FINANCIAL INFORMATION FORUM

Via Electronic Delivery

September 25, 2017

To: Mr. Edward Watson, Chief Operating Officer
    Mr. Shane Swanson, Chief Compliance Officer
    Thesys CAT, LLC
    3 Columbus Circle, 15th Floor
    New York, NY 10019

Re: *DRAFT CAT Reporting Technical Specifications for Industry Members DRAFT V0.1, dated September 1, 2017*

Dear Mr. Watson and Mr. Swanson,

The Financial Information Forum ("FIF")[1] Consolidated Audit Trail Working Group ("FIF CAT WG") appreciates the opportunity to provide comments to Thesys CAT, LLC on the DRAFT CAT Reporting Technical Specifications for Industry Members ("Initial Specification"),[2] distributed to the industry on September 7, 2017.

FIF has not had sufficient time to complete an end-to-end review of this specification. We anticipate that we will complete this review and submit comments by October 15. However, because it was announced that September 25 would be the final date by which comments could be accepted that could be incorporated into the Final Specification, FIF is submitting today those comments on the sections of the document that have been reviewed to date.[3]

FIF performed a review of the Initial Specification and identified several serious concerns; which have been detailed in Attachment 1. FIF has also started a section-by-section review of the Initial Specification, and completed our review of sections 1 to Section 4.1. These detailed concerns/questions are raised and expanded upon in Attachment 2. Attachment 3 contains a preliminary analysis of the data elements as included in the Data Dictionary identifying data elements not included in the Data Dictionary Section, but included in the body of the document as well as FIF identified questions/inconsistencies on the data elements/reports. Although this analysis in Attachment 3 has not yet been vetted with all the members, it is included in this first comment letter for consideration by Thesys to use in improving the Final Specification.

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[1] FIF (www.fif.com) was formed in 1996 to provide a centralized source of information on the implementation issues that impact the securities industry across the order lifecycle. Our participants include trading and back office service bureaus, broker-dealers, market data vendors and exchanges. Through topic-oriented working groups, FIF participants focus on critical issues and productive solutions to technology developments, regulatory initiatives, and other industry changes.

[2] DRAFT CAT Reporting Technical Specifications for Industry Members, DRAFT V0.1, dated September 1, 2017

[3] FIF previously raised objections to the Industry Member Specification Feedback Schedule (*See* Letter from William H Hebert, Managing Director, FIF to Michael Simon, *et al, RE Industry Member CAT Reporting Specification Issues*, September 21, 2017.

FIF recommends that the focus of the November 15 Specification, and Phase 1 of CAT, be narrowed to reduce the risk and allow for the development of a measured specification that will result in a reporting mechanism that would form a base for evolution of the Consolidated Audit Trail in a phased approach. FIF also recommends that the design goal of facilitating the migration from OATS to CAT be adopted for Phase 1 of CAT. These and other recommendations are detailed below.

Incomplete Specification
The Initial Specification, released to Industry Members on September 7th, is summarized by the Operating Committee in the document preface: "…this first discussion draft is incomplete and there are important sections that have not yet been drafted that will be material to how Industry Members will be required to report data to the Central Repository"[4]. FIF agrees with this statement. Not only is the document missing many sections[5] and Use Cases required to demonstrate new event reports and data elements, but those sections included in the document contain many errors and inconsistencies. It is impossible to assess the impact or adequacy of the proposed CAT interfaces in its current form. A complete and accurate functional description of the CAT reporting interface is needed before the industry can determine sufficiency and effectiveness of the reporting requirements.

Expansion of Regulatory Reporting Requirements
A more fundamental and pressing concern to FIF members than the current state of the specification is that, in many cases, this specification oversteps, in our opinion, the boundaries and intentions of SEC Rule 613[6] and the CAT NMS Plan.[7] Two examples are provided below and included in Attachment 1:
- The Initial CAT Reporting specification expands the definition of complex order to include: **"***any time a purchase or sale contingency exists between or among two or more instruments that are Eligible Securities***"** (Section 2.4). This explicitly brings into scope equity pairs trading and index arbitrage strategies which would significantly expand the cost and complexity of CAT reporting. This is a major change in market practice that should be effected via rule making, *not sua sponte* through specification drafting.
- The specification states: "CAT takes a quotation to mean any bid or offer communicated by a CAT reporter to any broker dealer, customer, or quote-driven ATS" (Section 4.7.1). This reporting requirement of the Quote messages for Equities do not reflect the current business processes or the regulatory reporting requirements today. The notion of reporting received quotes goes beyond, in general, the scope of SEC Rule 613 and NMS (601-612) where it explicitly specifies that protected quotes need not be recorded.

This Initial Specification also has introduced the concept of reporting all intermediate steps/events in the lifecycle of an order, much beyond what is the required reporting today with OATS, which covers reporting of orders, routes, and executions. (Allocation and identification of customer on orders and allocations, of course, is an expected expansion within SEC Rule 613). There is no precedence for this

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[4] DRAFT CAT Reporting Technical Specifications for Industry Members, DRAFT V0.1, dated September 1, 2017
[5] The sections that are missing from the Discussion Draft identified by the Plan Processor include: Updates to Data Dictionary, Two-sided Trade and Route events, *e.g.,* QCC, Crossing Orders with respective broker identification, Additional Auction messages, Open Outcry Trading, Cabinet Trades, Order Event Scenarios, Options and Complex Options Scenarios, Submission Process, Data Flow, Registration Process, Connectivity, Transport Options, Accessing Feedback Information, Security, Feedback, Corrections, Failure Codes, Testing, and CAT Service Desk.
[6] 17 CFR 242.613.
[7] Examples are cited in Attachment 1. (*E.g.,* relationship between 2, quote handling).

level of reporting, no current regulations to guide the implementation process (*i.e.* business requirements), nor any standardized business processes on which reporting could be built. Guidance was not provided in the document on how the industry would use these reports, the interactions between the reports or the much more complicated error correction processing that would be required with these new reports. Thesys has not yet provided rationale for enhanced reporting included in the Initial Specification which demonstrate how the extra reporting, with its inherent complexities and costs would assist in any way with the overall surveillance objectives. The requirements mandating Industry Members to report these intermediate events further complicate the Phase 1 CAT reporting interface both for the Plan Processor and the industry because the document attempts to impose new, ill-defined reporting requirements which can result in changes to current business processes and increases in costs over what was estimated in the CAT NMS Plan. This makes the enormous task of building CAT even more difficult, with no evident benefits for improving the overall surveillance capabilities. Portions of this expansion will result in changes to current business practices and increases in costs over what was estimated in the CAT NMS Plan.

Additional Complexity for OATS Retirement

The new CAT event reporting model introduced in the Initial Specification is a very different reporting model than exists today with the current OATS reporting infrastructure. One of the major concerns discussed in Attachment 1 is the increased difficulty and complexity introduced by this new reporting interface in migrating from OATS to CAT. The Plan Processor must demonstrate that the proposed CAT reporting interface contains all the information required for OATS and Large Trader (and portions of EBS) retirements in order to facilitate the retirement of duplicative reporting systems as required by SEC Rule 613 and the approved CAT NMS Plan. The final Industry Specification should also demonstrate how OATS reconciliation tools to validate CAT reporting can be built that can be used during the industry test period as well as the duplicative reporting period.

While FIF appreciates that OATS is not an ideal reporting model, it does have the advantage of being understood by the Industry. The introduction a different and more complex reporting model, at this stage in a very aggressive development schedule, further jeopardizes both the Industry's and the Plan Processor's ability to realistically meet the CAT NMS Plan milestones contemplated in the CAT NMS Plan. Phase 1 of CAT should allow a smooth and easy transition from OATS to CAT; any extension into more modern interfaces and rule expansion should wait for follow-on phases of CAT, once the Industry reports only through CAT.   The Initial Specification, in its current form, may complicate the migration to CAT from OATS and increase reconciliation costs for Industry Members (and regulators) during the industry test and duplicative reporting period.

Recommendation

Both the industry and the Plan Processor are faced with a monumental task of implementing a CAT System and commencement of reporting to that system by November 2018. Expansion of functionality, significant interface enhancements, or business process changes over the current state further complicates and heightens the likelihood that Industry Members (and the Plan Processor) will not be able to meet the already aggressive and risky implementation schedule. FIF would recommend simplification for Phase 1 leaving broadening of scope and changes in processes/interfaces for later phases.

FIF, which has consistently expressed its opposition to the CAT NMS Plan schedule[8] as being unrealistic and too risky, recommends staging of functionality as a mechanism to better contain the work required to deliver a complete and well-vetted Final Specification and ultimately a Phase 1 service. FIF recommends that Phase 1 focuses on equities reporting, moving options reporting to follow-on phases. This should also allow the Plan Processor to concentrate on completion of one asset class, which has a wealth of existing regulatory reporting rules on which to build the CAT reporting requirements before tackling a new asset class, options, for which there is no broker-dealer precedent on regulatory reporting.

FIF recommends that the Plan Processor provide a mapping, as evidenced in the specification, of OATS to CAT reporting and functionality, as well as EBS to CAT reporting. Not only would this demonstrate that Phase 1 contains the proper functionality needed for retirement of OATS, and retirement of selected functionality in EBS, it would also allow the industry to better understand how to transition its OATS interfaces to CAT reporting interfaces.

FIF also recommends that Phase 1 implement a more limited scope of Rule 613 and CAT NMS Plan reporting, that more closely aligns with the OATS scope of reporting as the base. Expansions in reporting requirements can occur in follow-on phases.

Document Revisions
FIF recommends the following regarding document formatting:
- Functionality and interfaces intended only for ATS Industry Members be specifically highlighted in the specification. It is very confusing in reading the document if the functions are intended only for ATSs or for all broker-dealers.
- The resolution of these issues/questions be reflected in the next draft of the specification.
- Change tracking be used in revisions of the specification to quickly highlight the changes for review.
- For each new reporting requirement included in the specification, provide the Rule 613 and/or CAT NMS Plan regulatory basis for that interface expansion. This would allow the industry to better understand the regulatory rationale and justification for the new interfaces and functions it will need to develop.

Summary
FIF has supported and remains firmly committed to the Consolidated Audit Trail. It provides the foundation for a more modern, comprehensive and consistent set of regulatory reporting requirements that should enable an improved regulatory and surveillance infrastructure as well as a well-structured and simplified reporting interface for the industry. FIF comments are provided in the spirit of identifying core issues and finding solutions that will deliver a high-quality and cost-efficient reporting interface on which to evolve this audit trail. We offer our assistance in working with Thesys to deliver a solid specification for industry review.

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[8] Letter from Mary Lou VonKaenel, Managing Director, FIF letter to Brent Fields, *Re: SEC Release No. 34-77724; File No. 4-698; Consolidated Audit Trail National Market System Plan* (July 18, 2016).

Sincerely,

William H. Hebert
Managing Director
Financial Information Forum

cc: Mr. Michael Beller, CEO, Thesys Technologies

          Mr. Robert Walley, Partner, Deloitte
          Ms. Ellen Greene, Managing Director, SIFMA
          Mr. James Toes, President and CEO, STA

          Mr. Michael Simon, Chair, CAT Operating Committee and on behalf of CAT Operating Committee
          CAT Operating Committee, *BATS Exchange, Inc., BATS Y-Exchange, Inc., BOX Options Exchange LLC, C2 Options Exchange, Incorporated, Chicago Board Options Exchange, Inc., Chicago Stock Exchange, Inc., EDGA Exchange, Inc., EDGX Exchange, Inc., Financial Industry Regulatory Authority, Inc., International Securities Exchange, LLC, Miami International Securities Exchange, LLC, NASDAQ OMX BX, Inc., The Investors Exchange, NASDAQ OMX PHLX, LLC, The NASDAQ Stock Market LLC, National Stock Exchange, Inc., New York Stock Exchange LLC, NYSE Arca, Inc., NYSE MKT LLC.*

          Ms. Manisha Kimmel, Chair, CAT Advisory Committee and on behalf of CAT Advisory Committee

Attachment 1. Serious Concerns with the Document

1. **Complex orders with CAT-eligible securities** – During the rule development process, the term "Complex Order" was understood to mean Complex Order as defined by Listed Option Exchange rules. The Initial CAT Reporting spec, however, expands this definition to include **"*any time a purchase or sale contingency exists between or among two or more instruments that are Eligible Securities*"** (Section 2.4). This explicitly brings into scope equity pairs trading and index arbitrage strategies which would significantly expand the cost and complexity of CAT reporting. This is a major change in market practice that should be done via rule making, not through specification drafting.

   By broadening the definition of complex orders into the equities space (see Section 6.1.1), many questions have been raised because the models, relationships and business processes do not support the same notions as with complex options orders. E.g.:
   - Because the New Complex Order Report includes ""cmplxDealNetPrice" {defined as "*For complex orders, the net price specified for the cmplxDealID, meaning all legs*, …"}, can Thesys clarify that in the absence of a net price, the order is NOT a complex order regardless of relationships between components. Each element (or "leg") is viewed and processed as a distinct separate order.
   - "cmplxDealID" – "*This is an identifier assigned by the reporter to designate the set of instruments (all legs included) that comprise the complex order*…"As indicated above, in the equities space, the notion of "deal id" does not exist – they are processed as distinct orders with no identifiers.

   Because this initial specification does not contain all of the CAT reporting requirements in handling of complex orders, it is very difficult to understand the implications or meaning of what is included in this specification. A complete analysis and the implications on industry member reporting cannot be completed until the FIF members can see a complete and consistent definition of complex order reporting requirements.

2. **Complex Orders with non-CAT-eligible securities – "***Complex orders may also include instruments that are not defined as Eligible Securities under SEC Rule 613, such as futures or corporate bonds. (Section 2.4)*" "*If non-NMS securities are part of an order when originated (i.e., futures, corporate bonds, etc.), Industry Members will indicate this by setting a flag, but there will be no symbol definition or any other details reported for that leg (Section 2.4).*"
   Again, the notion of identifying non-CAT eligible securities (including convertibles, swaps, futures), **beyond what is specified today in reporting regulations**, is expanding the scope of Rule 613 beyond what was intended. Can Thesys verify that no expansion in reporting requirements is being envisioned? Otherwise, can the specific reporting requirements as envisioned by Plan Processor be articulated so that FIF members can evaluate the impact?

3. **Quote Messages within Equities**
   The specification was not clear on the rules and requirements regarding Quote Messages. The specification says "CAT takes a quotation to mean any bid or offer communicated by a CAT reporter to any broker dealer, customer, or quote-driven ATS" (Section 4.7.1). This reporting requirement of the Quote messages for Equities do not reflect the current business processes or

the regulatory reporting requirements today. The whole notion of reporting received quotes goes beyond, in general, the scope of rule 613 and NMS (601-612) where they explicitly state we do not record all protected quotes. This is a major change in market practice that should be done via rule making, not specification.

Some questions:

- What does "communicated" mean? Does it include personal (non-electronic) communications channels, such as phone, email, etc.? E.g., if a trader provides a quote over the phone to a customer, does that constitute a CAT reportable event? If yes, is a two-step process required as with orders today – to report the receipt of a quotation through a "manual" communication channel and then the receipt of that manual quote into an electronic system?
- Does receipt of quotation from a market data feed qualify as a CAT reportable event as either a Quote report or a Quote Accepted report? If yes, what would be the purpose and value of that reportable event?
- Do quotes only have to be reported when a Trade is a result of the quote?
- Is Thesys expanding the Quote reports to require more than included in exchange rules today? If yes, can Thesys elaborate on what those requirements and changes are?

If these requirements are not in exchanges' rules today, what exactly are we being asked to do and report in the audit trail?

4. **New Events** – Section 4.1 – A number of new events (e.g., Execution Assignment, Execution Assignment Correction, Modify Route, Cancel Route, Order Accepted, Order Restatement, Trade Break, Trade Correction) were added in the Initial Specification over what was described in Rule 613 and the CAT NMS Plan. FIF previously had raised concerns on the Execution Assignment report[9]. FIF members had many reactions to these new reports that spanned from confusing to beyond the scope of Rule 613 and CAT NMS Plan to not needed. One thing, however, is clear - it does appear to complicate the OATS to CAT migration. It also appears to complicate the error correction process. Many members stated that they could not take a definitive position on these reports because they did not understand the purpose of each report, the relationship between these reports, how these reports were intended to be used, the relationship of these reports to Participant reporting, how error corrections need to be made with these reports and clear use cases which demonstrate their usage in a variety of scenarios.

Before FIF provides any detailed comments on these new events, FIF requested a dialog with the Plan Processor, so that Thesys could walk through each of these events and explain the rationale for this new reporting model and can demonstrate the value that these new reports provide from a regulatory perspective. Thesys met with FIF CAT WG today and presented an overview on their reporting model. Substantive comments will follow from FIF after the membership can discuss the implications of what Thesys presented today.

The inclusion of all of these new events as well as the expanded definition of existing events

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[9]Note from Bill Hebert, Managing Director, FIF to Preeti Tomar and Rebekka Rohrback, *re: FIF Follow Up Comments from August 15 CAT Industry Outreach*, August 23, 2017.

significantly increases the number of reports sent to CAT and increases the possibility of non-unique timestamps for events. FIF still objects to the use or need for sequence numbers by non-ATS Industry Members, but adding all of these events exacerbates the situation for CAT.

5. **Missing information that is on OATS interface** – From a preliminary scan of the Initial Specification, it appears as though there are current OATS data elements that are missing from the CAT reporting interface (see list below). It is not clear if some of these elements are not needed now by FINRA or can be mapped to other fields in the CAT interface.

Action Type Code, Received Method Code, Trading Session Code, Routing Method Code, Reporting Exception Code
Correction/Deletion Timestamp
Order Receiving Firm Order Received Date
Expiration Time (similar to above)
Originating Department ID, Information Barrier ID, ADF Quote ID, Exchange Participant ID, Connection ID, Trader Terminal ID, Market Center ID, Originating MPID
Program Trading Code, Arbitrage Code, Desk Type Code, Do Not Reduce/Do Not Increase Code
TMO Trigger Timestamp
Negotiated Trade Flag, Cancel Type Flag, Customer Instruction Flag
Firm ROE ID, Rejected ROE ID, ROE Memo, Rejected ROE Resubmit Flag
Participation Flag (TSP), Routable Flag (TSP), ATS Order type (TSP)
Processing Sequence Number - Receipt or Origination
Processing Sequence Number – Desk, Cancel, Route
Routed Quantity, Routed Order Type Indicator
ISO Indicator, Execution Type Indicator, ATS Display Indicator
Desk Shares Quantity
Replaced Order Received Date

FIF has consistently stated that duplicative reporting is one of the biggest costs and burdens associated with CAT. Therefore, designs, functionality and interfaces that facility OATS migration and, ultimately, OATS retirement is important to FIF. In that context, FIF has two comments:
- The CAT NMS Plan was approved by the SEC specifying that all data elements required by FINRA for the retirement of OATS was included in the CAT NMS Plan[10]. FIF is requesting that the Plan Processor verify with FINRA that the current interface as defined in this Initial Specification is sufficient to allow the retirement of OATS.
- FIF would prefer that CAT Phase 1's reporting interface better accommodates the migration from OATS to CAT. FIF understands that the OATS reporting is not the best data model for regulatory reporting and an improved, more modern interface without concern for the current environment is attractive. However, the industry has considerable investment in the

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[10] CAT NMS Plan (Release No. 34-79318; File No. 4-698), *Joint Industry Plan; Order Approving the National Market System Plan Governing the Consolidated Audit* Trail, Appendix C.9, November 15, 2016. "The Participants with duplicative systems have completed gap analyses for systems and rules identified for retirement in full or in part, and have confirmed that data that would need to be captured by the CAT to support retirement of these systems will be included in the CAT."

OATS interface, and, given the current SROs' Retirement Proposal, must endure duplicative reporting for some extended period of time. This means that Industry Members will need to reconcile OATS and CAT reports during this duplicative reporting period. The initial CAT Reporting Specification including their multiple new events, different data attributes and now considerable differences in mapping OATS fields to CAT fields has just made the required reconciliation effort very difficult. FIF requests that Thesys consider an approach that can accommodate an interface that more easily maps to the current OATS interface, at least until Industry Members are no longer required to report to OATS.

6. **Missing Blue Sheets data elements in CAT interface definition –** In a preliminary review of the Initial Specification, some data elements that are required for Blue Sheets reporting were missing from the CAT reporting interface, e.g., settlement date, net amount, prime broker and depository institution identifier. Other fields, related to customer and account definition (e.g., name and address, date account opened, state code) that are included in Blue Sheets, we assume will be contained in the Customer Identification Specification due in 2018.

   FIF has consistently stated that duplicative reporting is one of the biggest costs and burdens associated with CAT. What is the Plan Processor doing to verify that all required fields are included in CAT Phase 1 to enable the EBS required current (not historical) reporting through CAT of all CAT eligible asset classes[11]?

7. *End of Trading Day* – Section 9.7 - Extending the trading day to midnight causes serious problems for many of our members, causing significant changes to their business processes to accommodate. This change in trading day was not included in any industry cost estimate on CAT. Some examples of firms impacted include service bureaus (who have defined batch schedules which kick off well before midnight and which are interlocked with committed service deliverables to their customers throughout the night), and retail firms who accept customer orders 24/7 would need to redefine their business flow to handle reporting of these transactions to CAT by 8AM the following morning. Many firms were very concerned that skilled resources to handle error conditions prior to 8AM submission to CAT would not be available, nor was there sufficient time to correct errors if the window between end of day and report cut-off time was reduced to 8 hours. Having different end of trading day definitions between OATS and CAT further complicates the reconciliation process that will be required during the duplicative reporting period. FIF recommends that the end of trading day remains as defined today and not be reconsidered until reporting to OATS is no longer required for the industry.

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[11] CAT NMS Plan, (Release No. 34-79318; File No. 4-698), November 15, 2016, *Joint Industry Plan; Order Approving the National Market System Plan Governing the Consolidated Audit Trail,* Appendix c.9. (November 15, 2016). "The Participants will coordinate with the SEC regarding modification of the CAT NMS Plan to include information sufficient to eliminate or modify those Exchange Act rules or systems that the SEC deems appropriate. With respect to SEC Rule 17a-25, such coordination will include, among other things, consideration of EBS data elements and asset classes that would need to be included in the Plan, as well as the timing of when all Industry Members will be subject to the Plan."

8. **Sequence Numbers - Section 3.1 -** "*If the granularity of the reported timestamp is insufficient to sequence more than one CAT reportable event from the same reporter, on the same day, in the same symbol, then an event sequence number must also be attached to each event.*"

   FIF is assuming that sequence numbers are only being required, as today, for ATSs. It should be noted that all ATSs are not required by FINRA to provide sequence numbers, so FIF would request that the same flexibility provided by FINRA also be extended to those ATSs who do not generate sequence numbers today, and if regulators determine the data is needed, request the ATS to provide sequencing evidence.

   If sequence numbers are being required of all Industry Members, then there are serious problems with this. As FIF commented on the Participant Spec – "It may be very difficult and costly to produce sequence numbers which imply accurate ordering ACROSS systems. This contrasts with exchange Matching Engines." It is difficult and expensive enough to create sequence numbers within one system, given multi-session, multi-thread logic, but it can be technically infeasible to create a solution to generate sequence numbers across a firm's multi-system, geographically distributed infrastructure because there is no central processing point. Requiring sequence numbers to further differentiate timestamps appears to FIF as another method of requiring a more granular timestamp and more precise clock offset. If the SEC had intended that as the result, they would have required it in their approval of the CAT NMS Plan.

   Sequencing is important for matching engines but otherwise not needed. If sequence numbers are intended to be required for all Industry Members, FIF proposes that the Plan Processor table this extension in Phase 1 and analyze the data collected in the first year of production to determine if, in fact, there are some instances, in which sequence numbers are the only solution for distinguishing order of events and those events are important from a regulatory perspective. In those cases, the regulator, as FINRA does today, can request additional data from the Industry Member that would demonstrate sequencing, or if needed, it can propose selective addition of sequence numbers in those instances where needed for the audit trail.

9. **Trade Events**
   a. Trade events reference a Quote ID, but Quote ID is not communicated between brokers.
   b. For riskless principal trades, the "orderID(s) of the order(s) placed by the broker in anticipation of the execution". This is not reported today in OATS or ACT, and may be problematic given current business processes.
   c. For riskless principal today, OATS requires reporting of new orders and executions of trades involving facilitation accounts. However, the Initial Spec is requiring that two sided trades must be created and reported for these scenarios. We don't understand these CAT reporting requirements.
   d. Reporting of regular principal trades also will be a problem because CAT reporting requires referring back to OrderID. CAT reporting requires a firm side order, which doesn't get created today.

10. **Reporter ID –** Section 1.3.1 – "*Every industry member will be assigned a unique CAT Reporter ID. The reporter ID is used in events to identify both the reporter of the event and any industry member the reporter is interacting with in the event. For example, an industry member that*

routes an order to another industry member would use that entity's CAT Reporter ID to identify the destination firm."

There is no mention in the assignment of a unique CAT Reporter ID that the existing SRO-assigned market participant identifiers, e.g., MPID, will be used. As part of the Exemptive Relief Request[12], the SROs stated that they "believe that leveraging existing business practices and identifiers ("Existing Identifier Approach"), rather than requiring new identifiers be established, is a more efficient and cost-effective way to implement the CAT-Reporter-ID. In addition, the Existing Identifier Approach will still achieve the Commission's goal that each CAT Reporter be identified on relevant order information and, in fact, may provide more information to the CAT because current identifiers in many cases result in more granular details being reported." The SEC granted this exemptive relief. FIF understands that Thesys will include support of existing identifiers for Reporter ID in the Final Specification, but it is including this issue in this comment letter as a mechanism of tracking requested changes to the specification.

11. **Timestamps -** Section 3.1 **"***Timestamps are required to be reported in the finest granularity in use by the reporter's trading platform, ….*" We assume this is just incorrect wording and is not intended to require that all CAT timestamps (e.g., CAT Order reports, route reports, etc.) must be reported to the granularity used by a firm's trading platform

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[12] Letter from SROs to Mr. Brent Fields, *Re: Request for Exemptive Relief from Certain Provisions of SEC Rule 613 of Regulation NMS under the Securities Exchange Act of 1934*, January 30, 2015.

Attachment 2. Detailed Comments and Questions on the Document

Section 1.2 – Change Release Management Process –
FIF is requesting that the industry be notified and be provided a reasonable opportunity to review/comment on material changes to the Specification, especially given that the current schedule and content indicates that there will likely be significant change to the Final Specification published on November 15.

Section 1.3.1 – Reporter ID –
As mentioned in Concern #4, there was no mention of use of existing SRO-assigned market participant identifiers as Reporter IDs. We understand that Thesys will include this change in the Final Specification.

Section 1.5 – Fundamental Data Types
Can the "Timestamp" be specified in either EST or GMT? The specification says it is required to be in EST.

Section 1.6 – Data Validation –
- Will data validation include not just syntactic checks but also semantic checks? OATS performs semantic validations today. *E.g.,* will the Plan Processor validate Reporter ID specified on a CAT Report against the defined set of valid CAT Reporter IDs? FIF has the same question for Participant ID, Exchange ID, Member Alias and other like fields in the CAT interface.
- "Any data element that fails validation will cause the record to fail." FIF is requesting that more intelligence can be built into the validation process such that data elements that may be in error but are not consequential to the CAT action required on that report can just receive a "Warning" message and not require the report to be rejected. This type of data validation does occur in some regulatory reporting systems today. (*E.g.,* on routing of an order, fields that are critical to the CAT matching process, if incorrect, would cause the Route Report to be rejected. But other fields which are passed along on the Route but for which CAT does not do any processing could be just flagged with a Warning message). This would result in fewer mismatches across firms and allow a more complete audit trail earlier in the processing cycle without as many rejects for minor reasonable which are not consequential to the surveillance oversight at that point in time.
- FIF is not sure this comment belongs to this section, but we will provide it here so it doesn't get lost: There are no fields identified in each record that can be used in the error process, *e.g.,* record identifier or record number, status of record (*e.g.,* correction, deletion). Therefore, there is no indication in the record to tell which record rejected, for example. These types of data elements are included in OATS today and some "similar" method will be needed in CAT.

Section 2.1 – Firm Designated Account ID
- Firm Designated Account ID – is an incorrect name. Firm Designated IDs (FDI) are not always account numbers so they should not be referred to as Firm Designated Account ID
- "*Firm Designated IDs are used to identify the account from which order activity originates and/or each account that receives a post-trade allocation.*" Although later in this section, there are other references that FDIs do not have to be account numbers, we just wanted to highlight that this statement is misleading. The exemptive relief[13] provided to the SROs allowed the Firm Designated

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[13] SROs' Letter to Mr. Brent Fields, *Re: Request for Exemptive Relief from Certain Provisions of SEC Rule 613 of Regulation NMS under the Securities Exchange Act of 1934* (January 30, 2015).

Identifier (FDI) to be any identifier meaningful to the Reporter which could link back to the customer. The FDI does not have to be an account number.

Some examples where FDI will not be an account number are in Institutional Systems which often work with entities and relationships and not accounts. Another example would be a CMTA client may not have an account and the FDI would represent a parent level firm.

- *"Industry Members are permitted to use an account number or any other identifier defined by the firm, provided Industry Members ensure the Firm Designated Account ID values submitted to the Central Repository are unique per CAT Reporter ID per trade date, i.e., a single firm may not have multiple separate customers with the same identifier on any given date."* Again, from the exemptive relief provided to the SROs: "For the firm-designated identifier, broker-dealers would be permitted to use an account number or any other identifier defined by the firm, provided each identifier is unique across the firm for each business date (*i.e.,* a single firm may not have multiple **separate** customers with the same identifier on any given date)." We believe, the intention of this statement is on the word "separate." Within the same relief document, Example 4 in Appendix B clearly shows 2 "**related**" customers linked via the same Firm Designated IDs. "After the CAT Plan Processor receives new account information from Firm B that is linked with two customers, D-Fund and ABC, Inc., …" Another example would be two customers sharing a joint account. There would be two Customer profiles linked to one Firm Designated ID.

Section 2.2 – Equity Symbols

"For all reportable events, Industry members must report to CAT using the symbology of the primary listing exchange. For OTC symbols, FINRA OTC symbology is used." Some broker-dealers normalize their product symbols for their reference data as they work with multiple exchanges and each exchange's listing symbology. FIF is requesting that the Plan Processor provide a similar symbology mapping function to CAT Reporters as planned to be provided to the Participants. This will allow a CAT Reporter to use their normalized symbol in CAT Reports and provide a cross-reference table to the Plan Processor which maps the normalized symbol to the exchange listing symbol.

Section 2.3 – Option Symbols –

- Requiring double specification of both 21-character OSI option id as well as the same elements of that symbol (id, expiration date, put/call code, strike price) does not make sense. FIF does not understand why a Reporter must specify the same information twice, but in 2 different formats – that just leads to unintended errors. We request that only the OSI option identifier be provided and the CAT derives this option information from either the supplied OSI option id or from the other data it receives from its OCC feed.
- "primaryDeliverable" is an options characteristic that must be specified by the CAT Reporter, yet is there an industry-wide understanding and definition of this characteristic? Some members were not sure what data to provide. In fact, couldn't this data, if needed, be provided or derived from the OCC feed that is provided to CAT?
- "contractMultiplier" is data that will data will be derived from information provided by the OCC. Could this field be more specifically defined? Some FIF members found this symbol confusing.

Section 2.4 – Complex Orders

- See comments for Major Concerns 8 and 9.
- The specification calls for setting a flag at the leg level, if that leg represents a non-NMS security. This is different than OATS today where the complex order itself contains a flag indicating if one

or more legs in the complex order is a non-NMS security. Nor was there a requirement in OATS to count the number of legs which were non-NMS securities. Putting this information now at a leg level, and requiring that the total number of legs containing non-NMS securities be included in the count of total number of legs adds complexity to the current process flow. Information regarding the non-NMS securities is not always contained and processed in the same systems as handling the complex equity order itself.

Section 2.4.1 Example Complex Option Order Reporting Structure
- Please explain the difference between "cmplexDealRatio", the field in the container description,and "legRatio" on each leg. Are both fields required and how would they be used?
- "greekValues" – Why are these values needed, what are they used for? More explanation is needed, and use cases would help. FIF will provide more comments as we discuss options.
- "equitySymbol" – is listed twice in the Leg Block of the "Complex Order Approach – repeating Leg Blocks example".
- "legNumber" – What is the meaning, and use, of this field? Can it be any identifier that is meaningful to the broker-dealer? Is it referenced at all by CAT in any other report, or in its processing? If not, why is it needed?
- "cmplxDealID"- For equities, the notion of "deal id" does not always exist – they are processed as distinct orders with no identifiers.
- If a complex order must be broken up because of OMS or exchange limitations on number of legs supported, how should that be reported to CAT?

Section 3.2 – NBBO
- The specification discusses "ATS and other Industry Members", where in fact, ATS is an Industry Member/CAT Reporter. Please clarify in this (and other appropriate) sections that some Industry Members have an ATS business, for which there are rules that only apply to those ATS business processes. Rules that apply to ATSs do not apply to the other businesses of an Industry Member/CAT Reporter.
- For ATSs, the source of the NBBO may change outside of its transaction processing. Is there a mechanism that a change in source can be reported, as is available today with OATS?

Section 3.3 – Linkage
- Session ID should be optional because it may not be required to denote uniqueness on a connection. It is often used for exchange connections but not for broker-dealer connections. Can it be left blank without resulting in a record rejection?
- For some linkages, a destination specific id needs to be specified as part of the match criteria. For example, an Exchange Participant ID is required on routes to some exchanges depending on the destination which may use different nomenclature (e.g., DOT mnemonic which is used for exchange route matching on NYSE).

Section 3.4.2 – Order Handling Instructions
- In this section, and throughout the document, there are references to comma delimited fields. Should the document refer to pipe delimiters?

Section 3.4.3 – Routing Instructions and Route Exclusions
- Why is the Plan Processor requesting CAT Reporters to report on exclusion lists on orders? FIF members find this a confusing concept, especially in relation to how and when routing

destinations are determined in the order flow. Exactly when should a CAT Reporter report this information on an order? What are the reporting distinctions between standing instructions and specific individual instructions applied to one order?

- "routeExclusionList" – The requirement for reporting of route exclusion lists should be the responsibility of the firm that receives the routing instructions or applies the routing instructions, not on the firm that places the order. That party determines the exclusions, and acts on the exclusions, not the party that submitted the new order. FINRA had accepted this reporting structure as long as the broker-dealer submitting the order was not acting on any of the exclusion instructions. E.g., route exclusion lists can be associated with the client static data. The Smart Order Router, or Algo Engine or ATS, on receiving that route will perform the look of the client static data and apply any applicable exclusions. The OMS processing the new order does not have any knowledge of the exclusion processing. FIF requests that similar reporting requirements be adopted by CAT.
- Some firms, as part of their configuration of eligible markets, define which destinations an order can be routed to, as opposed to which markets/destinations are excluded? How does that relate to the routeExclusionList?
- How are Self-Helps handled regarding exclusions? Do broker dealers or ATS have to indicate exclusions initiated by Self-Help?
- What about Smart Order Route automated exclusions? Do broker dealers have any responsibility in reporting these exclusions?
- In general, order handling instructions and route handling instructions should follow similar rules as described with exclusion lists, i.e., the firm that receives and/or processes these instructions should the responsibility for reporting these instructions to CAT, especially if the firm passing on these instructions does not interpret or act on these instructions.
- Why are MIC codes being used to identify exchanges? Why isn't Reporter ID being used?

Section 4. Equity Events
- Thesys is presented an overview on the new Event Reports to FIF on Monday, September 25. FIF will comment on these new events once it has a better understanding following this session.

General Comments on Reports/Events:
- There is no distinction throughout the document between manual and electronic execution of orders, routes, receipts and quotes.
    - The CAT NMS Plan requires capture of manual orders as well as the electronic capture of that order in the order management system. Will that model apply to all manual processes that must be reported to CAT? Will the same timestamp requirements associated with manual order receipt (i.e., second level timestamps with second level clock offset) also apply to these other manual events, if CAT reporting is required?
    - What are the differences in validation rules; what are the differences in report requirements and data elements that must be specified for manual vs. electronic?
    - Are there any matching criteria differences between these two types of transactions? E.g., OATS has data element to indicate if route was received electronically or manually. Manually received routes are not attempted to be matched in OATS since data required to match may not have been communicated (i.e., routed order ID). If similar matching exclusions are included in CAT, a similar field may be required.

- **"price"** – how will CAT handle price in different currencies? OATS currently converts all monies into US $. Will CAT support prices in foreign currencies if the broker-dealer books transactions in native currency? If CAT requires conversion to US$, what are the conversion requirements?
- There is no discussion in the document on the handling and reporting requirements for dually listed securities with foreign exchanges and how to handle order flow from foreign affiliates outside of the United States.
- Will CAT support test symbols? FINRA currently provides a static symbol list which is subject to normal validation. FIF requests that test symbol support be included in CAT functionality, with flexibility that allow firms to specify for each test symbol if syntactic checking and/or match processing should/should not be performed. This type of test feedback, which should not be included in error statistics, would be very helpful in flushing out errors. This type of test support would be very valuable to firms in their initial and on-going test support; it would be a valuable tool to assist firms in meeting the low error rates demanded by CAT.
- There are a number of mismatches on event types, descriptions and event labels from the table specified in 4.0 and the individual section which describes that event message. E.g., "Quote Accepted" Report in table says it is reported by ATS only but section 4.7.2 says it is reported by ATS and broker-dealer (FIF has serious concerns If the Plan Processor intends to require non-ATSs to submit "Quote Accepted" reports – See Major Concern #10); section 4.13, it lists a 5-character message type for Execution Assignment Correction.
- There are a number of fields across the different reports that seem very similar but yet have different field names (e.g., Routing Destination, Routing Entity, Routing Firm, and Destination. Are these fields intended to be same, in which case, the same field label would be helpful? If intended to be different, then more description is required for each of these fields to understand what exactly is being requested for each report.
- None of the reports contain any fields that support error correction processing, e.g., record number, record in error, record corrected, record deleted, new record, etc.
- In OATS, if an order was going to different existing SRO assigned market participant identifiers (e.g., MPIDs), even if these MPIDs were in the same entity, FINRA required use of an External Route and Order Accepted protocol. This specification mentions that rule when a CAT Reporter is routing to an ATS owned by that CAT Reporter, but doesn't generalize to all MPIDs. Can this be clarified?

Section 4.1 New Order Report
- *Field level Issues/Questions*
  - "orderID" – What is the uniqueness criteria, given that orders are asked to be restated by the broker-dealer? We assume unique per day for a given CAT Reporter ID (same as OATS today)?
  - "clientOrderID" – defined as "*If the order is originated from customer, then this field is the unique identifier of the order as routed by the customer to the broker*". FIF requests that this definition be changed to more accurately say that the "clientOrderID" as "received from the customer", not "routed by" the customer, because there can be intermediate systems between the customer and the broker-dealer. Why is "clientOrderID" a CAT reportable data element?
    - Also, what is the uniqueness requirement for Client Order ID? Different clients of the same CAT Reporter ID can use the same Client Order ID.
  - "aggregatedOrders" – "*It specifies the original client order ids and quantities being bunched…."* Shouldn't this read: "It specifies the original order ids and quantities…."?

- o "receivingDeptType" – The list of valid types (SOR, Algo, Directed Order, Desk, Electronic) is confusing and each type requires more definition and guidance on how to use/apply. FIF requests that the Plan Processor consider the current receiving department types used by OATS (Agency, ATS, Market Access, Trading, Other). These types have proven to be adequate and well vetted and should be adequate for use by CAT. These types have evolved over a few years to capture the basic distinctions needed for regulatory reporting without attempting more granular classification which proved difficult and unnecessary.
- o "solicitationFlag" – Even though this field is optional, why is this information being included in CAT reports? It has not been required by the SEC for a long time.
- o The New Order Report is missing an Information Barrier ID – a required field in OATS for order protection surveillance. See also Major Concern #6 – Missing information required for OATS Retirement
- o "sessionID" – Why is this field required? There will be scenarios, e.g., with concentrators, when sessionID will not prove to be a valid matching criteria.
- o "parentComplexDealID" – It has already been noted that a complex deal ID is not always created in equities processing. In addition, why is this field needed, and where else is it used in CAT processing?
- o "firmDesignatedID" – "*The firm designated ID assigned by the broker-dealer to represent the account from which order activity originates and/or each account that receives a post-trade allocation. This Firm Designated Account ID can represent an account maintained by individuals or by legal entities (e.g., an Industry Member propriety account.)."* As indicated in the comments for Section 2.1, firm designated id does not have to represent an account. This definition in this and other sections and the Data Dictionary needs to be updated.
- o "quantity" – Can the Plan Processor please explain how to handle fractional shares?
- o "routeExclusionList" – is a series of MIC codes. Aside from our previous questions regarding exclusion lists on the New Order Event, why are MIC codes being used, instead of Reporter IDs or existing SRO assigned market participant ids?
- o "routedOrderID" is listed as conditional for equities and required for options. Can this be explained?
- o "displayQuantity" – why is this field required for a broker dealer? It makes sense for an ATS but not a non-ATS broker dealer.
- o New Order Event is missing an "originCode".
- o As a note, "cmplxDealID" is defined on the New Complex Order Report, but is not referenced on any other report.
- **Riskless Principal**
  - o *"All new orders with the capacity "Riskless Principal" that result in an execution must eventually be associated with a corresponding trade event for a client order with the broker on the contra side."* Most if not all firms utilize the "Alternative Approach" (See FINRA OATS Technical Specification) for trade reporting for Riskless Principal, which means that their street side orders are routed outbound as "Principal". Then the offsetting transaction is when the firm applies that trade to the customer order, which under FINRA Trade Reporting rules requires another "Non-Tape" transaction vs. the customer order that must be reported to the TRF as "Riskless". As such, firms would report only customer orders, or broker dealer customer orders as either "A" (Agent) or "P" (Principal). With the way Thesys has worded it above, it raises a concern that they may see a Riskless trade event report, and try to match it off with a customer order with the capacity of "Riskless". A firm would never receive an order with the capacity of

Riskless Principal. "Riskless" is the capacity on an execution, not on an order. For further discussion of this topic, please refer to FINRA OATS Technical Specification, Section 4.5.3, Firms Acting in a Riskless Principal Capacity.

- o The specs state that: "Trade reporting for riskless principal scenarios includes some extra information to link the execution of the client order to the broker's principal order." Currently that is not always possible. Certain broker-dealers may create a position and then manually fill a customer order marking the trade riskless. That riskless fill offsets the position created in order to fill the order and is done at the average price. However, there may not be an electronic link between the orders resulting in the creation of the position, and the riskless fill of the customer order. Must firms enhance their systems to link broker's principal orders to the client order, or disallow this workflow, or will there be an exception for this workflow?

- **Aggregated Orders**
  - o When reporting an aggregated new order, do all of the firm designated IDs of the individual orders have to be specified on the aggregated order, or is a "new" firm designated id definition required to reflect this new aggregated order?
  - o There are business processes where individual orders are aggregated, and then re-aggregated repeatedly until a final order is processed. (One example of this repetitive process is in the preparation for execution of orders as with program trading). Does CAT want to the see each of the aggregation steps or only the final aggregated order? An alternative may be the use of the Execution Assignment report, which would eliminate the need for reporting each aggregation step? Use Cases depicting this scenario would be helpful.
- **Processing Issues/Questions**
  - o If a broker-dealer receives a customer order and rejects the order due to a data issue, must the broker-dealer issue a New Order Report? If yes, how is the rejection reported to CAT?
  - o If the client or the firm changes the side of an order from Sell Long to Sell Short before routing the order away for execution, is that considered a Side Change and trigger reporting of cancellation of order with Sell Long and creation of new order with Sell Short for CAT?

Section 4.2 Route (Review of this section has just started)
- The document says that when routing to a Reporter ID's own ATS, a Route, not an Internal Route, Report should be used. However, shouldn't the general rule be that a Route should be used whenever routing to a different existing SRO-assigned market participant identifier, *e.g.,* MPID?

This preliminary analysis is provided for your information and use. All of the analysis has not been vetted but we thought it could prove useful to you as you improve this document for the November deliverable.

Fields missing in Data Dictionary

Association
attributable
clearingFirmNumber
closingOnly
cmplxDealID
cmplxDealNetPrice
cmtaClrgFirm
destinationType
executingBrkrCATID
executingBrkrClrgFirm
executionCodes
executionTimestamp
expirationDate
giveUpClrgFirm
heldNotHeld
mktMkrSubAccount
nmbrLegs
optionID
optionSymbol
orderPrice
primaryDeliverable
putCallCode
ratio
routingEntity
routingFirm
strikePrice
underlyingType

Questions on data elements/reports

Item	Comments
LeavesQty	required on trade events - could be difficult to derive, especially if there are open external routes when shares are executed internally
liquidityCode	field includes a number of unexpected values. Would have expected Added/Removed to be sufficient.
Options Internal Route	Page 58 indicates that Thesys is evaluating whether a regular route event can be used for internal routes of options.
Options Internal Route	Think this should be consistent between Options and Equities (either both use internal routes, or both leverage route events)
	Specs do not yet include any fields that could/would be required to facilitate correction of CAT data or identification or invalid or incorrect/rejected records.
Use Case - Adjusting price or shares for cash and stock dividends	Would order modify records be required?
Order ID	Concern around the 40 character limit for Order ID fields (e.g. orderID, originalOrderID, quoteID, etc.). Should be expanded to more than 40 characters
cmplxOrderNetPrice	Is this a "price" (e.g. net $3 credit) or a premium (e.g. $300 credit)?
greekValues	Why are these required?
orderAttributes	should this be a freeform field?
timestamp	spec indicates required reporting in most granular available (e.g. nanoseconds if your system has it). Thought this was not required under the rule.
routingInstructions	should this be a freeform field?
routeExclusion	should this be a freeform field?
quoteAccepted event type	event should not be in Industry Member spec as it should apply to ATS only.
New Quote event	Concern around the way manual (e.g. phone) quotes will need to be recorded/reported.
Negotiated Trades	How should these be represented in CAT? In OATS there is a flag.
NBBO fields	Why are these present on the Modify Route and Order Accepted events for industry members when they are for ATS only (i.e. participant specs)?
quantity	Typically indicated in specs as "order quantity". For various event types, this field should more clearly spell out that the quantity indicated relates to the Order Quantity (for New Order and Order Accepted events), the Routed quantity (for route, internal route, modify route events), etc.

quantity	should be included in Order Modified event type.
Modify event for aggregated order	Page 31 gives example of modification to client order that was aggregated with others and routed out. Indicates a modify order event required for client order, and modify route event for the aggregated route, but does not mention of a modified order event is needed for the aggregated new order event.
Cancel events	page 34 indicates cancel events required even for implicit order instructions (e.g. IOC). Should not be required here. Also, what about expired orders (e.g. Day). Do according to current specs, do these require cancel events at end of day?
Cancel and cancel route events	Page 34 mentions canceling order that was routed away requires route cancel event. Is this in lieu of a cancel event or in addition to it?
LeavesQty on execution events	This field could be difficult to judge due to other shares routed away. How should this be handled?
Modify event vs modify route event	Spec seems to indicate that a modified order should be reported using a Order Modified event type if that order has NOT been routed out, and a Modify Route event if it has been routed out (not both). Order Modify event should be used if the ORDER is being modified (by client or firm) and Route Modify event should be used if the ROUTE is being modified. It should not be an either/or use case. e.g. Client changes limit price to order. Broker would report an order modified event to update the limit price. If there was an outstanding route for that order, the route could also be modified accordingly, or could be cancelled (with the client order being executed or re-routed by the broker).
Cancel event vs. cancel route event	same as modify above
Option Order Restatement Event	Page 69 indicates "the Restatement must occur before other order and trade events are reported for that symbol." Should this be required before other order and trade events are reported for that ORDER (not symbol)? Not sure why it would be required before other unrelated events simply because same symbol us in the restated order.
Recording events	Page 107 mentions "Pursuant to SEC Rule 613, CAT NMS Plan requires reporters to record order events contemporaneously with the actual transactions themselves. Does this mean that CAT records need to be created throughout the day, or can they be created in an end of day batch process and submitted to the plan processor?
Trading day	Per previous comments to the Operating Committee and Plan Processor, there is concern about activity late in the evening being subject to reporting by 8am the following day. End of day cutoff should be consistent with OATS.
Rejection Repair	Page 108 mentions that "if corrections are not received by 8am on T+5, Participants' regulatory staff and the SEC will be notified. Should this be an SRO issue only?

Use Case - Adjusting price or shares for cash and stock dividends	What events (if any) are required following a cash or a stock dividend, especially if the price or quantity of an order is being updated accordingly?

Inconsistencies in field definitions/usage

algo	Is shown in spec for New Order (equity and option) and route event (options only). Should it be included in equity routes (conditional)?
algo	field is listed twice for Complex new orders (pg 83 and 84 of spec)
Assignment / Association of Executions	Equity reports use term Execution Assignment while option reports use term Execution Association. Should ideally be consistent (both use association?)
bunched	field shown in data dictionary, but not indicated in any reportable event at this time
buyDetails	Field only indicated in Equity trade and trade correction events. Should this be used in similar events for options?
cancelReason	shown as optional. Should this be required for cancel events (equity order canceled, equity quote canceled, option order canceled)?
capacity	No indication of this field being required for trade corrections (should be conditional if changed) or for new order and order accepted events for Options (and the respective modify events).
childOrderID	No indication of requirement for new order events (both equities and options). Would expect this to be required for a created aggregated order to link to each of the original child orders.
clearingFirmNumber	Indicated only on option post-trade allocation event. Would expect this to be required for equity allocations as well. Additionally would expect it for amended allocations
clearingNumber	not indicated for Option events
clientOrderID	not indicated for modify events - should be conditional (if changed/corrected). Should this also be used for Order Accepted events?
definedHandlingInstructions	Data type indicates Choice, but in MEIR report indicates Name/Value Pairs
definedHandlingInstructions	indicates Optional for Modify Route Requests - would expect conditional (if changed)
desiredLeavesQty	not indicated in equity Modify Route Event (but present in this event for Options)
destination	is this duplicative to routingDestination field? What is the difference?
destinationType	not indicated in route events, but indicated in modify and cancel route events (for both equity and options)
displayPrice	Currently indicated in order accepted, order modified and order restatement events, but not for New Order events. Should it be conditional in new order events?
displayQty	indicates required for various Equity events, but conditional for the corresponding option events. Additionally there is no indication for inclusion in options modify route request events.
executingBrkrCATID	not indicated in any equity events - would this apply?
executingBrkrClrgFirm	not indicated in any equity events - would this apply?
executionTimestamp	not indicated in any option events - would this apply?

firmDesignatedID	inconsistency of when this is required/conditional between equity and option events. Would have expected it to be required for New Order, Order Modified, Order Accepted, New Quote, Quote Modified, post trade allocation, amended allocation and perhaps execution assignment/association events.
giveUpClrgFirm	Indicated on Option new orders only. Should in also be included in option Order Accepted events and the corresponding equity events?
heldNotHeld	Not indicated in any equity events. Would expect that it be a required field.
leavesQty	Not indicated for Modify Route and Cancel Route events. Should this be included?
leavesQty	Shown as optional for Execution Assignment/Association events. Is this correct?
liquidityCode	Not indicated for Option Trade Event. Should this apply?
minQty	Not indicated for Option New Order and Option Modify Route Request
mktMkrSubAccount	Not indicated in any equity events - should it apply?
nbboSource	Included in industry member specs, despite applying to ATS reporters only. Additionally, indications not consistently applied (not clear why Conditional for some events and Optional for others)
nbboTimestamp	Included in industry member specs, despite applying to ATS reporters only. Additionally, indications not consistently applied (not clear why Conditional for some events and Optional for others)
nbbPrice	Included in industry member specs, despite applying to ATS reporters only.
nbbQty	Included in industry member specs, despite applying to ATS reporters only. Additionally, not clear why field is optional while other similar fields are conditional
nboPrice	Included in industry member specs, despite applying to ATS reporters only. Additionally, not clear why field is optional for Modify Route requests and conditional for other event types
nboQty	Included in industry member specs, despite applying to ATS reporters only. Additionally, not clear why field is optional while other similar fields are conditional
openCloseIndicator	Seems to be missing from Option Order Accepted events
optionID	Not indicated for a number of option event types - would have expected it be required for all event types
orderAttributes	Field listed twice in Equity Order Modified section
orderAttributes	Field not indicated in Options Modify Route - would have expected C
orderID	Shown as conditional for Equity Trade events. Expect Required.
orderPrice	Indicated in Options new Order and route events only. If field is not duplicative, would have expected it to be use for equities as well.
orderType	Not indicated for Options Modify Route Request. Would have expected C (if changed)
originalOrderDate	Indicated only for Order Restatement events. Would have also expected for Order Modified events (equities and options).
originalOrderID	Indicated for Options Order Restatement, but not for Equities Order

	Restatement.
originalQuoteID	Indicated as Required for New Quote and Conditional for Quote Accepted events. Would have expected them to be the same.
originCode	Only indicated for Option events. Would have expected the field to apply to Equity events as well.
parentCmplxDealID	Included for Option Route Event but not Equity Route. Would have expected consistency. Not sure why it would be required on Route events.
price	Shows as Required for equity Route, equity Order Accepted, equity Internal Route and equity Order Restatement option Order Accepted and option Order Restatement events, but would have expected Conditional (due to MKT orders).
price	Shows as Conditional for equity Trade, equity Assignment of Executions and option Assignment of Executions but would have expected Required (to show executed or allocated price).
price	Not indicated for Option New Order, Route, Modify Route events. Would have expected Conditional
quantity	shows as Optional for equity Trade Break. Would have expcted Required
quantity	Not indicated for Options Modify Route Request. Would have expected consistency with equity Modify Route Request (Required)
reason	Required in equity and option Amended Allocation Events, while being optional for Trade Break, Trade Correction, Execution Assignment Correction. Would have expected consistency.
receivingDeptType	Indicated Required for New Order while being Conditional for Order Accepted events. Would have expected consistency.
result	Not indciated for Option Order Route (expected R)
result	Indicated as R for New Quote, but based on description, did not expect this field for quote events.
resultTimestamp	Not indciated for Option Order Route (expected R)
resultTimestamp	Indicated as R for New Quote, but based on description, did not expect this field for quote events.
routedOrderID	Indicates Conditional for Assignment/Association of Executions and Execution Assignment/Association Correction. Would not expect this filed to be needed.
routedOriginalOrderID	indicates Required for equity Modify Route Request - expected Conditional (if changed)
routedOriginalOrderID	Not indicated for Option Modify Route Request - expected Conditional (if changed)
routeExclusionList	Not indicated for Options Modify Route Request - expected Conditional (if changed)
routingDestination	Is this duplicative to Destination?
routingDestination	Not clear why this is Conditional for Assignment/Association of Executions and Execution Assignment/Association Correction events.
routingEntity	Not clear if this is duplicative to Routed From. Only used for Order Modified events (equity and option)
routingFirm	Not clear if this is duplicative to Routed From. Only used for Quote

	Accepted event.
routingInstructions	Not indicated for Option Modify Route Request - expected Conditional (if changed)
sellDetails	Shows Optional for equity Trade Correction events - expected Conditional (if changed)
sequenceNumber	Not indicated on option events (except option Order Modified). Expected similar values as with equity events
timeInForce	Indicates R for equities Modify Route Request and not indicated for options Modify Route Request. Expected C (if changed)
traderID	Should this field be renamed to prevent confusion with tradeID field?
type	Assignment of Execution indicated as MEEA on page 21 and MEAE on mage 43
type	Trade Correction indicated as METC on page 21 And MEOT on page 45 (MEOT is the Trade event type)
type	Post Trade Allocation indicated as META on page 20 and MEPA on page 47.
type	Option Order Modified indicated as MOOM on page 50 and MEOM on page 66 (MEOM is the equity order modified event type)
type	Option Post Trade Allocation indicaed as MOTA on page 51 and MOPA on page 77
workingPrice	Not indicated in equity and option New Order event and Order Accepted for options but expected as Conditional