CME Group

Market Data Platform
Streamlined FIX/FAST℠
Message Specification

Version: 1.0
7/6/2011

Futures trading is not suitable for all investors, and involves the risk of loss. Futures are a leveraged investment, and because only a percentage of a contract's value is required to trade, it is possible to lose more than the amount of money deposited for a futures position. Therefore, traders should only use funds that they can afford to lose without affecting their lifestyles. And only a portion of those funds should be devoted to any one trade because they cannot expect to profit on every trade.

All references to options refer to options on futures.

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All matters pertaining to rules and specifications herein are made subject to and are superseded by official CME, CBOT, and NYMEX rules. Current rules should be consulted in all cases concerning contract specifications.

Contents

FIX Header (Across All Messages)

Tag	FIX Name	Format	Valid Values	Description
1128	ApplVerID	String (1)	9 = FIX50SP2	Specifies the service pack release being applied at message level.
35	MsgType	String (2)	0 = Heartbeat 5 = Logout A = Logon X= Market Data Incremental Refresh V = Market Data Request	Defines message type.
49	SenderCompID	String(7)	CME = Chicago Mercantile Exchange	Assigned value used to identify firm sending message.
34	MsgSeqNum	SeqNum (9)		Integer message sequence number.
52	SendingTime	UTCTimeStamp (21)		Time of message transmission (always expressed in UTC (Coordinated Universal Time) Format: YYYYMMDDHHMMSSsss
43	PossDupFlag	Boolean (1)	Y = Possible duplicate N = Original transmission	This tag is used in cases of CME internal component failure to indicate a possible retransmission of a duplicate message with the same sequence number. This tag is important in instances that a message is received with duplicate sequence numbers. CME will resend messages to guarantee all messages reach client systems. Two messages will not be sent with the same sequence number without this flag on in at least one of them. In addition, it is possible to miss the **original transmission** and see the **possible duplicate** only.

Logon (tag 35-MsgType=A) – From Customer to CME

Tag	FIX Name	Format	Valid Values	Description
553	Username	String (100)		Userid or username.
554	Password	String (100)		Password or passphrase.
1137	DefaultApplVerID	String (1)	9 = FIX50SP2	Specifies the service pack release being applied, by default, to message at the session level.

Logon (tag 35-MsgType=A) – From CME to Customer

Tag	FIX Name	Format	Valid Values	Description
1180	ApplID	String(50)	REPLAY	Used to identify a replayed message.
98	EncryptMethod	Int (1)	0 = None	CME does not use encryption, so this value is always set to 0.
108	HeartBtInt	Int (3)		Heartbeat interval (seconds).
1137	DefaultApplVerID	String (1)	9 = FIX50SP2	Specifies the service pack release being applied, by default, to message at the session level.

Logout (tag 35-MsgType=5)

Tag	FIX Name	Format	Valid Values	Description
1180	ApplID	String(50)	REPLAY	Used to identify a replayed message.
58	Text	String (180)		Free Format text string. May include logout confirmation or reason for logout.

Heartbeat (tag 35-MsgType=0)

There is no body for this message.
This message is only the header with the message type 0.
This message is sequenced like any other message.

Market Data Request (tag 35-MsgType=V)

Tag	FIX Name	Format	Valid Values	Description
1180	ApplID	String (50)		The channel ID from the XML Configuration File for which this request is made.
262	MDReqID	String (32)		Unique identifier for Market Data Request.
1182	ApplBeginSeqNo	SeqNum (9)		Message sequence number of first message in range to be re-sent. If the request is for a single message, ApplBeginSeqNo (tag 1182) and ApplEndSeqNo (tag 1183) are the same.
1183	ApplEndSeqNo	SeqNum (9)		Message sequence number of last message in range to be re-sent. If the request is for a single message, BeginSeqNo (tag 7) and EndSeqNo (tag 16) are the same. The maximum number of messages that can be requested is 2000.

Market Data Incremental Refresh (tag 35-MsgType=X) Message

Note: tags not listed in the message specification may appear in the template.

Header

Tag	FIX Name	Format	Valid Values	Description
1128	ApplVerID	String (1)	9 = FIX50SP2	Specifies the service pack release being applied at message level
35	MsgType	String (2)	X = Market Data Incremental Refresh	Defines message type
49	SenderCompID	String(7)	CME = Chicago Mercantile Exchange	Assigned value used to identify firm sending message
34	MsgSeqNum	SeqNum (9)		Integer message sequence number
52	SendingTime	UTCTimeStamp (21)		Time of message transmission (always expressed in UTC (Coordinated Universal Time) Format: YYYYMMDDHHMMSSsss

Body

Tag	FIX Name	Format	Valid Values	Description
75	TradeDate	LocalMktDate (8)		Indicates date of trade referenced in this message Format: YYYYMMDD (i.e. 20071215)
268	NoMDEntries	NumInGroup (5)		Number of FIX Market Data Incremental Refresh Data Blocks in the Market Data Incremental Refresh message.

FIX Market Data Incremental Refresh Repeating Group (Data Block)

Tag	FIX Name	Format	Valid Values	Description
→279	MDUpdateAction	Char (1)	0 = New	Indicates the type of Market Data update action

Tag	FIX Name	Format	Valid Values	Description
→269	MDEntryType	Char (1)	0 = Bid 1 = Offer 2 = Trade 3 = Index Value 4 = Opening Price 5 = Closing Price 7 = Trading Session High Price 8 = Trading Session Low Price	Indicates the type of market data entry. Opening Price - This value is the first 'normal' index tick at the start of the new trading day. A normal tick is a tick generated during the regular trading hours of the underlying constituents. Closing Price - The index close value computed using the official close prices of the underlying constituents.
→83	RptSeq	Int(3)		Sequence number per Instrument update or index.
→55	Symbol	String(50)		Instrument Name
→270	MDEntryPx	Price (20)		Price of market data entry in S&P display price. (No conversion necessary).
→272	MDEntryDate	UTCDateOnly(8)		Timestamp of market data entry.
→272	MDEntryTime	UTCTimeOnly(12)		Timestamp of market data entry.
→286	OpenCloseSettleFlag	Int(3)	0 = Daily Open / Close /Settlement entry 4 = Entry from previous business day 102 = Settlement Index value 103 = Special Opening Quote	Indicates whether price is a settlement index or if it is a special opening index quote. **Special Opening Quote** – The Index Opening Settlement is based on the SOQ (Special Opening Quotation) calculation to facilitate convergence of cash and future markets. Many Index futures are settled against the Index Opening Settlement. This value is calculated as per normal index calculation procedures except that open prices of the underlying constituents are used for this calculation. The Index Opening Settlement value should not be confused with the first tick of the index and will likely greatly differ from that value. The final Index Opening Settlement value is typically published after all the underlying constituents of the index have opened for trading.
→451	NetChgPrevDay	PriceOffset(20)		Net change from previous day's closing price.
→6119	NetPctChg	Percentage(20)		Index percentage change with respect to previous close.

Tag	FIX Name	Format	Valid Values	Description
→7017	PercentTrading	Percentage(20)		Percent trading of the underlying index constituents.
→9988	MDEntryCode	MultipleValueString(2)	1 = Indicative 2 = Pre-Market 3 = Close 4 = Preliminary Close 5 = Session Close	List of conditions describing a market data entry. See the table below for additional description of valid values for this tag. **Note**: if tag 9988 is not present, the market data entry occurred during the normal trading condition.
→278	MDEntryID	String(2)		Market data entry identifier to map multiple prices of a single trade.
→280	MDEntryRefID	String(20		Reference number to identify previous price of a trade.
→1151	SecurityGroup	String(12)		Indicates the product code for the instrument
→167	SecurityType	String(9)	CDS = Credit Default Swap FORWARD = Forward FUT = Future OPT = Option OOC = Options on Combo OOF = Options on Futures MLEG = Multi-leg instrument	Indicates the type of instrument
→200	MaturityMonthYear	Month-Year(8)		This field provides the actual calendar date for contract maturity – month and year (used for standardized futures and options) Format: YYYYMM (i.e. 200712) For daily products, this field contains the daily maturity Format: YYYYMMDD (i.e. 20071215)
→207	SecurityExchange	Exchange(4)	XCBT = Chicago Board Of Trade XCME = Chicago Mercantile Exchange XNYM = New York Mercantile Exchange XCEC = Commodities Exchange Center	Market used to help identify an instrument
→541	MaturityDate	LocalMktDate (8)		Maturity date of instrument Format: YYYYMMDD (i.e. 20071215)
→223	CouponRate	Percentage (3)		The rate of interest that, when multiplied by the principal, par value, or face value of a bond, provides the currency amount of the periodic interest payment

Tag	FIX Name	Format	Valid Values	Description
→1449	RestructuringType	String(2)	MR = Modified Restructuring MM = Modified Mod Restructuring XR = No Restructuring specified	A category of CDS credit event in which the underlying bond experiences a restructuring
→1450	Seniority	String(2)	SD = Senior Secured SR = Senior SB = Subordinated	Specifies which issue (underlying bond) will receive payment priority in the event of a default
→1451	NotionalPercentageOutstanding	Percentage (3)		Indicates the notional percentage of the deal that is still outstanding based on the remaining components of the index
→201	PutOrCall	Int(1)	0 = Put 1 = Call	Indicates whether an option instrument is a put or call
→202	StrikePrice	Price(20)		Strike Price for an option instrument
→996	UnitOfMeasure	String (30)		Unit of measure for the products' original contract size
→1716	UnitOfMeasureCurrency	String(3)		Indicates the ISO Currency code if it is a currency product
→1147	UnitOfMeasureQty	Float(20)		This field contains the notional value for each instrument. The notional value is equivalent to the corresponding premium-quoted contract
→711	NoUnderlyings	NumInGroup(1)		Number of underlying legs that make up the security
→→311	UnderlyingSymbol	String(6)		Underlying security's symbol
→→313	UnderlyingMaturityMonthYear	Month-Year(8)		Underlying security's MaturityMonthYear
→→310	UnderlyingSecurityType	String(9)		Underlying security's SecurityType
→→308	UnderlyingSecurityExchange	Exchange(4)		Underlying security's SecurityExchange and it can be used to identify the underlying security
→270	MDEntryPx	Price(20)		Price of the Market Data Entry
→271	MDEntrySize	Qty(12)		Quantity or volume represented by the Market Data Entry
→272	MDEntryDate	UTCDateOnly(8)		Date of the Market Data Entry Format: YYYYMMDD (i.e. 20071215)
→273	MDEntryTime	UTCTimeOnly(12)		Timestamp of Market Data Entry
→423	PriceType	Int(2)	1 = Percent of Par 2 = Contract Units 6 = Spread (Basis Points)	Valid price types for intraday trade

Tag	FIX Name	Format	Valid Values	Description
→828	TrdType	Int(2)	1 = Block Trade 2 = Exchange for physical 11 = Exchange for Risk 12 = Exchange for Swap 22 = Privately Negotiated Trades 23 = Substitution of Futures for Forwards	Valid trade types for intraday trade
→453	NoPartyIDs	NumInGroup(1)		Number of party block entries
→→448	PartyID	String(3)		Party Identifier/Code
→→452	PartyRole	Int(2)	21 = Clearing Organization	Identifies the type or role of the PartyID (448) specified
→278	MDEntryID	String(2)		Market data entry identifier to map multiple prices of a single trade. Sent for CDS only.
→280	MDEntryRefID	String(2)		Reference number to identify previous price of a trade. Sent for CDS only.

Tag 9988-MDEntryCode Valid Values Description

Value	Description
1=Indicative	Index computed using alternate prices of the underlying constituents to provide an indicative index level.
2=Pre-Market	Pre-Market - S&P will generate pre-market index data for certain key headline indices typically one hour prior to the actual start of trading day. The pre-market index data will contain: • Index values flat-lined with previous day's index close levels. • Index Bid & Ask values computed using real-time pre-market quotes of the underlying constituents. The pre-market index ticks should be considered as an initialization phase for the index before the start of the trading day. The pre-market index ticks serve the purpose of a system health check prior to the actual open of the index. All market data vendors are encouraged to distribute the pre-market index ticks with an appropriate pre-market indicator. The index values produced during pre-market do not contribute to the Daily Open, High and Low. Additionally, the Index Bid and Ask values computed using pre-market quotes provides an early indication of the index spread before the start of trading day.
3=Preliminary Close	The index tick computed using real-time prices just before the official index close is published.
4=Session Close	The index level computed using the mid-day close prices of the underlying constituents.
5=Close	The index close value computed using the official close prices of the underlying constituents

Appendix A – S&P Incremental Refresh (tag 35-MsgType=X) Message Template Example

The following is an example of the new template required for the Incremental Refresh (35=X) message - Streamlined FIX/FAST release.

Note: the template can contain tags not included in the message specification.

```
<?xml version="1.0" encoding="UTF-8" ?>
<templates xmlns="http://www.fixprotocol.org/ns/fast/td/1.1">
  <!--
    ************************************
            VERSION: 0.0.1

      NEXT AVAILABLE TEMPLATE ID IS 151

    ************************************

  -->
  <!--

        HERE ARE THE LATEST ID FOR EACH TEMPLATE : CURRENT VERSION  vs.  (PREVIOUS VERSION)

          Non-Globex FIX (OTC, S&P)
                  MDIncRefresh.(generic).......= 150


  -->
<template name="MDIncRefresh_150" id="150" dictionary="150" xmlns="http://www.fixprotocol.org/ns/fast/td/1.1">
  <string name="ApplVerID" id="1128">
    <constant value="9" />
  </string>
<string name="MessageType" id="35">
    <constant value="X" />
  </string>
<string name="SenderCompID" id="49">
    <constant value="CME" />
  </string>
  <uInt32 name="MsgSeqNum" id="34" />
  <uInt64 name="SendingTime" id="52" />
<string name="PosDupFlag" id="43" presence="optional">
    <default value="N" />
  </string>
```

```
  <uInt32 name="TradeDate" id="75" />
- <sequence name="MDEntries">
    <length name="NoMDEntries" id="268" />
-   <uInt32 name="MDUpdateAction" id="279">
      <copy value="1" />
  </uInt32>
- <string name="MDEntryType" id="269">
  <copy value="0" />
     </string>
  <string name="MDEntryID" id="278" presence="optional" />
  <string name="MDEntryRefID" id="280" presence="optional" />
- <uInt32 name="RptSeq" id="83">
  <increment />
 </uInt32>
  <string name="Symbol" id="55" />
  <string name="SecurityGroup" id="1151" presence="optional" />
  <uInt64 name="MaturityMonthYear" id="200" presence="optional" />
  <string name="SecurityExchange" id="207" presence="optional" />
- <uInt64 name="MaturityDate" id="541" presence="optional">
    <delta />
 </uInt64>
  <string name="SecurityType" id="167" presence="optional" />
  <string name="SecuritySubType" id="762" presence="optional" />
  <uInt32 name="PutOrCall" id="201" presence="optional" />
- <decimal name="StrikePrice" id="202" presence="optional">
-  <exponent>
     <default value="-2" />
    </exponent>
   <mantissa />
 </decimal>
- <decimal name="CouponRate" id="223" presence="optional">
- <exponent>
  <default value="-1" />
     </exponent>
  <mantissa />
     </decimal>
  <string name="RestructuringType" id="1449" presence="optional" />
  <string name="Seniority" id="1450" presence="optional" />
- <decimal name="NotionalPercentageOutstanding" id="1451" presence="optional">
-  <exponent>
     <default value="-1" />
   </exponent>
    <mantissa />
```

```
  </decimal>
  <string name="UnitofMeasure" id="996" presence="optional" />
  <string name="UnitOfMeasureQty" id="1147" presence="optional" />
  <string name="UnitOfMeasureCurrency" id="1716" presence="optional" />
- <sequence name="Underlyings" presence="optional">
    <length name="NoUnderlyings" id="711" />
    <string name="UnderlyingSecurityExchange" id="308" presence="optional" />
    <string name="UnderlyingSecurityType" id="310" presence="optional" />
    <uInt64 name="UnderlyingMaturityMonthYear" id="313" presence="optional" />
    <string name="UnderlyingSymbol" id="311" presence="optional" />
</sequence>
<decimal name="MDEntryPx" id="270" presence="optional">
- <exponent>
    <default value="-2" />
  </exponent>
- <mantissa>
    <delta />
  </mantissa>
</decimal>
<uInt32 name="MDEntryDate" id="272" presence="optional" />
<uInt32 name="MDEntryTime" id="273" presence="optional">
  <copy />
</uInt32>
<uInt32 name="OpenCloseSettleFlag" id="286" presence="optional" />
<uInt32 name="TradeVolume" id="1020" presence="optional">
  <default />
</uInt32>
<string name="MDEntryCode" id="9988" presence="optional" />
<decimal name="PercentTrading" id="7017" presence="optional">
- <exponent>
    <default value="-2" />
  </exponent>
  <mantissa />
</decimal>
<decimal name="NetPctChg" id="6119" presence="optional">
- <exponent>
    <default value="-2" />
  </exponent>
  <mantissa />
</decimal>
<uInt32 name="TrdType" id="828" presence="optional" />
<uInt32 name="PriceType" id="423" presence="optional" />
<decimal name="MDEntrySize" id="271" presence="optional">
- <exponent>
```

```
      <default value="-2" />
     </exponent>
     <mantissa />
    </decimal>
    - <sequence name="Parties" presence="optional">
       <length name="NoPartyIDs" id="453" />
       <string name="PartyID" id="448" presence="optional" />
    -  <uInt64 name="PartyRole" id="452" presence="optional">
       <delta />
      </uInt64>
     </sequence>
   </sequence>
  </template>
</templates>
```

Revision History

Version	Last Update	Author	Description
1.0	7/6/2011	Blf/DT	Initial Release