Order and Quote Routing Field Mapping between CAT and Exchanges/Display-Only Facility

5/24/2024

Version 2.11

Table of Contents

1. 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: • Updates for population of session for MIAMI and PEARL • MIAX Emerald 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: • Updates for population of *session* for MIAMI and PEARL
1.5	6/2/2020	Cboe Family: • 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: • Updates for population of senderIMID field
1.7	8/31/20	IEX: • 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: • Updates for population of senderIMID field
2.0	12/15/2020	Nasdaq Options Markets: • Updates for population of senderIMID field
2.1	2/5/2021	Nasdaq Stock Market, Nasdaq BX, and Nasdaq PSX • Updates for population of routedOrderID and session
2.2	3/19/2021	NYSE: • Updates for NYSE Pillar Gateway Migration
2.3	9/7/2021	NYSE: • Updates for ARCAOP Pillar Migration
2.4	10/14/2021	NYSE: • Minor update to ARCAOP Pillar Migration date
2.5	11/08/2022	Nasdaq Stock Market, Nasdaq BX and Nasdaq PSX: • Updates for population of routedOrderID for OUCH 5 protocol users

Version	Publish Date	Description
2.6	4/11/2023	Retitled as Order and Quote Routing Field Mapping between CAT and Exchanges/Display-Only Facility Added Section for quotations routed to a Display-Only Facility and the related Equity BBO events reported by FINRA ADF
2.7	7/5/2023	NYSE: • Updates reflecting the completion of the ARCAOP Pillar Migration and pending AMEROP migration to Pillar platform Members Exchange Family • MEMXOP added Added clarifications to Section 3 regarding Display-Only Facility
2.8	11/17/2023	NYSE: • Updates reflecting the completion of the Pillar Migration and retirement of the UTP platform across all exchanges
2.9	2/13/2024	Miami Exchange Family: • MIAX Sapphire added
2.10	4/25/2024	LTSE: • Updates to reflect new exchange platform effective Q3 2024
2.11	5/24/2024	Miami Exchange Family: • Updates to MIAX Sapphire mapping

2. 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, correlated exchange protocols and the associated CAT reporting.

This document also provides clarification for Industry Members generating quotes and displaying them on a Display-Only Facility, describing specific guidance related to linking quotations to related Display-Only Facility Equity BBO events.

3. Order routing fields – CAT/Exchange/Display-Only Facility 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. Also included below is field-by-field mapping for how CAT Routed Quote event fields should be populated based on Display-Only Facility protocols.

4. 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: ClOrdID (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	FIX: • SenderCompID (Tag 49)

CAT Report Field	BOX-related field
	SAIL: • “User Id” tag from the “TC-User Connection” Message sent by the Participant at the beginning of the day

5. Cboe Exchange Family

5.1. 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) OnBehalfofCompId (Tag 115) · FIX Users (Service Bureau) ClearingFirm · BOE Users
routedOrderID	ClOrdID (Tag 11) · FIX Users ClOrdID · 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

5.2. 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).

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	ClOrdID (Tag 11) · FIX Users ClOrdID · 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

6. 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	ClOrdID (Tag 11)
symbol	Symbol
eventTimestamp	Trade Date
session	SenderCompID (Tag 49)

7. Miami Exchange Family

7.1. 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.

<table>
<tr><th>CAT Report Field</th><th>Exchange-Related Field</th></tr>
<tr><td>senderIMID</td><td>FIX Order
SenderSubID FIX (Tag 50)
eQuote (MEI)
MPID</td></tr>
<tr><td>routedOrderID</td><td>FIX Order:
ClOrdID (Tag 11)
eQuote (MEI):
Client message Id
<table><tr><td>Client Message ID</td><td>4</td><td>BinaryU</td><td>Unique Message ID assigned by the firm</td></tr></table></td></tr>
<tr><td>symbol</td><td>Symbol –Simple Option Order FIX (Tags 55, 200, 201, 202 and 205)
Multi-leg Option Order FIX (Tags 600, 608, 611 and 612)</td></tr>
<tr><td>eventTimestamp</td><td>Trade Date</td></tr>
<tr><td>session</td><td>FIX Order:
SenderCompID (Tag 49)
eQuote (MEI Interface):
Username + “-“ + Computer ID. (see “TCP Session Management (SesM) Protocol Specification” section 3.2.1 Login Request)
<table><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></td></tr>
</table>

7.2. MIAX PEARL Options

<table>
<tr><th>CAT Report Field</th><th>Exchange-Related Field</th></tr>
<tr><td>senderIMID</td><td>FIX Order
SenderSubID FIX (Tag 50)
Binary Order (MEO)
MPID</td></tr>
<tr><td>routedOrderID</td><td>FIX Order:
ClOrdID (Tag 11)
Binary Order (MEO Interface) (unassigned Market Maker Order or Non Market Maker Order or other than day TIF):
If Auto Replaced: Client message Id + ‘-‘ + “Client Order ID”
<table><tr><td>Client Message ID</td><td>4</td><td>BinaryU</td><td>Unique Message ID assigned by the firm</td></tr></table>
<table><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>
Otherwise: Client Order Id</td></tr>
<tr><td>symbol</td><td>Symbol –Simple Option Order FIX (Tags 55, 200, 201, 202 and 205)</td></tr>
<tr><td>eventTimestamp</td><td>Trade Date</td></tr>
<tr><td>session</td><td>FIX Order:
SenderCompID (Tag 49)
Binary Order (MEO Interface):
Username + “-“ + Computer ID. (see “TCP Session Management (SesM) Protocol Specification” section 3.2.1 Login Request)
<table><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></td></tr>
</table>

7.3. MIAX PEARL Equities

<table>
<tr><th>CAT Report Field</th><th>Exchange-Related Field</th></tr>
<tr><td>senderIMID</td><td>FIX Order
OnBehalfofCompID FIX (Tag 115)
Binary Order (MEO)
MPID</td></tr>
<tr><td>routedOrderID</td><td>FIX Order:
ClOrdID (Tag 11)
Binary Order (MEO Interface) (unassigned Market Maker Order or Non Market Maker Order or other than day TIF):
If Auto Replaced: Client message Id + ‘-‘ + “Client Order ID”
<table>
<tr><td>Client Message ID</td><td>4</td><td>BinaryU</td><td>Unique Message ID assigned by the firm</td></tr>
</table>
<table>
<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>
Otherwise: Client Order Id</td></tr>
<tr><td>symbol</td><td>Symbol –Simple Option Order FIX (Tags 55, 200, 201, 202 and 205)</td></tr>
<tr><td>eventTimestamp</td><td>Trade Date</td></tr>
<tr><td>session</td><td>FIX Order:
SenderCompID (Tag 49)
Binary Order (MEO Interface):
Username + Computer ID. (see “TCP Session Management (SesM) Protocol Specification” section 3.2.1 Login Request)
<table>
<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></td></tr>
</table>

7.4. MIAX Sapphire Options

<table>
<tr><th>CAT Report Field</th><th>Exchange-Related Field</th></tr>
<tr><td>senderIMID</td><td>FIX Order
SenderSubID FIX (Tag 50)
Binary Order (MEO)
MPID</td></tr>
<tr><td>routedOrderID</td><td>FIX Order:
ClOrdID (Tag 11)
Binary Order (MEO Interface) (unassigned Market Maker Order or Non Market Maker Order or other than day TIF):
If Auto Replaced: Client message Id + ‘-‘ + “Client Order ID”
<table><tr><td>Client Message ID</td><td>4</td><td>BinaryU</td><td>Unique Message ID assigned by the firm</td></tr></table>
<table><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>
Otherwise: Client Order Id</td></tr>
<tr><td>symbol</td><td>Symbol –Simple Option Order FIX (Tags 55, 200, 201, 202 and 205)</td></tr>
<tr><td>eventTimestamp</td><td>Trade Date</td></tr>
<tr><td>session</td><td>FIX Order:
SenderCompID (Tag 49)
Binary Order (MEO Interface):
Username + Computer ID. (see “TCP Session Management (SesM) Protocol Specification” section 3.2.1 Login Request)
<table><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></td></tr>
</table>

8. Nasdaq Exchange Family

8.1. 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)
routedOrderID	ClOrdID (Tag 11) · FIX Users Order Token/Client Order ID · RASHport Users Order Token · DROP Users · OUCH 4 Users ClOrdID · OUCH 5 Users User Order ID · QIX Users (Order Entry Message) Client Tracking Number appended with 'B' or 'S' or side value if using short sale · QIX Users (Quote Update Message) UID · CTCI Users
symbol	Symbol · FIX Users Stock · DROP Users · OUCH Stock Symbol · RASHport
eventTimestamp	Trade Date

CAT Report Field	Exchange-Related Field
session	FIXPortAcct · FIX Users OUCHAcct · NASDAQ INET OUCH QIXAcct · NASDAQ QIX (Order Entry Message) "$AQR01" · NASDAQ QIX (Quote Update Message) RASHAcct · RASHPort Source · OUCH Drop Deliver ToSubID (Tag 128) · FIX/RASH Drop

8.2. 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 Badge · SQF · QUO Firm Mnemonic · 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. · FIX Users Badge · SQF · QUO
routedOrderID	ClOrdID (Tag 11) · FIX Users Order Token · OTTO 1.4.d ClOrdID · OTTO 2.1.* Message-ID

CAT Report Field	Exchange-Related Field
	· SQF (Since Message-ID is binary, it will be converted to HEX)
symbol / optionID	Symbol/OptionID · FIX Users · SQF Users (for Sweep Orders) · OTTO
eventTimestamp	Trade Date
session	SenderCompID (Tag 49) · FIX Users OTTO ACCT (Login-id from the URL) ·OTTO 1.4.d and OTTO 2.1 Users SQF ACCT (Login-id from the URL) · SQF Users

9. ICE Exchange Family

9.1. NYSE, NYSE Arca, NYSE American, NYSE Chicago, NYSE National Stock Exchange, NYSE Arca Options, and NYSE American Options (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, NYSE Arca, NYSE American, NYSE Chicago, NYSE National, NYSE Arca Options, and NYSE American Options received via the NYSE Pillar Gateway.

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

10. 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	ClOrdID (Tag 11) · FIX Users ClOrdID · SBE
symbol	Symbol
eventTimestamp	Trade Date
session	SenderCompID (Tag 49) · FIX Users Account Name · SBE

11. Members Exchange Family (MEMX)

11.1. 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	ClOrdID (Tag 11) · FIX Users ClOrdID · SBE
symbol	Symbol
eventTimestamp	Trade Date
session	SenderCompID (Tag 49) · FIX Users Account Name · SBE

11.2. MEMX Options

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

CAT Report Field	Exchange-Related Field
senderIMID	Executing Firm Identifier (EFID)

CAT Report Field	Exchange-Related Field
routedOrderID	ClOrdID (Tag 11) · FIX Users ClOrdID · SBE
symbol	OSI Symbol
eventTimestamp	Trade Date
session	SenderCompID (Tag 49) · FIX Users Account Name · SBE

12. Display-Only Facility

12.1. FINRA Alternative Display Facility (FINRA ADF)

The below matrix describes the specific fields CAT uses to match CAT Routed Quote events to the related Equity BBO events on a Display-Only Facility reported by **FINRA ADF**.

CAT Report Field	Display-Only Facility-Related Field
senderIMID	Market Participant Identifier (MPID)
routedQuoteID	QuoteID (Tag 117) · FIX Users
symbol	Symbol
eventTimestamp	Event Date
session	Concatenation of fields for a total session field length of 8 as follows: <PartyID(Tag 448)>< SenderSubID(Tag 50)> · FIX Users