

# NASDAQ TotalView–Aggregated Version 1.1

## **1. Overview**

NASDAQ TotalView-Aggregated<sup>SM</sup> is a direct data feed product offered by The NASDAQ Stock Market<sup>®</sup>.

NASDAQ TotalView-Aggregated – Version 1.1 is being released in association of the equity symbology initiative and will support issue symbols up to 8 characters in total length.

NASDAQ TotalView-Aggregated features the following data elements for all exchange-listed equities securities traded via the NASDAQ execution system:

- **NASDAQ Price Level Data:** For NASDAQ execution system, NASDAQ aggregates the order and quotation depth at each price point. For each price point, NASDAQ shows the aggregated number of shares available for each market participant ID as well as the total amount for NASDAQ execution system. TotalView-Aggregated carries price level data for NYSE-, NYSE Amex-, NYSE Arca- and BATS-listed securities as well as for NASDAQ-listed securities.
- **Net Order Imbalance Data:** In the minutes leading up to the NASDAQ Crosses, NASDAQ disseminates the indicative clearing price and net order imbalance in the NASDAQ market 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, symbol directory and market participant position messages:
  - Trading action messages are used to inform market participants when a security is halted / paused or released for trading.
  - Symbol Directory messages provide basic security data such as the market tier and Financial Status Indicator.
  - Market participant position message carries the Primary Market Maker status, Market Participant status and Market Maker mode fields used by some firms to comply with market regulations.
- **Event controls**, such as start of day, end of day and emergency market halt/resume.

## **2. Architecture**

The TotalView-Aggregated 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 Totalview–Aggregated protocol are typically delivered using a higher level protocol that takes care of sequencing and delivery guarantees.

# TOTALVIEW-AGGREGATED INTERFACE SPECIFICATIONS

NASDAQ offers the TotalView–Aggregated data feed in three protocol options:

<b>Protocol Option</b>	<b>Number of Outbound Channels</b>
<a href="#">SoupTCP</a>	Single outbound channel for all securities
<a href="#">Compressed</a> via SoupTCP	Single outbound channel for all securities
<a href="#">MoldUDP</a>	Eight outbound data channels using alphabetic split (See Appendix A)

## **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 TotalView–Aggregated supports four basic types of messages:

- System Events
- NASDAQ Single Book Price Levels
- NASDAQ Net Order Imbalance Indicators
- Administrative Data

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

# TOTALVIEW-AGGREGATED INTERFACE SPECIFICATIONS

## 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
Event Code	9	1	Alpha	Refer to System Event Codes below

NASDAQ supports the following event codes on a daily basis.

SYSTEM EVENT CODES - DAILY	
Code	Explanation
"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 Single Book, this message will be disseminated between 8:00 and 9:00 p.m., ET.

NASDAQ is capable of supporting the following event codes for an emergency market situation on TotalView-Aggregated. These messages will be disseminated if NASDAQ needs to evoke an emergency market condition (EMC) as the result of circuit breaker rules or other major market emergency.

SYSTEM EVENT CODES - AS NEEDED	
Code	Explanation
"A"	<i>Emergency Market Condition - Halt:</i> This message is sent to inform NASDAQ market participants that the EMC is in effect. No trading is allowed during the EMC.
"R"	<i>Emergency Market Condition - Quote Only Period:</i> This message is sent to inform NASDAQ market participants that the EMC quotation only period is in effect.
"B"	<i>Emergency Market Condition - Resumption:</i> This message is sent to inform NASDAQ market participants that EMC is no longer in effect.

## 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 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.

<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	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  "N" = New York Stock Exchange (NYSE) "A" = NYSE Amex "P" = NYSE Arca "Q" = NASDAQ Global Select Market <sup>SM</sup> "G" = NASDAQ Global Market <sup>SM</sup> "S" = NASDAQ Capital Market <sup>®</sup> Space = Not available "Z" = BATS BZX Exchange
Financial Status Indicator	18	1	Alphanumeric	For NASDAQ-listed issues, this field indicates when a firm is not in compliance with NASDAQ continued listing requirements.  "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  Space = Company is in compliance, if NASDAQ-listed issue  For NYSE, NYSE Amex, NYSE Arca and BATS issues, this field will be space-filled. Redistributors should refer to SIAC feeds for code if

## TOTALVIEW-AGGREGATED INTERFACE SPECIFICATIONS

				needed.
Round Lot Size	19	6	Numeric	Indicates the number of shares that represent a round lot for the issue
Round Lots Only	25	1	Alphanumeric	Indicates if NASDAQ system limits order entry for issue  "Y" = only round lots are accepted in this stock "N" = odd/mixed lots are allowed

### 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
- 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.

<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	8	Alphanumeric	Denotes the security symbol for the issue in the NASDAQ execution system.
Current Trading State	17	1	Alphabetic	Reflects the current trading state for the issue  "H" = Halted across all U.S. equity markets / SROs "P" = Paused across all U.S. equity markets / SROs (NASDAQ-listed securities only) "Q" = Quotation only period for cross-SRO halt or pause "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.

## TOTALVIEW-AGGREGATED INTERFACE SPECIFICATIONS

### 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
Timestamp	0	8	Numeric	Time at which the Reg SHO message was generated
Message Type	8	1	"Y"	Reg SHO Short Sale Price Test Restricted Indicator
Stock	9	8	Alpha	Stock symbol right padded with spaces.
Reg SHO Action	17	1	Alpha	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

### 4.2.4 Market Participant Position

At the start of each trading day, NASDAQ disseminates a spin of market participant position messages. The message provides the Primary Market Maker status, Market Maker mode and Market Participant state for each NASDAQ market participant firm registered in an issue. Market participant firms may use these fields to comply with certain marketplace rules.

Throughout the day, NASDAQ will send out this message only if NASDAQ Operations changes the status of a market participant firm in an issue.

PARTICIPANT POSITION SUMMARY				
Name	Offset	Length	Value	Notes
Timestamp	0	8	Numeric	Time at which the market participant position message was generated
Message Type	8	1	"P"	Stock Directory Message
MPID	9	4	Alphabetic	Denotes the market participant

## TOTALVIEW-AGGREGATED INTERFACE SPECIFICATIONS

				identifier for which the position message is being generated
Stock	13	8	Alphanumeric	Denotes the security symbol for which the position is being generated
Primary Market Maker	21	1	Alphanumeric	Indicates if the market participant firm qualifies as a Primary Market Maker in accordance with NASDAQ marketplace rules  "Y" = primary market maker "N" = non-primary market maker
Market Maker Mode	22	1	Alphanumeric	Indicates the quoting participant's registration status in relation to SEC Rules 101 and 104 of Regulation M  "N" = normal "P" = passive "S" = syndicate "R" = pre-syndicate "L" = penalty
Market Participant State	23	1	Alphanumeric	Indicates the market participant's current registration status in the issue  "A" = Active "E" = Excused/Withdrawn "W" = Withdrawn "S" = Suspended "D" = Deleted

## TOTALVIEW-AGGREGATED INTERFACE SPECIFICATIONS

### **4.3 TotalView Price Level Update**

NASDAQ disseminates a price level message whenever the aggregated position at a price level changes. Price levels will be generated whenever an order is entered, canceled or executed or when a quote is updated for a certain price point.

When a firm receives the initial message for a given price point, it should add the price level to its display.

When a firm receives subsequent messages for a given price point, it should update the display to reflect the update.

When a firm sees the number of shares fall to zero, it should remove the price level from display.

<b>PRICE LEVEL UPDATE</b>				
<b>Name</b>	<b>Offset</b>	<b>Length</b>	<b>Value</b>	<b>Notes</b>
Timestamp	0	8	Numeric	Time at which the price level update was generated
Message Type	8	1	"U"	Participant Price Level Update Message
Market Side	9	1	Alphabetic	Denotes the side of the market associated with the price level update  "B" = bid update "S" = offer/ask update
Participant Shares	10	9	Numeric	Reflects the current number of shares displayed by this participant at this price level
Aggregate Shares	19	9	Numeric	Reflects the total number of shares displayed in the NASDAQ execution system for ALL participants at this price level
Stock	28	8	Alphanumeric	Denotes the security symbol for which the price level is being generated
Price	36	10	Numeric/ Price	Reflects the price associated with the update. Refer to Data Types for field processing notes.
MPID	46	4	Alphabetic	Denotes the market participant identifier associated with the price level update



#### 4.5 Net Order Imbalance Indicator (NOII)

NASDAQ disseminates NOII data at 5-second intervals in the minutes leading up to the [NASDAQ Opening Cross](#), [NASDAQ Closing Cross](#), and [NASDAQ IPO/Halt/Imbalance Cross](#).

- 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 / paused 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" or "R" 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	Alphabetic	Indicates the market side of the imbalance  "B" = buy imbalance "S" = sell imbalance "N" = no imbalance "O" = insufficient orders to calculate
Stock	28	8	Alphanumeric	Denotes the security symbol for which the NOII message is being generated
Far Price	36	10	Numeric/Price	A hypothetical auction-clearing price for cross orders only. Refer to Appendix D for processing notes.
Near Price	46	10	Numeric/Price	A hypothetical auction-clearing price for cross orders as well as continuous orders.
Current Reference Price	56	10	Numeric/Price	Indicates price at which the NOII shares are being calculated.
Cross Type	66	1	Alphabetic	Denotes the type of NASDAQ cross for which the NOII message is being generated  "O" = Open Cross "C" = Close Cross "H" = Intra-day Opening Cross for IPO and halted / paused securities

## TOTALVIEW-AGGREGATED INTERFACE SPECIFICATIONS

Price Variation Indicator	67	1	Alphanumeric	<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>
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### 4.6 Retail Price Interest Indicator (RPII)

Identifies a retail interest indication of the Bid, Ask or both the Bid and Ask for NASDAQ-listed securities.

Retail Interest Message				
Name	Offset	Length	Value	Notes
Timestamp	0	8	Numeric	Time at which the NOII message was generated
Message Type	8	1	"N"	Retail Interest message
Stock	9	8	Alpha	Denotes the security symbol for the issue in the NASDAQ execution system. Refer to Appendix B for stock symbol convention information.
Interest Flag	17	1	Alpha	"B" = RPI orders available on the buy side "S" = RPI orders available on the sell side "A" = RPI orders available on both sides (buy and sell) "N" = No RPI orders available

## 5. Support

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

## Appendix A

### Data Channel Assignment – MoldUDP Option Only

For initial implementation of the TotalView–Aggregated data feed, NASDAQ will disseminate the outbound messages via eight logical channels.

Price level, NOII and administrative messages will be split based on the initial letter of the stock symbol within the message. Each data channel will contain the full range of exchange-listed (NASDAQ-, NYSE-, NYSE Amex-, NYSE Arca- and BATS-listed) security data. The symbol assignment will be:

<b>Data Feed Channel</b>	<b>Symbol Alphabetic Range</b>
TotalView–Aggregated #1	A
TotalView–Aggregated #2	B-C
TotalView–Aggregated #3	D-F
TotalView–Aggregated #4	G-K
TotalView–Aggregated #5	L-N
TotalView–Aggregated #6	O-Q
TotalView–Aggregated #7	R-S
TotalView–Aggregated #8	T-Z

System event messages, however, will be disseminated across all data channels.

For the MoldUDP protocol, the packet sequencing schema will be unique to each data channel.

For the addressing information, please refer to the [MoldUDP Data Feed IP Addresses page](#) of the NASDAQ OMX Trader website.

## **Appendix B**

### Stock Symbol Convention

For NASDAQ-listed issues, NASDAQ OMX 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 OMX 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 OMX 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.

<b>REASON CODES FOR TRADING HALT ACTIONS</b>	
<b>Code</b>	<b>Value</b>
T1	Halt News Pending
T2	Halt News Disseminated
T5	Single Security 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

<b>REASON CODES FOR QUOTATION/TRADING RESUMPTION ACTIONS</b>	
<b>Code</b>	<b>Value</b>
T3	News and Resumption Times
T7	Single Security 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
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## Appendix D

### Documentation Revision Control Log

#### **November 1, 2013: TotalView-Aggregated Version 1.10**

Released a new version of the TotalView- Aggregated documentation to support details of expanded symbology (Appendix B).

#### **March 9, 2013: TotalView-Aggregated Version 1.10**

Released a new version of the TotalView- Aggregated documentation to support the following change:

- 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: TotalView-Aggregated Version 1.10**

Released a new version of the TotalView- Aggregated 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.

#### **January 8, 2013: TotalView-Aggregated Version 1.10**

Released a new version of the TotalView- Aggregated documentation to support the following changes:

- Modified the Retail Price Interest Indicator Message. Changed the message type from "G" to "N".

#### **November 2, 2012: TotalView-Aggregated Version 1.10**

NASDAQ OMX released a new version of the TotalView-Aggregated 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.
- Added Retail Price Interest Indicator Message

#### **November 1, 2011: TotalView-Aggregated Version 1.10**

NASDAQ OMX updated the Market Category message to include the code "Z" for BATS-listed securities.

#### **April 6, 2011: TotalView-Aggregated Version 1.10**

## TOTALVIEW-AGGREGATED INTERFACE SPECIFICATIONS

NASDAQ OMX 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: TotalView-Aggregated Version 1.10**

NASDAQ OMX corrected a time stamp error in the Stock Trading Action message format.

### **November 4, 2010: TotalView-Aggregated Version 1.10**

NASDAQ OMX updated the Regulation SHO message definition to reflect the new SEC implementation date. NASDAQ OMX also corrected a time stamp error in the Stock Trading Action message format.

### **July 14, 2010: TotalView-Aggregated Version 1.10**

NASDAQ OMX 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: TotalView-Aggregated Version 1.10**

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

### **May 25, 2010: TotalView-Aggregated Version 1.10**

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

### **January 26, 2010: TotalView Aggregated Version 1.10**

Released a new version of the TotalView-Aggregated 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.
- Modified the values for the Market Category field in Symbol Directory messages to delineate among NYSE-, NYSE Amex- and NYSE Arca-listed issues.
- Added note to Appendix B to reflect that NASDAQ OMX is reviewing its stock symbol conventions to determine if changes are needed

### **June 10, 2008: TotalView Aggregated Version 1.00**

NASDAQ modified the TotalView-Aggregated specifications document to add new codes for emergency market condition (EMC) situations.:

- Section 4.2 – System Event Message. Added the following three codes for EMC situations.
  - A = Emergency market condition – halt
  - R = Emergency market condition – quote only period
  - B = Emergency market condition – resumption

### **April 30, 2007: TotalView Aggregated Version 1.00**

NASDAQ modified the TotalView-Aggregated specifications document to reflect the following changes:

- Section 4 – For clarity reasons, the Data Type field was updated for all formats to delineate between alphabetic and alphanumeric fields.

## TOTALVIEW-AGGREGATED INTERFACE SPECIFICATIONS

- Section 4.2.1 – 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.

### **April 3, 2007: TotalView-Aggregated Version 1.00**

NASDAQ modified the TotalView-Aggregated specifications document to reflect the following changes:

- 2.0 – Architecture and Appendix A - Data Channel Assignment. Updated document to clarify that only the MoldUDP data feed option is available in a split alphabet format.

### **February 15, 2007: TotalView-Aggregated Version 1.00**

NASDAQ modified the TotalView-Aggregated specifications document to reflect the following changes:

- 4.2.2 – Stock Trading Action. Updated document to reflect actual system processing rules for pre-opening trading action spin.
- Appendix B – Stock Symbol Convention. Updated document to reflect the most current URL links to NASDAQ symbology matrices.

### **October 16, 2006: TotalView-Aggregated Version 1.00**

NASDAQ modified the TotalView-Aggregated specification document to reflect the following change:

- 4.2.3 Market Participant Position message. Corrected MPID field size to 4 bytes.

### **October 2, 2006: TotalView-Aggregated Version 1.00**

NASDAQ modified the TotalView-Aggregated specification document to reflect the following change:

- Section 4.5 – Net Order Imbalance Indicator (NOII) message: NASDAQ corrected message offset error in the original documentation.

### **August 22, 2006: TotalView-Aggregated Version 1.00**

NASDAQ modified the TotalView-Aggregated specification document to reflect the following changes:

- Section 4.1 – System Events: Updated the explanations for the “O”, “Q”, “M” and “M” events to more accurately reflect the feed processing.
- Appendix B – Stock Symbol Convention: Please contact NASDAQ Systems Engineering via e-mail for conversion matrix.

### **July 11, 2006: TotalView-Aggregated Version 1.00**

NASDAQ released the initial TotalView-Aggregated specification document to the public.