CAT Reporting Technical Specifications for Industry Members

4/29/2019

Version 2.0

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Preface

Rule 613 of the Securities Exchange Act of 1934 requires national securities exchanges and national securities associations ("SROs") to submit a national market system plan to the Securities and Exchange Commission ("Commission" or "SEC") to create, implement, and maintain a consolidated audit trail (the "CAT") that would allow regulators to more efficiently and accurately track all activity in U.S. equity and listed options markets. Pursuant to Rule 613, the SROs filed with the Commission the National Market System Plan Governing the Consolidated Audit Trail ("CAT NMS Plan"), which was approved by the Commission on November 15, 2016.

Under Rule 613(g)(2), each member of a national securities exchange or national securities association is required to comply with all the provisions of the CAT NMS Plan. Relatedly, as mandated under Rule 613, the CAT NMS Plan requires each SRO to adopt rules requiring its members to comply with Rule 613 and the CAT NMS Plan, and to agree to enforce compliance by its members in that regard. Accordingly, each SRO has adopted rules requiring its members to comply with Rule 613 and the CAT NMS Plan. See, e.g., FINRA Rule 6800 Series.

The SROs jointly own CAT NMS, LLC, which was formed by the SROs to arrange for and oversee the creation, implementation, and maintenance of the CAT as required under Rule 613. Thus, the CAT is a facility of each SRO.

This specification represents a phased approach to industry reporting. Key dates are as noted below. A proposed amendment to the CAT NMS Plan will be filed with the Commission to reflect the phased approach for Industry Member CAT reporting described in these Technical Specifications. The proposed amendment will be subject to the Commission's approval.

Table 1: Industry Specifications Phased Approach

Phase 2a – Equities Part 1 Go Live 4/20/2020	Phase 2c – Equities Part 2 Go Live 4/2021
All events and scenarios covered by OATS	Linkages to the customer order(s) being represented for all representative order scenarios including agency average price, net trading, aggregated orders, OMS-EMS scenarios
All proprietary orders including market maker orders	Sub-account allocations
Firm Designated ID	Rejected External Routes with flag indicating route was not accepted by receiving destination
All street side representative orders (both agency and proprietary)	Internal Route modifications and cancels
Linkage is required between the representative street side order and the order being represented when the representative order was originated specifically to represent a single order (received either from a customer or another broker-dealer) and there is: 1) an existing direct electronic link in the firm's system between the order being represented and the representative order, and 2) any resulting executions are immediately and automatically applied to the represented order in the firm's system	Unlisted quotes sent to an inter-dealer quotation system operated by a CAT Reporter
Quotes in NMS stocks sent to a national securities exchange or facility of a national securities association *assumes exemptive relief request or Plan ammendment for verbal quotes	Revisit application of OATS guidance to CAT for firm modifications to previously routed orders (OATS FAQ C35)
Unlisted quotes (OTC Equity Securities) received by a broker-dealer operating an inter-dealer quotation system (e.g., Global OTC, OTC Link) *see above comment on verbal quotes	Special Handling instructions on Route Reports (limited to a defined set of values)
Unlisted quotes that meet the definition of bid or offer under the Plan sent by a broker-dealer to a quotation venue not operated by an SRO or broker-dealer *see above comment on verbal quotes	Quote ID on Trade Events
Electronic capture time for manual orders	
OATS guidance regarding firm modifications to previously routed orders (OATS FAQ C35) applies to CAT	
Phase 2b – Options Part 1 Go Live 5/18/2020	**Phase 2d – Options Part 2 Go Live 12/2021**
Simple options electronic orders, excluding electronic paired orders	Simple options manual orders
	Electronic and manual paired orders
	All complex orders with linkage to all CAT-reportable legs

Executive Summary

This document describes the requirements for the reporting of data to CAT by Industry Members, including detailed information about data elements and file formats of each Reportable Event. It also describes how Industry Members submit files to CAT, including access instructions, network and transport options, and testing requirements.

A separate companion document containing detailed reporting scenarios entitled CAT Industry Member Reporting Scenarios should be used as a guide for determining how the event types and field values laid out in this document must be applied when reporting various order handling and execution scenarios for both equities and options.

Table 2: Revision / Change Process

Version	Date	Author	Description
1.0	10/30/2018	Thesys CAT	Initial publication
1.01	2/22/2019	CAT NMS, LLC	Re-publish v1.0 (as v1.01) to reflect transition from Thesys CAT
1.1 Draft 1	2/28/2019	CAT NMS, LLC	Removed values (A,R,T) from allowable values for *reportingExceptionCode* Added the following allowable values to *handlingInstructions*: MOC, MOO, BIN Removed the following allowable values to *handlingInstructions*: CDIF, OPG Added the following fields to MOOM event: *routingOrigin, routingOriginType, aggregatedOrders, representativeInd* Removed *isoInd* field from MECO and MECOM events Removed *auctionFlag* from Data Dictionary Changed description of ATS fields to state “Applicable for ATSs only.” Greyed out *quoteRejectedFlag* on MENQ event Extended *seqNum* to be alphanumeric (40) Changed *firmDesignatedID* to alphanumeric (40) Changed *firmDesignatedID* to be required on MENQ Changed Lifecycle Keys to Linkage Keys Changed *negotiatedTrade* field to *negotiatedTradeFlag* Updated language for *displayPrice* and *displayQty* fields Changed *Material Terms* in the glossary to state “strike price” instead of “sticker price” Greyed out *quoteID* and *priorQuoteID* on MEOM event Changed Stop Stock *handlingInstruction* to a Name Value Pair Changed *accountType* to *AccountHolderType* Greyed out *handlingInstructions* on route events. Removed *optionOriginCode* from options events. Removed *originator*

Version	Date	Author	Description
			Added *accountHolderType* to MONO Added *affiliateFlag* to MENO, MEOA, MONO, and MOOA events. Added *accountHolderType* of F Foreign Removed *reportingExceptionCode* field from MEOTQ event Changed definition of *electronicTimestamp* to the time the order was systematized. Removed the list of exchange specific values from the Data Dictionary in the *ExchOriginCode* field Added *capacity* to MEFA event Added *manualOrderID* to MENO, MONO, MOOA events. Added new allowable value to *representativeInd* and *fulfillmentLinkType*: O Removed SH code from Routes to 2c Extended *FirmROEID* to 50 characters Removed *leavesQty* from MEOF
1.1 Draft 2	3/29/2019	CAT NMS, LLC	Made corrections to 2/28/19 change log Extended *FirmROEID* to 64 characters Updated go live dates for phases 2c and 2d Removed MEOTQ event and added *quoteID* as a conditional field on the MEOT. Changed r*eporterID* and *submtterID* fields to *CATReporterIMID* and *CATSubmitterID* Added *actionType, orderReceivedDate*, *CATReporterIMID, OrigFirmROEID,* and *origFileName* to all event types Added *actionType, orderReceivedDate, origFirmROEID, origFileName* to Data Dictionary Added “Primary Order Event”, “Secondary Order Event”, “Trading Algorithm” , and “ROE” to the Glossary Defined NBBOSource of “Hybrid” Updated Section 2.2.1 Updated Section 2.2.5 and section 4.3 to note that *handlingInstructions* are not required on Order Route events until phase 2c. Updated Linkage Keys throughout the document Updated Section 3 with instructions for populating ATS fields Updated definition of *session* in Data Dictionary Updated definition of *custDspInstrFlag* in Data Dictionary and events, added allowable values to Data Dictionary Added *manualOrderID* to MEOM event. Added *affiliateFlag, cancelFlag,* and *cancelTimestamp* to MEOT Added *cancelFlag* and *cancelTimestamp* to Data Dictionary Changed *displayPrice* on MENO and MEOA to be an ATS Field Removed *handlingInstruction* of CLO

Version	Date	Author	Description
			Added letter values for NBBO Source fields Updated instances of “Equity Quote Event” to state “Quote Event” consistent with the name of the event type Updated definition of fulfillmentLinkType YF to remove reference to options order fulfilment Updated all references of web portal to state “CAT Reporter Portal" Changed the definition of *electronicTimestamp* to “the time the event was systematized” Removed *leavesQty* from MOOF Updated the definition of *priorOrderDate* in MEIR, MECOM, MEOM, MEOJ, MOIR, MOCOM, MOOM, and MOOJ events Removed *priorOrderDate* from MEOR, MECO, MECOC, MEOC, MEOT, MEOF, MOOR, MOCO, MOCOC, MOOC, and MEOF events. Updated the definition of *priorOrderID* in MEIR, MECOM, MEOM, MEOJ, MOIR, MOCOM, MOOM, and MOOJ events Removed *parentOrderID* from MECOM, MECOC, MOCOM and MOCOC events Updated the definition of *parentOrderID* in MECO and MOCO events Updated the definition of *orderID* in MEIR, MECOM, MECOC, and MOIR and MOCOC events Added *parentOrderDate* to MECO and MOCO event Added *destination* and *routingOrigin* MIAX Emerald (“MIAXOE”) Changed the *destination* and *routingOrigin* value for MIAX Pearl to “MIAXOP” Updated the definition of “Destination” in the MENQ event to state that it must match the *receiverIMID* Updated the definition of *initiator* in the Data Dictionary Removed *reason* and *cancelReason* fields Updated definition of *eventTimestamp* in MOCO, MOCOM and MOCOC events Added definition of *AccountHolderType* “F” Updated definition of *senderIMID* in Data Dictionary Updated Section 2.5.3 for requirements when routing to a foreign broker-dealer Updated section 6 and 7 Submission, Feedback and Corrections Added and clarified date definitions in Appendix D Added draft of error codes in Appendix E Updated contact info for CAT Help Desk
2.0	4/29/2019	CAT NMS, LLC	Made corrections to 3/29/19 change log Added hyperlinks for external resources Streamlined wording throughout the document Added clarifying content to Table 1 Added new FDID content Clarified that quoteID on Trade Events is not required

Version	Date	Author	Description
			until Phase 2c Clarified requirements for electronic and manual Option Events in Phases 2b and 2d Updated and clarified data types including adding examples for JSON and CSV Updated content in section 2.5 – linkage keys Added field order in all CAT events Updated definitions of CAT Events Greyed out events and linkage keys that are not applicable until Phase 2c and 2d Renamed "Order Internal Route" event to "Order Internal Route Accepted" event Reorganized, removed and added fields within the Trade, Fulfillment and Fulfillment Amendment Events Added Trade Supplement Event Defined fields in Option Order Supplement Event Updated fields in all events to support corrections including errorROEID Added originatingIMID, dupROIDCond, and atsDisplayInd fields Changed routingOrigin and routingOriginType to senderIMID and senderIMIDType Removed session from MEOA, MEOM, MOOA and MOOM events Updated destination values and descriptions for exchanges to be in sync with Plan Participants Spec Updated content in section 6 & 7 Updated and clarified Appendix C and representative order fields, added value YE Updated and Added Error Codes in Appendix E – Error Codes Updated and Added definitions in Appendix F – Glossary, including Primary and Secondary Events Added and updated definitions in Appendix G - Data Dictionary Updated allowable values for *accountHolderType* and *deptType* fields

1. Introduction

1.1. CAT Overview

The Securities and Exchange Commission (SEC) approved Rule 613 under the Securities Exchange Act of 1934, which requires national securities exchanges and national securities associations (collectively, the Participants) to submit a national market system plan to create, implement, and maintain a consolidated audit trail (CAT NMS Plan) that would capture customer and order event information for orders in NMS Securities and OTC Equity Securities (Eligible Securities), across all markets, from the time of order inception through routing, cancellation, modification, execution, and allocation. The SEC approved the CAT NMS Plan on November 15, 2016.

In accordance with SEC Rule 613, the CAT NMS Plan requires a Central Repository that will comprehensively track orders throughout their lifecycle and identify the Participants and Industry Members handling them, as well as the account holders and authorized traders for any account that originates an order (Customers[1]). Specific data elements will be submitted to the Central Repository by Participants, Industry Members, and CAT Reporting Agents. CAT Reporting Agents may be third-party firms reporting on behalf of other entities, or may be outside parties that are not required to submit data to the CAT, but from which the CAT may receive data per the CAT NMS Plan, such as the Securities Information Processors (SIPs).

The CAT NMS Plan also requires the selection of an entity as the Plan Processor to be responsible for performing the processing functions required by Rule 613 and the Plan. The Operating Committee of CAT NMS LLC, a governing body composed of representatives of the Participants, oversees the operation of the CAT. The duties of the Operating Committee are further described in Article IV of the CAT NMS Plan.

Refer to SEC Rule 613, available at: https://www.sec.gov/rules/final/2012/34-67457.pdf for more details. Refer also to CAT NMS Plan, available at: https://www.catnmsplan.com/wp-content/uploads/2018/02/34-79318-exhibit-a.pdf

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[1] Customers are defined in SEC Rule 613(j)(3) as: (i) the account holder(s) of the account at a registered broker-dealer originating the order; and (ii) any person from whom the broker-dealer is authorized to accept trading instructions for such account, if different from the account holder(s).

2. CAT Reporting Fundamentals

2.1. Industry Member Perspective

Industry Members must populate fields from their perspective. For example, for “capacity”, the Industry Member must report based on the capacity in which the Industry Member acted. For New Order and Order Accepted events, reports must indicate the instructions as received. For an Order Route, the fields must include the instructions as sent to the destination.

2.2. Key Data Elements

The sections below describe the key data elements of CAT that may be used in CAT events and/or Metadata files.

2.2.1. CAT Reporter IMID and CAT Submitter ID

The CAT Reporter IMID and the CAT Submitter ID (i.e., CAT Reporting Agent), are used during the CAT file submission process to identify the Industry Member whose data is represented in the file along with the entity that submitted the data to CAT.

CAT Reporter IMID

The CAT Reporter IMID is the SRO assigned identifier that an Industry Member used to report to CAT. A CAT Reporter may use any SRO assigned identifier that is valid on the CAT Trading Day for which CAT events are submitted. CAT will use reference data submitted by Participant Reporters each day to identify the Industry Member to which the specific identifier is assigned. Each SRO assigned identifier is linked to the Industry Member's CRD number so that all reporting activity of a single Industry Member CAT reporter can be consolidated at the firm level in CAT.

CAT Submitter ID

CAT Reporters may authorize third-parties (“CAT Reporting Agents”) to submit data to CAT on their behalf. Each CAT Reporting Agent and CAT Reporter will be assigned a unique CAT Submitter ID. If a CAT Reporter is performing its own submissions, these files will be submitted using its own CAT Submitter ID.

2.2.2. Order ID

The order ID used in CAT events represents the internal order ID assigned by the Industry Member. The order ID is used as a linkage key and must be unique when combined with the *orderKeyDate*, *CATReporterIMID* and *symbol* (or *optionID*). Other key linkage fields are fully described in Section 2.5.1.

2.2.3. Timestamps

Each Industry Member must record and report Industry Member Data captured in an electronic system to CAT with timestamps in milliseconds. CAT will accept granularity up to nanoseconds. However, to the extent that any Industry Member's order handling or execution systems utilize timestamps in increments finer than milliseconds, the Industry Member must record and report timestamps in the finest level of granularity that is captured.

Each Industry Member may record and report Manual CAT events in increments up to and including one second, provided that each Industry Member records and reports the time when a Manual CAT Event has been captured electronically in an order handling and execution system of such Industry Member ("Electronic Capture Time") in milliseconds. In phase 2c, each Industry Member must record and report the time of Allocation Reports in increments up to and including one second.

Each CAT event contains both an eventTimestamp and electronicTimestamp. The eventTimestamp is the time of order handling or execution pursuant to Section 6.8 of the CAT NMS Plan (e.g. origination, receipt) depending on the respective order event. For manual order handling, eventTimestamp is the manual handling or execution time, which is required to be reported in increments of at least one second. When the manual order is later captured electronically, the systematized time must be captured in the electronicTimestamp field.

2.2.4. Order Handling Instructions

Special handling instructions are reported in the *handlingInstructions* field using a standardized list of handling instructions and codes. Multiple codes and values can be used in combination to report special handling instructions.

Industry Members are required to report *handlingInstructions* on Order Route events in phase 2c. In the event an Industry Member routes an order with exactly the same handling instructions received from the customer, they may use *handlingInstructions* code "RAR" (Routed as Received) on the Order Route event rather than re-stating all *handlingInstructions* values from the New Order/Order Accepted event.

2.2.5. Firm ROE ID

The Firm ROE ID is the internal identifier assigned by the Industry Member to uniquely represent a record in CAT. The *firmROEID* is present on every CAT event and is used to support the corrections process.

The *firmROEID* must be unique for the Event Date and CAT Reporter IMID and is required to be formatted as follows: <Event Date>_<firm ROE Identifier>. This requirement applies to CAT Reporters that use multiple Submitters. An example of a firmROEID is: 20190429_323134567.

Event Date must represent the date portion of the *eventTimestamp* reported in the record. The inclusion of the event date provides processing efficiency for the corrections process by allowing the CAT Processor an efficient mechanism to locate the record being corrected.

Refer to Section 7.6 for more information on the corrections process.

2.2.6. Error ROE ID

The Error ROE ID is the identifier assigned by CAT to uniquely identify an error record. The *errorROEID* is returned with error feedback to provide a mechanism for firms to repair errors generated during processing. When firms are submitting corrections to CAT that represent a repair of an error, the *errorROEID* provides an efficient mechanism to locate the error record being repaired.

Refer to Section 7.6 for more information on the corrections process.

2.3. Reference Data

2.3.1. Industry Member Identifier (IMID)

An Industry Member Identifier is any identifier assigned by an SRO to one of its members. Examples of SRO assigned identifiers include FINRA MPIDs, Nasdaq MPIDs, NYSE Mnemonics, CBOE User Acronyms, and CHX Acronyms.

CAT Events will use fields with the data type "IMID" to refer to the Industry Member performing the action described by the event, and/or the entity that is the subject of the action described by the event. The IMID data type will be used in all scenarios where an Industry Member must refer to themselves or another Industry Member in an event.

Industry Members may use any SRO assigned Industry Member Identifier in the Reportable Events. Since the same SRO assigned Industry Member Identifier may be used by different SROs for different entities, CAT will publish a daily file to highlight any conflict among the SRO assigned Industry Member Identifiers. Such conflicts are detected in the processing of the daily member dictionaries submitted by each SRO. If a conflict is identified for a specific IMID, the Industry Member may choose to use either the SRO assigned Industry Member Identifier by another SRO that is not conflicted with other IDs, or the full format of the IMID - the combination of source (issuing SRO) and the SRO assigned Industry Member Identifier - to guarantee uniqueness of the IMID. For example, if AAAA is conflicted with another SRO assigned Market Participant Identifier in the CAT, the alternative can be to either use a different SRO assigned Market Participant Identifier assigned by another SRO (e.g., AAAB, pointing to the same Industry Member), or the full format FINRA:AAAA - a combination of ID and the source SRO.

2.3.2. Firm Designated ID (FDID)

Section 6.4 of the CAT NMS Plan requires that for the original receipt or origination of an order, Industry Members must report the Firm Designated ID (FDID). Therefore, FDID is required to be populated on all New Order events for both equities and options.

FDID is defined in Section 1.1 of the CAT NMS Plan as a unique identifier for each trading account. Industry Members must assign a single FDID to each trading account that is unique across all vendors the IM may use to report new orders to CAT and unique across time (with limited exceptions, such as closed accounts). For example, if an Industry Member uses multiple vendors for reporting, each vendor must report activity from the same account using the same FDID.

Examples of what an FDID would represent include:

- Individual Customer Account Number
- Institutional Customer Account Number
- Account Number of Average Price Account Designated for a Specific Customer, e.g. master account or agency Representative Order scenarios
- Account Number of Firm Average Price Account Shared Across Customers (e.g., Master Account, Account Used For Agency Representative Order Flows)
- Entity ID of the firm when an employee of the firm is exercising discretion over multiple customer accounts
- Proprietary Trading Account Number
- Firm assigned identifier representing a trading relationship (Relationship ID) can be used when the trading account structure is unavailable at the time the order was placed

An actual account number may not be used as the FDID for a customer account for CAT reporting. See CAT FAQ M2 for more information on the prohibition on use of actual account numbers. Refer to the CAT Industry Presentation on FDID for additional information.

2.3.3. Equity Symbols

Industry Members must report CAT Events related to listed equity Eligible Securities to CAT using the symbology of the primary listing exchange and must report CAT Events related to OTC Equity Securities using FINRA OTC symbology.

2.3.3.1. CAT Symbol Master

CAT will provide a start-of-day equity symbol master list and an end-of-day equity symbol master list each day on www.catnmsplan.com.

The symbol master file for Industry Members contains the following information:

- Listing exchange for listed securities with the symbol in the symbology of the listing exchange
- FINRA symbology for OTC Equity Securities
- Flag indicating whether the symbol is a test symbol.

2.3.4. Option Symbols

As stated above, the CAT NMS Plan requires symbols to be reported to CAT in the symbology of the listing exchange. Standard option symbols established across exchanges as the result of the Option Symbology Initiative (OSI) must be used for any single-leg listed options.

2.3.4.1. Flex Percent Option Symbols

FLEX Percent options can only be uniquely identified using the OSI once their deterministic prices are known. When reporting the optionID for a FLEX Percent option, Industry Members must append "%" to the beginning of the standard OSI symbol. This will enable the CAT system to differentiate between a strike value that is expressed in percent terms from one that is expressed in dollars and cents.

FLEX Percent option symbols expressed with percentage strike values will have 22 characters. For example, an option order with optionID %1AAPL 200131C00095000 indicates it is a Flex Percent option order on OSI symbol 1AAPL 200131C00095000.

2.3.5. Corporate Actions

The CAT System will maintain historical symbology in the Central Repository that includes corporate actions.

CAT will receive daily corporate action files and symbol updates from the various data sources (including equity and options listing exchanges, FINRA OTC Equity Symbols, Data Distribution Services from

Options Clearing Corporation, etc.) and publish daily symbol master files to the Industry Members. The symbol changes impacted by corporate actions will be reflected in the daily symbol master files. Industry Members must use the updated symbol in Reportable Events from the effective date of the symbol change. Failure to report in the updated symbol would result in rejects of the record(s).

Industry Members are not required to report order adjustments due to corporate actions, e.g., price or size changes. However, if an Industry Member chooses to report an adjustment resulting from a corporate action, the adjustment must be reported using the Order Modified event (or Order Adjusted event).

2.3.5.1. Options Intraday Listing or Delisting

CAT accommodates intraday listing of options by exchanges. Industry Members must report the OSI symbol as the optionID, just like for previously listed options.

CAT will maintain a historical record of option symbols, including symbols that have been delisted. Exchanges and the OCC will provide reference data to CAT for option symbols that are listed or delisted intraday.

2.4. Data Types

CAT will accept two kinds of text-based files: JSON and CSV. Data types used throughout this document are described below.

To support JSON and CSV submissions, CAT will publish a JSON schema file on the CAT public website that describes each data type with required representation formats and a mapping that defines the position in a CSV representation.

2.4.1. Data Validation Based on Data Types

All data submitted to CAT will be validated based on the defined data type of each item, including proper formatting and range checking. Examples of accepted values are detailed in the table below. Valid values for Choice fields are defined in the Data Dictionary for each data element. Valid data values, ranges, and formats will be specified in the record schema files, which will be used to validate submitted data element values. Records and values that fail validation will be rejected and will be reported as feedback to the Reporter and Data Submitter as detailed in Section 7.

Table 3: Data Types

Data Type	JSON Type	Description
Numeric	NUMBER	Composed of digits with an optional decimal point. Values must represent the exact value as per the examples: • 1235 • -1235 • 1235.67 • -1235.67 Numeric data types described in this document will include two numbers, the first is the maximum number of digits before the decimal point, and the second is the maximum number of digits after the decimal point. For example, Numeric (6,4) indicates that the number can have a maximum of 6 digits before the decimal point and a maximum of 4 digits after the decimal point. Valid examples which comply with Numeric (6,4) include: • -999999.9999 • -0.1 • 0 • 0.0001 • 999999.99 • 0.25 Numeric values must always include a digit in the portion before the decimal. The fractional portion is optional. (for example, 0.25 cannot be represented as .25).
Price	NUMBER	Numeric (10,8), which supports prices in the inclusive range from -9999999999.99999999 to 9999999999.99999999.
Real Quantity	NUMBER	Numeric (12,6) with up to 12 digits before the decimal point and up to 6 digits after the decimal point. However, the type Real Quantity cannot have trailing zeroes in the decimal quantities. Trailing zeroes in the decimal quantity will result in a rejection. For example, a value of 100.00 would not be accepted for the type Real Quantity, only 100 would be accepted. Similarly, a value of 100.10 would not be accepted, only 100.1 is acceptable for the type Real Quantity.
Whole Quantity	NUMBER	Numeric (12,0). An integer value with no decimal fraction component.
Integer	NUMBER	An integer value (positive, negative, or zero), with no decimal fraction component, in the inclusive range from −9,223,372,036,854,775,808 to 9,223,372,036,854,775,807 (the same range as a 64-bit signed integer).
Unsigned	NUMBER	An unsigned value, greater than or equal to zero, with no decimal fraction component, in the inclusive range from 0 to 18,446,744,073,709,551,615 (the same range as a 64-bit unsigned integer).
Boolean	BOOLEAN	A value with two choices: true or false. In CSV representation, the value must equal `true` or `false` (lower cases, no quotation marks). In JSON representation, if the field is not present, the value is considered `false`.
Alphanumeric	STRING	A string, composed only of letters and digits [a-zA-Z0-9]. When an Alphanumeric type is described, it will include a number, indicating the maximum length of the field. For example, Alphanumeric (7) means that the

Data Type	JSON Type	Description
		field can contain up to 7 characters.
Text	STRING	A string, composed of any printable character. The string may not include the following delimiters: • comma (ASCII decimal 44, hex 2C), • pipe (ASCII decimal 124, hex 7C), • double quote (ASCII decimal 34, hex 22), and • @ (ASCII decimal 64, hex 40). When a Text data type is described, it will include a number, indicating the maximum length of the field. For example, Text (7) means that the field can contain up to 7 characters.
Date	NUMBER	An 8-digit integer representing the date in YYYYMMDD.
Time	STRING	A numeric field, with a specific format conforming to what the ISO 8601 standard calls the *basic format*, with a few extra specifications. All 24-hour time components are mandatory (*i.e.*, hour, minute, and second as HHMMSS). The decimal-fraction part must be separated from the whole part with a period (ASCII decimal 46, hex 2E), and can contain up to 9 digits (to represent nanosecond component). The time zone is always Eastern Time (ET). For example, 09:30:00.123456789 ET would be reported as `093000.123456789`.
Timestamp	STRING NUMBER	A timestamp represents a moment in time, and contains both Date and Time, separated by the letter T (ASCII decimal 84, hex 54) or a space (ASCII decimal 32, hex 20). All time must be in Eastern Time (ET). For example, January 7, 2017 21:30:00.123456789 in New York would be represented as the string `20170107T213000.123456789` or `20170107 213000.123456789.` As an alternative format, the timestamp can be submitted as a value of type Unsigned, representing the number of nanoseconds that have elapsed since 00:00:00 Coordinated Universal Time (UTC), Thursday,1 January 1970, not counting leap seconds. This is also commonly known as POSIX time or UNIX time. The same point in time from the above example would be represented as the number 1483842600123456789. Note that the data type is different between the two formats. In JSON, the first representation requires it to be surrounded by double quotes, while the second does not.

Name Value Pairs	STRING	A value of type Text, composed of a list of zero or more attributes where each attribute is either a name with no value, or a name with an accompanying value. Multiple attributes are separated by a delimiter.
		In JSON, when a value is accompanied by a name, the value must be formatted as per the data type syntax required in JSON.
		For example *handlinginstructions* are represented as following in JSON
		"**handlingInstructions**":{
		"AOK": true,
		"DISP": 10.00,
		"TMO":"20190419T092316.123456789",
		"AucResp":"AuctionID456"
		}
		In CSV, when a value is accompanied by a name, the value must follow an equal sign. The pipe delimiter is used to separate name/value pairs.
		When represented in CSV, it is

Data Type	JSON Type	Description
		AOKIDISP=10.00I TMO=20190419T092316.123456789IAucResp=AuctionID456
Array	ARRAY	A list of 0, 1 or more values of the same data type. When represented in JSON, the values within the list are between brackets [ ] with a comma delimiter between each value. An array of unsigned integers is represented as `[ 0, 42 ]`. When represented in CSV, the values within the list are separated by a pipe delimiter. An array of Unsigned integers is represented as `0|42`. For example, atsOrderTypes are represented as the following in JSON: "**atsOrderType**":["PEG","midPEG"] When represented in CSV, it is: ,,,PEGImidPEG,,,
Choice	STRING	A Text field with an explicit list of acceptable values. The Data Dictionary section of this document lists the acceptable values for each Choice field.
Symbol	STRING	Text (22). Refer to 2.3.3 and 2.3.4 for more details on Equity and Options symbols. The string is case sensitive.
Message Type	STRING	Alphanumeric (5) indicating the type of message being reported.
CAT Reporter IMID	STRING	Alphanumeric (7) - a CAT Reporter IMID.
Participant ID	STRING	A subclass of CAT Reporter IMID that applies only to Participants.
Exchange ID	STRING	A subclass of Participant ID that applies only to exchanges.
CAT Submitter ID	Unsigned	A unique ID assigned by CAT to the CAT Reporting Agent.
Industry Member ID (IMID)	STRING	Text (16) – SRO assigned Market Participant Identifier - an identifier assigned by an SRO to one of its members. For example, FINRA MPID, Nasdaq MPID, NYSE Mnemonic, CBOE User Acronym, or CHX Acronym. As an alternative, the IMID can be represented in the format of IssuingSRO:IMID. For example, a FINRA MPID *AAAA* can be represented as *FINRA:AAAA.* The alternative format is used when simple IMID cannot guarantee the uniqueness of identification of an Industry Member.
Trade Side Details	Multi-Dimensional Array	A compound object that consists of a list of data elements that represents buy side details and sell side details of a Trade. For Trade Details, each side is limited to one set of details. When represented in JSON, the buy details and sell details are each within a set of brackets [ ] with a comma delimiter between each element. For example, Trade Side Details (*buyDetails* and *sellDetails* are represented as follows in JSON: "**buyDetails**" : [{"orderID" : "OrderABC", "orderKeyDate": "20190419T000000", "side" : "buy"}], "**sellDetails**" : [{"side" : "sell",

Data Type	JSON Type	Description
		"firmDesignatedID" : "Prop123", "accountHolderType" : "P"}] When represented in CSV, buy details and sell details are each within a single position delimited by commas, where within the position, the elements of each side are delimited by the @ symbol. All positions of the elements are represented, even when they are blank. Refer to the following example: ,,,OrderABC@20190419T000000@buy@@, @@sell@Prop123@P,,, Refer to Section 4.12.1 table Trade Side Details for the list of fields.
Fulfillment Side Details	Multi-Dimensional Array	A compound object that consists of a list of data elements that represents firm side or customer/client side details of an Order Fulfillment. Refer to Section 4.13.1 table Fulfillment Side Details and 5.10.1 table Options Fulfillment Side Details for the list of fields. The JSON and CSV syntax requirements are the same as for the Trade Side Details.
Aggregated Orders	Multi-Dimensional Array	A compound object that consists of a list of data elements that represents one or more orders being aggregated. The Aggregated orders field may include 0, 1, or more orders, with each order having a set of required data elements. When represented in JSON, the list of Aggregated Orders are within a single set of brackets [ ] , with each Aggregated order within curly braces { }, with each applicable data element represented and comma delimited. Each Aggregated order represented within the curly braces { } are also comma delimited. For example, an aggregatedOrders will be presented as following in JSON: "**aggregatedOrders**":[{"OrderID" : "O1234", "OrderKeyDate": "20190419T000000"}, {"OrderID" : "O1235", "OrderKeyDate" : "20190419T092316.123456789"}, {"OrderID" : "O1236", "OrderKeyDate" : "1483842600123450000", "Quantity" : "800"}] When represented in CSV, the list of Aggregated Orders are within a single position that is delimited by commas. Within the position, the Aggregated Orders are delimited by pipe, with the elements of each Aggregated order delimited by the @ symbol. All positions of the elements are represented, even when they are blank. Refer to the following example: ,,,O1234@20190419T000000@| O1235@20190419T092316.123456789@| O1236@1483842600123450000@800,,,

2.4.2. Required, Conditional, and Optional Fields

Throughout this document, event types and their fields will be defined. Each field will be notated with the abbreviation R, C, O or A to represent whether it is required, conditional, optional or applicable for ATSs only. This codification will appear in the last column of each table describing an event.

Table 4: Include Key

Value	Abbreviation	Description
Required	R	Required for the given event. This field must always be included.
Conditional	C	Conditionally required for the given event, depending upon other values submitted in the Reportable Event message.
Optional	O	Optional for the given event. May be included at the discretion of the reporter/submitter.
ATS	A	Applicable for ATSs only.

2.5. Linkage Overview

This section describes the linkage keys that are used to create lifecycles in CAT and explains how the linkage keys are constructed via different data elements in respective Reportable Events.

2.5.1. CAT Linkage Keys

All Reportable Events will be linked in CAT via the daisy chain approach. Below is the list of linkage keys that connect CAT events within an Industry Member and across Industry Members.

Table 5: Linkage Keys

Linkage Key	Description	Fields
Order Keys		
Order Key	Links together the events of the same order, within an Industry Member. For example, Order Key links an Order Accepted event to a subsequent Order Route event.	• *orderKeyDate* • *CATReporterIMID* • *symbol* (or *optionID*) • *orderID*
Prior Order Key	Links modifications to the original order. For example, Prior Order Key links an Order Modified event to the previous Order Accepted event.	• *priorOrderKeyDate* • *CATReporterIMID* • *symbol* (or *optionID*) • *priorOrderID*

Linkage Key	Description	Fields
Parent Order Key	Links Child (Option) Order events and (Option) Order Internal Route Accepted events to the related parent order event. For example, links an Order Internal Route Accepted event to a parent New Order event.	• *parentOrderKeyDate* • *CATReporterIMID* • *symbol* (or *optionID*) • *parentOrderID*
Manual Order Key	Links an order event representing a duplicative electronic message to the previously reported order event representing the original manual order. Optional in Phase 2a.	• *manualOrderKeyDate* • *CATReporterIMID* • *symbol* (or *optionID*) • *manualOrderID*
Trade and Fulfillment Keys		
Trade Key	Links Trade events to related Trade Supplement events.	• *tradeKeyDate* • *CATReporterIMID* • *symbol* (or *optionID*) • *tradeID*
Fulfillment Key	Links CAT Order Fulfillment events to a related Fulfillment Amendment event if the *fulfillmentID* remains the same.	• *fillKeyDate* • *CATReporterIMID* • *symbol* (or *optionID*) • *fulfillmentID*
Prior Fulfillment Key	Links an Order Fulfillment event to a related Order Fulfillment Amendment event if a new *fulfillmentID* is assigned.	• *priorFillKeyDate* • *CATReporterIMID* • *symbol* (or *optionID*) • *priorFulfillmentID*
TRF Linkage Key	Links the Trade event reported by the Industry Member to the related tape report in the TRF/ADF/ORF.	• *eventTimestamp* • *CATReporterIMID* • *symbol* • *tapeTradeID*
Quote Keys		
Quote Key	Links New Quote events reported by the Industry Member to related order or quote events. For example, links a New Quote event to a related Trade event. In Phase 2a, Quote Key is not applicable to New Order events, Order Modified events, and Trade events. In Phase 2a, Quote Key is only applicable on New Quote events and Quote Cancelled events in scenarios where an Industry Member is required to report the related events to CAT.	• *quoteKeyDate* • *CATReporterIMID* • *symbol* • *quoteID*
Prior Quote Key	Links a quote event being modified to the previous quote event if a new Quote ID is assigned. In Phase 2a, Quote Key is only applicable on New Quote and Quote Cancelled events in scenarios where an Industry Member is	• *priorQuoteKeyDate* • *CATReporterIMID* • *symbol* • *priorquoteID*

Linkage Key	Description	Fields
	required to report the related events to CAT.	
Options Keys		
Complex Order Key	Complex Order key is not applicable until Phase 2c and will be defined in a subsequent publication.	
Route Linkage Keys		
Route Linkage Key	Links the CAT events reported by the Industry Member routing an order away and the Industry Member accepting the order.	Refer to Section 2.5.2 below for more detailed descriptions.
Quote Received Key	Links quote events reported by an Industry Member routing a quote to an IDQS and the IDQS receiving the quote. Not applicable in Phase 2a.	Refer to see Section 2.5.2 below for more detailed descriptions.

2.5.2. Reporting Responsibilities of Sender/Receiver

In Phase 2a, Industry Members are responsible for reporting routes, modifications, and cancellations in line with OATS guidance (OATS FAQ C35). Below is a list of sample scenarios and the reporting responsibilities of the sender (Broker A) and the receiver (Broker B).

Table 6: Reporting Responsibilities of Sender/Receiver

Scenario	Sender (Broker A)		Receiver (Broker B)	
	Action	CAT Report	Action	CAT Report
Routing an Order				
Broker A routes an order to Broker B	Routes the order to Broker B	Order Route	Accepts the order from Broker A	Order Accepted
An Order routed from Broker A to Broker B is rejected by Broker B	Routes the order to Broker B	N/A (Order Route required in Phase 2c)	Rejects the order from Broker A	N/A
Modifying an Order				
Customer initiates a modification on an order previously routed to Broker B	Routes the modification to Broker B	Order Modified and Order Route	Modifies the order received from Broker A	Order Modified
Broker A initiates a modification on an order previously routed to Broker B	Routes the modification to Broker B	N/A	Modifies the order received from Broker A	Order Modified

Scenario	Sender (Broker A)		Receiver (Broker B)	
	Action	CAT Report	Action	CAT Report
Canceling a Route or an Order				
Broker A cancels a route previously routed to Broker B	Notifies Broker B of route cancelation	N/A	Acknowledges the cancellation from Broker A and cancels the order	Order Cancelled
Customer cancels an order that was previously routed to Broker B.	Acknowledges the cancellation from the customer, cancels the order, and informs Broker B of the cancellation	Order Cancelled	Acknowledges the cancellation from Broker A and cancels the order	Order Cancelled
Broker B initiates a cancel of an order received from Broker A	<None>	N/A	Cancels the order from Broker A	Order Cancelled

2.5.3. Summary of Route and TRF Linkage Keys

The table below summarizes the required data elements to construct the route key for linking Route and Order Accepted events reported by different entities in CAT. The combination of the data elements must be unique. Data elements in the same row must always be equal values.

For Participant related event details, refer to the CAT Reporting Technical Specifications for Plan Participants.

Table 7: Summary of Route and TRF Linkage Keys

	Order Route Event	Order Accepted Event
Routing Between Industry Members (IMs)	IM	IM
	senderIMID	senderIMID
	destination (IMID)	receiverIMID
	Event Date	Event Date
	symbol (or optionID)	symbol (or optionID)
	routedOrderID*	routedOrderID*
Routing from an Industry Member to an Exchange	IM	Participant
	senderIMID	routingParty
	destination (Exchange ID)	exchange (Exchange ID)
	Event Date	Event Date
	session	session
	symbol (or optionID)	symbol (or optionID)
	routedOrderID*	routedOrderID

	Order Route Event	Order Accepted Event
Routing from an Exchange to the Exchange Affiliated/Routing Broker	Participant	IM
	exchange (Exchange ID)	senderIMID (Exchange ID)
	routingParty	receiverIMID
	Event Date	Event Date
	symbol (or optionID)	symbol (or optionID)
	routedOrderID	routedOrderID*
Routing from an Industry Member to a non-reporting Foreign Entity	IM	Foreign Broker-Dealer
	No Linkage	
Routing a quote event from an Industry Member broker-dealer to an IDQS.	IM	IDQS
	senderIMID	senderIMID
	destination (IMID)	receiverIMID
	Event Date	Event Date
	symbol	symbol
	routedQuoteID*	receivedQuotedID*
Trade is executed and reported to both CAT and the TRF/ADF/ORF	IM	TRF/ADF/ORF
	eventTimestamp	Execution Timestamp
	CATReporterIMID	Reporting or Contra MPIDs
	symbol	symbol
	tapeTradeID	Branch Sequence Number or Compliance ID

* Not required for manual order route/receipt.

Routing Between Industry Members

For orders routed between Industry Members, the linkage between sender and receiver is established via a combination of:

- Event Date, *symbol* (or *optionID*), *destination, senderIMID*, and *routedOrderID* on the Order Route events reported by the sender; and
- Event Date, *symbol* (or *optionID*), *receiverIMID, senderIMID*, and *routedOrderID* on the Order Accepted event reporter by the receiver.

- ***destination*** - The IMID of the destination receiving this routed order. It must equal the *receiverIMID* field on the Order Accepted event reported by the destination Industry Member. The sending and receiving firms must mutually agree on the IMID to be used if they have multiple SRO assigned IMIDs.

- ***senderIMID*** - The IMID of the entity that is routing out the order, known also by the destination. The *senderIMID* reported by the routing entity on the Order Route event must match the *senderIMID* reported by the receiving entity on the Order Accepted event.
- ***receiverIMID*** - The IMID of the Industry Member receiving the routed order. It must match the destination field on the Order Route event reported by the sender.

Routing to Exchanges

When routing to exchanges, the destination must be the Exchange ID to which the order is routed. The linkage will be created by:

- Event Date, *symbol* (or optionID), *session*, *destination* (ExchangeID), *senderIMID*, and *routedOrderID* on the Order Route event; and
- Event Date, *symbol* (or *optionID*), *session*, *exchange*, *routingParty*, and *routedOrderID* on the Participant Order Accepted event to create linkages. See [CAT Reporting Technical Specifications for Plan Participants] for more details.

When using Order Route event to report a modification to an order that was previously routed to an exchange, the linkage key is created via the same set of data elements.

Routing to Foreign Destinations

If the order is routed to a foreign non-CAT-reporting entity, the *destinationType* must be marked as N (Foreign). However, there is no requirement to report *destination* or *routedOrderID*. When routing to a foreign non-CAT-reporting entity, there is no requirement to report *senderIMID*, but an Industry Member may choose to populate this field.

Routing from an Exchange to the Exchange's Routing Broker

When an Industry Member, that is an exchange routing broker, receives an order routed from the exchange, the *senderIMID* field must be the Exchange ID from which the order is routed. Hence the linkage will be created by:

- Event Date, *symbol* (or *optionID*), *exchange*, *routedOrderID*, *routingParty* on the Participant Order Route event; and
- Event Date, *symbol* (or *optionID*), *senderIMID* (Exchange ID), *routedOrderID*, *receiverIMID* on the Industry Member Order Accepted event. See [CAT Reporting Technical Specifications for Plan Participants] for more details.

3. Special Reporting Requirements

3.1. Alternative Trading Systems ("ATS") Reporting

ATSs are required to submit additional information in applicable CAT events.

3.1.1. National Best Bid and Offer (NBBO)

ATSs are required to report NBBO information.

The NBBO must be reported to CAT from the perspective of the ATS. Specifically, the NBBO (or relevant reference price) reported must be the NBBO in effect at the time of the order event, and the timestamp of when the ATS captured the effective NBBO (or relevant reference price). In addition, the ATS must identify the market data feed (NBBO Source) it used to obtain the NBBO (or relevant reference price).

If another reference price, such as the primary market's BBO, is used by the ATS, then the applicable reference price must be reported instead of the NBBO. If there is no price, the ATS must populate the field with a "0". Industry Members that are not ATSs must leave these fields blank.

3.1.2. ATS Order Types

For events reported by ATSs, *atsOrderType* field is used to capture ATS-specific order types. The *orderType* and *atsOrderType* fields are not mutually exclusive; ATSs must populate both fields on applicable events. Industry members that are not ATSs must leave this field blank.

ATSs must register their order types with CAT at least 20 business days prior to the order type becoming effective using the CAT web interface. An order type must be registered before any relevant CAT events can be submitted. Specific instructions for registering *atsOrderTypes* are available in CAT Alert 2019-01 on catnmsplan.com.

3.1.3. Sequence Number

ATSs must also provide a sequence number assigned by the ATS's matching engine on all events reported to CAT by the ATS. Industry members that are not ATSs are not required to populate the *seqNum* field.

3.2. Manual Orders

The CAT NMS Plan defines a Manual Order Event as “non-electronic communication of order-related information for which CAT Reporters must record and report the time of the event.” Manual equity events are required in Phase 2a, while manual option events are not required until Phase 2d. Refer to Section 5 for additional information regarding manual options events.

3.2.1. Manually Received CAT Events Immediately Systematized

Orders which are non-electronically communicated but immediately systematized (e.g., a broker received a call and directly enters the order into the order management system) must be marked as a manual event using the *manualFlag*. In this scenario, the Industry Member is required to report both the manual time of order receipt and the electronic capture time, and the same timestamp must be reported in both fields in milliseconds[2].

3.2.2. Manual CAT Events Followed by Separate Electronic Messages

Manual CAT events must be marked as a manual event using the *manualFlag* field and must include an electronic capture time if the manual event is captured in an order management or execution system.

If an Industry Member routes or receives an order manually and then subsequently sends or receives an electronic message to represent the manual instruction, the following reporting requirements apply:

- All material terms and conditions of a manually received or routed order, including time of route and receipt, must be reported to CAT on the required manual event, with all relevant timestamps representing when the manual CAT event occurred.
- Additional electronic messages related to a manual order or route that do not change any material term or condition of the original order are not required to be reported to CAT as they represent a duplicate of the original order.
- If the duplicate electronic message includes a routed order identifier that could be used to link the sender's route report to the receiver's new order, and the member has the ability to include this electronic information on the manual event (referred to as a "merged" event), the Industry Member must do so.

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[2] Refer to CAT FAQ G4 for additional information.

- If the Industry Member is not able to merge the manual and electronic information in a single manual event and elects to report the duplicate electronic message independently, such messages must be reported with the *electronicDupFlag* = true. Further, the *manualOrderID* may be populated with the Order ID of the original manual order. This is optional in Phase 2a, but will be mandatory in Phase 2c.

No linkage will be attempted for electronic duplicate events in Phase 2a.

4. Equity Events

This section describes Reportable Events for equities that are Eligible Securities. The following table lists each equity event type with its corresponding Message Type code.

Events and data elements that are greyed out do not apply to Phase 2a.

Table 8: Equity Events

Sec	Event	Message Type	Description
4.1	New Order Event	MENO	Reported when an Industry Member originates an order, receives a customer order, originates a bunched, representative or proprietary order, or receives an order from a non-reporting foreign entity.
4.2	New Order Supplement Event	MENOS	Supplement to the New Order event, used when the New Order event exceeds the maximum length allowed, or when the orders being represented are not captured in the New Order Event.
4.3	Order Route Event	MEOR	Reported when an Industry Member routes an order to another broker dealer, exchange or ATS.
4.3.1	Order Modify Route	MEMR	Deferred – event not required for Phase 2a. SROs will evaluate need for a modified route event after reviewing Phase 2a data and include event in Phase 2c, if necessary.
4.3.2	Order Cancel Route	MECR	Deferred – event not required for Phase 2a. SROs will evaluate need for a cancelled route event after reviewing Phase 2a data and include event in Phase 2c, if necessary.
4.4	Order Accepted	MEOA	Reported when an Industry Member, including an ATS, accepts a routed order that originated at another broker dealer.
4.5.1	Order Internal Route Accepted	MEIR	Reported when an order moves within an Industry Member to another desk or other department.
4.5.2	Order Internal Route Modified	MEIM	Reported when an Order Internal Route Accepted was modified.
4.5.3	Order Internal Route Cancelled	MEIC	Reported when an Order Internal Route Accepted was cancelled.
4.6.1	Child Order	MECO	Reported when an order is sliced within the desk or department it is being worked, and is assigned a new order identifier.
4.6.2	Child Order Modified	MECOM	Reported when a Child Order is modified.
4.6.3	Child Order Cancelled	MECOC	Reported when a Child Order is cancelled.
4.7	Order Modified	MEOM	Reported when changes to the Material Terms of an order are made, or an order is

Sec	Event	Message Type	Description
			cancel/replaced.
4.8	Order Modified Supplement Event	MEOMS	Supplement to the Order Modified event, used when the Order Modified event exceeds the maximum length allowed, or when the orders being represented are not captured in the Order Modified Event.
4.9	Order Adjusted	MEOJ	Used to report simple order modifications including changes to the side, price or quantity of the order.
4.10	Order Cancelled	MEOC	Reported when an Industry Member fully or partially cancels an order.
4.11	New Quote	MENQ	Reported when quotations on equity Eligible Securities sent to a quote display facility or quote driven ATS, or a quote sent to a customer or broker dealer that resulted in a trade.
4.11.1	Quote Received	MEQR	Reported when a quote is received by an Industry Member.
4.11.2	Quote Cancelled	MEQC	Reported when a quote is cancelled.
4.12.1	Trade Event	MEOT	Reported by the executing venue where the trade occurred, with details associated with each side of the trade.
4.12.2	Trade Supplement Event	MEOTS	Reported when there is more than one order associated with one side of a trade.
4.13	Order Fulfillment	MEOF	Reported when the execution of a customer/client order is not required to be reported for public dissemination. The event includes details associated with the client/customer side and firm side.
4.14	Order Fulfillment Amendment	MEFA	Reports the amendment of a previously reported fulfilment, including the full restatement of the event with applicable changes represented.
4.15.1	Post Trade Allocation	MEPA	Reported when executed shares are allocated to end customer accounts during post-trade processing.
4.15.2	Amended Allocation	MEAA	Reported when an amendment occurs to a previously reported post trade allocation.

4.1. New Order Event

New Order events represent the beginning of the order lifecycle in CAT. An Industry Member must report a New Order event to CAT when an order is received or originated including:

- New customer orders
- Representative orders
- Proprietary orders

- Order(s) received from a foreign broker-dealer or affiliate that is not a CAT Reporter.

Note that an order received from another CAT Reporter (US broker-dealer, ATS or an exchange) must be reported as an Order Accepted event.

Phase 2a Representative Orders

In Phase 2a, linkage is required between the representative street-side order and the customer order or client order being represented when the representative order was originated specifically to represent a single order and there is:

1. An existing direct electronic link in the Industry Member's system between the order being represented and the representative order, and
2. Any resulting executions are immediately and automatically applied to the represented order in the Industry Member's system.

Phase 2c Representative Orders

Any scenario that does not meet the definition of a Phase 2a representative order will fall into this category. The Industry Member must report a New Order event for the creation of the representative order in Phase 2a and flag the New Order event properly to indicate that it is a representative order. It is not mandatory to report the linkage to the underlying orders (the *aggregatedOrders* field) until Phase 2c.

Appendix C contains detailed descriptions of representative order scenarios and illustrates when marking of the representative order, linkage between the represented order and the representative order, and Order Fulfillment linkage is required in each phase.

Table 9: New Order Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	Type	Message Type	MENO	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry	O

Seq #	Field Name	Data Type	Description	Include Key
			Member uses to report to CAT.	
6	orderKeyDate	Timestamp	The date and time the *orderID* was assigned.	R
7	orderID	Text (40)	The internal order ID assigned to the order by the Industry Member. Must be unique within *orderKeyDate, CATReporterIMID*, and *symbol* combination.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	eventTimestamp	Timestamp	The date/time of receipt of the order. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
10	manualFlag	Boolean	Must be marked as *true* if the order is received or captured manually.	R
11	electronicDupFlag	Boolean	Indicates whether this is a duplicative electronic message of a manual event. If populated, this message will not be linked to any other events in Phase 2a.	R
12	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when *manualFlag* is true and the event is systematized. Not required when *electronicDupFlag* is true.	C
13	manualOrderKeyDate	Timestamp	The *orderKeyDate* of the related manual order. Required when *manualOrderID* is populated.	O
14	manualOrderID	Text (40)	When this is a duplicative electronic message of a previously (separately) reported manual New Order event (electronicDupFlag = true), this field is to capture the internal order ID of the manual order. Optional for Phase 2a.	O
15	deptType	Choice	This is the category of internal department, unit or desk originating or receiving the order.	R
16	quoteKeyDate	Timestamp	The date and time the *quoteID* was assigned. Required when *quoteID* is populated. Not applicable in Phase 2a.	C
17	quoteID	Text (40)	If this order was the result of a quote provided to a customer/client, this is the *quoteID* of the quote offered to the Industry Member's customer/client. Required if this order was originated as the result of a quote. Not applicable in phase 2a.	C
18	side	Choice	The side of the order.	R
19	price	Price	The limit price of the order, required when applicable.	C

Seq #	Field Name	Data Type	Description	Include Key
20	quantity	Real Quantity	The order quantity.	R
21	minQty	Whole Quantity	The minimum quantity of an order to be executed, required when applicable.	C
22	orderType	Choice	The type of order being submitted.	R
23	timeInForce	Name/Value Pairs	The time-in-force for the order.	R
24	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
25	handlingInstructions	Name/Value Pairs	This field will contain zero or more order instruction codes, each separated by a single pipe symbol	C
26	custDspIntrFlag	Boolean	Indicates if a customer has instructed that a limit order should not be displayed or that a block size order should be displayed.	R
27	firmDesignatedID	Alphanumeric (40)	Refer to the Data Dictionary for definition and guidance for populating this field.	R
28	accountHolderType	Choice	Represents the type of beneficial owner of the account for which the order was received or originated.	R
29	affiliateFlag	Boolean	Indicates if the routing party is an affiliate of the Industry Member.	R
30	infoBarrierID	Alphanumeric (12)	Specifies the identifier of the information barrier in place for a trading unit that will meet the criteria of the “no-knowledge” exception in FINRA Rule 5320.02. Any alphanumeric not containing a delimiter.	C
31	aggregatedOrders	Multi-Dimensional Array	When applicable, the order ID of each customer order being represented. Refer to Appendix C for representative order linkage requirements.	C
Aggregated Orders – Start For each order being represented *n*, the following values are required.				
31.*n*.1	orderID	Text (40)	*orderID* of the order being represented.	R
31.*n*.2	orderKeyDate	Timestamp	*orderKeyDate* of the order being represented.	R
31.*n*.3	quantity	Real Quantity	Required when a partial quantity of the order is being represented.	C
Aggregated Orders – End				
32	negotiatedTradeFlag	Boolean	Indicates whether the trade is a result of a negotiation.	R
33	representativeInd	Choice	Indicates if the order is a representative order and if linkage is required.	R
34	seqNum	Alphanumeric (40)	The sequence number assigned to the CAT event by the ATS’s matching engine. Any alphanumeric not containing a delimiter. Only required for ATSs.	A

Seq #	Field Name	Data Type	Description	Include Key
35	atsDisplayInd	Choice	Indicates if the order is displayed outside of the ATS to subscribers only, or via publicly disseminated quotation data.	A
36	displayPrice	Price	The displayed price for this order. If the price is hidden, value must be “0”.	A
37	workingPrice	Price	The working price of the order at the time it was accepted. If no current *workingPrice*, it must be “0”.	A
38	displayQty	Whole Quantity	The displayed quantity for this order. If the quantity is hidden, value must be “0”.	A
39	atsOrderType	Array	Shows the ATS-specific order type as selected from a list of order types defined by this reporter via the CAT Reporter Portal.	A
40	nbbPrice	Price	The NBBO at the moment the order was originated or received. Prices are required, quantities are optional.	A
41	nbbQty	Whole Quantity		O
42	nboPrice	Price		A
43	nboQty	Whole Quantity		O
44	nbboSource	Choice	Source of the NBBO data used.	A
45	nbboTimestamp	Timestamp	The date/time at which the NBBO was referenced upon the receipt of the order.	A

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID*, *symbol*, *orderID*
- Order Key: aggregatedOrders.*orderKeyDate, CATReporterIMID*, *symbol*, *aggregatedOrders.orderID*
- Quote Key: *quoteKeyDate*, *CATReporterIMID*, *symbol*, *quoteID* (Not applicable in Phase 2a)
- Manual Order Key: *manualOrderKeyDate*, *CATReporterIMID, symbol, manualOrderID* (Optional in Phase 2a)

4.2. New Order Supplement Event

The New Order Supplement Event is a supplement to the New Order event. It is used when the New Order event exceeds the maximum length allowed, or when the orders being represented are not captured in the New Order Event. One New Order event can have multiple New Order Supplement events. Multiple New Order Supplement events are considered as additions, not replacements or modifications.

This event accommodates reporting in scenarios when the number of Aggregated Order included in the *aggregatedOrders* field causes the New Order event to exceed the maximum allowed message length.

The *aggregatedOrders* field in the New Order Supplement event must contain the additional Aggregated Orders that were not captured in the original New Order event, or another Supplement event for the same order.

Table 10: New Order Supplement Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is ‘RPR’	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MENOS	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The *orderKeyDate* of the related New Order event which this event is Supplementing.	R
7	orderID	Text (40)	The *orderID* of the related New Order event which this event is Supplementing. Must be unique within *orderKeyDate, CATReporterIMID*, and *symbol* combination.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	eventTimestamp	Timestamp	The date/time of the representative order. This must match the *eventTimestamp* value reported on the New Order this event supplements (including scenarios in which the supplement is created at a later time).	R
11	aggregatedOrders	Multi-Dimensional Array	When applicable, the order ID of each customer order being represented. Refer to Appendix C for representative order linkage requirements.	R
Aggregated Orders – Start				

Seq #	Field Name	Data Type	Description	Include Key
For each order being represented *n*, the following values are required.				
11.*n*.1	orderID	Text (40)	*orderID* of the order being represented.	R
11.*n*.2	orderKeyDate	Timestamp	*orderKeyDate* of the order being represented.	R
11.*n*.3	quantity	Real Quantity	Required when a partial quantity of the order is being represented.	C
Aggregated Orders – End				

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID*, *symbol, orderID*
- Order Key: aggregatedOrders.*orderKeyDate, CATReporterIMID, symbol, aggregatedOrders.orderID*

4.3. Order Route

Industry Members are required to report an Order Route event to CAT in the following scenarios when an order is routed in full or in part:

- Routing to another Industry Member
- Routing to foreign broker-dealers
- Routing to exchanges
- Routing between two IMIDs (e.g. two different FINRA MPIDs) attributed to the same legal entity (i.e. the same CRD)

Internal routes to another desk or department within an Industry Member are reported using an Order Internal Route Accepted event. Refer to the Order Internal Route Accepted section for more details.

<u>Handling Instructions on Order Route Events</u>

Handling Instructions are not required to be reported on the Order Route event until phase 2c. In phase 2c, the handling instructions included in this event must represent the handling instructions sent by the routing firm to the receiving destination. If the handling instructions do not change when the order is routed from the handling instructions received by the Industry Member and reported on the Order Accepted or New Order associated with the order, Industry Members may use the handling instruction code "RAR" (Routed as Received) instead of repeating each individual handling instruction.

Table 11: Order Route Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MEOR	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The *orderKeyDate* of the event which is being routed.	R
7	orderID	Text (40)	The *orderID* of the order event which is being routed.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	eventTimestamp	Timestamp	The date/time of the Order Route. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
11	manualFlag	Boolean	Must be marked as *true* if the order is routed manually.	R
12	electronicDupFlag	Boolean	Indicates whether this is a duplicative electronic message of a manual event. If populated, this message will not be linked to any other events in Phase 2a.	R
13	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when *manualFlag* is true and the event is systematized. Not required when *electronicDupFlag* is true.	C
14	senderIMID	Industry Member ID	The IMID used to identify the Industry Member that is routing the order, known by the destination. When routing to another	C

Seq #	Field Name	Data Type	Description	Include Key
			Industry Member, this value must match the *senderIMID* on the Order Accepted event reported by the destination, while routing to an exchange, it equals the *routingParty* reported by the exchange on the Participant Order Accepted event. Not required when routing to a foreign broker-dealer.	
15	destination	Industry Member ID / Exchange ID	When routing to another Industry Member, it is the IMID used to identify the Industry Member that is receiving this routed order. And it must match the *receiverIMID* field on the Order Accepted event reported by the destination Industry Member. When routing to an exchange, it is the Exchange ID of the destination exchange. Must match the *exchange* field on the Order Accepted event reported by the destination exchange. Not required if the destination is a foreign broker-dealer.	C
16	destinationType	Choice	Indicates whether the destination of the route is an Industry Member, an exchange or a foreign broker-dealer.	R
17	routedOrderID	Text (40)	The ID assigned to the order by the Industry Member when routing the order to the destination. This value must match the value for *routedOrderID* reported by the destination in their Order Accepted report. Not required when routing destination is a foreign broker-dealer or when routed manually.	C
18	session	Text (40)	The session ID used when routing the order. Must only be populated when routing to a national securities exchange. This must match the session ID reported in the Participant Order Accepted event by the receiving exchange.	C
19	side	Choice	The side of the order.	R
20	price	Price	The limit price of the order, required when applicable.	C
21	quantity	Real Quantity	The order quantity.	R
22	minQty	Whole Quantity	The minimum quantity of an order to be executed. Required when applicable.	C
23	orderType	Choice	The type of order being routed.	R
24	timeInForce	Name/Value Pairs	The Time-in-Force for the order.	R
25	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
26	shortSaleExptInd	Boolean	Short sale exempt indicator. Set to *true* when *side* is "SX".	R
27	isoInd	Choice	Indicates the order was routed as an Intermarket Sweep Order.	R
28	handlingInstructions	Name/Value Pairs	Defines the handling instructions, as	C

Seq #	Field Name	Data Type	Description	Include Key
			described in the Data Dictionary for handlingInstructions.	
29	routeRejectedFlag	Boolean	Indicates the routed order was not accepted by the destination (rejected or no response) when marked *true*. (This field is optional in Phase 2a. Routes that are not accepted are required to be reported in Phase 2c.)	O
30	dupROIDCond	Boolean	Indicates when a modification to an order previously routed to a national securities exchange requires the use of the original routedOrderID. This field can only be populated as *true* on Order Route events when d*estinationType=E*	R
31	seqNum	Alphanumeric (40)	The sequence number assigned to the CAT event by the ATS's matching engine. Any alphanumeric not containing a delimiter.	A

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, symbol, orderID*
- Route Linkage Key: Event Date, *senderIMID, destination, symbol, session, routedOrderID*

4.3.1. Order Modify Route (Potential Phase 2c Event)

<Deferred – event not required for Phase 2a. SROs will evaluate need for a modified route event after reviewing Phase 2a data and include event in Phase 2c, if necessary.>

4.3.2. Order Cancel Route (Potential Phase 2c Event)

<Deferred – event not required for Phase 2a. SROs will evaluate need for a cancelled route event after reviewing Phase 2a/ data and include event in Phase 2c, if necessary.>

4.4. Order Accepted

An Order Accepted event must be reported to CAT when an Industry Member receives an order from another CAT Reporter (i.e., Industry Member, ATS or exchange), or from another IMID belonging to the same Industry Member (i.e., the same CRD).

At the start of Phase 2a, there will be some lifecycles beginning at the Order Accepted event, as Small non-OATS reporting Industry Members are not required to report until a later phase.

New customer orders, orders received from a non-broker-dealer affiliate, and orders received from a non-reporting foreign broker-dealer must be reported using a New Order event.

Table 12: Order Accepted Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is ‘RPR’	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MEOA	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The date and time the *orderID* was assigned.	R
7	orderID	Text (40)	Order ID assigned to the order by the Industry Member upon acceptance. Must be unique within *orderKeyDate, CATReporterIMID*, and *symbol* combination.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	eventTimestamp	Timestamp	The date/time of receipt of the order. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
10	manualFlag	Boolean	Must be marked as *true* if the order is received or captured manually.	R
11	electronicDupFlag	Boolean	Indicates whether this is a duplicative electronic message of a manual event. If populated, this message will not be linked to any other events in Phase 2a.	R
12	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when *manualFlag* is true and the event is systematized. Not required when *electronicDupFlag* is true.	C
13	receiverIMID	Industry Member ID	The IMID of the Industry Member receiving the order. When receiving from another Industry Member, it must match the *destination* field on the Order Route event	R

Seq #	Field Name	Data Type	Description	Include Key
			reported by the routing Industry Member. If receiving from an exchange as the routing broker, then this must match the *routingParty* on the Order Route event reported by the exchange.	
14	senderIMID	Industry Member ID / Exchange ID	When the order is routed from another Industry Member, this is the IMID of the sending Industry Member from which the order is routed, and it must match *senderIMID* in the Order Route event reported by the routing Industry Member. When the order is routed from an exchange, this is the Exchange ID of the sending entity from which the order is routed, and the value must match the *exchange* field in the Order Route event reported by the exchange.	R
15	senderType	Choice	Indicates the type of origin from which the order is routed.	R
16	routedOrderID	Text (40)	The Order ID as received on the order before being assigned a new Order ID upon acceptance. This is the Order ID assigned by the routing Industry Member. This value must match the value for *routedOrderID* reported by the routing Industry Member or exchange in their Order Route report. Not required when the order is manually received.	C
17	manualOrderKeyDate	Timestamp	The *orderKeyDate* of the related manual order. Required when *manualOrderID* is populated.	O
18	manualOrderID	Text (40)	When this is a duplicative electronic message of a previously (separately) reported manual Order Accepted event (*electronicDupFlag* = true), this field is to capture the internal order ID of the manual order. Optional for Phase 2a.	O
19	affiliateFlag	Boolean	Indicates if the routing party is an affiliate of the Industry Member.	R
20	deptType	Choice	This is the category of internal department, unit or desk receiving the order.	R
21	side	Choice	The side of the order.	R
22	price	Price	The limit price of the order, required when applicable.	C
23	quantity	Real Quantity	The order quantity.	R
24	minQty	Whole Quantity	The minimum quantity of an order to be executed. Required when applicable.	C
25	orderType	Choice	The type of order as routed to the destination reporting the accepted event.	R

Seq #	Field Name	Data Type	Description	Include Key
26	timeInForce	Name/Value Pairs	The Time-in-Force for the order.	R
27	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
28	isoInd	Choice	Indicates the order was accepted as an Intermarket Sweep Order.	R
29	handlingInstructions	Name/Value Pairs	Defines the handling instructions, as described in the Data Dictionary for *handlingInstructions*. A pipe-delimited ("|", ASCII decimal 124, hex 7C) field including all relevant instructions.	C
30	custDspIntrFlag	Boolean	Indicates if a customer has instructed that a limit order should not be displayed or that a block size order should be displayed.	R
31	infoBarrierID	Alphanumeric (12)	Specifies the identifier of the information barrier in place for a trading unit that will meet the criteria of the "no-knowledge" exception in FINRA Rule 5320.02. Any alphanumeric not containing a delimiter.	C
32	seqNum	Alphanumeric (40)	The sequence number assigned to the CAT event by the ATS's matching engine. Any alphanumeric not containing a delimiter.	A
33	atsDisplayInd	Choice	Indicates if the order is displayed outside of the ATS to subscribers only, or via publicly disseminated quotation data.	A
34	displayPrice	Price	The displayed price for the order. If the price is hidden, value must be "0".	A
35	workingPrice	Price	The working price of the order at the time it was accepted. If no current *workingPrice*, it must be "0".	A
36	displayQty	Whole Quantity	The displayed quantity of the order. If the quantity is hidden, value must be "0".	A
37	atsOrderType	Array	Shows the ATS-specific order type as selected from a list of order types defined by this Industry Member via the CAT Reporter Portal.	A
38	nbbPrice	Price	The NBBO at the moment the order was received. Prices are required, quantities are optional.	A
39	nbbQty	Whole Quantity		O
40	nboPrice	Price		A
41	nboQty	Whole Quantity		O
42	nbboSource	Choice	Source of the NBBO data used.	A
43	nbboTimestamp	Timestamp	The date/time at which the NBBO was referenced upon the receipt of the order.	A

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, symbol, orderID*
- Route Linkage Key: Event Date, *senderIMID, destination, symbol, routedOrderID*
- Manual Order Key: *manualOrderKeyDate*, *CATReporterIMID, symbol, manualOrderID* (Optional in Phase 2a)

4.5. Order Internal Route Accepted

An Order Internal Route Accepted event must be reported when an order is passed to a different department or desk within the *CATReporterIMID*. Routes between different IMIDs attributed to the same Industry Member must be reported as Order Route and Order Accepted events.

An Order Internal Route Accepted event is required to be reported from the perspective of the recipient desk, and indicates that an order was received by an internal destination. If the internal destination assigns a new *orderID* to the Internal Route Accepted event, the *priorOrderID* must be populated with the *orderID* of the event that was internally routed, and the *priorOrderKeyDate* must be populated.

An Industry Member may generate child orders using the Child Order event prior to routing internally to another desk. This approach is acceptable for CAT reporting and will not result in unlinked events.

Order Internal Route Modified and Order Internal Route Cancelled are not required to be reported until Phase 2c.

4.5.1. Order Internal Route Accepted

Table 13: Internal Route Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is ‘RPR’	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MEIR	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O

Seq #	Field Name	Data Type	Description	Include Key
6	orderKeyDate	Timestamp	When a new Order Key is assigned, the date and time the *orderID* was assigned. When a new Order Key is not assigned, the *orderKeyDate* of the order that was internally routed.	R
7	orderID	Text (40)	When a new Order Key is assigned, the internal order ID assigned to the order by the Industry Member. When a new Order Key is not assigned, the orderID of the even that was internally routed. Must be unique within *orderKeyDate, CATReporterIMID*, and *symbol* combination.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	parentOrderKeyDate	Date	If a new Order ID has been assigned, this is the *orderKeyDate* of the event from which the Order Internal Route Accepted event originated. Required when the *parentOrderID* is populated.	C
10	parentOrderID	Text (40)	If a new Order ID has been assigned, this is the *orderID* of the event from which the Order Internal Route Accepted event originated.	C
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
12	eventTimestamp	Timestamp	The date/time of receipt by the receiving desk. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
13	manualFlag	Boolean	Must be marked as *true* if the order is routed to another desk manually.	R
14	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when *manualFlag* is true and the event is systematized. Not required when *electronicDupFlag* is true.	C
15	deptType	Choice	The category of department, unit, or desk that received this Order Internal Route Accepted event.	R
16	receivingDeskType	Choice	Indicates the type of desk or department receiving the order. More granular than the field *deptType*.	R

Seq #	Field Name	Data Type	Description	Include Key
17	infoBarrierID	Alphanumeric (12)	Specifies the identifier of the information barrier in place for the desk to which the order was routed that will meet the criteria of the “no-knowledge” exception in FINRA Rule 5320.02. Any alphanumeric not containing a delimiter.	C
18	side	Choice	The side of the order.	R
19	price	Price	The limit price of the order, required when applicable.	C
20	quantity	Real Quantity	The order quantity.	R
21	minQty	Whole Quantity	The minimum quantity of an order to be executed. Required when applicable.	C
22	orderType	Choice	The type of order being routed.	R
23	handlingInstructions	Name/Value Pairs	Defines the handling instructions, as described in the Data Dictionary for handlingInstructions.	C

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, symbol, orderID*
- Parent Order Key: *prarentOrderKeyDate, CATReporterIMID, symbol*, and *parentOrderID*

4.5.2. Order Internal Route Modified (Phase 2c)

<Deferred - Not Required Until Phase 2c>

4.5.3. Order Internal Route Cancelled (Phase 2c)

<Deferred - Not Required Until Phase 2c>

4.6. Child Order

The Child Order is used to represent instances when an order is sliced within the desk or department it is being worked, and is assigned a new order identifier. Child Order events are not required to be reported to CAT, but are provided for the convenience of Industry Members to help model these types of order handling scenarios.

Child Order events are defined to include only the key data elements that may be changed when the event is created including fields to link to the parent order. The following rules apply with respect to Child Orders:

1. Child Order events can only be reported when new order IDs are assigned within the same desk. An Order Internal Route Accepted event must be reported when routed to another desk.
2. A child order may be generated off of another child order without limitation.
3. Child Orders must belong to the same FDID as the parent order. Child Orders must not be used to create representative orders. If the FDID changes, a representative New Order event must be reported and not a Child Order.
4. Child Orders must ***not*** be used for reporting equity legs of a multi-leg option order.

4.6.1. Child Order Event

Table 14: Child Order Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MECO	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The date and time the *orderID* was assigned.	R
7	orderID	Text (40)	The internal order ID assigned to the child order by the Industry Member. Must be unique with the *orderKeyDate*, *CATReporterIMID*, and *symbol* combination.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	parentOrderKeyDate	Timestamp	The *orderKeyDate* of the event from which the Child Order originated.	R
10	parentOrderID	Text (40)	The *orderID* of the event from which the Child Order originated.	R
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C

Seq #	Field Name	Data Type	Description	Include Key
12	eventTimestamp	Timestamp	The date/time at which the child order was originated.	R
13	side	Choice	The side of the order.	R
14	price	Price	The limit price of the order, required when applicable.	C
15	quantity	Real Quantity	The Child order quantity.	R
16	minQty	Whole Quantity	The minimum quantity of an order to be executed. Required when applicable.	C
17	orderType	Choice	The type of order.	R
18	timeInForce	Name/Value Pairs	The Time-in-Force for the order.	R
19	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
20	handlingInstructions	Name/Value Pairs	Defines the handling instructions, as described in the Data Dictionary for handlingInstructions. A pipe-delimited ("|", ASCII decimal 124, hex 7C) field including all relevant instructions.	C
21	seqNum	Alphanumeric (40)	The sequence number assigned to the CAT event by the ATS's matching engine. Any alphanumeric not containing a delimiter.	A
22	atsDisplayInd	Choice	Indicates if the order is displayed outside of the ATS to subscribers only, or via publicly disseminated quotation data.	A
23	displayPrice	Price	The displayed price for this order. If the price is hidden, value must be "0".	A
24	workingPrice	Price	The working price of the order at the time it was originated or received. If no current *workingPrice*, it must be "0".	A
25	displayQty	Whole Quantity	The displayed quantity for this order. If the quantity is hidden, value must be "0".	A
26	nbbPrice	Price	The NBBO at the moment the order was originated or received. Prices are required, quantities are optional.	A
27	nbbQty	Whole Quantity		O
28	nboPrice	Price		A
29	nboQty	Whole Quantity		O
30	nbboSource	Choice	Source of the NBBO data used.	A
31	nbboTimestamp	Timestamp	The date/time at which the NBBO was referenced upon the receipt of the order.	A

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, symbol, orderID*
- Parent Order Key: *parentOrderKeyDate, CATReporterIMID, symbol, parentOrderID*

4.6.2. Child Order Modified

Industry Members must report a Child Order Modified event to CAT when the Material Terms of the child order have been changed (e.g., price, quantity). All attributes and Material Terms of the modified child order listed on this event must be restated with the modification(s) reflected. A Child Order Modified event may not be used when modifying an Internal Order Route Accepted event.

Table 15: Child Order Modified Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MECOM	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	When a new Order Key is assigned, the date and time the *orderID* was assigned. When a new Order Key is not assigned, the *orderKeyDate* of the Child Order event which is being modified.	R
7	orderID	Text (40)	When a new Order Key is assigned, the internal order ID assigned to the order by the Industry Member. When a new Order Key is not assigned, the orderID of the Child Order being modified. Must be unique within orderKeyDate, CATReporterIMID, and symbol combination.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	priorOrderKeyDate	Timestamp	If a new Order ID has been assigned, this is the *orderKeyDate* of the event being modified.	C
10	priorOrderID	Text (40)	If a new Order ID has been assigned, this is the *OrderID* of the event being modified.	C
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be	C

Seq #	Field Name	Data Type	Description	Include Key
			executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	
12	eventTimestamp	Timestamp	The date/time at which the child order was modified.	R
13	side	Choice	The side of the order.	R
14	price	Price	The limit price of the order, required when applicable.	C
15	quantity	Real Quantity	The Child order quantity.	R
16	minQty	Whole Quantity	The minimum quantity of an order to be executed.	C
17	leavesQty	Real Quantity	The number of shares of the Child Order left open after the modification has occurred.	R
18	orderType	Choice	The type of order.	R
19	timeInForce	Name/Value Pairs	The Time-in-Force for the order.	R
20	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
21	handlingInstructions	Name/Value Pairs	Defines the handling instructions, as described in the Data Dictionary for handlingInstructions. A pipe-delimited ("|", ASCII decimal 124, hex 7C) field including all relevant instructions.	C
22	seqNum	Alphanumeric (40)	The sequence number assigned to the CAT event by the ATS's matching engine. Any alphanumeric not containing a delimiter.	A
23	atsDisplayInd	Choice	Indicates if the order is displayed outside of the ATS to subscribers only, or via publicly disseminated quotation data.	A
24	displayPrice	Price	The displayed price of this order. If the price is hidden, value must be "0".	A
25	workingPrice	Price	The working price of the order at the time it was originated. If no current *workingPrice*, it must be "0".	A
26	displayQty	Whole Quantity	The displayed quantity of the order. If the quantity is hidden, value must be "0".	A
27	nbbPrice	Price	The NBBO at the moment of the order was routed. Prices are required, quantities are optional.	A
28	nbbQty	Whole Quantity		O
29	nboPrice	Price		A
30	nboQty	Whole Quantity		O
31	nbboSource	Choice	Source of the NBBO data used.	A
32	nbboTimestamp	Timestamp	The date/time at which the NBBO was referenced upon the receipt of the order.	A

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID*, *symbol, orderID*
- Prior Order Key: *priorOrderKeyDate*, *CATReporterIMID, symbol*, and *priorOrderID*

4.6.3. Child Order Cancelled

If a child order is cancelled, a Child Order Cancelled event must be reported. Partial cancellations may be reported using a Child Order Modified event or Child Order Cancelled event with *leavesQty*.

Table 16: Child Order Cancelled Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MECOC	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The *orderKeyDate* of the Child Order event which is being cancelled.	R
7	orderID	Text (40)	The *orderID* of the Child Order event which is being cancelled.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	eventTimestamp	Timestamp	The date/time at which the child order was cancelled.	R

Seq #	Field Name	Data Type	Description	Include Key
11	side	Choice	The side of the order.	R
12	cancelQty	Real Quantity	The quantity of the Child order being cancelled.	R
13	leavesQty	Whole Quantity	The number of shares of the Child Order left open after the cancellation. Full cancellation will result in a zero in this field.	R
14	initiator	Choice	Indicates who initiated the order cancellation.	R
15	seqNum	Alphanumeric (40)	The sequence number assigned to the CAT event by the ATS's matching engine. Any alphanumeric not containing a delimiter.	A

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, symbol, orderID*

4.7. Order Modified and Cancel/Replace Event

Industry Members must report an Order Modified event to CAT when the Material Terms of an order have been changed (e.g., price, quantity) or when an order is cancel/replaced. All attributes and Material Terms of the modified order listed on this event must be restated with the modification(s) reflected. The *side* field is required to be reported, but side adjustments are only allowed for same-side changes, including changes between Short Sale and Sell Long.

If a modification results in the generation of new order with a new Order ID which replaces the prior order, the *orderID* field must capture the identifier for the new order, and the prior order fields must reflect the order that is being replaced. If the order has been modified more than once with a new *orderID* assigned with each modification, the *priorOrderID* must refer to *orderID* of the immediately preceding modification which will not be the original Order ID. If the *orderID* remains the same during the modification, the *priorOrderID* must remain blank.

Table 17: Order Modified and Cancel/Replace Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the	R

Seq #	Field Name	Data Type	Description	Include Key
			reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	
4	Type	Message Type	MEOM	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	When a new Order Key is assigned, the date and time the *orderID* was assigned. When a new Order Key is not assigned, the *orderKeyDate* of the Order Modified and Cancel/Replace event which is being modified.	R
7	orderID	Text (40)	When a new Order Key is assigned, the internal order ID assigned to the order by the Industry Member. When a new Order Key is not assigned, the *orderID* of the Order Modified and Cancel/Replace event which is being modified. Must be unique within orderKeyDate, CATReporterIMID, and symbol combination.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	priorOrderKeyDate	Timestamp	If a new Order Key has been assigned, this is the *orderKeyDate* of the event being modified.	C
10	priorOrderID	Text (40)	If a new Order Key has been assigned, this is the *OrderID* of the event being modified.	C
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
12	eventTimestamp	Timestamp	The date/time of receipt of the modification to the order. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
13	manualFlag	Boolean	Must be marked as *true* if the order is	R

Seq #	Field Name	Data Type	Description	Include Key
			modified or replaced manually.	
14	manualOrderKeyDate	Timestamp	The *orderKeyDate* of the related manual order. Required when *manualOrderID* is populated.	O
15	manualOrderID	Text (40)	When this is a duplicative electronic message of a previously (separately) reported manual Order Modified and Cancel/Replaced event (*electronicDupFlag* = true), this field is to capture the internal order ID of the manual order. Optional for Phase 2a.	O
16	electronicDupFlag	Boolean	Indicates whether this is a duplicative electronic message of a manual event. If populated, this message will not be linked to any other events in Phase 2a.	R
17	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when *manualFlag* is true and the event is systematized. Not required when *electronicDupFlag* is true.	C
18	receiverIMID	Industry Member ID	Required when the modification is received from an Industry Member or an exchange.The IMID of the Industry Member receiving the routed order modification. When receiving from another Industry Member, it must match the *destination* field on the Order Route event reported by the routing Industry Member. If receiving from an exchange, this must match the *routingParty* on the Participant Order Modify Route reported by the exchange.	C
19	senderIMID	Industry Member ID / Exchange ID	Required when the modification is received from an Industry Member or an exchange. When the order modification is routed from another Industry Member, this is the IMID of the sending Industry Member from which the order is routed, and it must match *senderIMID* in the Order Route event reported by the routing Industry Member. When the order is routed from an exchange, this is the Exchange ID of the sending entity from which the order is routed. The value must match the *exchange* field in the Participant Order Modify Route event reported by the exchange.	C
20	senderType	Choice	Required when the modification is received from an Industry Member or an exchange. Indicates the type of origin from which the order is routed.	C
21	routedOrderID	Text (40)	The ID for the order as sent by the routing entity.	C

Seq #	Field Name	Data Type	Description	Include Key
			Not required if this modification is initiated by the Industry Member or received manually.	
22	quoteID	Text (40)	If this order modification was the result of a quote provided to a customer/client, this is the *quoteID* of the quote offered to the reporter's customer/client. Required if this order was originated as the result of a quote. Not applicable in Phase 2a.	C
23	quoteKeyDate	Timestamp	The date and time the *quoteID* was assigned. Required when *quoteID* is populated. Not applicable in Phase 2a.	C
24	priorQuoteID	Text (40)	The most recent *quoteID* for the order prior to this Order Modified event Not required if the prior New Order or Order Modified event does not have a *quoteID*. Not applicable in Phase 2a.	C
25	priorQuoteKeyDate	Timestamp	If a new Quote ID has been assigned, this is the *quoteKeyDate* of the event being modified. Not applicable in Phase 2a.	C
26	initiator	Choice	Indicates who initiated the order modification.	R
27	side	Choice	The side of the order. For this Reportable Event, only same-side adjustments are allowed (e.g., long to short sell).	R
28	price	Price	The limit price of the order, required when applicable.	C
29	quantity	Real Quantity	The order quantity.	R
30	minQty	Whole Quantity	The minimum quantity of an order to be executed. Required when applicable.	C
31	leavesQty	Real Quantity	The number of shares left open after the modification has occurred.	R
32	orderType	Choice	The type of order being submitted (e.g., market, limit).	R
33	timeInForce	Name/Value Pairs	The time-in-force for the order (e.g. DAY, IOC, GTC).	R
34	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
35	isoInd	Choice	Indicates the order was an Intermarket Sweep Order. Required if modification is to Order Accepted event.	C
36	handlingInstructions	Name/Value Pairs	Defines the handling instructions, as described in the Data Dictionary for handlingInstructions.	C
37	custDspIntrFlag	Boolean	Indicates if a customer has instructed that a limit order should not be displayed or that a block size order should be	R

Seq #	Field Name	Data Type	Description	Include Key
			displayed.	
38	infoBarrierID	Alphanumeric (12)	Specifying the identifier of the information barrier in place for a trading unit that will meet the criteria of the "no-knowledge" exception in FINRA Rule 5320.02. Any alphanumeric not containing a delimiter.	C
39	aggregatedOrders	Multi-dimensional array	When applicable, the order ID of each customer order being represented. Refer to Appendix C for representative order linkage requirements.	C
Aggregated Orders – Start For each order being represented *n*, the following values are required.				
39.*n*.1	orderID	Text (40)	*orderID* of the order being represented.	R
39.*n*.2	orderKeyDate	Timestamp	*orderKeyDate* of the order being represented.	R
39.*n*.3	quantity	Real Quantity	Required when a partial quantity of the order is being represented.	C
Aggregated Orders – End				
40	representativeInd	Choice	Indicates if the order is a representative order and if linkage is required.	R
41	seqNum	Alphanumeric (40)	The sequence number assigned to the CAT event by the ATS's matching engine. Any alphanumeric not containing a delimiter.	A
42	atsDisplayInd	Choice	Indicates if the order is displayed outside of the ATS to subscribers only, or via publicly disseminated quotation data.	A
43	displayPrice	Price	The displayed price of this order. If the price is hidden, value must be "0".	A
44	workingPrice	Price	The working price of the order at the time of the modification. If no current *workingPrice*, it must be "0".	A
45	displayQty	Whole Quantity	The displayed quantity for this order at the time the order was modified. If the quantity is hidden, value must be "0".	A
46	atsOrderType	Array	Shows the ATS-specific order types as selected from a list of order types defined by this ATS.	A
47	nbbPrice	Price	The NBBO at the moment the order was modified. Prices are required, quantities are optional.	A
48	nbbQty	Whole Quantity		O
49	nboPrice	Price		A
50	nboQty	Whole Quantity		O
51	nbboSource	Choice	Source of the NBBO data used.	A
52	nbboTimestamp	Timestamp	The date/time at which the NBBO was referenced upon the receipt of the order.	A

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID*, *symbol, orderID*
- Order Key: aggregatedOrders.*orderKeyDate, CATReporterIMID, symbol, aggregatedOrders.orderID*
- Prior Order Key: *priorOrderKeyDate*, *CATReporterIMID, symbol*, and *priorOrderID*
- Route Linkage Key: Event Date, *symbol, receiverIMID, senderIMID*, *routedOrderID*
- Manual Order Key: *manualOrderKeyDate*, *CATReporterIMID, symbol, manualOrderID* (Optional in Phase 2a)
- Quote Key: *quoteKeyDate, CATReporterIMID, symbol, quoteID* (Not applicable in Phase 2a)
- Prior Quote Key: *priorQuoteKeyDate*, *CATReporterIMID, symbol,* and *priorQuoteID* (Not applicable in Phase 2a)

4.8. Order Modified (Cancel/Replace) Supplement Event

The Order Modified Supplement event serves as a supplement to the Order Modified event, just as the New Order Supplement Event serves as a supplement to the New Order event.

Table 18: Order Modified Supplement Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MEOMS	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The *orderKeyDate* of the related Order Modified and Cancel/Replace event which this event is supplementing.	R
7	orderID	Text (40)	The *orderID* of the related Order Modified and Cancel/Replace event which this event is supplementing.	R

Seq #	Field Name	Data Type	Description	Include Key
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	eventTimestamp	Timestamp	The date/time of the Order Modified this event supplements.	R
11	aggregatedOrders	Multi-dimensional array	When applicable, the order ID of each customer order being represented. Refer to Appendix C for representative order linkage requirements.	R
Aggregated Orders – Start For each order being represented *n*, the following values are required.				
11.n.1	orderID	Text (40)	*orderID* of the order being represented.	R
11.n.2	orderKeyDate	Timestamp	*orderKeyDate* of the order being represented.	R
11.n.3	quantity	Real Quantity	Required when a partial quantity of the order is being represented.	C
Aggregated Orders – End				

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, symbol, orderID*
- Order Key: aggregatedOrders.*orderKeyDate, CATReporterIMID, symbol, aggregatedOrders.orderID*Order Adjusted Event

4.9. Order Adjusted Event

The Order Adjusted event is used to report simple order modifications including changes to the side, price or quantity of an order. When the display price or quantity changes as the result of a display ATS matching engine action and not from a customer instruction, an Order Adjusted event must be used.

The following rules apply:

1. If a price change is reported, then all price fields (e.g., *price, displayPrice*, and *workingPrice*) to represent current state of the order relative to price. The quantity fields are not required.

2. If a quantity change is reported, then all four quantity fields are required (*quantity, minQty, leavesQty, displayQty)* to represent the current state of the order relative to quantity. The price fields are not required.

Any modification that cannot be fully represented in this Reportable Event must be reported via the Order Modified event.

Table 19: Order Adjusted Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is ‘RPR’	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MEOJ	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	When a new Order Key is assigned, the date and time the *orderID* was assigned. When a new Order Key is not assigned, the *orderKeyDate* of order event which is being modified.	R
7	orderID	Text (40)	When a new Order Key is assigned, the internal order ID assigned to the order by the Industry Member. When a new Order Key is not assigned, the *orderID* of order event which is being modified. Must be unique within orderKeyDate, CATReporterIMID, and symbol combination.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	priorOrderKeyDate	Timestamp	If a new Order ID has been assigned, this is the *orderKeyDate* of the event being adjusted.	C
10	priorOrderID	Text (40)	If a new Order ID has been assigned, this is the *OrderID* of the event being adjusted.	C
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had	C

Seq #	Field Name	Data Type	Description	Include Key
			open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	
12	eventTimestamp	Timestamp	The date/time of receipt of the modification to the order. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
13	manualFlag	Boolean	Must be marked as *true* if the order is adjusted manually.	R
14	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when *manualFlag* is true and the event is systematized. Not required when *electronicDupFlag* is true.	C
15	initiator	Choice	Indicates who initiated the order adjustment.	R
16	price	Price	The limit price of the order. Present if changed or if other price fields changed. Otherwise, not present.	C
17	quantity	Real Quantity	The order quantity. Present if changed or if other quantity fields changed. Otherwise, not present.	C
18	minQty	Whole Quantity	The minimum quantity of an order to be executed. Present if changed or if other quantity fields changed. Otherwise, not present.	C
19	leavesQty	Real Quantity	The number of shares left open after the adjustment/modification has occurred. Present if changed or if other quantity fields changed. Otherwise, not present.	R
20	seqNum	Alphanumeric (40)	The sequence number assigned to the CAT event by the ATS's matching engine. Any alphanumeric not containing a delimiter.	A
21	atsDisplayInd	Choice	Indicates if the order is displayed outside of the ATS to subscribers only, or via publicly disseminated quotation data.	A
22	displayPrice	Price	The displayed price of the order. Present if changed or if other price fields changed. Otherwise, not present.	A
23	workingPrice	Price	The working price of the order. Present if changed or if other price fields changed. Otherwise, not present.	A
24	displayQty	Whole Quantity	The displayed quantity for this order. Present if changed or if other quantity fields changed. Otherwise, not present.	A
25	nbbPrice	Price	The NBBO at the moment the order was	A

Seq #	Field Name	Data Type	Description	Include Key
26	nbbQty	Whole Quantity	modified. Prices are required, quantities are optional.	O
27	nboPrice	Price		A
28	nboQty	Whole Quantity		O
29	nbboSource	Choice	Source of the NBBO data used.	A
30	nbboTimestamp	Timestamp	The date/time at which the NBBO was referenced upon the receipt of the order.	A

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, symbol, orderID*
- Prior Order Key: *priorOrderKeyDate*, *CATReporterIMID, symbol*, and *priorOrderID*

4.10. Order Cancelled

The Order Cancelled event is reported when an order is fully or partially cancelled. Partial cancellations of an order may be reported to CAT using an Order Cancelled event or an Order Modified event. Implicit order cancellations, such as cancellations due to expiration of Time in Force, are not required to be reported to CAT.

Order Cancelled events are required to be reported by the entity that initiated the cancellation. When an Order is routed from Firm A to Firm B, the following rules apply:

1. If Firm A or its customer initiates the cancel, Firm A and Firm B must report the Order Cancelled.
2. If Firm B initiaties the cancel, Firm B must report the Order Cancelled.

Table 20: Order Cancelled Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is ‘RPR’	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R

Seq #	Field Name	Data Type	Description	Include Key
4	type	Message Type	MEOC	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The *orderKeyDate* of the order event which is being cancelled.	R
7	orderID	Text (40)	The *orderID* of the order event which is being cancelled.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	eventTimestamp	Timestamp	The date/time of receipt of the cancellation. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
11	manualFlag	Boolean	Must be marked as *true* if the order is cancelled manually.	R
12	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when *manualFlag* is true and the event is systematized. Not required when *electronicDupFlag* is true.	C
13	cancelQty	Real Quantity	The quantity being cancelled.	R
14	leavesQty	Real Quantity	The quantity left open after the cancel event. The full cancel will result in zero in this field.	R
15	initiator	Choice	Indicates who initiated the order cancellation.	R
16	seqNum	Alphanumeric (40)	The sequence number assigned to the CAT event by the ATS's matching engine. Any alphanumeric not containing a delimiter.	A

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, symbol, orderID*

4.11. New Quote

The New Quote Event is used to report quotes in OTC equity securities.

For two-sided quote events, the *bidPrice, bidQty, askPrice*, and *askQty* fields must be populated. For one-sided quote events, the price and quantity of the applicable side must be populated.

Modifications to a previously reported quote event are considered to be a replacement, and must include the *priorQuoteID* of the quote being replaced. If a modification does not result in a change to the quote ID, the *priorQuoteID* and the *quoteID* fields must be populated and must be equal. Otherwise, if the field *onlyOneQuoteFlag* = true, any New Quote event offered by the same CATReporterIMID to the same destination in the same symbol will be considered cancelled by CAT.

Quotes in OTC equity securities sent to an inter-dealer quotation system operated by an Industry Member CAT Reporter must be reported in Phase 2c.

In Phase 2a, the following quotations must be reported:

1. Quotes in NMS Securities sent to an exchange or the ADF. Quotes in NMS Securities sent to an exchange must be reported using the New Order and Route Events.
2. Quotes in OTC Equity Securities received by an Industry Member CAT Reporter operating an inter-dealer quotation system.
3. Quotes in OTC Equity Securities that meet the definition of bid or offer under the CAT NMS Plan sent by a broker-dealer to a quotation venue not operated by a CAT Reporter.

Table 21: New Quote Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MENQ	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	quoteKeyDate	Timestamp	The date and time the *quoteID* was assigned.	R
7	quoteID	Text (40)	The internal quote ID assigned to the quote by the Industry Member. Must be unique within orderKeyDate, CATReporterIMID, and symbol combination.	R

Seq #	Field Name	Data Type	Description	Include Key
9	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
10	priorQuoteKeyDate	Timestamp	If a new Quote ID has been assigned, this is the *quoteKeyDate* of the event being modified.	C
11	priorQuoteID	Text (40)	This field is only relevant for an update/replacement of an existing quote, and must not be populated for new Quotes. After this Reportable Event, the quote specified in this field will be considered to have been replaced. This field does not have to be included if *onlyOneQuoteFlag* is true, since it is known implicitly that the previous quote is being replaced. This field is the *quoteID* of the quote that is being replaced.	C
12	eventTimestamp	Timestamp	The date/time the quote was sent by the Industry Member to the recipient. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
13	seqNum	Alphanumeric (40)	The sequence number assigned to the quote by the reporter. Any alphanumeric not containing a delimiter. Required for inter-dealer quotation systems only.	C
14	senderIMID	Industry Member ID	The IMID of the Industry Member that is sending the quote, as known by the destination. This value must match the *senderIMID* on the Quote Received event reported by the destination. Not required if the recipient of the quote is not a reporter to CAT.	C
15	destination	Industry Member ID	This field contains the SRO assigned identifier of the destination Industry Member. This value must match the *receiverIMID* field on the Quote Received event reported by the destination. Required if the destination of the quote is another broker-dealer or ATS.	C
16	routedQuoteID	Text (40)	The quote ID sent to the recipient of the quote. Not required if the recipient of the quote is a customer/client (e.g. not an Industry Member).	C
17	onlyOneQuoteFlag	Boolean	Value is *true* if the recipient only allows one quote per *symbol* for this Industry Member. Otherwise, false.	R
18	bidPrice	Price	Price being bid.	C

Seq #	Field Name	Data Type	Description	Include Key
19	bidQty	Whole Quantity	Quantity being bid.	C
20	askPrice	Price	Price being asked.	C
21	askQty	Whole Quantity	Quantity being asked.	C
22	firmDesignatedID	Alphanumeric (40)	Refer to the Data Dictionary for definition and guidance for populating this field.	R
23	accountHolderType	Choice	Represents the type of account that originated this quote. Must be provided when *firmDesignatedID* is present.	R
24	unsolicitedInd	Choice	Indicates whether this is an unsolicited quote.	R
25	mpStatusCode	Choice	Market Participant Status Code, indicates if the market maker's quote is open or closed. Only required when the quote is sent to an inter-dealer quotation system.	C
26	quoteRejectedFlag	Boolean	If the result of the quote is rejected or no response was received, value should be *true*. (For Phase 2a, this is not required to be reported. In Phase 2c, the field will change to required.)	O

Linkage keys for this Reportable Event:

- Quote Key: *quoteKeyDate, CATReporterIMID, symbol, quoteID*
- Prior Quote Key: *priorQuoteKeyDate*, *CATReporterIMID, symbol,* and *priorQuoteID*

4.11.1. Quote Received

Reported when a quote is received by an Industry Member.

Table 22: Quote Received Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R

Seq #	Field Name	Data Type	Description	Include Key
4	type	Message Type	MEQR	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	quoteKeyDate	Timestamp	The date and time the *quoteID* was assigned.	R
7	quoteID	Text (40)	The internal quote ID assigned to the quote by Industry Member. Must be unique within orderKeyDate, CATReporterIMID, and symbol combination.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	receivedQuoteID	Text (40)	The quote ID as received by the ATS or Industry Member, should match the *routedQuoteID* in the New Quote event created by the issuer of the quote.	R
10	eventTimestamp	Timestamp	The date/time the quote was received by the ATS or Industry Member. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
11	seqNum	Alphanumeric (40)	The sequence number assigned to the quote received message by the reporter. Any alphanumeric not containing a delimiter. Required for inter-dealer quotation systems only.	C
12	receiverIMID	Industry Member ID	The IMID of the Industry Member receiving the quote (the Industry Member reporting this Reportable Event). It must match the *destination* field on the New Quote event reported by the routing entity.	R
13	senderIMID	Industry Member ID	The IMID of the Industry Member providing the quote. This value must match the string *senderIMID* in the Order Accepted event reported by the routing Industry Member.	R
14	onlyOneQuoteFlag	Boolean	*true* if the Industry Member only allows one quote per *symbol* for the issue of the quote; false otherwise.	R
15	priorQuoteKey	Timestamp	If a new Quote ID has been assigned, this is the *quoteKeyDate* of the event being modified.	C
16	priorQuoteID	Text (40)	This field is only relevant for an update/replacement of an existing quote. After this Reportable Event, the quote specified in this field will be considered to have been replaced. This field does not	C

Seq #	Field Name	Data Type	Description	Include Key
			have to be included if *onlyOneQuote*Flag is true, since it is known implicitly that the previous quote is being replaced. This is the *quoteID* of the quote previously accepted by the Industry Member that is being replaced.	
17	bidPrice	Price	Price being bid.	C
18	bidQty	Whole Quantity	Quantity being bid.	C
19	askPrice	Price	Price being asked.	C
20	askQty	Whole Quantity	Quantity being asked.	C
21	mpStatusCode	Choice	Market Participant Status Code, indicates if the market maker's quote is open or closed. Only required for quotes sent to an inter-dealer quotation system.	C
22	unsolicitedInd	Choice	Indicates whether this is an unsolicited quote.	R

Linkage keys for this Reportable Event:

- Quote Key: *quoteKeyDate, CATReporterIMID, symbol, quoteID*
- Quote Received Key: Event Date*, CATReporterIMID, symbol, receivedQuoteID* (not applicable in Phase 2a)
- Prior Quote Key: *priorQuoteKeyDate*, *CATReporterIMID, symbol,* and *priorQuoteID*

4.11.2. Quote Cancelled

Reported when a quote is cancelled. If a quote is cancelled that was sent an ATS or an Industry Member, then both the sender of the quote and the entity that accepted the quote must report Quote Cancelled events.

Table 23: Quote Cancelled Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier>	R

Seq #	Field Name	Data Type	Description	Include Key
			Must be unique for the Event Date and CAT Reporter IMID.	
4	type	Message Type	MEQC	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	quoteKeyDate	Timestamp	The *quoteKeyDate* of the Quote event which is being cancelled.	R
7	quoteID	Text (40)	The *quoteID* of the Quote event which is being cancelled. (The *quoteID* of the quote being cancelled).	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	eventTimestamp	Timestamp	The date/time the quote was cancelled by the Industry Member to the recipient. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
11	seqNum	Alphanumeric (40)	The sequence number of the quote cancel message. Any alphanumeric not containing a delimiter. Required for inter-dealer quotation systems only.	C
12	onlyOneQuoteFlag	Boolean	*true* if the ATS or Industry Member only allows one quote per *symbol* for the issue of the quote; false otherwise.	R
13	initiator	Choice	Indicates who initiated the order cancellation.	R
14	mpStatusCode	Choice	Market Participant Status Code, indicates if the market maker's quote is open or closed. Only required for quotes sent to an inter-dealer quotation system.	C

Linkage keys for this Reportable Event:

- Quote Key: *quoteKeyDate, CATReporterIMID, symbol, quoteID*

4.12. Trade

A Trade Event is used when the Industry Member acts as the executing broker and is required to report the trade for public dissemination purposes. When an Industry Member is not required to report the execution of a customer order for public dissemination purposes, with the exeptions noted below, an Order Fulfillment event must be used. See Section 4.13 Order Fulfillment for more details.

Reporting Exception Codes

There are two circumstances when an MEOT would not be able to be linked to a TRF report and a Reporting Exception Code (REC) will be required on a Trade Event to allow the Processor to identify that there will be no link to a TRF/ORF/ADF report:

1. An Industry Member executes a trade between two desks or departments involving two proprietary accounts of the firm, but because there is no change in beneficial ownership, no trade is reported for public dissemination. In this instance a REC of “P” should be used on the Trade Event.

2. An Industry Member executes a trade and must report the trade via Form T. In this instance a REC of “F” should be used on the Trade Event.

Trade Side Details

Trade events are two-sided, containing information on both sides of the trade (with the exception of negotiated trades and internalized trades). The details of each side are reported using Trade Side Details. The data type Trade Side Details is described as a list of fields in the table immediately following the Trade event table.

Trade Side Details may contain only one *orderID* per side.The *buyDetails* must contain the *orderID* of the buy side of the trade and the *sellDetails* must contain the *orderID* of the sell side of the trade. If there is more than one *orderID* associated with one side of the trade, the Trade Side Details related to each *orderID* must be populated in a separate Trade Supplement event.

Internalized Trade

When an Industry Member internalizes an order by filling it from a proprietary account, the Industry Member must report the *orderID* on the customer side and the FDID and the *accountHolderType* of the proprietary account on the firm side. No *orderID* is required on the *firmSideDetails*.

Negotiated Trade

When an execution occurs as the result of a negotiated trade between two Industry Members, both of the Industry Members, for CAT purposes, are considered to have executed the trade and must submit a Trade event with the *negotiatedTradeSide* marked appropriately. The *negotiatedTradeSide* indicates whether the Industry Member is performing a negotiated buy or negotiated sell in this execution. The Industry Member must capture the full details for its own side, and is not required to capture the side details for the contra-side

4.12.1. Trade Event

The tables below describe the data elements to report a trade executed by an Industry Member.

Table 24: Trade Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MEOT	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	tradeKeyDate	Timestamp	The date and time the *tradeID* was assigned.	R
7	tradeID	Text (40)	Unique ID assigned to this execution by the Industry Member. This ID will be used in subsequent events when a specific trade needs to be identified. The combination of date, *CATReporterIMID, symbol*, and *tradeID* must be unique.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	eventTimestamp	Timestamp	The date/time at which the trade was executed. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R

Seq #	Field Name	Data Type	Description	Include Key
10	manualFlag	Boolean	Must be marked as *true* if this is a manual execution.	R
11	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when *manualFlag* is true and the event is systematized. Not required when *electronicDupFlag* is true.	C
12	cancelFlag	Boolean	Must be marked as *true* if the execution is cancelled and was not reported to the TRF/ADF/ORF.	R
13	cancelTimestamp	Timestamp	When *cancelFlag* is *true*, the time at which the execution was cancelled.	C
14	quoteKeyDate	Timestamp	The date and time the *quoteID* was assigned. Required when *quoteID* is populated. Not applicable in Phase 2a.	C
15	quoteID	Text (40)	If this trade was the result of a quote that was sent to an IDQS, this is the quoteID of the related quote event. Required if this order was originated as the result of a quote. Not applicable in Phase 2a.	C
16	quantity	Real Quantity	Quantity of the trade.	R
17	price	Price	The execution price of the trade.	R
18	capacity	Choice	The capacity in which the Industry Member acted.	R
19	tapeTradeID	Text (40)	The unique identifier reported by the Industry Member to the TRF/ADF/ORF based on the reporting specifications of the specific facility, required when the ID was supplied to a transaction reporting system: • Compliance ID in ORF and ADF • Branch Sequence Number in FINRA/NQ TRF • FINRA Compliance Number in FINRA/NYSE TRF	R
20	marketCenterID	Choice	The national securities exchange or transaction reporting system operated by FINRA where the trade was reported.	C
21	negotiatedTradeSide	Choice	Identifies the CAT Reporter's side of a Negotiated Trade.	R
22	buyDetails	Trade Side Details	See Order Trade Side Details table below. Applicable if there is only one *orderID* associated with this side of the trade. If there is more than one *orderID*, must be populated in separate MEOTS events. Not applicable for the contra-side of a negotiated trade.	C
23	sellDetails	Trade Side Details	See Order Trade Side Details table below.	C

Seq #	Field Name	Data Type	Description	Include Key
			Applicable if there is only one *orderID* associated with this side of the trade. If there is more than one *orderID*, must be populated in separate MEOTS events. Not applicable for the contra-side of a negotiated trade.	
24	reportingExceptionCode	Choice	Indicates the reason that a unique identifier (e.g., Branch Sequence Number, Compliance ID) was not supplied to a transaction reporting system. Must be provided if the execution is not reported to a FINRA transaction reporting system.	C
25	seqNum	Alphanumeric (40)	The sequence number assigned to the Reportable Event by the ATS's matching engine. Any alphanumeric not containing a delimiter.	A
26	nbbPrice	Price	The NBBO at the moment the trade occurred. Prices are required, quantities are optional.	A
27	nbbQty	Whole Quantity		O
28	nboPrice	Price		A
29	nboQty	Whole Quantity		O
30	nbboSource	Choice	Source of the NBBO Data Used.	A
31	nbboTimestamp	Timestamp	The date/time at which the NBBO was referenced upon the receipt of the order.	A

Table 25: Trade Side Details

The Trade Side Details associated with fields: *buyDetails* and *sellDetails:* Limited to 1 set of details for each side.				
Seq #	**Field Name**	**Data Type**	**Description**	**Include Key**
<seq>.1.1	orderKeyDate	Timestamp	The *orderKeyDate* of the order on this side.	C
<seq>.1.2	orderID	Text (40)	The order ID of the order on this side. Not required for the non-reporter side in a negotiated trade.	C
<seq>.1.3	side	Choice	The side of the order.	R
<seq>.1.4	quantity	Real Quantity	The execution quantity associated with this *orderID*.	O
<seq>.1.5	firmDesignatedID	Alphanumeric (40)	Refer to the Data Dictionary for definition and guidance for populating this field.	C
<seq>.1.6	accountHolderType	Choice	Required if *firmDesignatedID* is populated. Represents the type of account against which a customer/client order is being filled.	C

Linkage Keys for this Reportable Event:

- Order Key: *buyDetails.orderKeyDate, CATReporterIMID, symbol, buyDetails.orderID*
- Order Key: *sellDetails.orderKeyDate, CATReporterIMID, symbol, sellDetails.orderID*
- Trade Key: *tradeKeyDate, CATReporterIMID, symbol, tradeID*
- TRF Linkage Key: *eventTimestamp, CATReporterIMID, symbol, tapeTradeID*
- Quote Key: *quoteKeyDate*, *CATReporterIMID*, *symbol*, *quoteID* (Not applicable in Phase 2a)

4.12.2. Trade Supplement Event

The tables below describe the data elements used to report when there is more than one order associated with one side of the trade.

Table 26: Trade Supplement Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm.	R
4	type	Message Type	MEOTS	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	tradeKeyDate	Timestamp	The *tradeKeyDate* of the Trade event which this event is supplementing.	R
7	tradeID	Text (40)	The *tradeID* of the Trade event which this event is supplementing.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	buyDetails	Trade Side Details	Required if the subject order was a buy order. See Order Trade Side Details table	C

Seq #	Field Name	Data Type	Description	Include Key
			below.	
11	sellDetails	Trade Side Details	Required if the subject order was a sell order. See Order Trade Side Details table below.	C

Table 27: Trade Side Details

The Trade Side Details associated with fields: *buyDetails* and *sellDetails:* Limited to 1 set of details for each side.				
Seq #	**Field Name**	**Data Type**	**Description**	**Include Key**
<seq>.1.1	orderKeyDate	Timestamp	The *orderKeyDate* of the order on this side.	C
<seq>.1.2	orderID	Text (40)	The order ID assigned by the Industry Member to the order on this side.	R
<seq>.1.3	side	Choice	The side of the order.	R
<seq>.1.4	quantity	Real Quantity	The execution quantity associated with this *orderID*.	C

Linkage Keys for this Reportable Event:

- Order Key: *buyDetails.orderKeyDate, CATReporterIMID, symbol, buyDetails.orderID*
- Order Key: *sellDetails.orderKeyDate, CATReporterIMID, symbol, sellDetails.orderID*
- Trade Key: *tradeKeyDate, CATReporterIMID, symbol, tradeID*

4.13. Order Fulfillment

The Order Fulfillment event is used to report the execution of a customer/client order that is not required to be reported for public dissemination purposes.

Order Fulfillment events are required in scenarios where:

1. A representative order was used to facilitate the execution of the customer/client order.
2. An order is routed to a foreign market and the resulting foreign execution is not captured by CAT

The Order Fulfillment event is designed to capture the customer/client details and the firm side details. Firm side details provide linkage to the representative order used to facilitate the execution of the customer/client order. In Phase 2a, not all scenarios require the firm side details to be populated.

The *fulfillmentLinkType* field is used to indicate if the firm side details are required. Appendix C contains detailed descriptions of representative order scenarios and illustrates when marking of the representative order, linkage between the represented order and the representative order, and Order Fulfillment linkage is required in each phase.

4.13.1. Order Fulfillment Event

Table 28: Order Fulfillment Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MEOF	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	fillKeyDate	Timestamp	The date and time the *fulfillmentID* was assigned.	R
7	fulfillmentID	Text (40)	The unique identifier for the fulfillment. The combination of reporter, *fillKeyDate*, *symbol* and *fulfillmentID* must be unique.	R
8	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
9	eventTimestamp	Timestamp	The date/time when the fulfillment was processed by the Industry Member. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
10	manualFlag	Boolean	Must be marked as *true* if this is a manual process.	R
11	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when *manualFlag* is true and the event is systematized. Not required when *electronicDupFlag* is true.	C
12	fulfillmentLinkType	Choice	Refer to Appendix C for representative order linkage requirements.	R
13	cancelFlag	Boolean	Must be marked as *true* if the fulfilment	R

Seq #	Field Name	Data Type	Description	Include Key
			was cancelled.	
14	cancelTimestamp	Timestamp	When *cancelFlag* is *true*, the time at which the fulfillment was cancelled	C
15	quantity	Real Quantity	Quantity being executed and assigned. It may or may not be the full quantity of the order.	R
16	price	Price	Price of the executed shares.	R
17	capacity	Choice	The capacity in which the Industry Member acted.	R
18	clientDetails	Fulfillment Side Details	See Fulfillment Side Details table below.	R
19	firmDetails	Fulfillment Side Details	Used to capture the Industry Member side order details. See Fulfillment Side Details table below. Not required when the *fulfillmentLinkType* = FOR, YE or YF. Refer to Appendix C for more details.	C

Table 29: Fulfillment Side Details

The Fulfillment Side Details associated with fields: *clientDetails* and *firmDetails:* Limited to 1 set of details for each side.				
Seq #	**Field Name**	**Data Type**	**Description**	**Include Key**
<seq>.1.1	orderKeyDate	Timestamp	The *orderKeyDate* of the order on this side.	C
<seq>.1.2	orderID	Text (40)	The order ID assigned by the Industry Member to the order on this side.	C
<seq>.1.3	side	Choice	The side of the order.	R
<seq>.1.4	quantity	Real Quantity	The execution quantity associated with this *orderID*.	O
<seq>.1.5	firmDesignatedID	Alphanumeric (40)	Refer to the Data Dictionary for definition and guidance for populating this field.	C
<seq>.1.6	accountHolderType	Choice	Required if *firmDesignatedID* is populated. Represents the type of account against which a customer/client order is being filled.	C

Linkage Keys for this Reportable Event:

- Order Key: *firmDetails.orderKeyDateate, CATReporterIMID, symbol*, *firmDetails.orderID*

- Order Key: *clientDetails.orderKeyDate, CATReporterIMID*, *symbol, clientDetails.orderID*
- Fulfillment Key: *fillKeyDate*, *CATReporterIMID, symbol, fulfillmentID*

4.13.2. Order Fulfillment Amendment

This CAT event is used to report the amendment of a previously reported fulfilment. This Reportable Event must capture the entire state of the fulfillment after it has been amended, even though some of the data elements may remain unchanged.

Order Fulfillment Amendments are not required in scenarios where:

- A trade correction comes before any initial fulfillment has been made, and the Industry Member directly gives the corrected shares to the customer
- An Industry Member makes a correction via a debit/credit to the customer's account instead of modifying the executed shares given back to the customer.

Table 30: Order Fulfillment Amendment Event

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm.	R
4	type	Message Type	MEFA	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The date and time the *orderID* was assigned.	R
7	fillKeyDate	Timestamp	When a new Fulfillment Key is assigned, the date and time the *fulfillmentID* was assigned. When a new Fulfillment Key is not assigned, the *fillKeyDate* of the fulfillment event being modified.	R
8	fulfillmentID	Text (40)	When a new Fulfillment Key is assigned, the internal fulfillment ID assigned to the order by the Industry Member. When a new Fulfillment Key is not assigned, the fulfilmentID of the fulfillment event being modified. Must be unique within fulfillmentKeyDate, CATReporterIMID, and symbol combination.	R
9	priorFillKeyDate	Timestamp	In cases when a new *fulfilmentID* is assigned,	C

Seq #	Field Name	Data Type	Description	Include Key
			the *priorFillKeyDate* is the *fillKeyDate* of the fulfilment that is being modified. Required if *priorFulfillmentID* is populated.	
10	priorFulfillmentID	Text (40)	If a new fulfillment ID is assigned, this is the fulfillmentID of the event being modified. The most recent *fulfillmentID* assigned by the Industry Member on the prior Fulfillment or Fulfillment Amendment event. If the *fulfillmentID* remains the same after the amendment, it must be the same as *fulfillmentID*.	C
11	symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange or FINRA for OTC Equity Securities.	R
12	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
13	eventTimestamp	Timestamp	The date/time when the fulfillment was processed by the Industry Member. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
14	manualFlag	Boolean	Must be marked as *true* if this is a manual process.	R
15	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when *manualFlag* is true and the event is systematized. Not required when *electronicDupFlag* is true.	C
16	quantity	Real Quantity	Quantity being executed and assigned. It may or may not be the full quantity of the order.	R
17	capacity	Choice	The capacity in which the Industry Member acted.	R
18	price	Price	Price of the executed shares.	R
19	fulfillmentLinkType	Choice	Refer to Appendix C for representative order linkage requirements.	R
20	clientDetails	Fulfillment Side Details	Refer to Fulfillment Side Details inTable 29: Fulfillment Side Details.	R
21	firmDetails	Fulfillment Side Details	Refer to Fulfillment Side Details inTable 29: Fulfillment Side Details.	C

Linkage Keys for this Reportable Event:

- Order Key: *firmDetails.orderKeyDate, CATReporterIMID, symbol, firmDetails.orderID*
- Order Key: *clientDetails.orderKeyDateCATReporterIMID, symbol, clientDetails.orderID*
- Fulfillment Key: *fillKeyDate, CATReporterIMID, symbol, fulfillmentID*
- Prior Fulfillment Key: *priorFillKeyDate*, *CATReporterIMID*, *symbol, priorFulfillmentID*

4.14. Post-trade Allocation (Phase 2c)

<Deferred - Not Required Until Phase 2c>

5. Single Leg Option Events

This section describes Reportable Events for single leg option transactions. The following table lists each option Reportable Event type with its corresponding Message Type code.

Phase 2b Requirements

In Phase 2b, Industry Members are required to report CAT Industry Member Data related to Eligible Securities that are options and meet the definition of Simple Electronic Option Orders, excluding Electronic Paired Option Orders.

The events related to Simple Electronic Option Orders subject to reporting in Phase 2b are limited to those events which involve electronic receipt of an order, or electronic routing of an order. Electronic receipt of an order is defined as the initial receipt of an order by an Industry Member in electronic form in standard format directly into an order handling or execution system. Electronic routing of an order is the routing of an order via electronic medium in standard format from one Industry Member's order handling or execution system to an exchange or another Industry Member.

Phase 2d Requirements

Beginning in Phase 2d, Industry Members will be required to report:

1. Simple options manual orders.
2. Electronic and manual paired options orders.
3. All complex orders with linkage to all CAT-Reportable legs.

For more details, refer to CAT FAQ K2.

Linkages in Phase 2b

Since only electronic single option orders are reportable beginning in Phase 2b, there are order handling scenarios that will result in unlinked CAT events within a single CAT Reporter, or between sending and receiving firms.

The *priorUnlinked* and *nextUnlinked* fields are used to identify that the immediately preceding or following event is not reportable in Phase 2b and is not present for linkage. An immediately preceding or following event may be a manual event, a complex order, or a paired order. The *priorUnlinked* and *nextUnlinked* fields have values to indicate why the immediately preceding or following event is not present.

If the *nextUnlinked* value is not known at the time of order receipt, the Industry Member may populate the *nextUnlinked* flag in a separate Option Order Supplement event.

Table 31: Unlinked Event Fields

Field Name	Values	
nextUnlinked	M	Next Manual
	C	Next Complex
	P	Next Paired
	Blank	Not applicable
priorUnlinked	M	Prior Manual
	C	Prior Complex
	Blank	Not applicable

One or both of these fields are included as conditional fields on all options event types. If these fields are not populated, linkage will be attempted.

In Phase 2b, if an Industry Member sends (or receives) a complex order electronically as individual simple option order legs, the preferred method of reporting is to suppress these events in CAT. If an Industry Member is unable to suppress these events in phase 2b, the Industry Member must populate the *handlingInstructions* field with 'CMPX' to indicate that the order is part of a complex option order, and must include a *priorUnlinked* or *nextUnlinked* flag of 'C' to indicate there will be no linkage to a related order at the sending (or receiving) firm.

Table 32: Summary of Option Events

Section	Event	Message Type	Description
5.1	New Option Order	MONO	Event used to report new option orders to CAT.
5.2	Option Order Supplement	MONOS	Supplement to the New Option Order event, used when the New Option Order event exceeds the maximum length allowed, or when the orders being combined are not captured in the New Order Event. Also used for instances when the *priorUnlinked* or *nextUnlinked* flags are unknown at the time of order receipt
5.3	Paired Option Order	MONP	Event used to report a cross of an agency/initiating order and contra side order(s) for single-leg option orders.
5.4.1	Option Order Route	MOOR	Reported to CAT by an Industry Member that has routed an option order to another Industry Member or an exchange.
5.4.2	Option Order Modify Route	MOMR	Deferred – event not required for Phase 2b. SROs will evaluate need for a modified route event after reviewing Phase 2b data and include event in Phase 2d, if necessary.
5.4.3	Option Order Cancel Route	MOCR	Deferred – event not required for Phase 2b. SROs will evaluate need for a cancelled route event after reviewing Phase 2b data and include event in Phase 2d, if necessary.
5.5	Option Order	MOOA	Reported when an Industry Member accepts a single-leg option order routed from another Industry Member or an

Section	Event	Message Type	Description
	Accepted		exchange.
5.6.1	Option Order Internal Route Accepted	MOIR	Reported when an order is internally routed from where it was accepted or originated to another desk or other internal destination.
5.6.2	Option Order Internal Route Modified	MOIM	Reported when an Industry Member modifies an internal route.
5.6.3	Option Order Internal Route Cancelled	MOIC	Reported when an Industry Member cancels an internal route.
5.7.1	Child Option Order	MOCO	Reported to represent instances when an order is sliced within the desk or department it is being worked, and is assigned a new order identifier.
5.7.2	Child Option Order Modified	MOCOM	Reported when a Child Option Order is modified.
5.7.3	Child Option Order Cancelled	MOCOC	Reported when a Child Option Order is cancelled.
5.8	Option Order Modified	MOOM	Reported when changes to the Material Terms of an order are made, or an order is cancel/replaced.
5.8.1	Option Order Modified Supplement	MOOMS	Used for certain aggregated orders in addition to the Option Order Modified event.
5.9	Option Order Adjusted	MOOJ	Used to report simple order modifications including changes to the side, price or quantity of the order.
5.10	Option Order Cancelled	MOOC	Reported when an order is fully or partially cancelled.
5.11.1	Option Order Fulfilment	MOOF	Reports the fill of a customer order in a combined option order scenario.
5.11.2	Option Order Fulfilment Amendment	MOFA	Reports how an order fulfillment was amended.
5.12.1	Option Post-Trade Allocation	MOPA	Reports how option positions (executed contracts) are allocated to end customer accounts and sub-accounts by clearing firms during post-trade processing.
5.12.2	Option Post-Trade Amended Allocation	MOAA	Reports an amendment to a previously reported allocation.

5.1. New Option Order Event

An Industry Member must report a New Option Order event to CAT when an order is received or originated. This includes:

1. New customer orders
2. Combined orders

3. Proprietary orders
4. Order(s) received from a non-reporting foreign broker-dealer or affiliate.

An order received from another CAT Reporter (US broker-dealer or an exchange) must be reported as an Option Order Accepted event.

Combined Orders

Industry Members are required to populate a *representativeInd* value of "O" in scenarios where the Industry Member, subject to applicable SRO rules, combines individual, simple option orders from customers before routing to an exchange as a single, simple order for execution.

Phase 2b does not require explicit order linkage between the combined order and the original customer orders. In Phase 2d, linkage is required between the combined order and the original customer orders through the *aggregatedOrders* field.

Refer to the CAT Industry Member Reporting Scenarios document for detailed examples of how options combined orders are reported in Phase 2b.

Table 33: New Option Order Event

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	Type	Message Type	MONO	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The date and time the *orderID* was assigned.	R
7	orderID	Text (40)	The internal order ID assigned to the order by the Industry Member. Must be unique within same date, *CATReporterIMID*, and *optionID* combination.	R
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbols	R

Seq #	Field Name	Data Type	Description	Include Key
			section for more information.	
9	eventTimestamp	Timestamp	The date/time of receipt of the order. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
10	manualFlag	Boolean	Must be marked as *true* if the order is handled manually.	R
11	manualOrderKeyDate	Timestamp	The *orderKeyDate* of the related manual order. Required when *manualOrderID* is populated.	O
12	manualOrderID	Text (40)	When this is a duplicative electronic message of a previously (separately) reported manual New Option Order event (*electronicDupFlag* = true), this field is to capture the internal order ID of the manual order. Optional for Phase 2a.	O
13	electronicDupFlag	Boolean	Indicates whether this is a duplicative electronic message of a manual event. If populated, this message will not be linked to any other events in Phase 2b.	R
14	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when manualFlag is true and the event is systematized. Not required when electronicDupFlag is true. Options manual order specifications are deferred to Phase 2d.	C
15	deptType	Choice	This is the category of internal department, unit or desk originating the order.	R
16	side	Choice	The side of the order.	R
17	price	Price	The limit price of the order per contract. Not required for market orders. For FLEX Percent options, this field may reflect a percentage of the underlying closing price, e.g., for a price equal to 95.5% of the underlying close price, this field would contain 95.5.	C
18	quantity	Real Quantity	The quantity of contracts.	R
19	minQty	Whole Quantity	The minimum quantity of contracts to be executed.	C
20	orderType	Choice	The type of order being submitted.	R
21	timeInForce	Name/Value Pairs	The time-in-force for the order.	R
22	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
23	handlingInstructions	Name/Value Pairs	This field will contain zero or more order instruction codes, each separated by a single pipe symbol.	C
24	firmDesignatedID	Alphanumeric (40)	Refer to the Data Dictionary for definition and guidance for populating this field.	R

Seq #	Field Name	Data Type	Description	Include Key
25	accountHolderType	Choice	Represents the type of beneficial owner of the account for which the order was received or originated.	R
26	affiliateFlag	Boolean	Indicates if the routing party is an affiliate of the Industry Member.	R
27	aggregatedOrders	Multi-dimensional array	When applicable, the order ID of each customer order being combined. Refer to Appendix C for representative order linkage requirements.	C
Aggregated Orders – Start For each order being combined *n*, the following values are required.				
27.*n*.1	orderID	Text (40)	*orderID* of the order being combined.	R
27.*n*.2	orderKeyDate	Timestamp	*orderKeyDate* of the order being combined.	R
27.*n*.3	quantity	Real Quantity	Required when a partial quantity of the order is being combined.	C
Aggregated Orders – End				
28	cmtaFirm	Alphanumeric (8)	Required for CMTA trades.	C
29	openCloseIndicator	Choice	Indicates whether the action taken (buy or sell) will open a new position or will close an existing position in the order originator's account. Required when the exchange's rules require an order to be marked as open or close upon entry into the exchange.	C
30	representativeInd	Choice	Indicates if the order is a combined order.	R
31	nextUnlinked	Choice	For phase 2b, indicates whether the given option event is unlinked in the option order lifecycle, as the next event is out of scope for Phase 2b.	C

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, optionID, orderID*
- Order Key: aggregatedOrders.*orderKeyDate, CATReporterIMID*, *optionID*, *aggregatedOrders.orderID*
- Manual Order Key: *manualOrderKeyDate*, *CATReporterIMID, optionID, manualOrderID* (Optional in Phase 2b)
- ComplexOrderKey: (Not applicable in Phase 2b)

5.2. Option Order Supplement Event (Phase 2d)

The Option Order Supplement Event is a supplement to the New Option Order event. One New Option Order event can have multiple Option Order Supplement events. Multiple Option Order Supplement events are considered additions, not replacements or modifications.

This event accommodates reporting in two scenarios:

1. In Phase 2b, the Option Order Supplement can be used in scenarios where firms are required to populate the *priorUnlinked* or *nextUnlinked* flags, but the value for these flags is unknown at the time of order receipt.

2. In Phase 2d, the Option Order Supplement can be used in scenarios when the New Option Order event exceeds the maximum length allowed, or when the orders being combined are not captured in the New Option Order Event.

   The *aggregatedOrders* field in the Option Order Supplement event must contain the additional Aggregated Orders that were not captured in the original New Option Order event, or another Supplement event for the same order.

Table 34: Option Order Supplement Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MONOS	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The *orderKeyDate* of the related New Option Order event which this event is Supplementing.	R
7	orderID	Text (40)	The *orderID* of the related New Option Order event which this event is Supplementing. Must be unique within orderKeyDate, CATReporterIMID, and optionID combination.	R

Seq #	Field Name	Data Type	Description	Include Key
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbols section for more information.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	eventTimestamp	Timestamp	The date/time of the representative order. This must match the *eventTimestamp* value reported on the New Option Order this event supplements (including scenarios in which the supplement is created at a later time).	R
11	aggregatedOrders	Multi-dimensional array	When applicable, the order ID of each customer order being combined. Refer to Appendix C for combined order linkage requirements.	R
Aggregated Orders – Start For each order being combined *n*, the following values are required.				
11.*n*.1	orderID	Text (40)	*orderID* of the order being combined.	R
11.*n*.2	orderKeyDate	Timestamp	*orderKeyDate* of the order being combined.	R
11.*n*.3	quantity	Real Quantity	Required when a partial quantity of the order is being combined.	C
Aggregated Orders – End				
12	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C
13	nextUnlinked	Choice	For phase 2b, indicates whether the given option event is unlinked in the option order lifecycle, as the next event is out of scope for Phase 2b.	C

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID*, *optionID, orderID*
- Order Key: aggregatedOrders.*orderKeyDate, CATReporterIMID, optionID, aggregatedOrders.orderID*

5.3. Paired Option Order (Phase 2d)

<Deferred - Not Required Until Phase 2d>

5.4. Option Order Route

Industry Members must report Option Order Route events to CAT when reporting the routing of option orders.

5.4.1. Option Order Route Event

An Industry Member must report to CAT an Option Order Route Event when:

- Routing to another Industry Member
- Routing to exchanges
- Routing between two IMIDs (e.g. two different FINRA MPIDs) attributed to the same legal entity (i.e. the same CRD)

In order for CAT to maintain order lifecycle linkage, the *orderID* populated in the Option Order Route event must reference the most recent internal ID of the order. For example, if an order was modified before routing out, the Route Event must use the ID assigned on the order modification.

Internal routes to another desk or department within an Industry Member are not reported using the Option Order Route event; instead an Option Order Internal Route Accepted event is used. See the Option Order Internal Route Accepted section for more details.

Handling Instructions on the Option Order Route

Handling Instructions are not required to be reported on the Order Route event until phase 2d. In phase 2d, the handling instructions included in this event should represent the handling instructions sent by the routing firm to the receiving destination. If the handling instructions do not change when the order is routed from the handling instructions received by the Industry Member and reported on the Option Order Accepted or New Option Order associated with the order, Industry Members may use the handling instruction code "RAR" (Routed as Received) instead of repeating each individual handling instruction.

Table 35: Option Order Route Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT	R

Seq #	Field Name	Data Type	Description	Include Key
			error.	
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MOOR	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The *orderKeyDate* of the event which is being routed.	R
7	orderID	Text (40)	The *orderID* of the event which is being routed.	R
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbols section for more information.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	eventTimestamp	Timestamp	The date/time of the route. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
11	manualFlag	Boolean	Must be marked as *true* if the order is handled manually. Not applicable for Phase 2b.	R
12	electronicDupFlag	Boolean	Indicates whether this is a duplicative electronic message of a manual event. If populated, this message will not be linked to any other events in Phase 2b.	R
13	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when manualFlag is true. Options manual order specifications are deferred to Phase 2d.	C
14	senderIMID	Industry Member ID	The IMID used to identify the Industry Member that is routing the order, known by the destination. When routing to another Industry Member, this value must match the *senderIMID* on the Option Order Accepted event reported by the destination, while	C

Seq #	Field Name	Data Type	Description	Include Key
			routing to an exchange, it equals the *routingParty* reported by the exchange on the Participant Order Accepted event. Not required when routing to a foreign broker-dealer.	
15	destination	Industry Member ID / Exchange ID	When routing to another Industry Member, it is the IMID used to identify the Industry Member that is receiving this routed order. Must match the *receiverIMID* field on the Option Order Accepted event reported by the destination Industry Member. When routing to an exchange, use the Exchange ID of the destination exchange. Must match the *exchange* field on the Order Accepted event reported by the destination exchange. Not required if the destination is a foreign broker-dealer.	C
16	destinationType	Choice	Indicates whether the destination of the route is an Industry Member, an exchange or a foreign broker-dealer.	R
17	routedOrderID	Text (40)	The ID assigned to the order by the Industry Member when routing the order to another Industry Member or exchange. This value must match the value for *routedOrderID* reported by the destination in their Option Order Accepted report. Required unless the order is routed to a non-reporting foreign destination.	C
18	session	Text (40)	The session ID used when routing the order. Must only be populated when routing to a national securities exchange. This must match the session ID reported in the Participant Option Order Accepted event by the receiving exchange.	C
19	side	Choice	The side of the order.	R
20	price	Price	The limit price per contract included on the order when routed. Not required for market orders. For FLEX Percent options, this field may reflect a percentage of the underlying close price (e.g. a contract price of 101% of the underlying close price would be represented in this field as 101.00).	C
21	quantity	Real Quantity	The quantity of contracts included on the order when routed.	R
22	minQty	Whole Quantity	The minimum quantity of an order to be executed. Required if included on the order when routed.	C
23	orderType	Choice	The type of order being routed.	R
24	timeInForce	Name/Value Pairs	The Time-in-Force for the order.	R
25	tradingSession	Choice	The trading session(s) during which an order	R

Seq #	Field Name	Data Type	Description	Include Key
			is eligible to trade	
26	handlingInstructions	Name/Value Pairs	Defines the handling instructions, as described in the Data Dictionary for handlingInstructions.	C
27	routeRejectedFlag	Boolean	Indicates the routed order was not accepted by the destination (rejected or no response) when marked *true*. Not applicable for Phase 2b. (Routes that are not accepted are required to be reported in Phase 2d.)	O
28	exchOriginCode	Text (4)	The code signifying the origin of the account as sent to the exchange.	C
29	cmtaFirm	Alphanumeric (8)	Required for CMTA trades.	C
30	executingFirm	Alphanumeric (8)	The OCC number of the executing/give-up firm.	C
31	openCloseIndicator	Choice	Indicates when exchange rules require an order to be marked as open or close upon entry into the exchange.	C
32	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C
33	nextUnlinked	Choice	For phase 2b, indicates whether the given option event is unlinked in the option order lifecycle, as the next event is out of scope for Phase 2b. For Option Order Route events, only applicable to single legs of a complex option order. Allowed values on Option Order Route events are limited to "C" or blank.	C

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID*, *optionID, orderID*
- Route Linkage Key: Event Date, *senderIMID, destination, optionID, session, routedOrderID*

5.4.2. Option Order Modify Route Event (Potential Phase 2d)

<Deferred – event not required for Phase 2b. SROs will evaluate need for a modified route event after reviewing Phase 2b data and include event in Phase 2d, if necessary.>

5.4.3. Option Order Cancel Route Event (Potential Phase 2d)

<Deferred – event not required for Phase 2b. SROs will evaluate need for a cancelled route event after reviewing Phase 2b data and include event in Phase 2d, if necessary.>

5.5. Option Order Accepted

An Option Order Accepted event must be reported to CAT when an Industry Member receives an order from another CAT Reporter (i.e., Industry Member or exchange), or from another IMID belonging to the same Industry Member (i.e., the same CRD).

At the start of Phase 2b, there will be some lifecycles beginning at the Option Order Accepted event, as Small Industry Members are not required to report until a later phase.

New customer orders, orders received from a non-broker-dealer affiliate, and orders received from a non-reporting foreign broker-dealer must be reported using a New Option Order event.

Table 36: Option Order Accepted Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	Type	Message Type	MOOA	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The date and time the *orderID* was assigned.	R
7	orderID	Text (40)	The order ID assigned to the order by the Industry Member upon acceptance. Must be unique within same date, *CATReporterIMID*, and *optionID* combination.	R
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbols section for more information.	R
9	eventTimestamp	Timestamp	The date/time of receipt of the order. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R

Seq #	Field Name	Data Type	Description	Include Key
10	manualOrderKeyDate	Timestamp	The *orderKeyDate* of the related manual order. Required when *manualOrderID* is populated.	O
11	manualOrderID	Text (40)	When this is a duplicative electronic message of a previously (separately) reported manual Option Order Accepted event (electronicDupFlag = true), this field is to capture the internal order ID of the manual order. Optional for Phase 2b.	O
12	manualFlag	Boolean	Must be marked as *true* if the order is handled manually.	R
13	electronicDupFlag	Boolean	Indicates whether this is a duplicative electronic message of a manual event. If populated, this message will not be linked to any other events in Phase 2b.	R
14	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when manualFlag is true and the event is systematized. Not required when electronicDupFlag is true. Options manual order specifications are deferred to Phase 2d.	C
15	receiverIMID	Text (40)	The ID string used to identify the Industry Member receiving the order. It is not required to match the IMID of the Industry Member, but it must match the destination field on the Option Order Route event reported by the routing Industry Member.	R
16	senderIMID	Industry Member ID / Exchange ID	When the order is routed from another Industry Member, this is the IMID of the sending Industry Member from which the order is routed. Must match *senderIMID* in the Option Order Route event reported by the routing Industry Member. When the order is routed from an exchange, this is the Exchange ID of the sending Industry Member from which the order is routed. And the value must match the *exchange* field in the Order Route event reported by the exchange.	R
17	senderType	Choice	Indicates the type of origin from which the order is routed.	R
18	routedOrderID	Text (40)	The Order ID as received on the order before being assigned a new Order ID upon acceptance. This is the Order ID assigned by the routing Industry Member. This value must match the value for *routedOrderID* reported by the routing Industry Member or exchange in its CAT Option Order Route report. Not required when the order is manually received.	C
19	deptType	Choice	This is the category of internal department,	R

Seq #	Field Name	Data Type	Description	Include Key
			unit or desk receiving the order.	
20	side	Choice	The side of the order.	R
21	price	Price	The price per contract received on this order. Not required for market orders.	C
22	quantity	Real Quantity	The quantity of contracts on the accepted order.	R
23	minQty	Whole Quantity	The minimum quantity of an order to be executed. Required if included on the order when received.	C
24	orderType	Choice	The type of order received	R
25	timeInForce	Name/Value Pairs	The Time-in-Force for the order .	R
26	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
27	handlingInstructions	Name/Value Pairs	The handling instructions, as described in the Data Dictionary. All instructions included on the order when received are required to be reported.	C
28	affiliateFlag	Boolean	Indicates if the routing party is an affiliate of the Industry Member.	R
29	cmtaFirm	Alphanumeric (8)	Required for CMTA trades.	C
30	executingFirm	Alphanumeric (8)	The OCC number of the executing/give-up Industry Member.	C
31	openCloseIndicator	Choice	Indicates whether the action taken (buy or sell) will open a new position or will close an existing position in the order originator's account. Required when the exchange's rules require an order to be marked as open or close upon entry into the exchange.	C
32	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b. For Option Order Accepted events, only applicable to single legs of a complex option order. Allowed values on Option Order Accepted events are limited to "C" or blank.	C
33	nextUnlinked	Choice	For phase 2b, indicates whether the given option event is unlinked in the option order lifecycle, as the next event is out of scope for Phase 2b.	C

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate*, *CATReporterIMID*, *optionID, orderID*

- Route Linkage Key: Event Date, *senderIMID, destination, optionID, routedOrderID*
- Manual Order Key: *manualOrderKeyDate*, *CATReporterIMID, optionID, manualOrderID* (optional in Phase 2b)

5.6. Option Order Internal Route Accepted

An Option Order Internal Route Accepted event must be reported when an order is passed internally to a different department or desk within a *CATReporterIMID*. Routes between different IMIDs attributed to the same Industry Member must be reported as Option Order Route and Option Order Accepted events.

An Option Order Internal Route Accepted event is required to be reported from the perspective of the recipient desk, and shows that an order was received by an internal destination. If the internal destination assigns a new *orderID* to the Option Internal Route Accepted event, the *priorOrderID* must be populated with the *orderID* of the event that was internally routed, and the *priorOrderKeyDate* must be populated.

Industry Members may generate child orders using the Child Option Order event prior to routing internally to another desk. This approach is acceptable for CAT reporting and will not result in unlinked events.

Option Order Internal Route Modified and Option Order Internal Route Cancelled are not required to be reported until Phase 2d.

5.6.1. Option Order Internal Route Accepted Event

Option Order Internal Route Accepted event is used to report an order sent internally to another desk.

Table 37: Option Order Internal Route Accepted Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	Type	Message Type	MOIR	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	When a new Order Key is assigned, the date	R

Seq #	Field Name	Data Type	Description	Include Key
			and time the *orderID* was assigned. When a new Order Key is not assigned, the *orderKeyDate* of the order that was internally routed.	
7	orderID	Text (40)	When a new Order Key is assigned, the internal order ID assigned to the order by the Industry Member. When a new Order Key is not assigned, the orderID of the order that was internally routed. Must be unique within orderKeyDate, CATReporterIMID, and optionID combination.	R
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbols section for more information.	R
9	parentOrderKeyDate	Date	If a new Order ID has been assigned, this is the *orderKeyDate* of the event from which the Order Internal Route Accepted event originated. Required when the *parentOrderID* is populated.	C
10	parentOrderID	Text (40)	If a new Order ID has been assigned, this is the *orderID* of the event from which the Order Internal Route Accepted event originated.	C
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
12	eventTimestamp	Timestamp	The date/time of receipt by the receiving desk. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
13	manualFlag	Boolean	Must be marked as *true* if the order is handled manually.	R
14	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when manualFlag is true and the event is systematized. Not required when electronicDupFlag is true. Options manual order specifications are deferred to Phase 2d.	C
15	deptType	Choice	The category of department, unit, or desk that is the destination of this internal route event.	R
16	receivingDeskType	Choice	Field indicates the type of desk receiving the internally routed order. More granular than	R

Seq #	Field Name	Data Type	Description	Include Key
			the field *deptType*.	
17	side	Choice	The side of the order.	R
18	price	Price	The limit price of the order. Required if included on the order when internally routed.	C
19	quantity	Real Quantity	The quantity of contracts on the order when internally routed.	R
20	minQty	Whole Quantity	The minimum quantity of an order to be executed. Required if included on the order when internally routed.	C
21	orderType	Choice	The type of order being internally routed	R
22	handlingInstructions	Name/Value Pairs	The handling instructions, as described in the Data Dictionary for h*andlingInstructions*. Required when included on the order when internally routed.	C
23	openCloseIndicator	Choice	Indicates whether the action taken (buy or sell) will open a new position or will close an existing position in the order originator's account. Required when the exchange's rules require an order to be marked as open or close upon entry into the exchange.	C
24	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C
25	nextUnlinked	Choice	For phase 2b, indicates whether the given option event is unlinked in the option order lifecycle, as the next event is out of scope for Phase 2b.	C

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, optionID, orderID*
- Parent Order Key: *parentOrderKeyDate CATReporterIMID, optionID*, and *parentOrderID*

5.6.2. Option Order Internal Route Modify Event (Phase 2d)

<Deferred - Not Required Until Phase 2d>

5.6.3. Option Order Internal Route Cancelled Event (Phase 2d)

<Deferred - Not Required Until Phase 2d>

5.7. Child Option Order

The Child Option Order is used to represent instances when an order is sliced within the desk or department it is being worked, and is assigned a new order identifier. Child Option Order events are not required to be reported to CAT, but are provided for the convenience of Industry Members to help model these types of order handling scenarios.

Child Option Order events are defined to include only the key data elements that may be changed when the event is created including fields to link to the parent order. The following rules apply with respect to Child Option Orders:

1. Child Option Order events can only be used when an order is sliced and assigned new order IDs within the same desk. An Option Order Internal Route Accepted event must be reported when routed to another desk.
2. A child order may be generated off of another child order without limitation.
3. Child Option Orders must belong to the same FDID as the parent order.
4. Child Option Orders must ***not*** be used for single legs of a multi-leg option order.

5.7.1. Child Option Order Event

Table 38: Child Option Order Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MOCO	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	The date and time the *orderID* was assigned.	R
7	orderID	Text (40)	The internal order ID assigned to the child order by the Industry Member. Must be unique with the *orderKeyDate*, *CATReporterIMID*, and *optionID* combination.	R

Seq #	Field Name	Data Type	Description	Include Key
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbol section for more information.	R
9	parentOrderKeyDate	Timestamp	*orderKeyDate* of the event from which the Child Order originated.	R
10	parentOrderID	Text (40)	The *orderID* of the event from which the Child Order originated.	R
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
12	eventTimestamp	Timestamp	The date/time at which the child order was originated.	R
13	side	Choice	The side of the order.	R
14	price	Price	The limit price of the order per contract. Not required for market orders. For FLEX Percent options, this field may reflect a percentage of the underlying closing price, e.g., for a price equal to 95.5% of the underlying close price, this field would contain 95.5.	C
15	quantity	Real Quantity	The quantity of contracts of the Child order.	R
16	minQty	Whole Quantity	The minimum quantity of contracts to be executed.	C
17	orderType	Choice	The type of order being submitted (e.g. market, limit, cabinet).	R
18	timeInForce	Name/Value Pairs	The time-in-force for the order (e.g. DAY, IOC, GTC).	R
19	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
20	handlingInstructions	Name/Value Pairs	This field will contain zero or more order instruction codes, each separated by a single pipe symbol.	C
21	openCloseIndicator	Choice	Indicates when exchange rules require an order to be marked as open or close upon entry into the exchange.	R
22	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C
23	nextUnlinked	Choice	For phase 2b, indicates whether the given option event is unlinked in the option order lifecycle, as the next event is out of scope for	C

Seq #	Field Name	Data Type	Description	Include Key
			Phase 2b.	

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, optionID, orderID*
- Parent Order Key: *parentOrderKeyDate, CATReporterIMID, optionID, parentOrderID*

5.7.2. Child Option Order Modified Event

Industry Members must report a Child Option Order Modified event to CAT when the Material Terms of the child order have been changed (e.g. price, quantity). All attributes and Material Terms of the modified child order listed on this event must be restated with the modification(s) reflected.

A Child Option Order Modification event is reported only in cases when a Child Option Order is modified. A Child Option Order Modified event must not be used when modifying an Option Order Internal Route Accepted event.

Table 39: Child Option Order Modified Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MOCOM	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	When a new Order Key is assigned, the date and time the *orderID* was assigned. When a new Order Key is not assigned, the *orderKeyDate* of the Child Option Order event which is being modified.	R
7	orderID	Text (40)	When a new Order Key is assigned, the internal order ID assigned to the order by the Industry Member.	R

Seq #	Field Name	Data Type	Description	Include Key
			When a new Order Key is not assigned, the orderID of the Child Order being modified. Must be unique within orderKeyDate, CATReporterIMID, and optionID combination.	
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbol section for more information.	R
9	priorOrderKeyDate	Timestamp	If a new Order ID has been assigned, this is the *orderKeyDate* of the Child Order being modified.	C
10	priorOrderID	Text (40)	If a new Order ID has been assigned, this is the *orderID* of the Child Order being modified.	C
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
12	eventTimestamp	Timestamp	The date/time at which the child order was modified.	R
13	side	Choice	The side of the order.	R
14	price	Price	The limit price of the order per contract. Not required for market orders. For FLEX Percent options, this field may reflect a percentage of the underlying closing price, e.g., for a price equal to 95.5% of the underlying close price, this field would contain 95.5.	C
15	quantity	Real Quantity	The quantity of contracts of the Child Order.	R
16	minQty	Whole Quantity	The minimum quantity of contracts to be executed.	C
17	leavesQty	Real Quantity	The number of shares of the Child Order left open after the modification has occurred.	R
18	orderType	Choice	The type of order being submitted.	R
19	timeInForce	Name/Value Pairs	The time-in-force for the order.	R
20	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
21	handlingInstructions	Name/Value Pairs	This field will contain zero or more order instruction codes, each separated by a single pipe symbol.	C
22	openCloseIndicator	Choice	Indicates whether the action taken (buy or sell) will open a new position or will close an existing position in the order originator's account. Required when the exchange's rules require an order to be marked as open	C

Seq #	Field Name	Data Type	Description	Include Key
			or close upon entry into the exchange.	
23	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C
24	nextUnlinked	Choice	For phase 2b, indicates whether the given option event is unlinked in the option order lifecycle, as the next event is out of scope for Phase 2b.	C

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, optionID, orderID*
- Prior Order Key: *priorOrderKeyDate*, *CATReporterIMID, optionID*, and *priorOrderID*

5.7.3. Child Option Order Cancelled

If a child option order is cancelled, a Child Option Order Cancelled event must be reported to CAT by the Industry Member.

A partial cancellation can be reported either with a Child Option Order Modified event or Child Option Order Cancelled event with *leavesQty*, depending on how it is handled by the Industry Member. If a cancel message was used, the Industry Member must report a Child Option Order Cancelled event to CAT. If a modify or cancel/replace message was used, a Child Option Order Modified event must be reported to CAT. This keeps the reported event in line with the action taken by the Industry Member.

Table 40: Child Option Order Cancelled Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MOCOC	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry	O

Seq #	Field Name	Data Type	Description	Include Key
			Member uses to report to CAT.	
6	orderKeyDate	Timestamp	The *orderKeyDate* of the Child Option Order event which is being cancelled.	R
7	orderID	Text (40)	The *orderID* of the Child Option Order event which is being cancelled.	R
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbol section for more information.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	eventTimestamp	Timestamp	The date/time at which the child order was cancelled.	R
11	side	Choice	The side of the order.	R
12	cancelQty	Real Quantity	The quantity of the Child order being cancelled.	R
13	leavesQty	Whole Quantity	The number of shares of the Child Order left open after the cancellation. Full cancellation will result in a zero in the field.	R
14	initiator	Choice	Indicates who initiated the order cancellation.	R
15	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C

Linkage Keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, optionID, orderID*

5.8. Option Order Modified and Cancel/Replace Event

Industry Members must report an Option Order Modified event to CAT when the Material Terms of an order have been changed (e.g. price, quantity), or when an order is cancel/replaced. All attributes and Material Terms of the modified order must be restated with the modification(s) reflected. The *side* field is required to be reported, but side adjustments are only allowed for same-side changes, including changes between Short Sale and Sell Long.

If a modification results in the generation of new order with a new Order ID which replaces the prior order, the *orderID* field must capture the identifier for the new order, and the prior order fields must reflect the order that is being replaced. If the order has been modified several times, the *priorOrderID* must refer to order ID of the order that is being replaced. If the order ID remains the same during the modification, the *priorOrderID* must remain blank.

All attributes and Material Terms of the modified order listed on this event must be reported when applicable, including the fields that remain unchanged.

Table 41: Option Order Modified and Cancel/Replace Event

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MOOM	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	When a new Order Key is assigned, the date and time the *orderID* was assigned. When a new Order Key is not assigned, the *orderKeyDate* of the Option Order Modified and Cancel/Replace event which is being modified.	R
7	orderID	Text (40)	When a new Order Key is assigned, the internal order ID assigned to the order by the Industry Member. When a new Order Key is not assigned, the *orderID* of the Option Order Modified and Cancel/Replace event which is being modified. Must be unique within orderKeyDate, CATReporterIMID, and optionID combination.	R
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a	R

Seq #	Field Name	Data Type	Description	Include Key
			percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbols section for more information.	
9	priorOrderKeyDate	Timestamp	If a new Order ID has been assigned, this is the *orderKeyDate* of the event being modified.	C
10	priorOrderID	Text (40)	If a new Order ID has been assigned, this is the *OrderID* of the event being modified.	C
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
12	eventTimestamp	Timestamp	The date/time of receipt of the modification to the order. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
13	manualOrderKeyDate	Timestamp	The *orderKeyDate* of the related manual order. Required when *manualOrderID* is populated.	O
14	manualOrderID	Text (40)	When this is a duplicative electronic message of a previously (separately) reported manual Option Order Modified and Cancel/Replace event (*electronicDupFlag* = true), this field is to capture the internal order ID of the manual order. Optional for Phase 2a.	O
15	manualFlag	Boolean	Must be marked as *true* if the order is handled manually.	R
16	electronicDupFlag	Boolean	Indicates whether this is a duplicative electronic message of a manual event. If populated, this message will not be linked to any other events in Phase 2b.	R
17	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when manualFlag is true and the event is systematized. Not required when electronicDupFlag is true. Options manual order specifications are deferred to Phase 2d.	C
18	senderIMID	Industry Member ID / Exchange ID	Required when the modification is received from an Industry Member or an exchange. When the order modification is routed from another Industry Member, this is the IMID of the sending Industry Member from which the order is routed, and it must match the *senderIMID* in the OrderRoute	C

Seq #	Field Name	Data Type	Description	Include Key
			event reported by the routing Industry Member. When the order is routed from an exchange, this is the Exchange ID of the sending entity from which the order is routed. The value must match the *exchange* field in the Participant Order Modify Route event reported by the exchange.	
19	senderType	Choice	Required when the modification is received from an Industry Member or an exchange. Indicates the type of origin from which the order is routed.	C
20	routedOrderID	Text (40)	The ID for the order as sent by the routing Industry Member. Not required if this modification is initiated by the Industry Member or received from a non-reporting foreign entity.	C
21	initiator	Choice	Indicates who initiated the order modification.	R
22	side	Choice	The side of the order.	R
23	price	Price	The limit price of the order, required when applicable. Required if included on the order when originated.	C
24	quantity	Real Quantity	The order quantity.	R
25	minQty	Whole Quantity	The minimum quantity of an order to be executed. Required if included on the order when originated.	C
26	leavesQty	Real Quantity	The number of contracts left open after the modification has occurred.	R
27	orderType	Choice	The type of order being submitted (e.g., market, limit).	R
28	timeInForce	Name/Value Pairs	The time-in-force for the order (e.g. DAY, IOC, GTC).	R
29	tradingSession	Choice	The trading session(s) during which an order is eligible to trade.	R
30	handlingInstructions	Name/Value Pairs	The handling instructions, as described in the Data Dictionary. Required if included on the order when originated.	C
31	openCloseIndicator	Choice	Indicates whether the action taken (buy or sell) will open a new position or will close an existing position in the order originator's account. Required when the exchange's rules require an order to be marked as open or close upon entry into the exchange.	C
32	cmtaFirm	Alphanumeric (8)	Required for CMTA trades.	C
33	executingFirm	Alphanumeric (8)	The OCC number of the executing/give-up firm.	C

Seq #	Field Name	Data Type	Description	Include Key
34	aggregatedOrders	Multi-dimensional array	When applicable, the order ID of each customer order being combined. Refer to Appendix C for combined order linkage requirements.	C
Aggregated Orders – Start For each order being combined *n*, the following values are required.				
34.n.1	orderID	Text (40)	*orderID* of the order being combined.	R
34.n.2	orderKeyDate	Timestamp	*orderKeyDate* of the order being combined.	R
34.n.3	quantity	Real Quantity	Required when a partial quantity of the order is being combined.	C
Aggregated Orders – End				
35	representativeInd	Choice	Indicates if the order is a combined order and if linkage is required.	R
36	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C
37	nextUnlinked	Choice	For phase 2b, indicates whether the given option event is unlinked in the option order lifecycle, as the next event is out of scope for Phase 2b.	C

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID*, *optionID, orderID*
- Order Key: aggregatedOrders.*orderKeyDate, CATReporterIMID, optionID, aggregatedOrders.orderID*
- Prior Order Key: *priorOrderKeyDate*, *CATReporterIMID, optionID*, and *priorOrderID*
- Route Linkage Key: Event Date, *optionID, receiverIMID, senderIMID, routedOrderID*
- Manual Order Key: *manualOrderKeyDate*, *CATReporterIMID, optionID, manualOrderID* (optional in Phase 2b)

5.8.1. Option Order Modified Supplement Event (Phase 2d)

<Deferred - Not Required Until Phase 2d>

5.9. Option Order Adjusted Event

The Option Order Adjusted event is used to report simple order modifications including changes to the side, price or quantity of an order. However, the Option Order Adjust events must not be used when changes to the price or quantity is initiated by a routing Industry Member. The following rules apply:

1. Price change only - the price field and *leavesQty* must be reported to represent the current state of the order with respect to price. The two conditionally-required quantity fields (*quantity, minQty*) can be omitted.
2. Quantity change only - both conditionally-required quantity fields (*quantity, minQty*) and *leavesQty* must be reported. The price field can be omitted.
3. Both price and quantity change - If both price and quantity change, all fields must be reported.

Any modification that cannot be fully represented in this Reportable Event must be reported via the Option Order Modified event.

Table 42: Option Order Adjusted Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MOOJ	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	orderKeyDate	Timestamp	When a new Order Key is assigned, the date and time the *orderID* was assigned. When a new Order Key is not assigned, the *orderKeyDate* of order event which is being modified.	R
7	orderID	Text (40)	When a new Order Key is assigned, the internal order ID assigned to the order by the Industry Member. When a new Order Key is not assigned, the *orderID* of order event which is being modified. Must be unique within orderKeyDate,	R

Seq #	Field Name	Data Type	Description	Include Key
			CATReporterIMID, and optionID combination.	
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbols section for more information.	R
9	priorOrderKeyDate	Timestamp	If a new Order ID has been assigned, this is the *orderKeyDate* of the event being adjusted.	C
10	priorOrderID	Text (40)	If a new Order ID has been assigned, this is the *OrderID* of the event being modified.	C
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
12	eventTimestamp	Timestamp	The date/time of receipt of the modification to the order. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or a finer increment up to nanoseconds.	R
13	manualFlag	Boolean	Must be marked as *true* if the order is handled manually.	R
14	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when manualFlag is true and the event is systematized. Not required when electronicDupFlag is true. Options manual order specifications are deferred to Phase 2d.	C
15	initiator	Choice	Indicates who initiated the order adjustment.	R
16	price	Price	The limit price of the order. Required if changed or if other price fields changed.	C
17	quantity	Real Quantity	The order quantity. Required if changed or if other quantity fields changed.	C
18	minQty	Whole Quantity	The minimum quantity of an order to be executed. Required if changed or if other quantity fields changed.	C
19	leavesQty	Real Quantity	The number of contracts left open after the adjustment/has occurred. Required if changed or if other quantity fields changed.	C
20	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C
21	nextUnlinked	Choice	For phase 2b, indicates whether the given	C

Seq #	Field Name	Data Type	Description	Include Key
			option event is unlinked in the option order lifecycle, as the next event is out of scope for Phase 2b.	

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate, CATReporterIMID, optionID, orderID*
- Prior Order Key: *orderKeyDate, CATReporterIMID*, *optionID, priorOrderID*

5.10. Option Order Cancelled Event

The Option Order Cancelled event is reported when an order is fully or partially cancelled. Partial cancellations of an order may be reported to CAT using an Order Cancelled event or an Order Modified event. Implicit order cancellations, such as cancellations due to expiration of Time in Force, are not required to be reported to CAT.

Option Order Cancelled events are required to be reported by the entity that initiated the cancellation. When an Order is routed from Firm A to Firm B, the following rules apply:

1. If Firm A or its customer initiates the cancel, then Firm A and Firm B must report the Order Cancelled.
2. If Firm B initiates the cancel, then Firm B must report the Order Cancelled.

Table 43: Option Order Cancelled Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MOOC	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O

Seq #	Field Name	Data Type	Description	Include Key
6	orderKeyDate	Timestamp	The *orderKeyDate* of the Options order event which is being cancelled.	R
7	orderID	Text (40)	The *orderID* of the Options order event which is being cancelled.	R
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbols section for more information.	R
9	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
10	eventTimestamp	Timestamp	The date/time of receipt of the cancellation. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or finer increment up to nanoseconds.	R
11	manualFlag	Boolean	Must be marked as *true* if the order is handled manually.	R
12	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when manualFlag is true. Options manual order specifications are deferred to Phase 2d.	C
13	cancelQty	Real Quantity	The quantity being cancelled.	R
14	leavesQty	Real Quantity	The quantity of contracts left open after the cancel event. For full order cancellations, zero must be populated in this field.	R
15	initiator	Choice	Indicates who initiated the order cancellation.	R
16	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C

Linkage keys for this Reportable Event:

- Order Key: *orderKeyDate*, *CATReporterIMID*, *optionID, orderID*

5.11. Option Order Fulfillment

An Option Order Fulfillment event must be reported when an Industry Member (subject to applicable SRO rules) combines individual simple option orders from customers before routing to an exchange as a single simple order for execution and reflects the fill given to each individual order.

For the scenario above, Phase 2b does not require explicit order linkage between the combined order and the original customer orders. Prior to Phase 2d, the Order Fulfillment events only contain the *clientDetails*. The *fulfillmentLinkType* must be marked as "O".

5.11.1. Option Order Fulfillment Event

Table 44: Option Order Fulfillment Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is 'RPR'	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MOOF	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	fillKeyDate	Timestamp	The date and time the *fulfillmentID* was assigned.	R
7	fulfillmentID	Text (40)	A unique identifier for the fulfillment. For each Industry Member, the combination of *fillKeyDate*, *optionID*, and *fulfillmentID* must be unique.	R
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbols section for more information.	R
9	eventTimestamp	Timestamp	The date/time when the fulfillment was processed by the Industry Member. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or finer increment up to nanoseconds.	R
10	manualFlag	Boolean	Must be marked as *true* if this is a manual	R

Seq #	Field Name	Data Type	Description	Include Key
			process.	
11	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when manualFlag is true and the event is systematized. Not required when electronicDupFlag is true. Options manual order specifications are deferred to Phase 2d.	C
12	quantity	Real Quantity	Quantity being reported as fulfilled with this event. It may or may not be the full quantity of the order.	R
13	price	Price	Price at which the order contracts are being fulfilled.	R
14	fulfillmentLinkType	Choice	Refer to Appendix C for combined order linkage requirements.	R
15	clientDetails	Fulfillment Side Details	Refer to Fulfillment Side Details Table.	C
16	firmDetails	Fulfillment Side Details	Refer to Fulfillment Side Details Table. Not applicable in Phase 2b.	O
17	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C

Table 45: Options Fulfillment Side Details

The Fulfillment Side Details associated with fields: *clientDetails* and *firmDetails:* Limited to 1 set of details for each side.				
Seq #	**Field Name**	**Data Type**	**Description**	**Include Key**
<seq>.1.1	orderKeyDate	Timestamp	The *orderKeyDate* of the order on this side.	C
<seq>.1.2	orderID	Text (40)	The order ID assigned by the Industry Member to the order on this side.	R
<seq>.1.3	Side	Choice	The side of the order.	R
<seq>.1.4	Quantity	Real Quantity	The execution quantity associated with this *orderID*.	O

Linkage Keys for this Reportable Event:

- Order Key: *firmDetails.orderKeyDate, CATReporterIMID, optionID, firmDetails.orderID* (Not Required until Phase 2d)
- Order Key: *clientDetails.orderKeyDate, CATReporterIMID, optionID, clientDetails.orderID*
- Fulfillment Key: *fillKeyDate, CATReporterIMID*, *optionID, fulfillmentID*

5.11.2. Option Order Fulfillment Amendment Event

This CAT event is used to reports the amendment of a previously reported fulfilment. This Reportable Event must capture the entire state of the fulfillment after it has been amended, even though some of the data elements may remain unchanged.

Option Order Fulfillment Amendments are not required in scenarios where:

- A trade correction comes before any initial fulfillment has been made, and the Industry Member directly gives the corrected shares to the customer
- An Industry Member makes a correction via a debit/credit to the customer's account instead of modifying the executed shares given back to the customer.
- When an Industry Member fulfills an order and receives a trade break from the exchange, it is possible that the Industry Member may choose to take the delta (e.g. using an error account) without amending the manner by which the order was fulfilled.

Table 46: Options Order Fulfillment Amendment Event Field Specifications

Seq #	Field Name	Data Type	Description	Include Key
1	actionType	Choice	Indicates whether the event is a new event, a firm initiated correction or a repair of a CAT error.	R
2	errorROEID	Unsigned	Required when actionType is ‘RPR’	C
3	firmROEID	Alphanumeric (64)	An identifier assigned to the record by the reporting firm. Formatted as <eventDate>_<firm ROE Identifier> Must be unique for the Event Date and CAT Reporter IMID.	R
4	type	Message Type	MOFA	R
5	CATReporterIMID	Industry Member ID	The SRO assigned identifier that an Industry Member uses to report to CAT.	O
6	fillKeyDate	Timestamp	When a new Fulfillment Key is assigned, the date and time the *fulfillmentID* was assigned. When a new Fulfillment Key is not assigned, the *fillKeyDate* of the fulfillment event being modified.	R
7	fulfillmentID	Text (40)	When a new Fulfillment Key is assigned, the internal fulfillment ID assigned to the order by the Industry Member. When a new Fulfillment Key is not assigned, the fulfilmentID of the fulfillment event being modified. Must be unique within fulfillmentKeyDate,	R

Seq #	Field Name	Data Type	Description	Include Key
			CATReporterIMID, and optionID combination.	
8	optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is appended before the OSI symbol elements. See the Option Symbols section for more information.	R
9	priorFillKeyDate	Timestamp	In cases when a new *fulfilmentID* is assigned, the *priorFillKeyDate* is the *fillKeyDate* of the fulfilment that is being modified.Required if *priorFulfillmentID* is populated.	C
10	priorFulfillmentID	Text (40)	If a new fulfillment ID is assigned, this is the *orderKeyDate* of the event being modified.	R
11	originatingIMID	Industry Member ID	An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.	C
12	eventTimestamp	Timestamp	The date/time that the fulfillment was amended. If *manualFlag* is *true*, timestamp must be reported to seconds. If *manualFlag* is *false*, timestamp must be reported to milliseconds or finer increment up to nanoseconds.	R
13	manualFlag	Boolean	Must be marked as *true* if this is a manual process.	R
14	electronicTimestamp	Timestamp	The time at which the event is systematized. Required when manualFlag is true and the event is systematized. Not required when electronicDupFlag is true. Options manual order specifications are deferred to Phase 2d.	C
15	fulfillmentLinkType	Choice	Refer to Appendix C for combined order linkage requirements.	R
16	quantity	Real Quantity	Amended quantity being reported as fulfilled with this event. It may or may not be the full quantity of the order.	R
17	price	Price	Amended price at which the order contracts are being fulfilled.	R
18	clientDetails	Fulfillment Side Details	Refer to Fulfillment Side Details Table.	C
19	firmDetails	Fulfillment Side Details	Refer to Fulfillment Side Details Table. Not applicable in Phase 2b.	O
20	priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle, as the prior event is out of scope Phase 2b.	C

Linkage Keys for this Reportable Event:

- Order Key: *firmDetails.orderKeyDate, CATReporterIMID, optionID, firmDetails.orderID* (Not required until Phase 2d)
- Order Key: *clientDetails.orderKeyDate, CATReporterIMID*, *optionID, clientDetails.orderID*
- Fulfillment Key: *fillKeyDate, CATReporterIMID, optionID, fulfillmentID*
- Prior Fulfillment Key: *fillKeyDate, CATReporterIMID, optionID, priorFulfillmentID*

5.12. Linked Multi-Leg Option Order Events (Phase 2d)

<Deferred - Not Required Until Phase 2d>

5.13. Option Post-Trade Allocations (Phase 2d)

<Deferred - Not Required Until Phase 2d>

6. Submission Process

This section contains information pertaining to CAT data and file formats, CAT submissions (including a general data flow overview), network and transport options, CAT access and reporting hours.

6.1. File Submissions and Data Formats

CAT submissions must include data files with at least one metadata file that enumerates the data files. Data and metadata files have a prescribed naming convention and are supported in JSON and CSV formats. The format of the data file and metadata file must be the same.

6.1.1. File Names

1. Data Files must be named using the following format:

    ```
    <CAT Submitter ID>_<CAT Reporter IMID>_<File Generation
    Date>_[<Group>_]<File Kind>_<File Number>.<Format
    Extension>.<Compression Extension>
    ```

    For example: SUBID_MYID_20170101_FileGroup1_OrderEvents_000123.csv.bz2 is a valid filename

2. Metadata Files must be named using the following format:

    ```
    <CAT Submitter ID>_<CAT Reporter IMID>_<File Generation
    Date>_[<Group>_]<File Kind>_<File Number>.<Format Extension>.meta
    ```

3. The values assigned within the format of a file name include:

Table 47: Elements of a File Name

Field Name	Data Type	Description	Include Key
CAT Submitter ID	Unsigned	CAT Reporting Agent that submitted the file to CAT.	R
CAT Reporter IMID	Alphanumeric (7)	The SRO assigned identifier of the firm to which the data within the file belongs.	R
File Generation Date	Date	The date the file was generated or reported. Used to guarantee uniqueness of a file across dates.	R
Group	Alphanumeric (20)	Reporter defined string to guarantee uniqueness of a file across dates. Filenames associated with web submission directly entered into the CAT Reporter Portal will be assigned the value ‘catweb’.	O
File Kind	Alphanumeric (20)	Set to ‘orderEvents’	R

Field Name	Data Type	Description	Include Key
File Number	Unsigned	Sequence number of the file, 6-digits long, left-padded with zeros. The File Number of the data file and its associated metadata file are not required to be the same number.	R
Format Extension	Alphanumeric (4)	Represents the format of the data submission. JSON formatted submissions must be 'json', and CSV submissions must populated with 'csv'.	R
Compression Extension	Alphanumeric (3)	Applicable to Data Files. Set to 'bz2'	R
Type	Alphanumeric (4)	Applicable to Metadata Files. Set to 'meta'	R

4. Data file names must be globally unique among all other data files using the base name (the portion of the file name without the format and compression extensions) of the data file. The following data files are duplicates:

Table 48: Filename / Base Name Examples

Data Filename	Base Name
SUBID_MYID_20170101_Group1_OrderEvents_000123.csv.bz2	SUBID_MYID_20170101_Group1_OrderEvents_000123
SUBID_MYID_20170101_Group1_OrderEvents_000123.json.bz2	SUBID_MYID_20170101_Group1_OrderEvents_000123

5. Metadata file names must be globally unique among all other metadata files using the base name (the portion of the file name without the format and META extension) of the metadata file. The following metadata files are duplicates:

Table 49: Filename / Base Name Examples

Data Filename	Base Name
SUBID_MYID_20170101_OrderEvents_000123.csv.meta	SUBID_MYID_20170101_OrderEvents_000123
SUBID_MYID_20170101_OrderEvents_000123.json.meta	SUBID_MYID_20170101_OrderEvents_000123

6.1.2. Submission Formats

CAT supports the submission of data in JSON and CSV formats. The following rules apply to both formats:

1. CAT submissions must include data files with at least one metadata file that enumerates the data files.
2. The format (JSON or CSV) of the data file and metadata file must be the same.
3. Each line in a file must contain exactly one complete record.
4. The total maximum length of a line is 8190 bytes.
5. ASCII characters between 32 and 127, except for a delimiter characters are acceptable.

6.1.2.1. JSON Format

1. The CAT Processor will support standard JSON syntax for each record.
2. All files are new-line delimited.
3. Data files serve as top-level containers for each object.
4. Each object is a normal JSON object, separated with a new-line (ASCII decimal 10, hex 0A).
5. Each JSON object is terminated by a new-line, but the data within the object must not include new-lines.
6. Each line within a JSON file must contain exactly one complete record.
7. Conditional and optional fields without a value must be omitted.

6.1.2.2. CSV Format

1. The sequence of fields is fixed; the position of each field is relative to the beginning of its associated record.
2. The format of every file and record must be in the sequence described within the Industry Member Technical Specifications.
3. Each field must be terminated by a delimiter including instances when the field is null, blank and when the field is the maximum length.
4. None of the fields in the record can contain the character used for the delimiter.
5. The last field in a record is not required to be terminated by a delimiter, but the field will still be considered to be acceptable if the delimiter is included.
6. The field delimiter is a comma (ASCII decimal 44, hex 2C).
7. Other delimiters defined for usage include the '|' (pipe) ,'@' (at sign) and ' " ' (double quotes). Use of '|' and '@' have been specified for reporting complex data types where a field contains multiple values. Refer to Section 2.4.
8. Each record must end with an end of record marker (ASCII LF or CR/LF).
9. Optional (O) and Conditional fields (C) are omitted by only including the delimiter.
10. Required (R) fields must contain an appropriate value and be terminated by the delimiter.
11. Values do not need to fill the entire data type length of the field; Values may not exceed the data type length.
12. Numeric fields may be padded with leading zeros; however, they will be removed during processing.

13. Leading and trailing blanks will be removed during processing.

6.1.3. Metadata Files

CAT submissions require a metadata file associated with every data file. The following rules apply:

1. A Metadata file may be paired with one or more data files for the same File Generation Date, CAT Reporter IMID and Submitter.
2. The Metadata file must be in the same format as all associated data files.
3. Submitters may package multiple metadata "blocks" for multiple data files into one metadata file. Files must be for the same CAT Reporter IMID, on the same file version and Submitter IMID. Each metadata "block" contains checksum of the files that is used during verification.
4. If a metadata file includes a metadata block that references a file that is not found, an error associated with the block will be returned and the remaining blocks will be processed.
5. Data files must be submitted prior to the Metadata file submission.
6. A Data file without an associated Metadata file within 30 minutes of the data file submission will result in a warning.
7. A Data file without an associated Metadata file within 2 hours of the data file submission will result in an error.
8. The processing date of all submissions will be assigned based on the received timestamp of the associated metadata file. If a data file is received prior to T+1 8:00 AM EST with the associated metadata file submitted after T+1 8:00 AM EST, the submissions will be considered late.
9. Each block within the metadata must contain either the raw hash (SHA 256) or the compressed hash of the data file. If the compressed hash is provided, it will be used to verify the integrity of the data file submitted by computing the hash of the data file and comparing it to the value sent in the metadata file. If the compressed hash is not sent, the raw hash is used to verify the integrity. If neither hash is sent, the data file submission will be rejected. If both hashes are sent, only the compressed hash will be used.
10. The CAT Submitter ID, CAT Reporter IMID, File Generation Date (and Group) must be the same for metadata file and all associated data file(s).
11. The submission of a metadata file with *doneForDay* = true indicates to the CAT Processor that the files submitted by the Submitter for the Industry Member have been completed and are ready for linkage discovery. Note - should an Industry Member need to make additional data submissions after a metadata file with *doneForDay* = true has been processed, the Industry Member may continue to submit files and provide a secondary metadata file *doneForDay* = true.
12. If a metadata file with *doneforDay* = true has not been submitted by 8:00 AM EST, all files submitted up to that point will be considered ready and processed for linkage discovery at that time.

Table 50: Metadata File Specifications

Seq	Field Name		Data Type	Description	Include Key
1	*type*		Message Type	Set to “META”	R
2	*doneForDay*		Boolean	Used to indicate the last metadata file for the Submitter/Industry Member Reporter on the date. Any file submitted with *doneForDay*=`true` must be the last set of files submitted for the day. It defaults to false.	R
3	*fileGenerationDate*		Date	The date the file was generated or reported. This date is part of the key used to define a unique file.	R
4	*reporter*		Alphanumeric (7)	The SRO assigned identifier that an Industry Member uses to report CAT events. All events within the file must be for the same CAT Reporter IMID.	R
5	*submitter*		Unsigned	The CAT-assigned ID for the entity submitting data on behalf of the reporter. The CAT Reporting Agent must be authorized to submit data on behalf of the Industry Member Reporter. NOTE: Reporter and Submitter IMIDs may be different even when the reporter and submitter are the same entity.	R
6	*fileVersion*		Text (10)	A version number for the schema file used to encode and format this file.	R
7	*files*		Multi-Dimensional Array	File information and related meta data for each file associated with the Metadata file. Refer to File Details – Metadata Block for required information associated with each file.	R
File Details – Metadata Block Start For each file *n*, the following values are required:					
7.*n*.1	➔	*fileName*	As described above	The base name of the corresponding data file of this metadata block	R
7.*n*.2	➔	*recordCount*	Unsigned	The number of new-line delimited records in the data file	R
7.*n*.3	➔	*rawHash*	Alphanumeric (64)	SHA256 of the raw data file. This field and/or *compressedHash* must be provided. Must be submitted as 64-character hexadecimal string encodings of the hash value. Either the *rawHash* or the *compressedHash* must be provided.	C
7.*n*.4	➔	*compressedHash*	Alphanumeric (64)	SHA256 of the compressed data file. This field and/or *rawHash* must be provided. Must be submitted as 64-character hexadecimal string encodings of the hash value Either the *rawHash* or the *compressedHash* must be provided.	C
File Details – Metadata Block End					

6.1.3.1. Metadata File JSON Example

```
{
  "type": "META",
  "doneForDay": false,
  " fileGenerationDate ": 20180919,
  "reporter": "MPID",
  "submitter": "OSOID",
  "fileVersion": "1.1",
  "files": [
    {
      "fileName": "SUBID_MPID_20180919_OrderEvents_000001",
      "recordCount": "5217",
      "rawHash": "08997E354AEAE2EA9E71E685CE1CC6FCCD1EB17E957B18573617CA80199
EA67A",
      "compressedHash": "99A7712E2CC1CB3A5789B91E3C1D1E76D7F83D82C8D35FF1F56B
156A49C228E2",
    },
    {
      "fileName": "SUBID_MPID_20180919_OrderEvents_000002",
      "recordCount": "9999",
      "rawHash": "8F4C6DF6DF7C68B1177CE572C848B1B5484417CE2DF274FCCB2BDB8955D
97BE3",
      "compressedHash": "00660828E45FFCCA37EF9CCF2A4967308DDA033CD498B0A1810F
3BFC4BF6BFCC",
    }
  ]
}
```

6.1.3.2. Metadata File CSV Example

```
LINE 1  META,false,20180919,MPID,OSOID,1.1,SUBID_MPID_20180919_OrderEvents_
        000001@5217@08997E354AEAE2EA9E71E685CE1CC6FCCD1EB17E957B18573617CA8
        0199EA67A@99A7712E2CC1CB3A5789B91E3C1D1E76D7F83D82C8D35FF1F56B156A4
        9C228E2| SUBID_MPID_20180919_OrderEvents_000002@9999@
        8F4C6DF6DF7C68B1177CE572C848B1B5484417CE2DF274FCCB2BDB8955D97BE3
        @00660828E45FFCCA37EF9CCF2A4967308DDA033CD498B0A1810F3BFC4BF6BFCC
```

6.1.4. Data Files

The following rules apply to Data Files:

1. All data files sent from the CAT Reporter (or the third-party CAT Reporting Agent for the CAT Reporter) must be compressed using BZip2. The associated compression extension is “bz2”.
2. Data files must be individually compressed and submitted. Compressed files may not be bundled into a single container file.
3. Data files must be associated with a Metadata file; otherwise, the file will not be processed.
4. Data files for which an associated Metadata file is not received within 30 minutes of the receipt of the file will result in an error.
5. Data files must be submitted prior to the Metadata file submission.

6. The data contained within the data file must represent data for the CAT Reporter IMID identified within the associated Metadata file.
7. Files submitted through SFTP are limited to a maximum uncompressed size of 100GB.
8. Files sizes <= 1GB are recommended as feedback will be returned faster.
9. Files submitted through the CAT Reporter Portal are limited to a maximum uncompressed size of 1GB.
10. Schema files will be maintained by the Plan Processor and will be versioned as the Technical Specifications change.
11. Data files may contain events for any Event Date that is less than or equal to the date on which the file is processed.
12. Events within a data file may be in any sequence.
13. Data files may contain original submissions, firm initiated corrections, CAT error corrections and record delete instructions.
14. Data files are recommended to contain data for the same CAT Trading Day to ensure the usage of the File Delete Instruction. Refer to 7.6.4. This is not a requirement.

6.1.4.1. Data File JSON Example

```
{
  "actionType": "NEW",
  "firmROEID": "20170901_ROE1234567”,
  "type": "MEOJ",
  "orderKeyDate": "20170901T120102.123456",
  "eventTimestamp": "20170901T120102.123456",
  "manualFlag": "false",
  "symbol": "XYZ",
  "orderID": "T12346",
  "priorOrderID": "T12345",
  "priorOrderKeyDate":"20170901T120102.000000"
  "initiator": "Customer",
  "quantity": "1100",
  "minQty": "100",
  "leavesQty": "100"
}
```

6.1.4.2. Data File CSV Example

```
 LINE 1   NEW,,20170901_ROE1234567,MEOJ,,20170901T120201.123456,T12346,XYZ,T1
          2345, 20170901T120102.000000,,
          20170901T120102.123456,false,,Customer,,1100,100,100,,,,,,,,,,,
```

6.1.5. Schema

A schema file that details the structure and expected contents of every message type will be provided on the CAT public website in May 2019. Industry Members will be able to download and use the schemas to format and ensure that valid data files prior to submission. Schema files will be maintained by the Plan Processor and will be versioned as the message specifications change.

Schema changes will be updated when changes to the CAT Reporting Technical Specifications for Industry Members occurs that impact the schema. Changes will result in an increment to the Schema Version as per the following:

- **Minor schema version numbers –** assigned when a change occurs that does not require coding changes for all Industry Member CAT Reporters. In such cases, the schema will be backward compatible with support for previous version(s) as specified.
- **Major schema version numbers –** assigned when a change occurs that impacts all or a significant portion of Industry Member CAT Reporters. In such cases, the schema will not be backward compatible and will be specified accordingly.

The schema file is a JSON format file. The following is an abbreviated example of a schema containing part of the equity New Order event.

```
{
	"description": "CAT schema for equity new order event",
	"version" : "1.1",
	"eventDefinitions" : [
	{
		"eventName" : "New Order",
		"fields" : [
			{
				"JSONDataType": "String",
				"name" : "type",
				"dataType" : "Choice",
				"defaultValue": "MENO",
				"position" : 0,
				"required": "Required"
			},
			{
				"JSONDataType": [ "Number", "String" ],
				"name" : "eventTimestamp",
				"dataType" : "Timestamp",
				"position" : 2,
				"required": "Required"
			},
			{
				"JSONDataType": "String",
				"name" : "symbol",
				"dataType" : "Symbol",
				"position" : 3,
				"required": "Required"
			},
			{
				"JSONDataType": "String",
				"name" : "orderID",
```

```
                        "dataType" : "Text",
                        "position" : 4,
                        "maxLength" : 40,
                        "required": "Required"
                },

                …
            ]
        }
        ],

}
```

The CAT JSON schema is constructed as follows:

- **JSONDataType** indicates the underlying JSON data type.
- **dataType** is the data type, as specified.
- **name** is the JSON field name.
- Each field of dataType "Choice" will contain a corresponding entry in the "choices" object, which contains the list of valid choices. The key is the value in the name field.
- **position** is field position of the CSV format for the event type.
- **maxLength** is the maximum allowable length for Text or Alphanumeric field types.
- **required** indicates whether the field is "Required," "Conditional," or "Optional." Conditional or optional fields not applicable to a record may be omitted.

Note that the Timestamp data type has two possible representations, so the JSONDataType is an array of choices: String for a formatted string and Number for nanoseconds since the epoch.

6.2. Connectivity

In accordance with the CAT NMS Plan, Industry Members will connect to CAT using private lines, except for smaller industry members that will have the option of using a VPN solution.

Private line connectivity will be provided via a managed private network (e.g. Centurylink service). A private line solution based on AWS Direct Connect may also be offered. Private Line solutions will provide access to both the SFTP service for machine-to-machine connectivity, as well as to the CAT Reporter Portal for interactive reporting through web-based forms or manual file upload.

A VPN solution will also be available for use by smaller industry members, and will be limited to use of the interactive CAT Reporter Portal; the SFTP interface will not be available via the VPN solution. The VPN is a browser-based solution that requires use of a modern browser supporting HTML5; no client software installation is required.

6.3. Transport Options

Industry Members may send and obtain data to/from CAT using SFTP and the CAT Reporter Portal. The following identifies the types of CAT information and the respective transport options:

Table 51: Feedback Access Methods

Access Method	Category	SFTP	CAT Reporter Portal
Submission of CAT Events	Submission	✓	✓
Resubmission of Rejected Files/Records, Corrections and Deletions	Submission	✓	✓
File Status Retrieval	Feedback	✓	✓
Reporting Statistics	Feedback		✓
Error Feedback	Feedback	✓	✓
Corrections Feedback	Feedback		✓
System Status and Announcements	Feedback		✓

6.3.1. SFTP

SFTP enables the secure, encrypted transmission of files. The following is the SFTP directory structure that will be made available in the submitter's home directory. Files associated with data submissions and associated feedback will be uploaded in SFTP directories as per the following table.

Table 52: SFTP Directories

SFTP Directory	Usage
`/submitterID/cat/upload`	SFTP submissions uploaded by Submitters including Metadata and Data files.
`/submitterID/cat/upload_arcv`	SFTP submissions placed by CAT during File Acknowledgment.
`/submitterID/cat/feedback`	Metadata feedback files associated with each processing state.
`/submitterID/cat/errors`	Feedback data files containing errors generated during Ingestion and Linkage Discovery.

6.3.2. CAT Reporter Portal

The CAT Reporter Portal will facilitate data submissions using the following methods:

- Data file uploads for files up to 1GB in size meeting all requirements of data files as specified in 6.1.3 and 6.1.4.

- Data entry for original submissions, repairs for CAT identified errors, and firm initiated corrections and deletion instructions. These entries will be converted to Data files and the associated Metadata file by the portal, and they and will be available for view and download for a time period specified.

6.4. CAT Reporting Hours

6.4.1. Submission of CAT Events

Pursuant to SEC Rule 613, the CAT NMS Plan requires Industry Members to record order, quote, fulfillment and trade events. Real-time reporting to CAT is not required. Data may be bulk uploaded at the end of the Trading Day, or may be submitted in batches with associated uploads throughout the day. All Reportable Events for a Trading Day are required to be reported to CAT by 8:00 AM Eastern Time on the next Trading Day.

Trading Day for Industry Members is defined as:

- **Start:** immediately after 4:15:00 PM and no fractions of a second Eastern Time on one trade date
- **End:** exactly 4:15:00 PM and no fraction of a second Eastern Time on the next trade date (T=Trading Day, a defined term)[3]

The Trading Day is used to determine the reporting deadline of CAT events, including when all error repairs and firm initiated corrections are due. Weekends or any day that all equities or options national securities exchanges are closed are not considered a Trading Day.

CAT accepts submissions (via SFTP and the CAT Reporter Portal) 24 hours per day, 7 days per week, other than during announced scheduled maintenance. Events that occurred during a particular Trading Day may be reported anytime between the time the event occurred and the reporting deadline, which is 8:00 AM Eastern Time on the next Trading Day. Reports received after the deadline will be considered late.

The table below provides examples of the reporting deadline.

Table 53: Reporting Deadline Examples

Event Occurs	Holiday	Report Due to CAT (T+1)
Monday 14:20 PM ET	N/A	Tuesday 8:00 AM ET

[3] Note that the Trading Day definition for Participants is different. It starts on 1 millisecond from 12:00AM of T, and ends at 12:00AM of T+1.

Event Occurs	Holiday	Report Due to CAT (T+1)
Monday 23:40 PM ET	N/A	Wednesday 8:00 AM ET
Friday 11:00 AM ET	N/A	Monday 8:00 AM ET
Friday 16:02 PM ET	N/A	Monday 8:00 AM ET
Friday 16:02 PM ET	The Following Monday	Tuesday 8:00 AM ET
Wednesday 15:00 PM ET	Thursday, Friday is half day	Friday 8:00 AM ET
Saturday 11:15 AM ET	N/A	Tuesday 8:00 AM ET
Saturday 11:15 AM ET	The Following Monday	Wednesday 8:00 AM ET
Monday 10:00 AM ET (holiday)	On the Event Date	Wednesday 8:00 AM ET

6.4.2. Deadline of Repair for Errors Identified by CAT

Errors identified by CAT will be provided to Industry Members. Once available, repairs can be made immediately. All errors that require repair must be repaired prior to **8AM Eastern Time on T+3** (CAT Trading Day of event + three Trading Days). Repairs received after the repair deadline will be considered late.

Table 54: Repair Window Examples

Event Occurs	Holiday	Initial Report Due (T+1)	Repair Due (T+3)
Monday 14:20 PM ET	N/A	Tuesday 8:00 AM ET	Thursday 8:00 AM ET
Monday 23:40 PM ET	N/A	Wednesday 8:00 AM ET	Friday 8:00 AM ET
Friday 11:00 AM ET	N/A	Monday 8:00 AM ET	Wednesday 8:00 AM ET
Friday 16:02 PM ET	N/A	Monday 8:00 AM ET	Wednesday 8:00 AM ET
Friday 16:02 PM ET	Next Monday	Tuesday 8:00 AM ET	Thursday 8:00 AM ET
Wednesday 15:00 PM ET	Thursday, Friday is half day	Friday 8:00 AM ET	Tuesday 8:00 AM ET
Saturday 11:15 AM ET	N/A	Tuesday 8:00 AM ET	Thursday 8:00 AM ET
Saturday 11:15 AM ET	The Following Monday	Wednesday 8:00 AM ET	Friday 8:00 AM ET
Monday 10:00 AM ET (holiday)	On the Event Date	Wednesday 8:00 AM ET	Friday 8:00 AM ET

6.4.3. Deadline for Firm Initiated Corrections and Deletions

CAT specifications allow for Industry Members to correct and delete events that did not produce an error during processing. All such corrections must be submitted within the same correction deadline as described in 6.4.2.

6.5. Security

6.5.1. Encryption (In-transit)

Whether private line or VPN is used for connectivity, TLS-based encryption (minimum version 1.2) will be required for connection to the Reporter Portal.

For SFTP, in addition to the fact that the SFTP service is only accessible via private line, traffic will be encrypted by virtue of the intrinsic encryption capabilities of SFTP. AES256 will be supported for SFTP; support for other encryption protocols is under evaluation.

6.5.2. Encryption (At-rest)

The CAT system will use native AWS encryption features to encrypt data upon receipt. No action is required by the Industry Member.

6.5.3. Authentication

Two-factor authentication will be required for access to the Reporter Portal. The first factor will be username and password. The second factor is expected to be via push notification to an app installed on the user's mobile device. Passwords will require periodic rotation.

The SFTP service will similarly require two-factor authentication. The first factor will be username and password. The second factor has not yet been determined.

More detailed information will be provided in the Industry Member Onboarding User Guide or in a subsequent version of this Technical Specification.

More detailed information will be provided in the Industry Member Onboarding User Guide or in a subsequent version of this Tech Spec.

7. Feedback and Corrections

CAT provides feedback associated with CAT submissions for CAT Reporters and Submitters including:

- **File Status:** available via SFTP and the CAT Reporter Portal, indicates the acceptance or associated errors with a Metadata and/or Data files.
- **Reporting Statistics:** available via the CAT Reporter Portal, daily summary statistics representing reporting activity and errors for prior submission and CAT Trading days. Error Rate is also included.
- **Error Feedback:** available via SFTP and the CAT Reporter Portal, errors found during processing will be made available including Rejections, Out of Sequence, and Unlinked events.
- **Corrections Feedback:** available via the CAT Reporter Portal, information is provided for the repair status of all Corrections. When an error has been corrected, the updated status will be reflected.
- **System Status and Announcements:** available via the CAT Reporter Portal, the status of CAT processing will be made available with a distinction for instances when a processing delay or issue is occurring. Additionally, announcements related to system maintenance and upcoming changes will be presented.

This section describes the procedures for obtaining feedback and making corrections/deletions associated with feedback of errors. Additionally this section describes the requirement for making correction / deletions for accepted data for which there was no feedback.

7.1. File and Error Feedback

Feedback files with associated errors are generated at different stages of processing and returned to the CAT Reporter and Submitter. Errors identified during each processing stage will be provided in the following order with the associated Feedback and Error Correction availability:

Table 55: Feedback and Error Correction Availability

Seq	Processing Stage	Feedback	Anticipated Delivery	Delivery No Later Than
1	File Acknowledgement	File Submission Error	Within 10 minutes of File Submission	1 hour of File Submission
2	File Integrity	File Integrity Error	Within 30 minutes of Metadata File Submission	2 hours of Metadata File Submission
3	Data Ingestion	Data Errors including syntax and semantic errors	Within an 1 hour of File Integrity Feedback	4 hours of File Integrity Feedback
		Corrections Feedback for	Within 1 hour of File	4 hours of File Integrity

Seq	Processing Stage	Feedback	Anticipated Delivery	Delivery No Later Than
		Ingestion Errors	Integrity Feedback	Feedback
4	Linkage Discovery	Linkage errors including duplicates, out of sequence and linkage errors	T+1 at Noon	T+1 at Noon
		Corrections Feedback for Linkage Errors	Processing Date of Correction Submission + 1 at Noon	Processing Date of Correction Submission + 1 at Noon

Feedback associated with all processing stages will be made available via SFTP and/or the CAT Reporter Portal. For Feedback files that are made available via SFTP, the following rules apply:

1. A feedback Metadata file is generated for every stage.
2. An error data file is generated for Ingestion and Linkage errors.
3. The format of feedback Metadata and Error files will match the format of the original file submission.
4. Feedback metadata files will be accessible under the `cat/feedback` directory in both the CAT Reporter's and CAT Submitter's home directory on the Feedback SFTP server.
5. Feedback error data files will be accessible under the `cat/errors` directory in both the CAT Reporter's and CAT Submitter's home directory on the Feedback SFTP server.
6. The file names and associated file extensions assigned to the feedback files associated with each processing stage are as follows:

Table 56: Feedback File Name Conventions

Processing Stage	Metadata Feedback File	Feedback Error Data Files
File Acknowledgement	<CAT Submitter ID>_<CAT Reporter IMID>_<File Generation Date>_[<Group>_]<File Kind>_<File Number>**.ack.**<Format Extension> <CAT Submitter ID>_<CAT Reporter IMID>_<File Generation Date>_[<Group>_]<File Kind>_<File Number>**.meta.ack.**<Format Extension>	n/a
File Integrity	<CAT Submitter ID>_<CAT Reporter IMID>_<File Generation Date>_[<Group>_]<File Kind>_<File Number>**.integrity.**<Format Extension> <CAT Submitter ID>_<CAT Reporter IMID>_<File Generation Date>_[<Group>_]<File Kind>_<File Number>**.meta.integrity.**<Format Extension>	n/a
Data Ingestion	<CAT Submitter ID>_<CAT Reporter IMID>_<File Generation	<CAT Submitter ID>_<CAT Reporter IMID>_<File Generation

Processing Stage	Metadata Feedback File	Feedback Error Data Files
	`Date>_[<Group>_]<File Kind>_<File Number>`**`.ingestion.`**`<Format Extension>`	`Date>_[<Group>_]<File Kind>_<File Number>`**`.ingestion.error.`**`<Format Extension>`**`.bz2`**
Linkage Discovery	`<CAT Submitter ID>_<CAT Reporter IMID>_<CAT File Generation Date>_[<Group>_]<File Kind>_<File Number>`**`.linkage.`**`<Format Extension>`	`<CAT Submitter ID>_<CAT Reporter IMID>_<File Generation Date>_[<Group>_]<File Kind>_<File Number>`**`.linkage.error.`**`<Format Extension>`**`.bz2`**

7. Metadata feedback files generated for File Acknowledgment, File Integrity and Data Ingestion will have the same file name as the submitted file appended with an extension describing the feedback type.

   For example, if data and metadata files were submitted from CAT Reporter "MYID", with the following names:

   ```
   SUBID_MYID_20170101_OrderEvents_000123.csv.bz2
   SUBID_MYID_20170101_OrderEvents_000123.csv.meta
   ```

   The following would be the filename for the acknowledgement feedback files:

   ```
   SUBID_MYID_20170101_OrderEvents_000123.ack.csv
   SUBID_MYID_20170101_OrderEvents_000123.meta.ack.csv
   ```

8. Metadata feedback files generated for Linkage Discovery will be generated by CAT with a file name as described in Table 56: Feedback File Name Conventions; Group will be set to `linkage`.
9. Feedback error data files generated for Data Ingestion and Linkage Discovery will be compressed.
10. The minimum retention time for feedback files on the SFTP server is 14 calendar days. After that time, they may be removed from the server. Feedback will be available via the CAT Reporter Portal for at least 90 days.

7.2. File Acknowledgement

The following rules apply to File Acknowledgment:

1. A receipt of acknowledgement will be generated for every data file and metadata file that appears in the `/submitterID/cat/upload` directory or uploaded via the CAT Reporter Portal.
2. The Plan Processor will remove files from the upload directory as soon as each file upload is complete.
3. The Submitter must not delete files from the `/submitterID/cat/upload` directory.
4. A copy of uploaded files will be made available in a read-only archive directory called `/submitterID/cat/upload_arcv` for 14 calendar days.
5. Files moved to `/submitterID/cat/upload_arcv` will be named: `<timestamp>_<submittedfilename>`

6. File acknowledgement feedback files will include the file extension .ack

7.2.1. File Acknowledgement Feedback Definition

Table 57: File Acknowledgement Feedback

Seq	Name	Data Type (Length)	Description
1	feedbackVersion	Text (10)	The schema version of the feedback file.
2	submitter	Unsigned	The CAT Submitter ID from the file name.
3	reporter	Alphanumeric (7)	The CAT Reporter IMID from the file name.
4	fileGenerationDate	Date	The file generation date from the file name.
5	fileName	Alphanumeric (75)	File name as submitted.
6	receiptTimestamp	Timestamp	Date and time the file was received.
7	stage	Alphanumeric (20)	Set to 'FILE_ACKNOWLEDGEMENT'
8	stageCompleteTimestamp	Timestamp	Date and time when the file completed the acknowledgement stage.
9	status	Alphanumeric (7)	Populated with 'Success' or 'Failure' as per the processing outcome.
10	severity	Alphanumeric (7)	Populated when the Status is 'Failure'. If status is 'Failure', severity will be set to 'Error'.
11	code	Unsigned	Error code indicating reason for Failure.
12	errorFileName	Alphanumeric (75)	Not applicable for the acknowledgement stage.
13	errorCount	Unsigned	Not applicable for the acknowledgement stage
14	linkages	Multi-Dimensional Array	Not applicable for the acknowledgement stage.
Linkage Error Details – Metadata Block Start For each Linkage Type *n*, the following values will be included:			
14.*n*.1	linkageType	Alphanumeric (20)	Not applicable for the acknowledgement stage.
14.*n*.2	errorTypeCount	Unsigned	
Linkage Error Details – Metadata Block End			
15	doneForDay	Boolean	Not applicable for the acknowledgement stage.

7.2.2. JSON Examples of File Acknowledgement

The following is an example JSON object for a successful file acknowledgement:

```
{
  "feedbackVersion": "0.1",
  "submitter": "SUBID",
  "reporter": "MYID",
```

```
  "fileGenerationDate": 20170307,
  "fileName": "SUBID_MYID_20170307_OrderEvents_000123.json.bz2",
  "receiptTimestamp": "20170307T153552.000001089",
  "stage": "FILE_ACKNOWLEDGEMENT",
  "stageCompleteTimestamp": "20170307T154152.000001089",
  "status": "Success"
}
```


The following is an example JSON object for an unsuccessful file acknowledgement:


```
{
  "feedbackVersion": "0.1",
  "submitter": "SUBID",
  "reporter": "MYID",
  "fileGenerationDate": 20170307,
  "fileName": "SUBID_MYID_20170307_OrderEvents_000123.json.bz2",
  "receiptTimestamp": "20170307T153552.000001089",
  "stage": "FILE_ACKNOWLEDGEMENT",
  "stageCompleteTimestamp": "20170307T154152.000001089",
  "status": "Failure",
  "severity": "Error",
  "code": "1001"
}
```


7.2.3. CSV Examples of File Acknowledgement

CSV presentation of a successful file acknowledgement:

```
LINE 1  0.1,SUBID,MYID,20170307,SUBID_MYID_20170307_OrderEvents_000123.csv.
        bz2,20170307T153552.000001089,FILE_ACKNOWLEDGEMENT,
        20170307T154152.000001089,Success,,,,,,
```

CSV presentation for an unsuccessful file acknowledgement:

```
LINE 1  0.1,SUBID,MYID,20170307,SUBID_MYID_20170307_OrderEvents_000123.csv.
        bz2,20170307T153552.000001089,FILE_ACKNOWLEDGEMENT,
        20170307T154152.000001089,Failure,Error,1001,,,,
```

7.3. File Integrity

When all the data file(s) and the associated metadata file has been received, file integrity validation will begin. During file integrity, data files are paired with their respective Metadata file. Data file validations occur to ensure files are readable, formatted as expected and represent the information contained in the associated Metadata file.

1. File Integrity feedback will be generated for every data file for which a Success status was generated during File Acknowledgement.

2. If a file is rejected (e.g., because the file name is not in the correct format or there is a timeout without receiving the associated data/metadata file), the receipt will contain a status of Failure.
3. File Integrity feedback will be generated for every metadata file that is not readable.
4. File integrity feedback file will include the file extension `.integrity`
5. Files that do not pair with an associated metadata file within 30 minutes of the file submission (either because the metadata file was not uploaded or had a processing error) will result in an error. The file must be resubmitted. The filename may be the same.
6. If there is an error for one 'block' of metadata within the metadata file, the 'block' with the failure will receive a File Integrity error; the remaining metadata 'blocks' and associated files will continue to be processed.
7. To correct a 'block', the Industry Member must submit another metadata file for the respective file. .
8. The CAT Submitter ID of the metadata and data file must be equal to the Submitter ID of the submitter that sent the files (as determined from SFTP or CAT Reporter Portal username)
9. The CAT Reporter IMID within the filename must match the CAT Reporter IMID populated the metadata file.
10. Compressed Hash - computed SHA256 must equal metadata Compressed Hash, if provided
11. Data Hash - computed SHA256 must equal metadata Raw Hash, if provided
12. One or both of the Compressed Hash and Data Hash must be provided. If neither are provided, then the file will be rejected.

7.3.1. File Integrity Feedback Definition

Table 58: File Integrity Feedback

Seq	Name	Data Type (Length)	Description
1	feedbackVersion	Text (10)	The schema version of the feedback file.
2	submitter	Unsigned	The CAT Submitter ID from the file name.
3	reporter	Alphanumeric (7)	The CAT Reporter IMID from the file name.
4	fileGenerationDate	Date	The file generation date from the file name.
5	fileName	Alphanumeric (75)	File name as submitted.
6	receiptTimestamp	Timestamp	Not applicable for the integrity stage.
7	stage	Alphanumeric (20)	Set to 'FILE_INTEGRITY'
8	stageCompleteTimestamp	Timestamp	Date and time when the file completed the integrity stage.
9	status	Alphanumeric (7)	Populated with 'Success' or 'Failure' as per the processing outcome.
10	severity	Alphanumeric (7)	Populated when the Status is 'Failure'. If status is 'Failure', severity will be set to 'Error'.

Seq	Name	Data Type (Length)	Description
11	code	Unsigned	Error code indicating reason for Failure.
12	errorFileName	Alphanumeric (75)	Not applicable for the integrity stage.
13	errorCount	Unsigned	Not applicable for the integrity stage.
14	linkages	Multi-Dimensional Array	Not applicable for the integrity stage.
Linkage Error Details – Metadata Block Start For each Linkage Type *n*, the following values will be included:			
14.*n*.1	linkageType	Alphanumeric (20)	Not applicable for the integrity stage.
14.*n*.2	errorTypeCount	Unsigned	
Linkage Error Details – Metadata Block End			
15	doneForDay	Boolean	Not applicable for the integrity stage.

7.3.2. JSON Examples for File Integrity Feedback

The following represents a file with a successful integrity check:

```
{
  "feedbackVersion": "0.1",
  "submitter": "SUBID",
  "reporter": "MYID",
  "fileGenerationDate": 20170307,
  "fileName": "SUBID_MYID_20170307_OrderEvents_000123.json.bz2",
  "stage": "FILE_INTEGRITY",
  "stageCompleteTimestamp": "20170307T154152.000001089",
  "status": "Success"
}
```

The following represents a file with an unsuccessful integrity check:

```
{
  "feedbackVersion": "0.1",
  "submitter": "SUBID",
  "reporter": "MYID",
  "fileGenerationDate": 20170307,
  "fileName": "SUBID_MYID_20170307_OrderEvents_000123.json.bz2",
  "stage": "FILE_INTEGRITY",
  "stageCompleteTimestamp": "20170307T154152.000001089",
  "status": "Failure",
  "severity": "Error",
  "code": "1512"

}
```

7.3.3. CSV Example for File Integrity Feedback

CSV presentation for a file with a successful integrity check:

```
LINE 1  0.1,SUBID,MYID,20170307,SUBID_MYID_20170307_OrderEvents_000123.csv.
        bz2,20170307T153552.000001089,,FILE_INTEGRITY,
        20170307T154152.000001089,Success,,,,,,
```

CSV presentation for a file with an unsuccessful integrity check:

```
LINE 1  0.1,SUBID,MYID,20170307,SUBID_MYID_20170307_OrderEvents_000123.csv.
        bz2,20170307T153552.000001089,,FILE_INTEGRITY,
        20170307T154152.000001089,Failure,Error,1512,,,,
```

7.4. Ingestion

During Ingestion, events within the file are validated. Validations to ensure correct syntax and semantics associated with record length, field length, data type, non-null and reference data checks are performed. Validations are initiated by the Action Type and Event Type of every records contained in the file. Ingestion feedback will be provided with reference to the file in which the data was transmitted.

During the ingestion phase, each record will be checked for proper formatting (JSON field names and values, CSV values in correct positions) and data contents.

The following rules apply:

1. File Ingestion feedback will be generated for every data file for which a Success status was generated during File Integrity.
2. Metadata File Ingestion feedback files will include the file extension `.ingestion`
3. Ingestion feedback error files will include the file extension `.ingestion.error`
4. Any record determined to be malformed or otherwise invalid will result in an error.
5. When a record is readable and can be parsed, Ingestion validations will occur for every field within the record.
6. One or more errors may be found within a record.
7. Records with associated errors found during Ingestion will result in a rejection. The record will not participate in Linkage Discovery.
8. Records that are not rejected during Ingestion will participate in Linkage Discovery.
9. Ingestion error feedback will provide up to eight (8) error codes. If there are more than 8 error codes, the eighth error code will inform the user that there are additional errors associated with the record and that were not included in the feedback file.
10. When an error record is readable and parsable, the error feedback will set the actionType to ‘RPR’ and the errorROEID as assigned by CAT.

11. When an error record is not readable, the original record submitted to CAT will be returned.

7.4.1. Ingestion Feedback Definitions

Table 59: Ingestion Feedback Metadata File

Seq	Name	Data Type (Length)	Description
1	feedbackVersion	Text (10)	The schema version of the feedback file.
2	submitter	Unsigned	The CAT Submitter ID from the file name.
3	reporter	Alphanumeric (7)	The CAT Reporter IMID from the file name.
4	fileGenerationDate	DATE	The file generation date from the file name.
5	fileName	Alphanumeric (75)	File name as submitted.
6	receiptTimestamp	Alphanumeric (25)	Not applicable for the ingestion stage.
7	Stage	Alphanumeric (20)	Set to 'INGESTION'
8	stageCompleteTimestamp	Alphanumeric (25)	Date and time when the file completed the ingestion stage.
9	Status	Alphanumeric (7)	Populated with 'Success' or 'Failure' as per the processing outcome.
10	Severity	Alphanumeric (7)	Not applicable for Ingestion.
11	Code	Unsigned	Not applicable for Ingestion.
12	errorFilename	Alphanumeric (75)	File name associated with the feedback metadata file.
13	errorCount	Unsigned	Number of Error and Warning records in the file
14	linkages	Multi-Dimensional Array	Not applicable for the ingestion stage.
Linkage Error Details – Metadata Block Start For each Linkage Type *n*, the following values will be included:			
14.*n*.1	linkageType	Alphanumeric (20)	Not applicable for the ingestion stage.
14.*n*.2	errorTypeCount	Unsigned	
Linkage Error Details – Metadata Block End			
15	doneForDay	Boolean	Not applicable for the ingestion stage.

Table 60: Ingestion Feedback Error Data File

Seq	Name	Data Type (Length)	Description
1	errorCode	Array	The CAT Error Codes associated with the firmROEID representing up to 8 error codes. If the record has more than 8 errors, 7 error codes will be presented. The 8th error code will be set to "2999"

Seq	Name	Data Type (Length)	Description
			which indicates the event has more than 8 errors. Refer to Appendix E for the definition of all Error Codes.
2	actionType	Alphanumeric (3)	Set to 'RPR'
3	errorROEID	Numeric (20)	Populated with a CAT assigned identifier
4	errorRecord		Original Record, containing all fields of the original record excluding *actionType* and *errorROEID*. Note: the length of the original record will be a max of 8190 characters and will be represented by the original record that was submitted.

7.4.2. JSON Examples for File Ingestion Feedback

The following example represents when no Ingestion errors were found.

Metadata File


```
{
  "feedbackVersion": "0.1",
  "submitter": "SUBID",
  "reporter": "MYID",
  "fileGenerationDate": 20170307,
  "fileName":
"SUBID_MYID_20170307_OrderEvents_000123.json.bz2",
  "stage": "INGESTION",
  "stageCompleteTimestamp": "20170307T154152.000001089",
  "status": "Success",
  "errorCount": 0
}
```


Errors File `<empty file>`

The following example represents when Ingestion errors were found.

Metadata File


```
{
  "feedbackVersion": "0.1",
  "submitter": "SUBID",
  "reporter": "MYID",
  "fileGenerationDate": 20170307,
  "fileName":
"SUBID_MYID_20170307_OrderEvents_000123.json.bz2",
  "stage": "INGESTION",
  "stageCompleteTimestamp": "20170307T154152.000001089",
  "status": "Failure",
  "errorFileName": "SUBID_MYID_20170307_OrderEvents_000123
.ingestion.error.json.bz2",
  "errorCount": 2
```

```
}
```

Errors File

```
{
  "errorCode": ["2001","2002"]
  "actionType": "RPR"
  "errorROEID": 123456
  "errorRecord": {<error record>}
}
{
  "errorCode": ["2003"]
  "actionType": "RPR"
  "errorROEID": 123457
  "errorRecord": {<error record>}
}
```

7.4.3. CSV Examples for File Ingestion Feedback

The following example represents when no Ingestion errors were found:

Metadata File

```
LINE 1  0.1,SUBID,MYID,20170307,
        SUBID_MYID_20170307_OrderEvents_000123.csv.bz2,
        ,INGESTION, 20170307T154152.000001089,Success,,,,0,,
```

Errors File

```
LINE 1  <EMPTY>
```

The following example represents when Ingestion errors were found:

Metadata File

```
LINE 1  0.1,SUBID,MYID,20170307,
        SUBID_MYID_20170307_OrderEvents_000123.csv.bz2,
        ,INGESTION,20170307T154152.000001089,Failure,,,
        SUBID_MYID_20170307_OrderEvents_000123
        .ingestion.error.csv.bz2,2,,
```

Errors File

```
LINE 1  2001|2002,RPR,123456,<error record>

LINE 2  2003,RPR,123457,<error record>
```

7.5. Linkage Discovery

During Linkage Discovery, events are compared with other events to perform duplicate checks, out of sequence checks and to perform linkages among events having the same linkage keys. The linkage types performed by CAT are defined in Section 2.5.

Linkage Discovery processing will occur in the following order:

Table 61: Steps in Linkage Discovery

Seq	Linkage Discovery Step	Feedback
1	Full Duplicate Checks	When duplicates are found, one record is kept and all others are rejected
2	Order Key, Trade Key, Quote Key and FulFillment Key Duplicate Checks	When an Event key is duplicated, all events having the same key are rejected
3	Linkage Key Duplicate Checks	When a linkage key is duplicated, all events having the same linkage key are rejected
4	Intrafirm Linkage and Out of Sequence	Events within a firm that do not match or are found to be out of sequence result in an unlinked event
	Interfirm Linkage	Events routed/received between firms that do not match result in an unlinked event
	Exchange Linkage	Events routed to an Exchange that do not match result in an unlinked event
	Trade Linkage	Trade events which name a TRF/ORF/ADF record that do not match result in an unlinked event

The following rules apply:

1. Linkage Discovery processing will be performed for all events which pass Ingestion.
2. Linkage feedback files will include the file extension `.linkage`
3. Linkage feedback error files will include the file extension `.linkage.error`
4. When full duplicates are identified, one event will be kept and all other events which fully duplicate the record will be rejected.
5. When event key duplicates are identified, all events having the duplicated key will be rejected.
6. When linkage key duplicates are identified, all events having the duplicated linkage key will be rejected.
7. Events that passed all duplicates validations participate in the process which generates linkages.
8. When linkages are expected but do not occur, a linkage error will be generated reflecting an unlinked event.
9. Unlinked feedback will be generated for the CAT Reporter, and for the IMID named as the sender or destination.
10. One or more linkage errors may be found within a record.

7.5.1. Linkage Discovery Feedback Definitions

Table 62: Linkage Discovery Feedback Metadata File

Seq	Name	Data Type (Length)	Description
1	feedbackVersion	Text (10)	The schema version of the feedback file.

Seq	Name	Data Type (Length)	Description
2	submitter	Unsigned	The Submitter ID associated with the original submission of the events.
3	reporter	Alphanumeric (7)	The CAT Reporter IMID associated with the events.
4	fileGenerationDate	Date	The CAT processing date on which the feedback file was generated.
5	fileName	Alphanumeric (75)	Not applicable for the linkage stage.
6	receiptTimestamp	Timestamp	Not applicable for the linkage stage.
7	stage	Alphanumeric (20)	Set to 'LINKAGE'
8	stageCompleteTimestamp	Timestamp	Date and time when the file completed the linkage stage.
9	status	Alphanumeric (7)	Populated with 'Success' or 'Failure' as per the processing outcome.
10	severity	Alphanumeric (7)	Not applicable for Linkage Discovery.
11	code	Unsigned	Not applicable for Linkage Discovery.
12	errorFileName	Alphanumeric (75)	File name associated with the feedback metadata file.
13	errorCount	Unsigned	Total number of Error and Warning records for the CAT Reporter IMID and CAT Submitter ID on the CAT processing date.
14	linkages	Multi-Dimensional Array	Linkage feedback information associated with each linkage type. The list will include all linkage types with the error record count associated with each linkage type. Refer to Linkage Error Details – Metadata Block for information that will be included.
Linkage Error Details – Metadata Block Start For each Linkage Type *n*, the following values will be included:			
14.*n*.1	linkageType	Alphanumeric (20)	The Linkage Type. Values include:
			• Intrafirm
			• Interfirm
			• Exchange
			• Trade
14.*n*.2	errorTypeCount	Unsigned	Number of Errors and Warnings records associated with the linkage type.
Linkage Error Details – Metadata Block End			
15	doneForDay	Boolean	Used to indicate the last metadata file for Ingestion feedback is delivered. *doneForDay*=`true` when the last file is delivered.

Table 63: Linkage Feedback Error Data File

Seq	Name	Data Type (Length)	Description
1	errorCode	Array	The CAT Error Codes associated with the firmROEID representing up to 2 error codes. Refer to Appendix E for the definition of all Error Codes.
2	actionType		Set to 'RPR'
3	errorROEID	Numeric (20)	For unlinked events associated with the CAT Reporter, populated with a CAT assigned identifier
4	errorRecord		For unlinked events associated with the CAT Reporter, the original record will be populated with all fields of the original submission excluding *actionType* and *errorROEID*. For unlinked events where the CAT Reporter is named by another CAT Reporter, the error record will contain linkage key information. Note: the length of the original record will be a max of 8190 characters and will be represented by the original record that was submitted.

7.5.2. JSON Examples for Linkage Discovery Feedback

The following example represents when no Linkage errors were found.

Metadata File


```
{
  "feedbackVersion": "0.1",
  "submitter": "SUBID",
  "reporter": "MYID",
  "fileGenerationDate": 20170307,
  "stage": "LINKAGE",
  "stageCompleteTimestamp": "20170307T154152.000001089",
  "status": "Success",
  "errorCount": 0

}

"linkages": [
    {
      "linkageType": "Intrafirm",
      "errorTypeCount": 0
    },
    {
      "linkageType": "Interfirm",
      "errorTypeCount": 0
    },
    {
      "linkageType": "Exchange",
      "errorTypeCount": 0
    },
    {
```

"linkageType": "Trade",
"errorTypeCount": 0
}
],
"doneForDay": true
}

Errors File <empty file>

The following example represents when Linkage errors were found.

Metadata File

{
"feedbackVersion": "0.1",
"submitter": "SUBID",
"reporter": "MYID",
"fileGenerationDate": 20170307,
"stage": "LINKAGE",
"stageCompleteTimestamp": "20170307T154152.000001089",
"status": "Failure",
"errorFileName":
"SUBID_MYID_20170307_linkage_OrderEvents_000123
.linkage.error.json.bz2",
"errorCount": 2

}
"linkages": [
{
"linkageType": "Intrafirm",
"errorTypeCount": 1
},
{
"linkageType": "Interfirm",
"errorTypeCount": 1
},
{
"linkageType": "Exchange",
"errorTypeCount": 0
},
{
"linkageType": "Trade",
"errorTypeCount": 0
}
],
"doneForDay": true
}

Errors File

{
"errorCode": ["3001","3002"]
"actionType": "RPR"
"errorROEID": 123456
"errorRecord": {<errorRecord>}
}
{
"errorCode": ["3003"]
"actionType": "RPR"

```
    "errorROEID": 123457
    "errorRecord": {<linkage key information>}
  }
```

7.5.3. CSV Examples for Linkage Discovery Feedback

The following example represents when no Linkage errors were found.

Metadata File	LINE 1	0.1,SUBID,MYID,20170307,,,LINKAGE, 20170307T154152.000001089,Success,,,,0, Intrafirm@0|Interfirm@0|Exchange@0|Trade@0,true
Error File	LINE 1	<EMPTY>

The following example represents when Linkage errors were found.

Metadata File	LINE 1	0.1,SUBID,MYID,20170307,,,LINKAGE, 20170307T154152.000001089,Failure,,, SUBID_MYID_20170307_linkage_OrderEvents_000123 .linkage.error.csv.bz2,2, Intrafirm@1|Interfirm@1|Exchange@0|Trade@0,true
Error File	LINE 1	3001|3002,RPR,123456,<errorRecord>
	LINE 2	4003,RPR,123457,<linkage key information>

7.6. Corrections

Errors found during CAT processing and found by CAT Reporters subsequent to transmission must be repaired. The reporting of Error Corrections is facilitated in CAT through submissions via SFTP and the CAT Reporter Portal. Certain fields are defined within the Event definitions in Sections 4 and 5 to facilitate the reporting of corrections including: actionType, firmROEID, errorROEID.

A corrected record will replace the original record for all further processing. The following scenarios are supported:

- Repair of events for which a CAT Error was provided in feedback
- Correction of events initiated by firms for which there is no associated CAT error feedback
- Deletion of a single event to remove erroneous events which did or did not result in a CAT Error
- Deletion of a file, resulting in the deletion of all events and respective CAT Errors
- The reporting of corrections may occur on the same CAT processing date as the original submission

7.6.1. Repair CAT Errors

A repair is instructed when repairing events for which a CAT Error was provided in feedback. The following rules apply:

1. A Repair record must contain the *actiontype* ‘RPR’
2. Repair records must populate the *errorROEID* equal to the *errorROEID* value provided by CAT in the respective error feedback; otherwise the record will be rejected.
3. Repair records may be reported within data files, among other CAT event types.
4. A Repair record must be reported for CAT Errors generated as a result of a record that is not readable, or when the record has an error associated with the *firmROEID*, *eventTimestamp*, or *firmROEID*.
5. CAT errors for which a Repair record is processed will be considered repaired.
6. CAT errors for which a Repair record is processed after to T+3 8am will be considered as a late repair.
7. Repair records processed prior to T+4 8am will result in the elimination of the previously submitted record from further processing.
8. Repair records processed after T+4 8am will be appended to the audit trail.

7.6.1.1. JSON Repair Record Example


```
{
  "actionType": "RPR",
  "errorROEID": 12345678,
  "firmROEID": "firmROEO12345",
  "type": "MENO",
  "orderKeyDate": "20170801T143031.000000",
  "orderID": "O12345",
  "symbol": "XYZ",
  "eventTimestamp": "20170801T143031.123456",
  "manualFlag": false,
  "deptType": "O",
  "side": "Buy",
  "price": 10.01,
  "quantity": 500,
  "orderType": "LMT",
  "timeInForce": "DAY",
  "tradingSession": "REG",
  "custDspIntrFlag": false,
  "firmDesignatedID": "PROP456",
  "accountHolderType": "O",
  "negotiatedTradeFlag": false
  }
```

7.6.1.2. CSV Repair Record Example

```
LINE n  RPR, 12345678,firmROEO12345 ,,MENO, 20170801T143031.000000, O12345,
        XYZ,20170801T143031.123456,false,,,
        N,O,,Buy,10.01,500,,LMT,DAY,REG,,false,PROP456,O,,,false,,,,,,,,,,
```

7.6.2. Firm Initiated Corrections

A firm initiated correction is instructed for correcting events for which there is no associated CAT error feedback or the firm repairs an error without submitting an *errorROEID*. The following rules apply:

1. A firm initiated correction record must contain the actiontype 'COR'
2. Firm initiated correction records must assign the *firmROEID* equal to the *firmROEID* of the original submission, otherwise the record will be rejected.
3. Firm initiated corrections must be used for correcting events for which there is no associated CAT error.
4. Firm initiated corrections may be used to repair an event for which a CAT Error was provided in feedback.
5. Firm initiated corrections may be reported within data files, among other CAT event types.
6. Events for which a firm initiated correction is processed will be considered corrected.
7. Events for which a firm initiated correction is processed after to T+3 8am will be considered as a late correction.
8. Events for which a firm initiated correction is processed prior to T+4 8am will result in the elimination of the previously submitted record from further processing.
9. Events for which a firm initiated correction processed after T+4 8am will be appended to the audit trail.

7.6.2.1. JSON Firm Initiated Correction Example


```
{
  "actionType": "COR",
  "firmROEID": "firmROEO12345",
  "type": "MENO",
  "orderKeyDate": "20170801T143031.000000",
  "orderID": "O12345",
  "symbol": "XYZ",
  "eventTimestamp": "20170801T143031.123456",
  "manualFlag": false,
  "deptType": "O",
  "side": "Buy",
  "price": 10.01,
  "quantity": 500,
  "orderType": "LMT",
  "timeInForce": "DAY",
  "tradingSession": "REG",
  "custDspIntrFlag": false,
```

```
"firmDesignatedID": "PROP456",
"accountHolderType": "O",
"negotiatedTradeFlag": false
}
```

7.6.2.2. CSV Repair Record Example

```
LINE n  COR,,firmROEO12345,,MENO, 20170801T143031.000000, O12345,
        XYZ,20170801T143031.123456,false,,,
        N,O,,Buy,10.01,500,,LMT,DAY,REG,,false,PROP456,O,,,false,,,,,,,,,,
```

7.6.3. Delete Instructions

Record deletions are used to support the removal of one or more erroneous events reported to CAT. The following rules apply:

1. A delete instruction must contain the actiontype 'DEL'
2. A delete instruction does not support the full restatement of the record that is being deleted.
3. Delete instructions associated with a CAT error may populate the *errorROEID* equal to the *errorROEID* value provided by CAT in the respective error feedback OR may populate the *firmROEID* equal to the *firmROEID* of the original submission.
4. A Delete instruction for an event for which a CAT error was not generated must populate the *firmROEID* equal to the *firmROEID* of the original submission.
5. Delete instructions may be reported within data files, among other CAT event types.
6. CAT errors for which a Delete instruction is processed will be considered deleted.
7. CAT errors for which a Delete instruction is processed after to T+3 8am will be considered as a late repair.
8. Delete instructions processed prior to T+4 8am will result in the elimination of the previously submitted record from further processing.
9. Delete instructions processed after T+4 8am will be appended to the audit trail.

Table 64: Delete Instruction Record Format

Seq	Name	Data Type (Length)	Description	Include Key
1	actionType	Choice	Set equal to 'DEL'	R
2	errorROEID	Numeric (20)	When deleting an event for which a CAT Error was provided, populate the *errorROEID* equal to the *errorROEID* value provided by CAT in the respective error feedback.	C
3	firmROEID	Alphanumeric (64)	When deleting an event for which a CAT error was not generated must populate the *firmROEID* equal to the *firmROEID* of the	C

Seq	Name	Data Type (Length)	Description	Include Key
			original submission.	

7.6.3.1. JSON Record Delete Examples

Delete record for an event with an associated CAT Error:

```
{
  "actionType": "DEL",
  "errorROEID": 45678901
}
```

Delete record for an event without an associated CAT Error

```
{
  "actionType": "DEL",
  "firmROEID": "20190416_FirmROE123"
}
```

7.6.3.2. CSV Record Delete Example

Delete record for an event with an associated CAT Error:

```
LINE n   DEL, 45678901,
```

Delete record for an event without an associated CAT Error:

```
LINE n   DEL,,20190416_FirmROE123
```

7.6.4. File Deletion

File Deletion is used to support the deletion of all events within a single file, including all respective CAT errors for those events. File Deletions are used for files with included Event data representing an Event Date that is prior to T+4 8am. Deletion of events for Event Dates after T+4 8am is possible using the Delete Record instruction described in 7.6.3.

The following rules apply:

1. Files must be deleted individually.
2. The file deletions process will not be supported after T+4 8am. All events contained in the original file for which the file delete instruction was received, must represent a CAT Trading Day that is prior to T+4 8am.

3. File deletions are not supported for events with an Action Type of COR or RPR. All events contained with the original file for which the file deletion instruction was received, must have an Action Type of NEW.
4. Records contained in the original file being deleted will be removed from further processing and related CAT Errors will be considered as deleted.
5. CAT errors for events submitted within the original file for which Delete File instruction is processed will be considered as repaired.
6. Delete file instructions are reported using a Metadata file with an associated empty file.
7. Filenames must not be reused, even after a file is deleted.
8. Delete file instructions are reported by submitting a Metadata file named as: <file base name of original file>.DEL.meta (refer to 6.1.3) and an associated empty data file named as: <file base name of original file>.DEL. Refer to the following example:

   Metadata filename: `<CAT Submitter ID>_<CAT Reporter IMID>_<File Generation Date>_[<Group>_]<File Kind>_<File Number>.DEL`


```
{
  "type": "META",
  "fileGenerationDate": 20180130,
  "reporter": "MPID",
  "submitter": "OSOID",
  "fileVersion": "1.1",
  "files": [
    {
  "fileName": "SubmitterID_ReporterID_20190207_OrderEvents_000002.DEL",
      "recordCount": "0",
      "rawHash": "08997E354AEAE2EA9E71E685CE1CC6FCCD1EB17E957B18573617CA80
199      EA67A",
      "compressedHash": "99A7712E2CC1CB3A5789B91E3C1D1E76D7F83D82C8D35FF1F
56B156A49C228E2"
    }
  ]
}
```


   Empty Data File: `<CAT Submitter ID>_<CAT Reporter IMID>_<File Generation Date>_[<Group>_]<File Kind>_<File Number>.DEL`

7.6.5. Same Day Corrections

When error feedback is received, the CAT Reporter can take immediate action which may result in the original submission and correction occurring during the same processing date. Additionally, there will be instances when a Submitter identifies a CAT submissions issue for which CAT error feedback is expected but has not yet been received. In such cases, it is also possible to submit a same day correction.

Although the CAT Processor design processes data submissions in processing stages, the data within each stage does not have a prescribed processing order. To support the processing of same day corrections for which error feedback has not been received, the following guidelines for usage of each correction mechanism are recommended:

1. File Deletion instructions may be reported any time subsequent to delivery of a 'Success' message for the File Integrity status of the associated file.
2. Record deletions may be instructed after receiving File Ingestion feedback for the file in which the record was submitted.
3. Firm initiated corrections may be reported after receiving File Ingestion feedback for the file in which the record was submitted.

8. Testing

CAT will provide an environment for testing that mirrors the current functionality of the CAT production environment, as well as functionality for the next release version of the CAT environment when available. The CAT testing environment will automatically determine which specification version Industry Members and CAT Reporting Agents are using for submissions. If error reporting formats change, Industry Members and CAT Reporting Agents will receive feedback in the current and new specification via sftp, as well as have access to current/new CAT Reporter portal urls for specification changes that impact the CAT Reporter portal. Current/new connectivity changes will also be supported concurrently.

The testing environment performs lifecycle linkage, and Industry Members and CAT Reporting Agents are encouraged to coordinate testing with their counterparties so as to test lifecycle linkage with their counterparties. Without simultaneous contra-party reporting in the test environment, Industry Members and CAT Reporting Agents will not be able to test linkage with their counterparties.

Industry Members and CAT Reporting Agents must test their submissions using the testing environment before they begin submitting to the production environment.

The test environment is available 24 hours a day, 6 days a week. Refer to the CAT website for contact information and hours of operation for support.

Industry Members and CAT Reporting Agents connect to the test environment in the same manner they would connect to the production environment. However, for the connection to the test environment, one or more alternate IP addresses or URLs may be used.

Testing does not relieve an Industry Member of its responsibilities to submit production data to the CAT System.

9. Additional Information

9.1. Public Website

The CAT Public Website, www.catnmsplan.com, is available via the public internet, and is hosted outside the CAT secure network. The CAT Public Website provides information about CAT, including links to SEC Rule 613, Participant and Industry Member Technical Specifications, FAQs, training materials, and CAT Help Desk contact information.

Web announcements will be made available on the public website (www.catnmsplan.com). You can also subscribe to receive email notifications regarding changes to the website. These announcements are used to post information related to the operation of CAT.

Contact help@finracat.com for any questions and/or feedback regarding this document.

Appendices

Appendix A: Change Release Management Process

Following publication of version 1.0, changes to this Industry Member Technical Specification will be released as follows:

- All proposed amendments to the Technical Specifications will be made in accordance with the CAT NMS Plan, including being approved or deemed approved (as applicable) by the CAT NMS, LLC Operating Committee.
- Prior to the go-live date for any system changes set forth in the Technical Specifications:
  - A new Technical Specifications will be posted to the CAT Public Website, www.catnmsplan.com.
  - A notice will be posted on the CAT NMS Plan Public website with a summary of changes, the go-live date for the changes and links to relevant information.
  - One or more email alerts will be sent to CAT Reporters with a summary of changes set forth in the revised Technical Specifications, the go-live date for the changes and links to relevant information.
  - Industry Members will be permitted to perform testing of the revised Technical Specifications in advance of the go-live date for the changes. Information on such testing will be set forth in the notices and alerts described above.
  - As the go-live date approaches, Industry Members will be able to conduct testing and will receive support from the Plan Processor to prepare for production reporting using the revised Technical Specifications format. The revised Technical Specifications will include a summary list of changes as well as a table listing the specific areas of the document where the changes have been made.

Appendix B: Clock Synchronization Requirement

In previous sections, details are described regarding Order Events and data elements. Timestamp, as one of the required data elements for each order event, must be correctly reported by Industry Members at predefined granularity. This section provides an overview of the corresponding clock synchronization requirements applicable to Industry Members.

In order to comply with applicable requirements of Clock Synchronization and correctly record the Timestamp fields for order events. Industry Members are required to synchronize Business Clocks at a minimum to within 50 milliseconds of the time maintained by the National Institute of Standards and Technology (NIST) and to maintain such synchronization. Business clocks that are solely used for Manual CAT events or for the time of allocation on Allocation Reports must be synchronized at a minimum to within a one second tolerance.

The tolerance includes:

- The difference between the NIST standard and a time provider's clock;
- Transmission delay from the source; and
- The amount of drift in the Participant's clock.

To ensure the accuracy of timestamps for Reportable Events, Industry Members must document and maintain their synchronization procedures for Business Clocks. Industry Members must keep a log of the time when they synchronize their Business Clocks and the results of the synchronization process. This log must include notice of any time a Business Clock drifts more than the applicable tolerances specified above. Such log must include results for a period of time of not less than five years ending on the then current date, or for the entire period for which the Industry Member has been required to comply with this Rule if less than five years. Industry Members must also certify their compliance with these clock synchronization requirements and report violations according to requirements established by the Operating Committee.

Any time provider and technology may be used for clock synchronization as long as the Business Clocks are in compliance with the accuracy requirement.

If additional details are needed, refer to Participants' applicable rules.

Appendix C: Representative Order Linkages

The CAT NMS Plan requires that customer orders be linked to representative orders created in firm accounts for the purpose of facilitating the execution of a customer order. This Appendix outlines reporting requirements for creating linkages between customer and representative orders.

C.1: Phase 2a Requirements

C.1.1. Representative Order Reporting

In Phase 2a, representative orders must be reported to CAT and marked as a representative order. Representative orders are identified using the *representativeInd* field on New Order events.

The table below describes the *representativeInd* field values:

Table 65: representativeInd Field Values

Value	Definition	Explanation
Y	Representative order, linkage required	This value must be used in Phase 2a for representative orders where linkage is required as described in Item 2 below. This value can also be used voluntarily in Phase 2a if a firm elects to report aggregated order linkages that are not required until Phase 2c
YS	Representative order, linkage required; details in supplement event	This value must be used in Phase 2a if a firm provides aggregated order IDs on an order supplement event
YF	Representative order, linkage required in future phase	This value must be used in Phase 2a for representative orders that do not require linkage until Phase 2c. This includes aggregated orders, agency average price and net trading scenarios. If a firm voluntarily elects to link these scenarios in Phase 2a, the firm must use the value of "Y"
YP	Representative order, pricing guarantee, no linkage required	This value must be used when a firm receives a client order, guarantees an execution price (e.g., VWAP) and then originates proprietary orders in an effort to work the client order. Linkage may not be possible as the client order may not be filled from the proprietary orders if the guaranteed price is not achieved.
YE	Representative eligible - Order eligible for customer fills via an unlinked system (unlinked OMS-EMS or position fill workflow)	This value must be used to report proprietary orders that are originated as part of workflows where there is no systemic link between client orders and representative firm orders and which includes disparate OMS-EMS scenarios and position fill workflows. In such workflows, there is no linkage required for Phase 2a as some

Value	Definition	Explanation
		firms' CAT reporting processes may not be able to determine if a firm order was originated to represent a customer order. In 2c, MEOF events for any client orders that are filled from a representative order reported with a YE indicator are required to contain the FDID of the firm account from which the order was filled.
N	Not a representative order, linkage is not applicable	The value of N must be provided on any order that a firm is able to explicitly determine is not a representative order.

C.1.2. Representative Order Linkages

In Phase 2a, linkage is required between the representative street side order and the order being represented when the representative order was originated specifically to represent a single order (received from a customer or another broker-dealer) and:

- There is an existing direct electronic link in the Industry Member's system between the order being represented and the representative order, and
- Any resulting executions are immediately and automatically applied to the represented order in the Industry Member's system.

Linkages are required between the customer/client order and the representative order for both executed and unexecuted orders. Executed orders must also have a link between the Order Fulfillment Event for the customer/client order and the representative order from which the fill came.

The following fields are used in the linkage process:

<u>At the Order Level</u>

- *representativeInd* indicates if an order was originated to represent a customer/client order
- *aggregatedOrders* specifies the original order IDs and quantities being consolidated in the representative order

<u>At the Order Fulfillment Level</u>

- *orderID* contains the firm side order that was used to fill the customer order*fulfillmentLinkType* indicates whether there is order level and trade level linkage, only trade level linkage (e.g., fill from the pre-existing customer order), or why the firm side details are not present

- *FDID* contains the firm account that was used to fill the customer order (only applicable when a *fulfillmentLinkType* of YE is populated)

- Linkage on the Order Fulfillment is indicated by the *fulfillmentLinkType*

The following table describes the *fulfillmentLinkType* values

Table 66: fulfillmentLinkType Field Values

Value	Definition	Explanation
Y	Representative order, linkage required	This value must be used in Phase 2a for representative orders where linkage is required. This value can also be used voluntarily in Phase 2a if a firm elects to report aggregated order linkages that are not required until Phase 2c. If this value is used, the *orderID* field in the firm side details is required to be populated.
YF	Representative order, linkage required in future phase	This value must be used in Phase 2a for representative orders that do not require linkage until Phase 2c. This includes aggregated orders, agency average price and net trading scenarios. If a firm voluntarily elects to link these scenarios in Phase 2a, the firm must use the value of "Y". If this value is used, firm side details may be left blank.
YP	Fill from pre-existing Principal order, linkage required	This value must be used in Phase 2a when a client order is filled from a proprietary order that was originated prior to receipt of the client order. For example, this value must be used when a client order is filled as a result of a Manning obligation and the proprietary order was not reported to CAT with the client order ID in the *aggregatedOrders* field. YP is required in phase 2a.
YE	Representative eligible - Order eligible for customer fills via an unlinked system (unlinked OMS-EMS or position fill workflow)	This value must be used to report proprietary orders that are originated as part of workflows where there is no systemic link between client orders and representative firm orders and which includes disparate OMS-EMS scenarios and position fill workflows. In such workflows, no linkage required for Phase 2a. as a firm's CAT reporting process may not be able to determine if a firm order was originated to represent a customer order. In 2c, MEOF events for any client orders that are filled from a representative order reported with a YE indicator are required to contain the FDID of the firm account from which the order was filled. In Phase 2a, if this value is used, firm side

Value	Definition	Explanation
		details may be blank. In Phase 2c, if this value is used, the FDID of the firm account from which the order was filled must be populated. In addition, the *accountHoldertype* must be populated with the type of firm account. Firms should note that explicit linkage in workflows covered by YE may be required in future phases of CAT.

C.2. Representative Order Marking and Linkage Requirements by Phase

C.2.1. Single Order Scenarios

The table below details requirements for both linkage and marking of a Representative Order in Single Order scenarios. These requirements are NOT applicable in Phase 2a scenarios where there is not (1) an existing direct electronic link in the Industry Member's system between the order being represented and the representative order; and (2), any resulting executions are immediately and automatically applied to the represented order in the Industry Member's system. Refer to the Data Dictionary for relevant field values. Refer to the CAT Industry Member Reporting Scenarios document for further information on how the relevant field values must be populated for each scenario.

Table 67: Requirements for Both Linkage and Marking of a Representative Order in Single Order Scenarios

Scenario Description	Is Linkage Required?				Is Rep Order Marking Required?			
	MENO		MEOF		MENO		MEOF	
	Phase 2a	Phase 2c	Phase 2a	Phase 2c	Phase 2a	Phase 2c	Phase 2a	Phase 2c
Riskless Principal Scenarios								
A. Single Prop Order, single fill	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
B. Single Prop Order, multiple fills, print for print	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
C. Single Prop Order, multiple fills, average price fill to customer	No	Yes	No	Yes	Yes	Yes	Yes	Yes
D. Multiple Prop Orders, multiple fills, print for print	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
E. Multiple Prop Orders,	No	Yes	No	Yes	Yes	Yes	Yes	Yes

Scenario Description	Is Linkage Required?				Is Rep Order Marking Required?			
	MENO		MEOF		MENO		MEOF	
	Phase 2a	Phase 2c	Phase 2a	Phase 2c	Phase 2a	Phase 2c	Phase 2a	Phase 2c
multiple fills, average price fill to customer								
F. Fill of a customer order from a pre-existing principal order (Manning scenario)	No	No	Yes	Yes	No	No	Yes	Yes
Agency Scenarios - applies when a firm's order handling and/or reporting system does not allow for a route to be directly associated with the customer order or child order (with the same Order ID) and instead must generate/report a route from a separate order (with a different Order ID) created by the firm for the purpose of working the customer order.								
G. Single Rep Order, single fill	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
H. Single Rep Order, multiple fills, print for print to customer account	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
I. Single Rep Order, multiple fills, single average price booking to customer account; no print for print details available to customer account	No	Yes	No	Yes	Yes	Yes	Yes	Yes
J. Multiple Rep Orders, multiple fills, print for print	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
K. Multiple Prop Orders, multiple fills, average price fill to customer	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Principal Net Trading - assumed that all street side fills are guaranteed to go to the customer order								
L. Single Prop Order, multiple fills, print for print	No	Yes	No	Yes	Yes	Yes	Yes	Yes
M. Single Prop Order, multiple fills, print for print	No	Yes	No	Yes	Yes	Yes	Yes	Yes
N. Single Prop Order, multiple fills, average price fill to customer	No	Yes	No	Yes	Yes	Yes	Yes	Yes
O. Multiple Prop Orders, multiple fills, print for print	No	Yes	No	Yes	Yes	Yes	Yes	Yes
P. Multiple Prop Orders, multiple fills, average price fill to customer	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Other Single Order Scenarios								

Scenario Description	Is Linkage Required?				Is Rep Order Marking Required?			
	MENO		MEOF		MENO		MEOF	
	Phase 2a	Phase 2c	Phase 2a	Phase 2c	Phase 2a	Phase 2c	Phase 2a	Phase 2c
Q. Price Guarantee Scenarios (e.g., GVWAP, Stop Stock) - either single or aggregated orders	No	No	No	No	No	Yes	No	Yes

C.2.2 Options Scenarios

The table below details Phase 2b and Phase 2d requirements for both linkage and marking of options combined orders. Refer to the Data Dictionary for relevant field values. Refer to the CAT Industry Member Reporting Scenarios document for further information on how the relevant field values must be populated for each scenario.

Table 68: Requirements for Both Linkage and Marking of Options Combined Orders

Scenario Description	Is Linkage Required?				Is Rep Order Marking Required?			
	MONO		MOOF		MONO		MOOF	
	Phase 2b	Phase 2d	Phase 2b	Phase 2d	Phase 2b	Phase 2d	Phase 2b	Phase 2d
A. Single combined order, multiple customer fills	No	Yes	No	Yes	Yes	Yes	Yes	Yes

C.2.3 Aggregated Order Scenarios

[Placeholder for Phase 2c. Aggregated Order Reporting will be finalized and included in a future version of the specification.]

Appendix D: CAT Date Definitions and Reporting Guidelines

The following key date terms are used throughout the document for reporting instructions:

Table 69: Key Date Terms

Term	Definition	Usage
Event Timestamp	The date and time the event occurred. If electronic, required to be reported at the most granular level an Industry Member's order handling or execution systems use to capture data for the reported event, with at least millisecond granularity. If manual, required to be reported in increments of at least one second. If the order is immediately systematized, required to be reported with at least millisecond granularity.	*eventTimestamp* is a field defined on every CAT event. Used to assign the CAT Trading Day.
Event Date	The date portion of the Event Timestamp.	Part of all Route Linkage keys, used to link records within the Event Date. Required to be populated as the prefix of a *firmROEID* assignment.
File Generation Date	The date the file was generated or reported.	Used to guarantee uniqueness for a file across dates.
CAT Trading Day	Trading Day for Industry Members is defined as beginning immediately after 4:15:00PM and no fractions of a second Eastern Time on one trade date and ending at exactly 4:15:00PM and no fractions of a second Eastern Time on the next trading date. Weekends are holidays are not considered a Trading Day. For an event occurring on CAT Trading Day T, submissions are due to CAT by T+1 8:00 AM EST; Corrections are due by T+3 8:00 AM EST. Refer to 6.4 for more information. Examples demonstrating the calculation of CAT Trading Day, Reporting Due Date and Repair Due Date.	Used to calculate the submission due date, and corrections due date. Used to calculate summaries and present feedback on the CAT Reporter Portal representing events for the same CAT Trading Day, regardless of when the events were reported.
CAT Processing Date	Date representing the set of events reported for a CAT Trading Day. Events reported late to CAT will be assigned the CAT Processing Date reflective of when they were reported. For example, an event, that occurred at 2pm on T which is reported to CAT after T+1 8am and prior to T+2 8AM will be assigned CAT Processing Date of T+1.	Used to identify late submissions and late repairs. Used to calculate summaries and present feedback on the CAT Reporter Portal representing events reported on the CAT Processing Date, regardless of the Event Date.
Order Key Date	The date and time the OrderID was assigned.	*orderKeyDate* is a field defined on Order events, and other events which specify and Order Key.

Term	Definition	Usage
		Used to support uniqueness of an Order Key. If time is not needed to guarantee a unique Order Key, the time portion may be populated with zeroes.
Trade Key Date	The date and time the TradeID was assigned.	*tradeKeyDate* is a field defined on Trade events. Used to support uniqueness of a Trade Key. If time is not needed to guarantee a unique Trade Key, the time portion may be populated with zeroes.
Quote Key Date	The date and time the QuoteID was assigned.	*quoteKeyDate* is a field defined on Quote events. Used to support uniqueness of a Quote Key. If time is not needed to guarantee a unique Quote Key, the time portion may be populated with zeroes.
Fulfillment Key Date	The date and time the FulfillmentID was assigned.	*fulfillmentKeyDate* is a field defined on Fulfillment events. Used to support uniqueness of a Fulfillment Key. If time is not needed to guarantee a unique fulfillment Key, the time portion may be populated with zeroes.

The following table illustrates the assignment of the Event Date, CAT Trading Day and the associated deadlines for Submission and Correction.

Table 70: Deadlines for Submission and Correction

#	Event Timestamp	Event Date	Holiday	CAT Trading Day	Submission Due	Corrections Due
1	Wed, 9/12/18 16:13:00 ET	9/12/18	n/a	9/12/18	9/13/18, 8:00 AM ET	9/17/18 8:00 AM ET
2	Wed, 9/12/18 16:16:00 ET	9/12/18	n/a	9/13/18	9/14/18, 8:00 AM ET	9/18/18 8:00 AM ET
3	Fri, 9/14/18 16:01:00 ET	9/14/18	n/a	9/14/18	9/17/18, 8:00 AM ET	9/19/18 8:00 AM ET
4	Fri, 9/14/18 16:45:00 ET	9/14/18	n/a	9/17/18	9/18/18, 8:00 AM ET	9/20/18 8:00 AM ET
5	Sat, 9/15/18 12:30:01 ET	9/15/18	n/a	9/17/18	9/18/18, 8:00 AM ET	9/20/18 8:00 AM ET
6	Mon, 9/17/18 10:30:05 ET	9/17/18	n/a	9/17/18	9/18/18, 8:00 AM ET	9/20/18 8:00 AM ET
7	Fri, 1/16/19 11:00 AM ET	1/16/19	1/21/19	1/16/19	1/17/19 8:00 AM ET	1/22/19 8:00 AM ET
8	Fri, 1/17/19 16:22	1/17/19	1/21/19	1/18/19	1/22/19 8:00 AM ET	1/24/19 8:00 AM ET

#	Event Timestamp	Event Date	Holiday	CAT Trading Day	Submission Due	Corrections Due
	PM ET					
9	Sat, 1/19/19 11:15 AM ET	1/19/19	1/21/19	1/22/19	1/23/19 8:00 AM ET	1/25/19 8:00 AM ET
10	Mon, 1/21/19 10:00 AM ET	1/21/19	1/21/19	1/22/19	1/23/19 8:00 AM ET	1/25/19 8:00 AM ET

Appendix E: Error Codes

This section defines the error and warning codes generated by CAT. Each code is defined to include the reason for the error or warning, including the associated fields. Codes are assigned in ranges to represent similar types of errors within the same range, related by validation type and/or by linkage type. Codes are organized by the CAT Processing stages including:

- File Integrity
- Data Ingestion
- Linkage Discovery

E.1 File Integrity Errors

The table below contains error messages that are associated with file integrity. Errors are associated with files, filenames and metadata within Metadata files.

Table 71: File Integrity Errors

Error Code	Error Code Description	Explanation	Error/ Warning
1101	Missing Metadata File	Timeout waiting for associated metadata file. Data files for which an associated Metadata file is not received within 30 minutes of the receipt of the data file.	Error
1102	Missing Data File	Metadata file includes one or more data files that were not received within 30 minutes of the receipt of the metadata file.	Error
1103	Duplicate File	A file with the same base name was previously accepted by CAT.	Error
1104	Missing or Invalid CAT Submitter ID	CAT Submitter ID is missing or invalid.	Error
1105	Missing or Invalid CAT Reporter IMID	CAT Reporter IMID is missing or is not a valid Market Participant for the Generation Date.	Error
1106	Missing or Invalid File Generation Date	File Generation Date is missing or is not a valid date.	Error
1107	Metadata File Not Readable	Metadata file format is not readable as it is not in a valid JSON format or contains an incorrect delimiter.	Error
1108	File exceeds the supported size limit	File size exceeds the maximum uncompressed size of 100 GB via SFTP and 1GB via the CAT Reporter Portal.	Error
1109	Unauthorized CAT Submitter ID	CAT Submitter ID has not been authorized to submit for the CAT Reporter IMID. Verify that the CAT Submitter ID and CAT Reporter IMID in the file name have a transmitting relationship.	Error

Error Code	Error Code Description	Explanation	Error/ Warning
1110	Invalid Data File Name	Data file is not in the required format.	Error
1111	Firm provided record count in meta file does not equal row count in the data file	The record count in the data file as calculated by CAT does not match the record count provided in the metadata file.	Error
1112	Mismatched Metadata File Format	The associated Metadata file is not the same format as the data file submitted to CAT.	Error
1113	Invalid Metadata File Name	Meta file is not in the required format.	Error
1114	Missing or Invalid Raw Hash	Raw Hash in meta file is missing or invalid (e.g., doesn't match the data file).	Error
1115	Missing or Invalid Compressed Hash	Compressed Hash in meta file is missing or invalid (e.g., doesn't match the data file).	Error
1116	Missing or Invalid File Version	File Version in meta file is missing or invalid.	Error
1117	Missing or Invalid File Compression	Data file is missing the associated compression extension.	Error
1119	Invalid Delete Instruction	The delete instruction is on a file that contains event dates more than four days prior to the current processing date.	Error
1120	Invalid File in Delete Instruction	The delete instruction is on a file that has not been received by CAT.	Error

E.2 Data Ingestion Errors

The table below contains error messages that are associated with Data Ingestion. Error codes are associated with specific fields within an event.

Table 72: CAT Event Ingestion Errors

Error Code	Error Code Description	Explanation	Warning/ Error
2001	Missing or Invalid *accountHolderType*	*accountHolderType* must be populated with one of the allowable values.	Error
2002	Missing or Invalid *actionType*	*actionType* must be populated with one of the allowable values.	Error
2003	Missing or Invalid *affiliateFlag*	*affiliateFlag* must be populated with one of the allowable values.	Error
2004	Missing or Invalid *aggregatedOrders*	*aggregatedOrders* must be in the correct format and the combination of *representativeInd* and *aggregatedOrders* must be valid. See Appendix C for more details on reporting representative and combined orders.	Error
2005	Missing or Invalid *askPrice*	When required, *askPrice* must be in the correct format. Required when *askQty* is populated.	Error
2006	Missing or Invalid *askQty*	When required, *askQty* must be in the correct format. Required *askPrice* is populated.	Error
2007	Missing or Invalid *atsDisplayInd*	When required, *atsDisplayInd* must be one of the allowable values.	Error
2008	Invalid *atsOrderType*	When required, *atsOrderType* must be equal to a unique identifier representing the specific order type provided to CAT by the ATS.	Error
2009	Missing or Invalid *bidPrice*	When required, *bidPrice* must be in the correct format; must be populated if *bidQty* is populated.	Error
2010	Missing or Invalid *bidQty*	When required, *bidQty* must be in the correct format; must be populated if *bidPrice* is populated.	Error
2011	Invalid *CATReporterIMID*	If populated, *CATReporterIMID* must be valid for the Event Date and must equal the *CATReporterIMID* in the filename.	Error
2012	Missing or Invalid *cancelQty*	*cancelQty* must be populated in the correct format.	Error
2013	Missing or Invalid *cancelFlag*	*cancelFlag* must be populated in the correct format.	Error
2014	Missing or Invalid *cancelTimestamp*	When required,*cancelTimestamp* must be in the correct format; must be populated if *cancelFlag* is True.	Error
2015	Missing or Invalid *capacity*	*capacity* must be populated with one of the allowable values.	Error
2016	Invalid *cmtaFirm*	When required, *cmtaFirm* must be in the correct format.	Error

Error Code	Error Code Description	Explanation	Warning/ Error
2017	Missing or Invalid *custDspIntrFlag*	*custDspIntrFlag* must be populated with one of the allowable values.	Error
2018	Missing or Invalid *deptType*	*deptType* must be populated with one of the allowable values.	Error
2019	Combination of *destination* and *destinationType* is Invalid	For Route Events, the following *destinationType* and *destination* combinations are required: • If *destinationType* is N, the *destination* must be blank. • If *destinationType* is F, the *destination* must be the IMID of an Industry Member. • If *destinationType* is E, the *destination* must be one of the allowable values.	Error
2020	Missing or Invalid *destinationType*	*destinationType* must be populated with one of the allowable values.	Error
2021	Invalid *displayPrice*	When required, *displayPrice* must be in the correct format.	Error
2022	Invalid *displayQty*	When required, *displayQty* must be in the correct format.	Error
2023	Missing or Invalid *dupROIDCond*	*dupROIDCond* must be populated with one of the allowable values.	Error
2024	Missing or Invalid *electronicDupFlag*	*electronicDupFlag* must be populated and is one of the allowable values.	Error
2025	Invalid *electronicTimestamp*	*electronicTimestamp* must be in the correct format.	Error
2026	Missing or Invalid *errorROEID*	*errorROEID* must be blank when the actionType is 'NEW'; must be populated when actionType is 'RPR'.	Error
2027	Missing or Invalid *eventTimestamp*	*eventTimestamp* must be in the correct format. If *manualFlag* is true, *eventTimestamp* must be reported in increments of at least one second. If *manualFlag* is false, *eventTimestamp* must be reported in increments of at least milliseconds.	Error
2028	Combination of *exchOriginCode and destinationType* is invalid	For Route Events, the following *exchOriginCode* and *destinationType* combination are required: • If *destinationType* is not 'E', *exchOriginCode* must be blank. • If *destinationType* is E, *exchOriginCode* must be populated.	Error
2029	Invalid *executingFirm*	*executingFirm* number must be in the correct format.	Error
2030	Missing or Invalid *fillKeyDate*	*fillKeyDate* must be populated in the correct format.	Error
2031	Missing or Invalid *firmDesignatedID*	When required, *firmDesignatedID* must be in the correct format and unique among all identifiers from any given Industry Member for each business date.	Error
2032	Missing or Invalid *firmROEID*	*firmROEID* must be populated and in the correct format.	Error
2033	Invalid Event Date in the *firmROEID*	The Event Date portion of the firmROEID must be in the correct format and must equal the date portion of	Error

Error Code	Error Code Description	Explanation	Warning/ Error
		eventTimestamp.	
2034	Missing or Invalid *fulfillmentID*	*fulfillmentID* must be populated in the correct format.	Error
2035	Missing or Invalid *fulfillmentLinkType*	*fulfillmentLinkType* must be populated with one of the allowable values.	Error
2036	Invalid *handlingInstructions*	*handlingInstructions* must be in the correct format and must include allowable values. Name and value must be provided when applicable.	Error
2037	Invalid *infoBarrierID*	*infoBarrierID* must be in the correct format.	Error
2038	Missing or Invalid *initiator*	*initiator* must be populated with one of the allowable values.	Error
2039	Missing or Invalid *isoInd*	When required, *isoInd* value must be one of the allowable values.	Error
2040	Missing or Invalid *leavesQty*	When required, *leavesQty* must be in the correct format.	Error
2041	Missing or Invalid *manualFlag*	*manualFlag* must be one of the allowable values.	Error
2042	Missing or Invalid *manualOrderKeyDate*	*manualOrderKeyDate* must be in the correct format; required if *manualOrderID* is populated.	Error
2043	Missing or Invalid *manualOrderID*	*manualOrderID* must be in the correct format.	Error
2044	Invalid *marketCenterID*	*marketCenterID* must be one of the allowable values.	Error
2045	Invalid *minQty*	*minQty* must be in the correct format.	Error
2046	Invalid *mpStatusCode*	*mpStatusCode* must be one of the allowable values.	Error
2047	Missing or Invalid *nbboSource*	When required, *nbboSource* must be one of the allowable values.	Error
2048	Missing or Invalid *nbboTimestamp*	When required, *nbboTimestamp* must be in the correct format.	Error
2049	Missing or Invalid *nbbPrice*	When required, *nbbPrice* must be in the correct format.	Error
2050	Missing or Invalid *nbbQty*	When required, *nbbQty* must be in the correct format.	Error
2051	Missing or Invalid *nboPrice*	When required, *nboPrice* must be in the correct format.	Error
2052	Missing or Invalid *nboQty*	When required, *nboQty* must be in the correct format.	Error
2053	Missing or Invalid *negotiatedTradeFlag*	*negotiatedTradeFlag* must be populated one of the allowable values.	Error
2054	Missing or Invalid *negotiatedTradeSide*	*negotiatedTradeSide* must be populated with one of the allowable values.	Error
2055	Invalid *nextUnlinked*	*nextUnlinked* must be one of the allowable values.	Error
2056	Missing or Invalid *onlyOneQuoteFlag*	*onlyOneQuoteFlag* must be populated with one of the allowable values if required to populate.	Error
2057	Missing or Invalid	When required, *openCloseIndicator* must be one of the	Error

Error Code	Error Code Description	Explanation	Warning/ Error
	openCloseIndicator	allowable values.	
2058	Missing or Invalid *optionID*	*optionID* must be populated in the correct format.	Error
2059	*optionID* is unknown to CAT	*optionID* is not found or is not reportable to CAT.	Warning
2060	*optionID* invalid for Event Date	*optionID* is not effective on the event date.	Error
2061	Missing or Invalid *orderID*	*orderID* must be populated in the correct format.	Error
2062	Missing or Invalid *orderType*	*orderType* must be populated one of the allowable values.	Error
2063	Missing or Invalid *orderKeyDate*	*orderKeyDate* must be populated and in the correct format.	Error
2064	Missing or Invalid *originatingIMID*	If populated, *originatingIMID* must be in the correct format on all secondary events.	Error
2065	Missing or Invalid *parentOrderID*	*parentOrderID* must be populated in the correct format.	Error
2066	Missing or Invalid *parentOrderKeyDate*	*parentOrderKeyDate* must be populated in the correct format.	Error
2067	Missing or Invalid *price*	*price* must be in the correct format.	Error
2068	Missing or Invalid *priorFillKeyDate*	When required, *priorFillKeyDate* must be populated and in the correct format.	Error
2069	Missing or Invalid *priorFulfillmentDate*	When required, *priorFulfillmentDate* must be populated in the correct format.	Error
2070	Invalid *priorFulfillmentID*	When required, *priorFulfillmentID* must be in the correct format.	Error
2071	Missing or Invalid *priorOrderID*	When required, *priorOrderID* must be populated in the correct format.	Error
2072	Missing or Invalid *priorOrderKeyDate*	When required, *priorOrderKeyDate* must be populated in the correct format.	Error
2073	Invalid *priorQuoteKeyDate*	When required, *priorQuoteKeyDate* must be populated in the correct format.	Error
2074	Invalid *priorQuoteID*	When required, *priorQuoteID* must populated and must be in the correct format.	Error
2075	Invalid *priorUnlinked*	*priorUnlinked* value must be one of the allowable values.	Error
2076	Missing or Invalid *quantity*	*quantity* must be in the correct format.	Error
2077	Missing or Invalid *quoteID*	*quoteID* must be populated in the correct format.	Error
2078	Missing or Invalid *quoteKeyDate*	*quoteKeyDate* must be populated and in the correct format.	Error
2080	Missing or Invalid *quoteRejectedFlag*	When required, *quoteRejectedFlag* must be populated in one of the allowable values.	Error

Error Code	Error Code Description	Explanation	Warning/ Error
2081	Missing or Invalid *receivedQuoteID*	*receivedQuoteID* must be populated in the correct format.	Error
2082	Missing or Invalid *receiverIMID*	*receiverIMID* must be populated in the correct format.	Error
2083	Missing or Invalid *receivingDeskType*	*receivingDeskType* must be populated in one of the allowable values.	Error
2084	Invalid *reportingExceptionCode*	*reportingExceptionCode* must be one of the allowable values.	Error
2085	Missing or Invalid *representativeInd*	*representativeInd* must be populated in one of the allowable values.	Error
2086	Invalid *routedOrderID*	*routedOrderID* must be populated in the correct format.	Error
2087	Invalid *routedQuoteID*	When required, *routedQuoteID* must be populated in the correct format.	Error
2088	Invalid *routeRejectedFlag*	*routeRejectedFlag* must be one of the allowable values.	Error
2089	Combination of *senderType* and *senderIMID* is invalid	If *senderType* = F, *senderIMID* is the IMID of an Industry Member. If *senderType* = E, *senderIMID* must be one of the allowable values.	Error
2090	Missing or Invalid *senderType*	When required, *senderType* must be one of the allowable values.	Error
2091	Invalid *senderIMID*	*senderIMID* must be populated in the correct format.	Error
2092	Missing or Invalid *seqNum*	When required, *seqNum* must be in correct format.	Error
2093	Missing or Invalid *session*	When required, *session* must populated; Required when *destinationType* is E.	Error
2094	Invalid *shortSaleExptInd*	*shortSaleExptInd* be populated with one of the allowable values.	Error
2095	Missing or Invalid s*ide*	s*ide* must be populated in one of the allowable values.	Error
2096	Missing or Invalid s*ymbol*	s*ymbol* must be populated in the correct format.	Error
2097	*symbol* is not found	*Symbol* is not found or is not reportable to CAT.	Warning
2098	*symbol* invalid for Order Event Date	s*ymbol* ID is not effective on the order event date.	Warning
2099	*symbol* does not match listing market format	For exchange listed securities, the *symbol* format must match the format published by the primary listing market.	Error
2100	Missing or Invalid *tapeTradeID*	*tapeTradeID* must be populated in the correct format.	Error
2101	Missing or Invalid *timeInForce*	*timeInForce* value must be populated in the correct format. Name and value must be provided when applicable.	Error
2102	Missing or Invalid	*tradeID* must be populated in the correct format.	Error

Error Code	Error Code Description	Explanation	Warning/ Error
	tradeID		
2103	Missing or Invalid *tradeKeyDate*	*tradeKeyDate* must be populated in the correct format.	Error
2104	Missing or Invalid *tradingSession*	*tradingSession* must be populated in one of the allowable values.	Error
2105	Missing or Invalid *type*	For each event type, *type* must be populated and one of the allowable values.	Error
2106	Missing or Invalid *unsolicitedInd*	*unsolicitedInd* must be populated in one of the allowable values.	Error
2107	Invalid *workingPrice*	*workingPrice* must be blank if *atsDisplayInd* is blank. When required, *workingPrice* must be populated in the correct format if *atsDisplayInd* is populated. If no *workingPrice* is applicable, it must be 0.	Error
2108	Missing *buyDetails*	If *negotiatedTradeSide* = NBUY, *buyDetails* must be populated and *sellDetails* must be blank If *negotiatedTradeSide* = NA and no Trade Supplement events have been reported containing *buyDetails*, *buyDetails* must be populated.	Error
2109	Missing or Invalid *orderID* in *buyDetails*	When required, *orderID* must be populated in the correct format.	Error
2110	Missing or Invalid *orderKeyDate* in *buyDetails*	When required, *orderKeyDate* must be populated in the correct format.	Error
2111	Missing or Invalid *side* in *buyDetails*	*side* must be populated in the correct format.	Error
2112	Missing or Invalid *firmDesignatedID* in *buyDetails*	When required, *firmDesignatedID* must be populated in the correct format.	Error
2113	Missing or Invalid *accountHolderType* in *buyDetails*	When required, *accountHolderType* must be one of the allowable values.	Error
2114	Missing or invalid *firmDesignatedID* or *orderID* populated in *buyDetails*	When required, *firmDesignatedID* must be populated in the correct format.	Error
2115	Missing *sellDetails*	If *negotiatedTradeSide* = NSELL, *sellDetails* must be populated and *buyDetails* must be blank. If *negotiatedTradeSide* = NA, and no Trade Supplement events have been reported containing *sellDetails*, *sellDetails* must be populated.	Error
2116	Missing or Invalid *orderID* in *sellDetails*	When required, *orderID* must be populated in the correct format.	Error
2117	Missing or Invalid *orderKeyDate* in *sellDetails*	When required, *orderKeyDate* must be populated in the correct format.	Error
2118	Missing or Invalid *side* in *sellDetails*	*side* must be populated in the correct format.	Error

Error Code	Error Code Description	Explanation	Warning/ Error
2119	Missing or Invalid *firmDesignatedID* in *sellDetails*	When required, *firmDesignatedID* must be populated in the correct format.	Error
2120	Missing or Invalid *accountHolderType* in *sellDetails*	When required, *accountHolderType* must be populated in the correct format.	Error
2121	Missing or Invalid *orderID* in *clientDetails*	When required, *orderID* must be populated in the correct format.	Error
2122	Missing or Invalid *orderKeyDate* in *clientDetails*	When required, *orderKeyDate* must be populated in the correct format.	Error
2123	Missing or Invalid *side* in *clientDetails*	*side* must be populated in the correct format.	Error
2124	Missing or Invalid *firmDesignatedID* in *clientDetails*	When required, *firmDesignatedID* must be populated and in the correct format if required to populate.	Error
2125	Missing or Invalid *accountHolderType* in *clientDetails*	When required, *accountHolderType* must be populated in the correct format.	Error
2126	Missing or Invalid *orderID* in *firmDetails*	When required, *orderID* must be populated and in the correct format.	Error
2127	Missing or Invalid *orderKeyDate* in *firmDetails*	When required, *orderKeyDate* must be populated in the correct format.	Error
2128	Missing or Invalid *side* in *firmDetails*	*side* must be populated and in the correct format.	Error
2129	Missing or Invalid *firmDesignatedID* in *firmDetails*	When required, *firmDesignatedID* must be in the correct format.	Error
2130	Missing or Invalid *accountHolderType* in *firmDetails*	When required, *accountHolderType* must be one of the allowable values.	Error
2132	Record exceeds maximum length	Record length must not exceed the maximum length for each record.	Error
2133	Additional fields are specified in the record but are not defined for this CAT event type	Refer to section 4 & 5 for permitted fields for each CAT event type.	Error
2134	Invalid JSON or CSV format	The record is not represented in a valid format as specified in Section 2.4 Data Types. This warning is not repairable.	Warning
2135	Invalid delimiter	The delimiter in the record does not match the delimiter established in Section 2.4 Data Types.	Error
2136	Invalid Alphanumeric Character	A field value in the record contains a delimiter or a non-allowable ASCII character	Error
2137	Invalid correction, deletion or a repair	*actionType* 'COR', 'RPR' or 'DEL' is received for a *firmROEID* or an *errorROEID* that does not exist in CAT.	Error

Error Code	Error Code Description	Explanation	Warning/ Error
2139	*eventTimestamp* is greater than the current date and time	The *eventTimestamp* is greater than system date..	Error
2999	Exceeds Max Error Limit	The record contains more than 8 errors.	Error

E.3 Linkage Discovery Errors

Linkage Discovery errors are generated by performing event comparisons that result in the identification of duplicates, out of sequence events and unlinked events. To identify duplicate linkage keys, the CAT Processor will ensure the *CAT Linkage Keys*, as defined in Section 2.5.1, are not repeated.

Unlinked error codes are assigned based on a processing order when determining the reason for an unlinked event. The process begins with the check associated with the codes having the lowest sequence value. When the "Multiple Fields did not Match" reason is assigned, it is because a determination could not be made. In such cases, it is possible that the unlink reason is because the other party's event was not reported or had a processing error which prevented the event from participating in Linkage Discovery.

The below table contains error messages that are associated with Linkage Discovery Errors.

Table 73: Intra-Linkage Errors

Error Code	Error Code Description	Explanation	Warning/ Error
3001	Duplicate Event	The event has already been received by CAT. The first instance of the event will be retained; all subsequent submissions will be rejected. This warning is not repairable.	Warning
3002	Duplicate *firmROEID* on same day	Duplicate *firmROEID* received by CAT; must be unique for the Event Date and CAT Reporter IMID.	Error
3003	Duplicate *firmROEID* on a prior processing d/ay	One or more events were reported with the same *firmROEID* as an event reported on a previous day. All events received on the current CAT Processing Date associated with the duplicate *firmROEID* will be rejected. The events received on a previous day associated with the duplicate *firmROEID* will not be rejected. This is only applicable to events with an *actionType* of 'NEW'.	Error
3004	Duplicate Order Key reported on same day	More than one primary order event was reported with the same Order Key on the current CAT Processing Date. All events associated with the duplicate Order Key will be rejected.	Error

Error Code	Error Code Description	Explanation	Warning/ Error
3007	Duplicate Order Key reported on a prior processing day	One or more primary order events were reported that have the same Order Key as an order reported on a previous day. All events received on the current CAT Processing Date associated with the duplicate Order Key will be rejected. The events received on a previous day associated with the duplicate Order Key will not be rejected.	Error
3008	Duplicate Route Linkage Key reported on the same day	More than one Order Route event was reported with the same Route Linkage Key on the current CAT Processing Date. All events with a duplicate Route Linkage Key will be rejected.	Error
3009	Duplicate Route Linkage Key reported on prior processing day	One or more Order Route events were reported that have the same Route Linkage Key as an event reported on a previous day. All events received on the current CAT Processing Date with a duplicate Route Linkage Key will be rejected. The events received on a previous day with a duplicate Route Linkage will not be rejected.	Error
3010	Duplicate Trade Key reported on same day	More than one Trade event was reported with the same Trade Key on the current CAT Processing Date. All events associated with the duplicate Trade Key will be rejected.	Error
3011	Duplicate Trade Key reported on prior processing day	One or more Trade events were reported with the same Trade Key as an event reported on a previous day. All events received on the current CAT Processing Date with a duplicate Trade Key will be rejected. The events received on a previous day associated with the duplicate Trade Key will not be rejected.	Error
3012	Duplicate Fulfillment Key reported on same day	More than one Fulfillment events were reported with the same Fulfillment Key on the current CAT Processing Date. All events with a duplicate Fulfillment Key will be rejected.	Error
3015	Duplicate Fulfillment Key reported on prior processing day	One or more Fulfillment events was reported with the same Fulfillment Key as an event reported on a previous day. All events received on the current CAT Processing Date associated with the duplicate Fulfillment Key will be rejected. The events received on a previous day with a duplicate Fulfillment Key will not be rejected.	Error
3016	Duplicate Quote Key reported on same day	More than one New Quote event were reported with the same Quote Key on the current CAT Processing Date. All events associated with the duplicate Quote Key will be rejected.	Error
3017	Duplicate Quote Key reported on prior processing day	One or more New Quote events were reported that have the same Quote Key as an event reported on a previous day. All events received on the current CAT Processing Date associated with the duplicate Quote Key will be rejected. The events received on a previous day associated with the duplicate Quote Key will not be rejected.	Error
3018	Duplicate Manual Order Key reported on same	More than one primary order event was reported with the same Manual Order Key on the current CAT	Error

Error Code	Error Code Description	Explanation	Warning/ Error
	day	Processing Date. All events associated with the duplicate Manual Order Key will be rejected.	
3019	Duplicate Manual Order Key reported on prior processing day	One or more primary order events were reported that have the same Manual Order Key as an order reported on a previous day. All events received on the current CAT Processing Date associated with the duplicate Manual Order Key will be rejected. The events received on a previous day associated with the duplicate Manual Order Key will not be rejected.	Error
3501	Secondary Event – Order Key, Trade Key, Quote Key or Fulfillment Key not found	The Secondary Event (as defined in Appendix F) references an Order Key, Trade Key, Quote Key or Fulfillment Key that does not exist in CAT because it was not reported or was rejected.	Error
3502	Trade Event –Order not found	The Trade Event references an Order Key that does not exist in CAT because it was not reported or was rejected.	Error
3503	Fulfillment Event –Order not found	The Fulfillment Event references an Order Key that does not exist in CAT because it was not reported or was rejected.	Error
3601	Intrafirm Out of Sequence Event	*eventTimestamp* of a Secondary Event (as defined in Appendix F) is prior to the eventTimestamp of the related Primary Event (as defined in Appendix F). When comparing *eventTimestamp*, the Clock Drift allowance as specified in Appendix B must be considered.	Error

Table 74: Trade Linkage Error Codes (Reported to CAT)

Error Code	Error Code Description	Explanation	Warning/ Error
4001	Late Reported Trade event	A Trade event was reported to CAT beyond the processing window; therefore, no Trade match was possible. This warning is not repairable.	Warning
4003	Matching *tapeTradeID* cannot be found	The *tapeTradeID* reported on a Trade event did not match the unique identifier (e.g., Branch Sequence Number, Compliance ID) provided on the TRF/ADF/ORF Trade Report.	Error
4005	*eventTimestamp* cannot be found	The *eventTimestamp* reported on the Trade event did not match the Execution Time on the TRF/ADF/ORF trade report.	Error
4007	*symbol* cannot be found	The *symbol* reported on the Trade event did not match the *symbol* on the TRF/ADF/ORF trade report.	Error
4009	Multiple fields did not match	A TRF/ADF/ORF Trade Report with a matching unique identifier (i.e. Branch Sequence Number) was found; however, the *symbol, CATReporterIMID* or a combination of fields reported on the Trade event did not match the corresponding symbol or reporting/contra firm on the TRF/ADF/ORF Trade Report.	Error

Table 75: Trade Linkage Error Codes (Reported to TRF/ADF/ORF)

Error Code	Error Code Description	Explanation	Warning/ Error
5002	Named - Late Reported Trade Report	Named on a TRF/ADF/ORF Trade Report that was reported beyond the processing window; therefore no Trade match was possible. This warning is not repairable.	Warning
5004	Named - Matching *tapeTradeID* cannot be found	Named on a TRF/ADF/ORF Trade Report, but the *tapeTradeID* on the Trade event did not match the unique identifier (e.g., Branch Sequence Number, Compliance ID) on the corresponding TRF/ADF/ORF Trade Report.	Error
5006	Named - *eventTimestamp* cannot be found	Named on a TRF/ADF/ORF Trade Report, but the *eventTimestamp* reported on the Trade event did not match the Execution Time on the corresponding Trade event.	Error
5008	Named - *symbol* cannot be found	Named on a TRF/ADF/ORF Trade Report, but the *symbol* reported on the Trade event did not match the *symbol* on the TRF/ADF/ORF trade report.	Error
5010	Named - Multiple fields did not match	Named on a TRF/ADF/ORF Trade Report and a matching *tapeTradeID* on the CAT Trade Event was found; however, the *symbol, CATReporterIMID* or a combination of fields reported on the Trade event did not match the corresponding symbol or reporting/contra firm on the TRF/ADF/ORF Trade Report.	Error

Table 76: Exchange Linkage Error Codes (Reported to CAT)

Error Code	Error Code Description	Explanation	Warning/ Error
6001	Late reported Order Route event	An Order Route event was reported beyond the processing window; therefore, no exchange match was possible. This warning is not repairable.	Warning
6003	Matching *routedOrderID* cannot be found	The *routedOrderID* reported on the Order Route event does not match to a corresponding *routedOrderID* on the exchange order.	Error
6005	*senderIMID* did not match	A matching *routedOrderID* was identified on the exchange order; however, the *senderIMID* on the Order Route event did not match the corresponding *routingParty* on the exchange order.	Error
6007	*symbol* did not match	A matching *routedOrderID* was identified in the exchange order; however, the symbol on the Order Route event did not match the corresponding symbol on the exchange order.	Error
6009	*session* did not match	A matching *routedOrderID* was identified on the exchange order; however, the *session* on the Order Route event did not match the *session* on the	Error

Error Code	Error Code Description	Explanation	Warning/ Error
		exchange order.	
6011	Multiple fields did not match	A matching *routedOrderID* was identified on the exchange order; however, the *symbol, senderIMID,* or a combination of fields reported on the Order Route event did not match the corresponding symbol, routingParty or a combination of fields on the exchange order.	Error

Table 77: Exchange Linkage Error Codes (Reported by Exchange)

Error Code	Error Code Description	Explanation	Warning/ Error
7002	Named - Late reported exchange order	Named on an exchange order that was reported beyond the processing window; therefore, no exchange match was possible. This warning is not repairable.	Warning
7004	Named - Matching *routedOrderID* cannot be found	Named on an exchange order, but the *routedOrderID* reported on the Order Route event does not match to a corresponding *routedOrderID* on the exchange order.	Error
7006	Named - *senderIMID* did not match	Named on an exchange order with a matching *routedOrderID* identified on the Order Route event; however, the *senderIMID* on the Order Route event did not match the *routingParty* reported on the corresponding exchange order.	Error
7008	Named - *symbol* did not match	Named on an exchange order with a matching *routedOrderID* identified on the Order Route event; however, the *symbol* on the Order Route event did not match the *symbol* on the corresponding exchange order.	Error
7010	Named - *session* did not match	Named on an exchange order with a matching *routedOrderID* identified on the Order Route event; however, the *session* on the Order Route event did not match the *session* on the corresponding exchange order.	Error
7012	Named - Multiple fields did not match	Named on an Order Route event with a matching *routedOrderID* identified in the Order Route event; however, the symbol, *senderIMID* or a combination of fields reported on the Order Route event did not match the *symbol* or *routingParty* on the corresponding exchange order.	Error

Table 78: Inter-firm Linkage Error Codes (Sender Reported to CAT)

Error Code	Error Code Description	Explanation	Warning/ Error
8001	Late reported Order Route event	An Order Route event was reported beyond the processing window; therefore, no Interfirm match was possible. This warning is not repairable.	Warning

Error Code	Error Code Description	Explanation	Warning/ Error
8002	Named - Late reported Order Route event	Named on an Order Route event that was reported beyond the processing window; therefore, no Interfirm match was possible.	Error
8003	Matching *routedOrderID* cannot be found	The *routedOrderID* reported on the Order Route event does not match to a corresponding *routedOrderID* on the Order Accepted event.	Error
8004	Named - Matching *routedOrderID* cannot be found	Named on an Order Route event, but the *routedOrderID* reported on the Order Accepted event does not match to a corresponding *routedOrderID* on the Order Route event.	Error
8005	*senderIMID* did not match	A matching *routedOrderID* was identified in the Order Accepted event; however, the *senderIMID* on the Order Route event did not match the *senderIMID* on the Order Accepted event.	Error
8006	Named - *senderIMID* did not match	Named on an Order Route event, but the *senderIMID* on the Order Accepted event does not match the *senderIMID* reported on the corresponding Order Route event.	Error
8007	*destination* did not match	A matching *routedOrderID* was identified in the Order Accepted event; however, the *destination* on the Order Route event did not match the *receiverIMID* on the Order Accepted event.	Error
8008	Named – *destination* did not match	Named on an Order Route event, but the r*eceiverIMID* on the Order Accepted event does not match the *destination* reported on the corresponding Order Route event.	Error
8009	*symbol* did not match	A matching *routedOrderID* was identified in the Order Accepted event; however, the *symbol* on the Order Route event did not match the *symbol* on the Order Accepted event.	Error
8010	Named - *symbol* did not match	Named on an Order Route event with a matching *routedOrderID* identified in the Order Accepted Event; however, the *symbol* on the Order Accepted event did not match the *symbol* on the Order Route event.	Error
8011	Multiple fields did not match	A matching *routedOrderID* was identified in the Order Accepted event; however, the *symbol*, *senderIMID* or a combination of fields on the Order Route event did not match the *symbol*, *senderIMID* on the Order Accepted Event.	Error
8012	Named - Multiple fields did not match	Named on an Order Route event with a matching *routedOrderID* identified in the Order Accepted Event; however, the *symbol*, *senderIMID* or a combination of fields on the Order Accepted event did not match the corresponding *symbol*, *senderIMID* on the Order Accepted event.	Error

Table 79: Interfirm Linkage Error Codes (Receiver Reported to CAT)

Error Code	Error Code Description	Explanation	Warning/ Error
9001	Late reported Order Accepted event	An Order Accepted event was reported beyond the processing window; therefore, no Interfirm match was possible. This warning is not repairable.	Warning
9002	Named - Late reported Order Accepted event	Named on an Order Accepted event that was reported beyond the processing window; therefore, no Interfirm match was possible.	Error
9003	Matching *routedOrderID* cannot be found	The *routedOrderID* reported on the Order Accepted event does not match to a corresponding *routedOrderID* on the Order Route event.	Error
9004	Named - Matching *routedOrderID* cannot be found	Named on an Order Accepted event, but the *routedOrderID* reported on the Order Route event does not match to a corresponding *routedOrderID* on the Order Accepted event.	Error
9005	*senderIMID* did not match	A matching *routedOrderID* was identified in the Order Route event; however, the *senderIMID* on the Order Accepted event did not match the *senderIMID* on the Order Route event.	Error
9006	Named - *senderIMID* did not match	Named on an Order Accepted event but the *senderIMID* reported on the Order Route does not match to a corresponding *senderIMID* on the Order Accepted event.	Error
9007	*ReceiverIMID* did not match	A matching *routedOrderID* was identified in the Order Route event; however, the *receiverIMID* on the Order Accepted event did not match the *destination* on the Order Route event.	Error
9008	Named - *ReceiverIMID* did not match	Named on an Order Accepted event but the *destination* reported on the Order Route does not match to a corresponding *receiverIMID* on the Order Accepted event.	Error
9009	*symbol* did not match	A matching *routedOrderID* was identified in the Order Route event; however, the *symbol* on the Order Accepted event did not match the *symbol* on the Order Route event.	Error
9010	Named - *symbol* did not match	Named on an Order Accepted event with a matching *routedOrderID* identified in the Order Route event; however, the *symbol* on the Order Route event did not match the *symbol* on the Order Accepted Event.	Error
9011	Multiple fields did not match	A matching *routedOrderID* was identified in the Order Route event; however, the *symbol*, *senderIMID, receiverIMID* or a combination of fields on the Order Accepted event did not match the corresponding *symbol* or *senderIMID* on the Order Route event.	Error
9012	Named - Multiple fields did not match	Named on an Order Accept Event with a matching *routedOrderID* identified in the Order Route event; however, the *symbol*, *senderIMID, destination* or a combination of fields on the Order Route event did not match the corresponding *symbol*, *senderIMID, receiverIMID* or a combination of fields on an Order	Error

Error Code	Error Code Description	Explanation	Warning/ Error
		Accepted event.	

Appendix F: Glossary

CAT Processing Date	Date representing the set of events reported for a *CAT Trading Day*. Events reported late to CAT will be assigned the CAT Processing Date reflective of when they were reported. For example, an event, that occurred at 2pm on T which is reported to CAT after T+1 8am and prior to T+2 8AM will be assigned CAT Processing Date of T+1.
CAT Reporter IMID	The CAT Reporter IMID is the SRO assigned identifier that an Industry Member uses to report CAT events. A CAT Reporter may use any SRO assigned identifier that is valid on the CAT Trading Day for which CAT events are submitted.
CAT Submitter ID	The CAT Submitter ID is the identifier of the CAT Reporting Agent, the entity authorized to submit the files to CAT on behalf of the Industry Member. CAT Reporters may authorize third-parties ("CAT Reporting Agents") to submit data to CAT on their behalf. Each CAT Reporting Agent and CAT Reporter will be assigned a unique CAT Submitter ID. If a CAT Reporter is performing its own submissions, these files will be submitted using its own CAT Submitter ID.
CAT Trading Day	Trading Day for Industry Members is defined as beginning immediately after 4:15:00PM and no fractions of a second Eastern Time on one trade date and ending at exactly 4:15:00PM and no fractions of a second Eastern Time on the next trading date. Weekends or any day that all equities or options national securities exchanges are closed are not considered a Trading Day.
Client Order	For the purpose of this document, Client Order is defined as an order received from a CAT Reporter.
Customer Order	For the purpose of this document, Customer Order is defined as an orders received from a non-CAT Reporter, including non-US broker-dealers.
Display ATS	An ATS that displays subscriber orders outside of the ATS.
Eligible Security	"Eligible Security" includes: (i) all NMS Securities, meaning "any security or class of securities for which transaction reports are collected, processed, and made available pursuant to an effective transaction reporting plan, or an effective national market system plan for reporting transaction in Listed Options"; and (ii) all OTC Equity Securities, meaning "any equity security, other than an NMS Security, subject to prompt last sale reporting rules of a registered national securities association and reported to one of such association's equity trade reporting facilities".
Electronic Capture Time	For manual orders, the timestamp or when the Manual CAT Event was captured electronically in the relevant order handling and execution system of the CAT Reporter.
Electronic Paired Option Order	Electronic option orders that contain both the buy and sell side that is routed to another Industry Member or exchange for crossing and/or price improvement as a single transaction on an exchange.
FDID	FDID is defined in Section 1.1 of the CAT NMS Plan as "a unique identifier for each trading account designated by Industry Members for purposes of providing data to the Central Repository. See CAT FAQ M2 for more information on the prohibition on use of actual account numbers. Refer to the CAT Industry Presentation on FDID for additional information.
IMID	An Industry Member Identifier, IMID, is any identifier assigned by an SRO to one of its members and is used as part of the linkage key in orders routed between Industry Members. Examples include FINRA MPIDs, Nasdaq MPIDs, NYSE Mnemonics, CBOE User Acronyms, and CHX Acronyms.

Manual Event	A non-electronic communication of order/trade/quote/fulfillment-related information for which CAT Reporters must record and report to CAT.
Material Terms of an Order	Includes: the NMS Security or OTC Equity Security symbol; security type; price (is applicable); size (displayed and non-displayed); side (buy/sell); order type; if a sell order, whether the order is long, short, short exempt; open/close indicator (except on transactions in equities); time in force (if applicable); if the order is for a Listed Option, option type (put/call), option symbol or root symbol, underlying symbol, strike price, expiration date, and open/close (except on market maker quotations); and any special handling instructions.
Order	The term order shall include: (i) Any order received by a member of a national securities exchange or national securities association from any person; (ii) Any order originated by a member of a national securities exchange or national securities association; or (iii) Any bid or offer.
Primary Event	An event that is received or originated by an Industry Member. Primary events include Orders, Trades, Quotes and Fulfillments each with a respective Event Key including: Order Key, Trade Key, Quote Key, Quote Received Key and Fulfillment Key. Primary events require the assignment of a unique Key which does not duplicate the Key for other Primary Events with the same Key type. For example, an Order Key will not be compared to a Trade Key for uniqueness. If a Key is duplicated, all events having the same Order Key will be rejected. Primary events include: MENO, MEOA, MENQ, MEQR, MEOT, MEOF, MONO, MOOA, and MOOF.
Reportable Event	Includes, but is not limited to, the original receipt or origination, modification, cancellation, routing, execution (in whole or in part) and allocation of an order, and receipt of a routed order
Representative Order	Refer to CAT FAQ F1.
ROE	Reportable Order Event
Secondary Event	Represents an event occurring subsequent to the origination of a Primary Event. Secondary events require the assignment of an Event Key which provides linkage to the related Primary event that assigned the Key or to another Secondary event that assigned a new Key. Secondary events with event definitions that do not allow for the reassignment of an Event Key must populate the Event Key equal to the related event from which the Secondary event originated. Secondary events that are not defined to assign a new Event Key include: MENOS, MEOR, MECOC, MEOMS, MEOC, MEQC, MEOTS, MOOR, MOCOC, and MOOC. Secondary events with event definitions that allow for the reassignment of an Event Key (Order Key, Trade Key, Quote Key, Quote Received Key and Fulfillment Key) must assign an Event Key that is unique and does not duplicate the Event Key of any other Primary event or of any Secondary event which has assigned a new Event Key. When a new Event Key is assigned, the Prior Key representing the Event Key that is being replaced must be populated. Secondary events with event definitions that allow for the reassignment of an Event Key include: MEIR, MECO, MECOM, MEOM, MEFA, MEOJ, MOIR, MOCO, MOCOM, MOOM, MOFA, and MOOJ. Secondary events with event definitions that allow for the reassignment of an Event Key are not required to assign a new Event Key. In such cases, when reported, the Event Key must be equal to the related event from which the Secondary event originated.
Simple Electronic Option Orders	Orders to buy or sell a single option that are not related to or dependent on any other transaction for pricing or timing of execution that are either received or routed electronically by an Industry Member CAT Reporter.
Trading Algorithm	FINRA Rule 1220(b)(4)(a) defines Trading Algorithmic Strategy as “an automated

	system that generates or routes orders (or order-related messages) but shall not include an automated system that solely routes orders received in their entirety to a market center."
Trading Day	For Industry Member CAT Reporters, Trading Day is defined as beginning immediately after 4:15:00PM and no fractions of a second Eastern Time on one trade date and ending at exactly 4:15:00PM and no fractions of a second Eastern Time on the next trade date.

Appendix G: Data Dictionary

Field Name	Data Type	Description
accountHolderType	Choice	Represents the type of beneficial owner of the account which an order was received or originated. **Allowed Values:** **A** Institutional Customer – An institutional account as defined in FINRA Rule 4512(c) **E** Employee Account – An employee or associated person of an Industry Member **F** Foreign - A non-broker-dealer foreign affiliate or non-reporting foreign broker-dealer **I** Individual Customer – An account that does not meet the definition of FINRA Rule 4512(c) and is also not a proprietary account. **O** Market Making – See CAT FAQ C5 **V** Firm agency average price account **P** Other Proprietary **X** Error Account – Error account of the firm
actionType	Choice	Indicates whether the event is a new event, a correction, a repair or a record level deletion. **Allowed Values:** **NEW** New Record **COR** Correction of events initiated by firms for which there is no associated CAT error feedback **RPR** Repair of events for which a CAT error was provided in feedback **DEL** Record level delete instruction. When deleting a record, Industry Members must not restate the event that is being deleted. Refer to Section 7 for instructions on record level deletions.
error	Boolean	Indicates if the routing party is an affiliate of the Industry Member. For definition of affiliate, refer to CAT FAQ C4 **Allowed Values:** **true** routing party is an affiliate **false** routing party is not an affiliate
aggregatedOrders	Multi-dimensional array	When an Industry member generates a New Order event to represent one or more customer orders, the *aggregatedOrders* field specifies the individual customer order(s) being represented. For each order being represented, the *orderID* and *orderKeyDate* must be provided. Quantity is required when a portion of the order's quantity is included in the aggregation. In instances when the *aggregatedOrders* field causes the event to exceed the maximum length allowed, one or more

Field Name	Data Type	Description
		corresponding New Order Supplement events must be reported to capture the additional orders in the *aggregatedOrders* field. Refer to Appendix C for additional information on representative and combined order linkage requirements.
askPrice	Price	Price being asked in a quote.
askQty	Whole Quantity	Quantity being asked in a quote.
atsDisplayInd	Choice	ATS only field. Indicates if the order is displayed outside of the ATS to subscribers only, or via publicly disseminated quotation data. **Allowed Values:** **S** Order is displayed outside of the ATS to subscribers only **A** Order is displayed outside of the ATS to subscribers only, aggregated by price level on a timer basis. **Y** Order is displayed outside of the ATS via public quotation **N** Order is not displayed outside of the ATS
atsOrderType	Array	Unique identifier representing the specific order type(s) offered by the ATS. ATS only field. ATSs will provide their order types and handling instructions to CAT by submitting data dictionaries. Multiple *atsOrderType* values may be populated.
bidPrice	Price	Price being bid in a quote.
bidQty	Whole Quantity	Quantity being bid in a quote.
buyDetails	Multi-dimensional array	Captures the Order Key and additional information for the Order associated with the buy side of a Trade Event. This field is in the format of Trade Side Details, a compound data type that consists of a list of fields (see Section 2.4 Data Type). The *buyDetails* field is only used in Trade events and Trade Supplement events to capture the buy side details of the trade. Refer to Section 4.12.1 for a list of fields. This field is applicable in Trade event if there is only one *orderID* associated with this side of the trade. If there is more than one *orderID*, the *buyDetails* must be populated in separate Trade Supplement events. This field is not applicable for the contra-side of a negotiated trade.
cancelQty	Real Quantity	The quantity being cancelled. Value > 0 must be provided; Quantity must represent the quantity being cancelled, even in cases of a full cancellation.
cancelFlag	Boolean	Represents instances when a trade was cancelled because the trade was rejected by the TRF/ADF/ORF, or when a trade executed in a foreign market was cancelled. In such instances, set to *true*. **Allowed Values:**

Field Name	Data Type	Description
		true trade event was cancelled **false** trade event was not cancelled; or trade cancelation was reported to the TRF/ADF/ORF
cancelTimestamp	Timestamp	The time at which a trade was cancelled. Must be populated when *cancelFlag* is *true.*
capacity	Choice	Specifies the capacity in which the Industry Member acted. **Allowed Values:** **A** Agency **P** Principal **R** RisklessPrincipal
clientDetails	Multi-dimensional array	Specifies the Order Key and additional information for a Client Order for which a fulfilment event is associated. This field is in the format of Fulfillment Side Details, a multi-dimensional array that consists of a list of fields (see Section 2.4 Data Type). The *clientDetails* field is only used in Equity and Option Order Fulfillment and Fulfillment Amendment Events to capture the customer or client side details of the Fulfillment. Refer to Section 4.13.1 for a list of fields.
cmtaFirm	Alphanumeric (8)	The OCC number provided for clearing at the point of option order origination. Required for CMTA trades. Leading zeros may be omitted (e.g. 00501 may be reported as 501).
custDspIntrFlag	Boolean	Indicates if a customer has instructed that a limit order must not be displayed or that a block size order must be displayed. **Allowed Values:** **true** Customer has instructed that a limit order should not be displayed or that a block size order be displayed. **false** No instruction has been received from the customer that a limit order should not be displayed or that a block size order should be displayed.
deptType	Choice	Represents the internal department, unit or desk originating or accepting the order. **Allowed Values:** **A** Agency - a desk or department where orders may be routed to other market centers, either by a trading system or with the assistance of traders. This would include smart routers and algorithmic trading. **ATS** A trading system that meets the definition of “Alternative Trading System” under Regulation ATS. **DMA** Direct Market Access – For CAT reporting purposes, represents when an Industry Member permits a customer to use a market participant identifier assigned to the Industry Member to route orders directly to market centers. **SA** Sponsored Access **-** For CAT reporting purposes, represents when an Industry Member permits another broker-dealer to use a market participant identifier

Field Name	Data Type	Description
		assigned to the Industry Member to route orders directly to market centers. **T** Trading - A desk or department where orders are executed. This may be interpreted as either a trading system or a desk or department where orders are executed with the assistance of traders. **O** Other – A department that does not execute orders or make routing decisions.
destination	Industry Member ID / Exchange ID	The SRO assigned identifier of the Industry Member or Exchange to which an order was routed. When destinationType is N, this field is not required to be populated. When destinationType is F, populate with the IMID of an Industry Member. When destination Type is E, Allowed Values include: **BOX** BOX Options Exchange **CBOE** CBOE Exchange **C2** CBOE C2 Options **BYX** CBOE BYX Exchange **BZX** CBOE BZX Equities **BZXOP** CBOE BZX Options **EDGA** CBOE EDGA Exchange **EDGX** CBOE EDGX Equities **EDGXOP** CBOE EDGX Options **IEX** Investor's Exchange **MIAMI** Miami International Securities Exchange **PEARL** MIAX PEARL **EMLD** MIAX Emerald **BX** Nasdaq BX Equities **NOBO** Nasdaq BX Options **PSX** Nasdaq PHLX Equities **PHLX** Nasdaq PHLX Options **NSDQ** Nasdaq Stock **NOM** Nasdaq Options **ISE** Nasdaq ISE **GEMX** Nasdaq GEMX **MRX** Nasdaq MRX **AMER** NYSE American Equities **AMEROP** NYSE American Options **ARCA** NYSE ARCA Equities **ARCAOP** NYSE ARCA Options **NYSE** The New York Stock Exchange **CHX** NYSE CHX **NSX** NYSE National
destinationType	Choice	Indicates whether the destination of the route is an Industry Member, an exchange or a foreign broker-dealer.

Field Name	Data Type	Description
		Allowed Values: **F** Industry Members **E** Exchange **N** Foreign
displayPrice	Price	ATS only field. The current price displayed by the ATS. Required when the ATS displays the order outside of the ATS.
displayQty	Whole Quantity	ATS only field. The curent quantity displayed by the ATS. Required when the ATS displays the order outside of the ATS.
dupROIDCond	Boolean	Indicates when a modification to an order previously routed to a national securities exchange requires the use of the original routedOrderID. **Allowed Values:** **true** Event contains a duplicated *routedOrderID* **false** Event does not contain a duplicated *routedOrderID*
electronicDupFlag	Boolean	Indicates whether the event is a duplicative electronic message of a manual event. Must be present if true. If populated as true, the event will not be linked in Phase 2a/2b. **Allowed Values** **true** event is a duplicative electronic message **false** event is not a duplicative electronic message
electronicTimestamp	Timestamp	For manually executed events, the time at which the event was systematized. Must be reported at the most granular level an Industry Member's order handling or execution systems use to capture data for the reported event, with at least millisecond granularity.
errorROEID		The unique identifier assigned by CAT to an error record. Must be populated when the actionType is RPR.
eventTimestamp	Timestamp	The date and time the event occurred. If electronic, required to be reported at the most granular level an Industry Member's order handling or execution systems use to capture data for the reported event, with at least millisecond granularity. If manual, required to be reported in increments of at least one second. If the order is immediately systematized, required to be reported with at least millisecond granularity.
exchOriginCode	Text (4)	The code signifying the origin of the account exactly as sent to an Options exchange. Required for orders routed to an Options exchange.
executingFirm	Alphanumeric (8)	The OCC clearing number of the executing/give-up firm.
fillKeyDate	Timestamp	The date and time the *fulfillmentID* was assigned. Used to support uniqueness of a Fulfillment Key. If time is not needed to guarantee a unique Fulfillment Key, the time portion may be populated with zeroes.

Field Name	Data Type	Description
firmDesignatedID	Alphanumeric (40)	See FDID guidance and FDID FAQs
firmDetails	Fulfillment Side Details	Specifies the Order Key and additional information for a Firm Originated Order for which a fulfilment event is associated. Refer to Appendix C for representative order linkage requirements. It is in the format of Fulfillment Side Details, a compound data type that consists of a list of fields (see Section 2.4 Data Type). *firmDetails* is only used in Equity and Option Order Fulfillment and Fulfillment Amendment Events to capture the firm side details of the Fulfillment. See Section 4.13.1 for list of fields.
firmROEID	Alphanumeric (64)	An identifier of the record assigned by the CAT Reporter. The *firmROEID* is composed based on the following format: <eventDate>_<firm ROE Identifier> The *firmROEID* must be unique for the Event Date and CAT Reporter IMID.
fulfillmentID	Text (40)	The identifier for the order fulfillment. The combination of *CATReporterIMID*, *fillKeyDate*, *symbol* and *fulfillmentID* must be unique.
fulfillmentLinkType	Choice	Specifies the type of the fulfillment. Refer to Appendix C for additional information on Representative Order linkage requirements. **Allowed Values for Equity Events:** **Y** Representative Order, linkage required **YF** Representative Order, linkage required in future phase **YP** Fill from pre-existing Principal order, linkage required **YE** Representative eligible - Order eligible for customer fills via an unlinked system (unlinked OMS-EMS or position fill) **FOR** Fulfillment on an order routed to a foreign destination, no linkage required **Allowed Values for Option Events:** **O** Options Order Fulfillment
handlingInstructions	Choice Fields and Name/Value Pairs	Order handling instructions qualify the pricing, quantity, execution timing, or execution method of an order. All instructions that apply to the order must be included, excluding *handlingInstructions* on MEOR and MOOR events, which are not required until Phase 2c. The *handlingInstructions* field may contain zero or more order handling instruction codes, each separated by a single pipe symbol (ASCII decimal 124, hex 7C). Codes which require a value will include that value immediately after the code Field Name and a single equal sign (ASCII decimal 61, hex 3D). Allowed Values include both coice fields and Name/Value Pairs. Name value pairs must be accompanied by a Value.

Field Name	Data Type	Description
		Values are case sensitive. **Allowed Values (Choice Fields):** **ADD** Add on Order. The customer adds additional shares to the order after it was fully executed. **ALG** Order was received or originated with instructions to work using a trading algorithm **ALGMod** Order originally received with instructions to work using a trading algorithm is later modified by the customer/client to use a different trading algorithm or change the settings of the trading algorithm **ALO** Add Liquidity Only **AOB** At or Between. Instructs the trader to execute at a trade price equal to the NBBO or between the NBBO and the midpoint.
handlingInstructions (Cont.)	Choice Fields and Name/Value Pairs	**AOK** Auction or Kill **AON** All or None **ATT** Attributable **BIN** Buy-In **CMC** Contingent on Market Conditions **CMPX** Complex option order that is tracked as a single leg option order with separate complex instructions **CND** Conditional Order. An order where the terms and conditions of the order are derived from a related transaction. **CNH** Cash Not Held. Instructs the Trader to buy or sell as much stock as possible, over the course of the trading day, for a specified amount. **CPR** Counterparty Restriction. Instructions that the order cannot be placed against certain counterparties. **CSH** Delivery Instruction: Cash trade settles on the same date **d** Discretionary Peg **DIR** Directed Orders – Orders that meet the definition of “Directed Order” under Rule 600(b)(19) of Regulation NMS (formerly defined under SEC Rule 11Ac1–6). That definition specifies that the term directed order shall mean a customer order that the customer specifically instructed the broker or dealer to route to a particular venue for execution. **DIV** Dividend Reinvestment Order. Order is part of a dividend reinvestment program. **DNI** Do Not Increase **DNR** Do Not Reduce **DNRT** Do Not Route **EW** Exchange for Physical Transaction – Equity trade component of an “exchange for physical”

Field Name	Data Type	Description
		transaction. An exchange for physical transaction involves two parties simultaneously executing a futures contract and an equity transaction (for the securities covered by the futures contract), typically involving baskets that replicate common indices
handlingInstructions (Cont.)	Choice Fields and Name/Value Pairs	**FBA** NYSE Floor Broker Algorithm indicates that the order is routed to the Exchange via a NYSE Floor Broker Algorithm **FOK** Fill or Kill - Indicates the order is intended for immediate execution in its entirety, and if not executed in its entirety, the order is cancelled **FUT** Futures Related Trade **G** G Order – An order for an account covered by Exchange Act §11(a) that relies on §11(a)(1)(G) as an exemption to §11(a)(1) **IDX** Intra-Day Cross **IO** Imbalance Only **LOC** Limit on Close - Instructs the trader to execute the order at the closing price provided that the closing price is at or within the limit specified **LOO** Limit on Open - Instructs trader to execute the order at the opening price provided that the opening price is at or within the limit specified. **M** Midpoint Peg **MAC** Market at Close. Instructs the trader to execute the order at the closing inside quote price of regular market hours.
handlingInstructions (Cont.)	Choice Fields and Name/Value Pairs	**MAO** Market at Open. Instructs the trader to execute the order at the opening inside quote price of regular market hours. **MOB** Midpoint or Better. Instructs the trader to execute at a trade price equal to the mid-point or better. **MOC** Market on Close **MOO** Market on Open **MRP** Merger Related Transfer Position **MTL** Market to Limit. An order that is sent in as a market order to execute at the current best price. If the entire order does not immediately execute at the market price, the remainder of the order is re–submitted as a limit order with the limit price set to the price at which the original order executed. **ND** Delivery Instructions: Next Day - trade settles on next trade date **NH** Not Held **OPO** Opt Out of Locked Market **OPT** Options Related Trade **OVD** Over the Day. Requires that a trader break up an order into several partial executions. The

Field Name	Data Type	Description
		customer may specify the number of executions. **P** Market Peg **PEG** Indicates that the customer's limit price is to be determined by a specific market price and/or volume factor or that the limit price should be determined pursuant to a specific formula **PSO** Post Only **R** Primary Peg **RLO** Retail Liquidity Order (On Exchange) **RSV** Reserve Side Order. Required for an order for which a customer has authorized the public display of part of the full size of the order with the remainder held in reserve on an undisplayed basis to be displayed in whole or in part as the displayed part is executed. **SCL** Scale. Requires partial executions that are not more than a specified price increment apart. **SLD** Slide —Instruction to adjust limit price to prevent locked or crossed market **SLR** Delivery Instructions: Seller's Option - trade settles on the date determined by a seller. **SLQ** Stop Limit on Quote. An order that is triggered by a quotation at which point the stopped order becomes a limit order. **SMT** Smart Router indicates that the order is routed out via a Smart Router. **SOQ** Stop on Quote. An order that is triggered by a quotation at which point the stopped order becomes a market order. **STP** Self Trade Prevention **TS** Trailing Stop **WCO** While Connected
handlingInstructions (Cont.)	Choice Fields and Name/Value Pairs	**WDP** With Discretion Price **WRK** Work. Leaves the time of execution to the trader's discretion; either full execution or partial executions are accepted. **Allowed Values (Name Value Pairs):** **AucResp** Auction Response. Requires the Auction ID value for option orders originated in response to an exchange auction. **DISP** Display Price. The display price as instructed by the customer at the time the order is placed. Requires a numeric value representing the display price (e.g., DISP=10.00) **DISQ** Display Quantity. The display quantity as instructed by the customer at the time the order is placed. Requires a numeric value representing the display quantity (e.g., DISQ=1000) **STOP** Stop Price - requires a Numeric value representing the stop price (e.g., STOP=17.95) **SW** Stop Stock Transaction – Any transaction resulting from an order for which a member and

Field Name	Data Type	Description
		another party agree that the order will be executed at a Stop Stock Price or better. Requires a numeric value representing the agreed stop price. **TMO** The trigger time of the Time Managed Order (e.g. the specific date and time that an order becomes a market or limit price order) - requires a Timestamp value. **Allowed Values (Special Case of Handling Instructions on MEOR and MOOR Events):** Handling instructions are not required on Order Route events until Phase 2c. For orders routed without any changes to the handling instructions, reporters may use single code to indicate the handling instructions are equal to the received order. **RAR** Routed As Received
infoBarrierID	Alphanumeric (12)	The identifier of the information barrier in place for a trading unit that will meet the criteria of the "no-knowledge" exception in FINRA Rule 5320.02.
initiator	Choice	Indicates who initiated a cancel or modification request. **Allowed Values:** **C** Initiated by the Customer **F** Initiated by the firm
isoInd	Choice	Indicates the order was an Intermarket Sweep Order **Allowed Values:** **ISOD** Intermarket Sweep Order - Day **ISOI** Intermarket Sweep Order IOC **NA** Not applicable
leavesQty	Real Quantity	The quantity remaining unfilled after the event. The meaning of this field is dependent on the event in which it's used. Refer to each individual event definition for more detail.
manualFlag	Boolean	Indicates whether an order was received or handled manually. **Allowed Values:** **true** event was received/handled manually **false** event was NOT received/handled manually
manualOrderID	Text (40)	In cases when a duplicative electronic message is reported, the *manualOrderID* is the *orderID* of the related manual order.
manualOrderKeyDate	Timestamp	In cases when a duplicative electronic message is reported, the *manualKeyDate* is the *orderKeyDate* of the related manual order.
marketCenterID	Choice	The national securities exchange or transaction reporting system operated by registered securities association where the trade was reported.

Field Name	Data Type	Description
		Allowed Values: ***FINRA transaction reporting systems:*** **DN** FINRA/NYSE Trade Reporting Facility **D** ADF **L** FINRA/Nasdaq Trade Reporting Facility **DC** FINRA/Nasdaq Chicago Trade Reporting Facility **O** OTC Reporting Facility ***National Securities Exchanges:*** **A** NYSE MKT **B** Nasdaq BX **C** NYSE National **F** Non–US Exchange **I** International Securities Exchange **J** CBOE EDGA Exchange **K** CBOE EDGX Exchange **M** NYSE Chicago Stock Exchange **N** New York Stock Exchange **P** NYSE Arca **Q** The Nasdaq Stock Market **V** Investors Exchange **W** CBOE Stock Exchange **X** Nasdaq PSX **Y** CBOE BYX Exchange **Z** CBOE BZX Exchange
minQty	Whole Quantity	Indicates the minimum quantity allowed to be executed in a single transaction. Must be > 0.
mpStatusCode	Choice	Market Participant Status Code, indicates if the market maker's quote was open or closed. Only applicable for quotes sent to an IDQS. **Allowed Values:** **O** Open **C** Close
nbboSource	Choice	ATS only field. Source of the NBBO data used. **Allowed Values:** **D** Direct **S** SIP **H** Hybrid - NBBO Source of Hybrid is used in instances where the firm uses a combination of Direct and SIP feeds as its NBBO Source. **NA** Not Applicable NBBO Source of 'NA' is used when the NBBO Engine Look

Field Name	Data Type	Description
		up Date and Time is not applicable for the ATS Order Type or the ATS cancelled the order without referencing the NBBO. If this value is used, the related NBBO fields must be blank.
nbboTimestamp	Timestamp	ATS only field. The date and time at which the NBBO was referenced.
nbbPrice	Price	ATS only field. The national best bid price in effect at the event timestamp. If the event changed the NBBO, populate with the national best bid price before the change effected by the event.
nbbQty	Whole Quantity	ATS only field. The national best bid quantity in effect at the event timestamp. If the event changed the NBBO, populated with national best bid quantity before the change effected by the event.
nboPrice	Price	ATS only field. The national best offer price in effect at the event timestamp. If the event changed the NBBO, populate with the national best offer price before the change effected by the event.
nboQty	Whole Quantity	ATS only field. The national best offer quantity in effect at the event timestamp. If the event changed the NBBO, populated with he national best offer quantity before the change effected by the event.
negotiatedTradeFlag	Boolean	Identifies if an order is the result of a negotiated trade between two parties. **Allowed Values:** **true** indicates the trade is a result of a negotiation **false** indicates the trade is not the result of a negotiation
negotiatedTradeSide	Choice	Identifies the CAT Reporter's side of a Negotiated Trade. **Allowed Values:** **NBUY** The Reporter is on the Buy side of a negotiated trade. This must be consistent with side of the order. **NSELL** The Reporter is on the Sell side of a negotiated trade. This must be consistent with side of the order. **NA** Not Applicable
nextUnlinked	Choice	For Phase 2b, determines whether the given option event is unlinkedin the option order lifecycle, as the next event is out of scope for Phase 2b. **Allowed Values:** **M** The next immediate internal step is handled manually, no subsequent linkage **C** The next step of the order is to be represented by a complex order, no subsequent linkage **P** The next step of the order is a paired option order, no subsequent linkage

Field Name	Data Type	Description
onlyOneQuoteFlag	Boolean	Identifies instances when the quoting system allows only one quote to be active at a time for the particular market maker. **Allowed Values:** **true** system allows only one quote **false** system allows multiple quotes
openCloseIndicator	Choice	Indicates when exchange rules require an order to be marked as open or close upon entry into the exchange. Must be reported as a point-in-time value on each event (therefore, this may differ between New Option Order and Option Order Route for the same orderID). **Allowed Values:** **Open** **Close**
optionID	Text (22)	The 21-character OSI Symbol of the option. For FLEX Percent options, a percentage symbol (%) is prepended to the OSI symbol elements.
orderID	Text (40)	The internal order ID assigned to the order by the Industry Member. The combination of *CATReporterIMID*, *orderKeyDate*, *symbol* and *orderID* must be unique.
orderKeyDate	Timestamp	For Primary events and Secondary events that assign the Order Key, the date and time the *orderID* was assigned. For Secondary events that did not assign a new Order Key, the *orderKeyDate* of the related event from which the Secondary event originated. Used to support uniqueness of an Order Key. If time is not needed to guarantee a unique Order Key, the time portion may be populated with zeroes.
orderType	Choice	The type of order being submitted. **Allowed Values:** **CAB** Cabinet **LMT** Limit **MKT** Market
originatingIMID		An identifier used in instances of a merger or acquisition where the originating firm had open limit orders on its books that will be executed or otherwise resolved under the surviving firm. Must be provided when the CATReporterIMID of the original Order reported by the Industry Member needs to link to a secondary event with a different CATReporterIMID.
parentOrderID	Text (40)	The *orderID* of the event from which the Child Order Event originated.
parentOrderKeyDate	Timestamp	The *parentOrderKeyDate* is the *orderKeyDate* of the event from which the Child Order or Order Internal Route Accepted event originated.
price	Price	For Order events, the limit price of the order. For Trade

Field Name	Data Type	Description
		events, the price of the trade.
priorFulfillmentID	Text (40)	In cases when a new *fulfillmentID* is assigned, the *priorFulfilmentD* is the *fulfillmentID* that is being amended.
priorFillKeyDate	Timestamp	In cases when a new *fulfilmentID* is assigned, the *priorFillKeyDate* is the *fillKeyDate* of the fulfilment that is being amended.
priorOrderID	Text (40)	In cases when an event assigns a new *orderID*, the *priorOrderID* is the *orderID* that is being replaced.
priorOrderKeyDate	Timestamp	In cases when an event assigns a new *orderID*, the *priorOrderKeyDate* is the *orderKeyDate* of the order whose *orderID* is being replaced.
priorQuoteID	Text (40)	In cases when a new *quoteID* is assigned, the *priorQuoteID* is the *quoteID* that is being replaced.
priorQuoteKeyDate	Timestamp	In cases when an event assigns a new *quoteID*, the *priorQuoteKeyDate* is the *quoteKeyDate* of the order whose *quoteID* is being replaced.
priorUnlinked	Choice	For Phase 2b, indicates whether the reported option event is unlinked to the prior event in the option order lifecycle as the prior event is out of scope Phase 2b. **Allowed Values:** **M** The immediate prior order handling is manual, no linkage to the prior event. **C** This is a single leg order split from a complex parent order, no linkage to the parent.
quantity	Real Quantity	The quantity of the order.
quoteID	Text (40)	The internal quote ID assigned to the quote by the reporter. Required to report at the start of the lifecycle if initiated by a quote. The *quoteID* field is not required to be populated on New Order events, Order Modified, or Trade events until Phase 2c.
quoteKeyDate	Timestamp	The date and time the *quoteID* was assigned. Used to support uniqueness of a Quote Key. If time is not needed to guarantee a unique Quote Key, the time portion may be populated with zeroes. The *quoteKeyDate* field is not required to be populated on New Order events, Order Modified, or Trade events until Phase 2c.
quoteReceivedKeyDate	Timestamp	The date and time the quote was received by the ATS or Industry Member. Used to support uniqueness of a Quote Received Key. If time is not needed to guarantee a unique Quote Key, the time portion may be populated with zeroes.
quoteRejectedFlag	Boolean	Indicates if the quote was not accepted by the destination. **Allowed Values:** true false

Field Name	Data Type	Description
receivedQuoteID	Text (40)	Identifies the quote ID as received by the ATS or broker dealer, It must match the *routedQuoteID* in the New Quote event reported by the issuer of the quote.
receiverIMID	Industry Member ID	The IMID of the industry member receiving the order or quote. *receiverIMID* must match the *destination* field on the Order Route event reported by the routing Industry Member. If receiving from an exchange as the routing broker, then this must match the *routingParty* on the Order Route event reported by the exchange.
receivingDeskType	Choice	Indicates the type of desk or department within the firm that received the order. More granular than the field deptType. Only required when the destination of an internal route is a desk. **Allowed Values:** **A** Agency **AR** Arbitrage **B** Block Trading **C** Convertible Desk **CR** Central Risk Books **D** Derivatives **EC** Equity Capital Markets **IN** International **IS** Institutional **O** Other **PF** Preferred Trading **PR** Proprietary **PT** Program Trading **S** Sales **SW** Swaps **T** Trading Desk **TR** Treasury
reportingExceptionCode	Choice	Indicates the reason that a unique identifier (e.g., Branch Sequence Number, Compliance ID) was not supplied to a transaction reporting system. **Allowed Values:** **F** Reported on Form T pursuant to FINRA Trade Reporting Rules **P** Intra–firm order filled from firm's proprietary account
representativeInd	Choice	Indicates the type of representative order being reported and whether linkage is required. Refer to Appendix C for additional information on Representative Order linkage requirements. **Allowed Values for Equities:** **Y** Representative order, linkage required

Field Name	Data Type	Description
		YS Representative order, linkage required; details in supplement event **YF** Representative order, linkage required in future phase **YP** Representative order, pricing guarantee, no linkage required **YE** Representative eligible - Order eligible for customer fills via an unlinked system (unlinked OMS-EMS or position fill workflow) **N** Not a representative order, linkage is not applicable **Allowed Values for Options:** **O** Options Combined Order **N** Not a combined order, linkage is not applicable
routedOrderID	Text (40)	For orders routed, the ID assigned to the order by the routing firm when routing the order. For orders received, the ID assigned to the order by the routing firm.
routedQuoteID	Text (40)	For quotes sent, the *quoteID* as sent to the recipient of the quote. For quotes received, the *quoteID* as received from the routing firm.
routeRejectedFlag	Boolean	Indicates the routed order was not accepted by the destination (i.e rejected, no response). Required beginning with Phase 2c. **Allowed Values:** **true** rejected or no response **false** not rejected
sellDetails	Trade Side Details	Captures the Order Key and additional information for the Order associated with the sell side of a Trade Event. This field is in the format of Trade Side Details, a compound data type that consists of a list of fields (see Section 2.4 Data Type). The *sellDetails* field is only used in Trade events and Trade Supplement events to capture the sell side details of the trade. Refer to Section 4.12.1 for a list of fields. This field is applicable in Trade event if there is only one *orderID* associated with this side of the trade. If there is more than one *orderID*, the *sellDetails* must be populated in separate Trade Supplement events. This field is not applicable for the contra-side of a negotiated trade.
senderIMID	Industry Member ID	Provides the identity of the party routing the order or quote, known also by the destination. The *senderIMID* reported by the routing entity must match the *senderIMID* reported by the receiving party. When receiving an order, the *senderIMID* is the IMID from which the order was received. When receiving orders from an exchange, the *senderIMID* must be equal to the Exchange ID and must match the *exchange* field in the Route event reported by the exchange.

Field Name	Data Type	Description
		When routing an order, the *senderIMID* is the IMID being used by the Industry Member to route the order, as known by the destination. The *senderIMID* is either the IMID of the industry member, corresponding to *senderType* F, or the Exchange ID of the exchange, corresponding to routingOriginType E. **Allowed Values for Exchange ID** (When *senderType* = E) **BOX** BOX Options Exchange **CBOE** CBOE Exchange **C2** CBOE C2 Options **BYX** CBOE BYX Exchange **BZX** CBOE BZX Equities **BZXOP** CBOE BZX Options **EDGA** CBOE EDGA Exchange **EDGX** CBOE EDGX Equities **EDGXOP** CBOE EDGX Options **IEX** Investor's Exchange **MIAMI** Miami International Securities Exchange **PEARL** MIAX PEARL **EMLD** MIAX Emerald **BX** Nasdaq BX Equities **NOBO** Nasdaq BX Options **PSX** Nasdaq PHLX Equities **PHLX** Nasdaq PHLX Options **NSDQ** Nasdaq Stock **NOM** Nasdaq Options **ISE** Nasdaq ISE **GEMX** Nasdaq GEMX **MRX** Nasdaq MRX **AMER** NYSE American Equities **AMEROP** NYSE American Options **ARCA** NYSE ARCA Equities **ARCAOP** NYSE ARCA Options **NYSE** The New York Stock Exchange **CHX** NYSE CHX **NSX** NYSE National
senderType	Choice	Identifies from where a routed order originated. **Allowed Values:** **F** Industry Member **E** Exchange
seqNum	Alphanumeric (40)	ATS only field.The sequence number of the event, used to sequence events when multiple events have the same timestamp. The sequence number is required to be an increasing value for a CAT Reporter, Event Date, and symbol, such that it can be used to sequence events having the same event

Field Name	Data Type	Description
		timestamp in chronological order. Refer to Section 2.3.1 - Timestamps and Sequence Numbers.
session	Text (40)	The identifier representing the name or identifier of the session used when routing to an exchange. *Session* may be blank or populated with any string value that is shared between sender and receiver. Used to ensure a unique Route Linkage Key. Refer to CAT Alert 2018-004 for additional information.
shortSaleExptInd	Boolean	Indicates if the order was eligible to be marked Short Exempt according to SEC Rule 201. **Allowed Values:** **true** short exempt consistent with SEC Rule 201 **false** not exempt as per SEC Rule 201
side	Choice	Side of the event. **Allowed Values:** **B** Buy **SL** Sell Long **SS** Short Sale **SX** Short Sale Exempt
symbol	Symbol	The symbol of the stock in the symbology of the primary listing exchange, or FINRA OTC symbology for OTC Equity Securities.
tapeTradeID	Text (40)	The unique identifier reported by the Industry Member to the TRF/ADF/ORF based on the reporting specifications of the specific facility. Required when the *tapeTradeID* was supplied to a transaction reporting system: • Compliance ID in ORF and ADF • Branch Sequence Number in FINRA/NQ TRF • FINRA Control Number in FINRA/NYSE TRF
timeInForce	Name/Value Pair	Specifies the Time-In-Force for an order. **Allowed Values:** **DAY** A day order **IOC** Immediate or Cancel **GTC** Good till Cancelled **GTT** Good till Time. Requires the expiration time. DataType: Time **GTD** Good till Date Requires the expiration date. DataType: Date **GTM** Good this Month (valid until last business day of the month in which order originated) **GTX** Good till Crossing
tradeID	Text (40)	The internal trade ID assigned to the trade event by the Industry Member.The combination of *tradeKeyDate*, *CATReporterIMID*, *symbol*, and *tradeID* must be unique.

Field Name	Data Type	Description
tradeKeyDate	Timestamp	The date and time the *tradeID* was assigned. Used to support uniqueness of a Trade Key. If time is not needed to guarantee a unique Trade Key, the time portion may be populated with zeroes.
tradingSession	Choice	The trading session(s) during which an order is eligible to trade. **Allowed Values:** **FOR** To be executed only on a Foreign Market **PRE** Pre-Market Only **PREREG** Pre-Market and Regular **REG** Regular Only **REGPOST** Regular and Post-Market **POST** Post-Market Only **PREPOST** Pre-Market and Post-Market **ALL** All Sessions
type	Message Type	Specifies the event type. **Equity Events:** **MENO** New Order **MENOS** New Order Supplement **MEOR** Order Route Event MEMR Modify Order Route MECR Cancel Order Route **MEOA** Order Accepted **MEIR** Order Internal Route Accepted MEIM Order Internal Route Modified MEIC Order Internal Route Cancelled **MECO** Child Order **MECOM** Child Order Modified **MECOC** Child Order Cancelled **MEOM** Order Modified **MEOMS** Order Modified Supplement **MEOJ** Order Adjusted **MEOC** Order Cancelled **MENQ** New Quote **MEQR** Quote Received **MEQC** Quote Cancelled **MEOT** Trade **MEOTS** Trade Supplement **MEOF** Order Fulfillment **MEFA** Order Fulfillment Amendment MEPA Post Trade Allocation MEAA Amended Allocation **Option Events:**

Field Name	Data Type	Description
		MONO New Option Order MONOS Option Order Supplement **MONP** Paired Option Order **MOOR** Option Order Route MOMR Option Order Modified Route MOCR Option Order Cancel Route **MOOA** Option Order Accepted **MOIR** Option Order Internal Route Accepted MOIM Option Order Internal Route Modified MOIC Option Order Internal Route Cancelled **MOCO** Child Option Order **MOCOM** Child Option Order Modified **MOCOC** Child Option Order Cancelled **MOOM** Option Order Modified MOOMS Option Order Modified Supplement **MOOJ** Option Order Adjusted **MOOC** Option Order Cancelled **MOOF** Option Order Fulfillment **MOFA** Option Order Fulfillment Amendment MOPA Option Post Trade Allocation MOAA Option Post Trade Amended Allocation
unsolicitedInd	Choice	Indicates when the quote is unsolicited. **Allowed Values:** **U** Unsolicited Bid and Ask **A** Unsolicited Ask **B** Unsolicited Bid **N** Not Unsolicited
workingPrice	Price	ATS only field. The working price of the order. For example, in a PEG order, the adjusted price due to NBBO movement if the ATS repriced the order must be captured in *workingPrice*