



SECURITIES INDUSTRY AUTOMATION CORPORATION

CQS

**CONSOLIDATED QUOTATION SYSTEM
PARTICIPANT INPUT BINARY SPECIFICATION**

**May 18, 2026
Version 2.10**

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR
PARTICIPANT INPUT BINARY SPECIFICATION**

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VERSION HISTORY

Version	Date	Description
1.0	July 1, 2016	Initial Document
1.1	September 15, 2016	<u>Added:</u> <ul style="list-style-type: none"> ▪ New Dedicated Test Symbols
1.2	February 21, 2017	<u>Added:</u> <ul style="list-style-type: none"> ▪ ‘Message Length’ field in Message Header and field description ▪ New ‘Auction Status Category Q Type A’ message and field descriptions ▪ New ‘Auction Collar Price’ and ‘Number of Extension’ Error Codes <u>Eliminated:</u> <ul style="list-style-type: none"> ▪ Administrative Message ‘Text Length’ field (Length is identified in Message Header) <u>Modified:</u> <ul style="list-style-type: none"> ▪ ‘Block Pad Byte’ description to include binary representation ▪ Order of field appearances in Message Header ▪ ‘Reserved’ field length in Message Header ▪ Length of Short Quote format ▪ Minor edits/clarification throughout document/removed verbiage associated with eliminated functionality ▪ Binary and ASCII Protocol Differences and Notes
1.3	May 5, 2017	<u>Added:</u> <ul style="list-style-type: none"> ▪ CBOE Stock Exchange, Inc. (CBSX) Participant ID ‘W’
1.4	June 2, 2017	<u>Added:</u> <ul style="list-style-type: none"> ▪ New Dedicated Test Symbols: ZIEXT, ZEXIT, ZXIET & 01V thru 12V
1.5	August 28, 2017	<u>Modified:</u> <ul style="list-style-type: none"> ▪ Block Sequence Number rollover limited to occur after 999,999,999 (instead of 3,999,999,999) for a transitional period ▪ From: NYSE MKT / To: NYSE American
1.6	February 14, 2018	<u>Modified:</u> <ul style="list-style-type: none"> ▪ From: National Stock Exchange / To: NYSE National, Inc. ▪ From: Bats EDGA Exchange / To: Cboe EDGA Exchange ▪ From: Bats EDGX Exchange / To: Cboe EDGX Exchange ▪ From: Bats BYX Exchange / To: Cboe BYX Exchange ▪ From: Bats BZX Exchange / To: Cboe BZX Exchange ▪ IEX status to Primary Listing Exchange ▪ Security Status Indicator value ‘X’ From: Equipment Changeover / To: Operational ▪ Description of Auction Status message <u>Added:</u> <ul style="list-style-type: none"> ▪ Participant Reference Number requirements previously published in FAQ’S version 1.1, August 24, 2017 https://www.ctaplan.com/tech-specs for easy reference

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VERSION HISTORY - Continued

Version	Date	Description
1.7	May 8, 2018	<p><u>Modified:</u></p> <ul style="list-style-type: none"> ▪ From: Financial Industry Regulatory Authority, Inc. (FINRA) / To: FINRA Alternative Display Facility (ADF) <p><u>Eliminated:</u></p> <ul style="list-style-type: none"> ▪ Binary and ASCII Protocol Differences and Notes
1.8	July 17, 2019	<p><u>Added:</u></p> <ul style="list-style-type: none"> ▪ New Dedicated Test Symbol: CTEST and MTEST
1.9	October 25, 2019	<p><u>Modified:</u></p> <ul style="list-style-type: none"> ▪ From: Chicago Stock Exchange / To: NYSE Chicago, Inc.
2.0	December 4, 2019	<p><u>Added:</u></p> <ul style="list-style-type: none"> ▪ New section “Error Handling” to describe system behavior for handling for various levels of rejects ▪ Trading Status (Category T Type S) message support over CQS <p><u>Modified:</u></p> <ul style="list-style-type: none"> ▪ Block Sequence Number limit to rollover occur after 4,294,967,295 ▪ ‘Data Transmission’ section regarding Incorrect Block handling to reject invalid blocks and disconnect participant line ▪ Description of ‘Participant Reference Number’ field usage for Control Messages ▪ Description of ‘Message ID’ field ▪ List of Reject Codes ▪ Description for Input Line Throttling ▪ Minor edits and clarifications throughout document <p><u>Eliminated:</u></p> <ul style="list-style-type: none"> ▪ Support for ‘Security Status Indicator’ codes via Quote Message for Halt, Resume, No Open/No Resume and Indications ▪ Appendix E describing Security Status Indicators ▪ Control Message ‘End of Participant Quoting (EOPQ) - Category C Type 7’ ▪ Participant’s predesignated closing time configurations to publish closing quote on participant’s behalf ▪ Support for ‘Short Sale Restriction Indicator’ codes via Quote Message for Short Sale Restriction updates ▪ Usage of fields Bid Price and Offer Price in Quote message for submitting Price or Trading Range Indication ▪ Administrative Unformatted (Category A Type H) Message
2.1	January 24, 2020	<p><u>Modified:</u></p> <ul style="list-style-type: none"> ▪ Line Integrity interval for message sent from CQS to Participant ▪ Timeout interval for input lines <p><u>Eliminated:</u></p> <ul style="list-style-type: none"> ▪ Value of 0 from Timestamp 1 field

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Version	Date	Description
2.2	February 5, 2020	<u>Modified:</u> <ul style="list-style-type: none"> ▪ ‘Start of Day’ - clarified that Line Integrity & Sequence Information and Message Count Inquiry messages are accepted prior to Start of Day
2.3	March 27, 2020	<u>Eliminated:</u> <ul style="list-style-type: none"> ▪ Bonds and Local Issues restriction on Short Quotes ▪ Zero Participant Reference Number validation for Control Message
2.4	April 09, 2020	<u>Modified:</u> <ul style="list-style-type: none"> ▪ Clarified Line Integrity timeout interval description
2.5	May 15, 2020	<u>Added:</u> <ul style="list-style-type: none"> ▪ MIAX Pearl Exchange, LLC (MIAX) Participant ID ‘H’ ▪ Members Exchange, LLC (MEMX) Participant ID ‘U’ ▪ Support for non-Regulatory halt reason codes for non-listing participants
2.5a	June 5, 2020	<u>Corrected:</u> <ul style="list-style-type: none"> ▪ Description for Block Sequence number
2.5b	July 22, 2020	<u>Added:</u> <ul style="list-style-type: none"> ▪ Throttling rate for input lines
2.6	August 14, 2020	<u>Added:</u> <ul style="list-style-type: none"> ▪ New Regulatory Halt Reason Codes (A, C, E, F, N, O and V) <u>Modified:</u> <ul style="list-style-type: none"> ▪ Renamed Regulatory Halt Reason Code D from News Dissemination to News Released <u>Eliminated:</u> <ul style="list-style-type: none"> ▪ Unused codes for field ‘Security Status Indicator’ on Quote messages
2.6a	January 26, 2021	<u>Modified:</u> <ul style="list-style-type: none"> ▪ Section for CQS Interface Method to clarify that Input Block Sequence can be reset to a higher sequence number ▪ Clarified that all Halt Reason Codes are currently active
2.6b	Oct 26, 2022	<u>Modified:</u> <ul style="list-style-type: none"> ▪ Added section 1.3 to clarify system behavior during Failure Recovery
2.6c	Dec 16, 2022	<u>Modified:</u> <ul style="list-style-type: none"> ▪ Corrected Symbol Suffix examples under Appendix H to include series U
2.6d	July 7, 2023	<u>Added:</u> <ul style="list-style-type: none"> ▪ Added clarification under section 1.3 for expected behavior upon reconnection following a Failure Recovery
2.6e	Jan 29, 2024	<u>Modified:</u> <ul style="list-style-type: none"> ▪ Removed Test Symbol ‘ZZZ’ and ‘IBO’ and updated Listing Exchange for Test Symbol ‘CTEST’ under Security Symbol Field Description

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Version	Date	Description
2.7	Mar 28, 2024	<p><u>Modified:</u></p> <ul style="list-style-type: none"> ▪ Renamed ‘Limit Up-Limit Down Quote Midpoint’ to ‘Limit Up-Limit Down Reference Price’ throughout the document ▪ Updated input Validation for LULD Reference Price for Category T Type S Trading Status message ▪ Added clarification on the usage of field ‘Last Price / Opening (Reopening) LULD Reference Price’ in the Trading status message
2.7a	June 12, 2024	<p><u>Modified:</u></p> <ul style="list-style-type: none"> ▪ Updated CQS Configuration diagram under Appendix A to remove reference to ‘ICE Global Network’
2.7b	August 30, 2024	<p><u>Modified:</u></p> <ul style="list-style-type: none"> ▪ Updated Security Status Market on Close Imbalance to Closing Imbalance
2.8	May 2, 2025	<p><u>Modified:</u></p> <ul style="list-style-type: none"> ▪ Bid/Offer Size fields in Quote messages to support values in shares instead of lots ▪ Bid/Offer Size field description to include round lot size 40 ▪ Error handling to include new reject (error code 112) for quote messages if Bid or Offer size is not represented in shares ▪ Renamed NYSE Chicago to NYSE Texas and updated Listing Exchange for test symbol MTEST to NYSE Texas
2.8a	June 6, 2025	<p><u>Added:</u></p> <ul style="list-style-type: none"> ▪ 24X National Exchange LLC (24X) Participant ID ‘G’
2.9	August 6, 2025	<p><u>Eliminated:</u></p> <ul style="list-style-type: none"> ▪ Discontinued support for current Quote messages <p><u>Added:</u></p> <ul style="list-style-type: none"> ▪ Overview of odd lot quotes and handling of new message types ▪ New Round Lot Quotes messages to replace current quote messages ▪ New Odd Lot Quote messages ▪ New Odd Lot Quote Appendages ▪ New Partial Reject message ▪ New Refresh Request Control message ▪ Best Odd Lot Order (BOLO) overview ▪ New Field Descriptions ▪ New reject reason codes for odd lot quotes <p><u>Updated:</u></p> <ul style="list-style-type: none"> ▪ Sections for Failure Recovery and Trading Status to provide guidance to Participants related to odd lot quotes ▪ Error Handling section to include errors details that can impact an input connection
2.9a	August 14, 2025	<ul style="list-style-type: none"> ▪ Updated overview of odd lot quotes to include considerations for “Exemptive Quote Relief” for odd lot quotes

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Version	Date	Description
2.9b	January 29, 2026	<ul style="list-style-type: none">▪ Updated maximum supported value for Price fields under Field Description▪ Updated overview of odd lot quotes to clarify that only one odd lot quote is allowed per Participant for Day 1▪ Added Participant Code for Texas Stock Exchange
2.10	May 18, 2026	<ul style="list-style-type: none">▪ Updated to support Extended Trading Hours (see Appendix J):<ul style="list-style-type: none">○ Updated Hours of Operations and event schedule○ Introduced Overnight Price Bands during Extended Trading Hours○ Incorporated explicit publication of Halts and Short Sale Restrictions by CTA at SOD○ Clarified CTA behavior to handle Halt and SSR state at the end of a session under Field Description for 'Halt Reason' and 'Short Sale Restriction Indicator'▪ Updated Halt Reason Code 'A' description under 'Halt Reason'▪ Renamed Nasdaq BX to Nasdaq Texas

CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR PARTICIPANT INPUT BINARY SPECIFICATION

1.0 INTRODUCTION

The Securities Industry Automation Corporation (SIAC) serves as the Processor for the Consolidated Quotation Plan from its inception on August 1, 1978. In fulfilling its role as the Processor, SIAC plans, develops, operates, and maintains the Consolidated Quotation System (CQS).

1.1 Background

CQS receives transactions generated by participating U.S. Stock Exchanges and the FINRA Alternative Display Facility (ADF). In addition, CQS calculates the National 'Best Bid and Best Offer' (NBBO), 'Best Odd Lot Order' (BOLO) and identifies the FINRA 'Best Bid and Best Offer' (FBBO). CQS consolidates transactions that occurred on participating U.S. Stock Exchanges and the FINRA Alternative Display Facility (ADF) and disseminates this information via computer-to-computer linkages to the financial community in the U.S. and abroad.

Quote market data generated by each Participant and the FINRA Alternative Display Facility (ADF) is assembled in prescribed message formats and transmitted to the appropriate TCP/IP Processor address via the Participant's private communications facility. As each block is received, it is transmitted simultaneously to all data recipients via their private communications facilities. Approved data recipients of the CQS service can redistribute CQS data worldwide to their customers as part of their individual services or use the data for their own purposes.

Note:

- It is recommended that Data Recipients subscribe to both the Consolidated Quotation System (CQS) and the Consolidated Tape System (CTS) in order to receive complete listed equity market data. Reference the CQS and CTS Specifications for further details at: www.ctaplan.com.

1.2 Dual Site Redundancy

Computer systems that support the processing and dissemination of quote transactions are operational at primary and backup sites. The backup site provides recovery capability in the event of a disaster at the primary site. Through computerized communications equipment, CQS transaction data is disseminated from either the primary or backup site. The dual-site configuration provides system fold-over for a limited site disaster (system failure) or full site disaster (loss of facility).

In the event of a Primary Data Center failover to the Disaster Recovery site (Backup Data Center), all Participant input socket connections at the Primary Data Center will be **closed**. Participants should have an automated mechanism in place once a Participant's Primary Data Center's input sockets close, to 'hunt' for the Participant's open input sockets at the Backup Data Center, and immediately establish input connectivity to either their primary or backup input connections (primary and backup connections are assigned the same port number however, the IP addresses are different) **within ten (10) minutes as per SEC requirement**.

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1.3 Failure Recovery

1.3.1 NMS Publication Process Failure Recovery

- In the event the Primary publication process encounters an unexpected state, data publication automatically switches to the Secondary publication process on the Primary Data Center
 - Data Subscribers may observe gaps on the affected output multicast lines. Any such gaps can be requested for retransmission
- In the event where both the Primary and Secondary publication processes encounter an unexpected state at the same time on the Primary Data Center, Pillar CTA initiates an automatic restart for both the processes in a recovery mode
 - Quote Refresh Request message is sent back to the Participant to resend all quotes for the affected symbols
 - Data publication is paused for the affected output line(s) and any input messages received while the process is being restarted are queued and published once the processes recover
 - Upon recovery, output block sequence for the affected line(s) is reset to a higher Block Sequence number. System transmits the Reset Block Sequence Number (Category C Type L) message and resumes data publication.
 - Security Symbol state including the LULD Price Bands and the NBBO state are recovered from prior to failure.
 - All Messages can be requested for retransmission, including those that were received prior to, or, while the processes were being restarted.

1.3.2 Input Gateway Failure and Recovery

- In the event the Primary input Gateway connection encounters an unexpected state, Input Participants can reconnect to the Secondary (backup) input connection
- In the event the Input Gateway encounters an unexpected state affecting both the Primary and Secondary Input Connections for all the Data Participants, a restart of the Input Gateway can be initiated on the Primary Data Center.
 - Both Primary and Secondary Input connections are temporarily unavailable, affecting all Participants and Data Subscribers from inputting any data or requesting any retransmissions
 - Quotes (both round lot and odd lot quotes) are cleared on the output lines on behalf of all participants across all symbols
 - Upon recovery, Input Block Sequence Number and PRN are recovered for each input line. Data Participants can reestablish connection and start submitting data. Data publication resumes.
 - There is no loss of data, all messages can be requested for retransmission.

1.3.3 Primary Data Center Failure Recovery

In the event that the Primary Data Center becomes unavailable, failover to the Disaster Recovery site (Secondary Data Center) is initiated.

Upon failover to Secondary Data Center:

- Output block sequence for all the lines is reset to a higher Block Sequence number and System transmits the Reset Block Sequence Number (Category C Type L) message
- Security symbol state including the LULD Price Bands is recovered.

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- Quotes (both round lot and odd lot quotes) are cleared on behalf of all participants across all symbols and NBBO does not persist.
- Input Lines are enabled and Data Publication Resumes
- There is no loss of data, all messages can be requested for retransmission.

However, if the DR site is also unavailable, then a Session Cold Restart on the Primary Data Center can be performed.

In case of a Session Cold Restart on the Primary Data Center:

- Both Primary and Secondary Input connections are temporarily unavailable, affecting all Participants and Data Subscribers from inputting any data or requesting any retransmissions
- Upon restart:
 - Output block sequence for all the lines is reset to a higher Block Sequence number and System transmits the Reset Block Sequence Number (Category C Type L) message
 - Security symbol state including the LULD Price Bands is recovered.
 - Quotes (both round lot and odd lot quotes) are cleared on behalf of all participants across all symbols and NBBO does not persist.
 - Input Lines are enabled and Data Publication Resumes
 - Messages prior to the Restart cannot be requested for Retransmission

Note: In the event of Input Gateway Failure Recovery or Primary Data Center Failure Recovery, CQS clears all Quotes on behalf of all participants across all symbols. As such, upon reconnection it is recommended that Participants resubmit the latest quotes for all their symbols in addition to resending any missed messages while CQS was unavailable.

- Resubmit latest round lot quote for the affected symbols
- Clear any previous odd lot quotes (via the ‘Clear Prior Odd Lot Quotes’ field, or individually) and resubmit all Odd Lot quotes for the affected symbols, as applicable
- Submit any other messages from the latest SIP message sequence number for each input line

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1.4 Scope

This specification defines the interface specification and message format requirements for Participants inputting into CQS.

1.5 Data Feed Reference Material

Technical Specifications

For Technical Specifications visit www.ctaplan.com - and select Tech Specs tab for the following:

- CQS Participant Input Specification
- CQS Multicast Output Specification
- CTS Participant Input Specification
- CTS Multicast Output Specification
- Common IP Multicast Distribution Network Specification
- Automated Retransmission Facility User Guide

Consolidated Tape Association (CTA) Announcements

CTA Announcements including feed enhancements, traffic rates, etc. visit www.ctaplan.com

Future Data Feed Enhancements

Future enhancements and/or modifications may require system changes for your firm. Please refer to the CTA Plan website www.ctaplan.com to obtain the latest CTA Notifications and Technical Specification documents. **To automatically receive these Notifications and System Alerts, subscribe at:** <https://www.ctaplan.com/subscribe>

Data Feed Related Resources

For customers selecting to initiate ICE Global Network (IGN), formerly known as the Secure Financial Transaction Infrastructure (SFTI), connections to CQS:

- Submit a request at: <https://www.theice.com/contact-us/connectivity>
- Contact IGN Sales at: clientnetworks@theice.com
- For more information on IGN, including documentation such as Customer and Technical guides reach out to an IGN representative at: iceglobalnetwork-info@theice.com

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2.0 GENERAL DESIGN OF DATA DISTRIBUTION NETWORK

The CQS communications interface design utilizes the TCP/IP protocol.

2.1 TCP/IP Network Interface

The requirements for the TCP/IP Network Interface are in the addendum to this document, 'TCP/IP for National Market System (NMS) Participant Input'. Participants may request to receive the CQS and TCP/IP Participant Input Specifications by sending an email message to CTA-OPRA-Support@siac.com.

2.2 TCP/IP Input Throttling

Input messages for each line are read at a pre-assigned rate, currently 7,000 messages per rolling 10 milliseconds. A line is throttled when a participant exceeds the maximum number of messages allowed during the current time window. Throttled messages are queued and processed in time sequence as the message read rate allows.

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3.0 CQS INTERFACE METHOD

Any Participant may input to CQS over one or more logical TCP/IP connections. Each logical connection is considered as a complete independent entity. Participants with multiple input connections should ensure that all transactions for any one symbol (e.g., ABC) are sent over the same line throughout the day. Should transactions for the same symbol be sent simultaneously over separate connections, CQS would not guarantee the order of processing.

Each Participant is supplied with Primary Data Center IP addresses/ports (primary and backup) and Disaster Recovery site (Backup Data Center) IP addresses/ports primary and backup). Primary and backup connections are assigned the same port number however the IP addresses (primary and backup) are different.

In the event a Participant detects a failure of the primary host connection at the Primary Data Center, Participants will be required to establish a connection to the backup host connection which is running in parallel to the primary host at the Primary Data Center. In the event the Primary Data Center is unavailable, each Participant will be required to connect to the Disaster Recovery site (Backup Data Center) IP addresses/ports.

Once a Participant establishes a connection, SIAC recommends that the Participant system, prior to transmitting data, generate a Sequence Information and Message Count Inquiry message to obtain the last Block Sequence Number obtained by CQS. If there is a discrepancy in the sequence numbers wherein CQS expects a lower sequence number than what the Participant system is ready to send, the Participant system should re-send the messages in question, before generating any new messages.

Note: CQS can reset the Block Sequence number on input lines to a higher value if there are issues in sequence number handshake between a participant and CQS. Participant system shall be able to process the jump in next expected sequence number when reestablishing connection with CQS.

If a Participant is establishing connections to the Disaster Recovery site (Backup Data Center) input lines, or in instances of a CQS cold-start, Participants will be required to re-quote.

3.1 General Design Considerations

CQS receives and transmits variable length blocks having maximum lengths of 1000 bytes. The length includes a Block Header, Block Data and an optional Block Pad Byte.

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4.0 TRANSMISSION CHARACTERISTICS

4.1 Data Transmission

Data transmitted between the Participants and CQS is sent using TCP/IP. For a description of the TCP/IP segment, reference the addendum to this document, ‘TCP/IP for NMS Participant Input Interface Specification’. Participants may request to receive the TCP/IP Participant Input Interface Specifications by sending an email message to CTA-OPRA-Suport@siac.com.

The CQS data is sent as a CQS Binary Block, and becomes the TCP/IP payload. Since TCP/IP is byte-stream, a CQS Binary Block boundary may not match the TCP segment boundary; for example, a single TCP segment may contain more than one CQS Binary Block or a CQS Binary Block can be spread between two TCP segments.

A Participant is required to send a Block Separator which will be used to determine the start of the CQS Binary Block. It is the Participant’s responsibility to create the correct CQS Binary Block structure. Incorrect Block Structure information (e.g., incorrectly formatted Block Header, invalid Block Data, etc.) will result in lost messages and blocks being rejected back to a Participant, possibly followed by a port level disconnect.

4.2 Block Separator

Byte [2]. The Block Separator is a 2 byte sequence of Hex 0xA5 & 0x5A (offers better guarantees that the format will be identified correctly). The source of the Block Separator is both from a Participant to CQS and from CQS to a Participant. The Block Separator is not included in the block size it is independent of the Block. Every Block must be preceded by a Block Separator.

4.3 Binary Block Structure

A Block can have a maximum of 1,000 bytes inclusive of Block Separator, Block Header, Block Data and Block Pad Byte.

Block Structure	Length
Block Header	10
Block Data	Variable
Block Pad Byte (optional)	1

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4.4 Block Data

The Block Data consists of one or more CQS messages. A message consists of a Message Header, which is of fixed length and format and message data (body), which is variable in length and format. Category C – Control messages are each sent in their own individual block.

The Block Data structure is as follows:

Block Data Structure
Message 1 Data
Message 2 Data
~~~~
Message N Data

#### **4.5 Block Pad Byte**

**Byte.** Unsigned integer contains binary zero (Hex 0x00). Only used when the size of a Block consists of an odd number of bytes. In instances of odd number of bytes, the Block Pad Byte is added to the Block to ensure the Block is an even number of bytes.

#### **4.6 Data Type**

The following data types are used by CQS:

<b>Type</b>	<b>Value</b>
<b>NUMERIC – Big-Endian (Network Byte Order)</b>	
byte	Big-Endian Unsigned 1 Byte Integer
short	Big-Endian Unsigned 2 Byte Integer
integer	Big-Endian Unsigned 4 Byte Integer
long	Big-Endian Unsigned 8 Byte Integer
<b>ALPHA/ALPHANUMERIC/SPECIAL/PRINTABLE</b>	
char	Single printable ASCII character
char [ ]	Fixed length printable ASCII characters
varchar [ ]	Variable length printable ASCII characters

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#### 4.6.1 Numeric Types

1. All numeric fields will be in Big-Endian (Network Byte Order) format
2. Numeric types (byte, short, integer and long) represent sequence numbers, timestamps, prices and sizes
3. Prices represented by short fields have implied 2 decimal places
4. Prices represented by long fields have implied 6 decimal places
5. Any numeric value that is unused or does not apply to a given message type has a value set to 0

The maximum range values for the numeric fields are as follows:

- 1 byte unsigned integer: 0 – 255 (byte)
- 2 byte unsigned integer: 0 – 65,535 (short)
- 4 byte unsigned integer: 0 – 4,294,967,295 (integer)
- 8 byte unsigned integer: 0 – 18,446,744,073,709,551,615 (long)

Select values represented as 2's complement, will have signed integers with the following range:

8 byte signed integer: -9,223,372,036,854,775,808 to +9,223,372,036,854,775,807 (signed long)

#### 4.6.2 Alpha/Alphanumeric/Special/Printable Types

1. ASCII printable character codes 32 – 126
2. Left justified and padded on the right with spaces for fixed length fields

#### 4.7 Block Header

Field	Length	Type
Version	1	Byte
Block Size	2	Short
Block Sequence Number	4	Integer
Messages In Block	1	Byte
Block Checksum	2	Short
<b>Total Length</b>	<b>10</b>	

##### 4.7.1 Version

**Byte.** Indicates the CQS binary protocol version and allows for Block Header, Message Header and Message formats to be updated while still supporting previous versions of headers/message formats during transition. Version value is set to “0” for current version.

##### 4.7.2 Block Size

**Short.** Indicate the size in bytes of the entire transmission block.

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### **4.7.3 Block Sequence Number**

**Integer.** All transmission blocks are assigned a sequential Block Sequence Number. On a per line basis, the Block Sequence Number on the lines are reset at the start of each day, and incremented by one each time a Block is transmitted, with the following conditions:

- CQS expects a one (1) as first Block Sequence Number.
- All Blocks containing Sequence Information and Message Count Inquiry message (Category C Type I) should have a Block Sequence Number set to zero.
- The Block Sequence Number field is not incremented for Participant to CTS Line Integrity (Category C Type T) messages
- On every connection and reconnection, SIAC recommends a Participant input a Sequence Information and Message Count Inquiry message (Category C Type I) to synchronize with the expected sequence number.
- If a Participant inputs a Sequence Information and Message Count Inquiry message (Category C Type I), CQS will respond with a Sequence Information and Message Count Response (Category C Type N) message with the 'Current Block Sequence Number' field populated with the next expected Block Sequence Number from the Participant, the 'Last Participant Reference Number Received' field populated with the last Participant Reference Number from the Participant and the count of messages received on an individual line since startup. Message count does not include Line Integrity messages or Sequence Information and Message Count Inquiry messages.
- When the Block Sequence Number reaches 4,294,967,295, the next expected value is zero

### **4.7.4 Messages in Block**

**Byte.** The number of messages contained in the block data.

### **4.7.5 Block Checksum**

**Short.** Lower 2 bytes of the 4 byte sum of all the bytes in the block, excluding this Block Checksum field.

## **4.8 Error Handling**

It is the Participant's responsibility to submit syntactically correct messages. Any message block with invalid structure or incorrect data will elicit a Rejection response with an error code matching the first error encountered in the processing. There are various levels of validations performed on the input messages as follows:

1. Any incorrectly formatted message block results in the block being rejected back to the Participant, immediately followed by a port level disconnect. The Block Sequence number is not incremented in this case since it cannot be ascertained whether any part of the message block is valid. Syntax errors include:
  - Incorrect Block Header information, e.g. wrong version, Block Size or number of messages contained in the block
  - Invalid Block Structure, e.g. a Block containing more than one control message,
  - Syntactically invalid data, e.g. a non-printable ASCII character
  - Unrecognized Message Category/Type
  - Incorrect Message Length for the Message Category/Type
2. Incorrect Session Level information results in the entire message block or an individual message being rejected back to the participant. For each connection, upon breaching a maximum number of session level rejects, the input port is disconnected followed by a Denial-of-Service. Any attempt to connect to the target port is denied until the Denial of Service timer expires. The default threshold is 100 session level rejects triggering a Denial of Service for a minimum of 60 seconds. Session Layer Rejects include:
  - Block header validation failure due to lower-than-expected Block Sequence Number - The Block Sequence Number is not incremented in this case as the entire block is rejected
  - Message Header validation failure due to invalid Participant ID, Timestamp or 'Message ID' - Each incorrect message is individually rejected, and the Block Sequence number is incremented.
  - Message validation failure if Bid or Offer size of round lot quotes is not represented in shares rounded down to an exact multiple of the symbol round lot size
  - Message validation failure if Bid or Offer size of odd lot quotes is equal to or greater than the symbol round lot size
  - Message validation failure if total number of odd lot bids and/or offers for a symbol exceed the maximum allowed odd lot prices
3. Incorrect data in the Message Body as per the Field Description or incorrect messages based off of the symbol state are treated as Application-Level Rejects. The Block Sequence Number is incremented and the Input connection is not affected by such rejects

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**5.0 MESSAGE HEADER**

The Message Header uniquely identifies the Message Category and Message Type of each message within a Block. The Message Header can represent an entire message or appears before the Message body segment in each message transmitted. The Message Header contains the following bytes and conforms in all cases to the following data fields:

<b>Field Name</b>	<b>Length</b>	<b>Type</b>
Message Length	2	Short
Message Category	1	Char
Message Type	1	Char
Participant ID	1	Char
Timestamp 1	8	2 x Integer
Message ID	1	Byte
Reserved	4	TBD
Participant Reference Number	8	Signed Long
<b>Total Length</b>	<b>26</b>	

**5.1 Message Length**

**Short.** The Message Length identifies the total message length inclusive of the Message Header and Message Body.

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**5.2 Message Category and Message Type Table**

Message Category	Message Type	Message Source*	Message Description
<b>Administrative</b>			
A	P	CQS	Partial Rejection
A	R	CQS	Rejection
A	W	CQS	Warning
<b>Control</b>			
C	A	CQS	Start of Day
C	C	Participant	FINRA Close
C	I	Participant	Sequence Information and Message Count Inquiry
C	N	CQS	Sequence Information and Message Count Response
C	O	Participant	FINRA Open
C	R	CQS	Odd Lot Refresh Request
C	T	Part. & CQS	Line Integrity
C	Z	CQS	End of Day
C	5	Part. & CQS	Test
<b>Quote</b>			
Q	A	Participant	Auction Status
Q	P	Participant	Round Lot Short Quote (with optional Odd Lot quotes)
Q	K	Participant	Round Lot Long Quote (with optional Odd Lot quotes)
Q	U	Participant	Round Lot FINRA ADF Quote (with Optional Odd Lot quotes)
Q	R	Participant	Odd Lot Short Quote
Q	M	Participant	Odd Lot Long Quote
Q	T	Participant	Odd Lot FINRA ADF Quote
<b>Trade</b>			
T	S	Part. & CQS	Trading Status

* The *source* of the message can originate from either a **Participant (Part.)** or from the **CQS** Processor.

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**5.2.1 Message Category**

**Char.** The Message Category represents the message classification. Refer to Message Category and Message Type Table *section 5.2*.

**5.2.2 Message Type**

**Char.** The Message Type together with the Message Category identifies the message. Refer to Message Category and Message Type Table *section 5.2*.

**5.3 Participant ID**

**Char.** Participant ID identifies the Participant or Processor that generated the message.

Code	Value
A	NYSE American, LLC (NYSE American)
B	NASDAQ Texas, LLC. (NTX)
C	NYSE National, Inc. (NYSE National)
D	FINRA Alternative Display Facility (ADF)
F	Texas Stock Exchange LLC (TXSE)
G	24X National Exchange LLC (24X)
H	MIAX Pearl Exchange, LLC (MIAX)
I	International Securities Exchange, LLC (ISE)
J	Cboe EDGA Exchange, Inc. (Cboe EDGA)
K	Cboe EDGX Exchange, Inc. (Cboe EDGX)
L	Long-Term Stock Exchange, Inc. (LTSE)
M	NYSE Texas, Inc. (NYSE Texas)
N	New York Stock Exchange, LLC (NYSE)
P	NYSE Arca, Inc. (NYSE Arca)
S	Consolidated Quotation System
T	NASDAQ Stock Market, LLC (NASDAQ)
U	Members Exchange, LLC (MEMX)
V	Investors' Exchange, LLC. (IEX)
W	CBOE Stock Exchange, Inc. (CBSX)
X	NASDAQ OMX PSX, Inc. (NASDAQ OMX PSX)
Y	Cboe BYX Exchange, Inc. (Cboe BYX)
Z	Cboe BZX Exchange, Inc. (Cboe BZX)

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## 5.4 Timestamp 1

**2 x Integer (pair of integers).** Timestamp 1 is a Participant-provided timestamp representing the number of nanoseconds since Epoch. The first integer contains the number of seconds from Epoch 1/1/1970, 00:00:00 UTC. The next integer contains the nanosecond portion of the time (e.g., 972402315). For any messages generated by CQS, e.g., messages generated on behalf of a Participant, stored Odd Lot quotes published upon an NBBO update, Administrative messages and Control messages, the Timestamp 1 field will be set to Current SIP Time.

- **If from an Exchange: Timestamp 1** must be populated and denotes the time where the quote bid price and/or the offer price for a security is designated with an Exchange’s Matching Engine Publication timestamp. Exchanges use a clock sync methodology ensuring that timestamps are accurate within tolerances of 100 microseconds or less. Exchanges shall provide the timestamp in terms of nanoseconds since Epoch.
- **If from the FINRA Alternative Display Facility (ADF): Timestamp 1** must be populated and denotes the time of the quote bid price and/or the offer price for a security that a FINRA member reports to the FINRA Alternative Display Facility. FINRA shall provide such times to the Processor in nanoseconds since Epoch.

## 5.5 Participant Reference Number

**Signed Long.** Optionally set to Zero. Only zero and positive Participant Reference Numbers are allowed (negative Participant Reference Numbers will be rejected).

**Note:** SIAC requires Participants continue to use their ASCII Regional Reference Number (RRN) production population convention when populating the Binary Participant Reference Number (PRN) field. Participants should construct a 6 byte ASCII Regional Reference Number (RRN) and perform a byte-copy of those 6 characters to the lower-significant 6 bytes of the 8 byte PRN field and fill the upper-significant two bytes of the PRN to binary 0s.

RRN/PRN Input Example:

ASCII RRN:

1	2	3	A	b	C
---	---	---	---	---	---

New Binary PRN:

0	0	1	2	3	A	b	C
---	---	---	---	---	---	---	---

PRN Validation:

- Participant Reference Numbers that do not conform to the ASCII ‘Regional Reference Number’ data format range requirements in the last six characters **will be rejected**.

## 5.6 Message ID

**Byte.** The Message ID identifies the individual message within the block beginning with number one (1). The Message ID for subsequent messages within a block should be incremented.

## 5.7 Reserved

Space filled. Field is **Reserved for Future Use to be determined (TBD)**.

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**6.0 MESSAGE FORMATS**

The Message Category and Message Type identify the Message and determine the format of the body. Message formats are fixed field formats (with the exception of Administrative and some Control messages which have unformatted text).

All message formats, except for Category A Type H Unformatted (free form text) messages, have fixed field which is determined by reading the Message Header and Message Body.

If the Participant input fails any of the Block Header, Message Category and Message Body validations, a reject message is returned to the Participant on the line from which the original message was sent.

A field description is provided as part of the Block Header format, Message Header format, Message Body or in the **Field Descriptions** section of this document.

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## **6.1 Administrative Messages – Category A**

The Administrative Category A message is sent from CQS to a Participant.

### **6.1.1 Rejection – Category A Type R**

If CQS receives an invalid Block structure, the invalid Block structure will be rejected. If the Block Header contains invalid data, the Block will be rejected. After CQS receives a message, CQS validates the message and will process if valid and reject if invalid. All blocks or message types can elicit a Rejection response from CQS.

The Rejection message is used for all errors to notify a Participant that CQS has found an error either in the Block Header, Message Header or Message body (e.g., an invalid Price) in a Participant Input message.

<b>Field Name</b>	<b>Length</b>	<b>Type</b>
Error Code	1	Byte
Block Sequence Number	4	Integer
Participant Reference Number	8	Signed Long
Message ID	1	Byte
<b>Total Length</b>	<b>14</b>	

### **6.1.2 Partial Rejection – Category A Type P**

The Partial Rejection message is used for input quote messages containing multiple odd lot quotes when some of the quotes within the message are successfully processed before an error is encountered, resulting in rejection of any subsequent quotes received in that message. Any odd lot quotes that were not processed are identified by CQS via the Odd Lot Quote Appendages on the Partial Reject message returned to the Participant.

Depending on the input message being rejected, corresponding Partial Reject message can have Odd Lot Short Quote Appendages, Odd Lot Long Quote Appendages or Odd Lot Extended Quote Appendages. However, only one type of appendage can exist in a given Partial Reject message, as identified via the field ‘Odd Lot Quote Appendage Type’.

This reject message is only used when an odd lot quote is rejected due to it exceeding the maximum allowed distinct bid or offer prices. For any other type of validation failure, none of the quotes on an input message are processed, and the entire message is rejected via the regular Category A Type R Reject message.

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<b>Field Name</b>	<b>Length</b>	<b>Type</b>
Error Code	1	Byte
Block Sequence Number	4	Integer
Participant Reference Number	8	Signed Long
Message ID	1	Byte
Odd Lot Quote Appendage Type	1	Char
Count of Odd Lot Bid appendages	1	Byte
Count of Odd Lot Offer appendages	1	Byte
<b>&lt;&lt; Odd Lot Quote Appendages (Repeatable) &gt;&gt;</b>		
<b>Total Length</b>	<b>17*</b>	

*Minimum Length = 17 bytes. Total length depends on the Odd Lot Quote Appendages included in the message.

### 6.1.3 Warning – Category A Type W

The Warning message is sent from CQS to a Participant in response to a Block Sequence Number Gap. The Block will still be processed by CQS.

<b>Field Name</b>	<b>Length</b>	<b>Type</b>
Previous Block Sequence Number	4	Integer
Previous Participant Reference Number	8	Signed Long
<b>Total Length</b>	<b>12</b>	

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**6.2 Control Messages – Category C**

Control messages are used to report specific system events. The source of a Control message can originate from either a Participant or from the CQS Processor. Control message formats fall into two categories:

- Those consisting of a Message Header only
- Those consisting of a Message Header and Message Body

Only one Control message is transmitted in a block and no other messages appear in that block. Block containing another message along with a control message is treated as incorrectly formatted block.

**A. Control Messages consisting of Message Header Only**

Message Category	Message Type	Value
C	A	Start Of Day
C	C	FINRA Close
C	I	Sequence Information and Message Count Inquiry
C	O	FINRA Open
C	T	Line Integrity
C	Z	End of Day

**B. Control Messages Consisting of Message Header and Message Body**

Message Category	Message Type	Value
C	N	Sequence Information and Message Count Response
C	5	Test

**6.2.1 Start of Day – Category C Type A**

The Start of Day message consists of the **Message Header only** and is sent by CQS to a Participant to indicate CQS' readiness to accept data transmission from the Participant to which the message is transmitted. A Participant cannot initiate data transfer with CQS until receipt of this message, except for Line Integrity (Category C Type T) and Sequence Information and Message Count Inquiry (Category C Type I) messages.

**6.2.2 FINRA Close – Category C Type C**

The FINRA Close message consists of the **Message Header only** and is transmitted by FINRA to CQS to indicate the Close state of FINRA Market Maker(s). All FINRA Market Maker quotes must be in either an Open or Close state where Open implies current and Close implies not current.

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**6.2.3 Sequence Information and Message Count Inquiry – Category C Type I**

The Sequence Information and Message Count Inquiry message consists of the **Message Header only**. Participants’ computers and the CQS processor use the Sequence Information and Message Count Inquiry message to synchronize message sequence numbers. Upon receipt of this message, CQS transmits back to the inquiry processor a Sequence Information and Message Count Response Category C Type N message containing the sequence number of the next expected message and the count of messages received on an individual line since startup. Multiple lines for a single Participant are treated as independent lines with their own block sequence numbers. The Sequence Information and Message Count Inquiry message is transmitted in a separate message block containing only the Sequence Information and Message Count Inquiry message and must be sent with the Block Sequence Number field set to Zero.

**6.2.4 Sequence Information and Message Count Response – Category C Type N**

The Sequence Information and Message Count Response message is generated by CQS to a Participant in response to a Sequence Information and Message Count Inquiry message. The Sequence Information and Message Count Response message is transmitted in a separate message block containing only the Sequence Information and Message Count Response message.

Field Name	Length	Type	Value
Current Block Sequence Number	4	Integer	Contains Next Expected Participant Block Sequence Number
Last Participant Reference Number	8	Signed Long	Contains Last Participant Reference Number Received
Message Count	8	Long	Contains the count of messages received on an individual line since startup. Message count does not include Line Integrity Messages or Sequence Information and Message Count Inquiry messages
<b>Total Length</b>	<b>20</b>		

**Note:**

- The Participant Reference Number that is returned is the Participant Reference Number received for the individual line on which the Sequence Information and Message Count Inquiry message was sent.

**6.2.5 FINRA Open Category – Category C Type O**

The FINRA Open message consists of the **Message Header only** and is transmitted by FINRA to CQS. This message indicates the Open state of FINRA Market Maker(s). All FINRA Market Maker quotes must be in either an Open or Close state, whereby Open implies ‘current’ and Close implies not current.

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**6.2.6 Odd Lot Refresh Request – Category C Type R**

Odd Lot Refresh Request message can be generated by CQS to a Participant in case of a CQS failure where CQS may inadvertently lose quotes previously reported by the Participant.

Message provides the start and end symbol ranges for the affected symbols. Upon receipt of this message Participants should clear any previous reported odd lot quotes to CQS for the affected symbols (via the ‘Clear Prior Odd Lot Quotes’ field, or individually); and resubmit their latest round lot and odd lot quotes.

Note - For a CQS failure that may require failover to DR or a session cold restart, any quotes prior to failure are zeroed out by CQS. Odd Lot Refresh Request message is not generated in such cases. Upon successful reconnection after CQS recovery, all Participants are expected to clear any previous odd lot quotes (via the ‘Clear Prior Odd Lot Quotes’ field) and resubmit their Round Lot and Odd Lot quotes across all symbols, as applicable.

<b>Field Name</b>	<b>Length</b>	<b>Type</b>
Security Symbol Begin Range	11	Char [ ]
Security Symbol End Range	11	Char [ ]
Reserved	8	TBD
<b>Total Length</b>	<b>30</b>	

### 6.2.7 Line Integrity Participant to CQS / CQS to Participant – Category C Type T

#### Line Integrity Participant to CQS:

The **Participant to CQS** Category C Type T Line Integrity message consists of the **Message Header only** and is for optional use by a Participant. Line Integrity messages may be generated by a Participant to CQS at set intervals selected by a Participant.

A timeout duration of 10 seconds is defined for all input lines. A Participant is required to input messages with an idle time of no more than 5 seconds. Once connected, if a Participant does not input Category C Type T messages or any other data to CQS within the configured timeout interval, CQS will wait for additional time (typically 10 seconds) and if still no message is received, CQS will break the connection on the Participants' connected input line. This will allow the Participant to reconnect to their primary or backup input line (e.g., connection should be made to the backup input line if the disconnect was made to the primary, conversely, connection should be made to the primary input line if the disconnect was made to the backup input line).

The Message Header field descriptions will be the same as in this CQS Participant Input Specification, with the exception of the Block Sequence Number field which will be populated as follows:

- The Block Sequence Number field is not incremented for Participant to CQS Category C Type T Line Integrity messages. The Block Sequence Number field will contain the Block Sequence Number of the last original message generated by the Participant.

#### Line Integrity CQS to Participant:

The **CQS to Participant** Category C Type T Line Integrity message consists of the **Message Header only** and is generated by CQS to each Participant at 10 second intervals. CQS can commence sending Line Integrity messages to Participant once the Participant lines have been started and the Participant has established connections. Its primary function is to provide verification of line integrity during periods of inactivity.

Line Integrity messages generated by CQS to a Participant will have the Message Header Timestamp 1 field populated with the Line Integrity time. The first integer contains the number of seconds from Epoch 1/1/1970, 00:00:00 UTC. The next integer contains the nanosecond portion of the time (e.g., 972402315).

#### Note:

- A Line Integrity message coming from a Participant to CQS is mutually exclusive from a Line Integrity message sent by CQS to a Participant (there is no correlation between the two Line Integrity message functionalities).

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**6.2.8 End of Day – Category C Type Z**

The End of Day message consists of the **Message Header only** and is sent by CQS to a Participant to indicate that the Participant should not transmit any further messages to CQS. Messages received by CQS after the End of Day message has been transmitted will be rejected.

**6.2.9 Test – Category C Type 5**

CQS or a Participant may generate a Test message at any time during the day. Its function is to exercise the line to verify transmission integrity. A Test message is transmitted as the only message in a block.

<b>Field Name</b>	<b>Length</b>	<b>Type</b>	<b>Value</b>
Data	256	Byte [ ]	All ASCII characters starting with hex 0 and ending hex FF, in sequential order.
<b>Total Length</b>	<b>256</b>		

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### **6.3 Quote Messages – Category Q**

- Round lot updates for a symbol should be reported via the Round Lot Quote messages without including the optional odd lot appendages in the message.
- Odd lot updates for a symbol should be reported via the Odd Lot Quote messages when there is no round lot update.
- Simultaneous updates to both round lot and odd lot quotes for a symbol should be reported together using the optional odd lot quote appendages on Round Lot Quote messages. Alternatively, if using separate messages, the round lot quote update shall be reported before reporting the odd lot quote updates to ensure that NBBO is updated before evaluating any odd lot quotes for publication.

#### **Considerations for the Participants for reporting odd lot quotes to the SIP**

1. Each Participants must aggregate their odd lot orders at a price and report the aggregated odd lot size in the odd lot quotes.
  - a. Note: Any odd lot quote with size equal to or exceeding the symbol Round Lot Size will be rejected
2. Participants must report odd lot quotes at all prices at or inside their round lot BBO where odd lot shares are available. Odd lot quotes at prices outside the round lot BBO shall not be reported. If there is no round lot BBO or if the BBO is only available on one side (Bid or Offer), then all odd lot quotes should be reported on the side where a round lot quote is missing. Note - FINRA ADF must report the odd lot quotes at or inside the FINRA BBO.
3. When reporting updates for an odd lot quote, only the quotes with quantity update should be included. The most recent quote size will replace any previous quote at that price. Previously reported odd lot quotes should not be included in subsequent messages unless there is a change.
4. If a previously reported odd lot bid or offer is no longer available or is no longer at or within the Participant's latest round lot BBO, it must be explicitly removed by either:
  - a. Providing an update with size equal to zero for the respective odd lot bid or offer price in the odd lot quote appendage, or
  - b. Setting the 'Clear Prior Odd Lot Quotes' field, which clears all prior odd lot bids and/or offers for that Participant.
5. For FINRA ADF, only one FINRA MMID odd lot quote is supported at each price. If several FINRA ADF Participants have odd lot quotes at the same price, FINRA ADF determines which will be reported. If the FINRA MMID changes for a previously reported quote, the new quote replaces the prior one without requiring an explicit removal. FINRA ADF must remove the odd lot quote if no FINRA ADF Participant quote remain at a given price, or if the odd lot quote price is longer at or within the FINRA BBO.
6. Odd lot quotes are not permitted for symbol with Round Lot size of 1
7. If trading in a symbol is halted, Participants should clear their odd lot quotes in addition to the round lot quotes. Quotes should be resubmitted once trading resumes.

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**Overview for the Participants on how to use the SIP Odd Lot Quote messages**

1. Select appropriate quote message (message comprising of just the odd lot quotes or both the odd lot and the round lot quotes together, as needed, in Short, Long or FINRA ADF Quote message format as applicable)
  - a. Note: Each quote message supports specific types of odd lot quote appendages. Incompatible appendages will lead to malformed message reject
2. Report odd lot bids and offers at multiple prices in a message, using one or more odd lot quote appendages, as necessary.
3. Odd lot bids and offers can be reported independently, meaning a quote message may contain only odd lot bids, only odd lot offers, or both. Specify the total number of each appendage type in the message via the ‘Count of Odd Lot Bid appendages’ and ‘Count of Odd Lot Offer appendages’ fields; either count may be zero.
  - a. Note: A mismatch between counts and actual appendages will result in a malformed message reject
4. All odd lot bid appendages must be populated first, followed by all odd lot offer appendages, regardless of the number of each type. Incorrect sequencing can result in misinterpretation.
5. When multiple appendages are included in the message, it is recommended to sort as follows:
  - a. For bids: zero-size updates clearing prior odd lot bids are listed first (regardless of price), followed by remaining bid updates sorted by descending price.
  - b. For offers: zero-size updates clearing prior odd lot offers are listed first (regardless of price), followed by remaining offer updates sorted by ascending price.
6. If all odd lot quote updates for a symbol do not fit in one message without exceeding the maximum allowed block size, participants must split the quotes in multiple messages and report across separate blocks.
7. Maximum number of odd lot bids or odd lot offers per Symbol allowed by SIP is equal to the Round Lot Size of the symbol.
  - a. If a quote message causes the odd lot bids or offers to exceed the limit, any subsequent quotes on the messages will be rejected. Odd lot quotes at new prices will continue to be rejected until Participant removes a previous odd lot quote.
  - b. When reporting multiple odd lot bids or offers in a single message, any deletes (zero size for a price) should be sequenced before any new odd lot prices to avoid accidentally exceeding the maximum limit.

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**Overview of the SIP odd lot quote publication**

1. CQS publishes the odd lot quotes that have a price at or better than the NBBO (i.e. odd lot bids with prices at or higher than the National Best Bid and odd lot Offers with prices at or lower than the National Best Offer)
2. Odd lot quotes at prices worse than the NBBO will be stored in the SIP without being immediately published. Participants can update such quotes while they are being held.
3. If an NBBO update makes a stored quote eligible for publication, it will be immediately published unless the Participant has already removed it.
4. If an NBBO update results in a previously published odd lot quote to become worse than the latest NBBO, SIP will publish an update to clear the quote. Such quote will be maintained in SIP for republication in case NBBO updates again.
5. Odd lot quotes on a single input message may be published across multiple output messages
6. Odd lot quotes will be published intermingled with the round lot quote messages.

**“Temporary Exemptive Relief” for odd lot quotes**

To comply with the [Temporary Exemptive Relief](#) provided by the SEC, following validation will be enforced in CQS to allow only one price level for odd lot quotes -

1. A maximum of one odd lot bid and/or offer will be permitted by CQS, i.e. a quote message will be rejected if either ‘Count of Odd Lot Bid appendages’ or ‘Count of Odd Lot Offer appendages’ is greater than 1.
  - a. Note: A quote can be send with just an odd lot bid, just an odd lot offer, or both the bid and offer.
2. Message containing an odd lot bid and/or offer will require clearing the prior bid and/or offer via the ‘Clear Prior Odd Lot Quotes’ field as below; an explicit removal by providing a zero-size update will not be required.

Scenario	Count of Odd Lot Bid appendages	Count of Odd Lot Offer appendages	Allowed values for ‘Clear Prior Odd Lot Quotes’
Quote contains an odd lot bid	1	0	B or X
Quote contains an odd lot offer	0	1	S or X
Quote contains both the odd lot bid and offer	1	1	X

B = will clear previous odd lot bid and replace it with the latest bid (if provided)

S = will clear previous odd lot offer and replace it with the latest offer (if provided)

X = will clear previous odd lot bid and offer and replaces it with the latest bid and offer (if provided)

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**6.3.1 Auction Status – Category Q Type A**

The Auction Status message is used when a Participant in a CTA eligible security, Local Issue or a Bond requires Auction Information. Primary Listing Markets using an automated reopening will calculate Auction Collars, in compliance with rules around prices for re-opening, when applicable and will publish the Auction Status message. The initial Auction Collar will be published after the LULD Trading Pause. The ‘Number of Extensions’ field will reflect when a new Auction Status message has been published. The first Auction Collar extension, at the time of the LULD Trading Pause, will be set to zero (0) indicating the first Auction Status message and will increment by one (1) for each new Auction Status message sent during the LULD Trading Pause event.

Field Name	Length	Type
Security Symbol	11	Char [ ]
Instrument Type	1	Char
Auction Collar Reference Price	8	Long
Auction Collar Upper Threshold Price	8	Long
Auction Collar Lower Threshold Price	8	Long
Number of Extensions	1	Byte
Reserved (for future use)	62	TBD
<b>Total Length</b>	<b>99</b>	

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**6.3.2 Round Lot Quote Messages**

**6.3.2.1 Round Lot Short Quote (with optional Odd Lot information) – Category Q Type P**

This message is used to report round lot quotes for a symbol if the quote meets all the criteria and message format requirements, otherwise Round Lot Long Quote message is used. Odd lot bids and/or offers can be included in this message via the optional Odd Lot Short Quote Appendages.

<b>The Short Quote has the following criteria:</b>	
1.	Quote Condition is implied 'Regular' quote condition.
2.	Settlement Condition is implied regular way settlement.
3.	Market Condition is implied normal auction market.
4.	Quote is <u>not</u> from FINRA ADF.

Field Name	Length	Type
Security Symbol	5	Char [ ]
Round Lot Bid Price	2	Short
Round Lot Bid Size	2	Short
Round Lot Offer Price	2	Short
Round Lot Offer Size	2	Short
Clear Prior Odd Lot Quotes	1	Char
Count of Odd Lot Bid appendages	1	Byte
Count of Odd Lot Offer appendages	1	Byte
<b>&lt;&lt; Odd Lot Short Quote Appendages (Repeatable) &gt;&gt;</b>		
<b>Total Length</b>	<b>16*</b>	

*Minimum Length = 16 bytes. Total length may exceed if message includes Odd Lot Short Quote Appendages

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**6.3.2.2 Round Lot Long Quote (with optional Odd Lot information) – Category Q Type K**

This message is used to report round lot quotes for a symbol. The Long Quote message can be used by FINRA ADF for reporting round lot quotes only when either no FINRA BBO exists (FINRA BBO Indicator value ‘A’) or there is no FINRA BBO change (FINRA BBO Indicator value ‘B’) and will not be used to remove FINRA ADF from the NBBO.

Odd lot bids and/or offers can be included in the message via the optional Odd Lot Long Quote Appendages. An odd lot quote from FINRA ADF is not supported via this message.

Field Name	Length	Data Type
Security Symbol	11	Char [ ]
Quote Condition	1	Char
Round Lot Bid Price	8	Long
Round Lot Bid Size	4	Integer
Round Lot Offer Price	8	Long
Round Lot Offer Size	4	Integer
Retail Interest Indicator	1	Char
Settlement Condition	1	Char
Market Condition	1	Char
FINRA Market Maker ID	4	Char [ ]
FINRA BBO Indicator	1	Char
Timestamp 2	8	2 x Integer
Clear Prior Odd Lot Quotes	1	Char
Count of Odd Lot Bid appendages	1	Byte
Count of Odd Lot Offer appendages	1	Byte
<b>&lt;&lt; Odd Lot Long Quote Appendages (Repeatable) &gt;&gt;</b>		
<b>Total Length</b>	<b>55*</b>	

*Minimum Length = 55 bytes. Total length may exceed if message includes Odd Lot Long Quote Appendages

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**6.3.2.3 Round Lot FINRA ADF quote (with FBBO and optional Odd Lot information) – Category Q Type U**

This message should only be used by FINRA ADF to identify the FINRA Best Bid and Best Offer at the Bid and/or Offer side for their Market Makers inclusive of changes to any existing FINRA BBO. The FINRA Best Bid and Best Offer information will be used in the National Best Bid and Best Offer (NBBO) calculation. FINRA ADF odd lot quotes can be included in the message via the optional Odd Lot Extended Quote Appendages.

Field Name	Length	Type
Security Symbol	11	Char [ ]
Quote Condition	1	Char
Round Lot Bid Price	8	Long
Round Lot Bid Size	4	Integer
Round Lot Offer Price	8	Long
Round Lot Offer Size	4	Integer
Retail Interest Indicator	1	Char
Settlement Condition	1	Char
Market Condition	1	Char
FINRA Market Maker ID	4	Char [ ]
FINRA Best Bid Quote Condition	1	Char
FINRA Best Bid Price	8	Long
FINRA Best Bid Size	4	Integer
FINRA Best Bid Market Maker ID	4	Char [ ]
FINRA Best Offer Quote Condition	1	Char
FINRA Best Offer Price	8	Long
FINRA Best Offer Size	4	Integer
FINRA Best Offer Market Maker ID	4	Char [ ]
Timestamp 2	8	2 x Integer
Clear Prior Odd Lot Quotes	1	Char
Count of Odd Lot Bid appendages	1	Byte
Count of Odd Lot Offer appendages	1	Byte
<b>&lt;&lt; Odd Lot Extended Quote Appendages (Repeatable) &gt;&gt;</b>		
<b>Total Length</b>	<b>88*</b>	

*Minimum Length = 88 bytes. Total length may exceed if message includes Odd Lot Extended Quote Appendages

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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### 6.3.3 Odd Lot Quote Messages

#### 6.3.3.1 Odd Lot Short Quote – Category Q Type R

The Odd Lot Short Quote message is used to report odd lot bids and offers via the optional repeatable Odd Lot Short Quote Appendages if the quote meets all the criteria and message format requirements, otherwise Odd Lot Long Quote message is used. An odd lot quote from FINRA ADF is not supported via this message.

Message may be reported without any optional quote appendages when previously reported odd lot quotes are being cleared via the 'Clear Prior Odd Lot Quotes' field and there are no additional odd lot updates to report.

Field Name	Length	Type
Security Symbol	5	Char [ ]
Clear Prior Odd Lot Quotes	1	Char
Count of Odd Lot Bid appendages	1	Byte
Count of Odd Lot Offer appendages	1	Byte
<b>&lt;&lt; Odd Lot Short Quote Appendages (Repeatable) &gt;&gt;</b>		
<b>Total Length</b>	<b>8*</b>	

*Minimum Length = 8 bytes. Total length may exceed if message includes Odd Lot Short Quote Appendages.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**6.3.3.2 Odd Lot Long Quote – Category Q Type M**

The Odd Lot Long Quote message is used to report odd lot bids and offers via the optional repeatable Odd Lot Long Quote Appendages. An odd lot quote from FINRA ADF is not supported via this message.

Message may be reported without any optional quote appendages when previously reported odd lot quotes are being cleared via the 'Clear Prior Odd Lot Quotes' field and there are no additional odd lot updates to report.

<b>Field Name</b>	<b>Length</b>	<b>Type</b>
Security Symbol	11	Char [ ]
Clear Prior Odd Lot Quotes	1	Char
Count of Odd Lot Bid appendages	1	Byte
Count of Odd Lot Offer appendages	1	Byte
<b>&lt;&lt; Odd Lot Long Quote Appendages (Repeatable) &gt;&gt;</b>		
<b>Total Length</b>	<b>14*</b>	

*Minimum Length = 14 bytes. Total length may exceed if message includes Odd Lot Long Quote Appendages.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**6.3.3.3 Odd Lot FINRA ADF Quote – Category Q Type T**

The Odd Lot FINRA ADF Quote message should only be used by FINRA ADF to report odd lot bids and offers via the optional repeatable Odd Lot Extended Quote Appendages.

Message may be reported without any optional quote appendages when previously reported odd lot quotes are being cleared via the 'Clear Prior Odd Lot Quotes' field and there are no additional odd lot updates to report.

<b>Field Name</b>	<b>Length</b>	<b>Type</b>
Security Symbol	11	Char [ ]
Clear Prior Odd Lot Quotes	1	Char
Count of Odd Lot Bid appendages	1	Byte
Count of Odd Lot Offer appendages	1	Byte
<b>&lt;&lt; Odd Lot Extended Quote Appendages (Repeatable) &gt;&gt;</b>		
<b>Total Length</b>	<b>14*</b>	

*Minimum Length = 14 bytes. Total length may exceed if message includes Odd Lot Extended Quote Appendages.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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### 6.3.4 Odd Lot Quote Appendages

Following odd lot quote appendages are supported for reporting odd lot bids and offers. Multiple odd lot quote appendages can be included in a quote message, though each message supports a specific type of appendage as defined in the respective message type layout.

#### 6.3.4.1 Odd Lot Short Quote Appendage

Field Name	Length	Type
Odd Lot Quote Price	2	Short
Odd Lot Quote Size	1	Byte
<b>Total Length</b>	<b>3</b>	

#### 6.3.4.2 Odd Lot Long Quote Appendage

Field Name	Length	Type
Odd Lot Quote Price	8	Long
Odd Lot Quote Size	1	Byte
<b>Total Length</b>	<b>9</b>	

#### 6.3.4.3 Odd Lot Extended Quote Appendage

Field Name	Length	Type
Odd Lot Quote Price	8	Long
Odd Lot Quote Size	1	Byte
Odd Lot FINRA Market Maker ID	4	Char [ ]
<b>Total Length</b>	<b>13</b>	

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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## 6.4 Trade Messages – Category T

### 6.4.1 Trading Status – Category T Type S

Trading Status messages from a Participant are supported over input lines to both the CTS and the CQS system. The Trading Status message allows a Participant that is the listing exchange for CTA eligible Equity, Local Issue or Bond information to notify CQS of Trading Halts, Resumes, Indications, Imbalances, Short Sale Restriction Indicators and Limit Up-Limit Down Reference Prices. A non-listing exchange can enter a Trading Status message to notify non-regulatory Halts, Resumes, trading range indication (if the stock is not halted) and a price indication (if the stock is halted for either a regulatory or non-regulatory reason).

Field Name	Length	Type
Security Symbol	11	Char [ ]
Instrument Type	1	Char
Last Price / Opening (Reopening) LULD Reference Price	8	Long
High Indication Price / Upper Limit Price Band	8	Long
Low Indication Price / Lower Limit Price Band	8	Long
Buy Volume	4	Integer
Sell Volume	4	Integer
Security Status	1	Char
Halt Reason	1	Char
Short Sale Restriction Indicator	1	Char
Trading Status ID	4	Integer
<b>Total Length</b>	<b>51</b>	

**Note:**

- The Trading Status message is applicable to the Listing Exchange of the issue designated by the symbol in **SECURITY SYMBOL** field. Only certain Trading Status messages received from non-Listing Exchanges are accepted: 1) halts for non-Regulatory halt reason (code I, X or Y) are accepted; 2) resume for non-Regulatory halt are accepted; 3) if a stock is not halted, only Trading Range Indications are accepted; 4) if a stock is halted, only Price Indications are accepted. All other Trading Status messages from non-Listing Markets are rejected back to the Participant.
- The ‘Trading Status ID’ field on Trading Status messages is used to perform a duplicate check. A Trading Status message with a duplicate ‘Trading Status ID’ is ignored. As such, the field must have a unique value for each subsequent Trading Status update per symbol.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**Trading Status – Category T Type S (*continued*)**

- To achieve redundancy Participants should disseminate Trading Status Messages to both CTS and CQS.
  - All Trading status updates shall be submitted in respectively same sequence across CQS and CTS input line
  - The Participant must provide the same value for the ‘Trading Status ID’ field when publishing the same Trading Status update across both CTS and CQS input lines.
- When Opening or Reopening a security symbol, Primary Listing Exchange must submit Trade status message to report the ‘Limit Up-Limit Down Reference Prices’ via the field ‘Last Price/Opening (Reopening) LULD Reference Price’ to CTA for establishing the LULD Price bands. This shall be reported whether there is an opening (reopening) trade or not.
- If a Trading Status message for a Halt is received with either a Regulatory or a Non-Regulatory status, the round lot or odd lot quotes for the Participants are not cleared. Participants are expected to remove their quotes when they halt trading for a symbol.
- CQS does not process Security Status updates for Trading Halts, Resumes and Indications received from participants via Long Quote messages
- The Trading Status (Category T Type S) message is not published on the multicast output lines. CQS publishes the Security Status updates for Halts, Resumes and Indications, etc. on the multicast output lines via the Long Quote message with the appropriate Security Status Indicator code as per the CQS Output Specifications

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**7.0 FIELD DESCRIPTIONS**

Field Name	Length	Description
Auction Collar Reference Price	8	<p>Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758. Optional set to zero.</p> <p>Represents the price used by the exchange to establish the Auction Collar.</p>
Auction Collar Lower Threshold Price	8	<p>Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758. Optional set to zero.</p> <p>Represents the latest lower threshold price of the Auction Collar. The lower threshold price of the Auction Collar is the lowest price of the auction collar, if any.</p>
Auction Collar Upper Threshold Price	8	<p>Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758. Optional set to zero.</p> <p>Represents the latest upper threshold price of the Auction Collar. The upper threshold price of the Auction Collar is the highest price of the auction collar, if any.</p>
Buy Volume	4	<p>Integer. Integer has a maximum volume of 4,294,967,295. Optional set to zero.</p> <p>The Buy Volume represents the reported imbalance of buy orders without matching sell orders for the security for a Participant.</p>

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**FIELD DESCRIPTIONS**

Field Name	Length	Description										
Clear Prior Odd Lot Quotes	1	<p>Char.</p> <p>Identifies whether to clear all previously reported odd lot bids and/or offers for the Participant identified as per the Participant ID field on the message header.</p> <p>If the field is populated, all previous odd lot bids and/or offers for that Participant are cleared prior to processing any new odd lot quotes provided in the message via the Odd Lot Quote Appendages.</p> <p>If the field is not populated, any previous reported odd lot quotes are <b>not</b> cleared and the Odd Lot Quote Appendages in the message are used to provide updates for individual odd lot quotes as applicable.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Code</th> <th style="text-align: center;">Value</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Space</td> <td style="text-align: center;">Not Applicable</td> </tr> <tr> <td style="text-align: center;">B</td> <td style="text-align: center;">Clear all previous odd lot Bids</td> </tr> <tr> <td style="text-align: center;">S</td> <td style="text-align: center;">Clear all previous odd lot Offers</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;">Clear all previous odd lot Bids and Offers</td> </tr> </tbody> </table>	Code	Value	Space	Not Applicable	B	Clear all previous odd lot Bids	S	Clear all previous odd lot Offers	X	Clear all previous odd lot Bids and Offers
Code	Value											
Space	Not Applicable											
B	Clear all previous odd lot Bids											
S	Clear all previous odd lot Offers											
X	Clear all previous odd lot Bids and Offers											
Count of Odd Lot Bid Appendages	1	<p>Byte. Optional set to zero (0 - 255).</p> <p>Identifies the number of odd lot bid appendages on a quote message. When a quote message has multiple odd lot bid appendages, those are grouped together and populated before any odd lot offer appendage.</p>										
Count of Odd Lot Offer Appendages	1	<p>Byte. Optional set to zero (0 - 255).</p> <p>Identifies the number of odd lot offer appendages on a quote message. When a quote message has multiple odd lot offer appendages, those are grouped together and populated after any offer odd lot bid appendages.</p>										

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**FIELD DESCRIPTIONS**

<b>Field Name</b>	<b>Length</b>	<b>Description</b>								
FINRA BBO Indicator	1	<p>Char.</p> <p>For FINRA ADF, represents the FINRA BBO state of the FINRA ADF quote.</p> <table border="1"> <thead> <tr> <th><b>Code</b></th> <th><b>Value</b></th> </tr> </thead> <tbody> <tr> <td align="center">Space</td> <td>FINRA BBO Indicator Not Applicable (used by Participants other than FINRA ADF)</td> </tr> <tr> <td align="center">A</td> <td>No FINRA BBO Change</td> </tr> <tr> <td align="center">B</td> <td>No FINRA BBO Exists</td> </tr> </tbody> </table>	<b>Code</b>	<b>Value</b>	Space	FINRA BBO Indicator Not Applicable (used by Participants other than FINRA ADF)	A	No FINRA BBO Change	B	No FINRA BBO Exists
<b>Code</b>	<b>Value</b>									
Space	FINRA BBO Indicator Not Applicable (used by Participants other than FINRA ADF)									
A	No FINRA BBO Change									
B	No FINRA BBO Exists									
FINRA Best Bid Market Maker ID	4	<p>Char [4]. Left justified, space-filled.</p> <p>Represents the FINRA ADF provided FINRA Best Bid Market Maker identifier of the Market Maker that had the FINRA Best Bid (FBBO).</p>								
FINRA Best Bid Price	8	<p>8 Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758. Optional set to zero.</p> <p>Represents the FINRA ADF provided FINRA Best Bid Price that is the FINRA Best Bid (FBBO).</p>								
FINRA Best Bid Quote Condition	1	<p>Char. Space-filled.</p> <p>Represents the FINRA ADF provided FINRA Best Bid Quote Condition associated with the FINRA Best Bid Price that had the FINRA Best Bid (FBBO).</p>								
FINRA Best Bid Size	4	<p>4 Integer. Integer has a maximum size of 4,294,967,295. Optional set to zero.</p> <p>Represents the FINRA ADF provided FINRA Best Bid Size associated with the FINRA Best Bid Price that had the FINRA Best Bid (FBBO).</p> <p>FINRA Best Bid Size is the number of shares for a symbol rounded down to the nearest multiple of its Round Lot Size. Round-lot size for a symbol can consist of 1, 10, 40 or 100 shares. As an example, for a symbol with round-lot size of 40, FINRA Best Bid Size can be in multiples of 40 i.e. 40, 80, 120 and so on.</p>								
FINRA Best Offer Price	8	<p>8 Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758. Optional set to zero.</p> <p>Represents the FINRA ADF provided Best FINRA Offer Price that is the FINRA Best Offer (FBBO).</p>								

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**FIELD DESCRIPTIONS**

<b>Field Name</b>	<b>Length</b>	<b>Description</b>										
FINRA Best Offer Size	4	<p>4 Integer. Integer has a maximum size of 4,294,967,295. Optional set to zero.</p> <p>Represents the FINRA ADF provided FINRA Best Offer Size associated with the FINRA Best Offer Price that had the FINRA Best Offer (FBBO).</p> <p>FINRA Best Offer Size is the number of shares for a symbol rounded down to the nearest multiple of its Round Lot Size. Round-lot size for a symbol can consist of 1, 10, 40 or 100 shares. As an example, for a symbol with round-lot size of 40, FINRA Best Offer Size can be in multiples of 40 i.e. 40, 80, 120 and so</p>										
FINRA Best Offer Market Maker ID	4	<p>Char [4]. Left justified, space-filled.</p> <p>Represents the FINRA ADF provided FINRA Best Offer Market Maker identifier of the Market Maker that had the FINRA Best Offer (FBBO).</p>										
FINRA Best Offer Quote Condition	1	<p>Char. Space-filled.</p> <p>Represents the FINRA ADF provided FINRA Best Offer Quote Condition associated with the Best FINRA Offer Price that had the FINRA Best Offer (FBBO).</p>										
FINRA Market Maker ID (MMID)	4	<p>Char [4]. Left justified, space-filled.</p> <p>Contains the FINRA Market Maker ID of the quoting participant on FINRA's Alternative Display Facility (ADF) or the FINRA ADF Identifier 'FNRA'.</p>										
Instrument Type	1	<p>Char.</p> <p>Identifies the instrument type relevant to the quote.</p> <table border="1" data-bbox="773 1430 1347 1621"> <thead> <tr> <th><b>Code</b></th> <th><b>Value</b></th> </tr> </thead> <tbody> <tr> <td align="center">0</td> <td>CTA Eligible Equity</td> </tr> <tr> <td align="center">1</td> <td>Local Issue</td> </tr> <tr> <td align="center">2</td> <td>Corporate Bond</td> </tr> <tr> <td align="center">3</td> <td>Government Bond</td> </tr> </tbody> </table> <p><b>Note:</b> Message is rejected if field value does not match the configured setting for the underlying symbol</p>	<b>Code</b>	<b>Value</b>	0	CTA Eligible Equity	1	Local Issue	2	Corporate Bond	3	Government Bond
<b>Code</b>	<b>Value</b>											
0	CTA Eligible Equity											
1	Local Issue											
2	Corporate Bond											
3	Government Bond											

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**FIELD DESCRIPTIONS**

Field Name	Length	Description																																																																								
Halt Reason	1	<p>Char.</p> <p>Denotes the reason for the Trading Halt.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> <th>Regulatory</th> <th>Non Regulatory</th> </tr> </thead> <tbody> <tr> <td>Spac</td> <td>Halt Reason Not Applicable</td> <td></td> <td></td> </tr> <tr> <td>A</td> <td>SIP Outage, Material SIP Latency, or Extraordinary Market Activity</td> <td>X</td> <td></td> </tr> <tr> <td>C</td> <td>Regulatory Concern</td> <td>X</td> <td></td> </tr> <tr> <td>D</td> <td>News Released (formerly News Dissemination)</td> <td>X</td> <td></td> </tr> <tr> <td>E</td> <td>Merger Effective</td> <td>X</td> <td></td> </tr> <tr> <td>F</td> <td>ETF Component Prices Not Available</td> <td>X</td> <td></td> </tr> <tr> <td>I</td> <td>Order Imbalance</td> <td></td> <td>X</td> </tr> <tr> <td>M</td> <td>Limit Up-Limit Down (LULD) Trading Pause</td> <td>X</td> <td></td> </tr> <tr> <td>N</td> <td>Corporate Action</td> <td>X</td> <td></td> </tr> <tr> <td>O</td> <td>New Security Offering</td> <td>X</td> <td></td> </tr> <tr> <td>P</td> <td>News Pending</td> <td>X</td> <td></td> </tr> <tr> <td>V</td> <td>Intraday Indicative Value Not Available</td> <td>X</td> <td></td> </tr> <tr> <td>X</td> <td>Operational</td> <td></td> <td>X</td> </tr> <tr> <td>Y</td> <td>Sub-Penny Trading</td> <td></td> <td>X</td> </tr> <tr> <td>1</td> <td>Market-Wide Circuit Breaker Level 1 – Breached</td> <td>X</td> <td></td> </tr> <tr> <td>2</td> <td>Market-Wide Circuit Breaker Level 2 – Breached</td> <td>X</td> <td></td> </tr> <tr> <td>3</td> <td>Market-Wide Circuit Breaker Level 3 – Breached</td> <td>X</td> <td></td> </tr> </tbody> </table> <p>Note 1: For a symbol in regulatory halt, halt state persists in CTA until a Resume is received from the Participant. If not Resumed at the end of a session, halt state is carried over and disseminated at the beginning of next session.</p> <p>Note 2: For a symbol in non-regulatory halt state, if Resume is not received from the Participant, halt state is reset at the end of the session. A state change is not disseminated by CTA for the next session.</p>	Code	Value	Regulatory	Non Regulatory	Spac	Halt Reason Not Applicable			A	SIP Outage, Material SIP Latency, or Extraordinary Market Activity	X		C	Regulatory Concern	X		D	News Released (formerly News Dissemination)	X		E	Merger Effective	X		F	ETF Component Prices Not Available	X		I	Order Imbalance		X	M	Limit Up-Limit Down (LULD) Trading Pause	X		N	Corporate Action	X		O	New Security Offering	X		P	News Pending	X		V	Intraday Indicative Value Not Available	X		X	Operational		X	Y	Sub-Penny Trading		X	1	Market-Wide Circuit Breaker Level 1 – Breached	X		2	Market-Wide Circuit Breaker Level 2 – Breached	X		3	Market-Wide Circuit Breaker Level 3 – Breached	X	
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**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**FIELD DESCRIPTIONS**

Field Name	Length	Description
High Indication Price / Upper Limit Price Band	8	<p>Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758. Optional set to zero.</p> <p>Represents an approximation of what the high end ‘Offer’ price of a security’s trading range may be. It is used for a security that is not Trading Halted, i.e., Trading Range Indication or following a Trading Halt, i.e., Price Indication.</p> <p><b>Note:</b> For Government Bonds, the High Indication Price (i.e., Bid) could reflect a value that is greater than the Low Indication Price (i.e., Offer).</p> <p>The <b>Upper Limit Price Band</b> represents the Listing Exchange’s last effective LULD Price Band Price that triggered the preceding Limit State that led to the LULD Trading Pause. Used in conjunction with the ‘Security Status’ field set to ‘Trading Halt’ and the ‘Halt Reason’ field set to ‘Limit-Up-Limit Down (LULD) Trading Pause’. If Upper Limit Price Band is non-zero, the Lower Limit Price Band is zero.</p>
Last Price / Opening (Reopening) LULD Reference Price	8	<p>Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758. Optional set to zero.</p> <p>Represents the last price for that security either on a Consolidated or an individual Participant basis at the time it is disseminated.</p> <p><b>Opening (Reopening) LULD Reference Price:</b> The Opening (Reopening) LULD Reference Price is used by the listing exchange to report the reference price for LULD Price Bands to SIP, regardless of whether it is Opening (Reopening) the security symbol with a quote or a trade. Used in conjunction with ‘Security Status’ field code set to Limit Up-Limit Down (LULD) Reference Price, with the Opening (Reopening) LULD reference price value contained in the Last Price/Opening (Reopening) LULD Reference Price field.</p>

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**FIELD DESCRIPTIONS**

Field Name	Length	Description								
Low Indication Price / Lower Limit Price Band	8	<p>Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758. Optional set to zero.</p> <p>The <b>Low Indication Price</b> represents an approximation of what the low end “Bid” price of a security’s trading range may be. It is used for a security that is not Trading Halted, i.e., Trading Range Indication or following a Trading Halt, i.e., Price Indication.</p> <p><b>Note:</b> For Government Bonds, the High Indication Price (i.e., Bid) could reflect a value that is greater than the Low Indication Price (i.e., Offer).</p> <p>The <b>Lower Limit Price Band</b> represents the Listing Exchange’s last effective LULD Price Band Price that triggered the preceding Limit State that led to the LULD Trading Pause. Used in conjunction with the ‘Security Status’ field set to ‘Trading Halt’ and the ‘Halt Reason’ field set to ‘Limit-Up-Limit Down (LULD) Trading Pause’. If Lower Limit Price Band is non-zero, the Upper Limit Price Band is zero.</p>								
Market Condition	1	<p>Char.</p> <p>Identifies the market condition of a quote for a security. <b>Crossed Market</b> and <b>Locked Market</b> are only applicable to Government Bonds. In cases of a <b>Normal Auction Market</b>, the Round Lot Bid Price must be less than the Round Lot Offer Price. In cases of a <b>Crossed Market</b>, the Round Lot Bid Price must be greater than the Round Lot Offer Price. In cases of a <b>Locked Market</b>, the Round Lot Bid Price must be equal to the Round Lot Offer Price.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #ADD8E6;">Code</th> <th style="background-color: #ADD8E6;">Value</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Space</td> <td style="text-align: center;">Normal Auction Market</td> </tr> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">Crossed Market</td> </tr> <tr> <td style="text-align: center;">B</td> <td style="text-align: center;">Locked Market</td> </tr> </tbody> </table>	Code	Value	Space	Normal Auction Market	A	Crossed Market	B	Locked Market
Code	Value									
Space	Normal Auction Market									
A	Crossed Market									
B	Locked Market									
Number of Extensions	1	<p>Byte. Optional set to zero.</p> <p>Identifies the number of manual or automatic extensions the applicable auction has received. The first Auction Collar extension, at the time of the LULD Trading Pause, will be set to zero (0) indicating the first Auction Status message and will increment by one (1) for each new Auction Status message sent during the LULD Trading Pause event.</p>								

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
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**FIELD DESCRIPTIONS**

<b>Field Name</b>	<b>Length</b>	<b>Description</b>								
Odd Lot Quote Price	2 or 8	<p>2 Short. Short have implied 2 decimal places and supports a maximum price of \$655.35.</p> <p>8 Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758.</p> <p>Represents the price associated with an odd lot bid or offer.</p>								
Odd Lot Quote Size	1	<p>Byte. Optional set to zero.</p> <p>Represents the size associated with an odd lot bid or offer. It is represented in number of shares and is always less than the Round lot size of a symbol. E.g., for a symbol with Round Lot Size of 100, Odd Lot Quoe Size can be up to 99 shares.</p> <p>When Odd Lot Quote Size is set to zero, it indicates that a previously reported odd lot bid or offer at the respective Odd Lot Quote Price is being removed.</p>								
Odd Lot FINRA Market Maker ID	4	<p>Char [4]. Left justified, space-filled.</p> <p>Contains the identifier of the FINRA ADF Market Maker associated with the respective FINRA Odd Lot Bid or Offer.</p>								
Odd Lot Quote Appendage Type	1	<p>Char</p> <p>Identifies the type of Odd Lot Quote appendage on a Partial Reject Message.</p> <table border="1" data-bbox="727 1184 1395 1339"> <thead> <tr> <th><b>Code</b></th> <th><b>Value</b></th> </tr> </thead> <tbody> <tr> <td>S</td> <td>Odd Lot Quote Short Appendage</td> </tr> <tr> <td>L</td> <td>Odd Lot Quote Long Appendage</td> </tr> <tr> <td>E</td> <td>Odd Lot Quote Extended Appendage</td> </tr> </tbody> </table>	<b>Code</b>	<b>Value</b>	S	Odd Lot Quote Short Appendage	L	Odd Lot Quote Long Appendage	E	Odd Lot Quote Extended Appendage
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**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
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**FIELD DESCRIPTIONS**

Field Name	Length	Description																												
Quote Condition	1	<p>Char.</p> <p>Denotes a particular condition applicable to the quote. The Quote Condition is used to determine whether a quote qualifies for the Best Bid and Best Offer calculation.</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td align="center">A</td> <td>Slow Quote on Offer Side (Eligible for BBO)</td> </tr> <tr> <td align="center">B</td> <td>Slow Quote on Bid Side (Eligible for BBO)</td> </tr> <tr> <td align="center">C</td> <td>Closing (Not eligible for BBO)</td> </tr> <tr> <td align="center">E</td> <td>Slow Quote Due to LRP or Gap Quote on the Bid Side (ONLY OFFER SIDE is eligible for BBO)</td> </tr> <tr> <td align="center">F</td> <td>Slow Quote Due to LRP or Gap Quote on the Offer Side (ONLY BID SIDE is eligible for BBO)</td> </tr> <tr> <td align="center">H</td> <td>Slow Quote on the Bid and Offer Sides (Eligible for BBO)</td> </tr> <tr> <td align="center">L</td> <td>Closed Market Maker (FINRA) (Not eligible for BBO)</td> </tr> <tr> <td align="center">N</td> <td>Non-Firm Quote (Not eligible for BBO)</td> </tr> <tr> <td align="center">O</td> <td>Opening Quote (Eligible for BBO)</td> </tr> <tr> <td align="center">R</td> <td>Regular (Eligible for BBO)</td> </tr> <tr> <td align="center">U</td> <td>Slow Quote Due to Liquidity Replenishment Point (LRP), or Gap Quote on Both the Bid and Offer Sides (Not eligible for BBO)</td> </tr> <tr> <td align="center">W</td> <td>Slow Quote Due to Set Slow List on Both the Bid and Offer Sides (Eligible for BBO)</td> </tr> <tr> <td align="center">4</td> <td>On Demand Intra-Day Auction (Not eligible for BBO)</td> </tr> </tbody> </table>	Code	Value	A	Slow Quote on Offer Side (Eligible for BBO)	B	Slow Quote on Bid Side (Eligible for BBO)	C	Closing (Not eligible for BBO)	E	Slow Quote Due to LRP or Gap Quote on the Bid Side (ONLY OFFER SIDE is eligible for BBO)	F	Slow Quote Due to LRP or Gap Quote on the Offer Side (ONLY BID SIDE is eligible for BBO)	H	Slow Quote on the Bid and Offer Sides (Eligible for BBO)	L	Closed Market Maker (FINRA) (Not eligible for BBO)	N	Non-Firm Quote (Not eligible for BBO)	O	Opening Quote (Eligible for BBO)	R	Regular (Eligible for BBO)	U	Slow Quote Due to Liquidity Replenishment Point (LRP), or Gap Quote on Both the Bid and Offer Sides (Not eligible for BBO)	W	Slow Quote Due to Set Slow List on Both the Bid and Offer Sides (Eligible for BBO)	4	On Demand Intra-Day Auction (Not eligible for BBO)
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**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**FIELD DESCRIPTIONS**

Field Name	Length	Description										
Reserved	Variable	Field is reserved for future use.										
Retail Interest Indicator	1	<p>Char.</p> <p>When Retail Price Improvement (RPI) interest is priced better than the Protected Best Bid or Offer (PBBO) by a minimum of \$0.001, an indication of interest on the Bid, Offer, or both the Bid and Offer will identify that interest will be eligible to interact with incoming Retail Order interest.</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th style="background-color: #ADD8E6;">Code</th> <th style="background-color: #ADD8E6;">Value</th> </tr> </thead> <tbody> <tr> <td>Space</td> <td>Retail Interest Not Applicable</td> </tr> <tr> <td>A</td> <td>Retail Interest on Bid Quote</td> </tr> <tr> <td>B</td> <td>Retail Interest on Offer Quote</td> </tr> <tr> <td>C</td> <td>Retail Interest on both the Bid and Offer Quotes</td> </tr> </tbody> </table>	Code	Value	Space	Retail Interest Not Applicable	A	Retail Interest on Bid Quote	B	Retail Interest on Offer Quote	C	Retail Interest on both the Bid and Offer Quotes
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Round Lot Bid Price	2 or 8	<p>2 Short. Short have implied 2 decimal places and a maximum price of \$655.35.</p> <p>8 Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758.</p> <p>The Round Lot Bid Price represents the highest protected bid price for a Participant at a particular time for a security.</p> <p><b>When the Bid Price and the Bid Size fields are all zeroes, it represents a 'No Bid' quote.</b></p>										
Round Lot Bid Size	2 or 4	<p>2 Short. Short have a maximum size of 65,535.</p> <p>4 Integer. Integer has a maximum size of 4,294,967,295.</p> <p>Identifies the number of shares for a symbol rounded down to the nearest multiple of its Round Lot Size. Round-lot size for a symbol can consist of 1, 10, 40 or 100 shares. As an example, for a symbol with round-lot size of 40, Round Lot Bid Size can be in multiples of 40 i.e. 40, 80, 120 and so on.</p>										

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**FIELD DESCRIPTIONS**

Field Name	Length	Description
Round Lot Offer Price	2 or 8	<p>2 Short. Short have implied 2 decimal places and a maximum price of \$655.35.</p> <p>8 Long. Long have implied 6 decimal places and supports a maximum price of \$92,233,720,368.547758.</p> <p>The Round Lot Offer Price represents the lowest protected offer price for a Participant at a particular time for a security. <b>When the Offer Price and the Offer Size fields are all zeroes, it represents a 'No Offer' quote.</b></p>
Round Lot Offer Size	2 or 4	<p>2 Short. Short have a maximum size of 65,535.</p> <p>4 Integer. Integer has a maximum size of 4,294,967,295.</p> <p>Identifies the number of shares for a symbol rounded down to the nearest multiple of its Round Lot Size. Round-lot size for a symbol can consist of 1, 10, 40 or 100 shares. As an example, for a symbol with round-lot size of 40, Round Lot Offer Size can be in multiples of 40 i.e. 40, 80, 120 and so on.</p>

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
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**FIELD DESCRIPTIONS**

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Security Status	1	<p>Char.</p> <p>Represents the trading action on the Trading Status (Category T Type S) message</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Space</td> <td>Security Status Not Applicable</td> </tr> <tr> <td>1*</td> <td>Reserved</td> </tr> <tr> <td>2</td> <td>Trading Halt</td> </tr> <tr> <td>3</td> <td>Resume</td> </tr> <tr> <td>4*</td> <td>Reserved</td> </tr> <tr> <td>5</td> <td>Price Indication</td> </tr> <tr> <td>6</td> <td>Trading Range Indication</td> </tr> <tr> <td>7</td> <td>Market Imbalance Buy</td> </tr> <tr> <td>8</td> <td>Market Imbalance Sell</td> </tr> <tr> <td>9</td> <td>Closing Imbalance Buy</td> </tr> <tr> <td>A</td> <td>Closing Imbalance Sell</td> </tr> <tr> <td>B*</td> <td>Reserved</td> </tr> <tr> <td>C</td> <td>No Market Imbalance</td> </tr> <tr> <td>D</td> <td>No Closing Imbalance</td> </tr> <tr> <td>E</td> <td>Short Sale Restriction</td> </tr> <tr> <td>F</td> <td>Limit Up-Limit Down (LULD) Reference Price</td> </tr> </tbody> </table> <p>* Reserved Security Status Indicator codes are not supported</p>	Code	Value	Space	Security Status Not Applicable	1*	Reserved	2	Trading Halt	3	Resume	4*	Reserved	5	Price Indication	6	Trading Range Indication	7	Market Imbalance Buy	8	Market Imbalance Sell	9	Closing Imbalance Buy	A	Closing Imbalance Sell	B*	Reserved	C	No Market Imbalance	D	No Closing Imbalance	E	Short Sale Restriction	F	Limit Up-Limit Down (LULD) Reference Price
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**FIELD DESCRIPTIONS**

Field Name	Length	Description																															
Security Symbol	5 or 11	<p>Char [5] or [11]. Left justified, space-filled.</p> <p>Contains the security symbol. Suffixes start with one of the following characters with no embedded spaces: (1) ASCII Period (.), (2) lower case p, (3) lower case ‘r’, or (4) lower case ‘w’.</p> <p><b>Note:</b> CQS will allow for a base or root symbol to consist of from one (1) up to six (6) characters with the remaining characters in the security symbol field available for possible suffixes.</p> <p><b>Identification of Test Data:</b> The purpose of a Test Message is to have a mechanism whereby end-to-end connectivity and functionality between the CQS Participant and Data Recipient can be tested prior to the opening or during normal operational hours.</p> <p>Messages with any of the dedicated test symbols will be included in Participant statistics (e.g., National BBO calculations), but will be excluded in quote counts, etc.</p> <p>Alphanumeric Test Symbols are reserved for future use.</p> <table border="1"> <thead> <tr> <th>Listing Exchange</th> <th>Test Symbol</th> </tr> </thead> <tbody> <tr> <td rowspan="4">NYSE</td> <td>CBO</td> </tr> <tr> <td>CBX</td> </tr> <tr> <td>NTEST</td> </tr> <tr> <td>01N thru 12N</td> </tr> <tr> <td rowspan="3">NYSE American</td> <td>CTEST</td> </tr> <tr> <td>ATEST</td> </tr> <tr> <td>01A thru 12A</td> </tr> <tr> <td rowspan="5">NYSE Arca</td> <td>IGZ</td> </tr> <tr> <td>ZVV</td> </tr> <tr> <td>ZZK</td> </tr> <tr> <td>ZZZ</td> </tr> <tr> <td>PTEST</td> </tr> <tr> <td></td> <td>01P thru 12P</td> </tr> <tr> <td>NYSE Texas</td> <td>MTEST</td> </tr> <tr> <td rowspan="4">Cboe BZX</td> <td>ZBZX</td> </tr> <tr> <td>ZTEST</td> </tr> <tr> <td>ZTST</td> </tr> <tr> <td>01Z thru 12Z</td> </tr> <tr> <td rowspan="4">IEX</td> <td>ZIEXT</td> </tr> <tr> <td>ZEXIT</td> </tr> <tr> <td>ZXIET</td> </tr> <tr> <td>01V thru 12V</td> </tr> </tbody> </table>	Listing Exchange	Test Symbol	NYSE	CBO	CBX	NTEST	01N thru 12N	NYSE American	CTEST	ATEST	01A thru 12A	NYSE Arca	IGZ	ZVV	ZZK	ZZZ	PTEST		01P thru 12P	NYSE Texas	MTEST	Cboe BZX	ZBZX	ZTEST	ZTST	01Z thru 12Z	IEX	ZIEXT	ZEXIT	ZXIET	01V thru 12V
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**FIELD DESCRIPTIONS**

<b>Field Name</b>	<b>Length</b>	<b>Description</b>								
Security Symbol Begin Range	11	<p>Char [11]. Left justified, space-filled.</p> <p>Contains the alphabetic range for the first symbol and do not need to be an exact match of the symbol(s) being affected.</p> <p>For example, if the field contains “A” the start of the alphabetic range is “A ” (A followed by 10 spaces); if the field contains “ABC” the start of the alphabetic range is “ABC ” (ABC followed by 8 spaces).</p>								
Security Symbol End Range	11	<p>Char [11]. Left justified, space-filled.</p> <p>Contains the alphabetic range for the last symbol and do not need to be an exact match for the symbol(s) being affected.</p> <p>For example, if the field contains “B” the alphabetic range is the values through “B ” (B followed by 10 spaces), if the field contains “BCD” the alphabetic range is through “BCD ” (BCD followed by 8 spaces).</p>								
Sell Volume	4	<p>Integer. Integer has a maximum volume of 4,294,967,295.</p> <p>Represents the reported imbalance of sell orders without matching buy orders for the security for a Participant.</p>								
Settlement Condition	1	<p>Char.</p> <p>Identifies the settlement condition for a security.</p> <table border="1" data-bbox="813 1262 1386 1415"> <thead> <tr> <th><b>Code</b></th> <th><b>Value</b></th> </tr> </thead> <tbody> <tr> <td>Space</td> <td>Regular Way Settlement</td> </tr> <tr> <td>A</td> <td>Cash (only) Settlement</td> </tr> <tr> <td>B</td> <td>Next Day (only) Settlement</td> </tr> </tbody> </table>	<b>Code</b>	<b>Value</b>	Space	Regular Way Settlement	A	Cash (only) Settlement	B	Next Day (only) Settlement
<b>Code</b>	<b>Value</b>									
Space	Regular Way Settlement									
A	Cash (only) Settlement									
B	Next Day (only) Settlement									

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**FIELD DESCRIPTIONS**

Field Name	Length	Description										
Short Sale Restriction Indicator	1	<p>Char.</p> <p>Identifies whether or not a Short Sale Restriction is in effect. Populated by the Primary Listing Exchange for a security, with the previous quote price.</p> <p><b>Day 1:</b> When a security's price decreases by 10% or more from the previous day's closing price, the primary listing market will generate a Quote message denoting 'Short Sale Restriction Activated'.</p> <p><b>Day 2:</b> As the short sale restriction will remain in effect the day after activation, CTA updates the state to 'Continued' for the next day. The primary listing market will generate a Quote message denoting 'Short Sale Restriction Continued' (anticipated prior to the primary listing market open). In the event a security's price decreases by an additional 10% or more from the previous day's closing price, the primary listing market will generate a Quote message denoting 'Short Sale Restriction Activated' (reverts to Day 1).</p> <p><b>Day 3:</b> As the short sale restriction is to be lifted at the end of Day 2, CTA updates the state to 'Deactivated' for the next day. The primary listing market will generate a Trading Status message denoting 'Short Sale Restriction Deactivated' (anticipated prior to the primary listing market open).</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="background-color: #ADD8E6;">Code</th> <th style="background-color: #ADD8E6;">Value</th> </tr> </thead> <tbody> <tr> <td>Space</td> <td>Short Sale Restriction Not Applicable</td> </tr> <tr> <td>A*</td> <td>Short Sale Restriction Activated</td> </tr> <tr> <td>C*</td> <td>Short Sale Restriction Continued</td> </tr> <tr> <td>D*</td> <td>Short Sale Restriction Deactivated</td> </tr> </tbody> </table> <p><b>Note1:</b> A Code specified for the Short Sale Restriction Indicator field on an input Long Quote Message is silently dropped. Participants must use Trading Status (Category T Type S) message to report Short Sale Restriction updates.</p> <p><b>Note 2:</b> Short Sale Restriction state changes when the Session for next trading day begins at. E.g., a Short Sale Restriction state of Continued for a given symbol ends when the current session ends at 8:00 PM, and the state is updated to Deactivated when the next CTA session starts at ~9:00 PM.</p>	Code	Value	Space	Short Sale Restriction Not Applicable	A*	Short Sale Restriction Activated	C*	Short Sale Restriction Continued	D*	Short Sale Restriction Deactivated
Code	Value											
Space	Short Sale Restriction Not Applicable											
A*	Short Sale Restriction Activated											
C*	Short Sale Restriction Continued											
D*	Short Sale Restriction Deactivated											

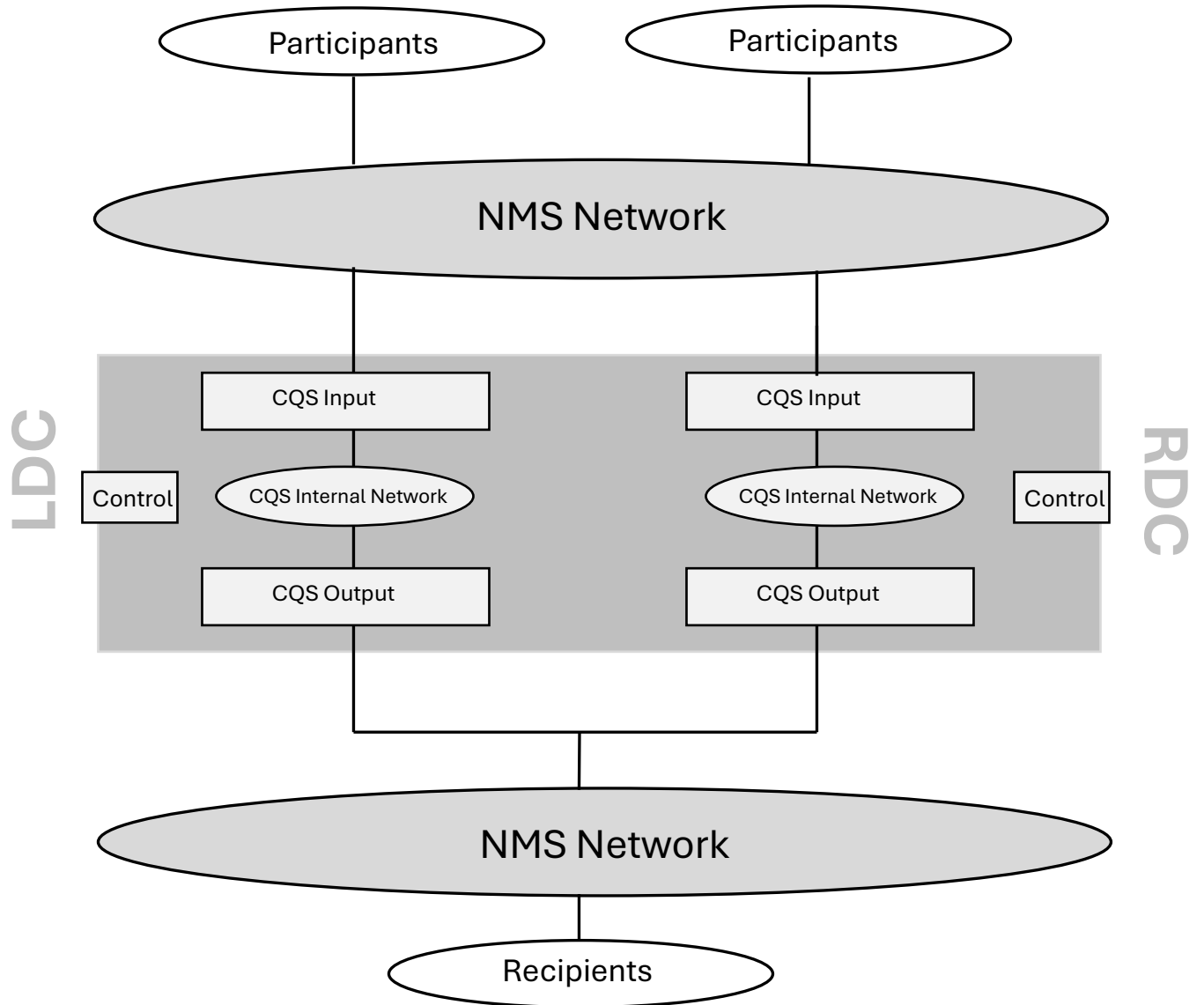
**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**FIELD DESCRIPTIONS**

Field Name	Length	Description
Timestamp 2	8	<p>2 x Integer (pair of Integers). Optional set to zero.</p> <p>Timestamp 2 is a FINRA Alternative Display Facility (ADF)-provided timestamp represented in terms of nanoseconds since Epoch. The first integer contains the number of seconds from Epoch 1/1/1970, 00:00:00 UTC. The next integer contains the nanosecond portion of the time (e.g., 972402315). If Timestamp 2 is not provided, this field should be set to zero. For any messages generated by CQS, e.g., messages generated on behalf of a Participant, Administrative messages and Control messages, the Timestamp 2 field will be set to zero.</p> <ul style="list-style-type: none"> <li>▪ <b>If from an Exchange: Timestamp 2</b> field should be set to zero.</li> <li>▪ <b>If from the FINRA Alternative Display Facility (ADF):</b> <ul style="list-style-type: none"> <li>▪ <b>If the FINRA ADF</b> provides a proprietary feed of its quotation information, then FINRA will publish the time of the quotation as also published on the facility's proprietary feed. FINRA shall provide such times to the Processor in nanoseconds since Epoch.</li> <li>▪ <b>If the FINRA ADF does not</b> have a proprietary quotation feed then the Timestamp 2 field should be set to zero.</li> </ul> </li> </ul>
Trading Status ID	4	<p>Integer.</p> <p>Contains identifier for each unique Trading Status Message.</p> <p>'Trading Status ID' on Trading Status Messages must contain a non-Zero value.</p> <p>Note: This field is used to eliminate duplicate Trading Status message received over CQS and CTS input lines. For every new Trading Status update, participants must provide a unique value for 'Trading Status ID' field per symbol. Any Trading Status message for a symbol containing a duplicate 'Trading Status ID' is ignored. For the same Trading Status update published across CQS and CTS input lines, Participant shall provide same value for 'Trading Status ID'</p> <p>Note: There is no corresponding 'Trading Status ID' disseminated over the multicast feed.</p>

APPENDIX A: CQS CONFIGURATION

**CQS CONFIGURATION**



**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**APPENDIX B: GLOSSARY**

<b>Term</b>	<b>Description</b>
Below Continuing Listing Standards	A financial status designation pertaining to Tape ‘A’ and Tape ‘B’ listed securities. The status identifies a company, whose issue is listed on the New York Stock Exchange, the NYSE American Stock Market or on one of the participating U.S. Stock Exchanges, and has failed to meet established listings standards. The listing exchange will subsequently review the appropriateness of continuing to list the issue, and may decide to commence the process of delisting the issue.
Cash (Only) Settlement	A security settling in cash all day on a participant or consolidated basis, such as a Common, Preferred or Right that is nearing expiration. Participants can elect to report different settlements in the same security during the day based on their own settlement requirements. For example, one participant can report quotes as cash (only) settlement while another participant can report quotes as regular or next day settlement.
Creations Suspended (For Exchange Traded Products)	A financial status designation used to denote the ability to create new shares of this Exchange Traded Product (ETP) has been temporarily suspended by the ETP Issuer. ETPs that are closed for Creations typically are allowed to continue trading on the listing market once the ETP Issuer publishes the press release.
Crossed Market	Indicates a Round Lot Bid Price, which is greater than the Round Lot Offer Price for a security for a quote. (Only applicable to Bonds.)
CTA Eligible Equity	Generally, any common stock, rights, long-term warrants or preferred stock which becomes registered on any national securities exchange or is admitted to unlisted trading privileges thereon and which at the time of such registration or at the commencement of such trading substantially meets the original listing requirements of the NYSE or the NYSE American Stock Market for such securities.
Ex-Distribution	Securities without the right to receive the forthcoming distribution of securities, which has been recently declared.
Ex-Dividend	Securities without the right to receive the forthcoming dividend, which has been recently declared.
Ex-Interest	Debt related securities without the right to receive the forthcoming interest, which has been recently declared.
Ex-Rights	Securities without the right to buy a company's securities at a discount from the prevailing market price, which was distributed until a particular date. Typically, after that date, the rights trade separately from the security itself.
Late Filing	A financial status designation pertaining to Tape ‘A’ and Tape ‘B’ issues (i.e. issues listed on the NYSE, the NYSE American Stock Market or on one of the participating U.S. Stock Exchanges). The status identifies a company, which has failed to meet established listings standards for filing its annual reports.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**GLOSSARY**

Term	Description
Limit Up-Limit Down (LULD) Price Band	<p>The Limit Up-Limit Down Price Band published during Regular Trading Hours represents a price range which is set at a percentage level above and below the average price of a security over the immediately preceding five (5) minute period. Price Bands prevail for a minimum of thirty (30) seconds. During a Limit State Price Bands will not be disseminated and will recommence when Limit State is terminated.</p> <p style="color: red;">The Price Band will also be published overnight during the Extended Trading Hours starting at 9:00 PM and will be cleared at 4:00 AM.</p> <p>For further details related to Limit Up-Limit Down, reference the following: <a href="http://www.sec.gov/news/press/2011/2011-84.htm">http://www.sec.gov/news/press/2011/2011-84.htm</a></p> <p><b>Note1:</b> There are no sizes associated with LULD Price Bands. <b>Note2:</b> ‘Limit Up-Limit Down’ Price Bands during Regular Trading Hours are republished every 30 seconds at clock time. Overnight Price Bands during Extended Trading Hours are not republished unless being updated.</p>
Limit Up-Limit Down (LULD) Reference Price	Indicates the Reference Price provided by the listing exchange for LULD Price Band calculation when the listing exchange opens (reopens) a security symbol either with a quote or with a trade.
Limit Up-Limit Down (LULD) Trading Pause	Denotes a five-minute regulatory trading halt (pause) for an individual security that does not exit a Limit State within 15 seconds.
Limit State	Indicates that a National Best Bid is equal to the Upper Limit Price Band, or that a National Best Offer is equal to the Lower Limit Price Band.
Liquidation (For Exchange Traded Products)	A financial status designation used to denote that the ETP Issuer announced the ETP will be liquidated and NYSE ARCA announced the date the ETP will be suspended from trading.
Local Issue	A Local Issue is an issue that does <b>not</b> meet the NYSE American Stock Market or NYSE listing requirements (is not CTA eligible) but is traded at one or more participating U.S. Stock Exchanges.
Locked Market	Indicates an identical Round Lot Bid and Offer Price for a security for a quote. (Only applicable to Bonds.)

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**GLOSSARY**

<b>Term</b>	<b>Description</b>
Market-Wide Circuit Breaker Level 1 – 7% Decline	This Regulatory Trading Halt is used to denote that trading is suspended due to the S&P 500 Index reaching a 7% decline level below its closing value on the previous trading day. A Level 1 Market-Wide Circuit Breaker Regulatory Trading Halt would operate as follows: before 3:25 p.m. ET – duration 15 minutes; at or after 3:25 p.m. ET – trading shall continue, unless there is a Level 3 Market-Wide Circuit Breaker Regulatory Trading Halt.
Market-Wide Circuit Breaker Level 2 – 13% Decline	This Regulatory Trading Halt is used to denote that trading is suspended due to the S&P 500 Index reaching a 13% decline level below its closing value on the previous trading day. A Level 2 Market-Wide Circuit Breaker Regulatory Trading Halt would operate as follows: before 3:25 p.m. ET – duration 15 minutes; at or after 3:25 p.m. ET – trading shall continue, unless there is a Level 3 Market-Wide Circuit Breaker Regulatory Trading Halt.
Market-Wide Circuit Breaker Level 3 – 20% Decline	This Regulatory Trading Halt is used to denote that trading is suspended due to the S&P 500 Index reaching a 20% decline level below its closing value on the previous trading day. A Level 3 Market-Wide Circuit Breaker Regulatory Trading Halt would operate as follows: at any time during regular trading hours, trading shall Halt and <u>not</u> Resume for the remainder of the trading day.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**GLOSSARY**

<b>Term</b>	<b>Description</b>
Next Day (Only) Settlement	Same definition as cash (only) settlement except settlement is next day.
Non-Regulatory Trading Halt	A Trading Halt for a Participant due to Order Imbalance, Order Influx or Operational.
Normal Auction Market	Where the quote bid price is less than the offer price for a security for a Participant.
On Demand Intra-Day Auction	This quote condition is used to provide additional clarity to the CQS Participants and allow them to take part in an auction which will enhance liquidity in the marketplace. It is anticipated that this quote condition will be input into CQS by Participants with a zero bid price, zero bid size, zero offer price, and zero offer size and disseminated over the CQS multicast output lines.
Order Imbalance	Denotes a non-regulatory halt condition where there is a significant imbalance of buy or sell orders.
Operational	Denotes a non-regulatory Trading Halt. The ability to trade a security by a Participant is temporarily inhibited due to technical reasons.
Price Indication	Reflects an approximate price range of what a security's trading range (Bid and Offer prices) will be when trading resumes after a Trading Halt.
Redemptions Suspended (For Exchange Traded Products)	A financial status designation used to denote the ability to redeem shares of this ETP has been suspended by the ETP Issuer. ETPs that are closed for redemption will remain halted on the listing market.
Regular Way Settlement	The settlement date is within three (3) business days following the date of the transaction.
Regular Trading Hours	Comprises of core session trading hours between 9:30 AM until 4:00 PM

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**GLOSSARY**

<b>Term</b>	<b>Description</b>
Regulatory Halt - Corporate Action	Denotes a regulatory trading halt when the primary market determines a halt is necessary pending the outcome of a Corporate Action event. Trading is suspended until the results of the Corporate Action are confirmed and the security is suitable for trading.
Regulatory Halt - ETF Component Prices Not Available	Denotes a regulatory trading halt when a significant percentage of an ETF's weight is invested in components in which pricing is not available. Trading is suspended until the primary market determines that such condition no longer exists.
Regulatory Halt - Intraday Indicative Value Not Available	Denotes a regulatory trading halt when the Intraday Indicative Value of an ETF is not being disseminated or is being disseminated incorrectly. Trading is suspended until the primary market determines that such condition no longer exists.
Regulatory Halt - Merger Effective	Denotes a regulatory trading halt in connection with a security being suspended in connection with a merger. Trading is suspended indefinitely.
Regulatory Halt - New Security Offering	Denotes a regulatory trading halt in connection with a new security offering. Trading is suspended until the new security is admitted to trading on the primary listing exchange during the primary trading session.
Regulatory Halt - News Pending	Denotes a regulatory Trading Halt due to an expected news announcement, which may influence the security. A Trading Halt may be continued once the news has been disseminated.
Regulatory Halt - News Released	Denotes a regulatory trading halt when relevant news influencing the security is being disseminated. Trading is suspended until the primary market determines that an adequate time has passed to allow for full dissemination of the news into the market.
Regulatory Halt - Regulatory Concern	Denotes a regulatory trading halt due to an ongoing regulatory concern regarding the suitability of trading in a security. Trading is suspended until the primary market determines the security is suitable for trading
Regulatory Halt - SIP Outage, Material SIP Latency, or Extraordinary Market Activity	Denotes a regulatory halt when SIP is either unable to disseminate or having a delay in disseminating quote or trade information accurately for a material period, or a system disruption in SIP or one or more Trading Centers negatively impacts quoting and trading activity necessary to maintain a fair and orderly market.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**GLOSSARY**

Term	Description
Republished Limit Up-Limit Down Price Band	Indicates that the Price Band being disseminated is a republication of the latest Price Band for a security.
Resume	This quote condition along with zero-filled bid, offer and size fields is used to indicate that trading for a Participant is no longer suspended in a security which had been Trading Halted.
Round Lot	Number of shares that is equal to or an exact multiple of the symbol Round Lot Size. Round-lot size for a symbol can consist of 1, 10, 40 or 100 shares.
Short Sale Restriction	A restriction designed to control short selling from further driving down the price of a security any day in which the price declines by 10% or more from the previous day's closing price. Once the Short Sale Restriction is activated, a Short Sale Restriction would be in effect in that security for the remainder of the day as well as the following day, unless deactivated.
Sub-Penny Trading	Indicates a non-regulatory Trading Halt for a security whose price may fall below \$1.05, possibly leading to a sub-penny execution.
Trading Day	The trading day comprises of 23 hours session from 9:00 PM ET till 8:00 PM the following day. Each trading day starts on Sunday, Monday, Tuesday, Wednesday and Thursday nights, when the following day is not a holiday.
Trading Halt	Temporary halt in trading in a particular security for a Participant.
Trading Range Indication	Denotes the probable trading range (Bid and Offer prices, no sizes) of a security that is <u>not</u> Trading Halted. The Trading Range Indication is used prior to or after the opening of a security.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**APPENDIX C: FINRA OPEN / FINRA CLOSE**

The FINRA Open (Category C Type O) and FINRA Close (Category C Type C) messages are specified for transmission by FINRA to CQS to indicate the Open or Close state of FINRA Market Maker quotes. All FINRA Market Maker quotes must be in either an Open or Close state where Open implies current and Close implies not current.

Upon detection of a FINRA Open (Category C Type O) message received from FINRA, CQS shall assemble and transmit a FINRA Open message to the output Multicast line data recipients. FINRA can send multiple FINRA Open messages in a trading day. Upon detection of a FINRA Closed (Category C Type C) message received from FINRA, CQS shall assemble and transmit a FINRA Closed message to the output Multicast line data recipients.

Prior to receipt of the FINRA Open (Category C Type O) message, all quotes are to be indicated as Closed by FINRA. Upon receipt of the FINRA Open message, all individual Market Maker quotes that have been transmitted during the current day prior to receipt of the FINRA Open message should be indicated as Open by FINRA.

Upon receipt of the FINRA Closed (Category C Type C) message, all individual Market Maker quotes should be indicated as closed. FINRA can send multiple FINRA Closed messages in a trading day. After receipt of the FINRA Closed (Category C Type C) message, individual Market Maker quotes in either the Open or Close state may be transmitted with the state of the quote indicated in the Quote Condition field of the message text as one of the following:

- R** - Regular (Open Market Maker Quote)
- L** - Closed Market Maker Quote

CQS Multicast line data recipients shall mark these quotes accordingly within their systems.

## **APPENDIX D: QUOTE CONDITIONS**

The Quote Condition determines whether a quote qualifies to be included in the calculation of the National BBO. The National BBO calculation is performed whenever a new qualifying quote with price and size filled Bid and/or Offer is received from a Participant. For quotes with BBO eligible quote conditions containing zero-filled price and size Bid and Offer information, the National BBO is recalculated excluding the Participant or FINRA Market Maker that transmitted the BBO eligible quote condition with zero-filled prices and sizes.

The quote conditions may be viewed as belonging to two classes:

1. Those that qualify for inclusion in the National Best Bid & Offer (BBO) calculations.
2. Those that do not qualify for inclusion in the National Best Bid & Offer (BBO) calculations.

### **BBO Eligible Quotes**

#### **Quote Condition A – Slow Quote on the Offer Side**

This condition indicates that the current offer is in ‘Slow’ quote mode. While in this mode, auto-execution is not eligible on the Offer side and can be traded through pursuant to anticipated Regulation NMS requirements.

#### **Quote Condition B – Slow Quote on the Bid Side**

This condition indicates that the current bid is in ‘Slow’ quote mode. While in this mode, auto-execution is not eligible on the Bid side and can be traded through pursuant to anticipated Regulation NMS requirements.

#### **Quote Condition E – Slow Quote due to Liquidity Replenishment Point (LRP) or Gap Quote on the Bid Side - Only OFFER SIDE is eligible for BBO**

This quote condition is used to indicate that the current Bid is in ‘Slow’ quote mode due to a Liquidity Replenishment Point (LRP) or Gap Quote. While in this mode, auto-execution is not eligible, the quote is then considered Slow on the Bid side and can be traded through, as per Regulation NMS.

## APPENDIX D: QUOTE CONDITIONS

### **BBO Eligible Quotes**

#### **Quote Condition F - Slow Quote due to Liquidity Replenishment Point (LRP) or Gap Quote on the Offer Side - Only BID SIDE is eligible for BBO**

This quote condition is used to indicate that the current Offer is in Slow quote mode due to a Liquidity Replenishment Point (LRP) or Gap Quote. While in this mode, auto-execution is not eligible, the quote is then considered Slow on the Offer side and can be traded through, as per Regulation NMS.

#### **Quote Condition H - Slow Quote on the Bid and Offer Sides**

This condition indicates that the quote is a 'Slow' quote on both the Bid and Offer sides. While in this mode, auto-execution is not eligible on the Bid and Offer sides, and either or both sides can be traded through pursuant to anticipated Regulation NMS requirements.

#### **Quote Condition O - Opening Quote**

This condition can be disseminated to indicate that this quote was the opening quote for a security for that Participant.

#### **Quote Condition R - Regular (for FINRA - Market Maker Open)**

This condition is used for the majority of quotes to indicate a normal trading environment. It is also used by the FINRA Market Makers in place of Quote Condition 'O' to indicate the first quote of the day for a particular security. The condition may also be used when a Market Maker re-opens a security during the day.

#### **Quote Condition W – Slow Quote Due to Set Slow List on both Bid and Offer Sides**

This quote condition is used to indicate that the quote is a Slow Quote on both the Bid and Offer sides due to a Set Slow List that includes High Price securities. While in this mode, auto-execution is not eligible, the quote is then considered Slow on the Bid and Offer sides and either or both sides can be traded through, as per Regulation NMS.

## APPENDIX D: QUOTE CONDITIONS

### **BBO Ineligible Quotes**

#### **Quote Condition C - Closing Quote**

This condition can be disseminated to indicate that this quote was the last quote for a security for that Participant.

#### **Quote Condition L - Market Maker Quotes Closed (FINRA)**

This condition is disseminated by each individual FINRA Market Maker to signify either the last quote of the day or the premature close of an individual Market Maker for the day. In the latter case, the Market Maker can re-open by transmitting a quote accompanied by the Quote Condition R.

#### **Quote Condition N - Non-Firm Quote**

This quote condition suspends a Participant's firm quote obligation for a quote for a security.

#### **Quote Condition U - Slow Quote due to Liquidity Replenishment Point (LRP) or Gap Quote on both the Bid and Offer Sides**

This quote condition is used to indicate that the quote is a Slow Quote on both the Bid and Offer sides due to a Liquidity Replenishment Point (LRP) or Gap Quote. While in this mode, auto-execution is not eligible, the quote is then considered Slow on the Bid and Offer sides, and either or both sides can be traded through, as per Regulation NMS.

#### **Quote Condition 4 – On Demand Intra-Day Auction**

This quote condition is used to provide additional clarity to the industry participants and to allow participants to take part in an auction which will enhance liquidity in the marketplace.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**APPENDIX E: NATIONAL BEST BID AND BEST OFFER OVERVIEW**

National Best Bid and Best Offer calculations are performed for each Market Center whenever a new qualifying Round Lot quote is received after a Participant Market Open. If it is determined that the new quote has caused a new National BBO, the appropriate National BBO information is appended to the new quote. Appendages are **not** added if it is determined that the current quote does **not** affect the National BBO.

A new round lot quote can be the entire new National BBO quote (both Bid and Offer). In addition, the National BBO **can** indicate a Crossed Market where the Round Lot Bid price is higher than the Round Lot Offer price or a Locked Market where both the Round Lot Bid and the Round Lot Offer prices are the same.

CQS generates a National BBO based on the following criteria in this order:

- **Price** - Exchanges with the highest Round Lot Bid and lowest Round Lot Offers have overall priority.
- **Size** - Largest size takes precedence when multiple Exchanges submit the same Round Lot Bid and/or Offer price.
- **Time** - Earliest time takes precedence when multiple Exchanges submit the same Round Lot Bid and/or Offer price with the same size(s).

## APPENDIX F: BEST ODD LOT ORDER (BOLO) OVERVIEW

BOLO comprises of the highest-priced odd lot bid price that is priced higher than the National Best Bid and the lowest-priced odd lot offer price that is priced lower than the National Best Offer, across all Participants' odd lot quotes.

Best Odd Lot Bid and Best Odd Lot Offer calculations are performed for each Market Center whenever a new qualifying odd lot quote is received from a Participant. If it is determined that the new quote has caused a new BOLO, the appropriate BOLO information is added to the new quote via the optional BOLO Appendages, as needed

The Odd Lot Best Bid price can be equal to (i.e. lock) either the National Best Offer or the Odd Lot Best Offer, or can be higher than (i.e. cross) either the National Best Offer or the Odd Lot Best Offer, and vice versa.

CQS generates a BOLO based on the following criteria in this order:

- **Price** - Exchanges with the highest Odd Lot Bid and the lowest Odd Lot Offers have overall priority.
- **Size** - Largest size takes precedence when multiple Exchanges submit the same Odd Lot Bid and/or Offer price.
- **Time** - Earliest time takes precedence when multiple Exchanges submit the same Odd Lot Bid and/or Offer price with the same size(s).

Note - Any odd lot quotes with prices at or better than the NBBO are published by CQS. However, BOLO only comprises of an odd lot quote that is better than the NBBO. As such, if odd lot quotes only exist at the NBBO price, it is possible odd lot quotes are published but BOLO does not exist.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**APPENDIX G: CQS CLOSING ROUTINE**

A Participant can individually close a security by sending in a closing quote to CQS. CQS disseminates this closing quote over the multicast line and appends a new BBO, excluding that Participant, if that Participant was part of the current BBO.

Additionally upon receiving FINRA Close (Category C Type C) message from FINRA, CQS disseminates Closing Quote (Quote Condition L) for any securities where FINRA had previously quoted a BBO eligible FINRA Best Bid and Offer.

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**APPENDIX H: SYMBOL SUFFIX EXAMPLES**

	<b>Suffix</b>	<b>Description</b>
<b>A</b>	.A	Series (or Class) <b>A</b> - <i>Also</i> Series <b>B-Z</b>
	.A.CL	Series <b>A</b> Called - <i>Also</i> Series <b>B-Z</b>
	.A.CV	Series <b>A</b> Convertible - <i>Also</i> Series <b>B-Z</b>
	.Aw	Series <b>A</b> When Issued - <i>Also</i> Series <b>B-Z</b>
<b>C</b>	.CL	Called
	.CT	Certificates
	.CV	Convertible
	.CVR	Contingent Value Right
	.CV.CL	Convertible Called
<b>D</b>	.DP	Amount of most recent dividend to go 'ex- distribution'
	.DV	Accumulated dividend per share net expenses, through and including the previous day's close of trading
<b>E</b>	.EC	EMERGING COMPANY MARKETPLACE SM
	.EU	Estimated cash amount per creation unit
<b>F</b>	.F.N	Foreign News
<b>I</b>	.ID	Index – differentiates an index from a stock with the same root symbol
	.IV	Intra-Day Net Asset Value per share
<b>M</b>	.MN	Mini
<b>N</b>	.NV	Net Asset Value per share as at the close on the previous day's close of trading
<b>P</b>	.PO	Percent Paid
	.PP	Partial Paid
	.PT.CL	Part Called
	p	Preferred
	pA	Preferred Series <b>A</b> - <i>Also</i> Series <b>B-Z</b>
	pA.CV	Preferred Series <b>A</b> Convertible - <i>Also</i> Series <b>B-Z</b>
	pA.CL	Preferred Series <b>A</b> Called - <i>Also</i> Series <b>B-Z</b>
	pAw	Preferred Series <b>A</b> When Issued - <i>Also</i> Series <b>B-Z</b>
	pw	Preferred When Issued
	p.CL	Preferred Called
	p.CV	Preferred Convertible
	p.CV.CL	Preferred Convertible Called
	p.WD	Preferred When Distributed
	pCA	Indicates Class <b>A</b> of a Second Category of Preferred - <i>Also</i> Class <b>B-K</b> and <b>M-S</b>

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**APPENDIX H: SYMBOL SUFFIX EXAMPLES**

	<b>Suffix</b>	<b>Description</b>
<b>R</b>	r	Rights
	rw	Rights When Issued
<b>S</b>	.SC	Small Corporate - Offering Registration
	.SD	Stamped
	.SM	Mini Settlement
	.SO	Current shares outstanding in thousands
	.SP	Special
	.SV	Settlement
<b>T</b>	.TC	Total cash amount per creation unit
	.TT	Tier II Securities
<b>U</b>	.U	Units – (A combination of securities composed of two or more warrants, common stocks, preferred stocks and/or bonds.)
<b>V</b>	.VR	Variable Common Right
<b>W</b>	.WD	When Distributed
	w	When Issued
	.WS	Warrants
	.W.WS	With Warrants
	.WS.A	Warrants Series <b>A</b> - <i>Also</i> Series <b>B-Z</b>
	.WSw	Warrants When Issued

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
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**APPENDIX I: INPUT ERROR CONDITIONS**

<b>Code</b>	<b>Description</b>	<b>Rejection Reason</b>
1	Invalid Version	Unsupported Block Version number
2	Invalid Block Size	Block Size is less than minimum (1) or more than maximum (1000) allowable length
3	Invalid Block Sequence Number	Duplicate Message - the current Block Sequence Number is less than or equal to that of the last message processed. The expected message Block Sequence Number is not incremented and the message is not accepted
4	Invalid Messages in Block	Messages in Block is less than minimum (1) or more than maximum allowable length
5	Invalid Block Checksum	Block Checksum does not match
6	Invalid Message Length	Message Length is incorrect
7	Invalid Message Block	Block is incorrectly formatted and cannot be fully processed
8	Invalid Message ID	Message ID of the first Message in the Block is not 1, or Message ID is not incremented for subsequent messages in same block
9	Reserved	N/A
10	Reserved	N/A
11	Invalid text length	Text length is beyond acceptable bounds for the message
12	Message not acceptable before market open or after market close time	Message sent outside acceptable timeframe, message sent before SOD disseminated or after Participant EOD sent
13	Invalid Message Category and Type	Unsupported Message Category and Message Type
14	Invalid Participant ID	Participant ID is not a supported value
15	Invalid Timestamp 1	Timestamp is not within the appropriate range, invalid date and time
16	Invalid Participant Reference Number	Participant Reference Number is not within specified allowable ASCII character range
19	Invalid Auction Collar Price	Auction Collar Price is not a supported value
20	Invalid Number of Extensions	Number of Extensions is not a supported value
21	Invalid LULD Reference Price	LULD Reference Price zero, expecting non-zero
22	Message From Primary during Primary Market Halt	Primary Market Message is not acceptable during Primary Market Halt period
24	Reserved	N/A
25	Reserved	N/A
27	Invalid Buy Volume	Buy Volume is zero, expecting non-zero
30	Reserved	N/A
34	Reserved	N/A
35	Reserved	N/A

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**APPENDIX I: INPUT ERROR CONDITONS**

<b>Code</b>	<b>Description</b>	<b>Rejection Reason</b>
40	Invalid Halt Reason	Halt Reason is not a supported value, or, Halt Reason specified while Security Status is not in Halt
41	Reserved	N/A
42	Reserved	N/A
43	Reserved	N/A
44	Invalid Participant for Trading Status Message	Trading Status Message from Participant that is not the Listing Exchange for the security symbol
45	Invalid Price Indication/Trading Range Indication	Price Indication received while security symbol is not Trading Halted, or, Trading Range Indication received while symbol is Trading Halted
46	Invalid High Indication Price	High Price not greater than Low Price on Price Indication
47	Invalid Trading Status ID	Trading status ID does not contain a non-Zero Integer value
48	Invalid High Indication Price	Invalid combination of Trading Pause and High Indication Price
49	Reserved	N/A
50	Reserved	N/A
53	Invalid Instrument Type	Instrument Type value is not a supported value
54	Invalid Last Price	Last Price is not a supported value
55	Invalid Opening (Reopening) LULD Reference Price	Opening (Reopening) LULD Reference Price received when not expecting to receive (e.g., eligible trade already received setting reference price).
56	Invalid Low Indication Price	Invalid combination of Trading Pause and Low Indication Price
57	Reserved	N/A
58	Reserved	N/A
59	Invalid Upper/Lower Limit Price Band	Only one of the Price bands can be non-zero on a LULD Trading Halt
60	Reserved	N/A
61	Reserved	N/A
63	Reserved	N/A
70	Reserved	N/A
71	Invalid Security Status	Security Status is not a supported value
73	Invalid Security Symbol	Unknown Security Symbol, either the security symbol and suffix are incorrect or no master record exists for the security symbol
74	Invalid Sell Volume	Sell Volume is zero, expecting non-zero
76	Invalid Short Sale Restriction Indicator	Short Sale Restriction Indicator is not a supported value
78	Invalid Timestamp 2	Timestamp is not within the appropriate range, invalid date and time
83	Reserved	N/A
85	Unprintable ASCII Character	ASCII character not within 32-126 range
86	Reserved	N/A
87	Message Accepted From FINRA ADF Only	Message from Participant other than FINRA ADF

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

**APPENDIX I: INPUT ERROR CONDITIONS**

<b>Code</b>	<b>Description</b>	<b>Rejection Reason</b>
88	Invalid FINRA BBO Indicator	FINRA BBO Indicator is not a supported value
89	Invalid FINRA Best Bid Market Maker ID	FINRA MMID is not within ASCII valid character range 32-126
90	Invalid FINRA Best Offer Market Maker ID	FINRA MMID is not within ASCII valid character range 32-126
91	Invalid FINRA Market Maker ID	FINRA MMID is not within ASCII valid character range 32-126
92	Invalid FINRA Best Bid Quote Condition	Quote Condition is not a supported value
93	Invalid FINRA Best Offer Quote Condition	Quote Condition is not a supported value
94	Invalid Bid Price	Bid Price is zero, expecting non-zero
95	Invalid Bid Price	Bid Price is greater than Offer Price
96	Invalid Bid Size	Bid Size is zero vs. non-zero or Bid Size is non-zero vs. zero
97	Invalid Offer Price	Offer Price is zero, expecting non-zero
98	Invalid Offer Size	Offer Size is zero vs. non-zero or Offer Size is non-zero vs. zero
99	Invalid Market Condition	Market Condition is not a supported value
100	Invalid Quote Condition	Quote Condition is not a supported value
101	Invalid Retail Interest Indicator	Retail Interest Indicator is not a supported value
102	Invalid Settlement Condition	Settlement Condition is not a supported value
103	Invalid Security Status Indicator	Security Status Indicator must be space filled when Quote Condition is specified
104	Invalid Auction Collar Upper Threshold Price	Auction Collar Upper Threshold Price is not a supported value
105	Invalid Auction Collar Lower Threshold Price	Auction Collar Lower Threshold Price is not a supported value
106	Invalid FINRA Best Bid Price	FINRA Best Bid Price is zero, expecting non-zero
107	Invalid FINRA Best Bid Size	FINRA Best Bid Size is zero vs. non-zero or FINRA Best Bid Size is non-zero vs. zero
108	Invalid FINRA Best Offer Price	FINRA Best Offer Price is zero, expecting non-zero
109	Invalid FINRA Best Offer Size	FINRA Best Offer Size is zero vs. non-zero or FINRA Best Offer Size is non-zero vs. zero
111	Invalid LULD Eligibility	LULD Trading Halt or LULD Reference Price received for stock that is not LULD eligible
112	Invalid Size	Bid or Offer size is not an exact multiple of the symbol lot size
113	Invalid Odd Lot Quote Price	Invalid price received for odd lot bid or offer
114	Message Type not supported for the symbol	Odd lot quote received for symbol with Lot Size 1
115	Invalid number of Repeating Bids and Offers	Odd Lot Quote message received with no bids or offers, at least one odd lot quote is required if message contains no other update
116	Odd Lot quote limit exceeded	Odd lot quotes exceed the max allowed number of allowed prices for the symbol
117	Invalid odd lot quote size	Odd lot quote received with quote size equal to or more than symbol round lot size
118	Invalid Clear Prior Odd Lot Quotes indicator	Clear Prior Odd Lot Quotes field value is not a supported value
119	Invalid count of odd lot quote updates	Count of Odd Lot Bid or Offer updates is not valid
199	Unspecified Error	Unspecified Error

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
PARTICIPANT INPUT BINARY SPECIFICATION**

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**APPENDIX J: SUMMARY OF DAILY CQS EVENTS SCHEDULE**

To incorporate Extended Trading Hours, CTA supports trading beginning at 9:00 PM ET Sunday through 8:00 PM ET Friday with a daily pause of up to 1 hour. Each CTA session starts at ~9:00 PM ET Sunday through Thursday nights and ends at ~8:00 PM ET the following day. For US holidays, there will be no CTA session beginning the evening before the holiday, nor during Regular Trading Hours on the day of the holiday. The Session for the following business day will begin on the evening of the holiday, provided the next day is a business day.

Each CTA session (9:00 PM - 8:00 PM) is considered to be one **trading day**. Trades and Quotes reported during 9:00 PM to 12:00 AM are included under the **next calendar day** for any statistical calculations.

All times in the table below are approximate and expressed in *Eastern Time* (ET).

Time (ET)	Transmission / Events
20:50:00	Input Ports opened to allow Participant Connectivity*
20:55:00	Start of Day – Control Message
20:55 - 21:00	CTA generates: <ul style="list-style-type: none"> <li>• Symbol Reference Data</li> <li>• Security Status Messages (Trading Halt, Short Sale Restriction)**</li> <li>• LULD Price Band Messages (<i>Overnight Price Bands</i>)</li> </ul>
20:55 – 20:01 (Next day)	All Application Messages allowed
09:30 – 16:00***	CTA generates: <ul style="list-style-type: none"> <li>• LULD Price Band Messages (<i>Regular Trading Hour Price Bands</i>)</li> <li>• Market-Wide Circuit Breaker Status – Market Status Message</li> </ul>
20:01:00***	End of Day - Control Message

- * Only Line Integrity and Sequence Information (Control Messages) are allowed until Start of Day Message is generated, following which all Application Messages are allowed.
- ** After Start of Day, CQS publishes Security Status updates of Trading Halt and Short Sale Restriction (SSR) on behalf of Listing Exchanges for any symbols that are in a halt state or have an SSR update. Listing Exchanges may reissue these Trading Status updates when they connect to SIP.
- *** For days when market operates on an abbreviated schedule (the day after Thanksgiving Day and the day before Christmas Day), Regular Trading Hours end at 1:00 PM ET and End of Day occur at 17:01 PM ET

**CONSOLIDATED QUOTATION SYSTEM (CQS) PILLAR  
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**APPENDIX K: ASCII PRINTABLE TABLE (Character Code 32-126)**

ASCII	DEC	Description
<space>	32	Space
!	33	Exclamation
"	34	Double quotes
#	35	Number
\$	36	Dollar
%	37	Percent
&	38	Ampersand
'	39	Single Quote
(	40	Open Parenthesis
)	41	Close Parenthesis
*	42	Asterisk
+	43	Plus
,	44	Comma
-	45	Hyphen
.	46	Period
/	47	Slash or Divide
0	48	Zero
1	49	One
2	50	Two
3	51	Three
4	52	Four
5	53	Five
6	54	Six
7	55	Seven
8	56	Eight
9	57	Nine
:	58	Colon
;	59	Semicolon
<	60	Less than
=	61	Equals
>	62	Greater than
?	63	Question mark
@	64	At symbol
A	65	Uppercase A
B	66	Uppercase B
C	67	Uppercase C
D	68	Uppercase D
E	69	Uppercase E
F	70	Uppercase F
G	71	Uppercase G
H	72	Uppercase H
I	73	Uppercase I
J	74	Uppercase J
K	75	Uppercase K
L	76	Uppercase L
M	77	Uppercase M
N	78	Uppercase N
O	79	Uppercase O
P	80	Uppercase P

ASCII	DEC	Description
Q	81	Uppercase Q
R	82	Uppercase R
S	83	Uppercase S
T	84	Uppercase T
U	85	Uppercase U
V	86	Uppercase V
W	87	Uppercase W
X	88	Uppercase X
Y	89	Uppercase Y
Z	90	Uppercase Z
[	91	Opening bracket
\	92	Backslash
]	93	Closing bracket
^	94	Caret
_	95	Underscore
`	96	Grave accent
a	97	Lowercase a
b	98	Lowercase b
c	99	Lowercase c
d	100	Lowercase d
e	101	Lowercase e
f	102	Lowercase f
g	103	Lowercase g
h	104	Lowercase h
i	105	Lowercase i
j	106	Lowercase j
k	107	Lowercase k
l	108	Lowercase l
m	109	Lowercase m
n	110	Lowercase n
o	111	Lowercase o
p	112	Lowercase p
q	113	Lowercase q
r	114	Lowercase r
s	115	Lowercase s
t	116	Lowercase t
u	117	Lowercase u
v	118	Lowercase v
w	119	Lowercase w
x	120	Lowercase x
y	121	Lowercase y
z	122	Lowercase z
{	123	Opening Brace
	124	Vertical Bar
}	125	Closing Brace
~	126	Equivalency Sign-Tilde