



Nasdaq Fixed Income Treasury ITCH Protocol Spec

Revision 3.06
9-Nov-2018

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Document History

Revision	Published	Summary of Changes
3.0	05/31/2018	<ul style="list-style-type: none"> Remove Block Trade from Order book Directory Remove Block Trade from Combination Order book Directory Add Curve Trading Product to Combination Order book Directory Revise Order book Event Message and add Security Event Codes table. Remove Trade State Information Message Add a reserve field to Add Order Message Remove Priority feature from Order Executed Message Remove 2-Sided Order Executed Message Remove Priority features from Order Replace Message Revise Trade Message to support both real time and delayed updates Add new Indicative Pricing Message to provide pricing reference for spread trading Removed FRN and SWAPs Removed Leg 4 Removed Last Reserved from Orderbook Directory messages Add Maximum Spread Tolerance to Combination Order book Message Added issued security as benchmark flag to directory message

		<p>Add Transaction ID to Trade Message</p> <p>Add Broken Trade Message (B)</p> <p>Removed Time (T) message.</p> <p>Timestamp only contains one part, which is the nanoseconds since Unix Epoch time. Increased the size of Timestamp from 4 to 8 bytes. The offset in all messages are adjusted accordingly.</p> <p>Added Execution Done message</p>
3.01	06/07/2018	<p>Changed Execution Completion Message (G) to read Execution Done Message (D)</p> <p>Added Indicative Pricing Messages types “O” = Indic Open Price, “P” = Indic Previous Close</p>
3.02	06/26/2018	<p>Moved Yield Decimal field up by 2 lines and re-indexed the (M) message</p> <p>Removed 8 unused (reserved) bytes from the end of the (O) message</p> <p>Removed 4 unused (reserved) bytes from the end of the (A) message</p> <p>Moved Order Book ID field up by 2 lines and re-indexed the (B) message</p>
3.03	07/27/2018	<p>In Combination Order Book Directory (M), updated Leg 3. DV01 – DV01 value of Leg 1 to Leg 3.</p>
3.04	08/16/2018	<p>In the Order Book Directory (R) message added 2M to Issued as Benchmark message.</p> <p>Removed Modified Discretion Order Message (J)</p> <p>Update Indicative Pricing Message (Q) description</p>
3.05	09/05/2018	<p>Changed Data Type for Issued as Benchmark in (R) Message from Integer to un-signed integer.</p>
3.06	11/09/2018	<p>Update Indicative Pricing Message (Q) description</p>

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1 Overview

Nasdaq Fixed Income Treasury ITCH is a direct data feed product¹. The ITCH feed contains data describing all public orders and trades that occur on the Nasdaq Fixed Income (NFI) US Treasury alternative trading system (ATS or System) and features the following data elements:

- **Reference Data** – Order book directory messages provide basic security data such as CUSIP, maturity, and coupon rate.
- **Event controls** – such as start of day, end of day and market holidays
- **Order level messages** – full order book depth is published through a series of order messages to track the lifecycle of each customer order.
- **Trade messages** – trade messages will be used to show traded size for discretion and reserve traded size.

¹ ITCH is an outbound market data feed only. The ITCH protocol does not support order entry.

2 Architecture

The ITCH feed consists of a series of sequenced messages, each variable in length based on the message type. ITCH messages are typically delivered by a lower level transport protocol that provides sequencing and delivery guarantees.

Nasdaq Fixed Income Treasury offers the ITCH data feed over MoldUDP64 transport.

3 Data Types

All numeric fields are unsigned integers encoded in network order (big-endian).
All alpha fields are left justified and padded on the right with spaces.

<i>Data Type</i>	<i>Size</i>	<i>Description</i>
Alpha	Variable	Left justified and right padded
Numeric	1,2,4 or 8 bytes	Unsigned integer encoded in network order
Price	4 bytes	Signed integer encoded in network order. The number of decimals is specified in the order book directory message.
Date	4 bytes	Unsigned integer encoded in network order. The value of the field is (year*10000) + (month*100) + day.YYYYMMDD

4 Message Formats

4.1 Timestamp – Nanoseconds

Timestamps will be sent in a nanosecond field inside the messages.

<i>Timestamp</i>	<i>Message Type</i>	<i>Notes</i>
Nanoseconds	Field within individual messages	Unix time (number of nanoseconds since 1970-01-01 00:00:00 UTC). Timestamp will be represented in 8 byte field with: 4 most significant bytes – seconds since Epoch 4 least significant bytes – nanos within second

4.2 Reference Data Messages

4.2.1 Order Book Directory (R)

At the start of each trading day, order book directory messages are sent for all active US Treasury securities in the ATS. Order book directory messages may also be sent intraday when existing securities are modified or new securities are added.

ORDER BOOK DIRECTORY (R)				
<i>Name</i>	<i>Offset</i>	<i>Length</i>	<i>Value</i>	<i>Notes</i>
Message Type	0	1	"R"	Order Book Directory Message
Timestamp - Nanoseconds	1	8	Numeric	Timestamp
Order book ID	9	4	Numeric	Unique identifier of an Order book. This identifier will stay constant until this security is no longer tradable.
Symbol	13	20	Alpha	UST security symbol in the NFI ATS (e.g. 10Y_UST)
Security Description	33	16	Alpha	Instrument Description
CUSIP	49	9	Alpha	CUSIP code identifying security
Reserved	58	1	Numeric	Reserved
Product	59	1	Numeric	Values: 1 = US Treasury (Notes and Bonds) 2 = US Treasury Bills 3 = Reserved 4 = TIPS
Product Subtype	60	1	Numeric	Values: 1 = Benchmark 2 = Off-the-Run 3 = WI

Price Type	61	1	Alpha	<p>Indicates</p> <p>“U” (‘per unit’ price type)</p> <ul style="list-style-type: none"> The security of this type trades in fractions of 256th. <p>“Y” (price as percentage)</p> <ul style="list-style-type: none"> The security of this type trades in Yield. The number of decimal places in price is specified by “Price Decimals” field. <p>“B” (Yield Spread)</p> <ul style="list-style-type: none"> The security of this type trades in basis point. The spread is specified by “Price Decimals” field.
Price Decimals	62	2	Numeric	The number of decimals used in price or yield for this order book in NFI ATS.
Yield Decimals	64	2	Numeric	For securities that do not trade in Yield but will have yield published, this field describes number of decimals for yield field. If Yield Decimals is set to -1 then Yield field should be ignored in all messages for this security.
Coupon Decimals	66	2	Numeric	The number of decimals used in the Coupon field. If Coupon is not used, this field will be set to -1.
Quantity Multiplier	68	4	Numeric	For example, 1 million is used for US Treasury Notes.
Price Tick Size	72	2	Numeric	The price tick for the instrument
Maturity	74	4	Numeric	Maturity date
Coupon	78	4	Numeric	Coupon Rate
Dated Date	82	4	Numeric	Dated Date
Issue Date	86	4	Numeric	Issue Date
Auction Date	90	4	Numeric	Auction Date
Announcement Date	94	4	Numeric	Announcement Date
First Coupon Date	98	4	Numeric	First Coupon Date
Settlement Date	102	4	Numeric	Settlement Date
Index	106	4	Numeric	Index Reference Rate
Spread	110	4	Numeric	Spread Rate
Trading Features	114	2	Numeric	<p>2 Byte field specifying features supported by this security. Supported features are represented by the corresponding bit being set. Bits in hex:</p> <p>0x0001 – Reserved</p> <p>0x0004 - indicative markets supported</p> <p>0x0008 – Discretion supported</p>
Minimum Entry Quantity	116	4	Numeric	The minimum visible quantity of the order allowed to be added to the book.
Minimum Quantity Increment	120	4	Numeric	The minimum increment for visible quantity of the order.

Issued as Benchmark	124	1	Numeric (unsigned)	For old instruments issued as: 102 – 2Y 103 – 3Y 105 – 5Y 107 – 7Y 110 – 10Y 130 – 30Y 1 – 1M 2 – 2M 3 – 3M 6 – 6M 12 – 12M
Reserved	125	3	Numeric	Reserved
Reserved	128	4	Numeric	Reserved
Reserved	132	4	Numeric	Reserved
Minimum Discretion Quantity	136	4	Numeric	The minimum discretion quantity of the order allowed to be added to the book.
Discretion Price Tick Size	140	2	Numeric	Discrete price ticks that are defined as a fraction of one screen price tick for the instrument Values: 1 = whole tick of instrument’s screen price tick 2 = 1/2 of instrument’s screen price tick 4 = 1/4 of instrument’s screen price tick 8 = 1/8 of instrument’s screen price tick
Maximum Discretion Bid/Offer Spread	142	4	Numeric	The visible bid/offer spread on the reference instrument must not exceed this value for discretion orders to trade

4.2.2 Combination Order Book Directory (M)

The Combination Order Book Directory is a specialized directory message used when Combined order books are traded on the NFI ATS. It represents both standard combinations defined by NFI, and customized combinations created by subscribers.

Note: Intraday transmissions of this message may occur when new combination order books are added to the system. This is typically the case for the customized combinations. When key field values such as ratios need to be updated subject to market conditions, this message will also be sent during the trading session when needed. Updates to existing combination order books may also be represented by intraday Combination Order book Directory messages.

COMBINATION ORDER BOOK DIRECTORY (M)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"M"	Combination Order Book Directory Message
Timestamp - Nanoseconds	1	8	Numeric	Timestamp
Order book ID	9	4	Numeric	Unique identifier of an Order book. This identifier will stay constant until the security is no longer tradable.
Symbol	13	20	Alpha	UST security symbol in the NFI ATS
Security Description	33	16	Alpha	Instrument Description
CUSIP	49	9	Alpha	Where applicable
Reserved	58	1	Numeric	Reserved
Product	59	1	Numeric	Values: 1 = US Treasury Coupon Roll 2 = US Treasury Bill Roll 3 = Reserved 4 = TIPS Roll 5 = Reserved 6 = Curve / Butterflies
Price Type	60	1	Alpha	Indicates "U" ('per unit' price type) <ul style="list-style-type: none"> The security of this type trades in fractions of 256th. "Y" (price as percentage) <ul style="list-style-type: none"> The security of this type trades Yield. The number of decimal places in price is specified by "Price Decimals" field. "B" (Yield Spread) <ul style="list-style-type: none"> The security of this type trades in basis point. The spread is specified by "Price Decimals" field.
Price Decimals	61	2	Numeric	The number of decimals used in price or yield or spread for this order book in NFI system.
Yield Decimals	63	2	Numeric	For securities that do not trade in Yield but will have yield published, this field describes number of decimals for yield field. If Yield Decimals is set to -1, then Yield field should be ignored in all messages for this security.
Quantity Multiplier	65	4	Numeric	For example, 1 million is used for US Treasury Notes.
Price Tick Size	69	2	Numeric	The price tick for the instrument
Odd Lot Size	71	4	Numeric	Indicates the number of securities that represent an odd lot for the order book. Note: A value of 0 indicates that this lot type is undefined for the order book.
Reserved	75	4	Numeric	Reserved
Nominal Value	79	8	Numeric	Nominal Value
Number of Legs	87	1	Numeric	Indicate how many legs of a combination instrument has
Leg 1, Symbol	88	20	Alpha	Leg Symbol

Leg 1, Side	108	1	Alpha	Values: B = As Defined C = Opposite
Leg 1, DV01	109	2	Numeric	DV01 value of leg 1
Leg 1 Quantity Multiplier	111	1	Numeric	The fixed ratio which defines the allowed quantity that can be traded
Leg 2, Symbol	112	20	Alpha	Leg Symbol
Leg 2, Side	132	1	Alpha	Values: B = As Defined C = Opposite
Leg 2, DV01	133	2	Numeric	DV01 value for leg 2
Leg 2 Quantity Multiplier	135	1		The fixed ratio which defines the allowed quantity that can be traded
Leg Ratio 1	136	2	Numeric	Leg ratio used for implied trading derived from DV01 values
Leg 3, Symbol	138	20	Alpha	Leg Symbol
Leg 3, Side	158	1	Alpha	Values: B = As Defined C = Opposite
Leg 3, DV01	159	2	Numeric	DV01 value of leg 3
Leg 3 Quantity Multiplier	161	1	Numeric	The fixed ratio which defines the allowed quantity that can be traded
Leg Ratio 2	162	2	Numeric	The ratio used for implied trading that is applied for 3 leg combination instrument
Maximum Spread Tolerance 1	164	2	Numeric	The maximum spread defined for the short duration leg
Maximum Spread Tolerance 2	166	2	Numeric	The maximum spread defined for the middle duration leg
Trading Features	168	2	Numeric	2 Byte field specifying features supported by this security. Supported features are represented by the corresponding bit being set. Bits in hex: 0x0001 - Reserved 0x0002 - Security supports implied trading through legs. 0x0004 - Indicative markets supported 0x0008 - Discretion supported
Minimum Entry Quantity	170	4	Numeric	The minimum visible quantity of the order allowed to be added to the book.
Minimum Quantity Increment	174	4	Numeric	The minimum increment for visible quantity of the order.
Reserved	178	4	Numeric	Reserved
Reserved	182	4	Numeric	Reserved
Reserved	186	4	Numeric	Reserved
Minimum Discretion Quantity	190	4	Numeric	The minimum discretion quantity of the order allowed to be added to the book.

Discretion Price Tick Size	194	2	Numeric	Discrete price ticks that are defined as a fraction of one screen price tick for the instrument Values: 1 = whole tick of instrument's screen price tick 2 = 1/2 of instrument's screen price tick 4 = 1/4 of instrument's screen price tick 8 = 1/8 of instrument's screen price tick
Maximum Discretion Bid/Offer Spread	196	4	Numeric	The visible bid/offer spread on the reference instrument must not exceed this value for discretion orders to trade

4.3 Event and State Change Message

4.3.1 System Event Message (S)

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

SYSTEM EVENT MESSAGE (S)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"S"	System Event Message
Timestamp	1	8	Numeric	Timestamp
Reserved	9	1	Numeric	Reserved
Event Code	10	1	Alpha	See System Event Codes below.
Event Reason	11	1	Alpha	Please see the System Event Reason Table
Order book ID	12	4	Numeric	Used to identify if the event applies to a single order book within the Trading System. Order book Code set to 0 if the event applies at a System level.

The system supports the following event codes on a daily basis on the ITCH data feed.

SYSTEM EVENT CODES – DAILY	
Code	Explanation
"O"	<i>Start of Messages.</i> Outside of time stamp messages, the start of day message is the first message sent in any trading day. This indicates the System is enabled.
"Q"	<i>Start of Trading Session hours.</i> This message is intended to indicate that NFI trading system is open and ready to trade
"M"	<i>End of Trading Session hours.</i> This message is intended to indicate that NFI trading session is closed and no orders are available for execution.
"C"	<i>End of Messages.</i> This is always the last message sent in any trading day. This indicates the system is disabled.

SYSTEM EVENT REASON	
Reason	Explanation
"I"	Accepting/Holiday session starts. This is applicable to Japan holidays
"A"	Break. This is applicable to potential breaks including UK Holidays
"B"	Resumption after Break. This is applicable potential breaks and resumptions including UK holidays
"H"	Early Close. This indicates the early market close
"R"	Regular start of the day or end of the day.

4.3.2 Order Book State Message (O)

The Order book state message relays information on state changes

ORDER BOOK STATE MESSAGE (O)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"O"	Order book State Message.
Timestamp – Nanoseconds	1	8	Numeric	Timestamp
Order Book ID	9	4	Numeric	Order book identifier
Security Event Code	13	1	Alpha	See Security Event Code below

The order book supports the following event codes on a daily basis on the ITCH data feed.

SECURITY EVENT CODES – DAILY	
Code	Explanation
"O"	Security is enabled for trading – enabled by default.
"M"	Security is disabled for trading and will be reset with new directory message.
"H"	Security is halted.

4.4 Add Order Message

An Add Order Message indicates that a new order has been accepted by the NFI ATS and was added to the displayable book.

The message includes a trading day unique Order Reference Number that is unique per Order book used by NFI to track the order.

NFI only supports Add Order – No MPID Attribution message format.

4.4.1 Add Order – No MPID Attribution (A)

This message will be generated for unattributed orders accepted by the NFI ATS.

ADD ORDER MESSAGE (A)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"A"	Add Order – No MPID Attribution Message
Timestamp – Nanoseconds	1	8	Numeric	Timestamp
Order Reference Number	9	4	Numeric	The unique reference number assigned to the new order at the time of receipt.
Transaction ID	13	4	Numeric	Transaction ID corresponding to the transaction ID in the response message.
Order book ID	17	4	Numeric	Unique Order book identifier of an instrument
Side	21	1	Alpha	The type of order being added. Values: "B" = Buy order "S" = Sell order
Quantity	22	4	Numeric	The visible quantity of the order being added to the book.
Price	26	4	Price	The display price of the new order. Note: Negative value is supported for spread trades
Yield	30	4	Price	The display yield of the new order. Optional field. If Yield Decimals was set to -1 then this field should be ignored.

4.5 Modify Order Messages

Modify Order messages always include the Order Reference Number, Order book ID and side of the Order to which the update applies.

To track the display quantity for an order, ITCH subscribers must deduct the quantity in Cancel (X) and Execution messages (E and C) from the last known display quantity.

Orders should be removed from the book when their display quantity reaches zero.

4.5.1 Order Executed Message (E)

This message is sent whenever an order in the book is executed in whole or in part.

If the incoming order causing the match cannot be fully filled, the remainder will be placed in the book after the match has occurred.

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. The multiple Order Executed messages resulting from the same aggressive order will have same Transaction ID.

ORDER EXECUTED MESSAGE (E)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"E"	Order Executed Message
Timestamp - Nanoseconds	1	8	Numeric	Timestamp
Order Reference Number	9	4	Numeric	The order reference number associated with the executed order.
Transaction ID	13	4	Numeric	Transaction ID corresponding to the transaction ID in the response message.
Order book ID	17	4	Numeric	Unique Order book identifier
Side	21	1	Alpha	The type of order being traded. Values: "B" = Buy order "S" = Sell order
Executed Quantity	22	4	Numeric	The quantity executed
Match ID	26	14	Alpha	The day unique Match Number of this execution
Trade Price	40	4	Price	The price at which the order execution occurred

4.5.2 Order Executed With Price Message (C)

This message is sent in the event that an order in 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, NFI includes a price field within this execution message.

If the incoming order causing the match cannot be fully filled, the remainder will be placed in the book after the match has occurred.

It is possible to receive multiple Order Executed and Order Executed With Price messages for the same order if that order is executed in several parts. Multiple Order Executed messages for the same order are cumulative.

These executions may be marked as non-printable. If a firm intends to use the data in time-and-sales displays or volume calculations, Nasdaq Fixed Income recommends that firms ignore messages marked as non-printable to prevent double counting.

ORDER EXECUTED WITH PRICE MESSAGE (C)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"C"	Order Executed Message
Timestamp - Nanoseconds	1	8	Numeric	Timestamp
Order Reference Number	9	4	Numeric	The unique reference number associated with the executed order
Transaction ID	13	4	Numeric	Transaction ID corresponding to the transaction ID in the response message
Order book ID	17	4	Numeric	Unique Order book identifier
Side	21	1	Alpha	The type of order being traded. Values: "B" = Buy order "S" = Sell order
Executed Quantity	22	4	Numeric	The quantity executed
Match ID	26	14	Alpha	The unique Match Number assigned by the System of this execution
Printable	40	1	Alpha	Indicates if the execution should be reflected on time and sale displays and volume calculations. Values: "N" = non-printable "Y" = printable
Trade Price	41	4	Price	The price at which the order execution occurred
Trade Yield	45	4	Numeric	The yield at which the order execution occurred. This field is optional and will be present only for securities that do not trade in yield and require yield. If Yield Decimals was set to -1 then this field should be ignored.

4.5.3 Order Cancel Message (X)

This message is sent whenever an order in the book is modified as a result of either a partial cancellation or complete cancellation. When the display quantity for the retained size reaches zero, the order should be removed from the book.

ORDER CANCEL MESSAGE (X)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"X"	Order Cancel Message
Timestamp - Nanoseconds	1	8	Numeric	Timestamp
Order Reference Number	9	4	Numeric	The reference number of the order being reduced.
Transaction ID	13	4	Numeric	Transaction ID corresponding to the transaction ID in the response message.
Order book ID	17	4	Numeric	Unique Order book identifier of a UST security
Side	21	1	Alpha	The type of order being added. Values: "B" = Buy order "S" = Sell order
Canceled Quantity	22	4	Numeric	The quantity being removed from the display size as the result of a cancellation.

4.6 Trade Messages

4.6.1 Trade Message (P)

The Trade Message provides execution details for non-displayable order types and reserve portion of orders. In the case of dark trades such as discretion, this message will be used to publish incremental volume traded on a delayed basis. Trade Flag field indicates if an update is real time or delayed.

TRADE MESSAGE (P)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"P"	Trade Message
Timestamp - Nanoseconds	1	8	Numeric	Timestamp
Order book ID	9	4	Numeric	Unique Order book identifier
Transaction ID	13	4	Numeric	Transaction ID corresponding to the transaction ID in the response message. Value is set to 0 for delayed updates
Executed Quantity	17	4	Numeric	The quantity executed. Note: in the case of dark trades, the incremental traded volume is published on a delayed basis.
Match ID	21	14	Alpha	The day unique Match Number of this execution. This field will be set to blanks if trade message specifies the incremental quantity traded for some period of time instead of reporting every non-displayable execution.
Trade Price	35	4	Price	The execution price or average execution price. Value is set to 0 for delayed updates.
Discretion Ticks	39	1	Numeric	Number of discretion ticks for specified discretion quantity
Trade Flag	40	1	Numeric	0x01 - Delayed Update (Real time if not set)

4.6.2 Execution Done Message (D)

Execution Done Message is a marker indicating all executions for a given transaction have been sent out. This message will be issued after all published executions and will specify completed transaction ID.

EXECUTION DONE MESSAGE (D)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"D"	Execution Done Message.
Timestamp - Nanoseconds	1	8	Numeric	Timestamp of the last execution included in this transaction.
Order book ID	9	4	Numeric	Unique Order book identifier
Transaction ID	13	4	Numeric	Transaction ID corresponding to the transaction ID for all executions

4.7 Discretion Messages

New Add and Modify Discretion Order messages are defined to represent additional liquidity available on NFI ATS. Consumers will be able to see if Discretion is available (via tick fields) along with the visible order size. Execution details for Discretion orders will be published via Trade Message (P) on a delayed basis.

4.7.1 Add Discretion Order Message (H) – No MPID Attribution

A Discretion order will be added as an order with bid/offer price and Discretion tick. NFI will only publish visible portion of a Discretion order.

ADD DISCRETION ORDER MESSAGE (H)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"H"	Add Discretion Order – No MPID Attribution Message.
Timestamp – Nanoseconds	1	8	Numeric	Timestamp
Order Reference Number	9	4	Numeric	The unique reference number assigned to the new order at the time of receipt.
Transaction ID	13	4	Numeric	Transaction ID corresponding to the transaction ID in the response message.
Order book ID	17	4	Numeric	Unique Order book identifier of an instrument
Side	21	1	Alpha	The type of order being added. Values: "B" = Buy order "S" = Sell order
Quantity	22	4	Numeric	The visible quantity of the discretion order being added to the book.
Price	26	4	Price	The display price of the new discretion order.
Yield	30	4	Price	The display yield of the new order. Optional field. If Yield Decimals was set to -1 then this field should be ignored.
Discretion Ticks	34	1	Numeric	Number of discretion ticks for specified discretion quantity.

4.8 Indicative Pricing Message (Q)

This message will publish closing and reference prices throughout the day, and may also be used to provide implied pricing for curve trading in the future. It may be updated periodically through a trading session.

INDICATIVE PRICING MESSAGE (Q)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"Q"	Indicative pricing Message
Timestamp – Nanoseconds	1	8	Numeric	Timestamp
Order book ID	9	4	Numeric	Unique Order book identifier of an instrument
Price	13	4	Price	The indicative price for a curve instrument It will be quoted in Yield Spread
Yield	17	4	Price	The yield for indicative price. Optional field. If Yield Decimals was set to -1 then this field should be ignored.
Type	21	2	Alpha	Indicate indicative price type. First Byte is currently zero (0) for all values: "0B" = Bid "0A" = Ask "0P" = Indic Previous Close "0T" = Indic Asia Close (02:00 EST) "0L" = Indic London Close (11:00 EST) "0N" = Indic NY Close (15:00 EST)

4.9 Broken Trade Message (B)

The Broken Trade Message is sent when NFI determines an execution is broken pursuant to NFI's Error Trade Policy. Once a trade is broken, it cannot be reinstated. It has no impact on the current book; however, firms that use this ITCH feed to calculate market statistics should be prepared to process the broken trade message.

BROKEN TRADE MESSAGE (B)				
Name	Offset	Length	Value	Notes
Message Type	0	1	"B"	Broken Trade Message
Timestamp – Nanoseconds	1	8	Numeric	Timestamp
Order book ID	9	4	Numeric	Unique Order book identifier of an instrument
Transaction ID	13	4	Numeric	Transaction ID corresponding to the transaction ID in the response message.
Executed Quantity	17	4	Numeric	The quantity executed. Note: in the case of dark trades, the incremental traded volume is published on a delayed basis.
Match ID	21	14	Alpha	The day unique Match Number of an execution. This field will be set to blanks if trade message specifies the incremental quantity traded for some period of time instead of reporting every non-displayable execution.
Trade Price	35	4	Price	The execution price or average execution price. Value is set to 0 for a delayed update.
Discretion Ticks	39	1	Numeric	Number of discretion ticks for specified discretion quantity.