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iX-Max Data Description

Intercontinental Exchange
ICE iMpact Multicast Feed

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Rev. 1.0

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Introduction

Purpose

This document provides information relating to the implementation of Intercontinental Exchange (ICE) iMpact Multicast Feed on iX-Max.

Intended Audience

The audience for this document includes the following:

- Fixnetix support, technical and development staff.
- Clients - as required to provide information to supplement existing iX-Api documents.

This document was prepared with the assumption that the reader is familiar with the iX-Max and iX-Api system functionality and technical implementation.

Revision History

This is document is the first revision.

Name	Date	Reason For Change	Version
Trevor Miller	Jan 16th 2013	Initial draft.	0.1
Trevor Miller	Jan 23rd 2013	Additional information included.	0.2
Trevor Miller	Feb 21st 2013	Additional information included.	0.3
Paul Gagnon	May 22nd 2013	Source Feed section updated	0.4
Trevor Miller	July 30th 2013	Symbol structure for spreads added. Corrected specification of supported ICE channels.	1.0

References

iX-Api C++ Reference Manual 1.7 18th November 2011
iX-Max Functional Overview 1.3

Source Feed

iX-Max implements support for the ICE iMpact Multicast Feed version as defined in the ICE iMpact Multicast Feed Message Specification version 1.1.14. This document is available from the ICE web site

iX-Max currently sources ICE data via selected Top 5 Price Level Depth multicast groups for selected futures contracts, for Live Updates and Snapshots.

These channels feature the dissemination of real-time market data including:

Order book depth for futures products (up to a depth of 5)

Market state changes

Trades and trade statistics

Settlement and Open Interest

Reference data

Supported Flows

iX-Max supports Level 1, Summary Book and Top of Book as separately subscribable flows for all ICE tradable instruments.

The majority of this document relates to the behavior of the iX-Max Level 1 flow, as a representation of market activity reported for tradable instruments by ICE.

Full Order Book, Summary Book and Top of Book flows are simpler and comply closely with the standards for iX-Max.

Supported Instruments

iX-Max publishes information for ICE single leg futures contracts and spreads. The current release does not provide full reporting for options.

iX-Max does report all trades including those for single-leg contracts resulting from the decomposition of futures spread trades.

iX-Max does not support reporting of implied prices.

Market Codes

The ICE Market code values are as follows:

Market Code	Description
I	ICE Exchange Level 1
I3	ICE Exchange Summary Book
I4	ICE Exchange Top of Book

Symbols

The iX-Max Symbol value is the primary key for identification of each ICE reported tradable instrument. The iX-Max symbol convention for derivatives concatenates tokens required to uniquely identify the tradable instrument on a given market.

The following illustrates the convention for constructing symbols as employed for ICE instruments:

PROD/T/YYMM	for monthly futures contracts
PROD/T/YYMM[suffix]	for monthly futures contracts requiring additional data to fully identify the contract
PROD/T/YYMM[DD][suffix]	for contracts requiring specification of expiration day an optional DD day is appended, and optionally a suffix may be added
PROD/T/YYMM-PROD/T/YYMM	intra or inter commodity spread between two vanilla futures
PROD	Product code as reported by ICE
T	Contract Type F Future
YYMM	Expiry year and month
YYMMDD	Expiry year and month and day
suffix	ICE defined suffix.

Where a futures contract is not ‘vanilla’ - and requires additional data to fully identify the contract then a suffix is appended to the base futures contract symbol. This suffix follows ICE conventions - and consists of a switch character followed by additional fields, where the syntax for these fields is specific to the switch character. ICE provide a document that fully defines their contract symbol conventions. This is available from the ICE web site. (See ICE Contract Symbol - Specification of Instrument Naming Convention)

Calendar spread contracts identify the futures contracts within the symbol using a hyphen character as the separator.

Symbol Examples

The following table provides symbol examples.

Market	Symbol	Product	Contract Type	Description
I	DX/F/1312	DX	Future	US Dollar Index Futures - NYCC - Dec 2013
I	DX/F/1309_Z	DX	Future	US Dollar Index TAS - NYCC - Sep 2013 -Trade at Settlement
I3	BRN/F/1412	BRN	Future	Brent NX Crude Futures - North Sea - Dec 2014
I3	BRN/F/1309-BRN/F/1411	BRN - BRN	Spread	Brent NX Crude Futures - North Sea - Sep 2013 - Nov 2014 Calendar Spread
I	BRN/F/1309_Z-BRN/F/1310_Z	BRN - BRN	Spread	Brent NX Crude Futures - North Sea - Sep 2013 TAS - Oct 2013 TAS Calendar Spread
I	BRN/F/1510-MID/F/1510	BRN - MID	Spread	Brent/Middle East Crude - North Sea/Middle East - Oct 2015 Spread

Symbol Construction

The iX-Api 1.7 provides a number of alternative approaches for construction of symbols required to establish subscriptions for derivatives instruments. These are implemented within the constructor methods for Topic objects. Please refer to the iX-Api 1.7.0 C++ Reference Manual.

Symbol Files

The iX-Max symbol files that are generated and available for download for ICE content are detailed below.

The iX-Max ICE symbol files are named ixmax_ICE_symbols.

The first row of the symbol file is a header row and defines the column values. Each subsequent row provides reference data for each tradable instrument. Recipients should process symbol file row content according to the header row specification for each column.

The symbol files for ICE tradable instruments contain the following populated columns:

Column / Field Name	Description
Domain	The domain code, always 'E'.
Market	The market code.
Symbol	A unique identification for the tradable instrument.
CountryCode	Not supplied by ICE.
CurrencyCode	The ISO 4217 currency code identifying the currency in which prices for a tradable instrument are expressed. Note that the following two extensions to ISO codes are supported : GBX - British Pence, USX - US cents.
Description	Contract description.
OfficialCode1 OfficialCode1Type	This field pair contains unique identification number assigned for the tradable instrument, as reported by ICE in the Market ID field of a product definition message. The contract identifier is assigned by ICE and and remains valid for the whole lifetime of the contract. The type value of 4 signifies that the code is a market assigned numeric code.
OfficialCode2 OfficialCode2Type	A contract symbol as defined by ICE using their own symbol naming convention. See the ICE documentation: *Contract Symbol Specification of Instrument Naming Convention* which defines syntax and parsing instructions. The type value of 8 signifies that the code is a contract symbol code.
OfficialCode3 OfficialCode3Type	Unused for ICE
Segment	Unused for ICE

Column / Field Name	Description
PrimaryMarket	Unused for ICE
InstrumentType	A code used to convey a high level classification for the instrument. See the table below.
Product	ICE provided product identifier, as defined in the first 4 characters of the ICE contract symbol.
ContractType	'F' - Future 'S' - Spread 'P - Put Option (Not yet supported) 'C' - Call Option (Not yet supported)
ContractYear	The expiry year for the contract as YYYY.
ContractMonth	The expiry month for the contract as MM.
ContractDay	The expiry day for the contract as DD. The value '00' indicates that there is only one contract expiration day within the expiry month.
StrikePrice	The strike (or exercise) price for an option contract, in the form PPPP[.DD] (not yet supported)
ContractVersion	Unused for ICE
OriginalStrikePrice	(Not yet supported)
ExpiryDate	The expiry date for the contract in the form YYYYMMDD.
UnderlyingSymbol	Unused for ICE
UndlyOfficialCode1 UndlyOfficialCode1Type	Unused for ICE
EventDate	The date of the last reference data update received from ICE for the instrument. This may be used to detect stale instruments prior to their removal from iX-Max.
Sector	ICE Market Type ID

Instrument Types

The table below lists possible instrument type vaues for ICE contracts.

ICE Product Type	Description
F	Future
F.S	Futures Spread
F.C	Futures Crack Spread
F.T	Futures Option
S	OTC Swap Flow
L	OTC Swap Lots
P	OTC Physical Forwards
G	OTC Swap Glacier Lots

Trading Status Reporting

This section describes the reporting of instrument trading status for ICE instruments. Please also refer the ICE iMpact Specification for a description of ICE's reporting of the trading status.

ICE publish changes to the trading status for each instrument using the tradingStatus field of a Market State Change message. The following table lists the possible iX-Max TradingStatus values and the corresponding normalized TradingStatusCode values that may be reported via the Instrument (or Book) message for an ICE tradable instrument.

The TradingStatus value identifies the tradingStatus value as reported by ICE.

The TradingStatusCode is a normalized representation of the TradingStatus value and is defined as an enumeration in the iX-Api.

TradingStatus Value	Description	iX-Max TradingStatusCode Value	iX-Max TradingStatusCode Enumeration
O	Open	2	TS_NORMAL
C	Close	6	TS_CLOSED
E	Expired	6	TS_CLOSED
1	Pre-Open	1	TS_PRE_OPEN
2	Pre-Close	16	TS_PRE_CLOSED
S	Suspended	8	TS_SUSPENDED

Note:

The initial value published for *TradingStatus* and *TradingStatusCode* for each instrument/book from each venue is set as a configured Property. This is set when 'roll forward' is performed prior to the start of a new trading session.

This default or initial value published in the *TradingStatusCode* attribute is 0 - TS_UNDEFINED.

The default or initial value published in the *TradingStatus* attribute is “Undef”.

Trade Reporting

ICE report each trade via a Trade message.

The *TradeCondition** values are used to provide additional indicators for trades.

The TradeCondition* values published in each reported iX-Max Trade reflect codes received in ICE Trade Message. The intention is for recipients to be able to determine the full extent of reported trade types using this original ICE reported value.

On-Book and Off-Book Trades

Where received trade conditions indicate that the trade should not be used to set last price indications, limits etc then it is reported as is it were an 'off book' trade. By convention off book trades are are published in a *MessageType* of MT_TRADE and an *EventType* of ET_INSERT.

The number of off-book trades is reported in *TradeCount2*. The cumulative volume of off-book trades is reported in *Volume2.* The high and low prices for off-book trades are derived, and published in a *MessageType* of MT_INSTRUMENT as *HighPrice2* and *LowPrice2*.

Where an ICE trade is a regular trade it is reported as if it were an 'on book' trade. Trades that are eligible to set the latest trade price for a session will be published with an *EventType* of ET_ADD. The number of on-book trades is reported in *TradeCount*. The cumulative volume of on-book trades is reported in *Volume.* The high and low prices for on-book trades are derived, and published in a *MessageType* of MT_INSTRUMENT as *HighPrice* and *LowPrice*.

TradeCondition1

This field is used to signal the SystemPricedLegType value as show in the table below.

The following table summarises TradeCondition1 values, which are derived from the trdInd field in the Trade Information message published by ICE:

TradeCondition1	Description
NULL	If the condition is not present - the trade is not system priced
C	System Priced Crack Spread Leg
S	System Priced Leg

The following description is provided in ICE documentation:

This value indicates if the trade price is system generated or not. System priced legs are typically the result of an exchange-native spread (crack spread or calendar spread) being executed in conjunction with another spread market on the system. In these instances, the

system will notify the transaction price of the spread and the leg prices to the appropriate leg market contracts.

System priced leg prices do not update contracts statistics, specifically High, Low, and WAP. Due to system pricing mechanics and exchange imposed price reasonability checks, there is the very real potential that one or both legs of a system price spread may violate the resting bid/ask of the leg market contracts at the point of trade. System priced legs cannot be relied upon as indicative of the bid/ask prices in the leg market contract. Accordingly, these system priced leg prices cannot be relied upon as valid real-time market price indicators, and thus, must not be relied upon to trigger client side synthetic order types in the leg market contracts such as Stops, Stop Limits, etc.

TradeCondition2

The following table summarises TradeCondition2 values, which reflect the OffMarketTradeType field values in the Trade message published by ICE:

TradeCondition2	Description
NULL	If the condition is not present - the trade is not system priced
K	Block Trade
E	EFP Trade
S	EFS Trade
F	EFP/EFS Contra Trade
V	Bilateral Off-Exchange Trade
O	NG EFP/EFS Trade
9	CCX EFP Trade
J	EFR Trade
Q	EOO Trade (for US Futures Options only)
I	EFM Trade

Open, Close and Settlement Prices

iX-Max roll-forward processing will roll the settlement price of the prior session (if there is one) to generate the ClosePrice for the previous session. If there is no settlement price then the ClosePrice remains unchanged for the new session.

ICE publish an official settlement price for the current session. This is reported in the Instrument message.

The OpenPrice for the current session is established from the first reported trade.

Open Interest

Open interest is published in the Instrument message and sourced from the Open Interestmessage.

Auction Information

ICE publish potential auction prices - via the Pre-Open Price Indicator message. This is described as follows : "*This message contains the estimate of what the opening price could be, based on the orders in the market or previous settlement price. Currently it is sent out every 1 minute during pre-open*".

A potential auction price is published via the Auction message with an AuctionPriceType value of AT_INDICATIVE.Quotes

Top of book quotations are not supported in the Level1 flow.