Nasdaq Last Sale (NLS)
(including Nasdaq Trades FilterView and TRF Trades FilterView)

Direct Data Feed Interface Specification
Version: 2.1
Date Revised: December 23, 2015

Table of Contents

1 Product Description:

Nasdaq Last Sale℠ (NLS) is a direct data feed product offered by The Nasdaq Stock Market®. NLS will cover the full range of issues including Nasdaq-, New York Stock Exchange (NYSE)-, NYSE MKT-, NYSE Arca-, BATS- and US regional exchange-listed securities. NLS provides real-time, intra-day trade data from the Nasdaq/FINRA Trade Reporting Facility (TRF) as well as the Nasdaq execution system.

Market data distributors may use the NLS data feed to feed real-time stock tickers, portfolio trackers, trade alert programs, time and sale graphs, and other display systems.

For pricing and administration information, please refer to the NLS product page on the Nasdaq Trader website.

2 Data Delivery Options

The standard NLS data feed is comprised of trade messages from both the Nasdaq execution and FINRA/Nasdaq TRF for the full range of U.S. exchange-listed issues. As noted above, NLS includes trade data from these two Nasdaq operated systems data for Nasdaq-, NYSE-, NYSE MKT-, NYSE Arca- and BATS-listed equities.

For firms looking to manage their data traffic flows, Nasdaq will support two FilterView options for the NLS data feed. For those firms paying the FilterView fee(s), Nasdaq will provide separate NLS data streams for the Nasdaq execution system and the FINRA/Nasdaq TRF system.

Please refer to Appendix D for additional more information on these NLS delivery options.

3 Network Protocol Options

Nasdaq will offer the NLS data feed in three protocol options:

- SoupBinTCP
- Compressed via SoupBinTCP
- MoldUDP64

For network support and ordering information, please refer to the Nasdaq Direct Data Products Specifications Page on the Nasdaq Trader website.

4 Architecture

NLS will be made up of a series of sequenced messages. Each message is variable in length based on the message type. The messages that make up the NLS protocol are typically delivered using a higher level protocol that takes care of sequencing and delivery guarantees.

5 Data Types

All integer fields are big-endian (network byte order) binary encoded numbers. Unless otherwise noted, they are unsigned.

Prices are integer fields, supplied with an associated precision. Unless specifically denoted as a Signed Price, Prices are unsigned. When converted to a decimal format, prices are in a fixed point format, where the precision defines the number of decimal places. For example, a field flagged as Price (4) has an implied 4 decimal places.

Timestamps reflects the Nasdaq system time at which the outbound message was generated. Nasdaq states time as the number of nanoseconds past midnight. The time zone is U.S. Eastern Time.

All alphanumeric fields are left-justified, ASCII fields. Padding spaces appear on the right as necessary.

Please note, version 2.1 will not be available until 10/1/2015

6 Message Formats

6.1 System Event Message

System Event Messages is used to signal key market or data feed control events.

<table>
<tr><th colspan="5">System Event Message</th></tr>
<tr><th>Name</th><th>Offset</th><th>Len</th><th>Value</th><th>Notes</th></tr>
<tr><td>Tracking Number</td><td>0</td><td>2</td><td>Integer</td><td>Nasdaq internal tracking number</td></tr>
<tr><td>Time Stamp</td><td>2</td><td>6</td><td>Timestamp</td><td>Time Stamp</td></tr>
<tr><td>Message Type</td><td>8</td><td>1</td><td>Alphanumeric</td><td>S = System Event Message</td></tr>
<tr><td>Event Code</td><td>9</td><td>1</td><td>Alphanumeric</td><td>Denotes the NLS type of system event for which the message is being generated. The allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>O</td><td>Start of Transmissions: Denotes that the NLS system has started its daily transmission schedule.</td></tr>
<tr><td>S</td><td>Start of System Hours: This message indicates that Nasdaq is open and ready to start accepting orders.</td></tr>
<tr><td>Q</td><td>Start of Market Hours: Denotes the start of the</td></tr>
</table>
</td></tr>
</table>

					regular US market session. Traditionally, only trade transactions reported during the regular market session are considered to be "last sale" eligible.	
				M	End of Market Hours: Denotes the end of the regular US session.	
				E	End of System Hours: Indicates that Nasdaq is now closed and will not accept any new orders today.	
				C	End of Transmissions: Denotes that the NLS system has ended its daily transmission schedule.	

6.2 Trade Report for non-ETMF trades

The following message is used to relay Nasdaq execution system and TRF trade transactions that are reported for the current business day. Please note that Nasdaq only reports one-side of a trade execution on the Nasdaq Last Sale (NLS) feed and other data feed products.

<table>
<tr><th colspan="5">Trade Report Message</th></tr>
<tr><th>Name</th><th>Offset</th><th>Len</th><th>Type</th><th>Value/Description</th></tr>
<tr><td>Tracking Number</td><td>0</td><td>2</td><td>Integer</td><td>Nasdaq internal tracking number</td></tr>
<tr><td>Time Stamp</td><td>2</td><td>6</td><td>Timestamp</td><td>Denotes the time stamp of the Nasdaq system that generated the trade transaction. Please note that the Nasdaq and TRF systems maintain separate time stamps.</td></tr>
<tr><td>Message Type</td><td>8</td><td>1</td><td>Alphanumeric</td><td>T = Trade Report</td></tr>
<tr><td>Market Center Identifier</td><td>9</td><td>1</td><td>Alphanumeric</td><td>Denotes the Nasdaq market system that generated the trade report message. The allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>Q</td><td>Nasdaq execution system</td></tr>
<tr><td>L</td><td>Nasdaq/FINRA Trade Reporting Facility (TRF)</td></tr>
</table></td></tr>
<tr><td>Issue Symbol</td><td>10</td><td>8</td><td>Alphanumeric</td><td>Denotes the Nasdaq-assigned issue symbol of the security for which the trade report is being generated. For details on Nasdaq symbology, please refer to Appendix B.</td></tr>
<tr><td>Security Class</td><td>18</td><td>1</td><td>Alphanumeric</td><td>Indicates the primary listing market for the issue. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>Q</td><td>Nasdaq-Listed Issue</td></tr>
<tr><td>N</td><td>NYSE Listed Issue</td></tr>
<tr><td>A</td><td>NYSE MKT-Listed Issue</td></tr>
<tr><td>P</td><td>NYSE Arca-Listed Issue</td></tr>
<tr><td>Z</td><td>BATS-Listed Issue</td></tr>
</table></td></tr>
</table>

<table>
<tr><td>Trade Control Number</td><td>19</td><td>10</td><td>Alphanumeric</td><td>Indicates the source's internal control number associated with the given trade transaction.

Please note that the Trade Control Number is specific to the source system reflected in the Market Center ID field. This number is used as a key field for trade cancellations and trade corrections.</td></tr>
<tr><td>Trade Price</td><td>29</td><td>4</td><td>Price (4)</td><td>Denotes the report price on the trade transaction.</td></tr>
<tr><td>Trade Size</td><td>33</td><td>4</td><td>Integer</td><td>Indicates the reported number of shares on the trade transaction.</td></tr>
<tr><td>Sale Condition Modifier</td><td>37</td><td>4</td><td>Alphanumeric</td><td>Sale condition modifier consists of four levels as defined below.</td></tr>
<tr><td>Sale Condition Modifier – Level 1</td><td>37</td><td>1</td><td>Alphanumeric</td><td>Used for Settlement Type information. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>@</td><td>Regular Settlement</td></tr>
<tr><td>C</td><td>Cash Settlement</td></tr>
<tr><td>N</td><td>Next Day Settlement</td></tr>
<tr><td>R</td><td>Seller Settlement</td></tr>
</table></td></tr>
<tr><td>Sale Condition Modifier – Level 2</td><td>38</td><td>1</td><td>Alphanumeric</td><td>Used for SEC Regulation NMS Trade Through Exemption Codes. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>F</td><td>Intermarket Sweep</td></tr>
<tr><td>O</td><td>Opening Print</td></tr>
<tr><td>4</td><td>Derivative Priced</td></tr>
<tr><td>5</td><td>Re-Opening Print</td></tr>
<tr><td>6</td><td>Closing Print</td></tr>
<tr><td>7</td><td>Qualified Contingent Trade (QCT)</td></tr>
<tr><td><space></td><td>Not applicable</td></tr>
</table></td></tr>
</table>

<table>
<tr><td>Sale Condition Modifier – Level 3</td><td>39</td><td>1</td><td>Alphanumeric</td><td>Used for Extended Hours or Sold Codes. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>T</td><td>Extended Hours Trade</td></tr>
<tr><td>U</td><td>Extended Hours Trade – Reported Late or Out of Sequence</td></tr>
<tr><td>L</td><td>Sold Last – Reported Late But In Sequence</td></tr>
<tr><td>Z</td><td>Sold – Out of Sequence</td></tr>
<tr><td><space></td><td>Not applicable</td></tr>
</table></td></tr>
<tr><td>Sale Condition Modifier – Level 4</td><td>40</td><td>1</td><td>Alphanumeric</td><td>Used for special sale condition codes. Please note that this field is case sensitive. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>A</td><td>Acquisition</td></tr>
<tr><td>B</td><td>Bunched</td></tr>
<tr><td>D</td><td>Distribution</td></tr>
<tr><td>H</td><td>Price Variation Transaction</td></tr>
<tr><td>M</td><td>Nasdaq Official Close Price (NOCP)</td></tr>
<tr><td>P</td><td>Prior Reference Price</td></tr>
<tr><td>Q</td><td>Nasdaq Official Opening Price (NOOP)</td></tr>
<tr><td>S</td><td>Split Trade</td></tr>
<tr><td>V</td><td>Contingent Trade</td></tr>
<tr><td>W</td><td>Average Price Trade[1]</td></tr>
<tr><td>X</td><td>Cross Trade</td></tr>
<tr><td>o</td><td>Odd lot execution</td></tr>
<tr><td>X</td><td>Odd Lot Cross execution</td></tr>
<tr><td><space></td><td>Not applicable</td></tr>
</table></td></tr>
</table>

[1] For NLS processing, Nasdaq will use the sale condition modifier of "W" for all Average Price Trades regardless of the listing market center. While the UTP SIP uses the same sale condition modifier code for Nasdaq-listed issues, it should be noted that SIAC / CTA SIP uses a "B" sale condition modifier for Average Price Trades for NYSE-, NYSE MKT- and NYSE Arca-listed securities.

6.3 ETMF Trade Report

The following message is used to relay Nasdaq execution system and TRF trade transactions for Exchange Traded Managed Funds (ETMF) that are reported for the current business day. Please note that Nasdaq only reports one-side of a trade execution on the Nasdaq Last Sale (NLS) feed and other data feed products.

<table>
<tr><th colspan="5">Trade Report Message</th></tr>
<tr><th>Name</th><th>Offset</th><th>Len</th><th>Type</th><th>Value/Description</th></tr>
<tr><td>Tracking Number</td><td>0</td><td>2</td><td>Integer</td><td>Nasdaq internal tracking number</td></tr>
<tr><td>Time Stamp</td><td>2</td><td>6</td><td>Timestamp</td><td>Denotes the time stamp of the Nasdaq system that generated the ETMF trade transaction. Please note that the Nasdaq and TRF systems maintain separate time stamps.</td></tr>
<tr><td>Message Type</td><td>8</td><td>1</td><td>Alphanumeric</td><td>M = ETMF Trade Report</td></tr>
<tr><td>Market Center Identifier</td><td>9</td><td>1</td><td>Alphanumeric</td><td>Denotes the Nasdaq market system that generated the trade report message. The allowable values are:<table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>Nasdaq execution system</td></tr><tr><td>L</td><td>Nasdaq/FINRA Trade Reporting Facility (TRF)</td></tr></table></td></tr>
<tr><td>ETMF Symbol</td><td>10</td><td>8</td><td>Alphanumeric</td><td>Denotes the symbol of the ETMF for which the trade report is being generated.</td></tr>
<tr><td>Security Class</td><td>18</td><td>1</td><td>Alphanumeric</td><td>Indicates the primary listing market for the issue. Allowable values are:<table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>Nasdaq-Listed Issue</td></tr></table></td></tr>
</table>

<table>
<tr><td>Trade Control Number</td><td>19</td><td>10</td><td>Alphanumeric</td><td>Indicates the source's internal control number associated with the given trade transaction.

Please note that the Trade Control Number is specific to the source system reflected in the Market Center ID field. This number is used as a key field for trade cancellations and trade corrections.</td></tr>
<tr><td>Proxy Price</td><td>29</td><td>4</td><td>Price (4)</td><td>Denotes the proxy price on the ETMF trade transaction.</td></tr>
<tr><td>Trade Size</td><td>33</td><td>4</td><td>Integer</td><td>Indicates the reported number of shares on the trade transaction.</td></tr>
<tr><td>NAV Premium/Discount Amount</td><td>37</td><td>4</td><td>Signed Price (4)</td><td>The NAV premium or discount that should be applied to the Proxy Price.

Please note: This is a signed (+/-) field.</td></tr>
<tr><td>Sale Condition Modifier</td><td>41</td><td>4</td><td>Alphanumeric</td><td>Sale condition modifier consists of four levels as defined below.</td></tr>
<tr><td>Sale Condition Modifier – Level 1</td><td>41</td><td>1</td><td>Alphanumeric</td><td>Used for Settlement Type information. Allowable values are:
<table><tr><th>Code</th><th>Value</th></tr><tr><td>@</td><td>Regular Settlement</td></tr><tr><td>C</td><td>Cash Settlement</td></tr><tr><td>N</td><td>Next Day Settlement</td></tr><tr><td>R</td><td>Seller Settlement</td></tr></table></td></tr>
</table>

<table>
<tr><td>Sale Condition Modifier – Level 2</td><td>42</td><td>1</td><td>Alphanumeric</td><td>Used for SEC Regulation NMS Trade Through Exemption Codes. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>F</td><td>Intermarket Sweep</td></tr>
<tr><td>O</td><td>Opening Print</td></tr>
<tr><td>4</td><td>Derivative Priced</td></tr>
<tr><td>5</td><td>Re-Opening Print</td></tr>
<tr><td>6</td><td>Closing Print</td></tr>
<tr><td>7</td><td>Qualified Contingent Trade (QCT)</td></tr>
<tr><td><space></td><td>Not applicable</td></tr>
</table></td></tr>
<tr><td>Sale Condition Modifier – Level 3</td><td>43</td><td>1</td><td>Alphanumeric</td><td>Used for Extended Hours or Sold Codes. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>T</td><td>Extended Hours Trade</td></tr>
<tr><td>U</td><td>Extended Hours Trade – Reported Late or Out of Sequence</td></tr>
<tr><td>L</td><td>Sold Last – Reported Late But In Sequence</td></tr>
<tr><td>Z</td><td>Sold – Out of Sequence</td></tr>
<tr><td><space></td><td>Not applicable</td></tr>
</table></td></tr>
</table>

<table>
<tr><td>Sale Condition Modifier – Level 4</td><td>44</td><td>1</td><td>Alphanumeric</td><td>Used for special sale condition codes. Please note that this field is case sensitive.
Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>A</td><td>Acquisition</td></tr>
<tr><td>B</td><td>Bunched</td></tr>
<tr><td>D</td><td>Distribution</td></tr>
<tr><td>H</td><td>Price Variation Transaction</td></tr>
<tr><td>M</td><td>Nasdaq Official Close Price (NOCP)</td></tr>
<tr><td>P</td><td>Prior Reference Price</td></tr>
<tr><td>Q</td><td>Nasdaq Official Opening Price (NOOP)</td></tr>
<tr><td>S</td><td>Split Trade</td></tr>
<tr><td>V</td><td>Contingent Trade</td></tr>
<tr><td>W</td><td>Average Price Trade[2]</td></tr>
<tr><td>X</td><td>Cross Trade</td></tr>
<tr><td>o</td><td>Odd lot execution</td></tr>
<tr><td>x</td><td>Odd Lot Cross execution</td></tr>
<tr><td><space></td><td>Not applicable</td></tr>
</table>
</td></tr>
</table>

6.4

6.4 Trade Cancel/Error for non-ETMF trades

The following message is used in the event that a Nasdaq or TRF trade transaction is cancelled on the same business day that it is reported.

Trade Cancel/Error Message				
Name	***Offset***	***Len***	***Type***	***Value/Description***
Tracking Number	0	2	Integer	Nasdaq internal tracking number

[2] For NLS processing, Nasdaq will use the sale condition modifier of "W" for all Average Price Trades regardless of the listing market center. While the UTP SIP uses the same sale condition modifier code for Nasdaq-listed issues, it should be noted that SIAC / CTA SIP uses a "B" sale condition modifier for Average Price Trades for NYSE-, NYSE MKT- and NYSE Arca-listed securities.

<table>
<tr><td>Time Stamp</td><td>2</td><td>6</td><td>Timestamp</td><td>Denotes the time stamp of the Nasdaq system that generated the trade cancel/error message.</td></tr>
<tr><td>Message Type</td><td>8</td><td>1</td><td>Alphanumeric</td><td>X = Trade Cancel/Error</td></tr>
<tr><td>Market Center Identifier</td><td>9</td><td>1</td><td>Alphanumeric</td><td>Denotes the Nasdaq market system that generated the trade report and cancel/error message. The allowable values are:
<table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>Nasdaq Execution System</td></tr><tr><td>L</td><td>Nasdaq/FINRA Trade Reporting Facility (TRF)</td></tr></table></td></tr>
<tr><td>Issue Symbol</td><td>10</td><td>8</td><td>Alphanumeric</td><td>Denotes the Nasdaq-assigned issue symbol of the security for which the trade report is being generated. For details on Nasdaq symbology, please refer to Appendix B.</td></tr>
<tr><td>Security Class</td><td>18</td><td>1</td><td>Alphanumeric</td><td>Indicates the primary listing market for the issue. Allowable values are:
<table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>Nasdaq-Listed Issue</td></tr><tr><td>N</td><td>NYSE-Listed Issue</td></tr><tr><td>A</td><td>NYSE MKT-Listed Issue</td></tr><tr><td>P</td><td>NYSE Arca-Listed Issue</td></tr><tr><td>Z</td><td>BATS-Listed Issue</td></tr></table></td></tr>
<tr><td>Original Trade Control Number</td><td>19</td><td>10</td><td>Alphanumeric</td><td>Indicates the source's internal control number associated with the given trade transaction.

Please note that the Trade Control Number is specific to the source system reflected in the Market Center ID field.</td></tr>
<tr><td>Original Trade Price</td><td>29</td><td>4</td><td>Price (4)</td><td>Reported price for the transaction.</td></tr>
<tr><td>Original Trade Size</td><td>33</td><td>4</td><td>Integer</td><td>Reported number of shares for transaction.</td></tr>
<tr><td>Original Sale Condition Modifier</td><td>37</td><td>4</td><td>Alphanumeric</td><td>Defines the sale condition modifiers as reported on the original trade transaction.</td></tr>
</table>

6.5 Trade Cancel/Error for ETMFs

The following message is used in the event that a Nasdaq or TRF trade transaction for an ETMF is cancelled on the same business day that it is reported.

Trade Cancel/Error Message

Name	***Offset***	***Len***	***Type***	***Value/Description***
Tracking Number	0	2	Integer	Nasdaq internal tracking number
Time Stamp	2	6	Timestamp	Denotes the time stamp of the Nasdaq system that generated the trade cancel/error message.
Message Type	8	1	Alphanumeric	O = Trade Cancel/Error
Market Center Identifier	9	1	Alphanumeric	Denotes the Nasdaq market system that generated the trade report and cancel/error message. The allowable values are: Code: Value Q: Nasdaq Execution System L: Nasdaq/FINRA Trade Reporting Facility (TRF)
Issue Symbol	10	8	Alphanumeric	Denotes the Nasdaq-assigned issue symbol of the security for which the trade report is being generated. For details on Nasdaq symbology, please refer to Appendix B.
Security Class	18	1	Alphanumeric	Indicates the primary listing market for the issue. Allowable values are: Code: Value Q: Nasdaq-Listed Issue N: NYSE-Listed Issue A: NYSE MKT-Listed Issue P: NYSE Arca-Listed Issue Z: BATS-Listed Issue

Original Trade Control Number	19	10	Alphanumeric	Indicates the source's internal control number associated with the given trade transaction. Please note that the Trade Control Number is specific to the source system reflected in the Market Center ID field.
Original Trade Price	29	4	Price (4)	Reported proxy price for the transaction.
Original NAV Premium/Discount Amount	33	4	Signed Price (4)	Original NAV premium or discount originally applied to the Proxy Price. **Please note:** This is a signed (+/-) field.
Original Trade Size	37	4	Integer	Reported number of shares for transaction.
Original Sale Condition Modifier	41	4	Alphanumeric	Defines the sale condition modifiers as reported on the original trade transaction.

6.6 Trade Correction for non-ETMF trades

The following message is used in the event that a TRF trade transaction is corrected on the same business day that it is reported.

Trade Correction Message				
Name	***Offset***	***Len***	***Type***	***Value/Description***
Tracking Number	0	2	Integer	Nasdaq internal tracking number
Time Stamp	2	6	Timestamp	Denotes the time stamp of the Nasdaq system that generated the trade correction message.
Message Type	8	1	Alphanumeric	C = Trade Correction
Market Center Identifier	9	1	Alphanumeric	Denotes the Nasdaq market system that generated the trade report and cancel/error message. The allowable values are: Code: Q — Value: Nasdaq Execution System

<table>
<tr><td></td><td></td><td></td><td></td><td><table><tr><td>L</td><td>Nasdaq/FINRA Trade Reporting Facility (TRF)</td></tr></table></td></tr>
<tr><td>Issue Symbol</td><td>10</td><td>8</td><td>Alphanumeric</td><td>Denotes the Nasdaq-assigned issue symbol of the security for which the trade correction message is being generated. For details on Nasdaq symbology, please refer to Appendix B.</td></tr>
<tr><td>Security Class</td><td>18</td><td>1</td><td>Alphanumeric</td><td>Indicates the primary listing market for the issue. Allowable values are:<table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>Nasdaq-Listed Issue</td></tr><tr><td>N</td><td>NYSE-Listed Issue</td></tr><tr><td>A</td><td>NYSE MKT-Listed Issue</td></tr><tr><td>P</td><td>NYSE Arca-Listed Issue</td></tr><tr><td>Z</td><td>BATS-Listed Issue</td></tr></table></td></tr>
<tr><td>Original Trade Control Number</td><td>19</td><td>10</td><td>Alphanumeric</td><td>Indicates the source's internal control number associated with the given trade transaction.

Please note that the Trade Control Number is specific to the source system reflected in the Market Center ID field.</td></tr>
<tr><td>Original Trade Price</td><td>29</td><td>4</td><td>Price (4)</td><td>Reported price on the original trade transaction.</td></tr>
<tr><td>Original Trade Size</td><td>33</td><td>4</td><td>Integer</td><td>Reported number of shares on the original trade transaction.</td></tr>
<tr><td>Original Sale Condition Modifier</td><td>37</td><td>4</td><td>Alphanumeric</td><td>Indicates sale condition modifiers associated with the original transaction.</td></tr>
<tr><td>Corrected Trade Control Number</td><td>41</td><td>10</td><td>Alphanumeric</td><td>Indicates the Nasdaq internal control number associated with the adjusted trade transaction.

Please note that the Trade Control Number is specific to the Nasdaq host system reflected in the Market Center ID field.</td></tr>
<tr><td>Corrected Trade Price</td><td>51</td><td>4</td><td>Price (4)</td><td>Indicates the price for the corrected trade transaction.</td></tr>
</table>

Corrected Trade Size	55	4	Integer	Indicates the number of shares for the corrected trade transaction.
Corrected Sale Condition Modifier	59	4	Alphanumeric	Denotes the sale condition modifiers associated with the corrected trade transaction.

6.7 Trade Correction for ETMFs

The following message is used in the event that a TRF trade transaction for an ETMF is corrected on the same business day that it is reported.

<table>
<tr><th colspan="5">Trade Correction Message</th></tr>
<tr><th>Name</th><th>Offset</th><th>Len</th><th>Type</th><th>Value/Description</th></tr>
<tr><td>Tracking Number</td><td>0</td><td>2</td><td>Integer</td><td>Nasdaq internal tracking number</td></tr>
<tr><td>Time Stamp</td><td>2</td><td>6</td><td>Timestamp</td><td>Denotes the time stamp of the Nasdaq system that generated the trade correction message.</td></tr>
<tr><td>Message Type</td><td>8</td><td>1</td><td>Alphanumeric</td><td>Z = Trade Correction</td></tr>
<tr><td>Market Center Identifier</td><td>9</td><td>1</td><td>Alphanumeric</td><td>Denotes the Nasdaq market system that generated the trade report and cancel/error message. The allowable values are:<table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>Nasdaq Execution System</td></tr><tr><td>L</td><td>Nasdaq/FINRA Trade Reporting Facility (TRF)</td></tr></table></td></tr>
<tr><td>Issue Symbol</td><td>10</td><td>8</td><td>Alphanumeric</td><td>Denotes the Nasdaq-assigned issue symbol of the security for which the trade correction message is being generated. For details on Nasdaq symbology, please refer to Appendix B.</td></tr>
<tr><td>Security Class</td><td>18</td><td>1</td><td>Alphanumeric</td><td>Indicates the primary listing market for the issue. Allowable values are:<table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>Nasdaq-Listed Issue</td></tr></table></td></tr>
</table>

				N: NYSE-Listed Issue A: NYSE MKT-Listed Issue P: NYSE Arca-Listed Issue Z: BATS-Listed Issue
Original Trade Control Number	19	10	Alphanumeric	Indicates the source's internal control number associated with the given trade transaction. Please note that the Trade Control Number is specific to the source system reflected in the Market Center ID field.
Original Trade Price	29	4	Price (4)	Reported proxy price on the original trade transaction.
Original NAV Premium/Discount Amount	33	4	Signed Price (4)	Original NAV premium or discount originally applied to the Proxy Price. **Please note:** This is a signed (+/-) field.
Original Trade Size	37	4	Integer	Reported number of shares on the original trade transaction.
Original Sale Condition Modifier	41	4	Alphanumeric	Indicates sale condition modifiers associated with the original transaction.
Corrected Trade Control Number	45	10	Alphanumeric	Indicates the Nasdaq internal control number associated with the adjusted trade transaction. Please note that the Trade Control Number is specific to the Nasdaq host system reflected in the Market Center ID field.
Corrected Trade Price	55	4	Price (4)	Indicates the price for the corrected trade transaction in proxy price.
Corrected NAV Premium/Discount Amount	59	4	Signed Price (4)	Indicates the corrected NAV premium or discount originally applied to the Proxy Price. **Please note:** This is a signed (+/-) field.

Corrected Trade Size	63	4	Integer	Indicates the number of shares for the corrected trade transaction.
Corrected Sale Condition Modifier	67	4	Alphanumeric	Denotes the sale condition modifiers associated with the corrected trade transaction.

6.8 Administrative Messages

To help firms create a full display, Nasdaq supports the following administrative messages: (1) Stock Trading Action, (2) Symbol Directory, (3) Reg SHO Short Sale Price Test Restricted Indicator (4) Adjusted Closing Price.

6.8.1 Stock Trading Action

Nasdaq uses this administrative message to indicate the current trading status of a security to the trading community.

Prior to the start of system hours, Nasdaq will send out a Trading Action spin. In the spin, Nasdaq will send out a Stock Trading Action message with the “T” (Trading Resumption) for all Nasdaq- and other exchange-listed securities that are eligible for trading at the start of the system hours. If a security is absent from the pre-opening Trading Action spin, firms should assume that the security is being treated as halted in the Nasdaq platform at the start of the system hours. Please note that securities may be halted in the Nasdaq system for regulatory or operational reasons.

After the start of system hours, Nasdaq will use the Trading Action message to relay changes in trading status for an individual security. Messages will be sent when a stock is:

- Halted
- Paused*
- Released for quotation
- Released for trading

* The paused status will be disseminated for Nasdaq-listed securities only. Trading pauses on non-Nasdaq listed securities will be treated simply as a halt.

<table>
<tr><th colspan="5">TRADING ACTION MESSAGE</th></tr>
<tr><th>Name</th><th>Offset</th><th>Len</th><th>Type</th><th>Value/Description</th></tr>
<tr><td>Tracking Number</td><td>0</td><td>2</td><td>Integer</td><td>Nasdaq internal tracking number</td></tr>
<tr><td>Time Stamp</td><td>2</td><td>6</td><td>Timestamp</td><td>Time Stamp.</td></tr>
<tr><td>Message Type</td><td>8</td><td>1</td><td>Alphanumeric</td><td>H = Trading Action</td></tr>
<tr><td>Issue Symbol</td><td>9</td><td>8</td><td>Alphanumeric</td><td>Nasdaq-assigned indicator for issue for which the trading action message is being generated. For details on Nasdaq symbology, please refer to Appendix B.</td></tr>
<tr><td>Security Class</td><td>17</td><td>1</td><td>Alphanumeric</td><td>Indicates the primary listing market for the issue. Allowable values are:
<table>
<tr><th>Code</th><th>Value</th></tr>
<tr><td>Q</td><td>Nasdaq Listed Issue</td></tr>
<tr><td>N</td><td>NYSE Listed Issue</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td></td><td><table><tr><td>A</td><td>NYSE MKT Issue</td></tr><tr><td>P</td><td>NYSE Arca Issue</td></tr><tr><td>Z</td><td>BATS-Listed Issue</td></tr></table></td></tr>
<tr><td>Current Trading State</td><td>18</td><td>1</td><td>Alphanumeric</td><td>Reflects the current trading state for the issue. The allowable values are:<table><tr><th>Code</th><th>Value</th></tr><tr><td>H</td><td>Halted across all U.S. equity markets / SROs</td></tr><tr><td>P</td><td>Paused across all U.S. equity markets / SROs (Nasdaq-listed securities only)</td></tr><tr><td>Q</td><td>Quotation only period for cross-SRO halt or pause</td></tr><tr><td>T</td><td>Trading on Nasdaq</td></tr></table></td></tr>
<tr><td>Reason</td><td>19</td><td>4</td><td>Alphanumeric</td><td>Reflects the Market Ops or MarketWatch code for the trading state change. Refer to Appendix C for current code list.</td></tr>
</table>

Note: For Nasdaq-listed securities, Nasdaq conducts a cross when it releases an IPO security or when it re-opens a seasoned security after a trading halt or trading pause. To facilitate price transparency for its crosses, Nasdaq disseminates a Net Order Imbalance Indicator (NOII) message via the **Nasdaq TotalView** product suite at 5-second intervals during the quotation only period of the Trading Action release. The NOII data is especially valuable because it includes all order types (displayable and non-displayable) in its calculation.

6.8.2 Reg SHO Short Sale Price Test Restricted Indicator

In February 2011, the Securities and Exchange Commission (SEC) implemented changes to Rule 201 of the Regulation SHO (Reg SHO). For details, please refer to SEC Release Number 34-61595. In association with the Reg SHO rule change, Nasdaq introduced the following Reg SHO Short Sale Price Test Restricted Indicator message format.

For Nasdaq-listed issues, Nasdaq supports a full pre-opening spin of Reg SHO Short Sale Price Test Restricted Indicator messages indicating the Rule 201 status for all active issues. Nasdaq also sends the Reg SHO Short Sale Price Test Restricted Indicator message in the event of an intraday status change.

For other exchange-listed issues, Nasdaq relays the Reg SHO Short Sale Price Test Restricted Indicator message when it receives an update from the primary listing exchange.

Nasdaq processes orders based on the most recent Reg SHO Restriction status value.

REG SHO RESTRICTION				
Name	***Offset***	***Len***	***Value***	***Notes***

Tracking Number	0	2	Integer	Nasdaq internal tracking number
Timestamp	2	6	Timestamp	Time at which the Reg SHO Restriction message was generated
Message Type	8	1	“Y”	Reg SHO Short Sale Price Test Restricted Indicator
Stock	9	8	Alphanumeric	Stock symbol right padded with spaces.
Reg SHO Action	17	1	Alphanumeric	Denotes the Reg SHO Short Sale Price Test Restriction status for the issue at the time of the message dissemination. Allowable values are: “0” = No price test in place “1” = Reg SHO Short Sale Price Test Restriction in effect due to an intra-day price drop in security “2” = Reg SHO Short Sale Price Test Restriction remains in effect

6.8.3 Stock Directory

At the start of each trading day, Nasdaq disseminates stock directory messages for all active symbols in the Nasdaq system.

Market data redistributors should process this message to populate the Financial Status Indicator (required display field) and the Market Category (recommended display field) for Nasdaq-listed issues.

STOCK DIRECTORY				
Name	***Offset***	***Len***	***Value***	***Notes***
Tracking Number	0	2	Integer	Nasdaq internal tracking number
Timestamp	2	6	Timestamp	Time at which the directory message was generated. Refer to Data Types for field processing notes.
Message Type	8	1	“R”	Stock Directory Message
Stock	9	8	Alphanumeric	Denotes the security symbol for the issue in the Nasdaq execution system.
Market Category	17	1	Alphanumeric	Indicates Listing market or listing market tier for the issue **Code** – **Definition** *Nasdaq-Listed Instruments* Q – Nasdaq Global Select Market℠ G – Nasdaq Global Market℠ S – Nasdaq Capital Market® *Non-Nasdaq-Listed Instruments*

<table>
<tr><td></td><td></td><td></td><td></td><td><table><tr><td>N</td><td>New York Stock Exchange (NYSE)</td></tr><tr><td>A</td><td>NYSE MKT</td></tr><tr><td>P</td><td>NYSE Arca</td></tr><tr><td>Z</td><td>BATS Z Exchange</td></tr><tr><td><space></td><td>Not available</td></tr></table></td></tr>
<tr><td>Financial Status Indicator</td><td>18</td><td>1</td><td>Alphanumeric</td><td>For Nasdaq-listed issues, this field indicates when a firm is not in compliance with Nasdaq continued listing requirements.

<table><tr><td>Code</td><td>Definition</td></tr><tr><td colspan="2">Nasdaq-Listed Instruments</td></tr><tr><td>D</td><td>Deficient</td></tr><tr><td>E</td><td>Delinquent</td></tr><tr><td>Q</td><td>Bankrupt</td></tr><tr><td>S</td><td>Suspended</td></tr><tr><td>G</td><td>Deficient and Bankrupt</td></tr><tr><td>H</td><td>Deficient and Delinquent</td></tr><tr><td>J</td><td>Delinquent and Bankrupt</td></tr><tr><td>K</td><td>Deficient, Delinquent and Bankrupt</td></tr><tr><td>C</td><td>Creations and/or Redemptions Suspended for Exchange Traded Product</td></tr><tr><td>N</td><td>Normal (Default): Issuer Is NOT Deficient, Delinquent, or Bankrupt</td></tr><tr><td colspan="2">Non-Nasdaq-Listed Instruments</td></tr><tr><td><space></td><td>Not available. Firms should refer to SIAC feeds for code if needed.</td></tr></table></td></tr>
<tr><td>Round Lot Size</td><td>19</td><td>4</td><td>Integer</td><td>Denotes the number of shares that represent a round lot for the issue</td></tr>
<tr><td>Round Lots Only</td><td>23</td><td>1</td><td>Alphanumeric</td><td>Indicates if Nasdaq system limits order entry for issue

<table><tr><td>Code</td><td>Definition</td></tr><tr><td>Y</td><td>Nasdaq system only accepts round lots orders for this security.</td></tr><tr><td>N</td><td>Nasdaq system does not have any order size restrictions for this</td></tr></table></td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td></td><td><table><tr><td></td><td>security. Odd and mixed lot orders are allowed.</td></tr></table></td></tr>
<tr><td>Issue Classification</td><td>24</td><td>1</td><td>Alphanumeric</td><td>Identifies the security class for the issue as assigned by Nasdaq. See Appendix for allowable values.</td></tr>
<tr><td>Issue Sub-Type</td><td>25</td><td>2</td><td>Alphanumeric</td><td>Identifies the security sub-type for the issue as assigned by Nasdaq. See Appendix for allowable values.</td></tr>
<tr><td>Authenticity</td><td>27</td><td>1</td><td>Alphanumeric</td><td>Denotes if an issue or quoting participant record is set-up in Nasdaq systems in a live/production, test, or demo state. Please note that firms should only show live issues and quoting participants on public quotation displays.
<table><tr><td>Code</td><td>Definition</td></tr><tr><td>P</td><td>Live/Production</td></tr><tr><td>T</td><td>Test</td></tr></table></td></tr>
<tr><td>Short Sale Threshold Indicator</td><td>28</td><td>1</td><td>Alphanumeric</td><td>Indicates if a security is subject to mandatory close-out of short sales under SEC Rule 203(b)(3).
<table><tr><td>Code</td><td>Definition</td></tr><tr><td>Y</td><td>Issue is restricted under SEC Rule 203(b)(3)</td></tr><tr><td>N</td><td>Issue is not restricted</td></tr><tr><td><space></td><td>Threshold Indicator not available</td></tr></table></td></tr>
<tr><td>IPO Flag</td><td>29</td><td>1</td><td>Alphanumeric</td><td>Indicates if the Nasdaq security is set up for IPO release. This field is intended to help Nasdaq market participant firms comply with FINRA Rule 5131(b).
<table><tr><td>Code</td><td>Definition</td></tr><tr><td colspan="2">Nasdaq-Listed Instruments</td></tr><tr><td>Y</td><td>Nasdaq listed instrument is set up as a new IPO security</td></tr><tr><td>N</td><td>Nasdaq listed instrument is not set up as a new IPO security</td></tr><tr><td colspan="2">Non-Nasdaq-Listed Instruments</td></tr><tr><td><space></td><td>Not available</td></tr></table></td></tr>
<tr><td>LULD Reference Price Tier</td><td>30</td><td>1</td><td>Alphanumeric</td><td>Indicates which Limit Up / Limit Down price band calculation parameter is to be used for the instrument. Refer to LULD Rule for details.</td></tr>
</table>

				Code — **Definition** 1 — Tier 1 NMS Stocks and select ETPs 2 — Tier 2 NMS Stocks <space> — Not applicable
ETP Flag	31	1	Alphanumeric	Indicates whether the security is an exchange traded product (ETP): **Code** — **Definition** Y — Instrument is an ETP N — Instrument is not an ETP <space> — Not available
ETP Leverage Factor	32	4	Integer	Tracks the integral relationship of the ETP to the underlying index. Example: If the underlying Index increases by a value of 1 and the ETP's Leverage factor is 3, indicates the ETF will increase/decrease (see Inverse) by 3. Note: Leverage Factor of 1 indicates the ETP is NOT leveraged. This field is used for LULD Tier I price band calculation purposes.
Inverse Indicator	36	1	Alphanumeric	Indicates the directional relationship between the ETP and underlying index. **Code** — **Definition** Y — ETP is an Inverse ETP N — ETP is not an Inverse ETP Example: An ETP Leverage Factor of 3 and an Inverse value of 'Y' indicates the ETP will decrease by a value of 3.

6.8.4 Adjusted Closing Price

At the start of each trading day, Nasdaq disseminates the adjusted closing price for all active symbols in the Nasdaq system.

For Nasdaq-listed securities the Nasdaq Official Closing Price will be used to calculate the adjusted close. For non-Nasdaq securities, the consolidated close will be used to calculate adjusted close.

Note: Nasdaq will not support the adjusted closing price message format for ETMFs.

<table>
<tr><th colspan="5">ADJUSTED CLOSING PRICE</th></tr>
<tr><th>Name</th><th>Offset</th><th>Len</th><th>Value</th><th>Notes</th></tr>
<tr><td>Tracking Number</td><td>0</td><td>2</td><td>Integer</td><td>Nasdaq internal tracking number</td></tr>
<tr><td>Timestamp</td><td>2</td><td>6</td><td>Timestamp</td><td>Time at which the Adjusted Closing Price message was generated</td></tr>
<tr><td>Message Type</td><td>8</td><td>1</td><td>“G”</td><td>Adjusted Closing Price</td></tr>
<tr><td>Stock</td><td>9</td><td>8</td><td>Alphanumeric</td><td>Stock symbol right padded with spaces.</td></tr>
<tr><td>Security Class</td><td>17</td><td>1</td><td>Alphanumeric</td><td>Indicates the primary listing market for the issue. Allowable values are:
<table><tr><th>Code</th><th>Value</th></tr><tr><td>Q</td><td>Nasdaq Listed Issue</td></tr><tr><td>N</td><td>NYSE Listed Issue</td></tr><tr><td>A</td><td>NYSE MKT Issue</td></tr><tr><td>P</td><td>NYSE Arca Issue</td></tr><tr><td>Z</td><td>BATS-Listed Issue</td></tr></table></td></tr>
<tr><td>Adjusted Closing Price</td><td>18</td><td>4</td><td>Price (4)</td><td>The previous trading day’s official closing price adjusted for any applicable corporate actions. If there were no corporate actions for a security, the previous day’s official close will be disseminated.</td></tr>
</table>

6.8.5 Market-Wide Circuit Breaker (MWCB) Messaging

6.5.5.1 MWCB Decline Level Message

Informs data recipients what the daily MWCB breach points are set to for the current trading day.

MWCB Decline Level Message				
Name	***Offset***	***Length***	***Value***	***Notes***
Tracking Number	0	2	Integer	Nasdaq internal tracking number
Timestamp	2	6	Timestamp	Time at which the MWCB Decline Level message was generated
Message Type	8	1	“V”	Market wide circuit breaker Decline Level Message.
Level 1	9	8	Price (8)	Denotes the MWCB Level 1 Value.
Level 2	17	8	Price (8)	Denotes the MWCB Level 2 Value.
Level 3	25	8	Price (8)	Denotes the MWCB Level 3 Value.

6.5.5.2 MWCB Status Message

Informs data recipients when a MWCB has breached one of the established levels

MWCB Breach Message				
Name	***Offset***	***Length***	***Value***	***Notes***
Tracking Number	0	2	Integer	Nasdaq internal tracking number
Timestamp	2	6	Timestamp	Time at which the MWCB Breaker Status message was generated
Message Type	8	1	"W"	Market-Wide Circuit Breaker Status message
Breached Level	9	1	Alphanumeric	Denotes the MWCB Level that was breached. "1" = Level 1 "2" = Level 2 "3" = Level 3

6.8.6 IPO Quoting Period Update

Indicates the anticipated IPO quotation release time of a security.

IPO Quoting Period Update				
Name	***Offset***	***Length***	***Value***	***Notes***
Tracking Number	0	2	Integer	Nasdaq internal tracking number
Timestamp	2	6	Timestamp	Time at which the IPQ Quoting Period Update message was generated
Message Type	8	1	"K"	IPO Quoting Period Update Message
Stock	9	8	Alphanumeric	Denotes the security symbol for the issue in the Nasdaq execution system.
IPO Quotation Release Time	17	4	Integer	Denotes the IPO release time, in seconds since midnight, for quotation to the nearest second. Format: HHMMSS NOTE: If the quotation period is being canceled/postponed, we should state that 1. IPO Quotation Time will be set to 0 2. IPO Price will be set to 0
IPO Quotation	21	1	Alphanumeric	**Code** | **Description**

<table>
<tr><td>Release Qualifier</td><td></td><td></td><td></td><td><table><tr><td>A</td><td>Anticipated quotation release time
This value would be used when Nasdaq Market Operations initially enters the IPO instrument for release.</td></tr><tr><td>C</td><td>IPO release canceled/postponed
This value would be used when Nasdaq Market Operations cancels or postpones the release of the IPO instrument.</td></tr></table></td></tr>
<tr><td>IPO Price</td><td>22</td><td>4</td><td>Price (4)</td><td>Denotes the IPO price to be used for intraday net change calculations.</td></tr>
</table>

7 Contact Information

Questions about the NLS entitlement, display guidelines may be directed to Nasdaq Global Data products at +1 301 978 5307 or dataproducts@Nasdaqomx.com.

Questions about NLS transmissions may be directed to Nasdaq Global Software Development at devsupport@Nasdaqomx.com.

Appendix A – Last Sale Processing

SEC Vendor Display Rule

The Securities and Exchange Commission (SEC) has established certain display standards for market data vendors. For more information, please contact the SEC directly.

NLS carries only trade transactions from Nasdaq systems. Since NLS is not a consolidated trade data feed, it should not be used to feed market data displays that are subject to the SEC Vendor Display Rule.

Issue Statistic Calculations

NLS only provides raw trade data for the Nasdaq execution and TRF systems. If needed, firms should create their own algorithms for issue- and market center-level statistics. To help in the process, Nasdaq offers the following guidelines.

a) Last Sale and Volume Calculation

Within the market data industry, the term "last sale" has been widely used in conjunction with the SEC Vendor Display Rule. "Last Sale" is typically used to denote the most recent round or mixed lot trade transaction reported by a market center with an eligible sale condition code for the regular U.S. market session. For consolidated Nasdaq and TRF displays, firms should use the time stamp field from the Trade Report message to determine the proper trade sequence order for last sale calculations as well as time and sales displays.

To facilitate a "Last Sale" calculation, NLS includes the sale condition modifier for both Nasdaq execution system and TRF transactions. The Sale Condition Modifier field consists of four levels. A trade should only be applied to the high, low, last sale, and volume calculations if all four sales condition modifiers so allow.

Sale Condition – Level 1 denotes the settlement type of the transaction. If a transaction has a special settlement code, firms should not include transaction in high, low, or last sale price calculations. If the transaction has a regular settlement type, firms should process the next levels to determine proper processing.

Code	Value	High/Low	Last Sale	Volume
@	Regular Settlement	Yes, if other levels do not overrule	Yes, if other levels do not overrule	Yes, if other levels do not overrule
C	Cash Settlement	No	No	Yes
N	Next Day Settlement	No	No	Yes
R	Seller Settlement	No	No	Yes

Sale Condition – Level 2 indicates if a transaction was trade through exempt.

Code	Value	High/Low	Last Sale	Volume
F	Intermarket Sweep	Yes	Yes	Yes
O	Opening Print	Yes	Yes	Yes
4	Derivative Priced	Yes	No (except if first regular market trade of day)	Yes
5	Re-Opening Print	Yes	Yes	Yes
6	Closing Print	Yes	Yes	Yes
7	Qualified Contingent Trade (QCT)	No	No	Yes
<space>	Not applicable	See other levels	See other levels	See other levels

Sale Condition – Level 3 indicates if the transaction was reported during regular market hours with a “sold” code or during the extended trading hours session. For the TRF system, the “sold” code is used to indicate that a trade occurred during normal market hours but was reported more than 90 seconds after execution. Historically, only trades that occur during normal market hours and in proper sequence are included in the “last sale” calculation.

Code	Value	High/Low	Last Sale	Volume
T	Extended Hours Trade	No	No	Yes
U	Extended Hours Trade – Reported Late or Out of Sequence	No	No	Yes
L	Sold Last – Reported Late But In Sequence	Yes	Yes	Yes
Z	Sold – Out of Sequence	Yes	No (except if first regular market trade of day)	Yes
<space>	Not applicable	See other levels	See other levels	See other levels

Sale Condition – Level 4 indicates special trading situations.

For the Nasdaq execution system, this sale condition level is used to denote when a trade record contains the Nasdaq Official Opening Price (NOOP) or Nasdaq Official

Closing Price (NOCP) values. Since Nasdaq also reports the underlying cross execution transaction to the tape, the NOOP and NOCP report volume should not be included in the daily volume calculation.

For the Cross Trade (X) modifiers, firms should defer to the Level 2 and Level 3 sale condition codes to determine whether to include the trade in the high, low, and last sale calculation statistics.

As outlined in the table below, Nasdaq also observes special processing rules for the Prior Reference Price (P), Weighted Average Price (W), and Odd Lot Execution (o) codes.

Code	Value	High/Low	Last Sale	Volume
A	Acquisition	Yes	Yes	Yes
B	Bunched	Yes	Yes	Yes
D	Distribution	Yes	Yes	Yes
H	Price Variation Trade	No	No	Yes
M	Nasdaq Official Close Price (NOCP)	Yes for Nasdaq market center only or Nasdaq system-wide displays No for Nasdaq/ FINRA TRF only displays	Yes (for Nasdaq market center only or Nasdaq system-wide displays only)	No
o	Odd lot execution	No	No	Yes
P	Prior Reference Price	Yes	No (except if first regular market trade of day)	Yes
Q	Nasdaq Official Opening Price (NOOP)	Yes for Nasdaq market center only or Nasdaq system-wide displays No for Nasdaq/ FINRA TRF only displays	No	No
S	Split Trade	Yes	Yes	Yes

V	Contingent Trade	No	No	Yes
W	Average Price[3]	No	No	Yes
X	Cross Trade	Yes (if sent with an eligible Level 2 modifier)	Yes (if sent with an eligible Level 2 modifier)	Yes
x	Odd Lot Cross Trade	No	No	Yes
<space>	Not applicable	See other levels	See other levels	See other levels

b) Last Trade Calculation

The term "Last Trade" is more widely applied within the market data industry. Many firms use the term "last trade" to refer to the most recent trade transaction reported in sequence. In addition to the "last sale" codes, many firms include odd lots and extended trading hour executions in the "last trade" price calculations.

c) Net Change Calculation

NLS does not include a net change indicator field. Data feed recipient must perform their own calculation for last sale eligible and last trade eligible transactions. The formula should be as follows:

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

To obtain the Adjusted Previous Close, firms will need to apply dividends to the previous day's closing price value. For Nasdaq-listed securities, firms may obtain dividend information via the Dividend Daily List web-based product. For ordering information, please refer to the Daily List product page on the Nasdaq Trader website..

For NYSE-, NYSE MKT-, NYSE Arca- and BATS-listed securities, firms should contact the listing exchange directly to inquire about corporate action data delivery options.

Dividend adjustments are typically applied to the closing price on the day prior to ex-date and reflected on the ex-date, the next business day. Cash dividends of $0.01 or greater should be subtracted from the closing price. For stock dividends, the closing price should be divided by the dividend amount.

[3] For NLS processing, Nasdaq will use the sale condition modifier of "W" for all Average Price Trades regardless of the listing market center. While the UTP SIP uses the same sale condition modifier code for Nasdaq-listed issues, it should be noted that SIAC / CTA SIP uses a "B" sale condition modifier for Average Price Trades for NYSE-, NYSE MKT- and NYSE Arca-listed securities.

Appendix B - Stock Symbol Convention

For Nasdaq-listed issues, Nasdaq currently restricts its symbol length to a maximum of 8 characters. For common stock issuances, Nasdaq, PSX and BX will only assign root symbols of 1 to 4 characters in length with possible fifth and or sixth character denoting a suffix. In certain instances, a dot "." delimiter may be applied to symbols after the root and between the suffix eg., XXXX.A. For subordinate securities, Nasdaq and BX will assign a 5 character symbol for which the last character relays information about the issue class or issue type. For the current list of fifth and or six character symbol suffixes, please refer to Ticker Symbol Convention page on the Nasdaq Trader website.

For NYSE-, NYSE MKT- and NYSE Arca-listed securities with subordinate issue types, please refer to Ticker Symbol Convention page on the Nasdaq Trader website.

Appendix C – Trading Action Reason Codes

For Nasdaq-listed issues, Nasdaq acts as the primary market and has the authority to institute a trading halt or trading pause in an issue due to news dissemination or regulatory reasons.

For CQS issues, Nasdaq abides by any regulatory trading halts and trading pauses instituted by the primary or listing market as appropriate.

For both issue types, Nasdaq may also halt trading for operational reasons.

Nasdaq will send out a trading action message to inform its market participants when the trading status of an issue changes. For informational purposes, Nasdaq also attempts to provide the reason for each trading action update. For bandwidth efficiency reasons, Nasdaq uses a 4-byte code for the reason on its outbound data feeds.

REASON CODES FOR TRADING HALT ACTIONS	
Code	Value
T1	Halt News Pending
T2	Halt News Disseminated
T5	Single Stock Trading Pause In Effect
T6	Regulatory Halt — Extraordinary Market Activity
T8	Halt ETF
T12	Trading Halted; For Information Requested by Listing Market
H4	Halt Non-Compliance
H9	Halt Filings Not Current
H10	Halt SEC Trading Suspension
H11	Halt Regulatory Concern
O1	Operations Halt; Contact Market Operations
LUDP	Volatility Trading Pause
LUDS	Volatility Trading Pause – Straddle Condition
MWC1	Market Wide Circuit Breaker Halt – Level 1
MWC2	Market Wide Circuit Breaker Halt – Level 2
MWC3	Market Wide Circuit Breaker Halt – Level 3
MWC0	Market Wide Circuit Breaker Halt – Carry over from previous day
IPO1	IPO Issue Not Yet Trading
M1	Corporate Action
M2	Quotation Not Available
<space>	Reason Not Available

REASON CODES FOR QUOTATION/TRADING RESUMPTION ACTIONS	
Code	Value
T3	News and Resumption Times
T7	Single Stock Trading Pause / Quotation Only Period
R4	Qualifications Issues Reviewed/Resolved; Quotations/Trading to Resume
R9	Filing Requirements Satisfied/Resolved; Quotations/Trading To Resume
C3	Issuer News Not Forthcoming; Quotations/Trading To Resume
C4	Qualifications Halt ended; Maintenance Requirements Met; Resume
C9	Qualifications Halt Concluded; Filings Met; Quotes/Trades To Resume
C11	Trade Halt Concluded By Other Regulatory Auth.; Quotes/Trades Resume
MWCQ	Market Wide Circuit Breaker Resumption
R1	New Issue Available
R2	Issue Available
IPOQ	IPO Security Released for Quotation (Nasdaq Securities Only)
IPOE	IPO Security — Positioning Window Extension (Nasdaq Securities Only)
<space>	Reason Not Available

For the current list of regulatory halts, please refer to the Trading Halts page on the Nasdaq Trader website.

Appendix D – NLS FilterView Data Feed Option

As outlined in section 3, Nasdaq will offer three data feed delivery options for the Nasdaq Last Sale data feed. Below is a description of the data content for each NLS option.

Data Delivery Option	Nasdaq Last Sale (NLS) – Version 1.1 (Standard Option)
Trading Systems Coverage	• Nasdaq execution system • FINRA/Nasdaq Trade Reporting Facility (TRF)
Security Coverage	• Nasdaq-listed issues • NYSE-listed issues • NYSE MKT-listed issues • NYSE Arca-listed issues • BATS-listed and other U.S. regional issues
Protocol Options	• SoupTCP • Compressed via SoupTCP • MoldUDP
NLS Message Formats In Delivery Option	• All System Event messages (Type S) • All Trade-Related messages (Types T, X and C) for both the Nasdaq execution system (Market Center Originator ID “Q”) and FINRA/Nasdaq TRF (Market Center Originator ID of “L”> • Stock Directory messages (Type R) • Trading Action messages (Type H)
Notes	All Nasdaq and TRF trades are disseminated via a single outbound data stream. Firms may refer to Market Center Identifier field within the trade report to determine the Nasdaq trading system associated with the message. Firms may also refer to the Security Class field within the trade report to determine the listing market for the security.

Data Delivery Option	Nasdaq Trades FilterView – Version 1.1
Trading System Coverage	• Nasdaq execution system
Security Coverage	• Nasdaq-listed issues • NYSE-listed issues

	• NYSE MKT-listed issues • NYSE Arca-listed issues • BATS-listed and other U.S. regional issues
Protocol Options	• SoupTCP • Compressed via SoupTCP • MoldUDP
NLS Message Formats in Delivery Option	• All System Event messages (Type S) • All Trade-Related messages (Types T, X and C) for the Nasdaq execution system only (Market Center Originator ID of Q) • Stock Directory messages (Type R) • Trading Action messages (Type H)
Notes	Only Nasdaq execution system trades would be included in this FilterView option. For this NLS option, the system event timing would mimic the full NLS feed. Please note that firms must pay the FilterView fee of $500 per month for this data delivery option **in addition to** the NLS distributor and usage fees.

Data Delivery Option	TRF Trades FilterView – Version 1.1
Trading System Coverage	• FINRA/Nasdaq Trade Reporting Facility (TRF)
Security Coverage	• Nasdaq-listed issues • NYSE-listed issues • NYSE MKT-listed issues • NYSE Arca-listed issues • BATS-listed and other U.S. regional issues
Protocol Options	• SoupTCP • Compressed via SoupTCP • MoldUDP

NLS Message Formats in Delivery Option	• Select System Event messages (Type S)
	  ○ System Open (Event code "O")
	  ○ System Close (Event code "C")

	• All Trade-Related messages (Types T, X and C) for the FINRA/Nasdaq TRF only (Market Center Originator ID of L)
Notes	Only FINRA/Nasdaq Trade Reporting Facility trades would be included in this FilterView option. For this NLS option, the System Event message timing would be slightly different than the full NLS feed with the System Open event going out at 8 a.m., ET. Please note that firms must pay the FilterView fee of $500 per month for this data delivery option **in addition to** the NLS distributor and usage fees.

Appendix E - Issue Classification Values

Identifies the security class for the issue as assigned by Nasdaq

CODES FOR ISSUE CLASSIFICATION VALUES	
Code	Value
A	American Depositary Share
B	Bond
C	Common Stock
F	Depository Receipt
I	144A
L	Limited Partnership
N	Notes
O	Ordinary Share
P	Preferred Stock
Q	Other Securities
R	Right
S	Shares of Beneficial Interest
T	Convertible Debenture
U	Unit
V	Units/Benif Int
W	Warrant

Appendix F - Issue Sub-Type Values

CODES FOR ISSUE CLASSIFICATION VALUES	
Code	**Value**
A	Preferred Trust Securities
AI	Alpha Index ETNs
B	Index Based Derivative
C	Common Shares
CB	Commodity Based Trust Shares
CF	Commodity Futures Trust Shares
CL	Commodity-Linked Securities
CM	Commodity Index Trust Shares
CO	Collateralized Mortgage Obligation
CT	Currency Trust Shares
CU	Commodity-Currency-Linked Securities
CW	Currency Warrants
D	Global Depositary Shares
E	ETF-Portfolio Depositary Receipt
EG	Equity Gold Shares
EI	ETN-Equity Index-Linked Securities
EM	Exchange Traded Managed Funds*
EN	Exchange Traded Notes
EU	Equity Units
F	HOLDRS
FI	ETN-Fixed Income-Linked Securities
FL	ETN-Futures-Linked Securities
G	Global Shares
I	ETF-Index Fund Shares
IR	Interest Rate
IW	Index Warrant
IX	Index-Linked Exchangeable Notes
J	Corporate Backed Trust Security
L	Contingent Litigation Right
LL	Identifies securities of companies that are set up as a Limited Liability Company (LLC)
M	Equity-Based Derivative
MF	Managed Fund Shares
ML	ETN-Multi-Factor Index-Linked Securities
MT	Managed Trust Securities
N	NY Registry Shares
O	Open Ended Mutual Fund
P	Privately Held Security
PP	Poison Pill
PU	Partnership Units
Q	Closed-End Funds
R	Reg-S
RC	Commodity-Redeemable Commodity-Linked Securities
RF	ETN-Redeemable Futures-Linked Securities
RT	REIT
RU	Commodity-Redeemable Currency-Linked Securities
S	SEED
SC	Spot Rate Closing
SI	Spot Rate Intraday
T	Tracking Stock
TC	Trust Certificates
TU	Trust Units

U	Portal
V	Contingent Value Right
W	Trust Issued Receipts
WC	World Currency Option
X	Trust
Y	Other
Z	Not Applicable

*Nasdaq is planning to introduce Exchange Traded Managed Funds (ETMFs) in 2015. EMTF prices will be stated in proxy price and NAV offset on this feed. Nasdaq is expected to issue vendor display requirements for this new asset class.

Appendix G – Documentation Version Control Log

NLS Version 1.00 **February 22, 2007**

NLS specification document released to public. For ordering information, please refer to Nasdaq Vendor Alert #2007-011.

NLS Version 1.00 **April 30, 2007**

The following sections of the NLS were updated for clarity reasons:

Section 5 – Data Type field was updated for all formats to delineate between alphabetic and alphanumeric fields.

Section 5.5.1 – Within the Stock Trading Action message, Nasdaq corrected the Data Type field to alphabetic for Current Trading Status field.

Section 5.5.2 – Within the Issue Directory message format, Nasdaq updated the code list for the Market Category field to denote that space is an allowable value. The Market Category field may be space filled if the security symbol is associated with a test issue OR if Nasdaq Operations adds a production issue to its online systems intra-day.

NLS Version 1.00 **June 7, 2007**

The following sections of the NLS were updated for clarity reasons:

Section 5.4 – Modified Trade Control message to add a Corrected Trade Control Number field to the message.

NLS Version 1.00 **July 2, 2007**

The following sections of the NLS were updated to reflect upcoming product changes:

Section 5.2 and Appendix A – Added new sale condition codes for Cross Trade transactions. For details on the new cross trade modifiers, please refer to Nasdaq Vendor Alert #2007-047.

NLS Version 1.00 **August 22, 2007**

The following sections of the NLS were updated to reflect upcoming product changes:

n 1.0 and Section 5 – Updated references to the Trade Reporting Facility (TRF) to : the fact the National Association of Securities Dealers (NASD) changed its name to :ial Industry Regulatory Authority (FINRA).
n 5.2 and Appendix A – Added note to clearly state that the Nasdaq and TRF ns maintain separate time stamps.
dix A – Modified Level 4 sale condition matrix to clarify processing rules for Nasdaq l Opening Price (NOOP) and Nasdaq Official Closing Price (NOCP) prints. Firms l include NOOP and NOCP values in Nasdaq market center system (Market Center = ıly) or Nasdaq system-wide (Market Centers = "Q" **+** "L") statistics. Firms should owever, use the NOOP and NOCP values to set Nasdaq/FINRA TRF system (Market r = "L" only) statistics.

NLS Version 1.00 **October 24, 2008**

The NLS specification was updated to reflect the following documentation changes:

links to Nasdaq Trader website pages were corrected and email addresses were ed.

NLS Version 1.00 **October 30, 2008**

The NLS specification was updated to reflect the following documentation changes:

ed document to ensure that the value of "H" (Price Variation) properly reflected in erences to the Level 4 Sale Condition Modifier.

NLS Version 1.00 **December 4, 2009**

The NLS specification was updated to reflect the following documentation changes:

ed document to reflect that Sale Condition Level 2 now supports for Intermarket › Order (ISO) values.

NLS Version 1.00 **December 17, 2009**

The NLS specification was updated to reflect the following documentation changes:

ıed the Security Class field values to differentiate between NYSE and NYSE MKT issues.
ıed the Sale Condition Modifier - Level 4 code for Odd Lot transactions to lower case

Delivery Option sections to highlight FilterView options for Nasdaq Last Sale (NLS).

NLS Version 1.00 **January 7, 2010**

The NLS specification was updated to reflect the following documentation changes:

ɪed the Security Class field values to differentiate between NYSE, NYSE MKT and Arca listed issues.

NLS Version 1.10 January 26, 2010

Released a new version of the NLS documentation to support the following changes:

- Increased length of the symbol field from 6 characters to 8 characters in multiple message formats in support of the equity symbology initiative.
- Added note to Appendix B to reflect that Nasdaq is reviewing its stock symbol conventions to determine if changes are needed.

NLS Version 1.10 May 25, 2010

The NLS specification was updated to reflect the following documentation changes:

- Added two new Trading Action – Reason Code values (T5 and T7) in support of the Single Stock Trading Pause.

NLS Version 1.10 July 2, 2010

Nasdaq added new Action Trading code(s) to the Stock Trading Action message for the Nasdaq Volatility Guard trading pause.

NLS Version 1.10 July 14, 2010

Nasdaq added a new Regulation SHO Short Sale Price Test Restricted Indicator message format to be introduced in the fourth quarter of 2010.

NLS Version 1.10 November 4, 2010

Nasdaq updated the Reg SHO message description to reflect the new SEC implementation date.

Nasdaq also fixed a documentation error related to the field layout for the the Stock Trading Action message. (Error was introduced in July of 2010.)

NLS Version 1.10 November 11, 2010

Nasdaq added a note to the sale condition matrixes about its standardization of the Average Price Trade code. As of November 2010, Nasdaq will use the "W" sale condition code for all exchange-listed issues.

NLS Version 1.10 **April 6, 2011**

Nasdaq added two new Trading Action – Reason codes to Appendix C for the Nasdaq Volatility Guard pilot program. New Reason codes were V1 and V2.

NLS Version 1.10 **September 20, 2011**

Nasdaq added two new values to the Financial Status Indicator. New values were N and S.

NLS Version 1.10 **November 1, 2011**

Nasdaq added a new Market Center code, "Z", for BATS-listed securities to the Market Category and Security Class fields.

NLS Version 1.10 **November 6, 2012**

Released a new version of the NLS documentation to support the following changes:

- Added the "P" value to the Trading State in the Stock Trading Message.
- Modified the values for the Trading Action Reason Codes. Added the following codes:
    - LUDP - Volatility Trading Pause
    - MWC1 - Market Wide Circuit Breaker Halt – Level 1
    - MWC2 - Market Wide Circuit Breaker Halt – Level 2
    - MWC3 - Market Wide Circuit Breaker Halt – Level 3
    - MWCQ - Market Wide Circuit Breaker Resumption
- Removed the Trading Action values related to the Volatility Guard Program. Removed Trading State, "V". Eliminated Trading Action Reason Codes, V1 and V2.

NLS Version 1.10 **January 9, 2013**

Released a new version of the NLS documentation to support the following changes:

- Added the following Trading Action Reason Code:
    - MWC0 - Market Wide Circuit Breaker Halt – Carry over from previous day
- Removed the Trading State, "R", from the Stock Trading Action message.

NLS Version 1.10 **February 22, 2013**

Released a new version of the NLS documentation to correct offsets in the Stock Trading Action and Reg SHO Short Sale Price Test Restricted Indicator messages.

NLS Version 1.10 **March 9, 2013**

Released a new version of the NLS documentation to support the following changes:

- Added the following Trading Action Reason Code for LULD to reflect when the National Best Bid is below the lower price band and/or the National Best Offer is above than the upper price band and the NMS Stock is not in a Limit State.
    - LUDS - Volatility Trading Pause – Straddle Condition

NLS Version 1.10 **April 12, 2013**

The NLS specification was updated to reflect the following documentation changes:

ied all references from NYSE Amex to NYSE MKT.

NLS Version 1.10 **April 23, 2013**

The NLS specification was updated to reflect the addition of the following Event Codes in the System Event Message:

art of System Hours: This message indicates that Nasdaq is open and ready to start :ing orders.
d of System Hours: Indicates that Nasdaq is now closed and will not accept any new ; today.

NLS Version 1.20 **May 29, 2013**

The NLS specification was updated to reflect the addition of the Adjusted Closing Price Message.

NLS Version 2.00 **July 10, 2013**

The NLS Specification was updated to reflect the following changes:

- Added Enhanced Symbol Directory
- Added IPO Quotation Release Message
- Added Market-Wide Circuit Breaker (MWCB) Messaging
    - MWCB Decline Level Message
    - MWCB Status Message
- Addition of an internal tracking number to multiple messages
- Addition of 'C' to the Financial Status Indicator field in the Symbol Directory Message
- Addition of 'x' to Sale Condition - Level 4

NLS Version 2.00 **August 2, 2013**

The NLS Specification was updated to reflect the following changes:

- Removed internal tracking number from multiple messages
- Inclusion of the Appendices for Issue Classification and Issue Sub-Type
- Updated offsets in the Symbol Directory Message
- Updated offsets and lengths in the MWCB Decline Level Message
- Changed the IPO Quotation Release Message Type to "K"
- Updated offsets in the IPO Quotation Release Message

NLS Version 2.00 **October 1, 2013**

The NLS Specification was updated to reflect the following changes:

- Conversion to a binary format
- Clarified interpretation of the levels in the MWCB Decline Levels Message

NLS Version 2.00 August 28, 2014

The NLS Specification was updated to reflect the following changes:
- Section 6.5.4- Corrected the language for the Adjusted Closing Price

NLS Version 2.00 December 5, 2014

The NLS Specification was updated to include missing Issue Sub-Type Codes (Appendix F):
- AI – Alpha Indexes ETNs
- CO – Collateralized Mortgage Obligation
- EU – Equity Units
- F – HOLDRS
- IR – Interest Rate
- IW – Index Warrant
- J – Corporate Backed Trust Security
- PP – Poison Pill
- Q – Closed -End Funds
- RT – REIT
- SC – Spot Rate Closing
- SI – Spot Rate Intraday
- WC – World Currency Option
- X – Trust
- Y – Other
- Z – NA

NLS Version 2.1 March 27, 2015

The NLS Specification was updated to include the following:
- Addition of the following messages:
  - ETMF Trade Report
  - Trade Cancel/Error for ETMFs
  - Trade Correction for ETMFs
- Addition the Issue Sub-Type "EM" for Exchange Traded Managed Funds
- Addition of the Level 1 Sale Condition "J " for Proxy Price Settlement
- Clarification of Data Types
- Increased timestamp length to reflect nanosecond granularity
- **These changes will take effect** 10/1/2015. The 2.1 version will go live on 10/1/2015 - with v 2.0 running in parallel through 1/29/16.

Nasdaq and NFS are requesting that market data vendors display ETMF orders, quotations and trades in NAV-based format, if at all possible. For display use, Nasdaq is including the NAV premium / discount amount data points on QBBO, NLS and NLS Plus for these purposes. Firms may also calculate the NAV premium / discount amount from proxy price field by deducting $100 from the disseminated value.

If firms decide to display ETMF data in proxy price format, Nasdaq and NFS are asking firms to add an indicator to the display so consumers to understand that this value is not the actual execution price for the trade/quote.

NLS Version 2.1 **June 30, 2015**

The NLS Specification was updated to now exclude the initially planned Level 1 Sale Condition "J " for Proxy Price Settlement

http://www.Nasdaqtrader.com/TraderNews.aspx?id=dtn2015-7

NLS Version 2.1 **October 30, 2015**

The NLS Specification was updated to reflect sale condition modifiers for Qualified Contingent Trades (QCT)

NLS Version 2.1 **December 23, 2015**

The NLS Specification was updated to reflect the following changes:
Section 6.7 - Trade correction for ETMFs - Corrected the field offsets