TICK DATA

US Equity Trade, Quote and One-Minute Data
File Format Document

Version 3.1

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I. Trade Data

A. Sample

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07/28/2015,09:30:01.347,28.335,100,D,,00,6554,,N,Q,,,09:30:01.340,000110H,09:30:01.347,847,000,485
07/28/2015,09:30:01.371,28.34,99,D,@4 I,00,6570,,N,Q,,,09:30:00.000,0011U02,09:30:01.371,942,000,659
07/28/2015,09:30:01.376,28.34,8,D,@4 I,00,6572,,N,Q,,,09:30:00.000,0003574,09:30:01.376,499,000,229
07/28/2015,09:30:01.388,28.34,67,D,@4 I,00,6581,,N,Q,,,09:30:00.000,90004J`,09:30:01.388,420,000,110
07/28/2015,09:30:01.393,28.34,1,D,@4 I,00,6584,,N,Q,,,09:30:00.000,00011FZ,09:30:01.393,456,000,180
07/28/2015,09:30:01.395,28.34,10,D,@4 I,00,6585,,N,Q,,,09:30:00.000,00011FZ,09:30:01.395,315,000,036
07/28/2015,09:30:01.398,28.34,25,D,@4 I,00,6586,,N,Q,,,09:30:00.000,00011FZ,09:30:01.398,974,000,683
07/28/2015,09:30:01.405,28.34,6,D,@4 I,00,6589,,N,Q,,,09:30:00.000,00011I5,09:30:01.405,359,000,044
07/28/2015,09:30:01.408,28.34,100,D,@4,00,6591,,N,Q,,,09:30:00.000,00011J9,09:30:01.407,030,000,685
07/28/2015,09:30:01.412,28.33,100,X,@F,00,6593,,N,,,,09:30:01.412,00011J9,00:00:00.000,770,441,000
07/28/2015,09:30:01.414,28.34,60,D,@4 I,00,6594,,N,Q,,,09:30:00.000,00011J9,09:30:01.414,589,000,242
07/28/2015,09:30:01.440,28.34,100,D,@4,00,6600,,N,Q,,,09:30:00.000,00011UY,09:30:01.440,799,000,466
07/28/2015,09:30:01.445,28.34,57,D,@4I,00,6602,,N,Q,,,09:30:00.000,00011UY,09:30:01.444,183,000,845
07/28/2015,09:30:01.453,28.34,183,D,@4,00,6607,,N,Q,,,09:30:00.000,90004K1,09:30:01.453,549,000,238
07/28/2015,09:30:01.457,28.34,177,D,@4,00,6609,,N,Q,,,09:30:00.000,90004K1,09:30:01.456,128,000,850
07/28/2015,09:30:01.471,28.34,37,D,@4 I,00,6612,,N,Q,,,09:30:00.000,90004K1,09:30:01.470,280,000,966
```

B. File Layout

Trade Data is provided as ASC files. Each tick contains up to 19 comma-separated fields and is laid out as follows:

Date
Time
Price
Volume
Exchange Code
Sales Condition
Correction Indicator
Sequence Number
Trade Stop Indicator
Source of Trade
MDS 127 / TRF *(Trade Reporting Facility)**
Exclude Record Flag
Filtered Price
Participant Timestamp**
Regional Reference Number (RRN)**
Trade Reporting Facility (TRF) Timestamp**
Timestamp Microseconds**
Participant Timestamp Microseconds**
TRF Timestamp Microseconds**

* MDS 127 only until 12/31/03; Trade Reporting Facility from 10/26/09 forward.
** From 9/1/2015 forward.

C.   Field Descriptions

The following fields contain data pertaining to the following exchanges, unless otherwise noted:
- American Stock Exchange
- NASDAQ
- New York Stock Exchange

Field Name	Type	Description
Date	MM/DD/YYYY	Trade date.
Time	HH:MM:SS.mmm	Trade time. This number reflects the time at which the trade entered CTS. Milliseconds available: NYSE and AMEX from 1/2/04; NASDAQ from 12/5/05.
Price	Number (14,7)	Trade price per share. Up to seven decimal places.
Volume	Integer (9)	Number of shares traded.
Exchange Code	Character (2)	Exchange on which the trade occurred. A AMEX (NYSE MKT) B NASDAQ OMX BX (Boston) C National Stock Exchange (Cincinnati) D NASD ADF (FINRA) E Market Independent (SIP - Generated) I ISE (International Securities Exchange) J DirectEdge A K DirectEdge X M Chicago N NYSE O Instinet (Valid only during January and February 1993) P ARCA (formerly Pacific) S Consolidated Tape System T/Q NASDAQ W CBOE (Valid through 04/30/14) X NASDAQ OMX PSX (Philadelphia) Y BATS Y-Exchange, Inc. Z BATS
Sales Condition	Character (up to 4)	Sales Condition. These conditions apply to trades on all exchanges except as indicated. More than one code can be displayed in the field (up to four codes). **See Appendix D for list of codes.**

Correction Indicator	Character (up to 2)	Correction Indicator. Beginning in June 1995, corrections to corrections are permissible. TAQ shows only the original trade and final correction. No interim corrections are shown. Good trades: 00 Regular trade that was not corrected, changed, or signified as cancel or error. 1 Original trade which was later corrected. This record contains the original time and the corrected data for the trade. Symbol correction (out of time sequence). Original trade records: 7 Trade cancelled due to error. 8 Trade cancelled. 9 Trade cancelled due to symbol correction. Correction instructions: 10 Cancel record (associated with 8). 11 Error record (associated with 7). 12 Correction record (associated with 1; contains corrected time and original data).
Sequence Number	Integer (9) and Integer (16) post 12/31/2003.	Unique sequence number for both Consolidated Tape Service and NASDAQ trade messages.
Trade Stop Indicator	Character (1)	Blank= N/A (Correction or NASDAQ) N=Not Indicated as Stop Stock (NYSE Only) Y=Indicated as Stop Stock (NYSE Only)
Source of Trade	Character (1)	C =CTS N=NASDAQ NTDS
MDS_127 / TRF	Character (3)	**MDS 127 – Prior to 1/1/2004** Combined "G", Rule 127, and stopped stock trade indicator. This field applies only to NYSE trades. For example, a trade that is Display Book-reported (40) and complies with Rule 127 (100) would appear as 140 in the file. 　　0 = Does not qualify as "G", Rule 127, or stopped stock trade 　　2 = "G" trade buyer and seller 　　3 = "G" trade buyer 　　4 = "G" trade seller 　10 = Elect box stroked 　20 = Percent box stroked 　40 = A Display Book-reported trade. 100 = Rule 127 trade 200 = Stopped stock trade *"G" trade* - A member firm trading for its own account must publicly identify that the order is principal. (See NYSE Constitution and Rules, ¶2090, Rule 90.) *Rule 127* – An NYSE trade reported as having been executed as a block position. (See NYSE Constitution, ¶2127, Rule 127.) *Stopped stock -* A guarantee by the specialist that an order will be executed at a specific price. (See NYSE Constitution, ¶2116, Rule 116.) **(continued)**

TRF (Trade Reporting Facility)	Character (1)	**This field shows Trade Reporting Facility (TRF), if applicable, starting 10/26/2009.** A AMEX (NYSE MKT) B Boston C Cincinnati D NASD ADF (FINRA) E Market Independent (SIP - Generated) I ISE M Chicago N NYSE P ARCA (formerly Pacific) S Consolidated Tape System T/Q NASDAQ W CBOE (Valid through 04/30/14) X Philadelphia Z BATS
Exclude Record Flag[1]	Character (1)	Filtered trade indicator. "X" is present if Tick Data recommends exclusion of trade from time series due to condition code(s).
Filtered Price	Number (14,7)	Filtered price. If Tick Data would have adjusted the price of this trade during its filtering process due to scrubbing algorithm conditions being met, the adjusted price is shown.
Participant Timestamp	HH:MM:SS.mmm	Participant's provided timestamp when submitted to the SIP (CTA or UTP).
Regional Reference Number (RRN)	Text	Regional Reference Number (RRN) provided by the Participant.
Trade Reporting Facility (TRF) Timestamp	HH:MM:SS.mmm	Trade Reporting Facility (TRF) Timestamp used by the TRFs to provide the TRF Timestamp in terms of the number of microseconds.
Timestamp microseconds	XXX	XXX is the microseconds since the start of the last millisecond of the *Time* field
Participant Timestamp microseconds	XXX	XXX is the microseconds since the start of the last millisecond Participant Timestamp field
Trade Reporting Facility (TRF) Timestamp microseconds	XXX	XXX is the microseconds since the start of the last millisecond of the Trade Reporting Facility (TRF) Timestamp field

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[1] The following condition codes are excluded: B, C, G, L, M, N, P, Q, R, S, W, Z, 9. In addition, if *Sales Condition Code* T appears during market hours, it is excluded. If a trade has a *Correction Indicator* value of 2 or larger, it is excluded regardless of the condition code.

D. Fields for User-Defined Interval-Based Bars

Selecting Interval Tick-Based Bars, Time-Based Bars, Daily Bars, Weekly Bars or Monthly Bars, to be built from Trade Data, the following fields are available.

Field Name	Type	Description
Date	MM/DD/YYYY	Date of Interval-bar
Time	HH:MM	Time of Interval-bar **(Tick-Based Bars and Time-Based Bars Only)**
Open	Number	Price of first trade within the minute bar. Up to seven decimal places.
High	Number	Highest trade price within the minute bar. Up to seven decimal places.
Low	Number	Lowest trade price within the minute bar. Up to seven decimal places.
Close	Number	Price of last trade within the minute bar. Up to seven decimal places.
Volume	Number	Total number of shares traded within the minute bar.
Tick Count	Number	Total number of trades within the minute bar.
Up Ticks	Number	Total number of trades increasing in price compared to the previous trade.
Down Ticks	Number	Total number of trades decreasing in price compared to the previous trade.
Same Ticks	Number	Total number of trades having the same price compared to the previous trade.

II. Level I Quote Data

A. Sample

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07/28/2015,09:31:00.002,T,28.28,28.29,29,2,R,,212423,T,T,,2,,N,,,,,,,A,09:31:00.001,9006lFd,00:00:00.000,168,820,000
07/28/2015,09:31:00.002,T,28.28,28.29,29,9,R,,212427,T,T,,2,,N,,,,,,,A,09:31:00.001,90074Zk,00:00:00.000,264,854,000
07/28/2015,09:31:00.002,B,28.27,28.3,3,4,R,,212428,B,B,,0,,N,,,,,,,A,09:31:00.001,9007>FW,00:00:00.000,286,893,000
07/28/2015,09:31:00.002,K,28.28,28.3,2,5,R,,212430,K,K,,0,,N,,,,,,,A,09:31:00.001,0009827,00:00:00.000,322,852,000
07/28/2015,09:31:00.002,T,28.28,28.29,29,11,R,,212431,T,T,,2,,N,,,,,,,A,09:31:00.001,9007;^R,00:00:00.000,343,883,000
07/28/2015,09:31:00.002,T,28.28,28.29,32,11,R,,212432,T,T,,2,,N,,,,,,,A,09:31:00.001,9007?`R,00:00:00.000,358,899,000
07/28/2015,09:31:00.002,J,28.27,28.3,5,3,R,,212433,J,J,,0,,N,,,,,,,A,09:31:00.001,0006969,00:00:00.000,373,888,000
07/28/2015,09:31:00.002,T,28.28,28.29,32,13,R,,212434,T,T,,2,,N,,,,,,,A,09:31:00.001,9007AIM,00:00:00.000,385,906,000
07/28/2015,09:31:00.002,Z,28.28,28.3,9,9,R,,212435,Z,Z,,0,,N,,,,,,,A,09:31:00.001,0017431,00:00:00.000,399,871,000
07/28/2015,09:31:00.002,Y,28.27,28.3,6,2,R,,212437,Y,Y,,0,,N,A,,,,,,A,09:31:00.001,0014798,00:00:00.000,411,886,000
07/28/2015,09:31:00.002,Y,28.27,28.3,4,2,R,,212438,Y,Y,,0,,N,A,,,,,,A,09:31:00.001,0014799,00:00:00.000,474,914,000
07/28/2015,09:31:00.002,K,28.28,28.3,3,5,R,,212439,K,K,,0,,N,,,,,,,A,09:31:00.001,0009828,00:00:00.000,494,958,000
07/28/2015,09:31:00.002,Z,28.28,28.29,9,8,R,,212441,Z,Z,,0,,N,,,,,,,A,09:31:00.002,0017432,00:00:00.000,551,000,000
07/28/2015,09:31:00.002,K,28.28,28.29,3,4,R,,212443,K,K,,0,,N,,,,,,,A,09:31:00.002,0009829,00:00:00.000,571,016,000
07/28/2015,09:31:00.002,K,28.28,28.29,2,4,R,,212444,K,K,,0,,N,,,,,,,A,09:31:00.002,0009830,00:00:00.000,585,028,000
07/28/2015,09:31:00.002,Z,28.28,28.29,12,8,R,,212448,Z,Z,,0,,N,,,,,,,A,09:31:00.002,0017433,00:00:00.000,630,093,000
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B. File Layout

Quote files are provided as ASC files and designated by a Q_ followed by the appropriate symbol. Each quote record contains up to 29 comma-separated fields and is laid out as follows:

Date
Time
Exchange
Bid Price
Ask Price
Bid Size*
Ask Size*
Quote Condition**
Market Maker ID
Sequence Number
Bid Exchange (begins 01/01/2004)
Ask Exchange (begins 01/01/2004)
National BBO Indicator (begins 01/01/2004)***
NASDAQ BBO Indicator (begins 01/01/2004)***
Quote Cancel/Correction (begins 01/01/2004)
Quote Source
Retail Interest Indicator (RPI)****
Short Sale Restriction Indicator (begins 02/04/2013)
Limit-Up/Limit-Down BBO Indicator (CQS) (begins 02/04/2013)
Limit-Up/Limit-Down BBO Indicator (UTP) (begins 02/04/2013)
FINRA ADF MPID Indicator (begins 02/04/2013)
SIP Generated Message Identifier (begins 12/02/2013)
National BBO Limit-Up/Limit-Down Indicator (begins 12/02/2013)
Participant Timestamp*****
Regional Reference Number (RRN)*****
Trade Reporting Facility (TRF) Timestamp*****

Timestamp Microseconds*****
Participant Timestamp Microseconds*****
TRF Timestamp Microseconds*****

– Provided in actual size prior to 1/1/2004 and in 100's thereafter.
*** – Field contains 'Mode' data prior to 9/10/2003.*
*** – This field shows only a fraction of NBBO quotes. NBBO quote data is available from our online store:*
https://store.tickdata.com/login.
**** – From 8/1/2012 forward.*
***** – From 9/1/2015 forward.*

C. Field Descriptions

The following fields contain data pertaining to the following exchanges, unless otherwise noted:
- American Stock Exchange
- NASDAQ
- New York Stock Exchange

Field Name	Type	Description
Date	MM/DD/YYYY	Quote date.
Time	HH:MM:SS.mmm	Quote time. This number reflects the time at which the quote entered CTS. Milliseconds available: NYSE and AMEX from 2/7/06; NASDAQ from 12/5/05.
Exchange	Character (2)	The Exchange that issued the quote: A AMEX (NYSE MKT) B Boston C Cincinnati D NASD ADF (FINRA) E Market Independent (SIP - Generated) I ISE J DirectEdge A K DirectEdge X M Chicago N NYSE P ARCA (formerly Pacific) S Consolidated Tape System T/Q NASDAQ W CBOE (Valid through 04/30/14) X NASDAQ OMX PSX (Philadelphia) Y BATS Y-Exchange, Inc. Z BATS
Bid Price	Number	Bid price. Truncated to eight implied decimal places.
Ask Price	Number	Ask price. Truncated to eight implied decimal places.
Bid Size	Integer	Bid size in number of round lots (100 share units).
Ask Size	Integer	Ask size in number of round lots (100 share units).

Quote Condition	Character	Condition of Quote issued: 'A' = Slow on the Ask Side 'B' = Slow on the Bid Side 'C' = Closing 'D' = News Dissemination 'E' = Slow on the Bid due to LRP or GAP Quote[1] 'F' = Slow on the Ask due to LRP or GAP Quote[2] 'G' = Trading Range Indication 'H' = Slow on the Bid and Ask side 'I' = Order Imbalance 'J' = Due to a Related Security - News Dissemination 'K' = Due to a Related Security - News Pending 'L' = Closed Market Maker (NASD) 'M' =Volatility Trading Pause[3] 'N' = Non-firm quote 'O' = Opening Quote 'P' = News Pending 'Q' = Undefined[4] 'R' = Regular, two-sided open quote (FINRA Open) 'S' = Due to Related Security 'T' = Resume 'U' = Slow on the Bid and Ask due to LRP or GAP Quote 'V' = In View of Common 'W' = Slow Quote due to a Set Slow list on both the bid and offer sides 'X' = Equipment Changeover 'Y' = Sub-Penny Trading[5] 'Z' = *No open/no resume*
Quote Condition (continued)		
Mode	Character	**This field shows Mode prior to 9/10/2003, if applicable. See Appendix E for list of codes.**
Market Maker ID	Character	<u>NASDAQ ONLY</u> Identifies the NASDAQ market maker for each NASD quote. See Appendix C for a list of valid market makers. **Note:** This field was added in August 1993. Beginning in March 1997, the values AA, AI, IA, and II were replaced with blanks. Previously, these values identified aggregate CAES and non-CAES quotes. Since March 2010, the field has become obsolete.
Sequence Number	Integer	<u>NYSE ONLY</u> Market Data Systems (MDS) sequence number. This field applies only to NYSE trades. It will contain a zero if the trade is not an NYSE trade or if the sequence number is indeterminate.

Bid Exchange (begins 1/1/2004)	Character	Exchange where the bid originated.
		  A AMEX
		  B Boston
		  C Cincinnati

[1] This was assigned the value of 'Order Influx' prior to August 2006

[2] This was assigned the value of 'Fast Trading' prior to August 2006

[3] This was assigned the value of 'Additional Information' prior to June 7, 2010

[4] This was assigned the value of 'Additional Information – Due to Related Security' prior to May 24, 2010

[5] This was assigned the value of 'Regular – One Sided Quote (NASDAQ)' prior to September 7, 2007

		D NASD ADF E Market Independent (SIP - Generated) I ISE M Chicago N NYSE P Pacific S Consolidated Tape System T/Q NASDAQ W CBOE X Philadelphia Z BATS
Ask Exchange **(begins 1/1/2004)**	Character	Exchange where the ask originated. A AMEX B Boston C Cincinnati D NASD ADF E Market Independent (SIP - Generated) I ISE M Chicago N NYSE P Pacific S Consolidated Tape System T/Q NASDAQ W CBOE X Philadelphia Z BATS
National BBO **Indicator** **(begins 1/1/2004)**	Number (1)	<u>AMEX and NYSE ONLY (We do not recommend using this field)</u> CQS Only - National BBO Indicator 0 = No National BBO change - Current quote does not affect the BBO. No National appendage is required. 1 = Quote Contains all National BBO Information - Current quote is itself the new National BBO. No National appendage is required. 2 = No National BBO - There is no calculation of National BBO such as before Market Open or after Market Close. No National appendage is required. 4= Long Format of National BBO Appendage - A new National BBO is generated and the new BBO information is contained in the Long National BBO appendage. 6 = Expanded Price Short Format of National BBO Appendage - a new National BBO is generated and the new BBO information is contained in the Expanded Price Short National BBO appendage.
NASDAQ BBO **Indicator** **(begins 1/1/2004)**	Number (1)	<u>NASDAQ ONLY (We do not recommend using this field)</u> NASD BBO INDICATOR (CQS) & NBBO APPENDAGE INDICATOR (NASDAQ) 0=No NASD BBO Change, current quote does not affect the BBO. No NASD appendage is required. 1= Quote Contains all NASD BBO Information - Current quote is itself the new NASD BBO. No NASD appendage is required. 2= No NASD BBO - There is no calculation of NASD BBO such as before Market Open or after Market Close. No NASD appendage is required.

		3= NASD BBO Appendage - A new NASD BBO is generated and the new BBO information is contained in the NASD BBO appendage. NASDAQ 0=No National BBO change - Current quote does not affect the BBO. No National appendage is required. 1 = Quote Contains all National BBO Information - Current quote is itself the new National BBO. No National appendage is required. 2= No National BBO - There is no calculation of National BBO such as before Market Open or after Market Close. No National appendage is required. 4= Long Format of National BBO Appendage - A new National BBO is generated and the new BBO information is contained in the Long National BBO appendage. 6- Expanded Price Short Format of National BBO Appendage - A new National BBO is generated and the new BBO information is contained in the Expanded Price Short National BBO appendage.
Quote Cancel/Correction (begins 1/1/2004)	Character (1)	<u>AMEX and NYSE ONLY</u> CQS ONLY A = Not a Cancel Quote B= Cancel quote/Cancel Price Indication/ Cancel Trading Range Indication C=Corrected Price Indication
Quote_Source	Character (1)	C= CQS N= NASDAQ
Retail Interest Indicator (RPI)	Character (1)	Blank = 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
Short Sale Restriction Indicator (begins 2/4/2013)	Character (1)	Blank = Short Sales Restriction Not in Effect A = Short Sales Restriction Activated C = Short Sales Restriction Continued D = Short Sales Restriction Deactivated E = Short Sales Restriction in Effect
Limit-Up/Limit-Down BBO Indicator (CQS) (begins 2/4/2013)	Character (1)	Blank = Limit Up-Limit Down Not Applicable A = Bid Price above Upper Limit Price Band – Bid is Non-Executable B = Ask Price below Lower Limit Price Band – Offer is Non-Executable
Limit-Up/Limit-Down BBO Indicator (UTP) (begins 2/4/2013)	Character (1)	<space> = Limit Up-Limit Down Not Applicable A = Bid Price above Upper Limit Price Band – Bid is Non Executable B = Ask Price below Lower Limit Price Band – Ask is Non-Executable C = Bid Ask outside price band Not Executable
FINRA ADF MPID Indicator (begins 2/4/2013)	Character (1)	0 = No ADF MPID changes – Current ADF quote does not affect the FINRA MPID. Vendors should continue to show the existing FINRA MPID(s). No appendage required. 1 = No ADF MPID exists – There is no calculation of the FINRA MPID(s)'s. Vendors should show the FINRA MPID fields as blank. No appendage is required. 2 = ADF MPID(s) attached - A new FINRA MPID was generated and the new information is contained in the attached appendage

		3 = Not Applicable – Quotation originates from a UTP participant other than the FINRA. Vendors should continue to show the existing FINRA MPID(s). No appendage required.
SIP Generated Message Identifier	Character (1)	Indicates whether the SIP (CTA or UTP) was the originator of the message Blank = Message originated from a market participant 'E' = Message originated from the SIP
National BBO Limit-Up/Limit-Down Indicator	Character (1)	CTA: Indicates the effect that the Limit Up-Limit Down Price Band changes have on the National Best Bid and National Best Offer. Blank = Limit Up-Limit Down Not Applicable - A = National Best Bid and / or National Best Offer are Executable - B = National Best Bid below Lower Limit Price Band – National Best Bid is Non-Executable - C = National Best Offer above Upper Limit Price Band – National Best Offer is Non-Executable - D = National Best Bid below Lower Limit Price Band and National Best Offer above Upper Limit Price Band – National Best Bid and National Best Offer are Non-Executable - E = National Best Bid equals Upper Limit Price Band – National Best Bid is in Limit State - F = National Best Offer equals Lower Limit Price Band – National Best Offer is in Limit State - G = National Best Bid equals Upper Limit Price Band – National Best Bid is in Limit State and National Best Offer above Upper Limit Price Band – National Best Offer is Non-Executable - H = National Best Bid below Lower Limit Price Band – National Best Bid is Non-Executable and National Best Offer equals Lower Limit Price Band – National Best Offer is in Limit State - I = National Best Bid equals Upper Limit Price Band and National Best Offer equals Lower Limit Price Band (Crossed - NOT in Limit State) UTP: The National LULD Indicator is used to describe the limit state of the National Best Bid and Offer with respect to the price band for the issue. <space> = Limit Up-Limit Down Not Applicable - A = National Best Bid and National Best Offer are Executable - B = National Best Bid below Lower Limit Price Band – National Best Bid is Non-Executable - C = National Best Offer above Upper Limit Price Band – National Best Offer is Non-Executable - D = National Best Bid below Lower Limit Price Band and National Best Offer above Upper Limit Price Band – National Best Bid and National Best Offer are Non-Executable - E = National Best Bid equals Upper Limit Price Band – National Best Bid is in Limit State - F = National Best Offer equals Lower Limit Price Band – National Best Offer is in Limit State - G = National Best Bid equals Upper Limit Price Band – National Best Bid is in Limit State and National Best Offer

		above Upper Limit Price Band – National Best Offer is Non-Executable • H = National Best Offer equals Lower Limit Price Band – National Best Offer is in Limit State and National Best Bid below Lower Limit Price Band – National Best Bid is Non-Executable • I = National Best Bid equals Upper Limit Price Band – National Best Bid is in Limit State and National Best Offer equals Lower Limit Price Band – National Best Offer is in Limit State
Participant Time	HH:MM:SS.mmm	Participant's provided timestamp when submitted to the SIP (CTA or UTP).
Regional Reference Number (RRN)	Text	Regional Reference Number (RRN) provided by the Participant.
Trade Reporting Facility (TRF) Time	HH:MM:SS.mmm	Trade Reporting Facility (TRF) Timestamp used by the TRFs to provide the TRF Timestamp in terms of the number of microseconds.
Time microseconds	XXX	XXX is the microseconds since the start of the last millisecond of the *Time* field
Participant Time microseconds	XXX	XXX is the microseconds since the start of the last millisecond Participant Timestamp field
Trade Reporting Facility (TRF) Time microseconds	XXX	XXX is the microseconds since the start of the last millisecond of the Trade Reporting Facility (TRF) Timestamp field

III. One-Minute Trade Data

A. Sample

01/20/2010,09:00,24.71,24.71,24.71,24.71,800
01/20/2010,09:02,24.71,24.71,24.71,24.71,5000
01/20/2010,09:04,24.7,24.7,24.7,24.7,100
01/20/2010,09:05,24.7,24.7,24.7,24.7,100
01/20/2010,09:13,24.7,24.7,24.7,24.7,500
01/20/2010,09:14,24.7,24.7,24.69,24.69,1000
01/20/2010,09:23,24.69,24.69,24.69,24.69,900
01/20/2010,09:26,24.7,24.7,24.7,24.7,400
01/20/2010,09:27,24.7,24.7,24.69,24.69,1351
01/20/2010,09:28,24.69,24.69,24.69,24.69,100

B. File Layout

One-Minute Data is provided as ASC files, and is generated from tick equity trade data. Each minute bar contains up to 7 comma-separated fields and is laid out as follows:

Date
Time
Open
High
Low
Close
Volume

C. Field Descriptions

Field Name	Type	Description
Date	MM/DD/YYYY	Date of Minute bar
Time	HH:MM	Time of Minute bar The minute timestamp reflects the interval from the start of the previous minute at :00 seconds to the end at :59 seconds. For example, the minute bar timestamp 09:26 reflects all trades from 09:25:00 to 09:25:59.
Open	Number	Price of first trade within the minute bar. Up to seven decimal places.
High	Number	Highest trade price within the minute bar. Up to seven decimal places.
Low	Number	Lowest trade price within the minute bar. Up to seven decimal places.
Close	Number	Price of last trade within the minute bar. Up to seven decimal places.
Volume	Number	Total number of shares traded within the minute bar.

IV. NBBO (National Best Bid/Best Offer) Data

A. Sample

```
06/01/2015,09:30:00.006,42.53,T,3,42.57,T,41
06/01/2015,09:30:00.008,42.53,T,4,42.57,T,41
06/01/2015,09:30:00.009,42.53,T,7,42.57,T,41
06/01/2015,09:30:00.051,42.53,T,7,42.57,T,40
06/01/2015,09:30:00.052,42.53,T,7,42.57,T,5
06/01/2015,09:30:00.053,42.53,T,7,42.57,T,4
06/01/2015,09:30:00.054,42.53,T,7,42.61,P,2
06/01/2015,09:30:00.054,42.54,Z,3,42.61,P,2
06/01/2015,09:30:00.057,42.54,Z,3,42.61,P,1
06/01/2015,09:30:00.058,42.54,Z,3,42.65,K,20
06/01/2015,09:30:00.059,42.54,Z,3,42.65,K,18
06/01/2015,09:30:00.060,42.54,Z,4,42.65,K,18
06/01/2015,09:30:00.062,42.54,Z,3,42.65,K,18
06/01/2015,09:30:00.062,42.54,Z,3,42.65,K,16
06/01/2015,09:30:00.063,42.54,Z,3,42.61,Z,1
```

B. File Layout

NBBO files are derived from Quote data. The quotes in NBBO files represent the best bid and best offer across all US exchanges at any given time. The data is provided in ASC files that are designated by _NBBO at the end of the filenames. Each NBBO quote record contains up to 8 comma-separated fields and is laid out as follows:

> Date
> Time
> Bid Price
> Bid Exchange
> Bid Size
> Ask Price
> Ask Exchange
> Ask Size

C. Field Descriptions

The following fields contain data pertaining to the following exchanges, unless otherwise noted:
- American Stock Exchange
- NASDAQ
- New York Stock Exchange

Field Name	Type	Description
Date	MM/DD/YYYY	Quote date.
Time	HH:MM:SS.mmm	Quote time. This number reflects the time at which the quote entered CTS. Milliseconds available: NYSE and AMEX from 2/7/06; NASDAQ from 12/5/05.

Bid Price	Number	Bid price. Truncated to eight implied decimal places.
Bid Exchange (begins 1/1/2004)	Character	Exchange where the bid originated. A AMEX B Boston C Cincinnati D NASD ADF E Market Independent (SIP - Generated) I ISE M Chicago N NYSE P Pacific S Consolidated Tape System T/Q NASDAQ W CBOE X Philadelphia Z BATS
Bid Size	Integer	Bid size in number of round lots (100 share units).
Ask Price	Number	Ask price. Truncated to eight implied decimal places.
Ask Exchange (begins 1/1/2004)	Character	Exchange where the ask originated. A AMEX B Boston C Cincinnati D NASD ADF E Market Independent (SIP - Generated) I ISE M Chicago N NYSE P Pacific S Consolidated Tape System T/Q NASDAQ W CBOE X Philadelphia Z BATS
Ask Size	Integer	Ask size in number of round lots (100 share units).

V. One-Minute Quote Data

A. Sample

06/15/2015,09:31,09:30:00.010,40.34,5,40.49,1,09:30:01.406,40.44,1,40.47,1,09:30:36.948,40.01,3,40.04,1,09:30:59.821,40.04,1,40.05,2,0.15,0.00,954
06/15/2015,09:32,09:31:00.399,40.04,1,40.05,1,09:31:14.891,40.22,1,40.22,1,09:31:00.399,40.04,1,40.05,1,09:31:58.312,40.11,4,40.15,2,0.06,0.00,673
06/15/2015,09:33,09:32:00.561,40.12,1,40.15,2,09:32:08.842,40.29,2,40.29,1,09:32:19.651,40.12,2,40.13,1,09:32:59.103,40.21,4,40.25,3,0.05,0.00,686
06/15/2015,09:34,09:33:00.008,40.21,4,40.25,6,09:33:59.941,40.28,1,40.3,2,09:33:35.464,40.14,1,40.14,1,09:33:59.949,40.28,2,40.29,1,0.05,0.00,418
06/15/2015,09:35,09:34:00.147,40.28,1,40.29,1,09:34:44.717,40.43,1,40.44,4,09:34:13.507,40.28,1,40.28,1,09:34:59.966,40.42,2,40.44,2,0.06,0.00,757
06/15/2015,09:36,09:35:00.130,40.42,2,40.43,2,09:35:10.102,40.53,1,40.54,1,09:35:01.190,40.41,2,40.42,2,09:35:56.692,40.4,2,40.43,3,0.04,0.00,509
06/15/2015,09:37,09:36:01.211,40.41,4,40.43,3,09:36:56.441,40.63,1,40.65,1,09:36:02.319,40.4,35,40.41,1,09:36:59.000,40.63,3,40.66,2,0.06,0.00,407
06/15/2015,09:38,09:37:00.410,40.64,1,40.66,2,09:37:15.015,40.76,1,40.78,25,09:37:00.410,40.64,1,40.64,1,09:37:57.516,40.68,2,40.69,1,0.06,0.00,491
06/15/2015,09:39,09:38:00.353,40.68,3,40.69,1,09:38:41.703,40.87,1,40.88,3,09:38:00.353,40.68,3,40.69,1,09:38:53.828,40.82,2,40.83,5,0.03,0.00,504
06/15/2015,09:40,09:39:00.028,40.82,1,40.83,5,09:39:53.195,40.91,1,40.93,4,09:39:17.758,40.78,1,40.78,1,09:39:58.995,40.85,3,40.89,1,0.04,0.00,613
06/15/2015,09:41,09:40:00.176,40.85,2,40.89,1,09:40:46.603,40.99,2,41.0,23,09:40:02.692,40.85,9,40.87,1,09:40:58.384,40.89,3,40.9,1,0.04,0.00,491
06/15/2015,09:42,09:41:00.078,40.89,4,40.9,1,09:41:12.219,40.96,1,40.96,1,09:41:00.078,40.89,4,40.9,1,09:41:59.079,40.91,3,40.93,4,0.04,0.00,278
06/15/2015,09:43,09:42:00.005,40.91,3,40.93,6,09:42:08.652,40.92,2,40.93,4,09:42:18.730,40.89,11,40.9,1,09:42:58.088,40.91,2,40.92,1,0.03,0.00,375
06/15/2015,09:44,09:43:00.066,40.91,2,40.92,2,09:43:00.066,40.91,2,40.92,2,09:43:35.285,40.75,1,40.75,1,09:43:59.860,40.84,1,40.85,13,0.03,0.00,1085
06/15/2015,09:45,09:44:00.018,40.84,1,40.85,14,09:44:00.018,40.84,1,40.85,14,09:44:57.049,40.64,1,40.65,1,09:44:59.955,40.63,1,40.65,2,0.06,0.00,1319

B. File Layout

One-Minute Quote Data is provided as ASC files, and is generated from NBBO quote data. Each minute bar contains up to 25 comma-separated fields and is laid out as follows:

> **Date**
> **Time**
> **Open Time**
> **Open Bid Price**
> **Open Bid Size**
> **Open Ask Price**
> **Open Ask Size**
> **High Bid Time**
> **High Bid Price**
> **High Bid Size**
> Ask Price at the time of the High Bid Price
> Ask Size at the time of the High Bid Price
> **Low Ask Time**
> Bid Price at the time of the Low Ask Price
> Bid Size at the time of the Low Ask Price
> **Low Ask Price**
> **Low Ask Size**
> **Close Time**
> **Close Bid Price**
> **Close Bid Size**
> **Close Ask Price**
> **Close Ask Size**
> Max Spread
> Min Spread
> Number of NBBO Quotes in the Bar

Note: Fields in **bold** represent actual quote pairs (bids/asks) from NBBO data. Other fields provide additional details derived from NBBO quotes. "Ask" and "Offer" mean the same thing, as do "Size" and "Volume"

C. Field Descriptions

Field Name	Type	Description
Date	MM/DD/YYYY	Quote bar date.
Time	HH:MM	Time of Minute bar. The minute timestamp reflects the interval from the start of the previous minute at :00 seconds to the end at :59 seconds. For example, the minute bar timestamp 09:26 reflects all trades from 09:25:00 to 09:25:59.
Open Time	HH:MM:SS.mmm	Time at which Open of bar is observed. Milliseconds available: NYSE and AMEX from 2/7/06; NASDAQ from 12/5/05.
High Bid Time	HH:MM:SS.mmm	Time at which the High Bid quote entered CTS. Milliseconds available: NYSE and AMEX from 2/7/06; NASDAQ from 12/5/05.
Low Ask Time	HH:MM:SS.mmm	Time at which the Low Ask quote entered CTS. Milliseconds available: NYSE and AMEX from 2/7/06; NASDAQ from 12/5/05.
Open/High/Low/Close Bid Price	Number	Bid price at the Open, High, Low, or Close. Truncated to eight implied decimal places.
Open/High/Low/Close Bid Size	Integer	Bid size at the Open, High, Low, or Close in number of round lots (100 share units).
Open/High/Low/Close Ask Price	Number	Ask price at the Open, High, Low, or Close. Truncated to eight implied decimal places.
Open/High/Low/Close Ask Size	Integer	Ask size at the Open, High, Low, or Close in number of round lots (100 share units).
Ask Price at the time of the High Bid Price	Number	Ask price when the highest bid price of the bar is observed.
Ask Size at the time of the High Bid Price	Integer	Ask size when the highest bid price of the bar is observed.
Bid Price at the time of the Low Ask Price	Number	Bid price when the lowest ask price of the bar is observed.
Bid Size at the time of the Low Ask Price	Integer	Bid size when the lowest ask price of the bar is observed.
Close Time	HH:MM:SS.mmm	Time at which Close of bar is observed. Milliseconds available: NYSE and AMEX from 2/7/06; NASDAQ from 12/5/05.
Max Spread	Number	Maximum spread between NBBO bid and ask within the bar.
Min Spread	Number	Minimum spread between NBBO bid and ask within the bar.
Number of NBBO Quotes in the Bar	Integer	Sum of NBBO quotes used to create a one-minute quote bar.

VI. File Naming Convention

Tick Data names corporate entities by a proprietary Internal ID#. We do this so that we are able to deliver files for multiple companies, active and/or inactive, that have used the same symbol in different time periods. For example, Chrysler (ticker = C, ID# = 1208) and Citigroup (ticker = C, ID# = 1335) both used the same symbol, 'C', at different times. Data for both is available. All supporting corporate action files will also reference our Internal ID#.

    3149   9/7/2007   9/20/2007   9/24/2007   10/25/2007   0.28   USD

When data is delivered 'as-traded', as it is when used with TickWrite® or Time Series Builder (TSB), files are named by ticker symbol and contain data for a single trading day. That was the actual symbol under which the company was listed on a particular trade date. On occasion, upon client request, we can deliver the data 'mapped' for corporate actions. This data is the same as the output of TickWrite 7 and TSB. When we deliver data in this manner, the files are named by Internal ID and each file will span the full range of data requested for that company.

VII. Corporate Actions

Tick Data provides the following corporate actions files with each dataset delivered.
The format for each file is described below:

A.   Company Information (CompanyInfo.asc)

Provides a map of Tick Data's internal ID# to current company symbol, company name, and CUSIP.

Sample

```
TWX,TWX,TIME WARNER INC.,887317105000,NEW YORK STOCK EXCHANGE,,01/04/1993,09/30/2007,357
GE,GE,GENERAL ELECTRIC CO,369604103000,NEW YORK STOCK EXCHANGE,,01/04/1993,09/30/2007,3149
MSFT,MSFT,MICROSOFT CORP,594918104002,NASDAQ GLOBAL SELECT MARKET,,01/04/1993,09/30/2007,5061
PCP,PCP,PRECISION CASTPARTS CORP,740189105000,NEW YORK STOCK EXCHANGE,,01/04/1993,09/30/2007,5822
```

File Layout

Each record contains nine (9) comma-separated fields of data and is laid out as follows:

> symbol
> file name
> company name
> CUSIP
> exchange
> industry code
> first date
> last date
> company id

Field Descriptions

Field Name	Type	Description
Symbol	Character	Stock symbol. See Appendix A for details on suffixes.
File Name	Character	Name of file if data is delivered named by Symbol rather than by ID#.
Company_Name	Character	Company name.
CUSIP	Character	CUSIP number, which uniquely identifies a security. The Committee on Uniform Security Identification Procedure (CUSIP) assigns the first nine digits. ▪ Digits/characters 1-6 identify the issuer ▪ Digits/characters 7-9 identify the issue. ▪ The last three digits are applied by the NSCC to distinguish between NYSE, AMEX, and NASD issues: o NYSE 000 o NYSE when issued 100 o AMEX 001 o AMEX when issued 101 o NASD 002 o NASD when issued 102
Exchange	Character	Current exchange on which the symbol is traded.

Industry	Character	NYSE industry code. See Appendix B. Null after 01/01/2000.
First Date	MM/DD/YYYY	The first date for which data is available for the company.
Last Date	MM/DD/YYYY	The last date for which data is available for the company.
ID #	Numeric	Tick Data's Internal ID#.

B. Split and Dividend Information (Stocksplits.csv)

Provides adjustment ratios for stock splits and stock dividends.

Sample

```
AEG,05/13/2003,0.96
APA,04/02/2003,0.95
BRL,03/17/2003,0.66666667
CBI,02/10/2003,0.5
CXWPRB,03/31/2003,0.97
PSS,03/27/2003,0.33333333
ROL,03/10/2003,0.66666667
```

File Layout

Each record contains three (3) comma-separated fields of data and is laid out as follows:

> Symbol
> Date
> Ratio

Field Descriptions

The following fields contain data pertaining to the following exchanges, unless otherwise noted:
- American Stock Exchange
- NASDAQ
- New York Stock Exchange

Field Name	Type	Description
Symbol	Character	Stock symbol. See Appendix A for details on suffixes.
Split_Date	MM/DD/YYYY	Date of stock split or dividend.
Ratio	Numeric	Percentage of adjustment made to the price of the symbol due to a stock split, stock distribution, stock dividend, or cash dividend.

C. Mergers (Mergers.csv)

Provides adjustment ratios for a certain type of stock splits where price should be adjusted but volume should not be adjusted.

File Layout

Each record contains three (3) comma-separated fields of data and is laid out as follows:

> symbol
> effective date

ratio

D.　Cash Dividends (Dividends.csv)

Provides the amount of cash dividends.

Sample

```
3149,9/7/2007,9/20/2007,9/24/2007,10/25/2007,,0.28,USD
5822,8/15/2007,9/5/2007,9/7/2007,10/1/2007,,0.03,USD
```

File Layout

Each record contains eight (8) comma-separated fields of data and is laid out as follows:

symbol / company id
declared date
ex_date
record_date
pay_date
net amount
gross amount
currency type

Field Descriptions

Field Name	Notes
Company ID or Symbol	Depends on data being delivered by ID or by Symbol.
Declare Date	no definition required
Ex-Date	no definition required
Record Date	no definition required
Pay Date	no definition required
Net Amount	no definition required
Gross Amount	no definition required
Currency Type	no definition required

VIII.   Appendix A – *Stock Suffixes*

NYSE and AMEX Issues

All securities on the NYSE and AMEX are identified by a three-character symbol. The following table lists the valid four- to seven-character suffix identifiers.

Description	Suffix
Class A	A
Class A Called	ACL
Class A Convertible	ACV
Class A When Issued	AWI
Class B	B
Class B Called	BCL
Class B Convertible	BCV
Class B When Issued	BWI
Called	CL
Certificate	CT
Convertible	CV
Convertible Called	CVCL
Ex-Dividend	XD
Ex-Rights	XRT
Without Warrants	XW
Part Called	PTCL
Preferred	PR
Preferred A through Preferred Z	PRA through PRZ
Preferred Called	PRCL
Preferred When Issued	PRWI
Rock Island Certificate UP	CTUP
Rights	RT
Rights When Issued	PRWI
Special	SP
Stamped	SD
Warrants	WS
Warrants Class A	WSA
Warrants Class B	WSB
Warrants When Issued	WSWI
With Warrants	WW
When Distributed	WD
When Issued	WI

NASDAQ Issues

A unique four- or five-letter symbol is assigned to NASDAQ securities. If a fifth letter appears, it identifies the issue as other than a single issue of common stock or capital stock. A list of fifth-letter identifiers and a description of what each represent follows:

Description	Suffix
Class A	A
Class B	B
Issuer qualification exception - the issuer has been granted a continuance in NASDAQ under an exception to the qualification standards for a limited period.	C
New	D
Delinquent in required filings with the SEC.	E
Foreign	F
First convertible bond	G
Second convertible bond, same company	H
Third convertible bond, same company	I
Voting	J
Nonvoting	K
Miscellaneous situations, such as depositary receipts, stubs, additional warrants, and units	L
Fourth preferred, same company	M
Third preferred, same company	N
Second preferred, same company	O
First preferred, same company	P
Bankruptcy - The issuer is involved in bankruptcy proceedings.	Q
Rights	R
Shares of beneficial interest	S
With warrants or with rights	T
Units	U
When-issued and when-distributed	V
Warrants	W
ADR (American Depositary Receipt)	Y
Miscellaneous situations, such as depositary receipts, stubs, additional warrants, and units	Z

Source: NASDAQ website: http://www.nasdaq.com/reference/glossary.stm

IX. Appendix B – *NYSE Industry Codes*

Industry Group	Code

INDUSTRIALS   100

    Aerospace   102
        Aircraft   102A
        Parts and Equipment   102B

    Business Supplies and Services   104
        Machines and Equipment (Excl. Computers)   104A
        Supplies   104B
        Services   104C

    Chemicals   106
        Diversified Chemicals   106A
        Specialized   106B

    Computers, Data Processing   108
        Computer Systems   108A
        Data Processing, Software   108B
        Peripheral Devices and Supplies   108C

    Construction   110
        Residential   110A
        Industrial   110B
        Cement   110C
        Lumber, Wood   110D
        Other Building Materials and Products   110E

    Electrical Equipment   112

    Electronics   114
        Semi Conductors and Other Components   114A
        Telecommunications Equipment   114B
        Test, Control Instruments and Systems   114C
        Other Systems and Equipment   114D

    Environmental Control   116

    Foods, Beverages   118
        Beverages   118A
        Branded Food Products   118B
        Processing and Production   118C
        Wholesalers   118D

Manufacturing	180A
Services	180B

TRANSPORTATION 200

    Air 202
Passenger Airlines	202A
Freight Airlines	220B

    Rail 204

    Trucking 206

    Other Transportation Services 208

UTILITIES 300

    Electric Services 302

    Gas Services 304
Distribution and Integrated Natural Gas Cos.	304A
Natural Gas Transmission Companies	304B
Other Gas Services	304C

    Telecommunications 306

    Water Supply Companies 308

    Multi-Service Companies 310

FINANCE, REAL ESTATE 400

    Banks 402
Multinational	402A
Regional	402B
Savings and Loan Associations	402C

    Brokerage Services 404

    Closed-End Investment Companies 406
Bond Funds	406A
Stock Funds	406B
Specialty Funds	406C

    Finance Companies 408

Insurance   410
    Brokers, Agents   410A
    Carriers   410B

Trusts   412
    Real Estate Investment Trusts (REITS)   412A
    Oil Royalty Trust   412B
    Other Trusts   412C

Real Estate   414

Diversified Financial Services   416

X.   Appendix C – *NASDAQ Market Makers*

NASDAQ Market Makers mnemonics can be found using the National Securities Clearing Corporation (NSCC) Directory or at the NSCC website www.nscc.com under Member Directory where an electronic version can be downloaded. Below is a sample list.

MMID	Company Name
(blank)	Aggregate quote, valid only for NASDAQ issues.
AA	Bid and offer are CAES aggregates*
AI	Bid is CAES aggregate; offer is non-CAES or exchange aggregate*
CAES	NASD Market Services, Inc.
DEAN	Dean Witter Reynolds Inc.
FAHN	Fahnestock & Co., Inc.
IA	Bid is non-CAES or exchange aggregate; offer is CAES aggregate*
II	Bid and offer are non-CAES or exchange aggregates*
LEHM	Lehman Bros.
MADF	Madoff (Bernard L.)
NASD	End of day quote for that issue
RHCO	Robinson-Humphrey Company Inc.
SHAW	Shaw (D.E.) Securities
TRIM	Trimark Securities, Inc.

* This value only valid prior to March 1997.

XI. Appendix D – *Sales Condition Codes*

*NOTE: The following condition codes are flagged for exclusion in the 'Exclude Record Flag' field: B, C, G, L, M, N, P, Q, R, S, W, Z, 9. In addition, if **Sales Condition Code** T appears during market hours, it is excluded. If a trade has a **Correction Indicator** value of 2 or larger, it is excluded regardless of the condition code.*

Sales Condition (Character, up to 4)

Regular Way (blank, @, or *) - A trade made without any stated conditions.

Note: Effective June 7, 1995 the standard settlement cycle was changed from five business days to three business days.

Cash-Only Basis (A) [1]– (CTS) All trading in that issue for that day is on a 'cash only' basis. Every trade for that day will have a condition of **A**. (NASD) Acquisition.

Bunched (B) – (NASD) A trade representing an aggregate of two or more regular trades (other than the opening or reopening trade) that were executed within the same 60 second period at the same price. (CTS) Average Trade.

Cash Sale (C) - A transaction which calls for the delivery and payment of securities on the same day the trade took place.

Next day Settlement Only (D) [2]– (CTS) All trading in that issue for that day is for 'next day settlement' only. Every trade for that day will have a condition of **D**. (NASD) Distribution

NYSE Direct+ (E) – (CTS only) The high-speed electronic connection for immediate automatic execution (Auto-X) of limit orders up to 1,099 shares.

Intermarket Sweep Order (F) - The transaction that constituted the trade-through was the execution of an order identified as an Intermarket Sweep Order.

Bunched sold (G) [3]- A bunched trade not reported within 90 seconds of execution.

Price Variation Trade (H)[4] - Indicates a regular market session trade transaction that carries a price that is significantly away from the prevailing consolidated or primary market value at the time of the transaction.

Odd Lot Trade (I)[5] - The NYSE Trades data feed did not previously disseminate execution messages for trades smaller than the market center's defined round lot size. From December 9, 2013 forward, the Odd Lot Sale Condition will be available in the TRADE MESSAGE - MSG TYPE '220' of the NYSE Trades data feed.

Rule 127 trade (J) [6]- (NYSE only) An NYSE trade reported as having been executed as a block position.

---

[1] Prior to August 1993, condition code A was assigned the value of 'Acquisition' for CTS issues. This code became obsolete for CTS issues as of May 24, 2010.

[2] Prior to August 1993, condition code D was assigned the value of 'Distribution' for CTS issues.

[3] Obsolete for CTS issues as of July 3, 2007.

[4] Prior to July 3, 2007, condition code H was assigned the value of Intraday Trade Detail for CTS issues.

[5] Prior to December 9, 2013, condition code I was assigned the value of Cap Election Trade. The CAP Election Trade highlights sales as a result of a sweep execution on the NYSE, whereby CAP orders have been elected and executed outside the best price bid or offer and the orders appear as "repeat" trades at subsequent execution prices. This indicator provides additional information to market participants that an automatic sweep transaction has occurred with repeat trades as one continuous electronic transaction.

[6] Obsolete for CTS issues as of February 15, 2007).

(See NYSE Constitution and Rules, ¶2127, Rule 127.)

Rule 155 trade (K) - (AMEX only) A specialist must give precedence to agency orders in any stock before executing a purchase or sale for the same stock in which he/she has an interest. (See Amex Constitution and Rules, ¶9295, Rule 155.) OR Rule 127 Trade (block position) (NYSE only).

Sold last (L) - A transaction that occurs in sequence but is reported to the tape at a later time; there are no intervening trades between the time the transaction occurs and when it is reported.

Market Center Official Closing Price (M) - Effective April 2003. The official closing price as determined by a Market Center. This is for information purposes only.

Next day (N) - Calls for delivery of securities on the first business day following the day of the contract.

Market Center Opening Price (O) [1]- The trade that constituted the trade-through was a single priced opening transaction by the Market Center (REG NMS Rule 611b3).

Prior Reference Price (P) - An executed trade that occurred in a marketplace where members execute certain transactions that actually relate to an obligation to trade at an earlier point in the trading day or that refer to prior referenced price.)

Market Center Official Opening Price (Q) – The official opening price as determined by a Market Center. This is for information purposes only.

Seller (R) - "Seller's Option". Delivery date is specified by the seller and must be between two and sixty calendar days following the day of the contract (but not on the third business day after the trade date, which is considered *regular way*). (See NYSE Constitution and Rules, ¶2064, Rule 64.)
Note: Beginning in June 1995, values over 60 are permissible. Any value over 99 has been changed to 99.

Split Trade (S) - (NASD only) An execution that takes place in two markets. The market-maker in the first market agrees to execute a portion of an order at a price realized in another market, to which the balance of the order is forwarded for execution.

Pre- and Post-Market Close Trades (T) - (NASD only) A trade that occurred within the current trading day, but is executed outside of the current market hours and within the market reporting hours. These trades include:
- European market between 9:06 and 9:13 EST;
- U.S. market between 8:00 and 9:30 EST;
- U.S. market between 16:00 and 17:16 EST.

Out of Sequence After-hours (U) - Sale condition for trade reports used to identify <u>extended trading hours trades</u> that are reported more than 90 seconds after execution.

Contingent Trade (V)

- ***NOTE: Prior to July 30, 2015, this code was: Stock Option Trade (V)*** - Stock-Option Trade is used to identify cash equity transactions which are related to options transactions and therefore potentially subject to cancellation if market conditions of the options leg(s) prevent the execution of the stock-option order at the price agreed upon.

Average Price Trades (W) – (NASD only) A trade where the price reported is an average of the prices for transactions during all or any portion of the trading day. Applies to Nasdaq NMS and SmallCap issues.

Cross Trade (X) - Indicates that the trade resulted from a Market Center's crossing session.

Yellow Flag Regular Trade (Y) – (NASD only) Market Centers will have the ability to identify regular trades being reported during specific events as out of the ordinary by appending a new sale condition code Yellow Flag ("Y") on each transaction reported to the UTP SIP.

Sold Out of Sequence (Z) - A transaction that is reported to the tape at a time later than it occurred and when other trades occurred between the time of the transaction its report time.

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[1] Prior to October 12, 2006, condition code O was assigned the value of Opened Last (opening trade out of sequence).

Derivatively Priced (4) - The transaction that constituted the trade-through was the execution of an order at a price that was not based, directly or indirectly, on the quoted price of the NMS stock at the time of execution, and for which the material terms were not reasonably determinable at the time the commitment to execute the order was made (REG NMS 611b7).

Market Center Reopening Trade (5) - The trade that constituted the trade-through was a single priced reopening transaction by the Market Center (REG NMS Rule 611b3).

Market Center Closing Trade (6) - The transaction that constituted the trade-through was a single priced closing transaction by the Market Center (REG NMS Rule 611b3).

Qualified Contingent Trade (7) - As of July 30, 2015, this code is active.

Reserved (8) [1]

Corrected Consolidated Close Price per the Listing Market (9) [1] - This Sales Condition will be used by the Listing Market to adjust the consolidated last sale price. Clients should expect to see "0" in the Volume field in the Trade Message under Sale Condition "9" as this message will be used for the purpose of adjusting the last sale price only. Prior to introducing this new Sale Condition, firms were advised to use Sale Condition "6" to indicate a Market Center's Closing Trade. Now, firms are advised to use both Sale Conditions "6" and "9" to denote Closing Trade and (if needed) corrected Closing Price, respectively.

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[1] Prior to February 14, 2007: (CTS) One record per symbol for executed volume entered as one-sided orders (9) and one record per symbol for executed volume entered as two-sided orders (i.e., matched) at the closing price (8). There are no individual records for executed one-sided or two-sided orders. For details on Crossing Session, see NYSE Market Surveillance Information Memo 91-19, June 5, 1991.

XII.   Appendix E – *Mode codes*

This field shows Mode prior to 1/1/2004, if applicable.

Zero (0) **-** invalid field for that issue (e.g., NASDAQ NMS issue).

Depth on offer side (1) - Indicated more size behind the quote being disseminated for the offer. This depth may be at the ask price of the quote or at a price immediately outside the disseminated ask quote.

Closing quote (3) **–** Indicates the last quote from a participant for that security during the trading day. There may be two closing quotes per symbol at the same price for market-on-close (MOC) transactions.[1]

News dissemination (4) - A regulatory halt used when relevant news influencing the stock is disseminated. Trading is suspended until the resultant impact has been assessed.

Fast trading (5) - Used during extremely active periods of short duration. While in this mode, quotes are entered on a "best efforts" basis.

Depth on bid and offer (6) - Indicated more size behind the reported quote for both bid and offer. The depth may be either at or immediately outside the quote.

Order imbalance (7) – A non-regulatory halt used when there is a severe buy or sell order imbalance. To prevent a disorderly market, trading is temporarily suspended.

Closed market maker (NASD) (8) - This condition is disseminated by each market maker to signify either the last quote of the day or the premature close of a market maker for the day. In the latter case, the market maker can re-open by transmitting a quote accompanied by Mode 12.

Non-firm quote (9) - A regulatory halt used when the level of trading activity in a security is such that the Exchange cannot collect, process, and disseminate quotes that accurately reflect market conditions. The specialist, with Floor Official approval, may switch to "non-firm mode" for 30 minutes.[2] (See NYSE Constitution and Rules, ¶2060, Rule 60.)

Opening quote (10) – The first quote disseminated from a given market center for each security.

News pending (11) – Indicates a regulatory trading halt or delayed opening due to an expected news announcement which may influence trading in the stock. A trading halt or opening delay may be reversed once the news has been disseminated.

Regular (NASD open) (12) - Indicates normal trading environment. May be used by NASD market makers in place of Mode 10 to indicate the first quote of the day or if a market maker re-opens a security during the day (see Mode 8).

Trading halt due to related security (13) - A non-regulatory halt used when events relating to one security will affect the price and performance of another security (e.g., a tender offer).

Trading halt in view of common (14) - A non-regulatory trading halt used when matters that affect the common stock of a company may affect the performance of other classes of securities for the same company.

Order influx (15) - A non-regulatory halt used when there is a severe influx of buy and sell orders. To prevent a disorderly market, trading is temporarily suspended.

No open/no resume (16) - Indicates a trading halt or an opening delay is to be in effect for the rest of the trading day. Generally, a trading halt condition indicating the reason for the halt or delay is indicated prior to the input of Mode 16.

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[1]For more information, see Hasbrouck, Sofianos, and Sosebee (1993), "New York Stock Exchange Systems and Trading Procedures," Working Paper #93-01, New York Stock Exchange, p.46-47.

[2]For more information, see Hasbrouck, Sofianos, and Sosebee (1993), "New York Stock Exchange Systems and Trading Procedures," Working Paper #93-01, New York Stock Exchange.

Opening (Re-opening) Price (17, 18) - Indicates the probable trading range (bid and offer sizes, no prices) of a security that is not opening delayed or halted. This quote condition can be used prior to (17) or after (18) the opening of a security.

Related Security News dissemination (19) - A regulatory halt used when news relating to one security will affect trading in an associated security. For example, news pertaining to the common issues of a company may affect the preferred issues.

Related Security News pending (20) - Same as above but refers to expected news.

Additional Information (27) - A regulatory halt or delayed opening used if more disclosure of information for the security is requested by the exchange. If inadequate information is disclosed during a trading halt or delayed opening due to news dissemination (mode 4) or news pending (mode 11), the reason could subsequently be reported as mode 27.

Additional Information due to related security (28) - A regulatory halt or delayed opening used if more disclosure of information for the security is requested for a related security.

Resume (29) - Used with zero-filled bid and offer sized to indicate that quoting is no longer suspended for a security that was halted or delayed.

XIII. Appendix F – *NYSE Stock Symbol Suffixes*

Suffix	Description
<v>	represents a character; Series (or Class) A-T & V-Z; Examples include the following: ZZZ A is the same as ZZZ/A ZZZ T is the same as ZZZ/T
<v>CL	Series (or Class) A-T & V-Z Called. Examples include the following: ZZZ ACL is the same as ZZZ/A/CL
<v>CV	Series (or Class) A-T & V-Z Convertible. Examples include the following: ZZZ ACV is the same as ZZZ/A/CV
<v>WI	Series (or Class) A-T & V-Z When Issued. Examples include the following: ZZZ AWI is the same as ZZZ/Aw
CL	Called. Examples include the following: ZZZ CL is the same as ZZZ/CL
CT	Certificates. Examples include the following: ZZZ CT is the same as ZZZ/CT
CV	Convertible. Examples include the following: ZZZ CV is the same as ZZZ/CV (ZZZ/CV)
CVR	Contingent Value Right. Examples include the following: ZZZ CVR is the same as ZZZ/CVR
CVCL	Convertible Called. Examples include the following: ZZZ CVCL is the same as ZZZ/CV/CL
DP	Amount of most-recent dividend to go "ex-distribution". Examples include the following: ZZZ DP is the same as ZZZ/DP
DV	Accumulated dividend per share, net of expenses, through and including the previous day's close of trading. Examples include the following: ZZZ DV is the same as ZZZ/DV
EC	Emerging Company Marketplace. Examples include the following: ZZZ EC is the same as ZZZ/EC
EU	Estimated cash amount for creation unit. Examples include the following: ZZZ EU is the same as ZZZ/EU
FN	Foreign News. Examples include the following: ZZZ FN is the same as ZZZ/F/N
ID	Index – differentiates an index from a stock with the same root symbol. Examples include the following: III ID is the same as III/ID
IV	Intra-day Net Asset Value per share. Examples include the following: ZZZ IV is the same as ZZZ/IV
NV	Net Asset Value per share, as of the close on the previous trading day. Examples include the following: ZZZ NV is the same as ZZZ/NV
PP	Partial Paid. Examples include the following: ZZZ PP is the same as ZZZ/PP
PTCL	Part Called. Examples include the following: ZZZ PTCL is the same as ZZZ/PT/CL
PR	Preferred. Examples include the following: ZZZ PR is the same as ZZZp
PR<v>	<v> represents a character; Preferred Series A-T & V-Z. Examples include the following: ZZZ PRA is the same as ZZZpA ZZZ, PRB is the same as ZZZpB
PR<v>CL	<v> represents a character; Preferred Series A-T & V-Z Called. Examples include the following: ZZZ PRACL is the same as ZZZpA/CL ZZZ, PRBCL is the same as ZZZpB/CL
PR<v>CV	<v> represents a character; Preferred Series A-T & V-Z Convertible. Examples include the following: ZZZ PRACV is the same as ZZZpA/CV ZZZ, PRBCV is the same as ZZZpB/CV
PR<v>WI	v> represents a character; Preferred Series A-T & V-Z When Issued. Examples include the following: ZZZ PRAWI is the same as ZZZpAw ZZZ, PRBWI is the same as ZZZpBw
PRWI	Preferred When Issued. Examples include the following: ZZZ PRWI is the same as ZZZpw
PRCL	Preferred Called. Examples include the following: ZZZ PRCL is the same as ZZZp/CL

PRCV	Preferred Convertible. Examples include the following: ZZZ PRCV is the same as ZZZp/CV
PRWD	Preferred When Distributed. Examples include the following: ZZZ PRWD is the same as ZZZp/WD
PRC<v>	Indicates Class A; could also be B-K and M-S; Second Category of Preferred. Examples include the following: ZZZ PRCA is the same as ZZZpCA ZZZ, PRCB is the same as ZZpCB
RT	Rights. Examples include: ZZZ R is the same as ZZZr
RWI	Rights When Issued. Examples include: ZZZ RWI is the same as ZZZrw
SC	Small Corporate Offering Registration. Examples include the following: ZZZ SC is the same as ZZZ/SC
SP	Special. Examples include the following: ZZZ SP is the same as ZZZ/SP
SD	Stamped. Examples include the following: ZZZ SD is the same as ZZZ/SD
SO	Current Shares Outstanding, in thousands. Examples include the following: ZZZ SO is the same as ZZZ/SO
TC	Total cash amount per creation unit, in thousands. Examples include the following: ZZZ TC is the same as ZZZ/TC
TEST	Exclusive suffix used for intraday test message. Examples include the following: ZZZ TEST is the same as ZZZ/TEST
TT	Tier II Securities. Examples include the following: ZZZ TT is the same as ZZZ/TT
U	Units (a combination of securities composed of two or more of warrants, common stocks, preferred stocks and/or bonds). Examples include the following: ZZZ U is the same as ZZZ/U
VR	Variable Common Rights. Examples include the following: ZZZ VR is the same as ZZZ/VR
WD	When Distributed. Examples include the following: ZZZ WD is the same as ZZZ/WD
WI	When Issued. Examples include the following: ZZZ WI is the same as ZZZw
WS	Warrants. Examples include the following: ZZZ WS is the same as ZZZ/WS
WWS	With Warrants. Examples include the following: ZZZ WWS is the same as ZZZ/W/WS
WS<v>	Warrants Series <v>; Series A-T & V-Z. Examples include the following: ZZZ WSA is the same as ZZZ/WSA
WSWI	Warrants When Issued

XIV. Appendix G – *NYSE Stock Symbol Suffix Definitions*

Called	An issue being redeemed by its issuing corporation under definite conditions before maturity
Certificate	Refers to a negotiable certificate representing deposit of stock with a pending change in its condition
Convertible	A preferred share which its owner may convert into common stock or another security, usually in the same company, in accordance with the terms of issue
Preferred	A class of stock with priority over common stock in regard to earnings and/or liquidations
Rights	Represent the privilege to subscribe (in proportion to the number of shares owned) to new or additional securities, usually at or below the current market price. Rights ordinarily have market values of their own and are traded actively. In most cases they must be exercised within a relatively short period of time.
Stamped	Indicates rights and privileges different from securities of the same issue, class, or series not stamped
Warrant	Indicates a certificate giving its holder the right to purchase securities at a stipulated price, either within a specified time limit or in perpetuity
When Distributed	Signifies a short form of "when, as, and if distributed" (see 'When Issued)
When Issued	Means a short form of "when, as, and if issued"; indicates a transaction in a security authorized for issuance, but not yet issued. All "When Issued" transactions are on an "if" basis, to be settled if and when the actual security is issued.
With Warrants	A security with a warrant attached that entitles the holder to purchase another security at stipulated price(s), either within a specified time or in perpetuity. Warrants may be immediately detachable from their underlying securities or detachable after specified periods.
Without Warrants	A security from which the warrant(s) has been removed.

XV.   Appendix H – *NASDAQ Stock Symbol Suffixes*

Suffix	Description
A	Class A
B	Class B
C	Issuer qualification exception – the issuer has been granted a continuance in NASDAQ under an exception to the qualification standards for a limited period
D	New
E	Delinquent in required filings with the SEC
F	Foreign
G	First convertible bond
H	Second convertible bond, same company
I	Third convertible bond, same company
J	Voting
K	Nonvoting
L	Miscellaneous situations, such as depositary receipts, stubs, additional warrants, and units
M	Fourth preferred, same company
N	Third preferred, same company
O	Second preferred, same company
P	First preferred, same company
Q	Bankruptcy - the issuer is involved in bankruptcy proceedings
R	Rights
S	Shares of beneficial interest
T	With warrants or with rights
U	Units
V	When-issued and when-distributed
W	Warrants
Y	ADR (American Depositary Receipt)
Z	Miscellaneous situations, such as depositary receipts, stubs, additional warrants, and units