading halt spans multiple days, TDDS will NOT re-disseminate a Trading Action message at the start of each business day.

Within the Trading Action A-M message, FINRA will denote the reason for the trading action message. The allowable Reason Code values are:

Reason Code	Description
U4	Extraordinary Market Condition (EMC)Halt
U5	Market Wide Circuit Breaker (MWCB) Halt
C13	Quote Resume for EMC or MWCB
C14	Quote and Trade Resume for EMC or MWCB
Space	Reason Code not available

When an EMC is being lifted and all securities are ready to resume trading, TDDS will send a new Trading Action message. At its discretion, FINRA Operations may offer a positioning (quote only) window for market participants before trading resumes in the securities. If this occurs, at the start of the positioning window, TDDS will send a Trading Action message with an Action value of "Q". During this positioning period, members may enter quotations for all securities affected by the EMC halt. During the positioning window FINRA members will not be allowed to trade by rule.

Upon receipt of the Trading Action – "Quotation Resumption" message, market data distributors should display a quotation resumption indicator on all real-time quotation displays for the affected securities. As market participants update their quotes, an inside may be disseminated via BBDS; however it will contain an Inside Quote Condition of "C" for Closed.

NOTE: Since FINRA does not control the quotation media for non-OTCBB securities, it will fall to the quotation medium or market data redistributor to identify quotations during this window as closed or otherwise non-actionable.

Once the securities can begin trading, TDDS will send another Trading Action message with an Action value of "T" to indicate that trading is now allowed in the securities.

Upon receipt of this message, market data distributors should remove any "halt" or "held" status indicator from real-time data displays for the securities. Once the "T" action is disseminated, FINRA members may resume normal quoting and trading in the securities.

9.6 Trading Action (Market Wide Circuit Breaker -MWCB) Messages (Category A – Type M)

When FINRA institutes or lifts a Market Wide Circuit Breaker (MWCB) trading action it will notify vendors via the Trading Action (Category A – Type M) message on TDDS.

FINRA produces MWCB messages when there is extreme market volatility that will necessitate a halt in quoting and trading for all OTC equity securities for a period of time.

The MWCB Trading Action Message (Category A – Type M) contains the following fields:

Action	Action Date/Time	Reason Code
1	17	6

As defined in Section 6 of this document, there are four types of trading actions:

Code	Value
H	Trading Halt
Q	Quotation Resumption
T	Trading Resumption
X	Quotation and Trading Resumption

When a MWCB trading halt occurs TDDS will send a Trading Action message with an Action field value of "H". The Market Center Originator field within the message header will state which market(s) are affected by the MWCB (This type of event will be all OTC equity securities). Upon receipt of the Trading Action - Halt message, market data distributors should show a halt indicator on all real-time quotation and trade data displays for all OTC equity securities and identify all quotes as closed.

NOTE; Since FINRA does not control the quotation media for non-OTCBB securities, it will fall to the quotation medium or market data redistributor to clear quotation displays as needed.

If a MWCB trading halt spans multiple days, TDDS will NOT re-disseminate a Trading Action message at the start of each business day.

Within the Trading Action A-M message, FINRA will denote the reason for the trading action message. The allowable Reason Code values are:

Reason Code	Description
U4	Extraordinary Market Condition (EMC)Halt
U5	Market Wide Circuit Breaker (MWCB) Halt
C13	Quote Resume for EMC or MWCB
C14	Quote and Trade Resume for EMC or MWCB
Space	Reason Code not available

When the MWCB is being lifted and all securities are ready to resume trading, TDDS will send a new Trading Action message with an Action value of X which will allow quoting and trading to begin simultaneously. Upon receipt of this message, market data distributors should remove any "halt" or "held" status indicator from real-time data displays for the securities.

10.0 Format Release and Testing Information

10.1 Release Notification

To keep pace with the changing business environment, FINRA may modify its data feed format specifications for direct data feed customers. In advance of each release, FINRA will notify its direct connect customers of the format change via an ORF Technical Notice on the FINRA.org web site. In the notice, FINRA will outline the scope of the changes as well as the testing and release schedule. Direct connect customers are required to modify and test their code based on FINRA notices.

10.2 Types of Testing

In advance of each release, FINRA will offer test data for its direct data feed customers to be used for quality assurance (QA) purposes. Depending on the scope of the changes, the testing period can range from one day to a longer period of time. For its data feed customers, FINRA offers the following type of testing opportunities:

- *Saturday production tests:* In advance of major releases, FINRA will conduct user acceptance tests (UATs) on select Saturdays for its market participants. As market participants enter information into its production systems, FINRA will broadcast this test data in the new data formats to direct data feed subscribers only. Prior to each UAT, FINRA will post a technical notice with the registration information.

FINRA strongly recommends that <u>all</u> direct subscribers use these testing opportunities to check their hardware and software applications. During the testing phase, FINRA may ask market data vendors or market participants to provide status updates and/or submit testing verification forms as part of the QA process.

10.3 Identification of test data

During normal operational hours, FINRA will identify test data in one of the following two ways:

- *Test Retransmission Requester:* In section 3.4 of this document, FINRA provides for a test retransmission requester for its data feed message header.

- *Test Symbols:* FINRA may also send out intra-day test data using special security symbols and market participant identifiers on its data feeds. Test securities are identified within the symbol Directory on FINRA.org.

During non-market hours, FINRA will broadcast unmarked test data on its direct data feeds. Customers should take necessary precautions to protect their systems against database corruption during evenings, weekends, and market holidays. Please refer to the Appendix B of this document for the current data feed transmission schedule.

Appendix A – Glossary of Terms

Bulletin Board Dissemination Service (BBDS)	BBDS is a real-time market data feed designed to carry FINRA market participant and Inside quotation data for OTC Bulletin Board (OTCBB) securities. BBDS is a complimentary data feed product to TDDS. Both feeds are included as part of the Level 1 entitlement fees.
Financial Industry Regulatory Authority (FINRA)	The self-regulatory organization (SRO) of the securities industry responsible for the regulation of the over-the-counter markets. The FINRA operates under the authority granted it by the 1938 Maloney Act Amendment to the Securities Exchange Act of 1934. *[Note: Prior to July 2006, this SRO went by the name of the National Association of Securities Dealers (NASD).]*
High Price	The highest trade price reported to ORF with an eligible sale condition modifier received by any market participant.
Last Sale Price	The latest trade transaction, with an eligible sale condition modifier, received by ORF from a market participant.
Level 1 Entitlement:	Level 1 is a market data entitlement that is offered by market data redistributors. Under the Level 1 entitlement fee, redistributors are allowed to provide a subscriber with the best bid and offer (BBO) quotations and last sale trade data for NASDAQ OMX-listed securities as well as market participant quotations, Inside quotations, and last sale data for OTCBB securities. To create a Level 1 entitlement, a firm would need to process the Bulletin Board Dissemination Service (BBDS) and Trade Data Dissemination Service (TDDS) data feeds for OTCBB security information as well as the UTP Quotation Data Feed (UQDF) and UTP Trade Data Feed (UTDF) for NASDAQ OMX security data.
Level 1 Data Feed	Legacy NASDAQ OMX data feed product that featured real-time market participant and BBO quotes for OTC Bulletin Board (OTCBB) securities as well as end-of-day price data from the Mutual Fund Quotation Service (MFQS). Level 1 was retired in 2003 when OTCBB quotation data was migrated to the BBDS data feed product. Please note that, while the Level 1 data feed was retired, NASDAQ OMX continues to offer a Level 1 entitlement product via market data redistributors. (See definition above.)

OTC Bulletin Board (OTCBB)	OTCBB is a regulated quotation service that displays real-time quotes, last-sale prices, and volume information in over-the-counter (OTC) equity securities.
OTC Reporting Facility (ORF)	System designed to capture trade data for OTC equity securities from FINRA member firms. ORF previously was known as the FINRA/NASDAQ OMX Automated Transaction Confirmation Service (ACT).
OTC Markets	OTC Markets offers an electronic quotation media for over-the-counter securities that is separate and distinct from OTCBB. OTC Markets is a privately owned company located in New York, NY, and is not affiliated with NASDAQ OMX or FINRA in any way. For more information, please refer to http://www.otcmarkets.com/.
Previous Closing Price	The consolidated closing price from the prior business day that has been adjusted for ex-dividends.
Sale Condition	A modifier that denotes the type of transaction being reported by the FINRA member to the ORF. There are three separate sale condition modifiers supported in TDDS. he allowable values are:
Average Price Trade (W)	A trade where the price reported is based upon an average of the prices for transactions in a security during all or any portion of the trading day.
Cash Sale (C)	A transaction that calls for the delivery of securities and payment on the same day the trade took place.

Odd Lot (I)	A trade executed for less than the security's defined round lot size. These trades will not update the high, low or last sale prices, but do impact the volume for the security.
Executed Outside Normal Market Hours (T)	A trade executed before or after the regular US market hours. Please note that the Executed Outside Normal Market Hours modifier should be appended to all transactions that occur during the pre- and post-market sessions. The volume of Executed Outside Normal Market Hours trades will be included in the calculation of consolidated and market center volume. The price information in Executed Outside Normal Market Hours trades will not be used to update high, low and last sale data for individual securities or indices since they occur outside of normal trade reporting hours.
Next Day (N)	A transaction that calls for the delivery of securities between one and four days (to be agreed by both parties to the trade - the number of days are not noted with the transaction) after the trade date.
Prior Reference Price (P)	An executed trade that relates to an obligation to trade at an earlier point in the trading day or that refers to a prior referenced price. This may be the result of an order that was lost or misplaced or was not executed on a timely basis.
Seller (R)	A Seller's option transaction is a special transaction that gives the seller the right to deliver the stock at any time within a specific period, ranging from not less than three ~~four~~ calendar days to not more than sixty calendar days.
Executed During Normal Market Hours and Trade Reported Late (Z)	Executed During Normal Market Hours and Trade Reported Late are used for trades transacted between 9:30 a.m. and 4:00 p.m. and reported to ORF more than 10 seconds after execution.
Executed Outside Normal Market Hours and Trade Reported Late (U)	Executed Outside Normal Market Hours and Trade Reported Late are used for trades transacted before 9:30 a.m. or after 4:00 p.m. and reported to ORF more than 10 seconds after execution.

SIP	Abbreviation for Security Information Processor. The firm that collects quotation and trade information from all exchanges and markets in listed securities and disseminates resultant data feed(s) to the public.
Trade Data Dissemination Service (TDDS)	The TDDS data feed product is designed to carry trade-related data for OTCBB and OOTC security transactions reported by FINRA member firms. This data feed replaced NTDS as the primary source of trade data for over-the-counter equity securities.
UTP Quote Data Feed (UQDF)	This SIP data feed product carries the UTP participant BBO and National BBO quotations for NASDAQ OMX listed securities.
UTP Trade Data Feed (UTDF)	This SIP data feed product carries the trade transaction data from all market participants (including Market Makers, ECNs, and UTP participants) for NASDAQ OMX listed securities. This data feed replaced NTDS as the primary source of consolidated trade data for NASDAQ OMX listed securities.

Appendix B – TDDS 2.0 Transmission Schedule

Note: All times referenced regarding TDDS *are approximate and are stated in US Eastern Time. This transmission schedule is based on a normal trading day. FINRA reserves the right to alter this schedule as necessary with minimal advance notice.*

The TDDS transmission schedule is as follows:

Time	Transmission	Message Category	Message Type	Session ID	Market Center Orig
07:00	Start of Day Control Message	C	I	A	E
07:01	Start of Day Control Message	C	I	A	E
07:02	Start of Day Control Message	C	I	A	E
07:30	Trading Action Spin (Pre-opening spin at 07:30 of Securities in a held state)	A	H	U	U, u
07:30 to 18:35	Trading Action or Extraordinary Market and MWCB Halt/Resume Messages (Disseminated on as-needed basis; Trading Action messages affect a single security; Extraordinary Market and MWCB Halt/Resume messages affect all securities)	A A	H M	U U	U, u U, u or F
08:00 - 09:30	US Session ".T" and ".U" Trades, Trade Corrections, and Trade Cancel/Errors	T	5, 6, 7, 8	U	U, u
09:30	US Market Session Open Message	C	O	U	F
09:30 - 16:00:10	US Session – Last sale eligible Trade Reports, Trade Corrections, and Trade Cancel/Errors	T	5, 6, 7, 8	U	U, u
16:00	US Market Session Closed Message	C	C	U	F
16:00 – 20 :05	US Session ".T" and ".U" Trades, Trade Corrections, and Trade Cancel/Errors	T	5, 6, 7, 8	U	U, u
17:20	First Closing Trade Recap Spin with Preliminary High, Low, and Last Sale Prices	A	2	U	U, u
20:05	End of Trade Reporting Control Message	C	X	U	F
20:06	End of Trade Reporting Control Message	C	X	U	F
20:07	End of Trade Reporting Control Message	C	X	U	F
20 :10	Second Closing Trade Recap Spin with Final High, Low, Last sale Prices and Volume	A	2	U	U, u
20:20	End of Day Control Message	C	J	A	E
20:21	End of Day Control Message	C	J	A	E
20:22	End of Day Control Message	C	J	A	E
20:23	End of Retransmission Control Message	C	K	A	E

Time	Transmission	Message Category	Message Type	Session ID	Market Center Orig
20:24	End of Retransmission Control Message	C	K	A	E
20:25	End of Retransmission Control Message	C	K	A	E
20:26	End of Transmissions Control Message	C	Z	A	E
20:27	End of Transmission Control Message	C	Z	A	E
20:28	End of Transmission Control Message	C	Z	A	E

Notes:

- *FINRA may send out unmarked test data during non-market hours. See section 10 of this document for more information on FINRA testing policy.*

Appendix C – Data Quality Contacts

To assist you with your data quality questions, FINRA has prepared the following list of OTCBB data quality contacts:

Data Issue	Department or Contact Name	Telephone Number
Technical Format and General Data Transmission Questions about OTCBB data feeds	FINRA Product Management	866.899.2107
OTCBB symbol management	FINRA Operations	866.776.0800; option 2
OTCBB corporate actions, dividend, and IPO price information	FINRA Operations	866.776.0800; option 1
Price Verification for OTCBB quotation and trade transactions as well as Trading Action information	FINRA Operations	866.776.0800

Appendix D – Version Control Information

The following table outlines the changes made to the TDDS Interface Specification document since it was originally published on August 4, 2003:

Version	Date	Description of Documentation Change(s)
2003-1	8/4/2003	• Initial Publication
2003-1a	9/2/2003	• Modified Appendix C – Date and Time Translation Table: Time Values, 49 thru 59 were corrected to reflect ASCII values as lowercase alphabetic, "a" thru "k" respectively.
2003-1b	9/15/2003	• Added section 4.8, definition for the reserved field in the message header.
2003-1c	10/9/2003	• Corrected section 4.6 to indicate that "Q" is a valid Market Center Originator ID for select control messages. • Within Section 8, added notes to indicate the Market Center Originator ID associated with each control message.
2004-1	11/19/2004	• Modified section 1 to reflect the quotation data feed changes for OTC Bulletin Board (OTCBB) securities. • Modified sections 2 and 3 to reflect the new MCI Financial Extranet delivery option for NASDAQ OMX data feeds. • Updated to section 7, section 9, and the glossary to reflect the new "U" sale condition value for Extended Hours – Sold Out of Sequence transactions. • Updated section 9 to reflect the new sale condition processing for Average Price ("W") transactions.
2004-1b	12/20/2004	• Updated document to reflect new extranet connectivity options.
2006-1	8/23/2006	• Modified section 1 to reflect the ownership transfer to the NASD. • Modified references to the hours of operation to denote that the ACT hours will be extended to 8 p.m., ET, in the fourth quarter of 2006 (pending SEC approval). • Modified TDDS Transmission Schedule in Appendix B to reflect the revised message timing associated with the ACT hours extension planned for the fourth quarter of 2006.
2006-1a	10/16/2006	• Modified section 1 to add upcoming initiative list. • Updated TDDS bandwidth allocation to 64 Kilobits (Kb) per multicast channel.
2007-1	09/12/2007	• Changed references from National Association of Securities Dealers (NASD) to Financial Industry Regulatory Authority (FINRA). • Updated Appendix B – TDDS Transmission Schedule to reflect new start of day processing times to be implemented in fourth quarter of 2007.
2008-1	9/17/2008	• Modified document to reflect that FINRA will support real-time dissemination of trade data for OOTC foreign and ADR issues effective October 27, 2008. • Updated phone numbers and email addresses for NASDAQ OMX departments.
2008-2	10/29/2008	• Updated section 2.1 to reflect a TDDS bandwidth upgrade. Effective January 26, 2009, FINRA will increase the TDDS

Version	Date	Description of Documentation Change(s)
		bandwidth allocation from 64 Kb to 200 Kb.
2010-1	1/26/2010	• Updated closing report sections to reflect the fact that FINRA has been approved by SEC to extend the trade cancelation and trade correction window for regular market hours transactions to 8:00 p.m., ET, as of April 12, 2010.
2010-2	9/27/2010	• Updated document to reflect that TDDS will begin to support real-time trade data dissemination for non-exchange-listed Direct Participation Program (DPP) securities on November 1, 2010. • Updated document to reflect: o Shortening of FINRA trade reporting window to 30 seconds of execution on November 1, 2010 o FINRA system name change from ACT to ORF. • Updated sale condition value lists: o Removed unused values of "A" (Acquisition), "B" (Bunched), "G" Bunched Sold Trades, "D" (Distribution), "K" (Rule 155 Trade), "L" (Sold Last) , "O" (Opened) and "S" (Split trade). o Updated names for "T", "U" and "Z" to be clearer as to purpose.
2012-1	5/25/2012	• Increased the TDDS bandwidth recommendation from 200 Kb to 500 Kb per data feed channel. • Removed 2010 data feed release description from section 1.
2013-1	7/19/2013	• Added Sale Condition value "I" for Odd Lot trades. This condition will have priority over any other sale condition if more than one sale conditions are present in a single transaction. • Entire document – Changed references of NASDAQ to NASDAQ OMX. • Entire document – Changed references of NNOTC to OOTC.
2013-2	12/12/2013	• Updated Market Center Originator ID code from "Q" to "U" for following TDDS control messages: o Market Center Open o Market Center Close • Updated Market Center Originator ID code from "Q" to "E" for following TDDS control message: o End of Trade Reporting • Updated references for FINRA and NASDAQ OMX as appropriate to reflect current product management structure. • Added EMC Halt and EMC Resume text language in section 9.2.3

Version	Date	Description of Documentation Change(s)
2014 Version 2.0	2/10/2014	**Message Header** • Length increased to 32 bytes • Time field now numeric • Time includes milliseconds Market Center Originator increased to two bytes **Trade Report (Short Form)** • Category T, Type 5; No format changes **Trade Report (Long Form)** • Category T, Type 6 • Now includes current day and T-3 as-of transactions • Now includes Execution Date/Time in the message format • Security Symbol increased to 14 bytes • Now includes four sale condition fields • Trade volume field decreased to 8 bytes • Trade price field increased to 12 bytes **Trade Cancel** • Category T, Type 7 • Now includes current day and T-3 as-of transactions • Now includes Execution Date/Time in the message format to distinguish trades in system from a previous date • Now includes Original Dissemination Date to distinguish trades in the system from a previous day • Security Symbol increased to 14 bytes • Now includes four sale condition fields • Trade volume field decreased to 8 bytes • Trade price field increased to 12 bytes • Currency field eliminated from Summary part of message **Trade Correction** • Category T, Type 8 • Now includes current day and T-3 as-of transactions • Now includes Execution Date/Time in the message format to distinguish trades in system from a previous date • Now includes Original Dissemination Date to distinguish trades in the system from a previous day • Security Symbol increased to 14 bytes • Now includes four sale condition fields • Trade volume field decreased to 8 bytes • Trade price field increased to 12 bytes • Currency field eliminated from Summary part of message **Trade Summary** • Category A, Type 2 • Security Symbol increased to 14 bytes

Version	Date	Description of Documentation Change(s)
		General Administrative • Category A, Type B; No format changes • Remains a fixed format text message of 300 byte character maximum
		Trade Halt (Security) - Category A, Type H - Halt for individual securities - Includes Action; Security Symbol; Date/Time; Reason Code **Trade Halts Spin** - Category A, Type H - Halt spin for individual securities - Includes Action; Security Symbol; Date/Time; Reason Code - Spin takes place at 7:30 a.m. ET **Trade Halt (Extraordinary Market Event)** - Category A, Type M - Extraordinary Market Event Halt (for all securities) - Includes Action; Date/Time; Reason Code **Trade Halt (Market Wide Circuit Breaker)** - Category A, Type M - Market Wide Circuit Breaker Halt (for all securities) - Includes Action; Date/Time; Reason Code **Control Messages** Test Cycle messages removed Market Center Originator changed to "U , u" for the following control messages: - Category C, Type O Market Open - Category C, Type C Market Closed - Category C, Type X End of Trade Reporting **General Statements** New contact listed for Retransmission Request setups New link to FINRA.org website for IP Address Information Transmission Times amended US Session Last Sale Eligibility time changed to 16:00:10 p.m. ET
	3/26/2014	Modified TDDS 2.0 production date throughout document from June 2, 2014 to September 15, 2014
2014 Version 3.0	4/22/2014	Removed Sale Condition 4 values; R – Trade Price Unrelated to Current Market; X – Trade Related to Options Exercises; S – Stopped Stock
2014 Version 4.0	5/20/2014	**Control Messages** Market Center Originator changed to "F" for the following control messages: - Category C, Type O Market Open - Category C, Type C Market Closed - Category C, Type X End of Trade Reporting

Version	Date	Description of Documentation Change(s)
		Market Center Originator for MWCB and EMC trading halt messages which affect both OTCBB and Other OTC securities will be disseminated as "F".
2014 Version 5.0	8/20/2014	Modified TDDS 2.0 production date throughout document from September 15, 2014 to November 17, 2014.
2014 Version 6.0	10/13/2014	Field Definitions Removed the following Reason Code: - T1- Halt- News Pending - T2- Halt- News Dissemination - T12- Halt- Additional Information Requested by NASDAQ - R4- Qualification Issues - R9- Filing requirements satisfied, resolved quote, trade resume - H12- Halt- SEC Revocation - C11- Trading Halt Concluded by Other Regulatory Authority; Quotes, Trade to Resume - D – Security Deletion from OTCBB Added the following Reason Code: - D1 Security Deleted from OTCE Trading Action (Security) Removed the following Reason Code: - T1- Halt- News Pending - T2- Halt- News Dissemination - T12- Halt- Additional Information Requested by NASDAQ - R4- Qualification Issues - R9- Filing requirements satisfied, resolved quote, trade resume - H12- Halt- SEC Revocation - C11- Trading Halt Concluded by Other Regulatory Authority; Quotes, Trade to Resume - D – Security Deletion from OTCBB Added the following Reason Code: - D1 Security Deleted from OTCE Sale Condition 3/Sale Condition 4 - Listed space < > as valid value
2014 Version 7.0	12/16/2014	Modified section 8.4.1 table to remove high, low, last, and volume statistical updates when a space <> is disseminated in Sale Condition 3 or Sale Condition 4 due to the fact that these conditions in and of themselves should not be determining the effect on the relevant statistic. Modified section 9.3 to clarify which securities are included in the TDDS 2.0 Closing Report. Reintroduced the following Field Definition – H12 – Halt – SEC Revocation Reintroduced the following Trading Action Reason Code – H12 – Halt – SEC Revocation
2015 Version 8.0	1/27/2015	Revised sections 8.5 and 8.6 to state that Prior Day As-Of trades and reversals, and trade cancels and corrections are provided for public disclosure and can materially affect the statistical values for a security.
2016 Version 9.0	2/5/2016	Clarified use of Net Direction Change field for Closing Report.

Version	Date	Description of Documentation Change(s)
2017 Version 10.0	3/31/2017	Updated Seller's Option definitions for T+2 Settlement.