# Nasdaq NOIView
Version 3.0

## 1. Overview

Nasdaq NOIView 3.0 is a direct data feed product offered by The Nasdaq Stock Market®, which features the following data elements:

- Net Order Imbalance Data: In the minutes leading up to the Nasdaq Opening and Closing Crosses as well as IPO/Halt/Imbalance Cross, Nasdaq disseminates the indicative clearing price and net order imbalance in the Nasdaq execution system. Because the calculation includes non-displayable as well as displayable order types, the net order imbalance indicator (NOII) is the best predictor of the Nasdaq opening and closing prices available to the public.

- Administrative messages, such trading actions and symbol directory for Nasdaq-listed issues:

  - Stock trading action messages are used to inform market participants when a security is halted / paused, released for quotation and released for trading.

  - Stock symbol Directory messages provide basic security data such as the market tier and Financial Status Indicator.

Please note that NOIView is a filtered Nasdaq data feed product. The NOII and administrative messages are also supported on the Nasdaq TotalView-Aggregated data feed.

## 2. Architecture

The NOIView 3.0 feed is 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 NOIView 3.0 protocol are typically delivered using a higher level protocol that takes care of sequencing and delivery guarantees.

Nasdaq offers the NOIView 3.0 data feed in three protocol options:

- SoupBinTCP
- Compressed via SoupBinTCP
- MoldUDP64

Please note that, for each data center connection, NOIView 3.0 messages will be disseminated via a single outbound data channel.

## 3. Data Types

All integer fields are unsigned big-endian (network byte order) binary encoded numbers.

Prices are integer fields, supplied with an associated precision. 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 digits.


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

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. Padding spaces appear on the right as necessary.

# *4. Message Formats*

Nasdaq NOIView 3.0 supports three basic types of messages:

- o System Events
- o Nasdaq Net Order Imbalance Indicators
- o Administrative Data

Within the system event and administrative types, Nasdaq may support multiple message formats as outlined below.

## *4.1 System Event Message*

The system event message type is used to signal a market or data feed handler event. The format is as follows:

| **SYSTEM EVENT MESSAGE** | | | | |
|---|---|---|---|---|
| ***Name*** | ***Offset*** | ***Length*** | ***Value*** | ***Notes*** |
| Message Type | 0 | 1 | "S" | System Event Message |
| Tracking Number | 1 | 2 | Integer | Nasdaq internal tracking number |
| Timestamp | 3 | 6 | Timestamp | Time at which the system event was generated. |
| Event Code | 9 | 1 | Alpha | Refer to System Event Codes below |

| **SYSTEM EVENT CODES** | |
|---|---|
| ***Code*** | ***Explanation*** |
| "O" | *Start of Messages.* This is always the first message sent in any trading day. |
| "S" | *Start of System Hours.* This message indicates that Nasdaq is open and ready to start accepting orders. |
| "Q" | *Start of Market Hours.* This message is intended to indicate that Market Hours orders are available for execution. |
| "X" | *Clear NOII - Opening Cross Data.* This message signals that firms may clear NOII cache for the regular Opening Cross. |
| "M" | *End of Market Hours.* This message is intended to indicate that Market Hours orders are no longer available for execution. |
| "E" | *End of System Hours.* It indicates that Nasdaq is now closed and will not accept any new orders. |
| "C" | *End of Messages*. This is always the last message sent in any trading day. For initial implementation of the integrated Nasdaq system, this message will be disseminated between 8:00 and 9:00 p.m., ET. |

## *4.2 Administrative Message*


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

### 4.2.1 Stock Directory

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

<table>
<tr><th colspan="5">STOCK DIRECTORY</th></tr>
<tr><th>Name</th><th>Offset</th><th>Length</th><th>Value</th><th>Notes</th></tr>
<tr><td>Message Type</td><td>0</td><td>1</td><td>Alphanumeric</td><td>R = Stock Directory Message</td></tr>
<tr><td>Tracking Number</td><td>1</td><td>2</td><td>Integer</td><td>Nasdaq internal tracking number</td></tr>
<tr><td>Timestamp</td><td>3</td><td>6</td><td>Integer</td><td>Time Stamp</td></tr>
<tr><td>Stock</td><td>9</td><td>8</td><td>Alphanumeric</td><td>Denotes the security symbol for the issue in the Nasdaq execution system.</td></tr>
<tr><td>Market Category</td><td>17</td><td>1</td><td>Alphanumeric</td><td>Indicates Listing market or listing market tier for the issue
<table>
<tr><th>Code</th><th>Definition</th></tr>
<tr><td colspan="2">Nasdaq-Listed Instruments</td></tr>
<tr><td>Q</td><td>Nasdaq Global Select Market℠</td></tr>
<tr><td>G</td><td>Nasdaq Global Market℠</td></tr>
<tr><td>S</td><td>Nasdaq Capital Market®</td></tr>
<tr><td colspan="2">Non-Nasdaq-Listed Instruments</td></tr>
<tr><td>N</td><td>New York Stock Exchange (NYSE)</td></tr>
<tr><td>A</td><td>NYSE American</td></tr>
<tr><td>P</td><td>NYSE Arca</td></tr>
<tr><td>M</td><td>NYSE Texas</td></tr>
<tr><td>Z</td><td>BATS Z Exchange</td></tr>
<tr><td>V</td><td>Investors' Exchange, LLC</td></tr>
<tr><td>F</td><td>Texas 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><th>Code</th><th>Definition</th></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>
</table></td></tr>
</table>


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

<table>
<tr><td></td><td></td><td></td><td></td><td>
<table>
<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 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>Z</td><td>Nasdaq listed instrument is a non-IPO new listed security</td></tr>
</table>
</td></tr>
</table>


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

<table>
<tr><td></td><td></td><td></td><td></td><td><table><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.<table><tr><th>Code</th><th>Definition</th></tr><tr><td>1</td><td>Tier 1 NMS Stocks and select ETPs</td></tr><tr><td>2</td><td>Tier 2 NMS Stocks</td></tr><tr><td><space></td><td>Not applicable</td></tr></table></td></tr>
<tr><td>ETP Flag</td><td>31</td><td>1</td><td>Alphanumeric</td><td>Indicates whether the security is an exchange traded product (ETP):<table><tr><th>Code</th><th>Definition</th></tr><tr><td>Y</td><td>Instrument is an ETP</td></tr><tr><td>N</td><td>Instrument is not an ETP</td></tr><tr><td><space></td><td>Not available</td></tr></table></td></tr>
<tr><td>ETP Leverage Factor</td><td>32</td><td>4</td><td>Integer</td><td>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.<br><br>Leverage Factor is rounded to the nearest integer below, e.g. leverage factor 1 would represent leverage factors of 1 to 1.99.<br><br>This field is used for LULD Tier I price band calculation purposes.<br><br>ETP Leverage Factor currently not supported for Non-Nasdaq listed ETP’s.</td></tr>
<tr><td>Inverse Indicator</td><td>36</td><td>1</td><td>Alphanumeric</td><td>Indicates the directional relationship between the ETP and underlying index.<table><tr><th>Code</th><th>Definition</th></tr><tr><td>Y</td><td>ETP is an Inverse ETP</td></tr><tr><td>N</td><td>ETP is not an Inverse ETP</td></tr></table>Example: An ETP Leverage Factor of 3 and an Inverse value of ‘Y’ indicates the ETP will decrease by a value of 3.</td></tr>
</table>


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

### 4.2.2 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


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

- 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.

| STOCK TRADING ACTION | | | | |
|---|---|---|---|---|
| ***Name*** | ***Offset*** | ***Length*** | ***Value*** | ***Notes*** |
| Message Type | 0 | 1 | "H" | Stock Trading Action Message |
| Tracking Number | 1 | 2 | Integer | Nasdaq internal tracking number |
| Timestamp | 3 | 6 | Timestamp | Time at which the stock trading action message was generated |
| Stock | 9 | 8 | Alphanumeric | Denotes the security symbol for the issue in the Nasdaq execution system. |
| Current Trading State | 17 | 1 | Alphanumeric | Reflects the current trading state for the issue<br><br>"H" = Halted across all U.S. equity markets / SROs<br>"P" = Paused across all U.S. equity markets / SROs (Nasdaq-listed securities only) "Q" = Quotation only period for cross-SRO halt or pause<br>"T" = Trading on Nasdaq |
| Reason | 18 | 4 | Alphanumeric | Reflects the Market Ops or MarketWatch code for the trading state change. Refer to Appendix C for values. |

### 4.2.3 Reg SHO Short Sale Price Test Restricted Indicator

In February 2011, the Securities and Exchange Commission (SEC) will implement 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 will introduce the following Reg SHO Short Sale Price Test Restricted Indicator message format.

For Nasdaq-listed issues, Nasdaq will support 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 will also send the Reg SHO Short Sale Price Test Restricted Indicator message in the event of an intraday status change.

Nasdaq will process orders based on the most Reg SHO Restriction status value.

| REG SHO RESTRICTION | | | | |
|---|---|---|---|---|
| ***Name*** | ***Offset*** | ***Length*** | ***Value*** | ***Notes*** |
| Message Type | 0 | 1 | "Y" | Reg SHO Short Sale Price Test Restricted Indicator |
| Tracking Number | 1 | 2 | Integer | Nasdaq internal tracking number |
| Timestamp | 3 | 6 | Timestamp | Time at which the Reg SHO message was generated |
| Stock | 9 | 8 | Alphanumeric | Stock symbol right padded with spaces. |


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

| | | | | |
|---|---|---|---|---|
| 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:<br><br>"0" = No price test in place<br><br>"1" = Reg SHO Short Sale Price Test Restriction in effect due to an intra- day price drop in security<br><br>"2" = Reg SHO Short Sale Price Test Restriction remains in effect |

### *4.3 Net Order Imbalance Indicator (NOII)*

- Nasdaq begins disseminating Net Order Imbalance Indicators (NOII) at 9:25 a.m. for the Opening Cross and 3:50 p.m. for the Closing Cross.
- Between 9:25 and 9:28 a.m. and 3:50 and 3:55 p.m., Nasdaq disseminates the NOII information every 10 seconds.
- Between 9:28 and 9:30 a.m. and 3:55 and 4:00 p.m., Nasdaq disseminates the NOII information every second.
- For Nasdaq Halt, IPO and Pauses, NOII messages will be disseminated at 1 second intervals starting 1 second after quoting period starts/trading action is released.
- For more information, please see the FAQ on Opening and Closing Crosses.
- Nasdaq will also disseminate an Extended Trading Close (ETC) message from 4:00 p.m. to 4:05 p.m. at five second intervals.
- For more information, please see the FAQ on Extended Trading Close.

| **NOII MESSAGE** | | | | |
|---|---|---|---|---|
| ***Name*** | ***Offset*** | ***Length*** | ***Value*** | ***Notes*** |
| Message Type | 0 | 1 | "I" | NOII Message |
| Tracking Number | 1 | 2 | Integer | Nasdaq internal tracking number |
| Timestamp | 3 | 6 | Timestamp | Time at which the NOII message was generated |
| Paired Shares | 9 | 8 | Integer | Indicates the total number of shares that are eligible to be matched at the Current Reference Price. |
| Imbalance Shares | 17 | 8 | Integer | Number of shares not paired at the Current Reference Price. |
| Imbalance Direction | 25 | 1 | Alphanumeric | Indicates the market side of the imbalance<br><br>"B" = buy imbalance<br>"S" = sell imbalance<br>"N" = no imbalance<br>"O" = insufficient orders to calculate<br>"P" = Paused |
| Stock | 26 | 8 | Alphanumeric | Denotes the security symbol for which the NOII message is being generated |
| Far Price | 34 | 4 | Price (4) | A hypothetical auction-clearing price for cross orders only. |
| Near Price | 38 | 4 | Price (4) | A hypothetical auction-clearing price for cross orders as well as continuous orders. |


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

| | | | | |
|---|---|---|---|---|
| Current Reference Price | 42 | 4 | Price (4) | Indicates price at which the NOII shares are being calculated. |
| Cross Type | 46 | 1 | Alphanumeric | Denotes the type of Nasdaq cross for which the NOII message is being generated<br><br>"O" = Open Cross<br>"C" = Close Cross<br>"H" = Intra-day Opening Cross for IPO and Halted / Paused securities<br>"A" = Extended Trading Close |
| Price Variation Indicator | 47 | 1 | Alphanumeric | This field indicates the absolute value of the percentage of deviation of the Near Indicative Clearing Price to the nearest Current Reference Price.<br><br>"L" = Less than 1%<br>"1" = 1 to 1.99%<br>"2" = 2 to 2.99%<br>"3" = 3 to 3.99%<br>"4" = 4 to 4.99%<br>"5" = 5 to 5.99%<br>"6" = 6 to 6.99%<br>"7" = 7 to 7.99%<br>"8" = 8 to 8.99%<br>"9" = 9 to 9.99%<br>"A" = 10 to 19.99%<br>"B" = 20 to 29.99%<br>"C" = 30% or greater<br><Space> = Cannot be calculated |

### *4.4 Cross Trade Message*

Cross Trade message indicates that Nasdaq has completed its cross process for a specific security. Nasdaq sends out a Cross Trade message for all active issues in the system following the Opening, Closing and EMC cross events. Firms may use the Cross Trade message to determine when the cross for each security has been completed. (Note: For the halted / paused securities, firms should use the Trading Action message to determine when an issue has been released for trading.)

For most issues, the Cross Trade message will indicate the bulk volume associated with the cross event. If the order interest is insufficient to conduct a cross in a particular issue, however, the Cross Trade message may show the shares as zero.

| **CROSS TRADE MESSAGE** | | | | |
|---|---|---|---|---|
| ***Name*** | ***Offset*** | ***Length*** | ***Value*** | ***Notes*** |
| Message Type | 0 | 1 | "Q" | Cross Trade Message |
| Tracking Number | 1 | 2 | Integer | Nasdaq internal tracking number |
| Timestamp | 3 | 6 | Timestamp | Time at which the stock trading action message was generated |
| Shares | 9 | 8 | Integer | The number of shares matched in the Nasdaq Cross. |
| Stock | 17 | 8 | Alphanumeric | The security symbol associated with the cross trade message. |
| Cross Price | 25 | 4 | Price (4) | The price at which the cross occurred. Refer to Data Types for field processing notes. |


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

| | | | | |
|---|---|---|---|---|
| Match Number | 29 | 8 | Integer | The Nasdaq generated day-unique Match Number of this execution. |
| Cross Type | 37 | 1 | Alphanumeric | The Nasdaq cross session for which the message is being generated.<br>“O” = Nasdaq Opening Cross. “C” = Nasdaq Closing Cross.<br>“H” = Cross for IPO and halted / paused securities. |


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

### *4.5 IPO Quoting Period Update*

Indicates the anticipated IPO quotation release time of a security.

| **IPO Quoting Period Update** | | | | |
|---|---|---|---|---|
| ***Name*** | ***Offset*** | ***Length*** | ***Value*** | ***Notes*** |
| Message Type | 0 | 1 | "K" | IPO Release Message |
| Tracking Number | 1 | 2 | Integer | Nasdaq internal tracking number |
| Timestamp | 3 | 6 | Timestamp | Time at which the IPO message was generated |
| 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 for quotation to the nearest second.<br>Format: HHMMSS<br><br>NOTE: If the quotation period is being canceled/postponed, we should state that<br>1. IPO Quotation Time will be set to 0<br>2. IPO Price will be set to 0 |
| IPO Quotation Release Qualifier | 21 | 1 | Alphanumeric | **Code** / **Description**<br>A – **Anticipated quotation release time** *This value would be used when Nasdaq Market Operations initially enters the IPO instrument for release.*<br>C – **IPO release canceled/postponed** *This value would be used when Nasdaq Market Operations cancels or postpones the release of the IPO instrument.* |
| IPO Price | 22 | 4 | Price (4) | Denotes the IPO price to be used for intraday net change calculations.<br><br>Prices are given in decimal format with 6 whole number places followed by 4 decimal digits. The whole number portion is padded on the left with spaces; the decimal portion is padded on the right with zeros. The decimal point is implied by position; it does not appear inside the price field. |


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

### *4.6 Direct Listing with Capital Raise Price Discovery Message*

The following message is disseminated only for Direct Listing with Capital Raise (DLCR) securities. Nasdaq begins disseminating messages once per second as soon as the DLCR volatility test has successfully passed.

**Direct Listing with Capital Raise Price Discovery Message**

| Name | Offset | Length | Value | Notes |
|---|---|---|---|---|
| Message Type | 0 | 1 | "O" | Direct Listing with Capital Raise Message |
| Tracking Number | 1 | 2 | Integer | Nasdaq internal tracking number |
| Timestamp | 3 | 6 | Integer | Nanoseconds since midnight |
| Stock | 9 | 8 | Alpha | Stock symbol, right padded with spaces |
| Open Eligibility Status | 17 | 1 | Alpha | Indicates if the security is eligible to be released for trading<br>"N": Not Eligible<br>"Y": Eligible |
| Minimum Allowable Price | 18 | 4 | Price (4) | 20% below Registration Statement Lower Price |
| Maximum Allowable Price | 22 | 4 | Price (4) | 80% above Registration Statement Highest Price |
| Near Execution Price | 26 | 4 | Price (4) | The current reference price when the DLCR volatility test has successfully passed |
| Near Execution Time | 30 | 8 | Integer | The time at which the near execution price was set |
| Lower Price Range Collar | 38 | 4 | Price (4) | Indicates the price of the Lower Auction Collar Threshold (10% below the Near Execution Price) |
| Upper Price Range Collar | 42 | 4 | Price (4) | Indicates the price of the Upper Auction Collar Threshold (10% above the Near Execution Price) |


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

## 5. *Support*

For general product support for Nasdaq data feeds, please contact clientsuccess@nasdaq.com.


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

# Appendix A

## 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 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 |

*Note: At this time, Nasdaq does not support Reason codes for Trading Resumption actions. Nasdaq also does not support the Reason codes in the pre-opening Trading Action spins.*


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

## Appendix B

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 |



Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

## Appendix D

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 |


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

| | |
|---|---|
| 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 on this feed. Nasdaq is expected to issue vendor display requirements for this new asset class.

## Appendix D

### Documentation Revision Control Log

**June 11, 2026: Nasdaq NOIIView Version 3.0**
Added new listing market code "F" (Texas Exchange) to the Market Category field.

**January 12, 2026: Nasdaq NOIView Version 3.0**
Introduction of value "Z" in IPO Flag of Stock Directory message for non-IPO new issues.

**June 16, 2025: Nasdaq NOIView Version 3.0**
Introduction of additional listing market value "M".

**April 28, 2023: Nasdaq NOIView Version 3.0**
Introduction of Direct Listing with Capital Raise Message and new Imbalance Direction of Paused to NOII Message

**July 14, 2022: Nasdaq NOIView Version 3.0**
Due to the launch of non-integer leverage factors, updated the Value/Description field of ETP Leverage Factor from section 4.2.1 page 5.

**September 12, 2017: Nasdaq NOIView Version 3.0**
Nasdaq added a new Market Category code in the Symbol Directory messages for the Investors' Exchange, LLC to distinguish IEX--listed issues. New market category code is "V".

**March 6, 2015: Nasdaq NOIView Version 3.0**
Released a new version of NOIView documentation to include new Issue Sub-Type Code "EM" for Exchange Traded Managed Funds.

**December 5, 2014: Nasdaq TotalView-ITCH Version 5.0**
Released a new version of TotalView-ITCH documentation to include missing Issue Sub-Type Codes (Appendix E):

- 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


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

- SI – Spot Rate Intraday
- WC – World Currency Option
- X – Trust
- Y – Other
- Z – NA


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

**January 8, 2014: Nasdaq NOIView Version 3.0**
Released a new version of NOIView documentation to support the following change:

- Corrected Cross Trade Message Type to 'Q'

**October 1, 2013: Nasdaq NOIView Version 3.0**
Released a new version of NOIView documentation to support the following change:

- Conversion to Binary

**August 2, 2013: Nasdaq NOIView Version 3.0**
Released a new version of the NOIView documentation to support the following changes:

- Updated field offsets in the Symbol Directory Message
- Changed the IPO Quotation Release Message Type to "K"


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

- Updated length of the IPO Quotation Release Time in the IPO Quotation Release Message. Also, included format of the field.
- Renamed the Compliance ID field to TrackingID

**July 10, 2013: Nasdaq NOIView Version 3.0**

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

- Added Enhanced Symbol Directory
- Added IPO Quotation Release Message
- Addition of an internal tracking number to select messaging
- Addition of 'C' to the Financial Status Indicator field in the Symbol Directory Message

**March 9, 2013: Nasdaq NOIView Version 2.1**

Released a new version of the NOIView 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

**January 9, 2013: Nasdaq NOIView Version 2.1**

Released a new version of the NOIView 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.

**November 6, 2012: Nasdaq NOIView Version 2.1**

Released a new version of the NOIView 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.

**November 1, 2011: Nasdaq NOIView Version 2.1**

Nasdaq added a new Market Category code in Stock Directory messages for the BATS BZX Exchange to distinguish BATS-listed issues. New market category code is "Z".

**May 2, 2011: Nasdaq NOIView Version 2.1**

Nasdaq added Cross Trade message format to the NOIView specification document. Nasdaq will begin to disseminate the Cross Trade message on NOIView in the June 2011 timeframe.

**April 6, 2011: Nasdaq NOIView Version 2.1**

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.

**November 11, 2010: Nasdaq NOIView Version 2.1**

Nasdaq fixed an error in the Stock Trading Action message format introduced in July 2010.

**November 4, 2010: Nasdaq NOIView Version 2.1**

Nasdaq updated the Regulation SHO message definition to reflect the new SEC implementation date.

**July 14, 2010: Nasdaq NOIView Version 2.1**


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations

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

**July 2, 2010: Nasdaq NOIView Version 2.1**

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

**May 25, 2010: Nasdaq NOIView Version 2.1**

Nasdaq added two new Trading Action Reason code values (T5 and T7) for single security trading pause situations.

**January 26, 2010: Nasdaq NOIView Version 2.1**

Nasdaq releases a NOIView – Version 2.1 in support of equity symbology initiative. NOIView – Version 2.1 includes the following format changes:

- Increased length of the symbol field from 6 characters to 8 characters in multiple message formats in support of the equity symbology initiative.
- Modified the values for the Market Catetgory field in Symbol Directory messages to delineate among NYSE-, NYSE Amex- and NYSE Arca-listed issues.

In addition, Nasdaq updated the NOIView document to reflect that Nasdaq Opening and Closing Cross process now includes NYSE, NYSE Amex and NYSE Arca issues.

**February 20, 2007: Nasdaq NOIView Version 2.0**

Nasdaq releases the NOIView 2.0 specification document to the public.

For efficiency reasons, Nasdaq plans to move the NOIView product to a new system platform in the second quarter of 2007. In association with the platform change, Nasdaq will also modify the data formats to support 6-byte issue symbols as required under the new Nasdaq symbol plan. Please see Nasdaq Vendor Alert #2007-012 for the detailed customer migration plans.

| Code | Definition |
|---|---|
| *Nasdaq-Listed Instruments* | |
| Q | Nasdaq Global Select Market℠ |
| G | Nasdaq Global Market℠ |
| S | Nasdaq Capital Market® |
| *Non-Nasdaq-Listed Instruments* | |
| N | New York Stock Exchange (NYSE) |
| A | NYSE American |
| P | NYSE Arca |
| M | NYSE Texas |
| Z | BATS Z Exchange |
| V | Investors' Exchange, LLC |


Nasdaq - Internal Use: Distribution limited to Nasdaq personnel and authorized third parties subject to confidentiality obligations