



Market Data Platform FIX/FAST

NYMEX® Futures on the CME Globex® Platform

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1. NYMEX Market Data

This section provides information for client systems receiving FIX/FAST compressed NYMEX Energy market data via CME Market Data Platform FIX/FAST. For a complete listing of CME market data messages, please refer to the [Market Data Platform FIX/FAST FIX Message Specification](#).

Consistent with current CME policy, CME-disseminated NYMEX market data used for trading purposes via order-routing systems is fee-waived. To redistribute any NYMEX market data for non-trading purposes, whether sourced from CME or NYMEX, customers are required to execute the NYMEX Market Data Agreement. Contact NYMEX Market Data Services at MarketDataServices@nymex.com for more information and a copy of the Agreement.

CME supports a top five depth of market for electronically traded NYMEX futures products. NYMEX data redistributors may combine depth of market with top-of-book data so long as the NYMEX Market Data Agreement has been executed.

Note: Settlement price information is disseminated via the Market Data Incremental Refresh (tag 35-MsgType=X) message.

1.1 Market Data Platform FIX/FAST

CME supports a top-five depth of market for electronically traded NYMEX products. NYMEX data redistributors may combine depth of market with top-of-book data so long as the NYMEX Market Data Agreement has been executed.

1.1.1 Implied Functionality

The CME Globex platform supports implied functionality on the first 24 months of all available NYMEX Energy futures. Instruments are designated as eligible for implied trading by the value '3' in tag 1144-ImpliedMarketIndicator of the Security Definition (tag 35=d) message. Implied functionality is supported during all trading hours on the CME Globex platform. Stop Price Logic (SPL) is not available for implied instruments.

1.1.2 Implied IN and OUT Crack Spreads

Implied Crack spreads support "IN" and "OUT" implied functionality as follows:

- The CME Globex platform generates implied IN orders by calculating a spread price based on resting outright bids and offers.
- CME Globex generates implied OUT orders by calculating a synthetic leg price based on resting outright bids or offers and the actual resting bid or offer in the Crack spread.



CAUTION

CME Globex does not disseminate implied OUT prices for 1:1 Cracks. CME Globex does not support second-generation implieds and does not generate market data message for 1:1 Crack legs.

1.1.3 Price Rounding for Implied Crack Spreads: Market Data Dissemination

The CME Globex platform applies price rounding to all implied market data for Crack spreads as follows:

- Resting bids and offers on the underlying legs create implied Crack spreads at actual calculated prices
 - Implied bids display at a price rounded down to the next whole tick price
 - Implied offers display at a price rounded up to the next whole tick price
 - Arriving orders that trade with an implied bid or offer generate Market Data Incremental Refresh (tag 35-MsgType=X) messages with the Last Price and Trade data blocks at the displayed implied price.
- Resting Crack spread orders create implied out bids and offers to the legs of the Crack spread
 - Implied bids on the legs trade at whole tick increments, rounded down to the next whole tick increment, but do not display
 - Implied offers on the legs trade at whole tick increments, rounded up to the next whole tick increment, but do not display
- Due to these rounded prices, resting bids and offers in Crack spreads may receive executions at a price fractionally better than the displayed price. In these instances market data is sent at the displayed resting order price.
- These rounded values are disseminated in tag 270-MDEntryPx of the Market Data Incremental Refresh (tag 35-MsgType=X) message Last Price and Trade data blocks upon trade execution. The CME Globex platform sends the Market Data Incremental Refresh message for the 1:1 Crack spread but not for the legs of 1:1 Crack spreads.

1.1.4 Rules for Determining Implied 1:1 Crack Spread Prices

Due to the tick value differentials, implied pricing on 1:1 Crack spreads has specific rules for displayed prices and traded prices.

- Implied IN orders are disseminated for 1:1 Crack spreads.
- Implied OUT orders are not disseminated for 1:1 Crack spreads.

1.1.5 IMPLIED INs

- Implied "IN" quotes are created by calculating the price of a spread based on resting Bids and Offers in the outright futures contracts involved in the spread. Crack 1:1 implied IN spreads trade in fractional (non-standard) prices, but display at whole prices.
- The calculations for implied prices are the same as spread pricing rules (Crack Spread Price = $[(42 * \text{Leg 1})/100] - \text{Leg 2}$).
- Implied Bid prices always round down for display.
- Implied Offer prices always round up for display.

Implied IN Bid Rounding

1. There is a Bid in BHU8 = 14890
2. There is an Ask in WSU8= 6147

3. This creates an Implied Bid in the Crack 1:1 spread for BH-WS at 106

- WS:C1 BH-WS U8 = $[(14890*42)/100] - 6147$
 - WS:C1 BH-WS U8 = 106.8
 - Round the Implied Bid down for display = 106

Implied IN Offer Rounding

1. There is an Ask in BHU8 = 14890

2. There is a Bid in WSU8 = 6147

3. This creates an Implied Offer in the Crack 1:1 spread for BH-WS at 107

- WS:C1 BH-WS U8 = $[(14890*42)/100] - 6147$
 - WS:C1 BH-WS U8 = 106.8
 - Round the Implied Offer up for display = 107
- Trades with Implied "IN" Crack Spreads generate executions to users at actual traded prices.

Execution Messages for Trade against Implied IN

- Arriving order to Sell at a price of 106 in the Crack 1:1 BH-WS spread:
- Execution Report (tag 35-MessageType = 8):
 - Sold WS:C1 BH-WS U8 @ 106.8
 - Sold BHU6 @ 14890
 - Bought WSU6 @ 6147
- Execution Report (tag 35-MessageType = 8):
 - Bought BHU8 @ 14890
- Execution Report (tag 35-MessageType = 8):
 - Sold WSU8 @ 6147
- A Market Data Incremental Refresh indicating trade and last best price is sent for the Crack Spread.
- A Market Data Incremental Refresh message indicating trade and last best price is sent for each leg of the Crack Spread.

Implied OUTs

- Implied "Out" quotes are created by calculating the price of a leg due to resting Bids or Offers in the other outright futures contract and the actual resting bid or offer in the Crack Spread.
- Implied OUTs in the Crack 1:1 spreads do not display but do trade. Implied OUT orders are only generated (never displayed) at whole tick prices as follows:
- Bids always round lower to the next whole price.
- Offers always round higher to the next whole price.

- Implied OUT orders never trade at fractional prices. Implied OUTs in the Crack 1:1 spreads are never used for second-generation calculations. Implied OUT orders never trade at fractional prices. The rounded price is assigned to the arriving leg and the actual price to the resting leg; CME Globex adjusts the Crack Spread accordingly.

Implied OUT Bid Rounding

1. There is a Bid in BHU8 = 14890
 2. There is an Ask in the Crack 1:1 spread for BH-WS at a price of 105
 3. WS:C1 BH-WS U8 = 105
 4. This creates a non-disseminated Implied Bid in WSU8 at 6148
- $WSU6 = [(14890 * 42) / 100] - 105$
 - WSU8 = 6148.8
 - Round the Implied Bid down to a price of 6148
5. The order will work at a price of 6148, but is not disseminated since it is an Implied OUT order.

Implied OUT Offer Rounding

1. There is an Offer in BHU8 = 14890
 2. There is a Bid in the Crack 1:1 spread for BH-WS at a price of 105
 3. WS:C1 BH-WS U8 = 105
 4. This creates a non-disseminated Implied Offer in WSU8 at 6149
- $WSU6 = [(14890 * 42) / 100] - 105$
 - WSU6 = 6148.8
 - Round the Implied Offer up to a price of 6149
5. This order will work at a price of as 6149, but is not disseminated since it is an Implied OUT order.

1.1.6 Product-Specific Crack 1:1 Implied Examples

1. Generation of implied OUT bid in distillate (Gasoline - RT).

B/S	Qty	Instrument Code	Price
Buy	5	WS:C1 RT-WS U8	1078
Buy	4	WSU8	6200
Creates the following implied Bid			
(I) Bid	4	RTU8	17328
Price calculates to 17328.5714... but is created at 17328 (not displayed)			

2. Generation of implied "OUT" offer in distillate (Gasoline - RT).

B/S	Qty	Instrument Code	Price
Sell	5	WS:C1 RT-WS U8	1078
Sell	4	WSU8	6200
Creates the following implied Offer			
(I) Offer	4	RTU8	17329
Price calculates to 17328.5714... but is created at 17329 (not displayed)			

3. Generation of implied "OUT" bid in Crude Oil – WS.

B/S	Qty	Instrument Code	Price
Sell	5	WS:C1 RT-WS U8	1078
Buy	4	RTU8	17330
Creates the following implied Bid			
(I) Offer	4	RTU8	17329
Price calculates to 6200.6 but is created at 6200 (not displayed)			

4. Generation of implied "OUT" offer in Crude Oil – WS.

B/S	Qty	Instrument Code	Price
Buy	5	WS:C1 RT-WS U8	1078
Sell	4	RTU8	17330
Creates the following implied Offer			
(I) Offer	4	WSU8	6201
Price calculates to 6200.6 but is created at 6201 (not displayed)			

5. Generation of implied "IN" bid in Crack Spread.

B/S	Qty	Instrument Code	Price
Buy	5	RTU8	17330
Sell	4	WSU8	6200

B/S	Qty	Instrument Code	Price
Creates the following implied Bid			
(I) Bid	4	WS:C1 RT-WS U8	1078
Price calculates to 1078.6 but is created at 1078			

6. Generation of implied "IN" offer in Crack Spread.

B/S	Qty	Instrument Code	Price
Sell	5	RTU8	17330
Buy	4	WSU8	6200
Creates the following implied Bid			
(I) Offer	4	WS:C1 RT-WS U8	1079
Price calculates to 1078.6 but is created at 1079			

1.1.7 Examples of Trades with Adjusted Display Prices

Example A

Arriving Bid	Resting Offers - Display Price	Real Prices
2 – 628	626 – 1	625.5 (i)
	627 – 1	626.5 (i)

- The following matches take place against the Arriving Bid:
- 1 trade @ 625.5
- 1 trade @ 626.5
- In the above scenario, the Arriving Order is filled at a fractionally better price than that displayed, using the rounded traded price and not the arriving price.

Example B

Arriving Bid	Resting Offers - Display Price	Real Prices
2 – 627	626 – 1	626
	627 – 2	1 implied at 626.5 and 1 real order at 627

- The following matches will take place against the Arriving Bid:
- 1 trade @ 626 with real order
- 1 trade @ 626.5 with implied order
- In the above scenario, the Arriving Order will get filled at a fractionally better price than what has been displayed, since the implied order is for a price of 626.5, it has been rounded up for market data but will trade with the real price.

Example C

Arriving Bid	Resting Offers - Display Price	Real Prices
3 – 627	626 – 1	626
	627 – 1	626.5 (i)
	627 – 1	627
	627 – 1	627 (i)

- The following matches will take place against the Arriving Bid:
- 1 trade @ 626 with real order
- 1 trade @ 626.5 with implied order
- 1 trade @ 627 with real order
- In this scenario, the Arriving Order will get filled at a fractionally better price than what has been displayed, since the implied order is for a price of 626.5, it has been rounded up for market data but will trade with the real price. Also, since there are two orders at 627, the trade will occur with the real order and not the implied; it is only when the implied orders are at a better price level that they can match before a real order.

Example D

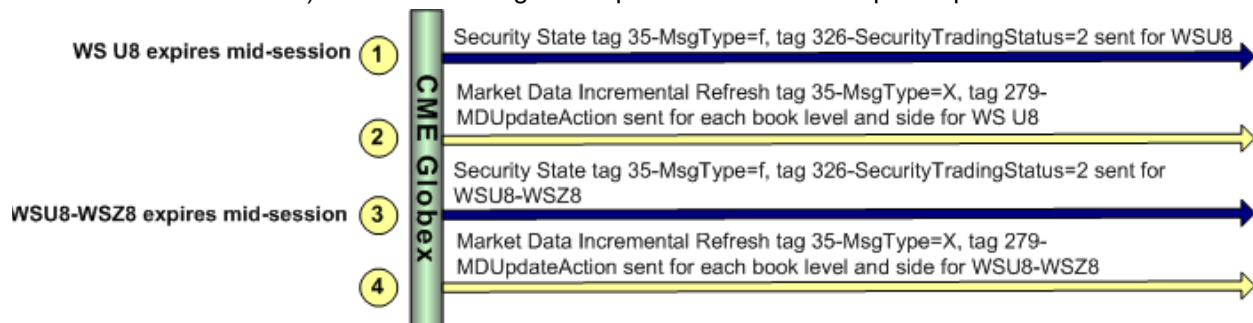
Arriving Bid	Resting Offers - Display Price	Real Prices
2 – 627	627 – 1	626.5 (i)
(Resting) 1 – 626	627 – 1	627
	627 – 1	627 (i)

- The following matches will take place against the Arriving Bid:
- 1 trade @ 626.5 with implied order
- 1 trade @ 627 with real order
- In this scenario, the Arriving Order will get filled at a fractionally better price than what has been displayed, since the implied order is for a price of 626.5, it has been rounded up for market data but will trade with the real price. The resting order of 626 will not be able to match with the implied order, since this is really at a better price of 626.5. Both the bid at 626 and the offer at 627 will remain on the book after this trade.

1.1.8 Mid-Session Expiration

In the event of mid-session instrument expiration, CME Globex expires the outright future and then expires all spreads that contain the expired outright future according to the following message sequence:

1. Upon expiration of the outright, CME Globex sends the Security State (tag 35-MsgType=f) message with a value of '2' (Trading Halt) in tag 326-SecurityTradingStatus.
2. CME Globex sends the Market Data Incremental Refresh (tag 35-MsgType=X) message with a value of '2' (Delete) in tag 279-MDUpdateAction in each data block per book level per side (i.e. top five Bid/Ask = 10 data blocks) to remove resting and implied orders for the expired instrument.
3. Upon expiration of the spreads, CME Globex sends the Security State (tag 35-MsgType=f) message with a value of '2' (Trading Halt) in tag 326-SecurityTradingStatus.
4. CME Globex sends the Market Data Incremental Refresh (tag 35-MsgType=X) message with a value of '2' (Delete) in tag 279-MDUpdateAction in each data block per book level per side (i.e. top five Bid/Ask = 10 data blocks) to remove resting and implied orders for the expired spread.



- GTC/GTD orders submitted against outright and spread instruments prior to mid-session expiration remain on the book until the instrument group goes through the normally scheduled end-of-session order cancellation.
- If a spread expires prior to any of its component legs, the legs continue to trade normally.
- No market data is generated for Z8 as a result of U8 and the spread expiring. This is different than the situation for U8 upon expiration, where the CME Globex platform no longer sees resting orders on U8 and the spread and, as a result, sends the updating market data. For Z8 upon U8 expiration, only an MY market data message is sent, indicating a change in the implied market for the Z8 instrument.
- CME Globex rejects orders sent against expired instruments.

1.1.9 LMM Allocation for NYMEX miNY Futures

- NYMEX LMM functionality is available on the NYMEX miNY futures only. The Lead Market Maker (LMM) algorithm for NYMEX products on the CME Globex platform allots a total percentage allocation to all participating Market Makers and employs a “round up” feature to allow Market Makers to participate in trades if they are at the best available prices.
- If NYMEX LMMs are at the best price they are allowed to jump the queue and receive a predefined percentage of trade allocations for the front two months in return for meeting NYMEX-determined market obligations.
- More information regarding the allocation algorithms is available at: www.cme.com/algorithm

1.1.10 NYMEX LMM Allocation Functionality

- NYMEX miNY futures will have the new value ‘N’ in tag 1142-MatchAlgorithm of the Security Definition (tag 35-MsgType=d) message to designate the NYMEX LMM allocation. Calendar spreads do not support the NYMEX LMM allocation. The NYMEX LMM algorithm will also be available in markets with implied trading.
- The NYMEX LMM allocation algorithm is only active during 5:00 p.m. – 4:15 p.m. CT, when the market is in the ‘Open’ state as indicated with the value ‘17’ in tag 36-SecurityTradingStatus of the Security State (tag 35-MsgType=f) message.
- Multiple LMMs can be designated per instrument.
- There is one LMM percentage per instrument
- All LMMs with orders at the best prices in the market will receive equal portions of the LMM allocation percentage.

NOTE: The cover page was updated to reflect CME Group branding. No technical changes were made.