

# MDP 3.0 - High Bid and Low Ask

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The high bid and low ask prices are used to indicate the highest bid and lowest ask prices of the session. These prices are useful in tracking market behavior.

The high bid and low ask statistics are sent in continuous trading state only and are based on the arriving order price if it is better than previously reported high bid or low ask price for the session.

## FIX Syntax for High Bid - Market Data Incremental Refresh (tag 35-MessageType=X)

Tag Number	Tag Name	Value	Description
279	MDUpdateAction	0	0 = new. Type of Market Data update action.
269	MDEntryType	N	N = session high bid. Type of Market Data entry.
48	SecurityID		Unique instrument ID as qualified by the exchange.
83	RptSeq		Sequence number per Instrument update.
270	MDEntryPx		Price of the Market Data Entry


## FIX Syntax for Low Ask - Market Data Incremental Refresh (tag 35-MessageType=X)

Tag Number	Tag Name	Value	Description
279	MDUpdateAction	0	0 = new. Type of Market Data update action.
269	MDEntryType	O	O = session low ask. Type of Market Data entry.
48	SecurityID		Unique instrument ID as qualified by the exchange.
83	RptSeq		Sequence number per Instrument update.
270	MDEntryPx		Price of the Market Data Entry

## High Bid and Low Ask Examples

### Example 1: The First High Bid/Low Ask Statistics after Opening

After a group transitions to an Open state, the orders that remain on the book will determine the initial High Bid and Low Ask.

 The orders remaining on the book after the opening event are displayed below.

Bid		Ask	
Qty	Price	Price	Qty
		1177.3	25
		1177.9	5
10	1176.8		
20	1176.0		

As the instrument opens with orders remaining from the pre-open, the following market data is reported:

High Bid = **1176.8** (Tag 269 = N and tag 270 = 1176.8)

Low Ask = **1177.3** (Tag 269 = O and tag 270 = 1177.3)

### Example 2: High Bid / Low Ask Statistics Calculations at the Open

Whenever a group or an instrument transitions from non-trading state to a trading state:

- Orders left on the book following an opening will be evaluated in order to generate a better high bid / low ask statistics compared to the previous high bid / low ask for the instrument or the side.
  - If there are orders remaining in the book from the first pre-open of the day, the top of book price of each side will be sent as the High Bid / Low Ask respectively.
  - High Bid / Low Ask will not be sent if there are no orders in the book after the opening event, even in situations where there was an IOP generated or trades occurred at the opening.

High Bid / Low Ask verifications will be applied to any group open during the trading day.

- There may be several group opens in a trading date due to software or hardware problems, or market events. The orders remaining in the book after the re-open will be compared to previously sent statistics for each instrument in the group every time there is a group open message.

The verifications will also be applied to instrument level Open events, e.g. Reserve to Open (Velocity Logic) or manual instrument Pause to Open.

- If Stop orders are elected as part of Reserve to Open and as a result are resting in the book, then the new book messages will be compared to the previous high bid / low ask. If they are better, they will be updated and disseminated to customers.

### **Example 3: High Bid / Low Ask Statistics Calculation for Aggressing Orders**

If an Aggressing Order automatically trades and does not rest on the book, it will not be factored into the High Bid / Low Ask calculations. If an Aggressing Order partially trades and the balance rests on the book, the order's price will be used to calculate the High Bid or Low Ask.

All other orders will continue to be included in the calculations regardless of any comparisons to previous day's Settlements, Last Trades, etc.

### **Example 4: Illiquid Markets**

If there are no orders in a book or a very wide bid/ask spread and, for example a buy order is placed above the previous day's settlement price and is cancelled before it is traded, it will generate a High Bid message upon entry into the book.