

# NASDAQ NOIView

## Version 2.00

*Note: This version of the NASDAQ NOIView service is designed to support symbols up to six characters only.*

*As noted in [Data Technical News #2009-3](#), NASDAQ OMX is releasing new versions of the NOIView service to support expanded symbol fields. Given NYSE's announced plans to move to longer ticker symbols, NASDAQ OMX is advising direct data feed subscribers to migrate to the new NOIView (Version 2.1) data formats.*

*While NASDAQ OMX plans to support this version of the NOIView data formats, the feed will carry data only for those securities with a ticker symbol (inclusive of suffixes) of six characters or less.*

## **1. Overview**

NASDAQ NOIView 2.00 is a direct data feed product offered by The NASDAQ Stock Market<sup>®</sup>, 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 Cross, NASDAQ disseminates the indicative clearing price and net order imbalance in the NASDAQ Single Book. 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 or 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 TotalView-ITCH 4.0, NASDAQ TotalView-ITCH 3.1 and TotalView-Aggregated data feed options.

## **2. Architecture**

The NOIView 2.00 feed is made up of a series of sequenced messages. Each message is variable in length based on the message type and is composed of non-control ASCII bytes. The messages that make up the NOIView 2.00 protocol are typically delivered using a higher level protocol that takes care of sequencing and delivery guarantees.

NASDAQ offers the NOIView 2.00 data feed in three protocol options:

- [SoupTCP](#)

# NOIVIEW INTERFACE SPECIFICATIONS

- [Compressed](#) via SoupTCP
- [MoldUDP](#)

Please note that, for each data center connection, NOIView 2.00 messages will be disseminated via a single outbound data channel.

## 3. Data Types

All numeric fields are represented in ASCII digits and are right-justified. Padding spaces appear on the left as necessary.

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.

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

All alpha fields are left-justified. Padding spaces appear on the right as necessary.

## 4. Message Formats

NASDAQ NOIView 2.00 supports three basic types of messages:

- System Events
- NASDAQ Net Order Imbalance Indicators
- 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
Timestamp	0	8	Numeric	Time at which the system event was generated. Time is represented as number of seconds and milliseconds past midnight, Eastern Time (ET).
Message Type	8	1	"S"	System Event Message

## NOIVIEW INTERFACE SPECIFICATIONS

Event Code	9	1	Alpha	Refer to System Event Codes below
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<b>SYSTEM EVENT CODES</b>	
<b>Code</b>	<b>Explanation</b>
"O"	<i>Start of Messages.</i> This is always the first message sent in any trading day.
"S"	<i>Start of System Hours.</i> This message indicates that NASDAQ is open and ready to start accepting orders.
"Q"	<i>Start of Market Hours.</i> This message is intended to indicate that Market Hours orders are available for execution.
"X"	<i>Clear NOII - Opening Cross Data.</i> This message signals that firms may clear NOII cache for the regular Opening Cross.
"M"	<i>End of Market Hours.</i> This message is intended to indicate that Market Hours orders are no longer available for execution.
"E"	<i>End of System Hours.</i> It indicates that NASDAQ is now closed and will not accept any new orders.
"C"	<i>End of Messages.</i> 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 Messages

#### 4.2.1 Stock Directory

At the start of each trading day, NASDAQ disseminates stock directory messages for all active symbols in Single Book.

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.

<b>STOCK DIRECTORY</b>				
<b>Name</b>	<b>Offset</b>	<b>Length</b>	<b>Value</b>	<b>Notes</b>
Timestamp	0	8	Numeric	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	6	Alpha	Denotes the security symbol for the issue in the NASDAQ Single Book.
Market Category	15	1	Alpha	Indicates Listing market or listing market tier for the issue  "T" = CQS Issues including NYSE, NYSE Amex, and NYSE Arca "Q" = NASDAQ Global Select Market <sup>SM</sup> "G" = NASDAQ Global Market <sup>SM</sup> "S" = NASDAQ Capital Market <sup>®</sup>

## NOIVIEW INTERFACE SPECIFICATIONS

Financial Status Indicator	16	1	Alpha	<p>For NASDAQ-listed issues, this field indicates when a firm is not in compliance with NASDAQ continued listing requirements.</p> <p>"D" = Deficient                      "E" = Delinquent                      "Q" = Bankrupt                      "S" = Suspended                      "G" = Deficient and Bankrupt                      "H" = Deficient and Delinquent                      "J" = Delinquent and Bankrupt                      "K" = Deficient, Delinquent and Bankrupt</p> <p>Space = Company is in compliance, if NASDAQ-listed issue</p>
Round Lot Size	17	6	Numeric	Indicates the number of shares that represent a round lot for the issue
Round Lots Only	23	1	Alpha	<p>Indicates if NASDAQ system limits order entry for issue</p> <p>"Y" = only round lots are accepted in this stock                      "N" = odd/mixed lots are allowed</p>

### 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, is released for quotation, or is released for trading.

<b>STOCK TRADING ACTION</b>				
<b>Name</b>	<b>Offset</b>	<b>Length</b>	<b>Value</b>	<b>Notes</b>
Timestamp	0	8	Numeric	Time at which the stock trading action message was generated
Message Type	8	1	"H"	Stock Trading Action Message
Stock	9	6	Alpha	Denotes the security symbol for the issue in the NASDAQ Single Book.
Current Trading State	15	1	Alpha	<p>Reflects the current trading state for the issue</p> <p>"H" = Halt in effect                      "Q" = Quotation-only period in effect                      "T" = Trading on NASDAQ</p>

## NOIVIEW INTERFACE SPECIFICATIONS

Reason	16	4	Alpha	Reflects the Market Ops or MarketWatch code for the trading state change. Refer to Appendix A for values.
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### 4.3 Net Order Imbalance Indicator (NOII)

NASDAQ disseminates NOII data at 5-second intervals in the minutes leading up to the [NASDAQ Opening and Closing Crosses](#) as well as the [IPO/Halt Crosses](#):

- For the standard NASDAQ Opening Cross, NOII messages will be disseminated during the two minutes leading up to the start of market hours.
- For the NASDAQ cross for IPO and halted securities, NOII messages will be disseminated during the quote only period. The first NOII message will be disseminated approximately five seconds after the Stock Trading Action message with the "Q" action value is disseminated.
- For the NASDAQ Closing Cross, NOII messages will be disseminated during the ten minutes leading up to the end of market hours.

NOII MESSAGE				
Name	Offset	Length	Value	Notes
Timestamp	0	8	Numeric	Time at which the NOII message was generated
Message Type	8	1	"I"	NOII Message
Paired Shares	9	9	Numeric	Indicates the total number of shares that are eligible to be matched at the Current Reference Price.
Imbalance Shares	18	9	Numeric	Number of shares not paired at the Current Reference Price.
Imbalance Direction	27	1	Alpha	Indicates the market side of the imbalance  "B" = buy imbalance "S" = sell imbalance "N" = no imbalance "O" = insufficient orders to calculate
Stock	28	6	Alpha	Denotes the security symbol for which the NOII message is being generated
Far Price	34	10	Price	A hypothetical auction-clearing price for cross orders only.
Near Price	44	10	Price	A hypothetical auction-clearing price for cross orders as well as continuous orders.
Current Reference Price	54	10	Price	Indicates price at which the NOII shares are being calculated.

## NOIVIEW INTERFACE SPECIFICATIONS

Cross Type	64	1	Alpha	<p>Denotes the type of NASDAQ cross for which the NOII message is being generated</p> <p>"O" = Open Cross            "C" = Close Cross            "H" = Intra-day Opening Cross for IPO and Halted securities</p>
Price Variation Indicator	65	1	Alpha	<p>This field indicates the absolute value of the percentage of deviation of the Near Indicative Clearing Price to the nearest Current Reference Price.</p> <p>"L" = Less than 1%            "1" = 1 to 1.99%            "2" = 2 to 2.99%            "3" = 3 to 3.99%            "4" = 4 to 4.99%            "5" = 5 to 5.99%            "6" = 6 to 6.99%            "7" = 7 to 7.99%            "8" = 8 to 8.99%            "9" = 9 to 9.99%            "A" = 10 to 19.99%            "B" = 20 to 29.99%            "C" = 30% or greater            Space = Cannot be calculated</p>

### **5. Support**

- For general product support for NASDAQ data feeds, please contact NASDAQ OMX Global Data Products at +1 301 978 5307 or [dataproductions@nasdaqomx.com](mailto:dataproductions@nasdaqomx.com).
- For technical support for NASDAQ data feeds, please contact NASDAQ OMX Global Software Development at [devsupport@nasdaqomx.com](mailto:devsupport@nasdaqomx.com).

## 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 in an issue due to news dissemination or regulatory reasons. 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.

<b>REASON CODES FOR TRADING HALT ACTIONS</b>	
<b>Code</b>	<b>Value</b>
T1	Halt News Pending
T2	Halt News Disseminated
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
IPO1	IPO Issue Not Yet Trading
M1	Corporate Action
M2	Quotation Not Available
Space	Reason Not Available

<b>REASON CODES FOR QUOTATION/TRADING RESUMPTION ACTIONS</b>	
<b>Code</b>	<b>Value</b>
T3	News and Resumption Times
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
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

## Appendix B

### Documentation Revision Control Log

#### February 20, 2007: NASDAQ NOIView Version 2.00

NASDAQ releases the NOIView 2.00 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.

#### January 22, 2010: NASDAQ NOIView Version 2.00

NASDAQ updated the NOIView 2.00 specification document to reflect the fact that NASDAQ now supports Opening Cross and Closing Cross events for NYSE, NYSE Amex, and NYSE Arca securities.