

# STANDARDS FOR SELF REPORTING DEVIATIONS OF CLOCK SYNCHRONIZATION STANDARDS TO FINRA CAT

EFFECTIVE DATE: THE COMPLIANCE ENFORCEMENT DATE FOR INDUSTRY MEMBER REPORTING

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STANDARDS

## Revision Summary

Version	Publish Date	Description
1.0	2/25/2020	Initial Publication
1.1	5/8/2020	Updated guidance for Self-Reporting procedures and added form in appendix

### 1. SUMMARY

On January 28, 2020, the CAT NMS Plan Operating Committee approved parameters for when a CAT Reporter is required to self-report to the CAT Plan Processor, FINRA CAT, deviations of clock

synchronizations standards required under SRO Rules and the CAT NMS Plan. FINRA CAT will use this information to evaluate the impact of the reported incident(s) on the quality of the CAT Data and to provide notice to the Regulatory Users of reported incident(s) that may impact their analysis of CAT Data.<sup>1</sup> This alert provides information regarding the current clock synchronization standards, the thresholds requiring self-reporting of deviations of those standards and the reporting requirements.<sup>2</sup> This obligation will become effective upon the compliance enforcement date for Industry Member reporting.<sup>3</sup>

**2. Clock Synchronization Standards:** The clock synchronization standards for CAT Reportable Events are found in Section 6.8 of the CAT NMS Plan and in SROs rules.<sup>4</sup>

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<sup>1</sup> Information received through this process will be provided by FINRA CAT to the applicable regulators (e.g. SEC or SROs) on a periodic basis or as requested.

<sup>2</sup> Under the CAT NMS Plan, clock synchronization standards must be reviewed annually and it is anticipated that the standards will evolve as technology and industry practices change.

<sup>3</sup> Under the exemptive order issued by the SEC on April 20, 2020, mandatory CAT reporting for Industry Members commences on June 22, 2020 (with regard to Phase 2a Industry Member Data) and July 20, 2020 (with regard to Phase 2b Industry Member Data), as described above in FAQ A6 and A7. The exchanges and FINRA have indicated that they will not commence enforcement of their CAT Compliance Rules, including the obligation to report on deviations of clock synchronization, with regard to Industry Member CAT reporting until these reporting compliance dates. For more information on the reporting deadlines, please see FAQ A6, A7 and A31 at <https://catnmsplan.com/faq>.

<sup>4</sup> See BOX Exchange LLC Rule 16010 (Consolidated Audit Trail – Clock Synchronization); Cboe BZX Exchange, Inc. Rule 4.6 (Consolidated Audit Trail – Clock Synchronization); Cboe BYX Exchange, Inc. Rule 4.6 (Consolidated Audit Trail – Clock Synchronization); Cboe EDGX Exchange, Inc. Rule 4.6 (Consolidated Audit Trail – Clock Synchronization); Cboe EDGA Exchange, Inc. Rule 4.6 (Consolidated Audit Trail – Clock Synchronization); Cboe C2 Exchange, Inc. Rulebook Chapter 7, Section B (Consolidated Audit Trail); Cboe Exchange, Inc. Rule 7.21 (Consolidated Audit Trail – Clock Synchronization); FINRA Rule 6820 (Clock Synchronization); Investors' Exchange, LLC Rule 11.620 (Consolidated Audit Trail – Clock Synchronization); Long-Term Stock Exchange, Inc. Rule 11.620 (Consolidated Audit Trail – Clock Synchronization); Miami International Securities Exchange LLC Rule 1702 (Consolidated Audit Trail – Clock Synchronization); MIAX PEARL, LLC Rulebook Chapter XVII (Consolidated Audit Trail Compliance Rule); MIAX Emerald, LLC Rulebook Chapter XVII (Consolidated Audit Trail Compliance Rule); NASDAQ BX, Inc. General 7 Rule (Consolidated Audit Trail Compliance); Nasdaq GEMX, LLC General 7 Rule (Consolidated Audit Trail Compliance); Nasdaq ISE, LLC General 7 Rule (Consolidated Audit Trail Compliance); Nasdaq MRX, LLC General 7 Rule (Consolidated Audit Trail Compliance); NASDAQ PHLX LLC General 7 Rule (Consolidated Audit Trail Compliance); The NASDAQ Stock Market LLC General 7 Rule Section 2 (Consolidated Audit Trail – Clock Synchronization); (New York Stock Exchange LLC Rule 6820 (Consolidated Audit Trail – Clock Synchronization); NYSE American LLC Rule 6820 (Consolidated Audit Trail – Clock Synchronization); NYSE Arca, Inc. Rule 11.6820 (Consolidated Audit Trail – Clock Synchronization); NYSE Chicago, Inc. Rule 6.6820 (Consolidated Audit Trail – Clock Synchronization); and NYSE National, Inc. Rule 6.6820 (Consolidated Audit Trail – Clock Synchronization).

**2.1 Participant Standard:** Section 6.8(a)(i) and (iii) of the CAT NMS Plan indicates that each Participant shall synchronize its Business Clocks, other than such Business Clocks used solely for Manual Order Events, at a minimum to within 100 microseconds of the time maintained by the atomic clock of the National Institute of Standards and Technology (“NIST”), consistent with industry standards; and

For Manual Order Events, synchronize its Business Clocks at a minimum to within one second of the time maintained by the NIST atomic clock, consistent with industry standards, and maintain such synchronization.

**2.2 Industry Member Standard:** Each Industry Member shall synchronize its Business Clocks, other than such Business Clocks used solely for Manual Order Events or Allocation Reports, at a minimum to within a fifty (50) millisecond tolerance of the time maintained by the atomic clock of the NIST, and maintain such synchronization; and

For Manual Order Events or Allocation Reports, synchronize its Business Clocks at a minimum to within one second of the time maintained by the NIST atomic clock and maintain such synchronization.

### 3. Self-Reporting Thresholds

#### 3.1 Assumptions for Reporting

- **Systems Used to Create and Record CAT Reportable Events:** The self-reporting obligation only applies to systems that are used to create and record CAT Reportable Events.
- **Impact to CAT Reportable Events:** The self-reporting obligation only applies when a system is creating and recording CAT Reportable Events. For example, if a system drifts out of compliance with the standard at a time when the system is not creating and recording CAT Reportable Events, this would not need to be reported to the Plan Processor.
- **Excessive Clock Drift:** The self-reporting obligation is based on each individual occurrence of excessive clock drift on a given device or server while creating and recording CAT reportable events.

#### 3.2 Participant Self-Reporting Threshold

- **Standard:** The Participant self-reporting requirement only applies to systems where a business clock drifts outside of the CAT NMS Plan’s required time frame **(100 microseconds) for at least one second.**

**3.3 Bifurcated Industry Self-Reporting Threshold:** A bi-furcated approach was adopted to take into account different industry practices while still providing FINRA CAT and the CAT Regulatory Users information to assess the impact of any clock-sync drift incidents on the quality of CAT Data.

**3.3.1 Large Drift from Clock Synchronization Standards:** *This standard is intended to capture a drift that would be so large that even one incident of such drift would negatively impact the quality of CAT Data.*

- **Standard:** The Industry Member would need to self-report a deviation if a system creating and recording CAT Reportable Events drifts out of compliance with the established standards by **twice the standard or 100 milliseconds** for all systems other than those used for Manual Order Events and **twice the standard or 2 seconds** for systems that record Manual Order Events.

**3.3.2 Persistent Drift from Clock Synchronization Standards:** *This standard is intended to capture a consistent or persistent drift that would negatively impact the quality of CAT Data.*

- **Standard:** The Industry Member would need to self-report a deviation if a system creating and recording CAT Reportable Events drifts out of compliance with the established standards **10 times in one rolling 24-hour period** at any time when the system is recording a timestamp on data that is reportable to the CAT on a given device or server. (The 10 times standard also applies to systems that process Manual Order events.)

## 4. Reporting

**4.1 Timing of Reporting:** Deviations must be reported by T+3 at 8 a.m., which is consistent with the error correction timeframe.

**4.2 Trade Day Reporting:** If a system has multiple incidents of drift that trigger the self-reporting obligation, it is anticipated that the incidents can be captured on a single report for each trading day.

**4.3 Self-Reporting Form:** The self-reporting form can be found on the CAT NMS Plan website on the Clock Synchronization page.<sup>5</sup> The form requires at least the following information:

- Org ID for the firm whose transactions were impacted by the deviation and if necessary, the CAT Submitter who is submitting the form on behalf of firm.

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<sup>5</sup> See <https://www.catnmsplan.com/guidance/clock-synchronization>.

- Designate which self-reporting threshold has been breached.
- Indicate how frequently the system's business clocks are synchronized and monitored in order to provide insight into how long the business clock may have been in deviation of the standard.
- Specify each recorded time that the business clock drift exceeded the self-reporting threshold. Only one report will be required for each trading day.
- If multiple reportable incidents occur due to a single systems event, CAT Reporters will be able to report the incidents aggregated in a manner that ties them to the single event.
- If the reportable incident persists over more than one trading day the report should refer back to the original report for that incident.

**4.4 Method of Reporting:** The completed self-reporting form should be emailed to the FINRA CAT Helpdesk ([help@finracat.com](mailto:help@finracat.com)) and must include a reference to "Clock Sync Self-Report" in the subject line.

**Appendix**

1. (A) CAT Reporter Name and Org ID: \_\_\_\_\_

(B) CAT Submitter ID: \_\_\_\_\_ (Are you a CAT Reporting Agent? \_\_YES; \_\_NO)

(C) Are you a broker-dealer reporting on behalf of another broker-dealer \_\_YES; \_\_NO

If you are a broker-dealer that is reporting on behalf of other broker-dealers, list the broker-dealers, including their Org ID, you are reporting on behalf of in your response to item 11.

2. Member of the following national securities exchange(s) and/or national securities association(s) (please select all that apply):

<input type="checkbox"/> BOX Exchange LLC	<input type="checkbox"/> MIAX Emerald, LLC
<input type="checkbox"/> Cboe BZX Exchange, Inc.	<input type="checkbox"/> NASDAQ BX, Inc.
<input type="checkbox"/> Cboe BYX Exchange, Inc.	<input type="checkbox"/> Nasdaq GEMX, LLC
<input type="checkbox"/> Cboe C2 Exchange, Inc.	<input type="checkbox"/> Nasdaq ISE, LLC
<input type="checkbox"/> Cboe Exchange, Inc.	<input type="checkbox"/> Nasdaq MRX, LLC
<input type="checkbox"/> Cboe EDGA Exchange, Inc.	<input type="checkbox"/> NASDAQ PHLX LLC
<input type="checkbox"/> Cboe EDGX Exchange, Inc.	<input type="checkbox"/> The NASDAQ Stock Market LLC
<input type="checkbox"/> Financial Industry Regulatory Authority, Inc.	<input type="checkbox"/> New York Stock Exchange LLC
<input type="checkbox"/> Investors' Exchange, LLC	<input type="checkbox"/> NYSE American LLC
<input type="checkbox"/> Long-Term Stock Exchange, Inc.	<input type="checkbox"/> NYSE Arca, Inc.
<input type="checkbox"/> Miami International Securities Exchange LLC	<input type="checkbox"/> NYSE Chicago, Inc.
<input type="checkbox"/> MIAX PEARL, LLC	<input type="checkbox"/> NYSE National, Inc.
<input type="checkbox"/> Other: _____	

3. Incident Type:

Industry Member Reporter Self-reporting Parameters (check applicable standard(s))

- Large Drift from Clock Synchronization Standards: An Industry Member is required to self-report a deviation if a given device or server handling CAT Reportable Events drifts out of compliance with the established standards by 2 times the standard. This is 100 milliseconds for all systems other than those used for Manual Order Events and 2 seconds for systems that process Manual Order Events.
- Persistent Drift from Clock Synchronization: An Industry Member is required to self-report a deviation if a given device or servers handling CAT Reportable Events drifts out of compliance with the established standards 10 times in one rolling 24-hour period when the system is recording a timestamp on an event that is reportable to CAT. (The 10 times standard also applies to systems that process Manual Order events.)

Plan Participant Reporter Self-reporting Parameters

- A Plan Participant is required to self-report if a given device or server handling CAT Reportable Events experiences a business clock drift outside of the CAT NMS Plan's required time frame (100 microseconds) for at least one second.

4. Device, Server or System Name: \_\_\_\_\_
  
5. Types of CAT Reportable Events Impacted (e.g., MENO, MEOT, MONO, MOOR, etc.): \_\_\_\_\_  
 \_\_\_\_\_
  
6. Estimated Number of CAT Reportable Events Impacted (if known): \_\_\_\_\_  
 \_\_\_\_\_
  
7. Indicate the increments at which the system's business clocks are synchronized (e.g., 2x per second, every second, every 10 minutes, every 15 minutes, 3 times each hour, hourly, at start and close): \_\_\_\_\_  
 \_\_\_\_\_
  
8. Incident Date: \_\_\_\_\_ . Any additional dates, if necessary \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_  
(YYYYMMDD) (YYYYMMDD) (YYYYMMDD) (YYYYMMDD)
  
9. Specify each recorded time that the business clock drift exceeded the self-reporting threshold (if additional space is needed please append to this report):

Recorded Time	Duration, if known	Recorded Time	Duration, if known
(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)
(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)
(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)
(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)	(HHMMSS.CCCNNNNNN)



10. Indicate if the firm has submitted a self-reporting deviation event in the last 20-days by listing the prior report

Date(s): \_\_\_\_\_  
(YYYYMMDD)

11. Any other details that the firm would like to provide regarding this incident (including if this issue has been resolved, any steps taken to remediate this issue, the exact time when the incident started and when it ended, etc.):

12. Name and contact information for the individual submitting this form on behalf of the CAT Reporter identified in item 1, above.

Name: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_ — \_\_\_\_\_

**SUBMISSION INSTRUCTIONS:**

FORMS SHALL BE EMAILED TO THE FINRA CAT HELPDESK ([HELP@FINRACAT.COM](mailto:HELP@FINRACAT.COM)) AND MUST INCLUDE A REFERENCE TO “**CLOCK SYNC SELF-REPORT**” IN THE SUBJECT LINE.

SEE [CATNMSPLAN.COM](http://CATNMSPLAN.COM) FOR ADDITIONAL INFORMATION, INCLUDING FAQs ABOUT CLOCK SYNCHRONIZATION.