# Nasdaq ITCH Products 5.0

#### **Product Overview**

Nasdaq TotalView ITCH is a direct data feed product offered by The Nasdaq Stock Market, LLC. Nasdaq TotalView ITCH features the following data elements (in binary number format) for all exchange listed equities securities traded via the Nasdaq execution system:

- Order level data with attribution: For Nasdaq execution system, Nasdaq will provide its full order
  depth using the standard ITCH format. TotalView-•-ITCH uses a series of messages to track the life
  of a customer order. As an added feature, the TotalView ITCH message formats will support
  Nasdaq market participant attribution. TotalView-•-ITCH carries order level data for NYSE, NYSE
  American, NYSE Arca and BATS---listed securities as well as for Nasdaqlisted securities.
- Trade Messages: To ensure that customers have complete information about Nasdaq order flow, TotalView—ITCH supports a trade message to reflect a match of a non-•-displayable order in the Nasdaq system. TotalView-•-ITCH also supports a separate trade message to reflect Nasdaq cross transactions.
- Net Order Imbalance Data: In the minutes leading up to the Nasdaq Opening and Closing Crosses as well as the Nasdaq Crossesfor IPOor halted/paused securities, Nasdaqdisseminates the indicative clearing price and net order imbalance on Nasdaq. 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.
- Administrativemessages: Trading action messages are used to inform market participants when a
  security is halted/paused or released for trading. Symbol Directory messages provide basicsecurity
  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.

Bruce TotalViewITCH is a direct data feed product offered by The Bruce ATS, LLC, providing the following features for all exchange-listed equities securities traded on the Bruce execution system:

Order Level Data: The BOSS will provide its depth of book on an order-by-order basis using the standard ITCH
format. TotalViewITCH uses a series of messages to track the life of a customer order, covering activities such
as order entry, executions, replaces, and cancels.

#### Administrative Messages:

- Stock Directory messages, which provide the basic security data for the available symbols
- Trading Action messages, which inform market participants when a security is halted or released for trading
- Reg SHO Restriction messages, which provide the current RegSHO short sell restrictions being enforced
- Event Controls, such as start of day, end of day and emergency market halt/resume.

#### Publisher

Nasdaq Investment Intelligence equips investors with the tools to make informed decisions by providing innovative real-time and historical analytic products and intelligent solutions designed to tap new data sets and meet new industry challenges. Nasdaq Data Cloud Services via Quandl eliminates infrastructure and resource obstacles from collecting and storing large data sets, providing tools with industry adopted open standards to ingest and analyze market data and other financial information. To learn more about the company, technology solutions and career opportunities, visit us on <a href="LinkedIn">LinkedIn</a>, on Twitter <a href="@Nasdaq">@Nasdaq</a>, or at <a href="https://www.nasdaq.com">www.nasdaq.com</a>.

#### Data Types

								wise noted,	they are unsigne	C
All alpha	i fields are A	SCII fields w	hich are left	justified an	d padded or	n the right w	ith spaces.			

Timestamps are represented as nanoseconds since midnight.

Timestamp for Bruce feeds reflect the system time when the outbound message was generated and are represented as the number

of nanoseconds since the start of the unix epoch (January 1, 1970).

## Delivery

Nasdaq Cloud Data Service (NCDS) provides a modern and efficient method of delivery for realtime exchange data and other financial information. Data is made available through a suite of APIs, allowing for effortless integration of data from disparate sources, and a dramatic reduction in time to market for customer-designed applications. The API is highly scalable, and robust enough to support the delivery of real-time exchange data.

This repository provides an SDK for developing applications to access the NCDS API. While the SDK is open source, connecting to the API does require credentials, which are provided by Nasdaq during an onboarding process.

For more information please use the link- https://github.com/Nasdaq/CloudDataService

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# Message Formats

The ITCH feed is composed of a series of messages that describe orders added to, removed from, and executed on Nasdaq as well as disseminate Cross and Stock Directory information.

## System Event Message

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

Field	Name	Туре	Notes
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"S" = System Event Message
Tracking Number	trackingID	int	Nasdaq internal tracking number. Always 0 for Bruce.
Timestamp	Timestamp	long	timestamp

Event Code	event	string		eeds support the following event codes on a daily the ITCH data feed.
			Code	Explanation
			"O"	Start of Messages. Outside of time stamp messages, the start of day message is the first message sent in any trading day
			"S"	Start of System hours. This message indicates that the system 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
			"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/Bruce is now closed and will not accept any new orders today.
				It is still possible to receive Broken Trade messages and Order Delete messages after the End of Day
			"C"	End of Messages. This is always the last message sent in any trading day.

```
"type": "record",
"name": "SeqSystemEventMessage",\\
"namespace": "com.nasdaq.datalink.streaming.totalview50",
"fields" : [ {
 "name": "SoupSequence",
 "type": "long"
 "name": "msgType",
 "type": "string"
 "name": "trackingID",
 "type": "int"
 "name": "timestamp",
 "type": "long"
}, {
 "name": "event",
 "type": "string"
}],
"version": "1"
Sample
"SoupSequence": 123,
```

```
"msgType": "S",
"trackingID": 0,
"timestamp": 7238625218217,
"event": O
}
```

# Stock Related Messages

## **Stock Directory**

At the start of each trading day, Nasdaq/Bruce 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.

Field	Name	Туре	Value/Description
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"R" = Stock Directory Message
Tracking Number	trackingID	int	Nasdaq internal tracking number. Always 0 for Bruce.
Timestamp	Timestamp	long	timestamp

Stock	symbol	string	Denotes the security symbol for the issue in the Nasdaq execution system.	
Market	marketCategory	string	Indicates Lis	ting market or tier for the issue.
Category			Code	Definition
			Nasdaq List	ed Instruments
			Q	Nasdaq Global Select Market <sup>SM</sup>
			G	Nasdaq Global Market <sup>SM</sup>
			S	Nasdaq Capital Market®
			Non-Nasda	q Listed Instruments
			N	New York Stock Exchange (NYSE)
			А	NYSE American
			Р	NYSE Arca
			М	NYSE Texas
			Z	BATS Z Exchange
			V	Investors' Exchange, LLC
			<space></space>	Not available
	fsi	string	~	sted issues, this field indicates when a firm is not in with Nasdaq continued listing requirements.  Definition
Financial Status Indicator	fsi	string	compliance	vith Nasdaq continued listing requirements.
	fsi	string	compliance v	vith Nasdaq continued listing requirements.
	fsi	string	compliance v	vith Nasdaq continued listing requirements.  Definition
	fsi	string	Code Nasdaq List	Definition  red Instruments
	fsi	string	Code  Nasdaq List	Definition  Ted Instruments  Deficient
	fsi	string	Code Nasdaq List D	Definition  red Instruments  Deficient  Delinquent
	fsi	string	Code Nasdaq List D E	Definition  Ted Instruments Deficient Delinquent Bankrupt
	fsi	string	Code  Nasdaq List  D  E  Q  S	Definition  Deficient  Delinquent  Bankrupt  Suspended
	fsi	string	Code Nasdaq List D E Q S	Definition  Ted Instruments  Deficient  Delinquent  Bankrupt  Suspended  Deficient and Bankrupt
	fsi	string	Code  Nasdaq List  D  E  Q  S  G	Definition  Deficient  Delinquent  Bankrupt  Suspended  Deficient and Bankrupt  Deficient and Delinquent
	fsi	string	Code  Nasdaq List  D  E  Q  S  G  H	Definition  red Instruments Deficient Delinquent Bankrupt Suspended Deficient and Bankrupt Deficient and Delinquent Delinquent
	fsi	string	Code  Nasdaq List  D  E  Q  S  G  H  J	Definition  Ted Instruments Deficient Delinquent Bankrupt Suspended Deficient and Bankrupt Deficient and Delinquent Delinquent and Bankrupt Creations and/or Redemptions Suspended
	fsi	string	Code  Nasdaq List  D  E  Q  S  G  H  J  K  C	Definition  Ted Instruments Deficient Delinquent Bankrupt Suspended Deficient and Bankrupt Deficient and Delinquent Deficient and Bankrupt Creations and/or Redemptions Suspended for Exchange Traded Product Normal (Default): Issuer Is NOT Deficient,

Round Lot Size	roundLotSize	int	Denotes the issue.	number of shares that represent a round lot for the			
Round Lots	roundLotOnly	string	Indicates if Nasdaq system limits order entry for issue.				
Only			Code	Definition			
			Nasdaq Listed Instruments				
			D	Deficient			
			E	Delinquent			
			Q	Bankrupt			
			S	Suspended			
			G	Deficient and Bankrupt			
			Н	Deficient and Delinquent			
			J	Delinquent and Bankrupt			
			К	Deficient, Delinquent, and Bankrupt			
			С	Creations and/or Redemptions Suspended for Exchange Traded Product			
		N	Normal (Default): Issuer is NOT Deficient, Delinquet, or Bankrupt				
			Non-Nasda	q Listed Instruments			
		<space></space>	Not available. Forms should refer to SIAC feeds for code if needed				
Issue	issueClassification	string	Not availabl	e on Bruce. security class for the issue as assigned by Nasdaq. See			
Classification			Appendix for Not available	allowable values.			
Issue Sub-•-Type	/pe issueSubtype s		Identifies the	security sub-•-type for the issue as assigned by Nasdaq. for allowable values.			
			Code	Definition			
			Υ	Nasdaq system only accepts round lots			
			N	Nasdaq system does not have any order size restrictions for this security. Odd and mixed lot orders are allowed.			
			N  Not available of	size restrictions for this security. Odd and mixed lot orders are allowed.			
Authenticity	authenticity	string	Not available of Denotes if a Nasdaq system Please note	size restrictions for this security. Odd and mixed lot orders are allowed.			
Authenticity	authenticity	string	Not available of Denotes if a Nasdaq system Please note	size restrictions for this security. Odd and mixed lot orders are allowed.  on Bruce.  n issue or quoting participant record is set up in the sems in a live/production, test, or demo state. That firms should only show live issues and quoting			

	1	1	1	
			T	Test
Short Sale Threshold Indicator	shortSaleThreshold	string	Indicates if a se under SEC Rule	ecurity is subject to mandatory close-•-out of short sale: e 203(b)(3).
			Code	Definition
			Υ	Issue is restricted under SEC Rule 203(b)(3)
			N	Issue is not restricted
			<space></space>	Threshold Indicator not available
			Not available o	n Bruce.
IPO Flag	ipoFlag	string		ne Nasdaq security is set up for IPO release. This field o help Nasdaq market participant firms comply with 131(b).
			Code	Definition
			Nasdaq-List	ed Instruments
			Υ	Nasdaq listed instrument is set up as a new IPO security
			N	Nasdaq listed instrument is not set up as a new IPO security
			Non-Nasdao	Listed Instruments
			<space></space>	Notavailable
			Not available o	on Bruce.
	luldPriceTier	String		ch Limit Up / Limit Down price band calculation to be used for the instrument. Refer to <u>LULD Rule</u>
LULD Reference			Code	Definition
Price Tier			1	Tier 1 NMS Stocks and select ETPs
			2	Tier 2 NMS Stocks
			<space></space>	Not available
			Not available o	n Bruce.

ETP Flag	etpFlag	String	Indicates whet (ETP).	her the security is an exchange traded product
			Code	Definition
			Υ	Instrument is an ETP
			N	Instrument is not an ETP
			<space></space>	Not available
			Not available	on Bruce.
ETP Leverage Factor	etpLeverageFactor	int	Tracks the inte	gral relationship of the ETP to the underlying
			the ETP's Leve	underlying Index increases by a value of 1 and rage factor is 3, indicates the ETF will ease (see Inverse) by 3.
			_	or is rounded to the nearest integer below, e.g. r 1 would represent leverage factors of 1 to 1.99.
			This field is use purposes.	ed for LULD Tier I price band calculation
			ETP Leverage F ETP's.	actor currently not supported for Non-Nasdaq listed
			Not available o	n Bruce.
Inverse Indicator	inverse	String	Indicates the d Underlying ind	irectional relationship between the ETP and ex.
			Not available o	on Bruce.
			Code	Definition
			Υ	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.

```
{
"type":"record",
"name":"SeqSymbolDirectoryMessage",
"namespace":"com.nasdaq.datalink.streaming.totalview50",
"fields":[{
    "name":"SoupSequence",
    "type":"long"
},{
    "name":"msgType",
    "type":"string"
},{
```

```
"name": "trackingID",
 "type": "int"
 "name": "timestamp",
 "type": "long"
 "name": "symbol",
 "type": "string"
},{
 "name": "marketCategory",
 "type": "string"
},{
 "name" : "fsi",
 "type":["null", "string"]
 "name": "roundLotSize",
 "type": "int"
 "name": "roundLotOnly",
 "type":["null", "string"]
}, {
 "name": "issueClassification",
 "type":["null", "string"]
 "name": "issueSubtype",
 "type":["null", "string"]
}, {
 "name": "authenticity",
 "type": "string"
 "name": "shortSaleThreshold",
 "type":["null", "string"]
}, {
 "name": "ipoFlag",
 "type":["null", "string"]
}, {
 "name": "luldPriceTier",
 "type":["null", "string"]
}, {
 "name": "etpFlag",
 "type":["null", "string"]
 "name": "etpLeverageFactor",
 "type":["null", "int"]
 "name": "inverse",
 "type":["null", "string"]
}],
"version": "1"
          Sample
          "SoupSequence": 123,
```

```
"msgType": "R",
"trackingID": 0,
"timestamp": 7238625218217,
"symbol": "ZVZZT",
"marketCategory": "Q",
"fsi": "N",
"roundLotSize": 100,
"roundLotOnly": "N",
"issueClass": "L",
"issueSubtype": "MF",
"authenticity": "T",
"shortThreshold": "N",
"ipoFlag": "N",
"luldPriceTier": "1",
"etpFlag": "Y",
"etfLeverageFactor
": 2,
"inverse: "N",
}
```

## **Stock Trading Action**

Nasdaq uses this administrative message to indicate the current tradingstatus 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 willuse 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

Bruce will only display values "H" or "T".

Field	Name	Туре	Notes
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"H" = Stock Trading Action Message.
Tracking Number	trackingID	int	Nasdaq Internal Tracking Number. Always 0 for Bruce.
Timestamp	Timestamp	long	Timestamp
Stock	symbol	string	Stock symbol, right padded with spaces

<sup>\*</sup> 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.

Trading State	tradingState	string	Indicates the current trading state for the stock. Allowable values:
			"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
Reserved	reserved	string	Reserved.
			Not available on Bruce.
Reason	reason	string	Trading Action reason.
			Not available on Bruce.

```
Schema
 {
             "type": "record",
             "name": "SeqTradingActionMessage",
             "namespace":
            "com.nasdaq.datalink.streaming.totalview50",
              "fields" : [ {
               "name": "SoupSequence",
              "type": "long"
              }, {
               "name": "msgType",
              "type": "string"
              }, {
               "name": "trackingID",
              "type": "int"
              }, {
               "name": "timestamp",
              "type": "long"
              }, {
               "name": "symbol",
              "type": "string"
              }, {
               "name": "tradingState",
              "type": "string"
              }, {
               "name": "reserved",
              "type" : [ "null", "string" ]
              }, {
               "name": "reason",
              "type" : [ "null", "string" ]
              }],
              "version": "1"
          }
Sample
"SoupSequence": 123,
"msgType": "H",
"trackingID": 0,
"timestamp": 7238625218217,
"symbol": "ZVZZT",
"tradingState": "T",
"reserved": "",
"reason": "M1"
}
```

## 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 will introduce 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 and Bruce process orders based on the most Reg SHO Restriction status value.

Field	Name	Value	Notes
<b>SOUP Sequence</b>	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"Y" = Reg SHO Short Sale Price Test Restricted Indicator
Tracking Number	trackingID	int	Nasdaq internal tracking number. Always 0 for Bruce.
Timestamp	timestamp	long	Timestamp
Stock	symbol	string	Stock symbol, right padded with spaces
Reg SHO Action	state	string	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

```
Schema
{
"type": "record",
```

```
"name": "SeqRegSHOStateMessage",
 "namespace": "com.nasdaq.datalink.streaming.totalview50",
 "fields" : [ {
  "name": "SoupSequence",
  "type": "long"
}, {
  "name": "msgType",
  "type": "string"
  "name": "trackingID",
  "type": "int"
}, {
  "name": "timestamp",
  "type": "long"
}, {
 "name": "symbol",
  "type": "string"
},{
  "name": "state",
  "type": "string"
 "version": "1"
Sample
"SoupSequence": 123,
"msgType": "Y",
"trackingID": 0,
"timestamp": 7238625218217,
"symbol": " ZVZZT",
"state": "1"
}
```

## 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 marketparticipantfirmregistered in an issue. Market participant firms may use these fields to comply with certain marketplacerules.

Throughout the day, Nasdaq willsend out this message only if Nasdaq Operationschanges the status of a market participant firm in an issue.

The Market Participant Position is not available on Bruce.

Field	Name	Туре	Notes
<b>SOUP Sequence</b>	SoupSequence	long	Auto-incrementing message sequence number.

Message Type	msgType	string	"L" = Market Participant Position message
Tracking Number	trackingID	int	Nasdaq internal tracking number.
Timestamp	Timestamp	long	timestamp
MPID	mpid	string	Denotes the market participant identifier for which the position message is being generated
Stock	symbol	string	Stock symbol, right padded with spaces
Primary Market Maker	pmm	string	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	mmm	string	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	mps	string	Indicates the marketparticipant's current registration status inthe issue  "A" = Active  "E" = Excused/Withdrawn  "W" = Withdrawn  "S" = Suspended  "D" = Deleted

```
{
  "type": "record",
  "name": "SeqFirmPermissionsMessage",
  "namespace": "com.nasdaq.datalink.streaming.totalview50",
```

```
"fields" : [ {
 "name": "SoupSequence",
  "type": "long"
 "name": "msgType",
 "type": "string"
}, {
 "name": "trackingID",
 "type": "int"
 "name": "timestamp",
  "type": "long"
},{
 "name": "mpid",
 "type": "string"
}, {
 "name": "symbol",
  "type": "string"
 "name": "pmm",
 "type": "string"
}, {
 "name": "mmm",
 "type": "string"
 "name": "mps",
 "type": "string"
}],
 "version": "1"
Sample
"SoupSequence": 123,
"msgType": "L",
"trackingID": 0,
"timestamp": 7238625218217,
"mpid": NDAQ
"symbol": " ZVZZT",
"pmm": "Y"
"mmm": "N"
"mps": "A"
```

Market---Wide Circuit Breaker (MWCB) Messaging

## MWCB Decline Level Message

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

The MWCB Decline Message is not available on Bruce.

Fialal	Mana	T	Natas
Field	Name	Type	Notes
		.,,,,,	

SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"V" = Market wide circuit breaker Decline Level Message.
Tracking Number	trackingID	int	Nasdaq internal tracking number.
Timestamp	Timestamp	long	timestamp
Level 1	level1	double	Denotes the MWCB Level 1 Value.
Level 2	level2	double	Denotes the MWCB Level 2 Value.
Level 3	level3	double	Denotes the MWCB Level 3 Value.

```
Schema
 {
            "type": "record",
            "name": "SeqMwcbLevelsMessage",
            "namespace":
            "com.nasdaq.datalink.streaming.total
           view50",
             "fields" : [ {
              "name": "SoupSequence",
             "type": "long"
             }, {
               "name": "msgType",
             "type": "string"
             }, {
               "name": "trackingID",
             "type" : "int"
             }, {
               "name": "timestamp",
             "type": "long"
               "name": "level1",
             "type" : "double"
             }, {
               "name": "level2",
```

```
"type": "double"
}, {
    "name": "level3",
    "type": "double"
}],
    "version": "1"
}
```

```
Sample
{
"SoupSequence": 123,
"msgType": "V",
"trackingID": 0,
"timestamp": 7238625218217,
"level1": 356735673,
"level2": 599877474873,
"level3": 42256736573
}
```

## MWCB Status Message

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

#### MWCB Status is not available on Bruce.

#### Details:

Field	Name	Туре	Notes
<b>SOUP Sequence</b>	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"W" = Market-•-Wide Circuit Breaker Status message
Tracking number	trackingID	int	Nasdaq internal tracking number
Timestam p	Timestamp	long	timestamp
Breached Level	breachedLevel	string	Denotes the MWCB Level that was breached.  "1" = Level 1 "2" = Level 2 "3" = Level 3

## Schema

```
{
  "type":"record",
  "name":"SeqMwcbStatusMessage",
  "namespace":"com.nasdaq.datalink.streaming.totalview50",
  "fields":[{
     "name":"SoupSequence",
     "type":"long"
},{
     "name":"msgType",
```

```
"type": "string"
        }, {
         "name": "trackingID",
         "type": "int"
        },{
         "name": "timestamp",
         "type": "long"
        }, {
         "name": "breachedLevel",
         "type": "string"
        }],
         "version": "1"
Sample
"SoupSequence": 123,
"msgType": "W",
"trackingID": 0,
"timestamp": 7238625218217,
"breachedLevel": "1"
}
```

## IPO Quoting Period Update

Indicates the anticipated IPO quotation release time of a security.

The IPO quoting period message is not available on Bruce.

Field	Name	Туре	Notes
-------	------	------	-------

SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	int	"K" = IPO Quoting Period Update Message
Tracking Number	trackingID	int	Nasdaq internal tracking number.
Timestamp	Timestamp	long	timestamp
Stock	symbol	string	Stock symbol, right padded with spaces
IPO Quotation Release Time	quoteReleaseTime	int	Denotes the IPO release time, in seconds since midnight, for quotation to the nearest second.  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 Release Qualifier	quoteReleaseQuant	string	"A" = Anticipated Quotation Release Time:  This value would be used when Nasdaq Market Operations initially enters the IPO instrument for release  "C" = IPO Release Canceled/Postponed:  This value would be sued when Nasdaq Market Operations cancels or postpones the release of the new IPO instrument
IPO Price	ipoPrice	double	Denotes the IPO Price to be used for intraday net change calculations  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 zeroes. The decimal point is implied by position, it does not appear inside the price field

```
{
  "type": "record",
  "name": "SeqIpoQuotingPeriodMessage",
  "namespace": "com.nasdaq.datalink.streaming.totalview50",
  "fields": [{
    "name": "SoupSequence",
    "type": "long"
},{
```

```
"name": "msgType",
 "type": "string"
}, {
 "name": "trackingID",
 "type": "int"
}, {
 "name": "timestamp",
 "type": "long"
}, {
 "name": "symbol",
 "type": "string"
}, {
 "name": "quoteReleaseTime",
 "type": "int"
}, {
 "name": "quoteReleaseQuant",
 "type": "string"
}, {
 "name": "ipoPrice",
 "type": "double"
}],
 "version": "1"
Sample
"SoupSequence": 123,
"msgType": "K", "
"trackingID": 0,
"timestamp": 7238625218217,
"symbol": "ZVZZT",
"quoteReleaseTime": 34509843560,
"quoteReleaseQuant": "A",
"ipoPrice": 15.00
}
```

## Limit Up – Limit Down (LULD) Auction Collar

Indicates the auction collar thresholds within which a paused security can reopen following a LULD Trading Pause.

The LULD Auction Collar message is not available on Bruce.

Field	Name	Туре	Notes
<b>SOUP Sequence</b>	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"J" = LULD Auction Collar

Tracking Number	trackingID	int	Nasdaq Internal tracking number.
Timestamp	Timestamp	Long	timestamp
Stock	symbol	string	Stock symbol, right padded with spaces
Auction Collar Reference Price	refPrice	double	Reference price used to set the Auction Collars
Upper Auction Collar Price	upperPrice	double	Indicates the price of the Upper Auction Collar Threshold
Lower Auction Collar Price	lowerPrice	double	Indicates the price of the Lower Auction Collar Threshold
Auction Collar Extension	extensions	int	Indicates the number of the extensions to the Reopening Auction

```
"type": "record",
"name": "SeqLULDReopenMessage",
"namespace": "com.nasdaq.datalink.streaming.totalview50",
"fields" : [ {
"name": "SoupSequence",
 "type": "long"
}, {
 "name": "msgType",
 "type": "string"
}, {
 "name": "trackingID",
 "type": "int"
 "name": "timestamp",
"type": "long"
 "name": "symbol",
"type": "string"
}, {
 "name": "refPrice",
```

```
"type": "double"
}, {
 "name": "upperPrice",
  "type": "double"
}, {
 "name": "lowerPrice",
  "type": "double"
}, {
 "name": "extensions",
  "type": "int"
}],
 "version": "1"
Sample
"SoupSequence": 123,
"msgType": "J", "
"trackingID": 0,
"timestamp": 7238625218217,
"symbol": "ZVZZT",
"refPrice": 15.00,
"upperPrice": 15.00,
"lowerPrice": 15.00,
"extensions": "2",
}
```

## Operational Halt

The Exchange uses this message to indicate the current Operational Status of a security to the trading community. An Operational Halt means that there has been an interruption of service on the identified security impacting only the designated Market Center. These Halts differ from the "Stock Trading Action" message types since an Operational Halt is specific to the exchange for which it is declared, and does not interrupt the ability of the trading community to trade the identified instrument on any other market place.

Nasdaq uses this administrative message to indicate the current trading status of the three market centers operated by Nasdaq.

Operational Halt message is not available on Bruce.

Field	Name	Туре	Value/Description
<b>SOUP Sequence</b>	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"h" = Operational Halt

Tracking Number	trackingID	int	Nasdaq internal tracking number.
Timestamp	Timestamp	long	timestamp
Stock	symbol	string	Denotes the security symbol for the issue in Nasdaq execution system
Market Code	marketCenter	string	"Q": Nasdaq "B": BX "X": PSX
Operational Halt Action	action	string	"H": Operationally Halted on the identified Market "T": Operational Halt has been lifted and Trading resumed

```
Schema
 {
            "type": "record",
            "name": "SeqMarketCenterActionMessage",
            "namespace":
            "com.nasdaq.datalink.streaming.totalview50"
             "fields" : [ {
              "name": "SoupSequence",
              "type": "long"
             }, {
               "name" : "msgType",
             "type": "string"
             }, {
              "name": "trackingID",
              "type" : "int"
             }, {
               "name": "timestamp",
             "type" : "long"
             }, {
               "name": "symbol",
             "type" : "string"
             }, {
```

```
"name": "marketCenter",

"type": "string"

}, {

   "name": "action",

"type": "string"

}],

"version": "1"
```

## Sample

```
{
"SoupSequence": 123,
"msgType": "h",
"trackingID": 0,
"timestamp": 7238625218217,
"symbol": "ZVZZT",
"marketcenter": "Q",
"action": "H"
}
```

## Add Order Message

An Add Order Message indicates that a new order has been accepted by the Nasdaq system and was added to the displayable book. The message includes a day-•-unique Order Reference Number used by Nasdaq to track the order.

Nasdaq will support two variations of the Add Order message format.

#### Add Order – No MPID Attribution

This message will be generated for unattributed orders accepted by the Nasdaq system. (Note: If a firm wants to display a MPID for unattributed orders, Nasdaq recommends that it use the MPID of "NSDQ".)

	Name	Туре	Notes
Field			
<b>SOUP Sequence</b>	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"A" = Add Order – No MPID Attribution Message.
Tracking Number	trackingID	int	Nasdaq internal tracking number. Always 0 for Bruce.
Timestamp	Timestamp	long	timestamp

Order Reference Number	orderld	long	The unique reference number assigned to the new order at the time of receipt.
Buy/Sell Indicato	r side	string	The type of order being added. "B" =Buy Order. "S" = Sell Order.

Shares	quantity	int	The total number of shares associated with the order being added to the book.
Stock	symbol	string	Stock symbol, right padded with spaces
Price	price	double	The display price of the new order. Refer to Data Types for field processing notes.

{

```
"type": "record",
 "name": "SeqAddOrderMessage",
 "namespace":
"com.nasdaq.datalink.streaming.to
talview50",
 "fields" : [ {
   "name": "SoupSequence",
  "type": "long"
 }, {
   "name": "msgType",
  "type": "string"
  }, {
   "name": "trackingID",
 "type" : "int"
  }, {
   "name": "timestamp",
  "type" : "long"
 }, {
   "name": "orderId",
  "type": "long"
 }, {
   "name": "side",
  "type": "string"
 }, {
   "name": "quantity",
  "type" : "int"
 }, {
   "name": "symbol",
  "type" : "string"
 }, {
  "name": "price",
   "type": "double"
```

```
} ],
    "version" : "1"
}
Sample
{
```

```
"SoupSequence": 123,
"msgType": "A",
"trackingID": 0,
"timestamp": 7238625218217,
"orderId": 1234567,
"side": "B",
"quantity": 120
"symbol": "ZVZZT",
"price": 120.11,
}
```

#### Add Order with MPID Attribution

This message will be generated for attributed orders and quotations accepted by the Nasdaq system.

The Add Order with MPID Attribution is not available on Bruce.

Field	Name	Туре	Notes
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"F" = Add Order –With MPID Attribution Message.
Tracking Number	trackingID	int	Nasdaq Internal tracking number.
Timestamp	Timestamp	long	timestamp
Order Reference Number	orderld	long	The unique reference number assigned to the new order at the time of receipt.
Buy/Sell Indicator	side	string	The type of order being added.  "B" = buy order. "S" = sell order
Shares	quantity	int	The total number of shares associated with the order being added to thebook
Stock	symbol	string	Stock symbol, right padded with spaces
Price	price	double	The display price of the new order. Refer to Data Types for field processing notes.
Attribution	mpid	string	Nasdaq Market participant identifier associated with the entered order

# Schema "type": "record", "name": "SeqAddAttributedOrderMessage", "namespace": "com.nasdaq.datalink.streaming.totalview50", "fields":[{ "name": "SoupSequence", "type": "long" }, { "name": "msgType", "type": "string" }, { "name": "trackingID", "type": "int" }, { "name": "timestamp", "type": "long" }, { "name": "orderId", "type": "long" }, { "name": "side", "type": "string" }, { "name": "quantity", "type": "int" }, { "name": "symbol", "type": "string" }, { "name": "price", "type": "double" "name": "mpid", "type": "string" }], "version": "1" Sample "SoupSequence": 123, "msgType": "F", "trackingID": 0, "timestamp": 7238625218217, "orderId": 1234567,

"side": "B",
"quantity": 120
"symbol": "ZVZZT",

```
"price": 120.11,
"mpid": "NDAQ",
}
```

## Modify Order Messages

Modify Order messages always include the Order Reference Number of the Add Order to which the updateapplies. To determine the current display shares for an order, ITCH subscribers must deduct the number of shares stated in the Modify message from the original number of shares stated in the Add Order message with the same reference number. Nasdaq may send multiple Modify Order messages for the same order reference number and the effects are cumulative. When the number of display shares for an order reaches zero, the order is dead and should be removed from the book.

#### Order Executed Message

This message is sent whenever an order on the book is executed in whole or in part. It is possible to receive several Order Executed Messages for the same order reference number if that order is executed in several parts. The multiple Order Executed Messages on the same order are cumulative.

By combining the executions from both types of Order Executed Messages and the Trade Message, it is possible to build a complete view of all non-•-cross executions that happen on Nasdaq. Cross execution information is available in one bulk print per symbol via the Cross Trade Message.

Field	Name	Туре	Notes
<b>SOUP Sequence</b>	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"E" = Order Executed Message
Symbol	symbol	String	Stock symbol, padded with right spaces
Tracking number	trackingID	int	Nasdaq internal tracking number. Always 0 for Bruce.
Timestamp	Timestamp	long	timestamp
Order Reference Number	orderld	long	The unique reference number assigned to the new order at the time ofreceipt
Executed Shares	quantity	int	The number of shares executed

Match Number match	tchId long	The Nasdaq generated day unique Match Number of this execution. The Match Number is also referenced in the Trade Break Message
--------------------	------------	--

```
"type": "record",
"name": "SeqOrderExecutedMessage",
"namespace": "com.nasdaq.datalink.streaming.totalview50",
 "fields" : [ {
 "name": "SoupSequence",
 "type": "long"
}, {
 "name": "msgType",
  "type": "string"
}, {
 "name": "symbol",
 "type": "string"
}, {
 "name": "trackingID",
 "type": "int"
}, {
 "name": "timestamp",
 "type": "long"
}, {
 "name": "orderId",
 "type": "long"
}, {
 "name": "quantity",
 "type": "int"
}, {
 "name": "matchId",
 "type": "long"
}],
"version": "1"
Sample
"SoupSequence": 123,
"msgType": "E",
"symbol": "ZZTZ",
"trackingID": 0,
"timestamp": 7238625218217,
"orderId": 1234567,
"quantity": 120
"matchID": 12345678,
}
```

## Order Executed With Price Message

This message is sent whenever an order on the book is executed in whole or in part at a price different from the initial display price. Since the execution price is different than the display price of the original Add Order, Nasdaq includes a price field within this execution message.

It is possible to receivemultiple Order Executed and Order Executed With Pricemessages for the same orderif that order is executed in severalparts. The multiple Order Executed messages on the same order

are cumulative.

These executions may be marked as non-•-printable. If the execution is marked as non-•-printed, it means that the shares will be included into a later bulk print (e.g., in the case of cross executions). If a firm is looking to use the data in time-•-and-•-sales displays or volume calculations, Nasdaq recommends that firms ignore messages marked as non--- printable to prevent double counting.

The Order Executed with Price message is not available on Bruce.

#### Details:

Field	Name	Туре	Notes
<b>SOUP Sequence</b>	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"C" = Order Executed with Price Message
Symbol	symbol	String	Stock symbol, padded with right spaces
Tracking number	trackingID	int	Nasdaq internal tracking number.
Timestamp	Timestamp	long	timestamp
Order Reference Number	orderld	long	The unique reference number assigned to the new order at the time of receipt
Executed Shares	quantity	int	The number of shares executed
Match Number	matchId	long	The Nasdaq generated day unique Match Number of this execution. The Match Number is also referenced in the Trade Break Message
Printable	printable	string	Indicates if the execution should be reflected on time and sales displays and volume calculations  "N" = Non-Printable  "Y" = Printable
Execution Price	price	double	The Price at which the order execution occurred. Refer to Data Types for field processing notes

#### Schema

```
{
"type": "record",
"name": "SeqOrderExecutedWithPriceMessage",
"namespace": "com.nasdaq.datalink.streaming.totalview50",
```

```
"fields" : [ {
 "name": "SoupSequence",
  "type": "long"
 "name": "msgType",
 "type": "string"
}, {
 "name": "symbol",
 "type": "string"
 "name": "trackingID",
 "type": "int"
}, {
 "name": "timestamp",
 "type": "long"
}, {
 "name": "orderId",
 "type": "long"
 "name": "quantity",
 "type": "int"
}, {
 "name": "matchId",
 "type": "long"
 "name": "printable",
 "type": "string"
}, {
 "name": "price",
 "type": "double"
}],
 "version": "1"
Sample
"SoupSequence": 123,
"msgType": "C",
"symbol": "ZZTZ",
"trackingID": 0,
"timestamp": 7238625218217,
"orderId": 1234567,
"quantity": 120,
"matchId": 12345,
"printable": "Y",
"price": 100.13,
}
```

## Order Cancel Message

This message is sent whenever an order on the book is modified as a result of a partial cancellation.

#### Details:

Field	Name	Туре	Notes
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	int	"X" = Order Cancel Message
Symbol	symbol	String	Stock symbol, padded with right spaces

Tracking Number	trackingID	int	Nasdaq internal tracking number. Always 0 for Bruce.
Timestamp	Timestamp	long	timestamp
Order Reference Number	orderId	long	The reference number of the order being canceled
Cancelled Shares	quantity	int	The number of shares being removed from the display size of the order as a result of a cancellation

#### Schema

```
{
  "type": "record",
  "name": "SeqOrderCancelMessage",
  "namespace": "com.nasdaq.datalink.streaming.totalview50",
  "fields": [ {
      "name": "SoupSequence",
      "type": "long"
      }, {
      "name": "msgType",
      "type": "string"
      }, {
      "name": "symbol",
      "type": "string"
      }, {
      "name": "trackingID",
      "type": "int"
      }, {
      "name": "timestamp",
      "type": "long"
      }, {
```

```
"name": "orderld",
    "type": "long"
}, {
    "name": "quantity",
    "type": "int"
}],
    "version": "1"
}
Sample
{
"SoupSequence": 123,
    "msgType": "X",
    "symbol": "ZZTZ",
    "trackingID": 0,
    "timestamp": 7238625218217,
    "orderld": 1234567,
    "quantity": 120
}
```

## Order Delete Message

Thismessage is sent whenever an order on the book is being cancelled. All remaining shares are no longer accessible so the order must be removed from the book.

#### Details:

Field	Name	Туре	Notes
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"D" = Order Delete Message
Symbol	symbol	string	Stock symbol, padded with right spaces
Tracking Number	trackingID	int	Nasdaq internal tracking number. Always 0 for Bruce.
Timestamp	Timestamp	long	timestamp
Order Reference Number	orderld	long	The reference number of the order being canceled

# Schema

```
"type": "record",
 "name": "SeqOrderDeleteMessage",
 "namespace": "com.nasdaq.datalink.streaming.totalview50",
 "fields" : [ {
  "name": "SoupSequence",
  "type": "long"
 }, {
  "name": "msgType",
  "type": "string"
 }, {
  "name": "symbol",
  "type": "string"
  "name": "trackingID",
  "type" : "int"
 }, {
  "name": "timestamp",
  "type": "long"
 }, {
  "name": "orderId",
  "type": "long"
}],
 "version": "1"
Sample
"SoupSequence": 123,
"msgType": "D",
"symbol": "ZZTZ",
"trackingID": 0,
"timestamp": 7238625218217,
"orderId": 1234567,
}
```

## Order Replace Message

This message is sent whenever an order on the book has been cancel-•-replaced. All remaining shares from the original order are no longer accessible, and must be removed. The new order details are provided for the replacement, along with a new orderreferencenumber which will be used henceforth. Since the side, stocksymbol and attribution (if any) cannot be changed by an Order Replaceevent, these fields are not included in the message. Firms should retain the side, stock symbol and MPID from the original Add Order message.

Field	Name	Туре	Notes
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"U" = Order Replace Message

Symbol	symbol	String	Stock symbol, padded with right spaces
Tracking Number	trackingID	int	Nasdaq internal tracking number. Always 0 for Bruce.
	J		
Timestamp	Timestamp	long	timestamp
	·		

Original Order Reference Number	orderld	long	The original order reference number of the order being replaced
New Order Reference Number	newOrderId	long	The new reference number for this order at time of replacement Please note that the Nasdaq system will use this new order reference number for all subsequent updates
Shares	quantity	int	The new total displayed quantity
Price	price	double	The new display price for the order Please refer to Data Types for field processing notes

```
"type": "record",
"name": "SeqReplaceOrderMessage",
"namespace": "com.nasdaq.datalink.streaming.totalview50",
"fields":[{
 "name": "SoupSequence",
 "type": "long"
}, {
 "name": "msgType",
 "type": "string"
}, {
 "name": "symbol",
 "type": "string"
}, {
 "name": "trackingID",
 "type": "int"
 "name": "timestamp",
 "type": "long"
}, {
 "name": "orderId",
 "type": "long"
}, {
 "name": "newOrderId",
 "type": "long"
 "name": "quantity",
 "type": "int"
 "name": "price",
 "type": "double"
}],
"version": "1"
```

```
}
Sample
{
"SoupSequence": 123,
"msgType": "U",
"symbol": "ZZVTZ"
"trackingID": 0,
"timestamp": 7238625218217,
"orderId": 1234567,
"newOrderId": 5678912,
"quantity": 120
"price": 100.13
}
```

## **Trade Messages**

#### Trade Message (Non---Cross)

The Trade Message is designed to provide execution details for normal match events involving non-displayable order types. (Note: There is a separate message for Nasdag cross events.)

Since no Add Order Message is generated when a non-•-displayed order is initially received, Nasdaq cannot use the Order Executed messages for all matches. Therefore this message indicates when a match occurs between non---displayable order types. A Trade Message is transmitted each time a non-•-displayable order is executed in whole or in part. It is possible to receive multiple Trade Messages for the same order if that order is executed in several parts. Trade Messages for the same order are cumulative.

Trade Messages should be included in Nasdaq time-•-and-•-sales displays as well as volume and other market statistics. Since Trade Messages do not affect the book, however, they may be ignored by firms just looking to build and track the Nasdaq execution system display.

Field	Nome	Turno	Notes
Field	Name	Туре	Notes
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	int	"P" = Trade Message
Symbol	symbol	string	Stock symbol, padded with right spacesseqadd
Tracking number	trackingID	int	Nasdaq internal tracking number
Timestamp	Timestamp	long	timestamp
1			

	1		
Order Reference Number	orderID	long	The unique reference number assigned to the order on the book being executed.
			Effective December 6, 2010, Nasdaq will populate the Order Reference Number field within the Trade (Non Cross) message as zero. For the binary versions of the TotalViewITCH data feeds, the field will be nullfilled bytes (which encodes sequence of zero)
Buy/Sell Indicator	side	string	The type of non-display order on the book being matched
			"B" = Buy Order
			"S" = Sell Order
			Effective 07/14/2014, this field will always be "B" regardless of the resting side
Shares	quantity	int	The number of shares being matched in this execution
Stock	symbol	string	Stock Symbol, right padded with spaces
Price	price	double	The match price of the order
			Please refer to Data Types for field processing notes
Match Number	matchId	long	The Nasdaq generated session unique Match Number for this trade
			The Match Number is referenced in the Trade Break Message

```
"type": "record",
"name": "SeqTradeMessage",
"namespace": "com.nasdaq.datalink.streaming.totalview50",
"fields": [\,\{
 "name": "SoupSequence",
 "type": "long"
 "name": "msgType",
 "type": "string"
 "name": "trackingID",
 "type": "int"
 "name": "timestamp",
 "type": "long"
}, {
 "name": "orderId",
 "type": "long"
 "name": "side",
 "type": "string"
},{
 "name": "quantity",
 "type": "int"
```

```
}, {
  "name": "symbol",
  "type": "string"
}, {
  "name": "price",
 "type": "double"
}, {
  "name": "matchld",
 "type": "long"
}],
 "version": "1"
Sample
"SoupSequence": 123,
"msgType": "P",
"trackingID": 0,
"timestamp": 7238625218217,
"orderId": 1234567,
"side": "S"
"quantity": 120
"symbol": "ZVZZT",
"price": 120
"matchId": 123456
```

#### Cross Trade Message

Cross Trademessage indicates that Nasdaq has completed its crossprocess 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 Trademessage 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 bulkvolume 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 aszero.

The Cross Trade Message is not available on Bruce.

Field	Name	Туре	Notes
<b>SOUP Sequence</b>	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"Q" = Cross Trade Message
Tracking Number	trackingID	int	Nasdaq internal tracking number.
Timestamp	Timestamp	long	timestamp
Shares	quantity	long	The number of shares matched in the Nasdaq Cross.
Stock	symbol	string	Stock symbol, right padded with spaces
Cross Price	price	double	The price at which the cross occurred. Refer to Data Types for field processing notes.
Match Number	matchId	long	The Nasdaq generated day-•-unique Match Number of this execution.
Cross Type	crossType	string	The Nasdaq cross session for which the message is being generated.

```
"type": "record",
"name": "SeqCrossTradeMessage",
"namespace": "com.nasdaq.datalink.streaming.totalview50",
"fields" : [ {
 "name": "SoupSequence",
"type": "long"
}, {
 "name": "msgType",
 "type": "string"
}, {
 "name": "trackingID",
 "type": "int"
}, {
 "name": "timestamp",
"type": "long"
}, {
 "name": "quantity",
```

```
"type": "long"
}, {
 "name": "symbol",
 "type": "string"
}, {
 "name": "price",
 "type": "double"
}, {
 "name": "matchId",
  "type": "long"
}, {
 "name": "crossType",
 "type": "string"
}],
"version": "1"
Sample
"SoupSequence": 123,
"msgType": "Q",
"trackingID": 0,
"timestamp": 7238625218217,
"quantity": "120"
"symbol": "ZVZZT",
"price": "120",
"matchId": 12345,
"crossType": "O"
}
```

#### Broken Trade / Order Execution Message

The Broken Trade Message is sent whenever an execution on Nasdaq is broken. An execution may be broken if it is found to be "clearly erroneous" pursuant to Nasdaq's Clearly Erroneous Policy. A trade break is final; once a tradeis broken, it cannot be reinstated.

Firms that use the ITCH feed to create time---and---sales displays or calculate market statistics should be prepared to process the broken trade message. If a firm is only using the ITCH feed to build a book, however, it may ignore these messages as they have no impact on the current book.

Field	Name	Туре	Notes
<b>SOUP Sequence</b>	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"B" = Broken Trade Message.
Symbol	symbol	string	Stock symbol, right padded with spaces.

Tracking Number	trackingID	int	Nasdaq internal tracking number. Always 0 for Bruce.
Timestamp	Timestamp	long	timestamp
Match Number	matchID	long	The Nasdaq Match Number of the execution that was broken. This refers to a Match Number from a previously transmitted Order Executed Message, Order Executed With Price Message, or Trade Message.

```
"type": "record",
        "name": "SeqBrokenTradeMessage",
        "namespace": "com.nasdag.datalink.streaming.totalview50",
        "fields" : [ {
         "name": "SoupSequence",
         "type": "long"
         "name": "msgType",
         "type": "string"
        }, {
         "name": "symbol",
         "type": "string"
         "name": "trackingID",
         "type": "int"
         "name": "timestamp",
         "type": "long"
         "name": "matchId",
         "type": "long"
        }],
        "version" : "1"
Sample
"SoupSequence": 123,
"msgType": "B",
"symbol": ZZTV,
"trackingID": 0,
"timestamp": 7238625218217,
"matchId": 123456
}
```

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

- 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 <u>FAQ on Opening and Closing Crosses</u>.
- 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.

#### The NOII message is not available on Bruce.

etails:			
Field	Name	Туре	Notes
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"I" = NOII Message
Tracking Number	trackingID	int	Nasdaq internal tracking number.
Timestamp	Timestamp	long	timestamp
Paired Shares	quantity	long	The total number of shares that are eligible to be matched at the Current Reference Price.
Imbalance Shares	imbalance	long	The number of shares not paired at the Current Reference Price.
Imbalance Direction	imbalanceDir	string	The market side of the order imbalance.  "B" = buy imbalance  "S" = sell imbalance  "N" = no imbalance  "O" = Insufficient orders to calculate  "P" = Paused
Stock	symbol	string	Stock symbol, right padded with spaces
Far Price	farPrice	double	A hypothetical auctionclearing price for cross orders only. Refer to Data Types for field processing notes.
Near Price	nearPrice	double	A hypothetical auction-•-clearing price for cross orders as well as continuous orders. Refer to Data Types for field.
Current Reference Price	refPrice	double	The price at which the NOII shares are being calculated. Refer to Data Types for field processing notes.
Cross Type	crossType	string	The type of Nasdaq cross for which the NOII message is being generated  "O" = Nasdaq Opening Cross  "C" = Nasdaq Closing Cross  "H" = Cross for IPO and halted / paused securities  "A" = Extended Trading Close

Price Variation Indicator	priceVarianceInd	string	This field indicates the absolute value of the percentage of deviation of the Near Indicative Clearing Price to the nearest Current Reference Price.
			"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</space>

```
"type": "record",
"name": "SeqNOIIMessage",
"namespace": "com.nasdaq.datalink.streaming.totalview50",
"fields":[{
"name": "SoupSequence",
"type": "long"
}, {
"name": "msgType",
"type": "string"
}, {
"name": "trackingID",
"type": "int"
},{
"name": "timestamp",
"type": "long"
}, {
"name": "quantity",
"type": "long"
}, {
"name": "imbalance",
"type": "long"
},{
"name": "imbalanceDir",
"type": "string"
"name": "symbol",
"type": "string"
},{
```

```
"name": "farPrice",
          "type": "double"
         }, {
          "name": "nearPrice",
          "type": "double"
         }, {
          "name": "refPrice",
          "type": "double"
          "name": "crossType",
          "type": "string"
         }, {
          "name": "priceVarianceInd",
          "type": "string"
         }],
         "version": "1"
Sample
"SoupSequence": 123,
```

```
"msgType": "I",
"trackingID": 0,
"timestamp": 7238625218217,
"quantity": 120,
"imbalance": 60,
"imbalanceDir": "B"
"symbol": "ZVZZT",
"farPrice": 120.00,
"nearPrice": 121.00,
"refPrice": 119.00,
"crossType": "O"
"priceVarianceInd": "L"
}
```

## Retail Price Improvement Indicator (RPII)

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

#### Retail Interest Message:

The RPII message is not available on Bruce.

Field	Name	Туре	Notes
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	Retail Interest message
Tracking Number	uniqueTimestam p	int	Nasdaq internal tracking number.
Timestamp	Timestamp	long	timestamp

			See the TrackingID class in the com.nasdaq.ncdsclient.internal.utils package within the SDK.
Stock	symbol	string	Stock symbol, right padded with spaces
Interest Flag	interest	string	"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.

```
{
 "type": "record",
 "name": "SeqRetailInterestMessage",
 "namespace": "com.nasdaq.datalink.streaming.totalview50",
 "fields" : [ {
  "name": "SoupSequence",
  "type" : "long"
 }, {
  "name": "msgType",
  "type" : "string"
}, {
  "name": "trackingID",
  "type" : "int"
 }, {
  "name": "timestamp",
  "type" : "long"
 }, {
  "name": "symbol",
  "type" : "string"
```

```
}, {
    "name" : "interest",
    "type" : "string"
} ],
    "version" : "1"
}

Sample
{
    "SoupSequence": 123,
    "msgType": "V",
    "trackingID": 0,
    "timestamp": 7238625218217,
    "symbol": "ZZTV",
    "interest": "B"
}
```

## 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.

## The DLCR message is not available on Bruce.

Field	Name	Туре	Notes
SOUP Sequence	SoupSequence	long	Auto-incrementing message sequence number.
Message Type	msgType	string	"O" = Direct Listing with Capital Raise Message
Tracking Number	trackingID	int	Nasdaq internal tracking number.
Timestamp	Timestamp	long	timestamp

Stock	symbol	string	Stock Symbol, right padded with spaces
Open Eligibility Status	state	string	Indicates if the security is eligible to be released for trading "N": Not Eligible "Y": Eligible
Minimum Allowable Price	minAllowablePrice	double	20% below Registration Statement Lower Price
Maximum Allowable Price	maxAllowablePrice	double	80% above Registration Statement Highest Price

Near Execution Price	nearExecPrice	double	The current reference price when the DLCR volatility test has successfully passed
Near Execution Time	nearExecTime	long	The time at which the near execution price was set
Lower Price Range Collar	lowerCollarPrice	double	Indicates the price of the Lower Auction Collar Threshold (10% below the Near Execution Price)
Upper Price Range Collar	upperCollarPrice	double	Indicates the price of the Upper Auction Collar Threshold (10% above the Near Execution Price)

```
"type": "record",
"name": "SeqOpenEligibilityMessage",
"namespace": "com.nasdaq.datalink.streaming.totalview50",
"fields":[{
"name": "SoupSequence",
"type": "long"
}, {
"name": "msgType",
"type": "string"
}, {
"name": "trackingID",
"type": "int"
}, {
"name": "timestamp",
"type": "long"
}, {
"name": "symbol",
"type": "string"
```

```
}, {
         "name": "state",
         "type": "string"
         "name": "minAllowablePrice",
         "type": "double"
        }, {
         "name": "maxAllowablePrice",
         "type": "double"
        }, {
         "name": "nearExecPrice",
         "type": "double"
        }, {
         "name": "nearExecTime",
         "type": "long"
        }, {
         "name": "lowerCollarPrice",
         "type": "double"
        },{
         "name": "upperCollarPrice",
         "type": "double"
        }],
        "version": "1"
Sample
"SoupSequence": 123,
"msgType": "I",
"trackingID": 0,
"timestamp": 7238625218217,
"symbol": "ZVZZT",
"state": "Y",
"minAllowablePrice": 60.00,
"maxAllowablePrice": 70.00,
"nearExecPrice": 60.00,
"nearExecTime": "7238625218217"
"lowerCollarPrice": 45.00,
"upperpricerangecollar": 80.00
}
```

## Appendix A - Documentation and Revision Control Log

#### July 18, 2025 -

Added Bruce ATS and changed all price values to datatype "double".

## June 16, 2025 -

• Added market center listing value "M" to reflect additional listing market center.

#### April 28, 2023 -

- Introduction of Direct Listing with Capital Raise Message and new Imbalance Direction of Paused to NOII Message
   July 14, 2022
  - Due to the launch of non-integer leverage factors, updated ETP Leverage Factor from Section "Stock related messages//Stock Directory" page 9.

#### January 5, 2022 -

Added Documentation for Extended Trading Close.

## 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 e.g., XXXX.A. For subordinate securities, Nasdaq and BX will assign 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 charactersymbol suffixes, pleaserefer to <u>Ticker Symbol Convention</u> page on the NasdaqTrader website.

For NYSE-•-, NYSE American— and NYSE Arca-•-listed securities with subordinate issue types, please refer to <u>Ticker Symbol</u> <u>Convention</u> 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 Co	odes For Trading Halt Actions		
Code	Value		
T1	Halt News Pending		
T2	Halt News Disseminated		
T5	Single Security Trading Pause In Effect		
Т6	Regulatory Halt — Extraordinary Market Activity		
T8	HaltETF		
T12	Trading Halted; For Information Requested by Listing Market		
H4	Halt Non-•-Compliance		
Н9	Halt Filings Not Current		
H10	Halt SECTrading Suspension		
H11	Halt Regulatory Concern		
01	OperationsHalt; 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 Co	odes for Quotation/Trading Resumption Actions
Code	Value
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	IPOSecurity Released for Quotation (Nasdaq Securities Only)
IPOE	IPO Security — Positioning Window Extension (Nasdaq Securities Only)
Space	Reason Not Available
Т3	News and Resumption Times
T7	Single Security Trading Pause / Quotation Only Period

# Appendix D – Issue Classification Values

## Identifies the security class for the issue as assigned by Nasdaq

Codes for	Codes for Issue Classification Values		
Code	Value		
Α	American Depositary Share		
В	Bond		
С	Common Stock		
F	Depository Receipt		
1	144A		
L	Limited Partnership		
N	Notes		
0	OrdinaryShare		
Р	PreferredStock		
Q	Other Securities		
R	Right		
S	Shares of Beneficial Interest		
Т	Convertible Debenture		
U	Unit		
V	Units/Benif Int		
W	Warrant		

	Issue Classification Values		
Code A	Value Preferred Trust Securities		
Al	Alpha IndexETNs		
В	Index Based Derivative		
С	Common Shares		
СВ	Commodity Based Trust Shares		
CF	Commodity Futures Trust Shares		
CL	Commodity-•-Linked Securities		
CM	Commodity Index Trust Shares		
СО	Collateralized Mortgage Obligation		
СТ	Currency Trust Shares		
CU	Commodity-•-Currency-•-Linked Securities		
CW	Currency Warrants		
D	Global Depositary Shares		
E	ETF-•-Portfolio Depositary Receipt		
EG	Equity GoldShares		
EI	ETN-•-Equity Index-•-Linked Securities		
EM	NextShares Exchange Traded Managed Fund*		
EN	Exchange Traded Notes		
EU	Equity Units		
F	HOLDRS		
FI	ETN-•-Fixed Income-•-Linked Securities		
FL	ETN-•-Futures-•-Linked Securities		
G	Global Shares		
ı	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 FundShares		
ML	ETN-•-Multi-•-Factor Index-•-Linked Securities		
MT	Managed Trust Securities		
N	NY Registry Shares		
0	Open Ended Mutual Fund		
Р	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 RateClosing		
SI	Spot Rate Intraday		
Т	Tracking Stock		
TC	Trust Certificates		
TU	Trust Units		
U	Portal		
V	Contingent Value Right		
W	Trust Issued Receipts		
WC	World Currency Option		
Х	Trust		
Υ	Other		
Z	NotApplicable		

<sup>\*</sup> NextShares Exchange Traded Managed Funds (ETMFs) launched in February 2016. NextShares prices are stated in proxy price on this feed. For more information, please refer to the <a href="NextShares">NextShares</a> Homepage.