

Order Routing Field Mapping between CAT and Exchanges

12/15/2020

Version 2.0

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Revision Summary

Version	Publish Date	Description
1.0	12/6/2018	Initial Publication
1.1	2/11/2020	Updated guidance for populating senderIMID as per CAT Alert 2018-003 Cboe: Updates for population of session
1.2	3/24/2020	Nasdaq Family: Options Exchanges Added MIAX Family: <ul style="list-style-type: none"> • Updates for population of session for MIAMI and PEARL • MIAX EMRLD added • MEI and MEO interfaces added
1.3	4/7/2020	Republished as "Order Routing Field Correlations between CAT and Exchanges" BOX: Updates for population of session
1.4	4/21/2020	Retitled as "Order Routing Field Mapping between CAT and Exchanges" Updated Intro language. Removed Section 2 and incorporated information into Section 2.6.3 of the IM Technical Specifications. MIAX Family: <ul style="list-style-type: none"> • Updates for population of session for MIAMI and PEARL
1.5	6/2/2020	Cboe Family: <ul style="list-style-type: none"> • Added Sections 2.1 and 2.2 to differentiate between requirements for Cboe Equities Exchanges and Options Exchanges, and include updates for population of senderIMID for Cboe Options Exchanges.
1.6	8/4/2020	MIAX Family: <ul style="list-style-type: none"> • Updates for population of senderIMID field
1.7	8/31/20	IEX: <ul style="list-style-type: none"> • Updates for population of senderIMID field
1.8	10/6/2020	Added LTSE, MEMX, and MIAX PEARL Equities exchanges. BOX: Updates for population of routedOrderID for SAIL users.
1.9	10/28/2020	MIAX PEARL Equities: <ul style="list-style-type: none"> • Updates for population of senderIMID field
2.0	12/15/2020	Nasdaq Options Markets: <ul style="list-style-type: none"> • Updates for population of senderIMID field

Summary

This document is a supplement to the [CAT Reporting Technical Specifications for Industry Members](#) (“IM Tech Spec”) and provides guidance outlining how Industry Members should populate each field required for Exchange Route Matching. As described in Section 2.6.3 of the IM Tech Spec, the *Consolidated Audit Trail (CAT)* system must be able to link all CAT Order Route events to the related exchange orders. This document provides clarification on the values to be provided based on the exchange the order is routed to, describing specific guidance related to each field required for Exchange Route Matching.

Order routing fields – CAT/Exchange correlations

The sections below contain a field-by-field mapping for each exchange outlining how CAT Order Route event fields should be populated based on each related exchange protocol.

1. BOX

The table below describes the specific fields CAT uses to match Order Route events to the related Order Accept events reported by **BOX** options exchange.

CAT Report Field	BOX-related field
senderIMID	Market Participant Identifier (MPID)
routedOrderID	FIX: CIOrdID (Tag 11) SAIL: Owner Data field. If the pound (“#”) sign is present in this field, then submit the first 20 characters before the pound (“#”) sign. If the pound (“#”) sign is not present in this field, submit the first 20 characters. Exclude the pound (“#”) sign from the submission. Refer to the SAIL Documentation available at https://boxoptions.com/technology/trading-interface-specifications/ .
symbol	Symbol
eventTimestamp	Trade Date
session ¹	FIX: • SenderCompID (Tag 49) SAIL: • “User Id” tag from the “TC-User Connection” Message sent by the Participant at the beginning of the day

¹ Beginning September 9, 2020, **session** must be populated as specified.

2. Cboe Exchange Family

2.1. Cboe Equities Exchanges

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept events reported by the Cboe Equities Exchanges (Cboe BYX Equities Exchange, Cboe BZX Equities Exchange, Cboe EDGA Equities Exchange, and Cboe EDGX Equities Exchange).

CAT Report Field	Exchange-Related Field
senderIMID	Market Participant Identifier (MPID) ClearingFirm (Tag 439) · FIX Users (except Service Bureau) OnBehalfofCompld (Tag 115) · FIX Users (Service Bureau) ClearingFirm · BOE Users
routedOrderID	CIOrdID (Tag 11) · FIX Users CIOrdID · BOE Users
symbol	Symbol
eventTimestamp	Trade Date
session²	Concatenation of fields for a total session field length of 8 as follows: <SenderCompID(Tag 49)><SenderSubId (Tag 50)> · FIX Users < Username><SessionSubId> · BOE Users

2.2. Cboe Options Exchanges

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept events reported by the Cboe Options Exchanges (Cboe BZX Options Exchange, Cboe Options Exchange, Cboe C2 Options Exchange, and Cboe EDGX Options Exchange).

² Matching criteria for Cboe related to the population of **session** differs from the OATS requirement for populating Connection ID. There is no change to the OATS requirement. The guidance for populating **session** is effective September 9, 2020. Prior to September 9, 2020, **session** may be populated with the concatenated values as specified. Beginning September 9, 2020, **session** must be populated as specified.

CAT Report Field	Exchange-Related Field
senderIMID	Routing Broker EFID (if present): RoutingFirmID (Tag 7933) · FIX Users RoutingFirmID · BOE Users When Routing Broker EFID not present, then Executing Firm ID (EFID) OnBehalfOfCompID (Tag 115) · FIX Users ClearingFirm · BOE Users
routedOrderID	CIOrdID (Tag 11) · FIX Users CIOrdID · BOE Users
symbol	Symbol
eventTimestamp	Trade Date
session	Concatenation of fields for a total session field length of 8 as follows: <SenderCompID(Tag 49)><SenderSubId (Tag 50)> · FIX Users < Username><SessionSubId> · BOE Users

3. Investors Exchange (IEX)

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept events reported by IEX.

CAT Report Field	Exchange-Related Field
senderIMID	OnBehalfOfCompID (Tag 115)
routedOrderID	CIOrdID (Tag 11)
symbol	Symbol
eventTimestamp	Trade Date
session	SenderCompID (Tag 49)

4. Miami Exchange Family³

4.1. Miami Securities Exchange and MIAX Emerald

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept events reported by the MIAMI International Exchange and MIAX Emerald.

CAT Report Field	Exchange-Related Field								
senderIMID	FIX Order <ul style="list-style-type: none"> SenderSubID FIX (Tag 50) eQuote (MEI) <ul style="list-style-type: none"> MPID 								
routedOrderID	FIX Order: <ul style="list-style-type: none"> ClOrdID (Tag 11) eQuote (MEI): <ul style="list-style-type: none"> Client message Id <table border="1" data-bbox="570 926 1192 968"> <tr> <td>Client Message ID</td> <td>4</td> <td>BinaryU</td> <td>Unique Message ID assigned by the firm</td> </tr> </table>	Client Message ID	4	BinaryU	Unique Message ID assigned by the firm				
Client Message ID	4	BinaryU	Unique Message ID assigned by the firm						
symbol	Symbol –Simple Option Order FIX (Tags 55, 200, 201, 202 and 205) Multi-leg Option Order FIX (Tags 600, 608, 611 and 612)								
eventTimestamp	Trade Date								
session	FIX Order: <ul style="list-style-type: none"> SenderCompID (Tag 49) eQuote (MEI Interface): <ul style="list-style-type: none"> Username + "-" + Computer ID. (see "TCP Session Management (SesM) Protocol Specification" section 3.2.1 Login Request) <table border="1" data-bbox="570 1425 1300 1476"> <tr> <td>Username</td> <td>5</td> <td>Alphanumeric</td> <td>Username issued by MIAX during initial setup</td> </tr> <tr> <td>Computer ID</td> <td>8</td> <td>Alphanumeric</td> <td>ID issued by MIAX during initial setup</td> </tr> </table>	Username	5	Alphanumeric	Username issued by MIAX during initial setup	Computer ID	8	Alphanumeric	ID issued by MIAX during initial setup
Username	5	Alphanumeric	Username issued by MIAX during initial setup						
Computer ID	8	Alphanumeric	ID issued by MIAX during initial setup						

4.2. MIAX PEARL Options

CAT Report Field	Exchange-Related Field
senderIMID	FIX Order <ul style="list-style-type: none"> SenderSubID FIX (Tag 50)

³ The updated guidance for populating the **route link key** for routes to an exchange in the MIAMI Exchange family is effective September 9, 2020.

	Binary Order (MEO) <ul style="list-style-type: none"> MPID 									
routedOrderID	FIX Order: <ul style="list-style-type: none"> ClOrdID (Tag 11) Binary Order (MEO Interface) (unassigned Market Maker Order or Non Market Maker Order or other than day TIF): <ul style="list-style-type: none"> If Auto Replaced: Client message Id + '-' + "Client Order ID" <table border="1"> <tr> <td>Client Message ID</td> <td>4</td> <td>BinaryU</td> <td>Unique Message ID assigned by the firm</td> </tr> </table> <table border="1"> <tr> <td>Client Order ID</td> <td>4</td> <td>N</td> <td>BinaryU</td> <td> Client order ID. If an Order with this Client Order ID found for the same product, MPID and side, this Order replaces the resting Order. If not, this order is treated as new Order. For each Product and side, an MPID can have a maximum of N orders with unique client order ID that they can keep replacing. 0 results in a reject. Maximum value (N) defined in Regulatory circular. </td> </tr> </table> <ul style="list-style-type: none"> Otherwise: Client Order Id 	Client Message ID	4	BinaryU	Unique Message ID assigned by the firm	Client Order ID	4	N	BinaryU	Client order ID. If an Order with this Client Order ID found for the same product, MPID and side, this Order replaces the resting Order. If not, this order is treated as new Order. For each Product and side, an MPID can have a maximum of N orders with unique client order ID that they can keep replacing. 0 results in a reject. Maximum value (N) defined in Regulatory circular.
Client Message ID	4	BinaryU	Unique Message ID assigned by the firm							
Client Order ID	4	N	BinaryU	Client order ID. If an Order with this Client Order ID found for the same product, MPID and side, this Order replaces the resting Order. If not, this order is treated as new Order. For each Product and side, an MPID can have a maximum of N orders with unique client order ID that they can keep replacing. 0 results in a reject. Maximum value (N) defined in Regulatory circular.						
symbol	Symbol –Simple Option Order FIX (Tags 55, 200, 201, 202 and 205)									
eventTimestamp	Trade Date									
session	FIX Order: <ul style="list-style-type: none"> SenderCompID (Tag 49) Binary Order (MEO Interface): <ul style="list-style-type: none"> Username + "-" + Computer ID. (see "TCP Session Management (SesM) Protocol Specification" section 3.2.1 Login Request) <table border="1"> <tr> <td>Username</td> <td>5</td> <td>Alphanumeric</td> <td>Username issued by MIAX during initial setup</td> </tr> <tr> <td>Computer ID</td> <td>8</td> <td>Alphanumeric</td> <td>ID issued by MIAX during initial setup</td> </tr> </table>	Username	5	Alphanumeric	Username issued by MIAX during initial setup	Computer ID	8	Alphanumeric	ID issued by MIAX during initial setup	
Username	5	Alphanumeric	Username issued by MIAX during initial setup							
Computer ID	8	Alphanumeric	ID issued by MIAX during initial setup							

4.3. MIAX PEARL Equities

CAT Report Field	Exchange-Related Field
senderIMID	FIX Order <ul style="list-style-type: none"> OnBehalfofCompID FIX (Tag 115)

	<p>Binary Order (MEO)</p> <ul style="list-style-type: none"> • MPID 									
routedOrderID	<p>FIX Order:</p> <ul style="list-style-type: none"> • ClOrdID (Tag 11) <p>Binary Order (MEO Interface) (unassigned Market Maker Order or Non Market Maker Order or other than day TIF):</p> <ul style="list-style-type: none"> • If Auto Replaced: Client message Id + '-' + "Client Order ID" <table border="1"> <tr> <td>Client Message ID</td> <td>4</td> <td>BinaryU</td> <td>Unique Message ID assigned by the firm</td> </tr> </table> <table border="1"> <tr> <td>Client Order ID</td> <td>4</td> <td>N</td> <td>BinaryU</td> <td> <p>Client order ID. If an Order with this Client Order ID found for the same product, MPID and side, this Order replaces the resting Order. If not, this order is treated as new Order. For each Product and side, an MPID can have a maximum of N orders with unique client order ID that they can keep replacing. 0 results in a reject. Maximum value (N) defined in Regulatory circular.</p> </td> </tr> </table> <ul style="list-style-type: none"> • Otherwise: Client Order Id 	Client Message ID	4	BinaryU	Unique Message ID assigned by the firm	Client Order ID	4	N	BinaryU	<p>Client order ID. If an Order with this Client Order ID found for the same product, MPID and side, this Order replaces the resting Order. If not, this order is treated as new Order. For each Product and side, an MPID can have a maximum of N orders with unique client order ID that they can keep replacing. 0 results in a reject. Maximum value (N) defined in Regulatory circular.</p>
Client Message ID	4	BinaryU	Unique Message ID assigned by the firm							
Client Order ID	4	N	BinaryU	<p>Client order ID. If an Order with this Client Order ID found for the same product, MPID and side, this Order replaces the resting Order. If not, this order is treated as new Order. For each Product and side, an MPID can have a maximum of N orders with unique client order ID that they can keep replacing. 0 results in a reject. Maximum value (N) defined in Regulatory circular.</p>						
symbol	Symbol –Simple Option Order FIX (Tags 55, 200, 201, 202 and 205)									
eventTimestamp	Trade Date									
session	<p>FIX Order:</p> <ul style="list-style-type: none"> • SenderCompID (Tag 49) <p>Binary Order (MEO Interface):</p> <ul style="list-style-type: none"> • Username + Computer ID. (see "TCP Session Management (SesM) Protocol Specification" section 3.2.1 Login Request) <table border="1"> <tr> <td>Username</td> <td>5</td> <td>Alphanumeric</td> <td>Username issued by MIAX during initial setup</td> </tr> <tr> <td>Computer ID</td> <td>8</td> <td>Alphanumeric</td> <td>ID issued by MIAX during initial setup</td> </tr> </table>	Username	5	Alphanumeric	Username issued by MIAX during initial setup	Computer ID	8	Alphanumeric	ID issued by MIAX during initial setup	
Username	5	Alphanumeric	Username issued by MIAX during initial setup							
Computer ID	8	Alphanumeric	ID issued by MIAX during initial setup							

5. Nasdaq Exchange Family

5.1. Nasdaq Stock Market, Nasdaq BX and Nasdaq PSX

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept Events reported by The Nasdaq Stock Market, Nasdaq BX and Nasdaq PSX.

CAT Report Field	Exchange-Related Field
senderIMID	Market Participant Identifier (MPID)

CAT Report Field	Exchange-Related Field
routedOrderID	ClOrdID (Tag 11) · FIX Users Order Token/Client Order ID · RASHport Users Order Token · DROP Users · OUCH Users User Order ID · QIX Users UID · CTCI Users
symbol	Symbol · FIX Users Stock · DROP Users · OUCH Stock Symbol · RASHport
eventTimestamp	Trade Date
session	SenderCompID (Tag 49) · FIX Users OUCHAcct · NASDAQ INET OUCH QIXAcct · NASDAQ QIX: RASHAcct · RASHPort Source · OUCH Drop Deliver ToSubID (Tag 128) · FIX/RASH Drop

5.2. Nasdaq Options Markets

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept events reported by The Nasdaq Options Markets (ISE, GEMX, MRX, PHLX, NOM, and NOBO).

CAT Report Field	Exchange-Related Field
senderIMID	ISE, GEMX, MRX Session Default Firm – Non-service Bureau SenderSubID (Tag 50) – Service Bureau · FIX Users Firm ID · OTTO

CAT Report Field	Exchange-Related Field
	Badge <ul style="list-style-type: none"> · SQF · QUO Firm Mnemonic <ul style="list-style-type: none"> · Precise PHLX, NOM, NOBO ClientID (Tag 109). If not supplied, then SenderSubID (Tag 50). Service Bureau firms can work with Nasdaq to setup a default senderIMID value per session. <ul style="list-style-type: none"> · FIX Users Badge <ul style="list-style-type: none"> · SQF · QUO
routedOrderID	ClOrdID (Tag 11) <ul style="list-style-type: none"> · FIX Users Order Token <ul style="list-style-type: none"> · OTTO 1.4.d ClOrdID <ul style="list-style-type: none"> · OTTO 2.1.* Message-ID <ul style="list-style-type: none"> · SQF (Since Message-ID is binary, it will be converted to HEX)
symbol / optionID	Symbol/OptionID <ul style="list-style-type: none"> · FIX Users · SQF Users (for Sweep Orders) · OTTO
eventTimestamp	Trade Date
session	SenderCompID (Tag 49) <ul style="list-style-type: none"> · FIX Users OTTO ACCT (Login-id from the URL) <ul style="list-style-type: none"> · OTTO 1.4.d and OTTO 2.1 Users SQF ACCT (Login-id from the URL) <ul style="list-style-type: none"> · SQF Users

6. ICE Exchange Family

6.1. New York Stock Exchange (NYSE)

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept events reported by the New York Stock Exchange.

CAT Report Field	NYSE-Related Field
senderIMID	Entering Firm Trading Mnemonic
routedOrderID	CIOrdID (Tag 11) · NYSE FIX Users ClientOrderID · NYSE UTP Direct Users
symbol	Symbol · NYSE UTP Direct Users · NYSE FIX Users
eventTimestamp	Trade Date
session	SenderCompID (Tag 49) · NYSE UTP Direct Users · NYSE FIX Users

6.2. NYSE Arca, NYSE American, NYSE Chicago and NYSE National Stock Exchange (NYSE Pillar Gateway)

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept Event in NYSE American, NYSE Chicago, NYSE National, and NYSE Arca, received via the NYSE Pillar Gateway.

CAT Report Field	Exchange-Related Field
senderIMID	Firm Identifier – MPID
routedOrderID	CIOrdID (Tag 11) · FIX Users · Binary Users
symbol	Symbol
eventTimestamp	Trade Date
session	SenderCompID · FIX Users Username · Binary Users

6.3. NYSE Arca prior to the migration to Pillar Native Gateway

Firms are required to migrate to the NYSE Pillar gateway as per the schedule provided on the below website: <https://www.nyse.com/pillar>. The below matrix describes the specific fields that CAT uses to match CAT Order Route events to the related Order Accepted event, prior to migration to the Pillar gateway.

CAT Report Field	Exchange-Related Field
senderIMID	Equity Trading Permit ID (ETPID) · NYSE Arca Entering Firm Trading Mnemonic · NYSE MKT
routedOrderID	CIOrdID (Tag 11) · Arca FIX Users · NYSE FIX Users ClientOrderID · NYSE UTP Direct Users Client Order ID · Arca Direct Users
symbol	Symbol · Arca FIX Users · NYSE UTP Direct Users · Arca Direct Users · NYSE FIX Users
eventTimestamp	Trade Date
session	SenderCompID (Tag 49) · FIX Users Login ID · ARCA Direct GCCD

6.4. NYSE American Options and NYSE Arca Options

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept events reported by the NYSE American Options and the NYSE Arca Options exchanges.

CAT Report Field	Exchange-Related Field
senderIMID	Options Trading Permit ID (TPID) NYSE American Options NYSE Arca Options
routedOrderID	CIOrdID (Tag 11) · FIX Users Client Order ID · Arca Direct Users
symbol	Symbol · FIX Users · Arca Direct Users
eventTimestamp	Trade Date
session	SenderCompID (Tag 49) · FIX Users Login ID

CAT Report Field	Exchange-Related Field
	· ARCA Direct GCCD

7. Long-Term Stock Exchange (LTSE)

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept events reported by **LTSE**.

CAT Report Field	Exchange-Related Field
senderIMID	Market Participant Identifier (MPID)
routedOrderID	CIOrdID (Tag 11)
symbol	Symbol
eventTimestamp	Trade Date
session	SenderCompID (Tag 49)

8. Members Exchange (MEMX)

The below matrix describes the specific fields CAT uses to match CAT Order Route events to the related Order Accept events reported by **MEMX**.

CAT Report Field	Exchange-Related Field
senderIMID	Market Participant Identifier (MPID)
routedOrderID	CIOrdID (Tag 11) · FIX Users CIOrdID · SBE
symbol	Symbol
eventTimestamp	Trade Date
session	SenderCompID (Tag 49) · FIX Users Account Name · SBE