



Dear Member,

As listing exchanges are making preparations to begin using 5 character root symbology, **BATS will be updating technical specifications for various protocols including TCP PITCH, TCP FASTPITCH, Multicast PITCH, TOP and DROP**. As BATS suffix symbology supports up to 3 character suffixes, the referenced specifications have been updated to accommodate symbol sizes up to 8 characters in length. To minimize member impact regarding implementation of specification changes, BATS worked in conjunction with Nasdaq and Direct Edge to coordinate similar specification changes for the following protocols:

- BATS TCP PITCH, Nasdaq ITCH and Direct Edge Next Gen Unicast Market Data
- BATS DROP and Nasdaq DROP
- BATS Multicast PITCH and Direct Edge Next Gen Multicast Market Data

**Protocol Updates**

With respect to Multicast PITCH, TCP PITCH and TOP, new long/expanded form messages have been created in support of a larger symbol size. This will allow members to deploy forward compatible support for the new messages anytime before the new messages are sent.

Given that the DROP protocol has one record type, changes to this protocol will require members to be ready for a hard cut to the new protocol on the date it is scheduled to be updated within the BATS production environment. If members use the embedded comma delimiters versus the field lengths, they can deploy forward compatible support for changes to DROP immediately.

Members using TCP FASTPITCH will have to get the latest FASTPITCH decoder (v1.2) in addition to supporting the new messages in the TCP PITCH feed.

Protocol specific updates are described further below and technical specifications on the public web-site include references to the changes:

- [Multicast PITCH Specification](#)
- [PITCH Specification](#)
- [FASTPITCH Specification](#)
- [TOP Specification](#)
- [DROP Specification](#)

**Implementation Timeline**

New protocols will be available for testing in the BATS Certification environment by February 1, 2010.

As NYSE has indicated they may begin activating symbols with a 5 character root as early as Monday, April 5, 2010, **expanded messages (Multicast/TCP/FAST PITCH and TOP) may be sent in production starting Monday, April 5, 2010. The hard cut of DROP to the long format will be effective April 5, 2010.**

**Multicast PITCH**

**Add Order Message – Expanded Form (NEW)**

Similar to Add Order Message – Long Form, with longer field for Stock Symbol.

Field Name	Offset	Length	Type/(Value)	Description
Length	0	1	Binary	Length of this message including this field
Message	1	1	0x2F	Add Order Message (expanded)



<b>Type</b>				
Time offset	2	4	Binary	Nanosecond offset from last unit timestamp
Order Id	6	8	Binary	Day-specific identifier assigned to this order
Side Indicator	14	1	Alphanumeric	"B" = Buy Order "S" = Sell Order
Shares	15	4	Binary	Number of shares being added to the book (may be less than the number of shares entered).
Stock Symbol	19	8	Alphanumeric	Stock symbol right padded with spaces.
Price	27	8	Binary Long Price	The limit order price
Add Flags	35	1	Bit Field	Bit 0 – Display 0 – Not displayed in SIP 1 – Displayed in SIP
<b>Total Length = 36 bytes</b>				

### Trade Message – Expanded Form **(NEW)**

Similar to Trade Message – Long Form, with longer field for Stock Symbol.

Field Name	Offset	Length	Value	Description
Length	0	1	Binary	Length of this message including this field
Message Type	1	1	0x30	Trade Message (expanded)
Time offset	2	4	Binary	Nanosecond offset from last unit timestamp
Order Id	6	8	Binary	Order Id of the non-displayed executed order.
Side Indicator	14	1	Alphanumeric	Always "B" for hidden trades.
Shares	15	4	Binary	Incremental Number of shares executed
Stock Symbol	19	8	Alphanumeric	Stock symbol right padded with spaces.
Price	27	8	Binary Long Price	The execution price of the order
Execution Id	35	8	Binary	BATS generated day-unique execution identifier of this trade. Execution Id is also referenced in the Trade Break Message.
<b>Total Length = 43 bytes</b>				

### TCP PITCH



### Add Order Message – Long Form **(NEW)**

Similar to Add Order Message – Short Form, but with longer field for Stock Symbol.

Field Name	Offset	Length	Value	Description
Timestamp	0	8	Numeric	Timestamp
Message Type	8	1	"d"	Add Order Message (long)
* Order Id	9	12	Base Numeric 36	Day-specific identifier assigned to this order
Side Indicator	21	1	Alpha	"B" = Buy Order "S" = Sell Order
Shares	22	6	Numeric	Number of shares being added to the book (may be less than the number of shares entered).
Stock Symbol	28	8	Alphanumeric	Stock symbol right padded with spaces.
Price	36	10	Numeric	The limit order price
Display	46	1	Y	"Y" = displayed in the quote BATS does not support Member Only orders.

### Trade Message – Long Form **(NEW)**

Similar to Trade Message – Short Form, with longer field for Stock Symbol.

Field Name	Offset	Length	Value	Description
Timestamp	0	8	Numeric	Timestamp
Message Type	8	1	"r"	Trade Message (long)
* Order Id	9	12	Base Numeric 36	Order Id of the non-displayed executed order.
Side Indicator	21	1	Alpha	"B" = Buy Order "S" = Sell Order
Shares	22	6	Numeric	Incremental Number of shares executed
Stock Symbol	28	8	Alphanumeric	Stock symbol right padded with spaces.
Price	36	10	Long Price	The execution price of the order
* Execution Id	46	12	Base Numeric 36	BATS generated day-unique execution identifier of this trade. Execution Id is also referenced in the Trade Break Message.

### TCP FASTPITCH

With respect to TCP FASTPITCH, a new FASTPITCH decoder and 2 new message type sizes must be taken into account. The new uncompressed SOUP wrapped PITCH messages are of the following sizes:

Add Order (long)	49 bytes
Trade (long)	60 bytes



The new FASTPITCH decoder (v1.2) is available at <http://www.batstrading.com/resources/membership/batsfastpitch.zip>.

## DROP

### Trade Message Format (***MUST MODIFY EXISTING MESSAGE***)

Field Name	Offset	Length	Type	Sample	Description
Timestamp	0	9	Timestamp	12345.123	The time the trade occurred on BATS accurate to the nearest millisecond.
Sender Comp Id	10	4	Alphanumeric	ABCD	Sending Firm
Sender Sub Id	15	4	Alphanumeric	0001	The firm port identifier where the order originated.
Clearing Firm	20	4	Alphanumeric	WXYZ	The clearing MPID.
User	25	4	Alphanumeric	A001	User defined pass through value to distinguish trading activity. Matches FIX ClearingAccount (tag 440) or onBehalfOfSubId (tag 116) field.
Client Order Id	30	24	Alphanumeric	j4I9000T00	The client order identifier specified on order entry.
Order Id	55	15	(12 char) Base 36 Numeric + '.' + (2 char) Base 36 Numeric	1CW7A0000001.02	Day-unique order identifier assigned by BATS to this order. The first 12 characters match the Order Id seen in FIX & PITCH. The two character base 36 number after the



					dot indicates the number of times the order was modified. The full 15 character Order Id matches the Order Id used for trade reporting and OATS.
Execution Id	71	12	Base 36 Numeric	12W7A0000001	Day-unique execution identifier assigned by BATS to this execution.
Symbol	84	8	Alpha	MSFT	The stock symbol.
Side	93	1	Alpha	B	The side of the execution. B=Bought, S=Sold, T=Sold Short (member affirmed ability to borrow).
Price	95	11	Price 6.4	000025.5100	Execution price.
Shares	107	6	Numeric	100000	Number of shares executed.
Capacity	114	1	Alpha	P	FIX 4.2 OrderCapacity (Tag 47) value (e.g. "P"=Principal).
Liquidity	116	1	Alpha	A	"A"=Added, "R"=Removed, "X"=Routed.
Clearing Method	118	1	Alpha	Q	Deprecated. Always filled with 'Q'.
Exchange Access Fee	120	12	+/-Price 5.5	+99999.99999 -99999.99999	(+) Fee or (-) rebate for the entire



					execution based on BATS access fee policies.
Member Id	133	4	Alphanumeric	ABCD	BATS Assigned Member Id (the MPID which will clear the trade is found in the "Clearing Firm" field above).

## TOP

### Spin Message (Server) Expanded Format (**NEW**)

Similar to Spin Message (Server) – Short Form, with longer field for Symbol.

Field Name	Offset	Length	Value	Description
Message Type	0	1	"s"	Spin message
Timestamp	1	8	Timestamp	Time of top of book update; milliseconds since midnight, Eastern time
Symbol	9	8	Alpha	Symbol
Bid Price	17	10	Price	Bid price; 0 if no bids
Bid Quantity	27	6	Numeric	Bid quantity; 0 if no bids
Ask Price	33	10	Price	Ask price; 0 if no offers
Ask Quantity	43	6	Numeric	Ask quantity; 0 if no offers
Last Trade Time	49	8	Timestamp	Time of last trade; milliseconds since midnight, Eastern time
Last Trade Price	57	10	Price	Last trade price; 0 if no trades
Last Trade Size	67	6	Numeric	Last trade size; 0 if no trades
Cumulative Volume	73	9	Numeric	Cumulative volume executed today; 0 if no trades
\n	82	1	\n	End of message

### Expanded Bid Update Message (Server) (**NEW**)

Similar to Long Bid Update Message (Server), with longer field for Symbol.

Field Name	Offset	Length	Value	Description
Message Type	0	1	"E"	Long Bid Update message



Symbol	1	8	Alpha	Symbol
Bid Price	9	10	Price	Bid price; 0 if no bids
Bid Quantity	19	6	Numeric	Bid size; 0 if no bids
\n	25	1	\n	End of message

### Expanded Ask Update Message (Server) (**NEW**)

Similar to Long Ask Update Message (Server), with longer field for Symbol.

Field Name	Offset	Length	Value	Description
Message Type	0	1	"e"	Long Ask Update message
Symbol	1	8	Alpha	Symbol
Ask Price	9	10	Price	Ask price; 0 if no offers
Ask Quantity	19	6	Numeric	Ask size; 0 if no offers
\n	25	1	\n	End of message

### Expanded Two-Sided Update Message (Server) (**NEW**)

Similar to Long Two-Sided Update Message (Server), with longer field for Symbol.

Field Name	Offset	Length	Value	Description
Message Type	0	1	"F"	Long Two-Sided Update message
Symbol	1	8	Alpha	Symbol
Bid Price	9	10	Price	Bid price; 0 if no bids
Bid Quantity	19	6	Numeric	Bid size; 0 if no bids
Ask Price	25	10	Price	Ask price; 0 if no offers
Ask Quantity	35	6	Numeric	Ask size; 0 if no offers
\n	41	1	\n	End of message

### Expanded Trade Message (Server) (**NEW**)

Similar to Long Trade Message (Server), with longer field for Symbol.

Field Name	Offset	Length	Value	Description
Message Type	0	1	"f"	Long Trade message
Symbol	1	8	Alpha	Symbol
Last Price	9	10	Price	Last trade price
Last Quantity	19	6	Numeric	Last trade quantity
Cumulative Volume	25	9	Numeric	Cumulative number of shares traded today
\n	34	1	\n	End of message

Please contact the BATS Trade Desk or your Director of Sales with any questions. Thank you for your continued support of BATS.

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