

Agenda

- Production and Industry Test Release Updates
- Test and Production Statistics
- Interfirm Linkage Updates
- Exchange Linkage Updates
- TRF Linkage Updates
- Upcoming Key Dates
- Q&A

Production and Industry Test Release Updates

Industry Member 2a/2b – Release 3 & 4 (Interfirm, Exchange & TRF) Release Rollout

Interfirm Release 3.1 Industry Test – 7/27/2020 Production – 8/10/2020	Interfirm Release 3.2 Industry Test – 8/10/2020 Production – 8/10/2020	Exchange/TRF Release 4.1 Industry Test – 9/9/2020 Production – 9/28/2020	Interfirm Release 3.3 Exchange/TRF Release 4.2 Industry Test – 9/21/2020 Production – 9/28/2020
<ul style="list-style-type: none"> Machine-to-Machine Interfirm Validations & Feedback including Named Errors <p>CAT Reporter Portal</p> <ul style="list-style-type: none"> Download Interfirm Feedback including Named Errors Set preference for Named Feedback (JSON vs CSV) 	<p>CAT Reporter Portal</p> <ul style="list-style-type: none"> Reporting Summary (Interfirm Link Eligible, Errors, Warnings and Adjusted Error Rate) Counterparty statistics downloadable for Interfirm Unlinked and Unlinked Named Errors Error Code Count screen to include Interfirm Errors and Warning including Named Errors Error Search screen ability to view and correct Interfirm Linkage Errors (No Named Errors) 	<ul style="list-style-type: none"> Machine-to-Machine Exchange/TRF Validations & Feedback including Named Errors. <p>CAT Reporter Portal</p> <ul style="list-style-type: none"> Download Exchange/TRF Feedback including Named Errors. 	<p>CAT Reporter Portal</p> <ul style="list-style-type: none"> Reporting Summary (Exchange/TRF Link Eligible, Errors and Adjusted Error Rate). Error Code Count screen to include Exchange/TRF Errors including Named Errors. New Screen including Export for Interfirm, Exchange & TRF statistics by counterparty. Error Search screen <ul style="list-style-type: none"> View and correct Exchange & TRF Linkage Errors. View Interfirm Named Errors (not repairable via the Portal).

Phase 2a Interfirm/Exchange/TRF Compliance Date – 10/26/2020
 Phase 2b Interfirm/Exchange Compliance Date – 1/4/2021

Production Statistics

Production Statistics

October 5 – October 9, 2020

Product Type	Firm Count	Total Weekly Aggregate Accepted Count	Late %	Initial Rejection %	Initial Intrafirm Unlinked %	Initial Error %	Adjusted Error %	Interfirm Sent Unlink %	Interfirm Received Unlink%	Exchange Unlink %	TRF Unlink %
Equities	1,159	62,741,273,102	.4791%	.0153%	.0313%	.5145%	.4913%	8.5439%	10.3529%	27.4590%	33.5171%
Options	669	5,725,915,962	.8151%	.0043%	.0279%	.8354%	.8340%	1.0953%	6.0561%	48.9483%	N/A
Unknown	106	158,852	N/A	.6585%	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

1. File Rejection Rate is 0.16%.
2. Average daily Accepted volume is about 12.5 B for Equities and 1.1B for Options.
3. Initial & Adjusted Error Rates include Late + Rejections + Intrafirm Errors.

Indicative Equities 10/26/20 Compliance Rate– Inclusive of All Errors

Trade Date	Overall Indicative 10/26/20 Compliance Error Rate %
10/5/2020	7.9457%
10/6/2020	7.5969%
10/7/2020	7.2187%
10/8/2020	7.5763%
10/9/2020	6.8482%

Interfirm Linkage Updates

Interfirm, Exchange & TRF Linkage Results

October 5 – October 9, 2020

Process Date	EQUITIES				OPTIONS			
	Interfirm Sent Unlinked %	Interfirm Received Unlinked %	Exchange Unlinked %	TRF Unlinked %	Interfirm Sent Unlinked %	Interfirm Received Unlinked %	Exchange Unlinked %	TRF Unlinked %
10/5/2020	9.2663%	10.2289%	30.0487%	38.6084%	1.0519%	2.0306%	73.8564%	N/A
10/6/2020	8.5635%	10.4609%	27.7285%	36.8478%	.9291%	2.3765%	44.1498%	N/A
10/7/2020	8.2094%	10.2454%	27.2604%	34.8879%	1.6346%	1.7591%	42.5043%	N/A
10/8/2020	9.0937%	11.2353%	27.2060%	35.6697%	.7047%	1.3777%	37.8894%	N/A
10/9/2020	7.6268%	9.5365%	24.9853%	20.9323%	1.1665%	20.6702%	51.1106%	N/A

Interfirm Results

October 5 – October 9, 2020

➤ Breakdown of Overall Error Rate

REASONS:	Percentage of Overall Error Rate	
	Sender (Routes)	Receiver (Accept/Modify)
Routed Order ID mismatch (8003/9003)	74.38%	79.60%
SenderIMID mismatch (8005/9005)	11.16%	9.11%
ReceiverIMID mismatch (8007/9007)	12.48%	10.01%
Symbol mismatch (8009/9009)	0.03%	0.00%
Multiple mismatches (8011/9011)	0.45%	0.23%
Route key duplicate (8013/9013)	1.50%	1.05%

Exchange Linkage Results

October 5 – October 9, 2020

➤ Breakdown of Overall Error Rate

REASONS:	Percentage of Overall Error Rate
Routed Order ID mismatch (6003)	8.33%
Sender IMID mismatch (6005)	11.26%
Symbol mismatch (6007)	0.00%
Session mismatch (6009)	71.14%
Multiple mismatches (6011)	7.01%
Route key duplicate on route to exchange (6013)	2.25%
Route key duplicate on order accept/modify from exchange (6015)	0.00%

TRF Linkage Results

October 5 – October 9, 2020

➤ Breakdown of Overall Error Rate

REASONS:	Percentage of Overall Error Rate
Tape Trade ID mismatch (4003)	60.46%
Market Center ID mismatch (4005)	3.70%
Symbol mismatch (4007)	0.00%
Multiple mismatches (4009)	34.19%
Duplicate TRF key mismatches (4011)	1.66%

Exchange Linkage Updates

Early Observations with Differences in Exchange Linkages Key

The following scenarios are generating unlinked events and have been observed across many firms:

1. Firm populating incorrect Exchange ID in destination field.
2. Industry Member and Exchange populating different IMIDs .
3. Session IDs incorrectly populated.
4. Firms improperly marking an Exchange Route as an Interfirm Route or reporting routing to an exchange when the order was routed to another Industry Member (such as a floor broker).

Corrections:

- Last week's deck erroneously stated that FINRA CAT does not remove spaces from the end of the *routedOrderID*.
- NYSE Options exchange prefix session issue was not implemented last week. It is targeted for resolution by October 13, 2020.

Exchange Linkage Feedback

In the event that the Plan Processor does not receive any specific exchange's data by 8 am ET and there are impacts to exchange linkage results:

- An announcement will be posted to the CAT Reporter Portal
- FINRA CAT will send an email to those subscribed to the CAT System Status Notifications Email Subscription Service
- Any resulting unlinked errors will be automatically resolved the following day

TRF Linkage Updates

Early Observations with Differences in TRF Linkage Key

The following scenarios are generating unlinked events and have been observed across firms. The Industry Member is:

1. Populating a different CATReporterIMID on the MEOT than in the TRF/ADF/ORF report.
2. Populating an incorrect Reporting or Contra Branch Sequence Number or Compliance ID.
 - Have seen instances where in cross scenarios, firms are putting a “B” or “S” in front of the Branch/Seq, etc. in the TRF report (to facilitate OATS) but are reporting the Tape Trade ID on the MEOT without the “B” or “S” prefix.
 - Have seen instances where the Reporting Industry Member populates the Contra Branch Sequence Number or Compliance ID when it is not on that side of the trade report (e.g., the CATReporterIMID is on the Reporting side while the *tapeTradeID* is on the Contra side).
3. Populating an incorrect Market Center ID.
 - Have seen instances where firms populate the exchange code instead of the TRF code.
4. Reporting a duplicated TRF Linkage Key.
5. Populating the *tapeTradeID* in the *tradeID* field.

FINRA CAT File Submission and Data Integrity

Open Issues List – As of 10/13/2020

#	Status	Error Code	Summary	Resolution	Priority	Test Environment Targeted Release Date/Workaround	Production Environment Targeted Release Date/Workaround	Area
1	Open	N/A	FINRA CAT is incorrectly marking New Order Supplements as late that were submitted on a subsequent date to update an FDID of 'PENDING'. DeMinimis impact to Daily Compliance Rate and Report Cards.	Code Release	Medium	4Q 2020	4Q 2020	Statistics
2	Open	N/A	Successful file delete submissions are incorrectly getting counted in the rejected files count in the statistics. Does not impact Compliance Error Rate.	Code Release	Low	To be scheduled	To be scheduled	Statistics
3	Open	N/A	FINRA CAT is incorrectly accepting timeInForce of GTD without a valid date.	Code Release	Medium	4Q 2020	4Q 2020	Ingestion Feedback & Statistics
4	Open	2060	Intraday additions of FLEX options received by FINRA CAT after 6 pm are added to the FINRA CAT Options list effective the next day resulting in rejections for events reported for the prior day.	Code Release	Low	10/31/2020	10/31/2020	Reference Data Issue
5	Open	N/A	Reporting Summary Screen Export functionality and a display issue such that the IMIDs and corresponding counts are not aligned in the CSV export. This impact all statistics displayed on this screen.	Code Release	Medium	10/26/2020	10/26/2020	Reporter Portal

FINRA CAT Intrafirm

Open Issues List – As of 10/13/2020

#	Status	Error Code	Summary	Resolution	Priority	Test Environment Targeted Release Date/Workaround	Production Environment Targeted Release Date/Workaround	Area
1	Open	N/A	Parent not found errors that are reconciled continue to be displayed as 'U' (Unrepaired) in Error Summary & Error Search screens. Feedback & Reporting Summary statistics are not impacted by this issue.	Code Release	High	Solution and/or Workaround to be provided no later than October 26, 2020	Solution and/or Workaround to be provided no later than October 26, 2020	Reporter Portal
2	Open	3601	Out of Sequence Errors that are caused by an incorrect Time Stamp on the parent event are not being properly reconciled when the parent Time Stamp is corrected. Repaired counts and Adjusted Unlinked Rate are impacted by this issue.	Code Release	High	4Q 2020	4Q 2020	Statistics
3	Open	Multiple	Parent not found errors are being generated for open option orders when the option symbol changes due to corporate action.	Code Release	Medium	4Q 2020	4Q 2020	Linker Feedback & Statistics

FINRA CAT Interfirm

Open Issues List – As of 10/13/2020

#	Status	Error Code	Summary	Resolution	Priority	Test Environment Targeted Release Date/Workaround	Production Environment Targeted Release Date/Workaround	Area
1	Open	N/A	FINRA CAT is incorrectly providing Route/Accept unlinked feedback to small firms not required to report until 2d.	Code Release	Medium	11/10/2020	11/10/2020	Linker Feedback
2	Open	9003 9004	FINRA CAT is generating Unlinked Error Codes for unlinked order modification events. These will be excluded from linkage feedback when a matching routed order ID is not found.	Code Release	Medium	10/26/2020	10/26/2020	Linker Feedback Reporter Portal

FINRA CAT Exchange/TRF

Open Issues List – As of 10/13/2020

#	Status	Error Code	Summary	Resolution	Priority	Test Environment Targeted Release Date/Workaround	Production Environment Targeted Release Date/Workaround	Area
1	Open	6003 7004	FINRA CAT is generating unlinked errors for equity routes to options exchanges related to the equity leg of complex orders. These routes will be excluded from unlinked feedback.	Code Release	Medium	10/26/2020	10/26/2020	Linker Feedback
2	NEW – Open	7004 5004	FINRA CAT is generating unlinked named errors for exchange and TRF linkages in cases when the IM event occurred between 4:15pm and midnight and is not reported to CAT by 8am on the following business day.	Code Release	Medium	11/10/2020	11/10/2020	Linker Feedback
3	Open	6017 7018	FINRA CAT is adding additional error codes to support Exchange Linkage: <ul style="list-style-type: none"> • 6017 destination did not match • 7018 Named – destination did not match 	Code Release	Medium	11/10/2020	11/10/2020	Linker Feedback
4	Open	4013 5014	FINRA CAT is adding additional error codes to support TRF Linkage: <ul style="list-style-type: none"> • 4013 CATReporterIMID did not match • 5014 Named – CATReporterIMID did not match 	Code Release	Medium	11/10/2020	11/10/2020	Linker Feedback
5	Open	6003 7004	FINRA CAT is generating RtdOrderID mismatch error code in cases where the destination did not match.	Code Release	Medium	10/26/2020 Retired since #3 is scheduled	10/26/2020 Retired since #3 is scheduled	Linker Feedback
6	NEW – Open	7008	FINRA CAT is returning blank values for equity symbol and option ID in unlinked named errors (Exchange linkages only).	Code Release	Medium	10/26/2020	10/26/2020	Linker Feedback Reporter Portal Error Search
7	NEW – Open	7004	FINRA CAT is generating unlinked named errors for GTC order restatements on NASDAQ (Exchange linkages only).	Code Release	High	11/10/2020	11/10/2020	Linker Feedback

FINRA CAT Open Issues List – Planned Enhancements

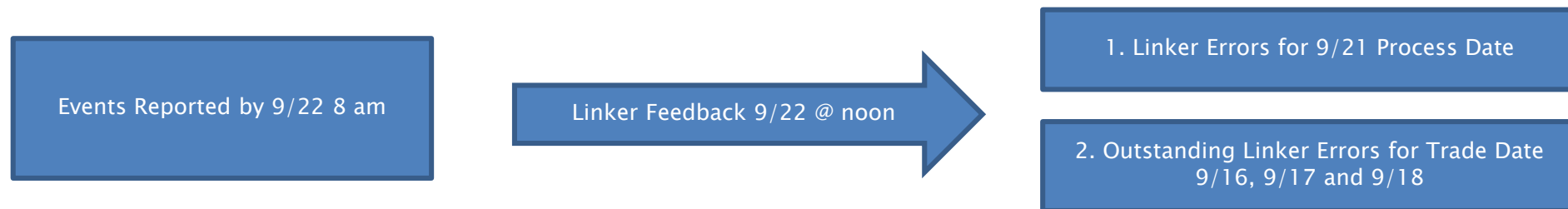
#	Status	Error Code	Summary	Resolution	Priority	Test Environment Targeted Release Date	Production Environment Targeted Release Date	Area
1	Open	2133	For Name/Value Pair Data type fields, providing a value that is not in allowable values list returns error code 2133 (Additional Field) instead of error code 2101 (Missing or Invalid timeInForce).	Code Release	Low	To be scheduled	To be scheduled	Ingestion Validations
2	Open	2122	Incorrect error code is generated when an array field (e.g., clientDetails) is provided as a Name/Value pair.	Code Release	Low	To be scheduled	To be scheduled	Ingestion Validations
3	Open	2027	Incorrect error code is being generated when eventTimestamp is a future date (2027 – eventTimestamp must be in the correct format instead of 2139 – eventTimestamp is greater than the current date and time).	Code Release	Low	To be scheduled	To be scheduled	Ingestion Validations

Recently Closed Issues – As of 10/13/2020

#	Status	Error Code	Summary	Resolution	Priority	Test Environment Targeted Release Date/Workaround	Production Environment Targeted Release Date/Workaround	Area
1	Closed	Multiple	FINRA CAT is resending TRF Linkage errors on subsequent processing dates.	Code Release	High	10/09/2020	10/09/2020	Linker Feedback Reporter Portal TRF Statistics
2	Closed	7008	FINRA CAT is generating Named Unlinked Exchange errors where the new equity exchanges LTSE, MEMX and PEARLEQ are submitting Test symbols.	Code Release	High	10/09/2020	10/09/2020	Linker Feedback

Outstanding Linker Errors Update

- Beginning October 26, 2020 a daily outstanding errors file will be delivered in machine readable format available via SFTP and Reporter Portal Download
- The outstanding errors feedback will include all repairable linker errors (NOT WARNINGS) including named errors that are unrepaired as of a processing date for three prior trade dates.



Outstanding Linker Errors – Technical Details (1 / 2)

➤ Meta Feedback File

- **File Name:** <CAT Submitter ID>_<CAT Reporter IMID>_<CAT File Generation Date>_<File Kind>.linkage_outstanding[_<Feedback File Number>].<Format Extension>
example: SUBID_MYID_20170101_OrderEvents.linkage_outstanding_000001.json
- **CAT File Generation Date:** populated with the processing date for which the results represent
- **Populated in the Meta Feedback File**
 - **stageCompleteTimestamp** set equal to date and time when the reconciliation process completed
 - **status** set to 'Failure'
 - **errorCount** set equal to number of outstanding error records for the CAT Reporter IMID on the CAT Processing Date that remain unrepaired for the prior three trade dates

Outstanding Linker Errors – Technical Details (2 / 2)

➤ Data Feedback File

- **File Name:** <CAT Submitter ID>_<CAT Reporter IMID>_<CAT File Generation Date>_<File Kind>.linkage_outstanding.error[_<Feedback File Number>].<Format Extension>.bz2
example: SUBID_MYID_20170101_OrderEvents.linkage_outstanding.error_000001.json.bz2
- **Populated in the Data File**
 - All repairable Linker Errors for the prior 3 Trade Dates that are not repaired after processing data submissions received by 8am of that processing date
 - Warnings are not included
- **When all Linker Errors have been repaired, an Empty File will be delivered:**
 - **File Name:** <CAT Submitter ID>_<CAT Reporter IMID>_<CAT File Generation Date>_<File Kind>.linkage_outstanding[_<Feedback File Number>].success

Planned Industry Member Technical Specification Updates– Last Updated 10/13/2020 – 2a/2b

#	Status	Summary	Release Date	Spec Version
1	Open	Clarify that leading zeros will also be removed for Interfirm Linkage in addition to Exchange Linkage	11/6/20	2.2.1 r8
2	Open	Clarify that 6000 and 7000 series error codes apply to both sending IMs (MEORs) and receiving outbound routers (MEOAs)	11/6/20	2.2.1 r8
3	Open	Clarify the definition of <i>handlingInstructions</i> value 'BIN' (Buy-In) – “An order placed to comply with the close out requirements of Regulation SHO Rules 203(b)(3) or 204, or FINRA Rule 4320.”	11/6/20	2.2.1 r8
4	Open	Add Error Codes to support Exchange Linkage: <ul style="list-style-type: none"> 6017 destination did not match: A matching routedOrderID was identified in an exchange order; however, the destination on the Order Route event did not match the exchange ID on the exchange order. 7018 Named – destination did not match: Named on an exchange order, but the exchange ID on the exchange order does not match the destination reported on the corresponding Order Route event. 	11/6/20	2.2.1 r8
5	Open	Updates to section 7 introducing outstanding errors. Specific details will be published when available prior to 11/6 spec update.	11/6/20	2.2.1 r8
6	Open	Additional guidance surrounding delete instructions: <ul style="list-style-type: none"> A repair or delete instruction must be reporting using the error ROE ID provided by CAT when a CAT record was malformed or had an error associated with the eventTimestamp or firmROEID. Firm identified errors associated with the CAT Reporter IMID must be corrected using the Delete Instruction. 	11/6/20	2.2.1 r8
7	Open	Clarify definition of <i>handlingInstructions</i> value WDP: Trader has Discretion on Limit Price Within a Specified Range	11/6/20	2.2.1 r8

Upcoming Key Dates

Upcoming Key Dates for Release 2a/2b

Topic	Event	Date
Industry Call: Industry Testing Checkpoint	Weekly Industry Testing Checkpoint Calls on Tuesdays at 4:15 pm ET	Tuesdays, until further notice
Compliance Go-Live	Compliance Go-Live for Equities Phase 2a Interfirm, Exchange and TRF Compliance Date	October 26, 2020
Compliance Go-Live	Compliance Go-Live for Options Phase 2b Interfirm and Exchange Compliance Date	January 4, 2021

How to Ask a Question during Today's Call

- **For participants using computer audio:**
 - Click the “Raise Hand” button at the bottom of the participants window.
 - A visual prompt will indicate that your line has been unmuted.
- **For participants using phone audio:**
 - Enter *9 on your phone keypad.
 - An audio prompt will indicate that your line has been unmuted.

FINRA CAT Helpdesk

Questions may be directed to the FINRA CAT Helpdesk at 888-696-3348 or help@finracat.com